The Springer Series on Demographic Methods and Population Analysis 32

Marek Kupiszewski *Editor*

International Migration and the Future of Populations and Labour in Europe

Springer

International Migration and the Future of Populations and Labour Force Resources in Europe

THE SPRINGER SERIES ON

DEMOGRAPHIC METHODS AND POPULATION ANALYSIS

Series Editor

KENNETH C. LAND

Duke University

In recent decades, there has been a rapid development of demographic models and methods and an explosive growth in the range of applications of population analysis. This series seeks to provide a publication outlet both for high-quality textual and expository books on modern techniques of demographic analysis and for works that present exemplary applications of such techniques to various aspects of population analysis.

Topics appropriate for the series include:

- General demographic methods
- Techniques of standardization
- Life table models and methods
- Multistate and multiregional life tables, analyses and projections
- Demographic aspects of biostatistics and epidemiology
- Stable population theory and its extensions
- Methods of indirect estimation
- Stochastic population models
- Event history analysis, duration analysis, and hazard regression models
- Demographic projection methods and population forecasts
- Techniques of applied demographic analysis, regional and local population estimates and projections
- Methods of estimation and projection for business and health care applications
- Methods and estimates for unique populations such as schools and students

Volumes in the series are of interest to researchers, professionals, and students in demography, sociology, economics, statistics, geography and regional science, public health and health care management, epidemiology, biostatistics, actuarial science, business, and related fields.

For further volumes:
http://www.springer.com/series/6449

Marek Kupiszewski
Editor

International Migration and the Future of Populations and Labour Force Resources in Europe

Springer

Editor
Marek Kupiszewski
Institute of Geography and Spatial
Organization of the Polish
Academy of Sciences
Twarda 51/55
00-818 Warsaw
Poland

ISSN 1389-6784
ISBN 978-90-481-8947-2 ISBN 978-90-481-8948-9 (eBook)
DOI 10.1007/978-90-481-8948-9
Springer Dordrecht Heidelberg New York London

Library of Congress Control Number: 2012954783

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

To my mother Maria, my wife Dorota,
my children Krystyna and Piotr,
my granddaughter Alicja and in loving
memory of my father Henryk

Marek Kupiszewski

Preface

As representatives of the foundation that has provided the financial means enabling much of the research work included in this collection, we have had the pleasure of observing the evolution of this work right from the very beginning. The research contained here seeks to systematically compare the impact of international migration and migration policies on the future shapes of demographic and labour force structures in Europe. This publication is based on the first research phase that has resulted from the founding of the Central European Forum for Migration and Population Research (CEFMR) nearly 10 years ago.

Further, in regard to the quality of the contributions contained in this work, some readers could be forgiven for assuming that an entire group of senior researchers has been involved. This is only partly the case: the rapid increase in migration at the turn of the millennium and the consequent growing demand for migration research resulted in a deficiency of well-trained demographers and social scientists, especially those with a mathematical and statistical background. Owing to this dearth of qualified researchers, Marek Kupiszewski had to begin by finding junior researchers whose professional training he could either hone or, indeed, take charge of. This, too, is a remarkable accomplishment that is readily appreciated when reading the individual chapters. The small, yet dynamic CEFMR was used in an exemplary fashion to influence a young generation of social scientists and demographers that has by now had an impact far beyond the Polish science community.

This book, on the one hand, connects themes such as migration, demographic development and the labour market and, on the other hand, fills a gap in science by plumbing the possibilities of extrapolating empirical data in order to generate migration forecasts. In this regard, the present work will be of considerable interest not only to academia but also within the domain of political practice, especially because here the problematic fields that European states and their political economies will increasingly be forced to deal with are illuminated and, therefore, better tackled today rather than at some later point in time.

Hans-Rudolf Wicker
Walter J. Weber

Acknowledgements[1]

The research published in this book has been funded by the Foundation for Population, Migration and Environment (BMU-PME) in Zurich with a grant for the project "Impact of international migration on population dynamics and labour force resources in Central Eastern Europe" awarded to the Central European Forum for Migration and Population Research (CEFMR). This research would not have been possible without the support and encouragement of many people: Prof. Hans-Rudolf Wicker and Walter Weber of the Foundation for Population, Migration and Environment; Irena Vojačkova, Argentina Szabados, Anna Rostocka, Gervais Appave and Frank Laczko, senior officers of the International Organization for Migration; Prof. Piotr Korcelli of the Institute of Geography and Spatial Organization of the Polish Academy of Sciences; and Prof. Irena Kotowska, CEFMR's Scientific Council President. Finally, we are in debt to Prof. Philip Rees, whose intellectual stimulation over many years was invaluable.

Selected results of the research presented in this book have been published in a condensed form in three articles. Bijak et al. (2008) wrote on scenarios of future migration in the book *International Migration in Europe: New Trends, New Methods of Analysis* edited by C. Bonifazi, M. Okólski, J. Schoorl and P. Simon in the IMISCOE Research Series of Amsterdam University Press. Bijak et al. (2007) presented an analysis of the impact of international migration on population and labour force dynamics in Springer's *European Journal of Population*. Bijak et al. (2008) discussed replacement migration in Springer's journal *Population Research and Policy Review.* The authors are grateful to the copyright owners—Amsterdam University Press and Springer—for their kind permission to include the material from these publications in this volume.

Keywords Population projections • Population forecasting • International migration • Replacement migration • Ageing • Population decline

[1] Any views presented in this book are those of the authors and not those of their employers. The research presented here contains views on policies, but there is no implication that the employers of the authors share or take any responsibility whatsoever for these views.

Contents

Chapter 1
Introduction

Marek Kupiszewski

Many studies show that the ageing populations of Europe may make it difficult in the future to support those who retire. The old-age dependency ratio will increase (de Beer and van Wissen 1999; Kupiszewski 2001a). An extensive and sharp decline in the labour force after 2015, coupled with changes in the proportion of the older to the younger labour force, has been foreseen by Eurostat (2001) and Lutz and Scherbov (1999) for the EU-15, and by Kupiszewski (2001a) for Central Europe. Roseveare et al. (1996) showed that in eight of 20 OECD countries studied, expenditure on social security will at some stage exceed 15% of GDP. In most countries, pension payments in the pay-as-you-go system will exceed contributions. The consequences of the forecasted demographic changes are forcing both researchers and governments to rethink migration policies. One option is to depart from the "fortress Europe" approach and to see to what extent the natural decrease could be offset by international migration. Despite high unemployment or underemployment, some European countries rely increasingly on foreign labour. A German recruitment campaign for IT professionals and active, not to say aggressive, medical staff recruitment campaigns in many affluent European countries are good examples. A number of studies, in particular the UN's *Replacement Migration* (UN 2000) as well as Feld's (2000), Korcelli's (2003, 2006) and Coleman's (2008) articles, have contributed to the discussion of this option from a demographic point of view; however, they mostly concentrated on Western Europe.

The aim of this book is to contribute to the debate and look at the problem from the point of view of Europe, showing how different migration developments will impact its population and labour market dynamics. This has been done by assuming various scenarios of international migration and by running population

M. Kupiszewski (✉)
Institute of Geography and Spatial Organization of the Polish Academy of Sciences, Warsaw, Poland
e-mail: m.kupisz@twarda.pan.pl

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_1,

dynamics model for these scenarios. As a result, various population and labour market dynamics trajectories are presented, allowing analysis of the impact of different migration scenarios on the size and age structure of the population and labour force resources. In addition to "real-life" scenarios, simulations have been conducted to show the size of migration needed to maintain selected demographic parameters, such as the size of the population and the proportion of the working-age population to the elderly population, in the countries of Europe. The current research departs from the study prepared by the UN and offers numerous improvements. The authors are perfectly aware of the criticism to which the UN report was subject (Population and Environment 2001; Coleman 2000, 2002), and mostly share the views presented there (see Chap. 13). One of the issues raised, namely to what extent changes in economic activity may offset the negative consequences of an ageing population and related ageing of the labour force, has been directly addressed by preparing a labour force supply forecast and testing its sensitivity to changes in economic activity.

Unlike most publications using population forecasts and simulations, we decided to show in detail the mechanics involved in the creation of the forecasts and scenarios—from theoretical considerations through empirical analysis of available data, defining the model and scenarios of the components of population change, to running simulations, projections and forecasts and finally to the analysis of the results. We see this as beneficial for the clarity of the presentation of our assumptions and valuable from the didactic point of view—very few publications show the kitchen of forecasting, which is needed for inexperienced researchers to prepare their own forecasts. We hope this opportunity to look at forecasting's nuts and bolts will be of interest to both newcomers to the field and experienced forecasters.

The book is organized into six parts which correspond to different stages of constructing population and labour force forecasts and simulations, analysing the results and looking at them critically. Part I deals with various aspects of the migration component of the population dynamics model. As migration is the key problem analysed in this book, this part is by far the most extensive. It starts with Chap. 2, by Anna Kicinger, who looks at migration policy issues from the perspective of population and labour force forecasters. The key consideration given in this chapter is to the impact migration policies have or may have on flows of migrants. Chapter 3, by Marek Kupiszewski, Jakub Bijak and Anna Kicinger, reviews migration theories, assessing the possibility and scope of their application to migration forecasting This is followed by the analysis of past migration trends (Chap. 4 by Jakub Bijak and Marek Kupiszewski), which give us an idea of possible future developments. All these chapters form a theoretical and empirical basis for the construction of migration scenarios for the period 2002–2052, as presented in Chap. 5 by Jakub Bijak, Anna Kicinger and Marek Kupiszewski. Three scenarios have been adopted, the base one, which is considered the most likely, and low and high scenarios, specifying reasonably probable deviations from the base scenario.

Part II deals with natural change: the fertility and mortality components of population dynamics, showing past tendencies and future scenarios for the change of these components. Chapter 6, by Jakub Bijak, looks at the decline in fertility

in Europe via the prism of demographic transition and other explanatory theories. Historical changes in fertility are examined in the context of these theories, and assumptions concerning future developments are formulated and justified. In Chap. 7, the same author conducts a review of mortality changes in Europe. The analysis of mortality theories and the debate on the limits of the increase of life expectancy, together with the investigation of past trends, lead to the adoption of assumptions concerning future mortality change, formulated in terms of future life expectancy and male–female gap reduction.

Part III, written entirely by Katarzyna Saczuk, consists of three chapters dealing with labour force participation issues. Chapter 8 reviews the theoretical underpinning of the economic activity of the population and discusses models of labour supply. These considerations serve as a theoretical background for the analysis of historical changes in labour force participation (Chap. 9). Finally, on the basis of the two preceding chapters, assumptions concerning future changes of economic activity rates in Europe are formulated (Chap. 10).

Part IV looks into the mathematics and results of the forecasts and simulations. First, Dorota Kupiszewska and Marek Kupiszewski describe the population model MULTIPOLES used in the study (Chap. 11). The model was specifically designed to best use the available data on international migration. Then, the results of the population and labour force forecasts in low, base and high variants as well as simulations under status quo and no migration assumptions are presented by Jakub Bijak, Dorota Kupiszewska, Marek Kupiszewski and Katarzyna Saczuk (Chap. 12). The results obtained are contrasted with selected existing third-party population forecasts.

Part V deals with replacement migration. In Chap. 13, Katarzyna Saczuk summarizes the discussion and the criticism of the concept in general and in the UN (2000) report in particular. She clearly outlines how the outcome of the discussion was taken into account during the preparation of the current study. In Chap. 14, Jakub Bijak, Dorota Kupiszewska, Marek Kupiszewski and Katarzyna Saczuk analyse the replacement migration that is indispensable to maintain certain parameters of the populations and labour force studied. A comparison of the results obtained with those from other studies is presented.

Part VI aims at critical analysis of factors which are not part of the conventional population and labour force modelling: Elżbieta Kryńska looks into possible future change in labour organization, functioning and productivity (Chap. 15), whereas Marek Góra offers an economist's view on the impact of demographic change on retirement systems (Chap. 16). Finally, Chap. 17, by Jakub Bijak, closes the book with concluding remarks and policy-relevant suggestions.

The research which is the basis of this book was conducted in 2003–2006 using data on demographic trends observed up to 2002. When formulating migration scenarios, we made some assumptions based on the declarations made by politicians in 2004 about the opening of the labour markets after EU enlargement. Some of the short-term assumptions came true, some did not. However, the long-term assumptions and therefore the long-term forecasts spanning over 50 years, which are the focus of our study, are still valid. In particular, the key findings of the research—

the intensity of the processes of ageing of the population and the magnitude of replacement migration needed to compensate the ageing—as well as the consequent conclusions remain unchanged. Of course, had we used more recent data, we could have reduced the magnitude of the forecasting error, but getting exact numbers was not the aim of this book (anyway, forecasts are never 100% accurate).

In geographical terms, the analysis covers 27 countries: 25 member states of the EU (without Cyprus and Malta) and two EFTA countries: Norway and Switzerland. For the purpose of this book, the term 'Central Europe' covers the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, the Slovak Republic, Bulgaria and Romania. The last two countries are referred to as Southeastern Europe. 'Eastern Europe' covers all European states that emerged from the former Soviet Union, except the three Baltic states. 'Western Europe' covers all the other countries analysed in the project. 'Northern Europe' refers to the Scandinavian countries, and 'Southern Europe' refers to Greece, Italy, Portugal, Slovenia, and Spain. These groupings are based much more on history and geographical location of the countries than on demographic patterns and are for convenience only; they have no scientific connotations.

Part I
International Migration: Policies, Theories, Trends and Assumptions

Chapter 2
Migration Policy from the European Perspective: A Primer for Forecasters

Anna Kicinger

2.1 Introduction

In this chapter a general outline of the development of migration policies in European countries is presented. It contains a historical sketch of the policies and their current stage, supplemented with some expectations of their evolution after 2002. The rationale behind the incorporation of migration policy analysis in the demographic prognosis lies in its role in shaping migration flows (Zolberg 1989; Hollifield 2000). The particular interest of the current study lies in the impact migration might have on the demography of the sending and receiving countries. Hence, in this chapter the aspects of migration policy influencing long-term (over 1-year-long) migration will be highlighted.

The term "migration policy" refers to the policy aimed at regulating migration in its all possible dimensions. Generally, it covers both the inflow (immigration policy) to and the outflow (emigration policy) from the country. Yet, given the dominating perspective of receiving states in migration research, migration policy is often limited to immigration policy and the terms are often used interchangeably in the literature. In this vein, migration policy could be understood as "state efforts to regulate and control entry into the national territory and to stipulate conditions of residence of foreigners" (Freeman 1992, p. 1145). According to Tomas Hammar's (1985) conceptual framework, immigration policy has two components. The first one is the immigration control policy, i.e. rules and procedures governing the selection and admission of foreigners. The second component is the immigrant policy, comprising the provisions concerning the already admitted immigrants. The main emphasis of this work will be on the first component, i.e. admission policies.

A. Kicinger (✉)
Central European Forum for Migration and Population Research, IOM, Warsaw, Poland
e-mail: kicinger@cefmr.pan.pl

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_2,

Apart from the current introductory notes, this chapter comprises five sections. Section 2.2 outlines in brief the legal and institutional framework within which the states' policies may be developed as well as the current debate on the external and internal limitations to state migration policy making. Sections 2.3 and 2.4 cover the migration policy developments of the two main groups of countries under study—the so-called 'old' EU-15 and the migration policy created at the European Union (EU) level (Sect. 2.3) and Central European countries (Sect. 2.4), respectively. Section 2.5 considers national migration policies of selected European countries The study ends with predictions about the future directions of the development of migration policies in Europe (Sect. 2.6).

2.2 Legal and Institutional Framework for Migration Policy Making in Contemporary Europe

The legal framework for migration regulation is dominated by the two competing concepts of state sovereignty and international human rights law. The state's right to regulate migration has its origins in the principle of state sovereignty, one of the fundamental principles of international law. According to this principle, every state has an exclusive competence to regulate all kinds of relations developed on its territory and to execute legal norms passed by proper authorities (Plender 1988; Sawicki 1986). Regarding immigration, the state sovereignty is described as "the discretion of state to admit or expel aliens" (Joppke 1998, p. 11). However, after World War II the development of the human rights doctrine with the liberal concept of the individual's freedom led to significant changes in the perception of the position of the state and that of the individual in international population movement (Plender 1988). An obligation to admit citizens expressed in many international documents[1] was the first landmark in this direction. Another was the ever louder voiced question that maybe exists, at least *in statu nascendi*, an international norm obliging a state to admit to its territory foreigners on humanitarian grounds. The Universal Human Rights Declaration (article 14) and the UN resolution on asylum (1967) expressed such a tendency as well; however, both of these acts are legally non-biding.

The human-rights-based international agreements of greatest importance for the admission policy in Europe are the 1951 Convention Relating to the Status of Refugees (the Geneva Convention) and 1967 Protocol Relating to the Status of Refugees (New York Protocol), both documents in force in all countries under study. Both documents created the foundation for the international refugee protection regime. The basic norm securing refugee rights formulated in the Convention is

[1]Foremost in article 13 of the Universal Declaration of Human Rights (1948) and article 12(4) of the International Covenant on Civil and Political Rights (1966), both in force in all countries under study.

non-refoulement rule which prohibits the expulsion or forcible return of refugees to countries in which they could be persecuted or in danger of death. The Convention additionally formulates provisions for political and social rights of the persons granted refugee status. Asylum procedures have become an important channel of inflow to Europe since the 1970s.

Human rights impact the admission policy also in other ways. They are the inspiration for the gradual extension of migrant economic and social rights in the destination countries. Specifically, a right to family life is the foundation for the extension of family reunification schemes that have become an important channel of inflows in recent decades. Humanitarian concerns underlie also the growing protection of migrants against expulsion or other forms of forced return, thus facilitating their stay in the immigration country.

Hence, the advancements of international migration law are criticized by political scientists as not enforceable since their implementation is left to the individual states (see Joppke 1998). Cornelius and Tsuda (2004, p. 13) rightly point out that there is "no global enforcement mechanism that can guarantee the rights conferred upon migrant workers by international conventions." What is more, major countries of immigration are not signatories to these agreements. The UN Convention on the Protection of the Rights of all Migrant Workers and Members of Their Families (1990) was ratified by 21 countries, but none of are the countries under study. Also the European Convention on the Legal Status of Migrant Workers (1977), signed under the auspices of the Council of Europe, was ratified by only eight countries. The only exception and a vanguard of international law is the European Convention on Human Rights (1950), with the supranational judicial system (European Court of Human Rights) that influences national immigration control policies to a certain extent (Guiraudon and Lahav 2000).

Summarizing, despite the development of international migration law, a state remains a dominant actor in regulating international migration, and the right to do this is still generally unquestioned by international law. The only limits in this field are the obligations undertaken by states in an independent act of concluding or joining an international treaty. In other words, a state as a sovereign subject of international relations has an exclusive competence to regulate international population movement and it exercises this competence by means of formulating and implementing migration policy. Still, growing internationalization of different spheres of life coupled with increasing institutionalization of international relations reduces the traditionally understood sovereignty of a state. A legal framework comprising a widespread network of bilateral and multilateral treaties influences a state's migration policy and creates a structure within which the state formulates its policy.

Despite the only nascent character of developing international migration law, the human rights doctrine has long been widely recognized as a constraint in the formulation and implementation of a state migration policy. A state's capacity to shape its migration policy has been widely discussed in contemporary political thought (Hollifield 2000; Joppke 1998; Guiraudon 2001). Although most Western European countries evolved from the relative openness in the 1950 and 1960s to

the more restrictive policies of the 1970s (Boswell 2003, pp. 9–21), certain limits to the restrictiveness of states arose. The "gap" between policy goals and results (Cornelius and Tsuda 2004) led to the search for explanations and pointed at constraints on migration policies. Inspirations from the globalization theory led some scholars to claim the loss of control over migration of nation states or at least significant weakness of nation states in regulating migration (Joppke 1998). On the other hand, other scholars pointed to domestic rather than external limitations in migration regulation (Joppke 1998; Freeman 1998). In a similar vein, the idea of denationalization of the migration policy was presented, based on the delegation of various competencies from the nation state to supranational, local and private levels (Guiraudon 2001).

Generally, the constraints on national migration policy making are of both domestic and international character, which is a parallel to the place of this policy "at the intersection of domestic and international politics" (Freeman 1992, p. 1145). The domestic constraints include first of all the constitutional and human rights provisions that limit a government's ability to regulate migration. Scholars argue that the liberal democracies have embedded liberalism of migration policies as a result of their constitutional provisions and independent judicial systems (Hollifield 2000, pp. 148–150). Consequently, "draconian control measures are likely to be challenged and may be overturned by the courts as unconstitutional or as a violation of human rights" (Cornelius and Tsuda 2004, p. 13). The role of courts is especially important in this regard in that they are "biased in favour of equality before the law" (Guiraudon 2000a) and therefore tend to spread the rights that were once restricted to citizens to foreigners. For example, French and German constitutional provisions on asylum played a significant role in shaping admission policy (Boswell 2003, p. 24).

The pressure of interest groups in favour of migration is recognized as another domestic constraint on migration policy making. These interest groups include businesses interested in immigration as well as migrant and refugee rights activists and lobbies (NGOs, church, human rights groups) (Freeman 1995).

The most important external factor that constrains national migration policy making in Europe is the EU and its policies. The hard-to-overestimate role of the EU migration regime will be elaborated in Sect. 2.3.

Concurrently to development of international law, a wide-ranging institutional framework for cooperation in migration was created. Different international organizations and agencies addressing specifically migration issues or a wider scope of affairs became governmental forums for discussion and exchange of experiences. The growth of international organizations facilitated lesson-drawing (Rose 1991) and policy transfer (Dolowitz and Marsh 1996) among European countries. These processes played an important role in the growing convergence of migration policies in Europe.

Migration policy making is often constrained by foreign policy goals (Weiner 1985; Mitchell 1989). The mutual relations between countries have an impact on the immigration rules for their nationals.

2.3 EU Migration Regime—An Outline

In the process of European integration, the EU has emerged as a new, non-state actor in migration policy making in Europe. It has become a part of multilevel governance of migration in Europe. The emergence of the EU migration regime, understood as an "entirety of formal and informal directives, regulations, practices, and conventions adopted at EU institutions that regulate the movement of persons across borders and the entry and stay of non-EU nationals in the common territory" (Lavenex and Uçarer 2003a, p. 3) had enormous repercussions for the migration policies of both EU members and non-EU members in Europe and elsewhere.

The slowly evolving and still nascent EU migration regime has been expanding over time, encompassing new fields and issues, yet still is limited in scope without the right to regulate legal immigration and with limited possibilities to influence state immigrant policies. Nevertheless, the emergence of the EU as a new actor in migration regulation in Europe has had multiple consequences for the migration policies of EU member states, the Central European states and other countries. As pointed out by Lavenex and Uçarer (2003b, p. 209), "both the territorial scope of the EU and its importance as a major destination for voluntary and forced migrants imply that common policies aiming at the extension or reduction of immigrant inflows will necessarily have implication for other countries, both countries of destination and of origin." The effects of the EU on the migration policies of non-EU countries are different in scope and in degrees of voluntariness in policy adaptations (Lavenex and Uçarer 2003b). The influence of the EU on the migration policies of its member and candidate states has been subject to intense research on the nature and mechanisms of Europeanization that showed the different levels and degrees of this process in European countries (Geddes 2000, 2003; Grabbe 2005; Bank 2000; Schimmelfennig and Sedelmeier 2005).

The 'common European migration policy' evolved from the total lack of cooperation in the field of migration of third-country nationals through informal and then formal intergovernmental cooperation to the decision to create a common asylum and migration policy at the Community level, which was introduced by the Treaty of Amsterdam.

Various factors contributed to the continuous process of ever-closer cooperation among the EEC/EU states in the field of migration and asylum.

In the first place, the external challenges have to be mentioned. Among them, the increase in illegal immigration, human trafficking, the asylum crisis and growing economic migration pressure can be named as triggers to seek common solutions for commonly shared, although not to the same extent, problems. The inadequacy of the domestic or bilateral responses to the migration challenges after the oil shocks of the 1970s paved the way to wider multilateral cooperation. Efforts to make the legislation in European countries more cohesive, joint actions and finally the partial transfer of states' competences in the area of migration to the Community level were the answer of the EEC/EU countries to the growing challenges.

According to the neofunctional theory of integration, the process of ever-wider-ranging integration within the European Communities and then the EU led to spill-over effects and widening of EU integration on the domains that previously had been excluded from Community purview. The realization of one of the foundations of the common market idea, i.e. freedom of movement for EEC/EU nationals, resulted in growing cooperation concerning regulations on external border crossing and the status of third-country nationals. The abolition of the EU's internal borders was to be complemented by the so-called compensatory measures at the external borders of the EU, thus laying down the background for increased cooperation in this field.

Drawing on institutionalism, Guiraudon (2000b, 2001) points also to the delegation of states' competences to the supranational level with a view to seek the best venue for migration policy making given the various domestic constraints for policy formulation at the national level.

The European migration regime is inherently dual in its nature. The Treaty of Rome (1957) started the dualism in regulating migration in EEC countries. Whereas the intra-Community migration of EEC nationals was regulated by Community law and aimed at securing freedom of movement for EEC/EU nationals, the migration of third-country nationals remained within the purview of the member states. But gradually more and more issues become regulated at the Community level, especially in asylum policy.

The cooperation in migration and asylum matters evolved from unilateral and bilateral cooperation among European countries, via multilateral agreements at Schengen (1985) and Dublin (1990), to intergovernmental cooperation within a Community framework (Maastricht Treaty of 1992) (Uçarer 2003). The cooperation on migration and asylum within the framework of the third pillar of the EU led to the diversity of subjects on which cooperation was concentrated and efforts to harmonize them across the EU. However, decisions regarding the pace and scale of the harmonization were left to the countries. As a result, the diversity of legislation and practice in the area of migration among European countries was maintained and it became clear that creation of a real and effective European migration policy was impossible without the introduction of Community competence in this area (O'Keeffe 1995, p. 35).

According to the Treaty of Amsterdam (1997; in force since 1999), immigration and asylum policies as well as other measures relating to free flow of persons were transferred from the third to the first pillar, where policies were implemented and carried out by the European Community (title IV, article 61 of the treaty). European Community competence in migration meant that decisions could be taken by qualified majority rather than unanimously. Nonetheless, taking into account the fact that EU countries were not fully prepared for such a transformation, a transitional 5-year period for qualified majority voting was established, and only from 1 May 2004 did the European Community have full competence in migration matters as specified in the treaty.

The United Kingdom (UK), Ireland and Denmark did not join the cooperation owing to their strong opposition to the planned changes, yet the opt-in procedure

was reserved for them. Additionally, the Treaty of Amsterdam integrated Schengen *acquis* into the legal framework of the EU, resulting in a "labyrinth" of legal norms and provisions in the field of migration (Langrish 1998, p. 7).

During special meetings on Justice and Home Affairs, the European Council adopted 5-year agendas that included policy directions and priorities in the field. The first such meeting was in Tampere in 1999. As agreed then, a policy on migration should encompass partnership with countries of origin, the development of a common European asylum system, fair treatment of third-country nationals and the management of migratory flows. In general, considering the subsequent regulations passed and actions undertaken in the EU, as well as Commission proposals still waiting to be adopted in the area of migration, one may notice that the four directions listed above indeed became the four main areas in which the cooperation during the transitional period set in the Treaty of Amsterdam was developed (OECD 2004, pp. 80–85). Yet, "the most visible signs" of the development of EU cooperation were the measures aimed at fighting illegal immigration and preventing unwanted migration (Lahav 2004, p. 57), such as the visa policy, the Schengen Information System, Eurodac and the 'safe' third-country principle along with Dublin II regulation, as well as efforts to improve external border protection.

The fight against illegal immigration was further reinforced during the Seville summit (21–22 June 2002). The main issues discussed during the meeting concerned measures to combat illegal immigration and the possibility of gradual introduction of the coordinated, integrated management of external borders. The fight against illegal migration dominated, especially in the evaluation of the idea of integration of immigration policy into the EU's relations with third countries The Council urged that "any future cooperation, association or equivalent agreement which the European Union or the European Community concludes with any country should include a clause on joint management of migration flows and on compulsory readmission in the event of illegal immigration" (European Council 2002, point 33). The fight against illegal immigration has also been declared by the Commission as one of the main dimensions of the future migration policy developed within the EU (European Commission 2001a).

The European Commission proposals for further regulations in the field might serve as a basis for predictions of the future evolution of the EU migration regime.[2] First and foremost the drive to include legal immigration under Community purview has to be mentioned in this regard. Already in the communication on a Community immigration policy presented in 2000, the Commission suggested that "the development of a common policy for the controlled admission of economic migrants to the EU should be a part of an overall immigration and asylum policy for the Union" (European Commission 2000a, p. 21).

The Commission's calls for "a controlled approach, which is based on a common assessment of the economic and demographic development of the Union, and of the situation in the countries of origin, and takes account of its capacity of

[2]These predictions were made in 2004–2005, when the research project was realized.

reception" (European Commission 2000a, p. 14) were further reinforced in, e.g., the Community Green Paper on legal immigration (European Commission 2005) that put forward the vision of EU competence in regulating legal immigration. Yet, the diversity of the positions of the states on the paper highlighted the still-existing differences and the reluctance to delegate competencies in admission policy to the EU level.

Therefore, the introduction of an "open method of coordination" in the areas remaining within the purview of the states, such as integration policy and admission of workers, seems a more feasible way of immigration policy making at the EU level. Owing to the differences between member states (e.g. their links to the countries of origin, the capacity of reception, labour market needs), the Commission proposed the establishment of an overall framework for cooperation at the EU level coordinated by the Commission.[3] The system would be based on exchange of information and periodic reports by the member states, reviewing the impact of their immigration policies during the past period and making projections for the number of economic migrants they would need in future.

However, one must bear in mind that despite the continuous cooperation on immigration issues, often declared goodwill and the need for development of a common European migration policy, the practice does not fully confirm expressed intentions. Doubts may be raised by both the pace of implementation of the settings and the process of decision making itself. According to Stalker (2002, p. 168), "as far as immigration from outside the EU is concerned, governments still prefer national policies to supranational ones and have proved reluctant to transfer authority to European bodies (. . .). This determination to retain sovereign control over immigration was confirmed at the European Council meeting at Leaken in December 2001 which, while calling for closer cooperation to protect external frontiers, rejected a proposal to create a common European border patrolled by EU border guards." Nevertheless, the tendency to regulate the growing numbers of issues at the Community level combined with the evident ambiguity in the attitude of states to this process (Lahav 2004) seems to be an important feature of future EU migration regime developments.

Secondly, while opening up cautiously for labour migration (owing to the labour market and demographic needs), the states will multiply their efforts to combat all forms of irregular migration (human trafficking, illegal migration and illegal residence) in order to maintain maximum control of migration flows. The EU will be an important partner in the countertrafficking and combating illegal immigration efforts of national governments by providing a good venue for various restrictive policy measures (Guiraudon 2000b).

Thirdly, the duality of the migration regime (internal vs. external migration) is bound to be maintained. Although the deadline for establishment of the area without internal frontiers specified in the Treaty of Amsterdam (1 May 2004) has not been

[3] See European Commission (2000b, 2001b, c).

met, efforts to achieve it will undoubtedly not cease. This shall be combined with ever-stricter border control on the external borders of the EU, especially in a post-9/11 world of growing antiterrorist protection.

Further, the human rights doctrine is going to continue to influence the development of EU migration policy in the three basic dimensions—the asylum policy, the right to family reunion and the rights of third-country nationals. The analysis of current legislation and the legislation under preparation submitted by the Commission[4] may confirm that prediction.

Finally, coordination with sending countries will probably be developed further in order to maximize the benefits from migration both to countries of origin and the countries of destination as well as to alleviate migratory pressure. Such are the politicians' declarations, yet the scientific research indicating that aid programmes directed at sending countries do not have the impact on reducing emigration as might have been considered by politicians may have a hampering impact on this trend (Stalker 2002, p. 171).

2.4 Central European Countries' Migration Policies

Under communism, in contradiction to the Western part of the European continent, the Central European countries belonging to the Soviet bloc imposed restrictions on both entry and exit of migrants. Owing to the Cold War divisions, the nationals of Central Europe countries (with the exception of Yugoslavia) did not take part in the mass migration of workers to the expanding Western economies. Instead, migration policy in the East became one of the means to control citizens. From the communist doctrine standpoint, migration regulations were considered a form of "cooperation in eliminating economic disparities" among the socialist countries (Salt and Clout 1976, p. 24; Widgren 1990, p. 749). A desire to limit the citizens' contacts with the West also played a significant role in such a policy. The ethnically driven migration, mainly of Jews and Germans, was an exception to the general line of prohibiting emigration from the Soviet bloc.

The breakdown of communism in the Central European countries constituted a radically new situation for them in every possible political or economic dimension, including new migration challenges as well as the revived patterns of East–West migrations (Morawska 2001). As Okólski (2000a, p. 329) expressed it, there was "a conspicuous shift from non-mobility to a high-intensity migration regime followed the collapse of communist rule" in the region. New migration laws guarantying the respective state's citizens the right to move abroad and return freely were enacted in Poland in 1988, in Hungary, Czechoslovakia and Bulgaria in 1989, in Romania in 1990 and in the Soviet Union in 1991 (Salt 1993, p. 45). The general

[4]See directives 2003/86/EC on the right to family reunification (*Official Journal of the European Union* L 251 of 3 October 2003) and 2003/109/EC concerning the status of third-country nationals who are long-term residents (*Official Journal of the European Union* L 16 of 23 January 2004).

liberalization of the emigration and immigration rules which followed the overall process of liberalizing the economy and politics created a completely new setting not only for the Central European countries, but also for their Western neighbours already involved in creating a new European asylum and immigration regime. Getting Central Europe involved in this ever-closer cooperation on migration matters became the EEC countries' vital interest as this could have been a crucial point in handling the asylum crisis successfully (Lavenex 1998). Therefore, the migration policies of Central Europe at the beginning of the 1990s were already heavily influenced by the activities undertaken by EEC/EU countries and in many cases followed similar patterns.

The geographical location of the countries of Central Europe was responsible for their role as "buffer states" and transit routes for immigrants towards an increasingly closed Western Europe. The Central European countries were unprepared for such a new role both institutionally and financially. These factors combined with sharp increases in migration flows resulted in measures undertaken especially by Poland, Czechoslovakia and Hungary aimed at tightening their Eastern border control in order to curb the inflow of immigrants in these countries (Salt 1993, p. 46).

Concurrently, encouraged by Western neighbours, Central European countries adopted the Geneva Convention with the New York Protocol and joined the worldwide system of refugee protection from which they had been artificially excluded owing to political reasons during communist rule. The creation of the legal and institutional provisions for ensuring human and refugee rights in Central Europe immediately resulted in their Western neighbours recognizing them as safe countries. Such a measure was in line with EEC/EU countries' efforts to combat the asylum crisis as it opened up the new possibility of rejecting asylum applications from persons coming from Central Europe immediately at the border without examining the applications (Lavenex 1998, p. 280). To take full advantage of such possibilities, the introduction of readmission agreements was inevitable. The first one, concluded between the Schengen states and Poland (29 March 1991), applied not only to the citizens of the contracting parties but also to the citizens of third countries that were detained and sent back at the border. This agreement subsequently served as a model for many similar bilateral agreements concluded between single member states of the EEC/EU and Central and Eastern European countries. Usually such agreements were accompanied by forms of financial compensation directed at reducing the costs arising from the agreement's provisions in the Central European countries.[5] A "chain reaction" of concluding subsequent similar agreements among the Central European countries and with their Eastern and Southern neighbours was an additional effect of concluding these agreements. A European network of countries with ever-stricter border control aimed at combating illegal migration arose as a result of this process.

[5]For example the readmission agreements signed between Germany and Poland (7 May 1993) and between Germany and the Czech Republic (9 November 1994) were coupled with the transfer of DEM 120 million and DEM 60 million, respectively, aimed mainly at improvements in border control and building an institutional infrastructure for refugee protection (Lavenex 1998, p. 281).

Generalizing, there were two basic tendencies that exerted an overwhelming influence on the Central European countries' migration policies in the 1990s, both of them coming form their Western counterparts. The first one was the philosophy of human rights and the humanitarian tradition of receiving refugees and asylum seekers. The second tendency represented an increasing propensity towards strengthening border controls and limiting access to the state's territory for migration purposes. The readmission agreements network combined with participation in the so-called Budapest Process[6] created to a certain extent the channels for disseminating the EEC/EU "zero immigration" philosophy in Central Europe (Lavenex 1998, p. 283).

Regional specifics of migration policies in Central Europe merit attention. Among them was the creation of ethnic channels of inflow, the policies resembling in many ways the German *Aussiedler* concept. As, for historical reasons, almost every country in Central Europe has considerable groups of nationals living abroad, such ethnic co-nationals have been given a privileged migration status in each of the countries of Central Europe (Wallace 2000, p. 25).

The influences of the EU on Central Europe in the field of migration policy were intensified owing to applications by the Central European countries for membership of the EU in 1994–1996 and the following process of negotiations and preparation for full membership in the EU. The legal provisions in the field of Justice and Home Affairs represented the inherent part of the *acquis communautaire*. Additionally, the scope of the *acquis* was extended by the Treaty of Amsterdam, which incorporated the Schengen *acquis* into the legal framework of the Community.

The EU accession process strengthened and deepened the process of Europeanization of Central European migration policies. Owing to the EU accession requirements "the EU policy models and ideas about border, security and insecurity have been exported to CEEC countries" (Geddes 2003, p. 173). The accession "conditionality" levers of the EU, i.e. the access to and progress in negotiations (Grabbe 2002), were used by the EU during the negotiation process and enabled the transfer of the EU policy models and ideas as well as the legal solutions to the Central European migration policies.

The negotiations were successfully completed in December 2002 and the Treaty on Accession along with the related acts was signed in Athens on 16 April 2003. According to the annexes adjoined to the treaty, a transitional period of a maximum of 7 years was introduced. This preceded the full implementation of the rules providing for the free flow of persons for the new EU members. According to these provisions, the old EU member states were allowed to apply national measures and those resulting from bilateral agreements in regulating the access of the new EU nationals to their labour markets during the first 2 or 5 years after accession. The 5-year-long transitional period could be extended once for an additional 2 years if the country suffered from serious disturbances or the threat thereof to its labour market.

[6]The Budapest Process was a forum of intergovernmental consultations at the ministerial level focused on preventing and combating illegal migration.

EU enlargement did not result in the wide opening of the old EU members' labour markets for the nationals of the new member states. Only Sweden, Ireland, and the UK, according to states' decisions in this area, did not apply transitional measures for the free flow of workers after 2004.

The enlargement led to a change in the migration policies of Central European countries towards third-country nationals. The strict EU visa regime and the obligation to introduce visas for the Eastern neighbours of the now new member states resulted in a need to cope with the new situation and the need to maintain good neighbourly relations with their neighbours despite the new visa regime, which represented a real policy challenge (Jileva 2003).

When analyzing the probable future trends in the migration policy of the Central European states, we bear in mind that since 1989 the evolution of such policies has been closely interlinked with the changes in migration policy of their Western neighbours and has been heavily influenced by the latter. This trend of the growing similarity of the migration policies of the countries in the west and in the centre of the European continent was very likely to continue in the future. We expected that the development of the migration regime at the EU level and the consequent need to adjust the migration policy to the European regulations would undoubtedly strengthen this tendency. Especially, the necessity to meet very rigorous criteria in order to join the Schengen group would constitute the factor facilitating the far-reaching unification in the fields covered by the Schengen provisions.

There were, however, some factors which might have influenced to some extent such straightforward conclusions. First was the question about the pace of changes, which would depend on many political and economic conditions, including the time of abolishing the restrictions on the access of workers from Central Europe to the old EU labour market. Then, we asked whether the new EU members would maintain their regional differences. The possible influence of the new members on the enlarged EU's migration policy could not have been omitted from this analysis, as the input they brought with them differs significantly from the experiences of the old member states (van Selm and Tsolakis 2004, pp. 11–12). Perhaps, taking into account the commonly shared experience among these countries, they would create a new Eastern dimension of the EU migration policy.

2.5 National Migration Policies of Selected European Countries

In this section an outline of migration policies in selected European states, especially the largest receivers in the old EU, along with the policy developments in selected new and accessing EU countries will be subject to more detailed scrutiny. This section will serve as an exemplification of the main directions of migration policies in Europe discussed in Sects. 2.2, 2.3, and 2.4. The main emphasis will be on the selective immigration policies emerging in the national legislation of the growing number of countries. The selective openness is perceived as an answer to the

problems of the labour market, i.e. shortages of labour supply in some sectors, mainly those requiring high skills and experience. The EU as a whole as well as its member states are entering global competition to attract the best available migrants in terms of human capital (Iredale 1999; Mahroum 2001). There are different ways of attracting and retaining the highly skilled among European countries (MacLaughan and Salt 2002). The methods encompass various incentives for students, special immigration programmes, simplified visa and work permit procedures, and tax reductions for the highly skilled (Mahroum 2001).

In the case of other than highly skilled potential economic immigrants, generally, the legal condition to employ a foreigner is that the position cannot be filled by an EEA national. Migration policies seem to recognize labour supply shortages in some sectors, whereas the selectivity restricts substantial inflow of low-skilled workers. The latter seem to be unwanted, even though shortages of unskilled workers turn out to be a frequent situation. Only a small part of this flow's potential is utilized in mutual agreements regarding temporary or seasonal workers (Hönekopp and Mattila 2008).

There is a common awareness that the scale of the benefits from migration depends to a great extent on the successful integration of the newcomers. Therefore, both at a country level as well as at the EU level, great emphasis is laid on the integration processes. Actions in this field focus in the first place on teaching the language of the host country and on the fight against discrimination and social exclusion.

To present the widest possible scope of national practices across the enlarged EU, certain countries representing different groups in terms of migration policy were chosen. Firstly, Germany, as a representative of countries with a high level of immigration and *Gastarbeiter* experience. In the same way, Belgium, the Netherlands and the UK can be characterized; however, all of them additionally have a colonial past. Then, Spanish migration policy will be presented to highlight the characteristics of the south of the European continent. Finally, Poland, the Czech Republic, Slovenia, Bulgaria and Romania will be the examples of migration policy characterizing the EU new member states.

2.5.1 Attempts to Attract the Highly Skilled: Germany

The beginning of the new century was marked by a swing of the pendulum in political discourse on immigration in Germany. Economic conditions (lower unemployment and labour shortages in some branches, especially the IT sector) coupled with demographic forecasts highlighting a dramatic decline and ageing of the German population (UN *Replacement Migration* report combined with long-term projections by the Federal Office of Statistics) contributed to a new positive tone in the public debate on immigration since 2000 that highlighted positive aspects of immigration.

The Foreigners Law of 1990 allowed some exceptions from the general ban on immigration in relation to highly skilled workers, yet the procedures were very complicated and based on the individual assessment of economic, social and political interests (Boswell 2003, p. 41). Only the introduction of the "Green Card" scheme in 2000 was seen as a breakthrough in German immigration policy.

The "IT-Specialists Temporary Relief Program", known as a Green Card scheme, aimed to alleviate the labour shortages in the information and communications technology (ICT) sector. The scheme was planned to attract initially 10,000, then 20,000 specialists for a period of up to 5 years and ensure unbureaucratic and fast procedures (MacLaughlan and Salt 2002, p. 98). It is worth noting, however, that although the name "Green Card" was borrowed from US legislation, it did not reflect the character of German initiative, as foreign experts who had been promised or granted authorization to work were given, together with their spouses and minor children, a residence permit for a maximum of 5 years. The regulation applied to persons with a degree in the field of ICT from universities or higher technical colleges or those who received a job offer with a gross salary of at least €51,200 per annum. The person eligible for the programme must have resided outside the EU or EEA and have good knowledge of German or English. The German government decided to stop issuing green cards from 31 July 2003. Only 14,876 work permits based on the Green Card scheme were issued until that date (Kolb 2005). Seventy-five percent of green card holders were employed by small and medium-sized enterprises, and the large ICT companies were not so interested in the initiative because of other possibilities of intracompany transfers they had. Therefore, the Green Card initiative improved the competitiveness of small and medium-sized enterprises within the ICT sector (Kolb 2005). The main shortcomings of the Green Card system was the time limit of 5 years, as well as the lack of an immediate work permit for the spouse of the applicant (a spouse was allowed to work only after a 1-year waiting period; in 2003 this was shortened to 6 months). The Green Card programme added to the ongoing debate on migration in Germany and contributed to future changes in the Immigration Act of 2004 (Kolb 2005).

The change in German immigration policy was marked by the new immigration law of 2002 (Heckmann 2003, pp. 53–54). The main principles of the act were drawn from the report of the so-called Süssmuth Commission that openly stated that Germany needed immigration owing to the growing importance of a knowledge-based economy, demographic trends and labour market gaps (Boswell 2003, p. 43). The partisan dispute proceeded and a compromise was reached only in June 2004. The new Residence Act, reflecting wide political consensus on migration, took effect from 1 January 2005.

Although the new law maintained the work permit system based on the labour market tests as the primary means of employing foreigners in Germany, it also contained special regulations concerning students and highly skilled workers. According to the act, foreign students graduating from German universities may extend their residence permit for 1 year after graduation with the purpose of seeking employment and highly qualified foreigners may be granted a settlement permit with

the omission of the labour market test and without a specific job offer (Residence Act, sections 16, 18, 19 and 39). The new law was to advance Germany's position in the global competition for the highly skilled.

Also, the citizenship and integration policy underwent substantial changes in the recent decade. The citizenship law amended in 1999, in force since 1 January 2000, has shifted from the concept of an ethnic nation towards the concept of a nation consisting of people living on the same territory. The new law eased naturalization, tolerated to some degree double citizenship and introduced, under certain conditions, *jus soli* in gaining a citizenship. The latter measure was aimed at facilitating integration of foreigners.

The new immigration law of 2004 was another attempt to enhance integration as it provided that the state takes a direct and active role in the integration of immigrants. Consequently, language training and courses in history and civic society would be obligatory for new immigrants and open to those already in the country. Generally, with the beginning of the new century, integration of immigrants was in many ways eased in Germany, yet the widely spread conviction that successful integration depends on limitation of further inflow of immigrants is worth noting (Boswell 2003, p. 94).

2.5.2 Managing the Inflow: Belgium

There have been five main channels of legal immigration to Belgium in recent decades. Apart from intra-EU migration, which constituted more than 60% of immigration in Belgium, family reunion became the second considerable source of immigrants. According to Belgian law, foreigners legally settled in Belgium have the right to bring in spouses and children under the age of 18 and in certain conditions other family members. Foreign students and asylum seekers represented the third and fourth categories of incomers, respectively. Finally, labour migration is the fifth channel of immigration to Belgium. Labour migration was based on work permits of two types: A and B. The B work permit was issued for a specific employer and a limited time (1 year) given that the post could not be filled by a Belgian or an EEA national. During the 1990s, about 40,000 persons per annum were given this permit. Additionally, certain categories of immigrants (au pairs, artists or sportsmen) were legally admitted each year. The A work permit was given for an indefinite time without any limitations regarding the employer or profession. To obtain this type of permit a candidate must have proved his/her legal uninterrupted residence in Belgium for 5 years or legal uninterrupted work based on the B work permit for 4 years (Martiniello 2003, p. 227).

Since 1974 the Belgium government has launched two regularization campaigns, the first in 1974 and the second in 2000, the latter based on the 1999 law. The criteria laid down in the law were quite broad. About 50,000 applications for the latter regularization were submitted (Martiniello 2003, pp. 229–231).

In the integration policy domain, most issues are left to the communities and regions; therefore, a wide variety of integration models exist. Naturalization is, however, regulated at the federal level. The nationality law, amended in 2000, is one of the most liberal in Europe. According to the act, legal residents may apply for Belgian citizenship after 3 years of residence, 2 years in case of refugees. Additionally, the acquisition of Belgian citizenship is possible by simple declaration by foreigners who have legally resided in Belgium for 7 years with an unrestricted permit (Martiniello 2003, p. 231).

To sum up, although no specific policy encouraging immigration has been introduced in Belgium, legal immigration has continued in recent decades despite the restrictions on labour immigration imposed in 1973. The latter resulted in a change of channels and patterns of immigration (family reunion and asylum seekers instead of labour migrants of the pre-1973 period) but not in limiting immigration numbers (Martiniello 2003, p. 227).

2.5.3 Migration as a Burning Political Issue: The Netherlands

Immigration and integration issues became highly political issues in the Netherlands, especially since 2002 when, unexpectedly, the party of the late Pim Fortuyn won 17.9% of the votes in parliamentary elections by calling for a ban on further immigration. Two major groups of persons arriving in the Netherlands were asylum seekers (about 30% of all immigrants, 43,900 asylum requests in 2000) and Dutch nationals, counted as immigrants, coming from the overseas parts of the Netherlands, i.e. Dutch Antilles and Aruba (van Selm 2003). The law regulating legal residence and work in the Netherlands, the Vreemdelingenwet ("Aliens Law") of 2000, came into force in April 2001.

Economic immigration into the Netherlands was possible, like in other EU countries, through a work permit system. To get the permit, it had to be proved that the vacancy was unsuccessfully advertised on the Dutch labour market and that no Dutch or EU citizen could have been found for the post. Additionally, the employer needed to guarantee a foreigner a salary above the minimum legally approved level. The Dutch work permit was employer-specific. There was a possibility to obtain permanent residence after 3 years in the Netherlands with a work permit. A person with a valid work permit and a temporary residence visa could automatically gain permanent residency in the Netherlands after 5 years (Apap 2003, p. 14). Foreigners must have applied for the residence permit before they started the work permit application process. The number of work permits issued rose from 9,500 in 1996 to 27,700 in 2000, most of them issued to intracompany transferees, IT specialists, artists, trainees and researchers (Muus 2004, p. 270).

The Netherlands also used the tax-reduction system to attract highly skilled workers. Owing to the high tax burden (reaching almost 60% for high-wage earners), making the Netherlands unattractive for foreign investments, a special 30% tax reduction was introduced in 1995 in order to make the tax burden comparable to

that of the UK. The tax allowance was employer-led, and was given for a maximum period of 10 years to foreign employees with professional expertise and/or specific know-how which is not readily available in the Dutch labour market (MacLaughlan and Salt 2002, pp. 127–129). Additionally, a new law for 'knowledge migrants' of 2004 allowed highly skilled workers with job offers for a minimum of 1 year and paid at least €45,000 per annum to obtain a 5-year residence permit and bring the immediate family members to the Netherlands, with the spouse allowed to work (van Selm 2005).

In this century, special attention has been paid to integration issues. Mandatory language and integration courses have been introduced for both economic migrants and asylum seekers. The courses are paid for by the participants, but after the successful completion, 50% of the cost might be reimbursed by the state budget.

In general, the Netherlands experiencing net immigration inflow for many years has made efforts to curb further immigration (from all sources) and facilitate the integration of the foreigners already present in the country, especially after the events in the aftermath of the Theo van Gogh murder in November 2004 (van Selm 2005). Regulations on family reunification and family formation hardened the possibilities to enter the Netherlands via this channel (van Selm 2005).

2.5.4 Migration Policy in the Service of the National Economy: The United Kingdom

The Labour government elected in 1997 brought about a remarkable shift in the UK's migration policy towards more openness for labour migration. This new approach stemmed from the recognition of labour shortages in some sectors as well as demographic concerns and was combined with efforts to curb illegal immigration through creating channels for legal immigration. Most of the latter pertained to the highly skilled, yet measures aimed at the increase in low-skilled immigrants were also proposed. The economic rationale was the dominant force lying behind the policy changes (Boswell 2003, pp. 37–41).

The Immigration and Asylum Act 1999 and the Nationality, Immigration and Asylum Act 2002 were the basic legal acts underlying British migration policy. The latter introduced new measures to deal with abuses of the asylum system, updated nationality, and a citizenship law, bringing the laws in line with the 1997 European Convention on Nationality as well as tackling illegal migration, e.g. through introducing a new offence of trafficking in prostitution, and strengthening the offences for traffickers and smugglers of humans. The tough measures and tough rhetoric on illegal immigrants and asylum seekers was part of the government strategy to win support for the general liberalization of migration policy (Boswell 2003, p. 40).

Prior to 2002, the UK admitted about 200,000 labour migrants annually, only 30,000 of whom arrived from EU countries. Labour migration was organized first

and foremost through an employer-led work permit system. The permit was given to the specific employer for a named employee after fulfilling certain criteria (e.g. the employer must previously have unsuccessfully advertised for the post, pay and working conditions for the foreign employee must not be lower than those offered to a local worker). Annually, about 100,000 work permits were issued in the UK, most of them in health care sector (22.5%) (Spencer 2002).

In addition to the work permit system, some other channels for labour migration were created. Among them, the Highly Skilled Migrant Programme, in force since 2002, that used a Canadian-style points system based on education, work experience, past earnings and achievements in a given field to enable highly skilled foreigners to enter the UK with the aim to look for and take up employment. Finance, business, IT and medicine represented the four main fields for specialists to enter the UK via the Highly Skilled Migrant Programme (Salt 2005, p. 30).

Applicants could be granted a work permit for 1 year. The dependents of work permit holders were entitled to remain in the UK during the period for which the permit was valid, providing they supported themselves without recourse to public funds. Towards the end of the 12-month period, applicants could apply to remain in the same capacity for a further period of up to 3 years. After 4 years within the Highly Skilled Migrant Programme, applicants could apply for a permanent residence permit.

Beside the Highly Skilled Migrant Programme, some other channels for labour migration existed. In 2000, the Innovators programme allowed "entrepreneurs with a viable business plan to enter to establish a company despite having relatively little to invest" (Spencer 2002, p. 4). Furthermore, categories such as investors (for persons with more than £1 million to invest in the UK), business visitors (permits to come for a maximum of 6 months to perform a special task) and training and work experience (for persons arriving for training) permits created specific channels of labour immigration of the skilled workers into the UK. The trend to attract highly skilled migrants may also be noticed in the relaxation of the rules concerning admission, work and stay of foreign students. The first programme aimed at attracting more foreign students to the UK was launched in 1999 (Spencer 2002).

Different channels were provided for unskilled workers. The rationale for making migration easier for the unskilled labour force was twofold in the UK. The government wanted to meet employers' needs (labour shortages) and curb the demand for illegal workers at the same time. The main programmes for unskilled migration were:

- Working holiday makers—around 46,000 young people from Commonwealth countries (17–27 years old) were allowed to come to the UK and take up a non-professional job for up to 2 years.
- Seasonal agricultural workers—for students, mainly from Central Europe, who arrived within a set quota.
- Au pairs—around 15,000 per annum.
- Domestic workers—around 15,000 per annum (Spencer 2002).

To sum up, the UK migration policy has made a remarkable shift towards more openness based on economic needs assessment. The changes were possible as the UK government has benefited "from a number of favourable conditions such as low unemployment, no significant party political opposition and generally supportive public discourse which is relatively receptive to the case for economically productive immigration" (Boswell 2003, p. 41).

2.5.5 Attempts to Curb the Irregular Inflow: Spain

Spain is a representative of the Southern European countries, which for centuries have been the traditional emigration countries and only during recent decades have become the transit and receiving countries for the growing numbers of immigrants originating mostly from the South.

Owing to Spain's geographical location, the country is particularly exposed to the inflow of immigrants from the South, mainly illegal. With the increase in anti-immigrant sentiments in Europe, the pressure on Spain to better control its sea borders increased as did European funds spent on this control (Cornelius 2004, p. 423).

The law regulating immigration in Spain was the Law on the Rights and Freedoms of Foreigners in Spain and Their Integration (Law 4/2000), amended by Law 8/2000 after the parliamentary elections in 2000. The regulations were generally in line with European trends; they put emphasis on immigration control, limited the rights of illegal immigrants and restricted family reunification (Cornelius 2004, p. 407).

A characteristic feature of Spanish immigration policy is the regularization programmes, launched in 1985, 1991, 1994, 1996, 2000 and 2001. To some extent they compensate for an ineffective admission policy, which leaves many thousands of migrants in an irregular position in Spain. Although a residence permit valid for 1 year was granted to an applicant for the regularization programmes, "difficulties in renewing it forced many immigrants back into an irregular status" (Ortega Pérez 2003). None of the programmes resulted in a significant reduction in the numbers of foreigners in an irregular situation in Spain (Cornelius 2004, p. 412).

The quota system, intending to channel the inflow to specific regions and sectors of the labour market, was the main mechanism used to manage labour immigration in Spain (Cornelius 2004, p. 404). It was used in 1993–1995 and 1997–1999 and has been used since 2002. Prior to 2002, it was used primarily by the irregular migrants already present in the country to legalize their status. In 2002, the rules were changed and workers may be recruited only from their countries of origin and through bilateral intergovernmental agreements. The quotas for the employment of foreign workers were issued annually by the government after the National Employment Institute had issued a report on the employment situation in the country. The quotas established in 2002 and 2003 were found by both the employers and labour unions as unsatisfactory in comparison with the market's

needs (21,195 temporary workers and 10,884 permanent workers in 2002; 13,762 temporary workers and 10,575 permanent workers in 2003; Ortega Pérez 2003). The tendency to lower the quotas showed the government's efforts to limit immigration despite the labour market's signals. The quota limits were divided between third-country nationals, with an obvious preference given to nationals of countries with which the readmission agreement had been signed (Cornelius 2004). The work permits issued within the quota limits were tied to an employer and were in the sectors particularly unattractive for the native population: agriculture and domestic services.

The main trends in Spanish migration policy such as the restrictive visa policy, increased border controls, and tightening of the immigration and refugee admission policy were to some extent a result of EU pressures and harmonization of the policies within the EU (Cornelius 2004).

2.5.6 Cautious Opening to Labour Inflow: Poland

Since 1989 Poland has been a net emigration country but has started to receive immigrants. The inflow has been small, and according to the 2002 census, migrants constituted less than 0.2% of the population. At the same time, Poland has continued to be a sending country. Germany remained the main destination for more than 200,000 seasonal workers during the 1990s and at the beginning of this century (Górny et al. 2010).

The development of Polish migration policy after 1989 led to the creation of a new legal and institutional framework for the admission of migrants. Most changes were made as a part of the EU accession process with a view to adjust the law to the EU *acquis* (Weinar 2006; Kicinger 2009).

Poland remained rather closed to any long-term inflow of migrants. No special schemes for permanent immigration existed, with the notable exception of the policy on repatriation. Persons of Polish origin from the Central Asian republics of the former USSR were allowed to arrive in Poland on the invitation of a local community or private persons. The procedure was combined with the privileged way of obtaining Polish citizenship at the moment of arriving in Poland (Hut 2002). However, fewer than 6,000 persons arrived via this channel between 1996 and 2006 (Kicinger 2009).

The labour migration policy was based on the rule that migrant workers have to be complementary and not competitive to the employment of Polish workers. A foreigner willing to work in Poland had to obtain a work permit. The work permit was issued for the specific post and for a specified time (up to 1 year) and could be renewed. The system was employer-led: it was the employer who had to apply for a work permit and had to prove that there was no Polish (or—after 2004—EU) candidate for the post. The procedure was administratively complicated and many documents were required to be submitted along with the application. The cost of the work permit was rather high: it was set at the minimal monthly payment.

The foreigner could apply for a residence permit only after the work permit had been granted. The system was designed as restrictive and turned out to be restrictive: Poland issued fewer than 15,000 work permits a year in the period from 1995 to 2007 and most of them went to highly skilled migrants (Kupiszewski et al. 2008).

The restrictive work permit system was often pointed out as one of the reasons behind the growth of irregular employment of foreigners in the country. According to various estimates, a few hundred thousand foreigners, mostly Ukrainians, had been working illegally mainly in agriculture, construction and household services (care services and cleaning) (Kicinger and Kloc-Nowak 2008). The inflow from the East was important from the labour market perspective as it responded to the demand for low-skilled workers in the Polish economy. The policy of "silent toleration" (Kicinger 2009) was the government's response to the phenomenon in the 1990s and at the turn of the century.

Important changes in Polish labour immigration policy were made only recently, in 2006–2009. The work permit procedure was made cheaper and easier (Kupiszewski et al. 2008) and channels for legal seasonal inflow were created. Nationals of Belarus, Russia, Ukraine and Moldova were offered the possibility to undertake seasonal employment without a work permit for up to 6 months in a year in all employment sectors. The seasonal immigration programme was cheap and administratively easy and it was hoped to create a viable alternative to illegal hiring. Migrant workers were issued working visas abroad on the basis of the registered statement of the employer in Poland that intended to employ them. The programme turned out to be success: over 188,000 invitations for seasonal workers were registered in 2009, of which 95% were for Ukrainians.

2.5.7 New Approach to Labour Migration in the Czech Republic

During the 1990s, the discussion about the migration policy in the Czech Republic was focused on two main aspects—the preparation for membership of the EU and combating all forms of irregular migration. Therefore, the legislation and practice were amended to meet EU standards. At the beginning of twenty-first century, the Act on the Stay of Aliens on the Territory of the Czech Republic and the Act on Asylum, both from 1999, were the main legal acts regulating the status of foreigners in the Czech Republic.

Similarly to many other countries, the main channel of immigration into the Czech Republic remains family reunion, guaranteed by both of the acts of 1999. As for labour migration, the work permit system is the basic form of regulating this process. Work permits were issued by job centres, provided that the vacancy could not be filled by a Czech or EU national. The system was strongly employer-led: the employer had to apply for a work permit to hire a foreign employee, and the permit was issued only for a specific job offer (Drbohlav 2004, pp. 78–79).

Contrary to these regulations, the conditions for establishing a business in the Czech Republic remained fairly liberal. The requirements to be self-employed were only formal and were easy to meet. In contrast to other countries, there was no need to provide a detailed business plan or to prove that the planned undertaking would benefit the local economy or local labour market. Owing to relative easiness to establish a business, this legal way was often abused by foreigners, as the division between the bona fide self-employed person and the actual employee could have been blurred (Drbohlav 2004, p. 79).

According to Czech legislation, a foreigner could apply for a permanent residence permit only following a continuous 10-year-long stay on Czech territory with a visa for over 90 days or with a visa for the purpose of temporary protection. The time period requirement seemed to be rather long in comparison with other European countries. The citizenship policy was also restrictive. A person could apply for Czech citizenship only after holding a permanent residence permit for 5 years. Coupled with the period of 10 years necessary to get such a permit, this meant waiting for 15 years. Additionally, the applicant must have met very strict economic and social criteria. Because of such regulations, the number of naturalized persons in the Czech Republic was relatively low, amounting to around 1,000 persons per annum at the beginnings of this century. Consequently, some proposals were formulated aiming to bring the citizenship law more in line with the practices of most European countries and with the regulations laid down in the European Convention on Nationality (Drbohlav 2004, pp. 83–84).

An important new initiative was taken in 2002 by the Czech Ministry of Labour and Social Affairs. Drawing from the "Proposal for Active Selection of Skilled Foreign Workers", the Czech government launched a pilot programme for the active selection of qualified foreign workers. The quotas were established for the first 2 years—600 and 1,200 persons for 2003 and 2004, respectively. The persons arriving within this new scheme and their families were to be allowed to apply for a permanent residence permit after a 2.5-year stay in the Czech Republic (Drbohlav 2004, pp. 98–99). Such an initiative might indicate emulation of selective immigration policies of Western Europe by the Central European countries.

2.5.8 Quota System in Slovenia

Like in other Central European countries, preparation for membership of the EU was the primary political goal of Slovenia, which regained its independence only in 1991. Therefore, the newly created Slovene legislation followed in many ways the patterns and directions present in the legislation and practice of EU countries. Four legal acts—Aliens Act, Asylum Act, Law on Temporary Refuge, Employment and Work of Aliens Act—regulated the inflow and stay of foreigners in Slovenia.

The Employment and Work of Aliens Act was the main act regulating economic migration in Slovenia. It set the policy priorities as well as the maximum

quotas for admission of workers and defined the conditions under which work permits were issued. Three types of work permits existed in Slovenia according to this act:

1. Personal work permit—allows free access to the labour market for a fixed time (1–3 years) or permanently
2. Work permit for the purpose of employment—allows work for a specific employer
3. Work permit—allows temporary employment in Slovenia in a fixed category of work (Zavratnik Zimic 2004, pp. 50–52)

The government determined the annual quotas of the work permits that could be issued in a given year. The assessment of the labour market needs was the main factor taken into account. The number of the annually issued work permits was set such that it could not exceed 5% of the economically active population in Slovenia. The quotas did not include citizens of the EU, foreigners in possession of a personal work permit or managers (Zavratnik Zimic 2004, pp. 52, 57).

Permanent residence permits were issued for foreigners who had resided legally on Slovenian territory on the basis of a temporary residence permit for 8 years. However, this period could be shorter for persons of Slovenian origin, members of the family of a Slovenian citizen, or persons granted refugee status. Additionally, according to the Aliens Act, the parliament was obliged to hold a discussion on migration issues every 2 years and subsequently to issue a resolution on the immigration policy. The resolution was taken into account by the government when setting the quota for the number of residence permits that could be issued in a given year (Zavratnik Zimic 2004, p. 61).

2.5.9 Migration Policy in Emigration Countries: Bulgaria and Romania

The process of economic and social transformation in Bulgaria and Romania was substantially delayed in comparison wit that in the other postcommunist countries. Owing to the low economic growth and high unemployment rates, both of them became primarily countries of origin and transit for migrants rather than potential destination places in the 1990s. Therefore, the main challenges for the Bulgarian and Romanian migration policy were different from the challenges faced by other EU-applicant countries.

Owing to the restrictions imposed by EU countries (visa regime until 2001, restrictive labour immigration policies), Romanian and Bulgarian nationals entered Western European labour markets mostly in an irregular way. To curb this negative phenomenon, the Bulgarian and Romanian governments signed bilateral agreements with Western European countries that created legal channels for seasonal labour migration of Romanian and Bulgarian workers (Lazaroiu 2004, p. 49; Guentcheva et al. 2004, pp. 72–73).

As in other Central European countries, most of the amendments in the legislation and practice of Bulgarian and Romanian migration policies were done with a view to meet the primary goal of their foreign policies, which was EU accession. This led to a kind of paradox, where the reality in both countries lagged far behind the legislation measures implemented in order to adjust the law to the EU *acquis*. Despite being unattractive destinations for potential immigrants, Bulgaria and Romania introduced EU measures to counteract the abuses of asylum procedures and to prevent illegal immigration. At the time, the real challenge for their migration policies remained the negative consequences of the large outflow of emigrants (brain drain effect, negative demographic trends, and the negative image of the countries in Western Europe). The question of how to create incentives for the return of highly qualified nationals became the main concern for both countries (Lazaroiu 2004, p. 62; Guentcheva et al. 2004, pp. 58–66, 76).

As a result of the migratory movements in the 1990s, Bulgaria and Romania were perceived in Western Europe as potential migration-sending countries with well-established migration networks in the EU. Despite their efforts and the significant amendments to the legislation in 2003, they also remained the countries of origin and transit of trafficking in humans. Additionally, the situation was complicated to a certain extent by some ethnic relations problems. In Romania, the situation of the Roma minority and the close ties to Moldova, the poorest country in Europe, were the main reasons for uncertainty. The Moldavians, constituting the largest part of the scarce immigration to Romania, spoke the same language and were not treated as foreigners but rather as 'poor relatives', working predominately illegally in rural areas in Romania (Lazaroiu 2004, p. 5). Bulgaria hosted a significant Turkish minority on its territory (Guentcheva et al. 2004, pp. 15). Both countries, Moldova and Turkey, were on the EU visa list.

All of these factors have influenced the negotiations on Bulgarian and Romanian membership of the EU. The countries finally joined the EU in 2007. The transition periods for the free flow of workers agreed with Bulgaria and Romania were identical to those foreseen for the eight Central European countries in the 2004 enlargement (for more on this, see Sect. 5.2.1).

2.6 Expected Directions of Migration Policy Developments

In an attempt to predict future migration policy developments in Europe, one must bear in mind that considerable uncertainty will always surround such forecasts owing to the changing and unpredictable economic and political milieu in which the migration policies are formulated. This is especially important given that the high politicization of migration issues is predicted to continue as "international migration and the inter-ethnic relations it produces will be among the most important and potentially divisive topics of public debate in the next century" (Massey and Taylor 2004, p. 384).

However, as migration policy plays an essential role in determining the scale and patterns of international migration, some predictions of future migration policies had to be made in order to make forecasts regarding future migratory flows. Contemporary European countries try to control international migration through migration policy to the maximum possible extent, laying much more emphasis on the immigration rules than on the emigration rules. Assuming that the present liberalism of the exit rules will not change in the foreseeable future, the factor which is sure to wield power over the legal migration flows is the entry rules of the major receiving states. As Meyers (2000, p. 1245) pointed out, "given the large number of people who would like to emigrate to the industrialized countries for economic or political reasons, and the strictly limited opportunities to do so, it is immigration policy that mainly determines the scope of global migration."

The growing restrictiveness of immigration rules is a worldwide trend in the migration policy of developed countries. According to Massey (2003), there are three factors that contribute to such a phenomenon—the rising volume of immigration, increasing social disparities and persistent unemployment. Additionally, the end of the Cold War eliminated an important foreign policy motivation to accept unwanted immigration. The restrictiveness of immigration policy is reflected in the enhancement of border control, ever-stricter measures regarding all forms of irregular migration and general avoidance of admitting foreigners for employment purposes.

The possibilities to enter the EU via the asylum channel are also being curbed. The growing restrictiveness of asylum procedures is part of a general trend towards more restrictive admission policies. The rise in restrictions in the 1990s was a reaction to a surge in asylum applications in the 1980s and at the beginning of the 1990s when other possibilities for legal immigration were blocked. After the asylum crisis had been solved through the stricter interpretations of the Geneva Convention and the development of other forms of protection, the EU countries put greater emphasis on preventing the potential applicants from arriving on their territory. The instruments of traditional foreign policy, such as conflict prevention and humanitarian assistance, are increasingly seen as part of refugee policy aimed at combating the root causes of refugee inflow (Joly and Suhrke 2004).

Overall, the implementation of measures directed at combating the economic disparities between the sending and the receiving states seems to be another important dimension of migration policies in European countries which is supposed to be further developed. Despite some obvious weaknesses of such an attitude (Stalker 2002, p. 171), the aforementioned trend received support among researchers (Salt 1993) and European politicians (European Council 1999; European Commission 2000a). A part of this strategy foresees including migration matters in the framework of external relations with third countries.

The restrictiveness is not going to be the only direction of migration policy development in Europe. Western European countries are facing a dilemma between political pressures for restrictions and the economically driven demand for labour immigration (Boswell 2003, p. 122). Therefore, the restrictiveness of

immigration policy is often combined with "evolution towards greater selectiveness and favouring the admission of individuals and groups of people who meet specific labour market needs" (United Nations 2002, pp. 20–21). More open admission policies towards the highly skilled reflected the impact of globalization. The latter caused a change in production that resulted in increased demand for low-skilled and highly skilled workers in national economies, especially in the ICT sector (Mahroum 2001). The labour market needs, which emerged owing to labour market mismatches, were also a reason for more openness in migration policies. Immigrants were filling the gaps in the secondary labour market (positions that the native population were not willing to fill) and in the primary labour market, filling the gaps in, e.g., in the health sector, education and ICT (Hönekopp and Mattila 2008).

Research confirms that successful integration of immigrants coupled with positive sentiments of the natives took place to the greatest extent in the countries with a selective immigration policy dependent on the market needs. The study carried out in 12 OECD countries revealed a significant correlation between the state's migration policy and such variables as the ability of migrants to integrate in the host society, migrants' labour market success and the attitudes of the natives towards immigrants (Bauer et al. 2000). This empirical evidence is in line with the increasing emphasis on the needs of the economy in migration policy making (Hönekopp and Mattila 2008). Some go as far as calling for the adoption of the points system on the basis of the experiences of traditional immigration countries such as the USA, Canada and New Zealand (Papademetriou 2003[7]).

Contrary to the growing number of initiatives aimed at attracting highly skilled workers, the attitude of European countries towards unskilled immigration may be characterized as a very cautious openness. The vast majority of international agreements concluded in this field provide for temporary (usually very short term or seasonal) migration. The rationale for such initiatives is twofold. First, such agreements meet the needs of employers, who articulate their concern about labour shortages in some sectors (agriculture, construction, care services) where demand exists for low-skilled and flexible workers. Second, temporality of employment soothes public opinion, which is generally opposed to an increase in the volume of immigration. Temporary immigration seems to be an instant remedy for shortages in the workforce, especially as it does not require taking politically risky decisions about openness for permanent labour immigration. Therefore, unless any serious perturbations on the labour markets take place, this trend is very likely to continue.

Further, intensification of efforts towards the integration of migrants is going to be another salient feature of the migration policies of the European states. The regularization programmes aimed at legalizing the status of undocumented migrants in European countries, popular especially in the south of the continent, constitute one of the dimensions of this phenomenon. The efforts to enhance integration through legal obligations such as obligatory language courses are another dimension.

[7]In line with such a prediction is the UK Home Office proposal of March 2006 aiming at introducing a general points system to manage the inflow of immigrants to the UK.

Growing institutionalization of international cooperation in the field of migration and the development of international human rights regimes must also be mentioned in order to give a comprehensive picture of the future of migration policies. The considerable increase in the number of forums at which migration issues are discussed and coordinated cannot be underestimated. First, such forums are likely to continue to facilitate the existence and the development of the commonly accepted legal norms (such as the obligations resulting from the expansion of the human rights doctrine). Second, they will probably still facilitate policy transfer and policy learning among European countries, thus adding to growing convergence of national practices.

Last but not least, the relations between the EU and its member states have to be highlighted as an important factor determining the future migration policy of European countries. As stated above, an increasing numbers of issues were shifted from the national regulations to the EU level. The process is still ongoing. The fluctuations in the willingness of the states to hand over an increasing part of their sovereignty to the European institutions are the crucial factors shaping the pace of EU migration policy development. Although the main directions in which such a policy is likely to evolve can be predicted from various EU documents, the fundamental question about the speed of the implementation of the declared goals is left unanswered. The future seems to be even more uncertain considering the recent EU enlargements in 2004 and 2007. Agreements on such delicate matters as immigration quotas and common border controls are difficult to reach among the 27 members of the EU. Besides it is uncertain whether the experience of the new members will affect in any way the EU's vision and philosophy adopted by the old 15 member states (van Selm and Tsolakis 2004, pp. 11–12).

As Massey (2003) pointed out, immigration policy is often presented as a choice between closed and opened borders. In this case, all predictions about the future of migration policy would have to be focused on one question—which forces will prevail, those facilitating openness or those tending to closure? The above analysis does not answer this question clearly. Restrictiveness and liberalism in admission policies will highly likely coexist and interplay.

When analysing the present and the future migration policies of European countries, the key term is migration management. International organizations, notably the International Organization for Migration, see migration management as a key factor of migration policies (Appave 2008). Migration management means that migration is perceived as the unavoidable phenomenon and has to be managed in order to maximize the benefits from migration to sending states, receiving states and migrants themselves. Efforts to manage migratory flows in an orderly manner will undoubtedly dominate migration policies in Europe in the years to come.

Chapter 3
The Use of International Migration Theories in Migration Forecasting—A Practical Approach

Marek Kupiszewski, Jakub Bijak, and Anna Kicinger

This chapter provides an overview of the theories of international migration developed within the framework of various scientific disciplines (e.g. economics, sociology, demography and geography) which may be potentially useful for migration and population forecasters. Appreciating the importance of theoretical approaches in forecasting, we attempt to select theories which are best suited for use in forecasting, requiring that such a theory is general enough and can be operationalized. These two strong conditions narrow down our selection to one theory only, namely the theory of push and pull factors of migration.

The first attempts aimed at setting out migration theory date back to the end of the nineteenth century (Ravenstein 1885, 1889). According to Ravenstein, the most essential motivation for migration is of an economic nature, with the flow of migrants observed mainly from rural to urban areas. Zlotnik (1998) noted that conceptual approaches to migration considered about 100 years later do not differ in principle from those of Ravenstein, although the degree of their complexity and the extent to which they reflect reality have increased significantly. Owing to the variety of approaches to the phenomenon of migration (demographic, geographical, sociological, political, etc.), no comprehensive migration theory has been formulated

M. Kupiszewski (✉)
Institute of Geography and Spatial Organization of the Polish Academy of Sciences, Warsaw, Poland
e-mail: m.kupisz@twarda.pan.pl

J. Bijak
Division of Social Statistics and Demography, ESRC Centre for Population Change (CPC), Southampton Statistical Sciences Research Institute, University of Southampton, Southampton, UK
e-mail: j.bijak@soton.ac.uk

A. Kicinger
Central European Forum for Migration and Population Research, IOM, Warsaw, Poland
e-mail: kicinger@cefmr.pan.pl

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_3,

to date. Massey (2002) in an article on a synthetic theory of international migration synthesizes the existing body of research, but does not offer a general theory either. Portes (1997) doubts if such synthetic theory would be useful at all, given the multidimensionality of the phenomenon of migration. The differences in the units of observation, from micro to macro, make any attempts at unification of theories even more difficult. An interesting account of these differences is given in Brettell and Hollifield (2000). Nevertheless, individual disciplines offer their own explanations of migration, which may be of some use for forecasting process.

A considerable part of the existing literature refers to internal migration, whereas only recently more attention has been paid to international migration. A remarkable growth of the volume of international migration both in Europe and all over the world during recent decades has resulted in dynamic progress of research. Comprehensive reviews of migration theories were presented in the seminal article by Massey et al. (1993) as well as by Greenwood (1992), Zlotnik (1998) and Arango (2000). The usefulness of the theories for migration forecasting models was evaluated by Öberg and Wils (1992), as well as by Kupiszewski (1996, 2002a).

For a forecaster it is natural to look at the theories which may be useful in linking the magnitude and structure of migration to some external explanatory factors. A substantial body of existing theories focus on other aspects of migration. In the overview below, attention is paid to those theories which deal with the volume and structure of flows; other theories are considered very briefly. Such an approach may be seen as trivial by some migration researchers, but certainly makes sense for those whose task it is to create a workable model of migration flows.

Although some features of the processes described below apply to both official and unofficial migration, in the analysis the emphasis is placed on legal migration, measured in the official demographic statistics, unless stated otherwise.

3.1 Economic Theories of Migration

The classical economic theory of migration has been shaped by Adam Smith's thinking that migration is a balancing factor between labour supply and demand in different locations. Migrants were supposed to migrate from regions with high unemployment to regions with low unemployment. International migration represents therefore the international flow of a production factor. This approach is a cornerstone of many economic theories of international migration. Hicks (1932) argued that the engine behind this mobility is wage differentiation. The neoclassical economic theory of migration is set out in two versions — microeconomic and macroeconomic — both of which offered a slightly more sophisticated approach than the classical one. According to the macroeconomic theory (Lewis 1954; Harris and Todaro 1970; Todaro 1976), movements of labour (or capital) are caused by the differences in wages in the geographically distinct markets. The differences lure workers from lower-wage markets (countries) with excess labour supply to emigrate and benefit from higher wages somewhere else. Labour flows into the higher-wage markets add to the labour supply, thus lowering wages; the process has

the opposite effect in the country of origin. According to the theory, the movements should take place until the difference in wages diminishes to the level corresponding only to the costs of migration. The return migration fails to be explained on the basis of this theory. Probably one of the most popular attempts to operationalize this theory is the model of Harris and Todaro (1970). This model was designed to explain rural to urban migration in developing economies, but can be applied to international migration under certain conditions.

Modellers and forecasters of migration frequently use wage differentials, often expressed with proxy variables, as an explanatory variable in models of migration (for reviews see, e.g., Straubhaar 2001; Kupiszewski 2002b; Alvarez-Plata et al. 2003; Boeri et al. 2009; Bijak 2010). However, such a model is far from ideal. Stark (2003) has demonstrated in a formal way that migration is possible in the absence of wage differentials. Moreover, the inability to explain return migration and stayers' behaviour on the ground of the neoclassical economic theory suggests that on its own it is unsuitable for forecasting migration. That does not undermine the use of economic variables, in particular describing the wage differentials, as a subset of a wider set of variables explaining human mobility.

The neoclassical microeconomic theory allows the assessment of individualized costs and gains associated with migration (Sjaastad 1962; Todaro 1976). At the microeconomic level, migration constitutes a form of an investment rewarded with a difference in income earned between the places of destination and origin. Migrants aim at maximizing their incomes, which means maximization of profit on investment in migration. Factors such as unemployment level, migration costs and additional qualifications gained have to be included in the migrants' calculations. Illegal migrants should also consider the risk of possible deportation. Calibration of such a theoretical model faces numerous problems arising mainly from the issues connected with quantifying the variables concerned. This theory also ignores the political, social and economic conditions that influence decisions regarding migration (e.g. restrictive admission polices applied by destination countries, individual and family preferences of migrants, as well as monetary and non-monetary costs of integration in a new country) and assume, quite naively, homogeneity of labour. These shortcomings make the predictions based on the theory inconsistent with empirical results obtained on the macro level (Massey et al. 1994, after Zlotnik 1998, p. 4). In conclusion, according to Zlotnik (1998), "there is ample evidence that wage differences play a significant role in determining the size of migration flows in many settings, so that it is widely accepted that the existence of such differences is a necessary, albeit not sufficient, condition for the migration of labour to occur."

In technical terms, the most frequently used models of migration flows constructed on the ground of neoclassical migration theories are various econometric models, notably multiple regression models, expressing a dependent variable (usually some measure of migration) as a function of several independent variables (usually characterizing economic and social conditions). For such models to be of use in forecasting, one has to believe that the independent variables will change as assumed in the model and that the function linking dependent and independent variables will not change in the future. This tacitly assumes that independent

variables are more predictable than the dependent variable, which usually is not the case: the independent variables, which often represent economic processes, are much more volatile than the demographic processes which we try to forecast. For example, the time horizon of GDP growth forecast is counted in months and years, whereas the horizon of demographic forecasts is in decades. Moreover, as remarked by Bijak (2010), the resulting migration forecasts are conditional on particular trajectories of socio-economic covariates, and as such underestimate the true predictive uncertainty of migration.

In the econometric models, few attempts have been made to incorporate demographic variables as predictors. This may easily lead to substantial errors because ignoring the number and age structure of the sending population means that models may generate emigration from areas lacking a population in the age of high migration propensity. This issue has been noticed by Fertig and Schmidt (2000) and Kupiszewski (2002b).

Despite its apparent shortcomings, of which the most important is a failure to explain return migration and the little attention paid to the supply side of migration, the neoclassical migration theory has been instrumental in shaping thinking of migration researchers for decades. It does not seem that it will be of significant use in migration forecasting as a stand-alone theory; however, it has secured an honourable place as one of a number of theories on which migration forecasts can be built.

The two theories discussed above were derived from the assumption that migrants maximize their incomes. The so-called new economics of labour migration (Stark and Bloom 1985; Stark 1991) offers another approach. The authors argue that the units taking decisions on migration are not individuals but entire households (families), which try to diminish the risk of losing revenues. Diversifying labour markets where the household members operate allows a given household (family) to obtain more economic security for the future. Hence, migration can be seen here as a form of insurance, especially in the absence or poor availability of social security and insurance mechanisms and restricted access to capital. This theory explains why international migration continues even if the salary levels in the place of origin and destination are similar. Stark and Taylor (1989) took a step forward by saying that migration decisions are influenced by relative differences in revenues of migrating and non-migrating families (labelled as 'relative deprivation'). The migrating households try to gain economic advantage over the non-migrating ones. The implications for whole families, rather than individuals, can also be interesting within the theoretical framework of the neoclassical model (Zlotnik 1998). Stark's works have a fundamental impact on our thinking of how migration policies should be shaped, as they point at policy options which are usually not directly linked to migration, such as impacting the level and speed of development, facilitation of access to insurance markets, credits, education or increasing social cohesion and reducing inequality. However, practical aspects of the estimation of models proposed by Stark, in particular lack of data, made the use of these models difficult for most forecasters. That does not mean that Stark's concepts remained unnoticed in the forecasting community. To the contrary, they are carefully looked at and

one might expect that they will eventually become integrated into the conventional forecasting toolkit. However, such models would require very extensive micro-level data. Such data are usually not available for large spatial units, for which forecasts are made.

New economic theory of migration focuses on individual and household decisions, whereas the dual labour market theory (Piore 1979) looks into relationships between employment, salary, social status and social hierarchies and institutional factors. According to this theory, migration is driven by the demand for a labour force, as well as by recruitment practices of destination regions, rather than by differences in salary levels observed between the places of origin and destination. The wage is not just an offshoot of supply and demand: it also states the social status of the worker. Therefore, the relative wage for jobs at the bottom of the hierarchy cannot be raised even in the face of shortages in labour supply, as such a change would modify the structure of the employment hierarchy. Once shortages occur, immigrant workers from less developed countries, for whom the status in the society of the destination country is of little importance but wages higher than in the country of origin are essential, can comfortably fill the vacancies. The segmentation of the labour market progresses together with technological advancement. In consequence, in developed societies the labour market consists of two separate segments: the first one with stable jobs requiring high skills that are appropriately remunerated, and the second one with low-skilled, poorly paid jobs, which are vulnerable to reductions due to the business cycle. As the natives are not willing to take jobs in the second segment, the excess demand is satisfied with foreign supply. Some authors (e.g. Zlotnik 1998; Portes and Bach 1985, after Massey 2001) also suggest the existence of a third segment, operating in ethnic enclaves. Jobs in this segment are at the bottom of the earnings and status hierarchy, but unlike the jobs in the second segment, they give returns to education and experience, and certain prospects for upward mobility.

Dual labour market theory is of a descriptive nature, and helps to explain the observed patterns, for example demand for foreign labour in Germany despite millions of unemployed Germans. However, it is of limited attraction for forecasters, as it is difficult to operationalize and, to a large extent, it concerns illegal migration, which is not easy to measure and for which forecasting methodology has not been developed yet.

Apart from theories which attempt to explain migration, there is a wide body of theories which explain economic processes and take migration into account as one of many explanatory factors (Górny and Kaczmarczyk 2003) and which, for obvious reason, are beyond the scope of our considerations.

3.2 Sociological Theories of Migration

Schmitter Heisler (2000) noted that sociology has been much more interested in how migrants function in receiving societies than what mechanisms generate and sustain migration. Despite this observation, sociology has contributed substantially

to the development of theories of migration which should be considered by migration forecasters. A fundamental sociological concept, formulated by Stouffer (1940, 1960), is the intervening opportunities theory linking a destination to which migration takes place with the number and quality of opportunities attractive to the migrant between the place of origin and destination and at the destination. According to Termote (1967), this theory is equivalent to the spatial interactions model developed by geographers.

A quintessence of the sociological approach is the push–pull factors theory of Lee (1966), based on the findings of Stouffer. It says that potential migrants react both to factors perceived by them as the push ones (unfriendly) at the origin and to those perceived as the pull ones (attracting) at the destination. The relative strength of the push and pull factors is also responsible for the characteristics of migrants. If the pull factors at the destination are dominant, migrants tend to be positively selected in terms of education, skills, motivation, etc. Negative selection occurs when push factors at the place of origin play the main role in the decision. The costs of migration (e.g., financial and psychological) tend to weaken the strength of the push and pull factors. This tendency, however, may be diminished by the existence of networks and supporting institutions, which is discussed in more detail later. It is worth noting that this theory is of a very general nature. Since the push and pull factors do not have universal meaning, they may be defined by researchers in different ways depending on the needs typical for the societies under study. Iglicka (1995) points to the fact that the determinants of international migration are not the push and pull factors themselves, but rather their perception by potential migrants.

According to sociologists (Taylor 1986; Massey 1998), the existence of a network of family and friends is of crucial importance to potential migrants, as it diminishes monetary and social costs and the risks of migration. Empirical evidence suggests that migrants often rely on the assistance of relatives or countrymen while establishing a new life at the destination (Zlotnik 1998; an excellent description of the process in Poland can be found in Jaźwińska and Okólski 2001). The networks were identified as a form of social capital (Massey 1987, after Massey 2001), referred to as "the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network or more less institutionalized relationships of mutual acquaintance and recognition" (Bourdieu and Wacquant 1992, p. 119, after Massey 2001, p. 9832), convertible into other forms of capital. Keely (2000) noted that the networks are on one hand the results of migration (as any single act of migration adds to the capital for the acquaintances of those who emigrated), and a propeller of migration on the other (the greater the capital, the lower the costs of migration).

Another insight is offered by the institutional theory, which gives consideration to the role played by institutions and organizations as migration-supporting facilities. Non-governmental organizations, likewise networks of family and friends, furnish relevant information, assist in finding accommodation and jobs at the destination and, finally, provide help in critical situations and thus diminish the risk associated with migration. At the same time, numerous organizations in the market earn their profits from migrants legally (travel agencies, airlines, railways, sea carriers and

other transport agencies which often combine services, barrister's offices specialized in migration-oriented issues, etc.) or illegally (organizations of criminal nature which specialize in arranging illegal trafficking routes and smuggling migrants; see Laczko 2000). All the organizations mentioned make efforts to intensify migration in order to maximize profits. Salt (2000) stresses the significant role of such organizations and institutions in the migration globalization process that is observed all over the world, and went even further (Salt 2004), speaking of the business of international migration as an industry, partly owned by governments (visa and permit fees).

Within the cumulative causation theory, Massey (1990) states that international migration is a consequence of changes in the social and cultural environment of the places of origin and destination. Return migrants accumulated larger capital than stayers, which provides them with possibility of better dwellings, investment in small local family enterprises or purchase of land. This makes them be perceived by the non-migrant population as a privileged group, an object of aspiration for a growing number of persons from the immobile group. Migration is thus perceived as an activity generating a positive net balance, which, if the volume of migration is large enough, creates the culture of migration. Many elements of this theory appear within the concept of the incomplete migration set forth by Okólski (2000b; see also Iglicka-Okólska 1998; Iglicka et al. 1995, 1997; Okólski 1998; Jaźwińska and Okólski 2001) and explain the short-term and pendular mobility of workers in Central Europe.

3.3 Migration Theories Based on Other Sciences

The theories mentioned above do not suffice to explain fairly low international mobility of people in the face of current disparities between geographically different locations. According to Zolberg (1981, after Zlotnik 1998) a reasonable supplement would include the interactions of political and social systems. Although they do not prevent natives from choosing better conditions abroad in search of maximizing their profit, they often effectively stop foreign individuals from settling in a country, reducing migration flows. Highlighting the possible conflict of interests between the individual and a state gives better understanding of political aspects of migration and the ongoing processes concerning current migration policies. In particular, this is a very relevant observation to explain the very high exodus of people from Central Europe after the demise of communism. Zolberg (1981) also points out the role of political systems in conflicts that create mass migration flows of refugees and internally displaced persons.

Political factors are highly underrepresented in migration theory (Hollifield 2000), which relies mostly on economic or sociological factors to explain the migrations, with a small role of the state and its policies. However, as Zolberg notes (1989, p. 405), the policies of the sending and receiving states could be an important intervening factor that changes the strength of economic and

social factors. Although underestimated by migration theorists, state boundaries, regulations and institutions remain an important factor in human mobility.

Nevertheless, the political factors are difficult to operationalize in a way needed to incorporate these factors into migration forecasting. Migrants' rights can be used as an illustration in this case. Hollifield (2000) notes that the extension of migrants' rights turned out to be one of the most important factors that enables the continuation of immigration in Western Europe after the 1970s. However, these rights vary in time and space and thus are difficult to measure and compare in the way needed for migration forecasts.

Another interesting theoretical proposition is the migration systems theory, developed by Kritz et al. (1992). The theory distinguishes a migration system consisting of a group of sending countries and a group of receiving countries, recognizing that there is a considerable interdependence between the migration experiences of these groups. Each of the countries may belong to more than one migration system. This theory can be especially useful whenever demographic forecasts for large supranational areas are prepared, as it provides theoretical grounds which allow particular countries to be classified into clusters. Zlotnik (1992) sets forth how migration systems should be defined in practice. However, she noted that this framework is in the formative stage, despite its valuable descriptive properties, and that the lack of comparable and comprehensive data on international migration is serious obstacle in advancing this approach further (Zlotnik 1998). Moreover, development of the ethnosurvey methodology (Massey 1987) potentially allows the macro-level migration system theory to be linked with micro-level migration nexuses investigated within the ethnosurvey approach, although at a very high cost of obtaining suitable data.

3.4 Usefulness of International Migration Theories for Forecasting

Modelling and forecasting of migration and its impact on population dynamics is a typical demographic task. In general, the forecasting methods are based on either deterministic or stochastic models (Bijak 2010). This observation has an important consequence for our thinking on the usefulness of migration theories in migration forecasting: it should be possible to transform the theories into models. Therefore, for a forecaster, the criterion allowing the assessment of whether a theory is or is not suitable for forecasting is whether it can be operationalized. A silent assumption is that the forecasters should consider only theories which are relevant and empirically tested.

Demography does not offer a broad choice of explanatory theories which could be easily used for construction of models. Therefore, demographers are forced to borrow from theories developed on the ground of other disciplines, such as economics, geography, sociology and behavioural sciences. As argued above, the

process is far from seamless. It is possible to identify several common features of the theories which explain the difficulties in using them in forecasting:

1. Migration forecasting is a narrow area of demography and has specific requirements relating to the formulation of theories; in particular the requirement that a theory is operationalized easily enough to allow its incorporation into forecasting models.
2. None of the existing theories are fully comprehensive. The migration processes are so complex that the existing theories provide only partial explanations, focusing on selected, often narrow, aspects.
3. Most of the existing theories ignore problems having an essential impact on international migration, such as government policies on international migration, political instability, historical ties, natural environment quality and life quality.
4. Most of the theories ignore forced migration, which constitutes a significant part of international migration.

Hence, creating scenarios of changes in international migration faces a serious problem: the international migration theory is relatively poorly developed, often fragmentary and, in the opinion of a number of specialists, not very useful to forecast migration dynamics (Öberg and Wils 1992; see also Arango 2000). Such a view was shared by Kupiszewski (1996) in the analysis of possible development trajectories of international migration for EU population forecasts. This standpoint was also indirectly shared by de Jong and Visser (1997), the authors of international migration scenarios used in the 1995 round of population forecast prepared by Eurostat, and who provided a review of the existing international migration theories, but did not make any reference to them when setting out the scenarios. Salt and Singleton (1995) in their study presented a complex, theoretical model of international migration that, in the opinion of the authors, provides a framework for numerical forecasts. In practice, Salt and Singleton's model is difficult to apply as it is formulated in very abstract terms. Furthermore, owing to a complex typology of migration flows, the model demands a significant amount of information, which is currently either unavailable or seriously biased. The migration systems theory can be useful for forecast purposes, but only in the process of identifying supranational regions where the biggest migration flows are observed.

If we look at the tables specifying migration theories across disciplines and the variables used in these theories (Brettel and Hollifield 2000, Tables 1 and 2, pp. 3, 19), it will be clear for us that these theories have little to offer a forecaster. According to Brettel and Hollifield (2000), only economics asks questions relevant to forecasting. This is too restrictive a statement, as sociological theories also offer a useful framework, even if it is sometimes difficult to quantify, such as the push and pull factors theory, or network theory. Geography, which was not particularly successful in developing a theoretical framework for international migration, still offers some useful tools, such as spatial interaction models, which are much used in migration modelling and forecasting. The same also holds for the inclusion of some geographic measures in migration models, such as distance and spatial contiguity.

Numerous attempts to forecast migration between EU members and pre-accession countries have been based on various migration theories, only to a relatively small extent. These attempts have mainly focused on simple econometric models, which usually relate net migration or stocks of foreign population in destination countries to a difference in income between sending and receiving countries (Franzmeyer and Brücker 1997; Orłowski and Zienkowski 1998; Brücker 2000; Brücker et al. 2000; Sinn et al. 2000; Fertig and Schmidt 2000; Zienkowski 2001) and the level of employment/unemployment (Orłowski 2000; Alecke et al. 2001; Alvarez-Plata et al. 2003; Brücker and Siliverstovs 2005). A variety of other explanatory variables have been used, a list of which may be found in Jennissen (2004) and Bijak (2010). Such a narrow approach to migration theories, reduced to monetary, employment and sporadically some other aspects, likewise in the neoclassical economic theory of migration, often leads to oversimplification and in consequence forecasting results with very high levels of errors (Kupiszewski 2001b).

To summarize, existing theories of international migration do not offer decisive help in the forecasting of international migration; however, forecasters should use them as much as possible while setting the scenarios of future changes in international migration. The most useful is the sociological perspective, examining the push and pull factors. The analysis of these factors helps to understand the migration behaviour of populations. However, it is sometimes difficult to quantify the impact of these factors on migration streams. On the basis of the lesson we draw from this review, we will look in the following section into the push and pull factors contributing to international migration in Europe at the turn of the century.

3.5 Push and Pull Factors of International Migration

In this section we identify the most important factors of international migration. The underlying migration theories were discussed earlier in this chapter. It was noted previously that the deficiencies of migration theories make it difficult to use them directly in forecasting models. Lee's push and pull factors theory can be relatively easily operationalized and many, albeit not all, known push and pull factors can be measured with a reasonable degree of accuracy. Therefore, these factors may be important explanatory variables in migration models. This chapter is devoted to the identification and description of various push and pull factors influencing international migration in Europe. The analysis focuses on the role of political changes and migration policies (for the underlying discussion, see Chap. 2) and ethnically motivated migration and migrant networks, as well as on the impact of the economic factors on international population movements. All these factors are considered in Chap. 6, in which migration scenarios are constructed.

The data on which the analysis is based come from two major sources: the Council of Europe (1997–2003) yearbooks *Recent Demographic Developments in Europe* and the NewCronos database of Eurostat. The data on economic indicators come predominantly from publications of the World Bank (2003) and United Nations (2003b).

3.5.1 Political and Migration Policy Factors

The push and pull factors determining international migration (see Sect. 3.2) can be further divided into two major types: the hard and the soft ones (Öberg 1996). Complex humanitarian emergencies and catastrophic events, such as armed conflicts and environmental disasters, belong to the former group, whereas issues such as poverty, persecution, social exclusion, and unemployment belong to the latter group. Political developments thus constitute either soft or hard determinants, depending on the particular circumstances. In contemporary Europe, most of the political factors can be attributed to the soft group, apart from the dramatic events of the wars on the territory of the former Yugoslavia and in Chechnya.

In the past 50 years, apart from the migratory outcome of the process of decolonization, most of the political factors of international migration in Europe concerned either the socialist countries of the former Soviet bloc or the hard-line dictatorships in countries such as Greece, Portugal and Spain until the mid-1970s. In both cases the democratization processes led to an increase in migratory flows, although in different directions. The fall of the regime of the 'black colonels' in Greece, the Carnation Revolution in Portugal (1974) and the death of Franco in Spain (1975) caused massive returns of former political emigrants to these countries. Adversely, the political system change taking place in the countries of Central Europe in the late 1980s and early 1990s caused a substantial outflow of the population. Korcelli (2000) noted that this explosive outflow was possible because of the simultaneous existence of three migration factors: political instability and the poor economic situation pushing migrants out and liberal immigration policy in Western Europe. Another explanation for this phenomenon is that in socialist times people were to a large extent deprived of the right to emigrate freely and the large scale of emigration was in fact a realization of deferred demand. With the exceptions of the periods of political and social unrest and with the exception of the ethnic migration to Germany and Israel, emigration from the countries of the former Soviet bloc was rather limited in scope (see Sect. 4.2).

Apart of the demise of socialism in Central Europe, the most important political factors shaping migration in Europe during the 1990s were the armed conflicts in the former Yugoslavia and, to a lesser extent, in the Caucasus, which caused many internal and external forced displacements of people from Bosnia and Herzegovina, Croatia, Kosovo and Chechnya. During the 1991–1995 war, the refugees from the former Yugoslavia headed mainly to the countries of Western Europe, most numerously to Germany. According to UNHCR (2004), the number of refugees from Bosnia and Herzegovina reached one million persons shortly after the war ended (data for 1996), whereas the number of refugees from Croatia was nearly 350,000 (data for 1997). It is worth noting that refugees account for about half of the total number of the population that was forcibly displaced during armed conflicts in these countries, the other half comprising the internally displaced persons (UNHCR 2004).

In the decade that followed the fall of the Iron Curtain in Europe, some other political factors appeared to be very important in determining the shape of international

migration flows. For example, political factors related to insufficient minority rights underlay the emigration of ethnic Russians from Latvia and Estonia, as well as the emigration of ethnic Turks from Bulgaria (see Sects. 3.5.3, 4.2, 4.3). The war in Chechnya resulted in a substantial outflow of asylum seekers from the Russian Federation. Over the period from 2001 to 2003, some 10,125 applicants for asylum in Poland came from Russia, constituting over 60% of all applicants (URIC 2004).

Contemporarily, admission of new members to NATO and the enlargement of the EU seem to be the factors increasing the sense of security and political stability all over the continent. In that respect, these events will surely bring about a reduction of politically motivated international migration in Europe. One should not, however, forget that some regions are still lacking stability, such as parts of the former Yugoslavia (Bosnia and Herzegovina, Kosovo), where the presence of international administration and armed forces have suppressed, but yet not eliminated, the existing ethnic tensions. Also the post-Soviet space is lacking political stability, which may have an impact on the European migration scene in the future. In this case, issues such as the unresolved conflict in Chechnya, the autocratic regime in Belarus, hindered democratization processes in Russia and political tensions in Ukraine and Moldova, especially between the Eastern and Western parts of the countries, may be potentially significant factors shaping population flows in Europe.

Apart from the political determinants, migration policies constitute another important factor of international migration. The importance of the policy factor in shaping population flows is contemporarily undisputable, as international migration is the area in which the institutional policy framework has a direct effect on the demographic phenomena. Most notably, migration policy—along with other push and pull factors that shape migration—plays a key role in determining the magnitude and patterns of international population flows (see Chap. 2). In particular, it reconciles a strong incentive to migrate due to the existing economic disparities between countries and the reluctance to increase foreign populations in affluent European countries countered by the ever-more restricted opportunities to migrate (Meyers 2000). This is especially true as developed countries try to maximize the extent to which international migration is controlled through policy measures. In our view, in the early twenty-first century, the main lines of migration policy in Europe can be summarized under the following headings:

- Efforts to make the migration policy more responsive to the labour market needs.
- Introduction of different forms of selective immigration policy, resulting from structural labour shortages in certain sectors of the economy. This applies both to highly skilled specialists (information and communication technology, medicine and biotechnology) and to low-skilled seasonal workers (agriculture, construction, tourism and household services).
- Attempts to integrate the already admitted immigrants with the host society.
- Combating illegal immigration and strengthening border control, notably within the Schengen zone.
- Limiting the abuses of the asylum systems.
- Regularization programmes for irregular migrants in Southern Europe.

The policy developments in Europe can be therefore seen as a result of two complementary tendencies: selective openness of the labour markets for immigrants with the required qualifications, combined with ever-stricter border control and management of the migration flows, in order to combat all forms of irregular migration. In general, the term "migration management" is a key phrase in describing current tendencies in migration policy developments, aimed not at bringing the population inflow down to zero (which is neither feasible, nor desirable), but rather at giving it the required shape.

Needless to say, migration policy developments are to a large extent unpredictable, as is the economic and political setting in which the policy regulations are created, which apart from the current socio-economic conditions includes the current pressure of public opinion. Nevertheless, one feature seems visible, namely the parallel developments of migration policies in all European countries. This is not only due to creating the common framework at the EU level, but also because if migration policies become more restricted in one country, more migrants will choose other destinations, enhancing the pressure on constraining the inflow also in these alternative destinations (de Jong and Visser 1997). This presumption allows the European countries under study to be treated as a system with common migration policy features, changing along the same lines roughly at the same time. Naturally, the direction of future policy changes, either to more liberal or to more restrictive policies, depends on various factors, of which three seem to be of key importance: the volume of immigration, social disparities and unemployment levels (Massey 2003). Integration policies are also of great importance, as the integration of migrants already present on the state territory is a key issue in the public discourse in all major immigration countries. In that respect, migration policies can be to some extent a response to the changing social and economic conditions in the countries under study, and are discussed briefly in the next section.

3.5.2 Economic Factors of Migration

The literature on economic factors of international migration is plentiful and varied. An overview and verification of the impact of major economic determinants of migration has been provided by Jennissen (2004). Most importantly, he confirmed the hypotheses of the positive effect of GDP per capita and the negative effect of unemployment on net international migration. He also differentiated the two types of economic factors—sensitive and insensitive to immigration policy—the respective examples being unemployment and GDP per capita. On the other hand, as noted by Kaczmarczyk (2004) on the basis of a review of available literature, in many cases both relationships can be seen as relatively weak in scope. This can lead to the conclusion that formal inference and forecasting of migration on the basis of economic explanatory models should be done very carefully, taking the above into account.

The GDP per capita is usually perceived as a very good measure of the level of the socio-economic development of particular countries and as the macroeconomic proxy for the level of individual income. However, to take into account the differences in price levels, which are very important from the point of view of the migrants' utility, the GDP should be calculated on the basis of the purchasing parity power (PPP) rather than fixed exchange rates. There is also a clear agreement among researchers on the direction of the impact of GDP on migration: a high level of economic development constitutes a strong pull factor of migration (Jennissen 2004).

Analysis of the impact of GDP growth in turn does not allow an equally unambiguous conclusion to be drawn. In the contemporary world with a global economy, periods of prosperity and recession in different countries are very often interdependent and develop in parallel. Therefore, the economic difficulties on the global scale may, on one hand, pose an additional push factor to emigrate in the sending countries, but on the other hand may reduce the incentives pulling migrants to the destination countries, through a smaller demand for a labour force, as well as through policy restrictions. Apart from this, globalization processes may interfere with international migration in many different ways (Koryś and Okólski 2004), which can additionally obscure the picture of the impact of global economic growth or recession on migratory flows.

Another very important economic factor of migration is the unemployment level. Its impact on migration is twofold: high unemployment in a given country constitutes a strong push factor to emigrate and hardly any incentive to immigrate for the foreign labour force. In terms of net migration, both of these components act in the same direction.

In the formerly socialist countries of Central Europe, two other factors related to the structure of the labour markets seem to have an impact on migratory flows: employment in agriculture and in privatized heavy industry. As both of these sectors were in most cases technologically backward and inefficient, and their levels of employment very high by European standards, their inevitable restructuring could be expected to generate a flow of migrants, both internal and international, in search of new employment possibilities. These push factors are likely to be complementary to the pull ones in Western Europe, facing the opposite structural problems in the labour markets, namely the unmet demand for low-skilled and semiskilled workers in construction and agriculture.

Summing up, the most important economic push and pull factors of migration from the less developed to more developed countries seem to be low wages, unemployment and relative poverty in the countries of origin, combined with job opportunities and higher earnings at the destination. With regard to the postsocialist countries of Central and Eastern Europe, the push factors appear to be more important than the pull ones (Orłowski 2000). In Western Europe, the opposite seems to be true, especially with regard to labour migration, owing to very high levels of socio-economic development.

To provide the economic background for the European countries under study at the beginning of the twenty-first century, three variables are presented in Table 3.1:

Table 3.1 Economic characteristics of the countries under study at the turn of the century

Country	GDP per capita (PPP) in 2001 (2001 USD)[a,b]	Unemployment rate in 2002 (%)[c]	Employment in agriculture in 1998 (%)[a]
Luxembourg	53,780	2.8	2.1
Ireland	32,410	4.4	9.1
Norway	29,620	3.9	4.7
Denmark	29,000	4.5	3.6
Switzerland	28,100	3.1	4.6
Netherlands	27,190	2.7	3.2
Austria	26,730	4.3	6.5
Belgium	25,520	7.3	2.2
Germany	25,350	8.6	2.8
Italy	24,670	9.0	6.6
Finland	24,430	9.1	6.5
Sweden	24,180	4.9	2.6
United Kingdom	24,160	5.1	1.7
France	23,990	8.8	1.4
Spain	20,150	11.3	8.0
Portugal	18,150	5.1	13.5
Greece	17,440	10.0	17.8
Slovenia	17,130	11.3	12.0
Czech Republic	14,720	9.8	5.3
Hungary	12,340	8.0	7.7
Slovak Republic	***11,960***	***17.4***	***8.3***
Estonia	***10,170***	***6.8***	***9.1***
Poland	***9,450***	***18.1***	***19.2***
Lithuania	***8,470***	***10.9***	***21.0***
Latvia	***7,730***	***8.5***	***18.8***
Bulgaria	***6,890***	***16.3***	***26.2***
Romania	***5,830***	***8.1***	***40.0***
Average for 27 countries	21,165	8.7	7.7

Data in *bold italics* refer to countries with negative net migration in 2002 or thereabouts (Council of Europe 2003). A *grey background* denotes GDP values lower than USD 15,000 (approximately 70% of the average) or unemployment and employment in agriculture rates higher than 10%—potentially important push factors of international migration *PPP* purchasing power parity

Source: [a]World Bank (2003); [b]own computations; [c]United Nations (2003b, Tables A10 and B7)

the PPP-adjusted GDP per capita for 2001, in constant US dollars, unemployment rates for 2002 and the shares of employment in agriculture for 1998. The variables are presented for slightly different years in order to ensure the completeness of the cross-sectional data and comparability between the countries.

From the overview in Table 3.1 it can be seen that in the early years of the first decade of the twenty-first century in terms of GDP per capita the postsocialist countries, with the exception of Slovenia, visibly stood out from the other members

of the EU and EFTA. Labour market problems (unemployment and structural incompatibilities) were also visible in the case of most postsocialist countries, with the exceptions of the Czech Republic, Hungary and Estonia. The most serious disturbances in the labour markets were observed in Bulgaria, Romania, Poland, the Slovak Republic and Lithuania. It is also worth noting that some countries in Southern Europe also had problems either with high unemployment (Spain, Slovenia, Greece) or with high employment in agriculture (Greece, Portugal, Slovenia), yet to lesser extent than the postsocialist countries of Central Europe. Not surprisingly, most of the labour-exporting emigration countries were those with the lowest income per capita and highest labour market incompatibilities (Table 3.1).

To verify the impact of the economic variables mentioned on international migration, we tested several simple econometric models explaining net migration rates per 1,000 population by the variables presented in Table 3.1, as well as by an additional social variable, the percentage of foreign nationals present in a given country (source Eurostat, NewCronos). All the models were cross-sectional, using the data on net migration for 2002 or the nearest available year for Italy (2001), Bulgaria (2000) and Estonia (1999). In all cases, the migration data came from the Council of Europe (2003) yearbook.

Among the univariate models, the best fit ($R^2 = 0.61$) was obtained for the natural logarithm of PPP-adjusted GDP, lagged by 1 year—further referred to as $\ln[L(\mathrm{GDP_{PPP}})]$, where L denotes the lag operator. Unemployment alone, even as the logarithm, did not explain enough of the variance ($R^2 = 0.39$). Even less so did the share of employment in agriculture ($R^2 = 0.18$). Among the multivariate models, all other variables combined with $\ln[L(\mathrm{GDP_{PPP}})]$ proved to be insignificant, apart from the employment in agriculture. The best model fit, however, was obtained by including in the GDP model a dummy variable (Z1) equal to 1 for the countries with very high net migration, greater than 5.0 per 1,000 population. In this case, all the other economic and social explanatory variables proved insignificant. The model equation is as follows:

$$\mathrm{NMR} = 2.742 \ln [L(\mathrm{GDP_{PPP}})] + 3.949 Z_1 - 25.459,$$

$$(0.370) \qquad (0.533) \qquad (3.594).$$

The adjusted R^2 of this model is 0.87, which seems to indicate that the level of economic development explains most of the variability of the net migration levels in European countries, with the exception of the countries with the highest immigration levels. The graphic outcome of the model is presented in Fig. 3.1.

On the basis of this model, two major clusters of countries can be easily identified:

1. Central Europe and Greece, with GDP (PPP) not exceeding USD 20,000 per capita and net migration rate lower than 2.0 per 1,000 inhabitants;
2. Western Europe, with GDP (PPP) between USD 20,000 and USD 30,000 per capita and net migration ranging from 1.0 to 4.0 per 1,000 inhabitants.

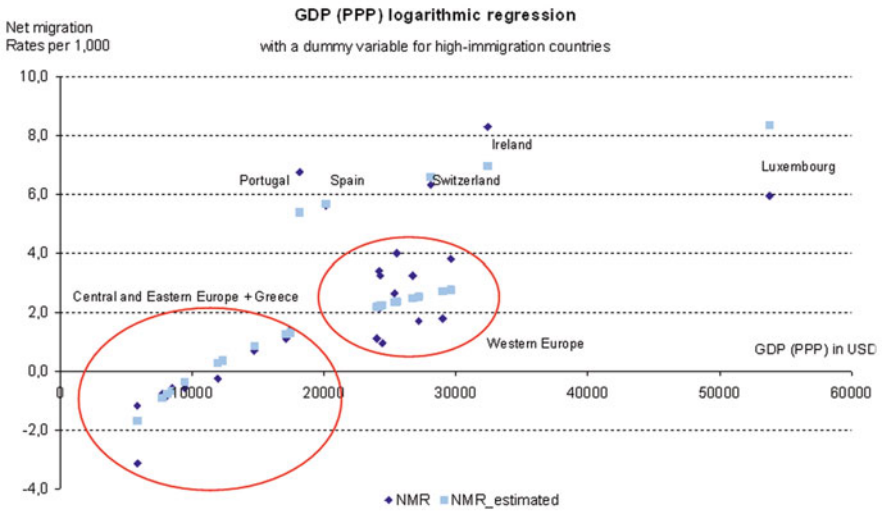

Fig. 3.1 Explaining net migration using GDP per capita (purchasing power parity, *PPP*), with a dummy variable
Sources: Council of Europe 2003, Tables 8; World Bank 2003 and own computations

There are also five outliers—countries of high immigration (Portugal, Spain, Switzerland, Ireland and Luxembourg), where the net migration rates exceed 5.0 per 1,000 population. The necessity to add a dummy variable to the model in order to take the specificity of these countries into the account reflects the inability to explain their migration patterns solely on the basis of the socio-economic variables proposed in this section.

3.5.3 Ethnic Migration and Migrant Networks

Ethnicity as a factor shaping international migration in Europe used to be very important. One factor contributing to the existence of ethnic minorities was the complex migration history of Europe in past centuries. Most notably, this included the colonization of some areas in Central Europe and Eastern Europe by the ethnic Germans in the Middle Ages, as well as the formation and dissolution of two multiethnic state organisms: firstly, the Ottoman Empire, and then the Austro-Hungarian monarchy (Jennissen 2004).

The border changes that took place after each of the two world wars of the twentieth century resulted in the creation of largely ethnically homogenous countries, especially in Central and Eastern Europe (Eberhardt 1999). As a result of all these changes, as well as because of forced resettlements, especially during and directly after World War II, substantial ethnic diasporas remained outside their countries of ethnicity, forming a large migration potential for later years. Additionally, the

recent events in Central and Eastern Europe, including the break-up of Yugoslavia in 1991–1992 and the Soviet Union in 1991, as well as the dissolution of the Czechoslovak Federation at the end of 1992, contributed to many people suddenly finding themselves in foreign countries, forming the new ethnic minorities.

Among the most significant population flows having a primarily ethnic character is the repatriation of Germans (*Aussiedler*) from Central and Eastern Europe that has been taking place since the end of World War II. According to the German Federal Ministry of the Interior, between 1950 and 2002 there were 4.3 million repatriates, half of whom came from the former Soviet Union, one third from Poland and about 10% from Romania (BMI 2004). The German minorities in the latter two countries are currently small (153,000 persons in Poland and 60,000 in Romania, according to the population censuses of 2002), but crucial for forecasting the future flows are the changes in German policy towards *Aussiedler*. The inflow of people seeking *Aussiedler* status diminished radically in the 1990s, when the social and economic privileges related to *Aussiedler* status were limited. Thus, no significant flows of *Aussiedler* are expected from these countries in the future. Some more potential of ethnic German migration remains in the countries of the Soviet Union, but given the significant decrease in the number of applications for repatriation (BMI 2004; Dietz 2000), partly due to the change of German immigration policy, this source of migration flows should also be considered as almost depleted. Ethnic emigration from the countries of the former Soviet Union involved population movements to Israel, Finland and Greece, but to a much smaller extent than the flows to Germany (Locher 2002; Jennissen 2004).

The other ethnic minorities that may in the future generate some migration flows affecting the countries under study are Hungarians in Romania and in Serbia (Vojvodina), Russians in the Baltic countries, Romanians in Moldova and Turks in Bulgaria (Eberhardt 1999). Another minority group is the Poles in the former USSR, who were forcibly deported from the Ukraine to the Central Asian republics in the 1920s; their returns, however, are not very significant in the terms of numbers, despite some incentives from the Polish state. For the remaining ethnic minorities in Europe, it can be envisaged that the ethnic factor will not influence international migration, owing to the similar levels of development of the countries of residence and the ethnic homeland. The latter conclusion will likely be true for Poles in Lithuania and for Hungarians in the Slovak Republic, as well as for the minorities in some Western European countries (e.g. Swedish-speaking citizens of Finland, German- or French-speaking citizens of Italy, and Slovenes in Austria).

In the future, the diasporas of the Central and Eastern European nations in other developed countries may cause some return migration, but judging from the magnitude of this phenomenon in recent years, these flows will be rather limited in size. In general, it can be reasonably assumed that the ethnic factor of international migration in Europe is going to considerably decrease in significance, as this tendency is already visible, for example, with respect to the German *Aussiedler*.

Other ethnic migration flows from the countries of Central Europe to Western Europe concern the Roma population. There are approximately seven million to nine million Roma in Europe, of which six million live in the central part of

the continent—of the countries under study most notably in Romania, Bulgaria, Hungary, the Slovak Republic, and the Czech Republic, as well as in Spain (ICMPD 2001). Especially in the 1990s a number of Roma emigrated (or tried to emigrate) to the countries of Western Europe, mainly to the United Kingdom, and to Canada. The reasons for migration were in some cases the open discrimination and violence, and in other cases the economic deprivation in comparison with other ethnic groups in the home country. The future development of Roma migration is difficult to predict, as it depends on such uncertain factors as the improvement of the economic situation of the Roma, and the progress in dialogue between the Roma and non-Roma communities in their countries of residence (ICMPD 2001).

In general, a migration factor closely linked with ethnicity is the presence of migrant networks in the destination country. As discussed in Sect. 3.2, the networks of family, friends or simply other countrymen provide useful information and in that way reduce the costs, risks and uncertainty associated with migration. A variable to measure the magnitude of the migrant networks is the share of foreign populations in the total population of a country. Although the existing data collected by the national statistical authorities are far from complete, mainly owing to underregistration, the number of registered foreigners can be seen as a reasonable proxy. It is worth bearing in mind that the real numbers are in most cases higher, mainly due to the presence of irregular migrants. Table 3.2 shows reported foreign populations in the European countries under study at the beginning of the twenty-first century.

Table 3.2 shows that in almost all countries foreigners constituted less than 10% of the population, with the exception of Luxembourg and Switzerland, as well as Estonia and Latvia. In the latter two cases, however, the high shares were due to the presence of the large groups of non-citizen residents (mainly ethnic Russians) living in these countries since the period of the Soviet Union, but not able or willing to obtain the citizenship of these two Baltic states upon their acquiring independence. Apart from the countries mentioned, one of the highest percentages of foreign nationals was observed in Germany, which, given the size of the country, translates into the largest absolute number of foreigners, nearly 7.3 million in 2001 (Eurostat). The lowest percentages of foreign nationals are registered in the former socialist countries, especially in Bulgaria, Poland and Romania, but this likely reflects the poor quality of statistical registration in these countries.

Although in the early years of the first decade of the twenty-first century the shares of foreigners who were citizens of the other European countries under study differed, in most cases they constituted less than half of the overall number of foreign nationals, one third on average. The highest shares were observed in Luxembourg and, to a lesser extent, in Belgium and Ireland. On the other hand, the lowest rates can be seen for the Baltic states and Slovenia. This is not surprising, as these countries experienced significant population exchange with the countries that are not subject to the current analysis. In the case of the Baltic states, most of the foreign population came from the other republics of the ex-Soviet Union, whereas in Slovenia, they came from other countries of the former Yugoslavia, mainly from Bosnia and Herzegovina, as well as Croatia. In these cases, the numbers include the refugees from the wars of the 1990s.

Table 3.2 Shares of registered foreign nationals in the countries under study in the early years of first decade of the twenty-first century

		Foreigners'	Foreigners from outside the 27 countries under study	
Country	Year	Share of total population (%)	Share of total population (%)	Share of all foreigners (%)
Luxembourg	2001	36.9	4.6	12.5
Latvia[a]	2001	24.6	24.4	99.4
Estonia[a]	2000	20.0	19.7	98.5
Switzerland	2001	19.8	8.3	41.8
Germany	2001	8.9	5.9	66.0
Austria	2001	8.9	6.5	73.1
Belgium	2001	8.4	2.7	32.4
Greece	2001	6.9	5.8	84.2
France	1999	5.6	3.4	60.7
Sweden	2001	5.4	2.6	49.2
Denmark	2001	4.8	3.4	69.6
United Kingdom	2000	4.2	2.6	63.0
Netherlands	2001	4.2	2.8	67.3
Norway	2001	4.1	2.2	54.1
Ireland[b]	2001	4.1	1.4	34.0
Spain	2001	2.3	1.3	55.1
Italy	2000	2.2	1.7	78.3
Slovenia	2001	2.1	2.0	96.2
Portugal	2001	2.0	1.4	71.2
Slovak Republic[c]	2001	1.9	–	–
Finland	2001	1.8	1.2	65.7
Czech Republic	2001	1.7	1.1	66.2
Hungary	2001	1.1	0.5	43.0
Lithuania	2001	1.0	1.0	94.9
Bulgaria[d]	2001	0.2	–	–
Poland[e]	2002	0.1	–	–
Romania[c]	2002	0.1	–	–
Average for 27 countries[f]	–	4.5	3.4	63.5

[a]Foreigners include Estonian/Latvian resident non-citizens, mainly ethnic Russians (see also Sect. 4.3)

[b]For Ireland, the category 'foreigners from outside the 27 countries under study' denotes citizens of non-European countries

[c]Census data. Foreigners include stateless persons and those with unknown citizenship

[d]Census data. The number of foreigners is estimated on the basis of foreign registered immigration between 1992 and 2001

[e]Census data. Foreigners include stateless persons, but exclude those with unknown citizenship

[f]Estimated. The averages for foreigners from outside the 27 countries exclude Bulgaria, Poland, Romania and the Slovak Republic

Source: Eurostat, NewCronos; census data from the websites of the national statistical offices

3.6 Conclusions

In the overview of migration theories presented in this chapter, we have argued that the theories do not offer much to migration forecasters. As noted in earlier studies, migration theories are fragmented, refer to various spatial scales, are difficult to operationalize and span a large number of quite distant disciplines. Nevertheless, we do not advocate the preparation of completely atheoretical forecasts. Instead, we suggest that picking the most appropriate theories might be a solution for forecasters. After we had examined the existing theories of migration, it was quite clear to us that the most suitable for direct use in migration forecasts is the push–pull theory, as it is easily applicable in practice. We analysed the main push–pull factors which have been identified as responsible for international migration in Europe (Jennissen 2004). We also argue that in migration forecasting the long-lasting tradition of ignoring migration policies as important factors for migration forecasts should be discontinued. In consequence, we factored expected migration policies explicitly in setting international migration scenarios.

Chapter 4
International Migration Trends in Europe Prior to 2002

Jakub Bijak and Marek Kupiszewski

This chapter contains a brief description of trends in international migration in Europe at the turn of the century. It starts with a concise analysis of the quality and comparability of international migration data. The core of the chapter is devoted to an overview of migration in Europe, analysing both the historical patterns (since 1945) and the most recent migration developments. The empirical study of migration trends is concluded with an identification of the major directions of population flows concerning the European countries under study.

4.1 Quality and Comparability of European Migration Data

This section focuses on problems regarding the quality of international migration data in Europe, with special regard to the discrepancies between the numbers of migrants reported by sending and receiving countries. The data used in this study come predominantly from the Council of Europe (1997–2003) yearbooks *Recent Demographic Developments in Europe* and from the Eurostat database NewCronos, both sources reflecting migration registered by the national statistical authorities.

J. Bijak (✉)
Division of Social Statistics and Demography, ESRC Centre for Population Change (CPC) and the Southampton Statistical Sciences Research Institute, University of Southampton, Southampton, UK
e-mail: J.Bijak@soton.ac.uk

M. Kupiszewski
Institute of Geography and Spatial Organization of the Polish Academy of Sciences, Warsaw, Poland
e-mail: m.kupisz@twarda.pan.pl

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_4,

Considering the quality and completeness of data on international migration, some problems are common for all European countries, although to a differing extent. As noted by Bilsborrow et al. (1997), there may be various grounds for the inconsistencies of international migration data, including different definitions of migrants in various countries, or incomplete reporting for reasons of legal, technical, organizational or other nature. Mainly because of these discrepancies, at the turn of the century the completeness and validity of data for many European countries was still far from perfect (Eurostat 1997a), despite the visible efforts of the national statistical authorities aiming to improve them.

For the purpose of a brief validation of the quality and completeness of data on registered international migration reported by particular EU-27 countries, two sides of the same picture have been examined, namely the figures provided by the origin and destination countries. Flows between the 27 countries were considered and the figures were assembled into the so-called double-entry migration matrix. To provide a simple tool of data evaluation, the respective figures on the numbers of migrants reported for 2002 (or the nearest possible year) have been compared. Further, two simple relative data coverage measures have been calculated, i.e.:

1. Number of immigrants to a particular country as reported by that country (destination) divided by the respective number reported by as many EU-27 origin countries as possible with regard to the data availability (quality of immigration coverage, QIC)
2. Number of emigrants from a particular country as reported by that country (origin) divided by the respective number reported by the possibly broadest group of EU-27 destination countries (quality of emigration coverage, QEC).

The complete available origin/destination data matrix for 2002 and the respective QIC and QEC measures are presented in Table 4.1. These simple quality measures can be seen as *relative* data validity indicators, i.e. showing the coverage of data on immigration or emigration reported by a particular country, as compared with the respective data reported by the countries of origin or destination of the migrants. Generally, the higher are the ratios, the higher is the coverage in the country in question in comparison with its migration partner countries. These measures, however, take into account not only differing values reported by sending and receiving countries on the same flow, but also lack of data or lack of reporting by the statistical office(s), in which case a value of 0 was arbitrary assumed. The justification for such an approach is that these two simplistic quality measures clearly show the magnitude of uncertainty researchers are faced with. From the point of view of the theory of constructing demographic measures, they could be easily criticized for not eliminating these pairs of entries in which one of the flows is not reported or is missing. Despite these obvious shortcomings, the QIC and QEC measures may be useful as rough aggregate indicators of availability, coverage and completeness of migration data.

In most cases, there is a positive correlation between the coverage of the data on immigration and emigration. Taking information on both types of flows

Table 4.1 International migration in Europe (2002), registered by receiving and sending countries

Origin\Destination		AT[a]	BE[b,c]	BG[d]	CH[e]	CZ	DE	DK	EE[d]	ES	FI	FR[d]	GR[e]	HU[b]	IE[f]
AT[a]	Receiving	0	239	:	3,109	339	14,401	321	:	540	101	:	113	156	0
	Sending	0	330	513	2,894	1,598	14,162	250	12	814	225	968	522	2,871	130
BE[b,c]	Receiving	267	0	:	996	80	4,439	609	:	3,141	151	:	91	47	0
	Sending	230	0	74	227	85	3,550	523	30	2,059	517	6,788	828	152	436
BG[d]	Receiving	931	313	:	468	729	13,230	145	:	16,078	46	:	1,176	62	0
	Sending	:	:	:	:	:	:	:	:	:	:	:	:	:	:
CH[c]	Receiving	1,538	246	:	0	109	8,533	480	:	3,716	139	:	95	75	0
	Sending	1,642	742	245	0	314	8,813	457	28	5,036	419	5,515	325	341	306
CZ	Receiving	1,628	150	:	498	0	11,150	202	:	442	47	:	91	52	0
	Sending	377	52	470	116	0	1,087	56	3	64	39	289	77	37	41
DE	Receiving	15,810	3,538	:	18,346	987	0	3,543	:	13,757	854	:	776	785	0
	Sending	15,929	4,565	8,682	14,660	9,691	0	2,974	614	16,681	2,658	19,815	19,998	16,411	2,634
DK	Receiving	208	475	:	460	51	2,889	0	:	723	360	:	102	22	0
	Sending	233	523	55	471	143	2,700	0	175	1,722	376	1,474	273	119	311
EE[d]	Receiving	14	15	:	46	9	991	234	:	98	1,378	:	2	7	0
	Sending	:	:	:	:	:	:	:	:	:	:	:	:	:	:
ES	Receiving	939	1,579	:	2,162	42	15,426	1,613	:	0	525	:	27	16	0
	Sending	134	968	121	2,363	50	3,310	122	8	0	178	3,316	65	48	1,132
FI	Receiving	216	539	:	450	34	2,203	396	:	875	0	:	117	132	0
	Sending	87	222	8	251	30	730	384	361	724	0	380	69	132	137
FR[d]	Receiving	862	9,446	:	8,180	340	18,619	1,439	:	8,200	281	:	428	188	0
	Sending	:	:	:	:	:	:	:	:	:	:	:	:	:	:
GR[d]	Receiving	488	621	:	375	61	15,913	264	:	195	70	:	0	66	0
	Sending	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HU[b]	Receiving	3,398	377	:	714	59	17,211	147	:	326	100	:	101	0	0
	Sending	35	18	5	7	3	132	2	0	2	34	34	70	0	4
IE[f]	Receiving	137	395	:	326	45	2,230	373	:	1,186	153	:	20	22	0
	Sending	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(continued)

Table 4.1 (continued)

Origin\Destination		AT[a]	BE[b,c]	BG[d]	CH[c]	CZ	DE	DK	EE[d]	ES	FI	FR[d]	GR[e]	HU[b]	IE[f]
IT[b]	Receiving	2,260	3,029	:	7,057	253	26,882	943	:	4,967	227	:	306	99	0
	Sending	724	1,822	156	7,416	24	11,413	174	0	1,084	168	3,394	344	166	157
LT	Receiving	105	59	:	105	20	4,135	835	:	2,003	66	:	54	13	0
	Sending	26	15	6	16	9	703	104	33	119	67	61	3	3	77
LU[c]	Receiving	111	220	:	159	5	1,739	156	:	96	49	:	3	1	0
	Sending	36	1,063	21	30	26	622	192	7	161	86	1,579	68	25	71
LV	Receiving	63	37	:	180	8	2,195	455	:	218	53	:	20	2	0
	Sending	19	3	3	7	11	210	52	120	6	60	105	1	2	7
NL	Receiving	702	8,362	:	1,425	224	13,976	886	:	3,273	228	:	189	88	0
	Sending	493	9,270	68	1,005	207	10,822	540	14	3,150	299	,3,431	477	293	493
NO	Receiving	155	295	:	332	41	1,534	3,426	:	1,961	1,048	:	62	181	0
	Sending	64	157	32	144	33	679	3,309	59	1,099	1,056	420	50	24	55
PL	Receiving	3,679	,1,321	:	824	1,679	100,968	962	:	3,869	95	:	205	75	0
	Sending	525	119	12	88	38	17,806	95	0	166	9	339	75	11	13
PT	Receiving	497	1,542	:	10,503	23	8,806	171	:	3,958	52	:	6	5	0
	Sending	0	0	0	2,240	0	776	0	0	404	0	1,838	0	0	0
RO	Receiving	2,455	757	:	724	350	24,560	290	:	48,671	33	:	643	8,894	0
	Sending	293	74	0	141	98	1,305	0	0	172	4	233	60	903	115
SE	Receiving	570	746	:	985	70	3,481	2,388	:	1,730	3,255	:	224	66	0
	Sending	286	379	22	503	68	1,659	2,241	83	1,284	3,211	891	484	140	217
SI	Receiving	679	54	:	95	21	2,379	37	:	57	2	:	3	15	0
	Sending	282	38	4	154	18	907	6	0	14	4	49	18	11	3
SK	Receiving	2,506	119	:	610	13,326	11,600	72	:	422	13	:	39	1,034	0
	Sending	212	13	6	59	449	219	3	0	20	0	20	7	24	2
UK[b,h]	Receiving	1,410	3,757	:	,3,827	489	14,703	3,645	:	27,249	870	:	583	149	13,500
	Sending	521	4,018	0	7,892	1,883	14,406	2,472	0	18,440	429	18,869	3,608	428	0
EUR-27[i]	**Receiving**	**41,628**	**38,231**	**:**	**62,956**	**19,394**	**344,193**	**24,032**	**:**	**147,751**	**10,196**	**:**	**5,476**	**12,252**	**13,500**
	Sending	**22,148**	**24,391**	**10,503**	**40,684**	**14,778**	**96,011**	**13,956**	**1,547**	**53,221**	**9,839**	**69,808**	**27,422**	**22,141**	**6,341**
QIC		**188%**	**157%**	**:**	**155%**	**131%**	**358%**	**172%**	**:**	**278%**	**104%**	**:**	**20%**	**55%**	**213%**

(continued)

Table 4.1 (continued)

Origin\Destination		IT[b]	LT	LU[c]	LV	NL	NO	PL	PT[g]	RO	SE	SI	SK	UK[b,h]	EUR-27[i]	QEC
AT[a]	Receiving	857	10	41	2	565	84	156	37	81	318	90	64	3,573	**25,197**	**154%**
	Sending	1,946	71	107	42	811	141	3,297	455	1,580	523	781	1,818	1,863	**38,724**	
BE[b,c]	Receiving	1,577	7	1,413	3	5,357	198	61	179	17	387	13	6	5,044	**24,083**	**132%**
	Sending	3,030	37	281	30	5,119	373	649	1,740	318	867	21	71	3,839	**31,874**	
BG[d]	Receiving	1,403	3	25	1	440	126	21	117	2	168	2	37	0	**35,523**	**:**
	Sending	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
CH[c]	Receiving	5,687	7	35	4	802	150	41	118	11	412	73	28	3,234	**25,533**	**179%**
	Sending	8,250	54	83	50	1,211	312	356	6,426	310	881	140	204	3,177	**45,646**	
CZ	Receiving	422	13	19	8	393	79	34	8	3	151	5	749	1,248	**17,392**	**111%**
	Sending	211	20	5	8	159	22	1,117	8	158	57	19	14,455	389	**19,336**	
DE	Receiving	10,054	150	705	76	7,959	1,572	2,335	692	224	2,699	332	86	18,809	**104,089**	**316%**
	Sending	36,535	2,290	1,327	1,378	9,336	1,753	78,739	11,315	17,834	3,876	2,502	9,820	16,662	**328,679**	
DK	Receiving	326	87	121	30	465	3,232	27	39	0	4,250	0	1	4,544	**18,412**	**131%**
	Sending	777	680	131	372	613	3,325	588	128	109	4,337	30	78	4,317	**24,060**	
EE[d]	Receiving	51	41	11	56	48	174	0	5	0	345	0	0	0	**3,525**	**:**
	Sending	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
ES	Receiving	1,879	24	168	4	2,824	757	63	1,015	10	1,166	5	3	5,644	**35,891**	**59%**
	Sending	1,256	14	104	4	907	240	99	1,105	271	215	1	22	5,083	**21,136**	
F1	Receiving	305	87	73	23	408	1,249	4	24	0	3,532	0	0	0	**10,667**	**93%**
	Sending	183	28	76	24	270	1,186	37	28	24	3,591	2	3	980	**9,947**	
FR[d]	Receiving	4,328	58	2,069	19	3,084	513	247	552	80	877	14	17	23,739	**83,580**	**:**
	Sending	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
GR[d]	Receiving	737	1	52	1	1,077	89	60	11	29	595	2	4	5,526	**26,237**	**:**
	Sending	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
HU[b]	Receiving	496	4	36	5	547	101	14	27	62	274	5	30	2,265	**26,299**	**5%**
	Sending	24	1	0	2	26	42	137	3	570	24	2	115	44	**1,336**	
IE[f]	Receiving	219	2	103	4	664	69	4	45	0	351	1	2	0	**6,351**	**93%**
	Sending	0	0	0	0	0	0	0	0	0	0	0	0	5,900	**5,900**	

(continued)

Table 4.1 (continued)

Origin\Destination		IT[b]	LT	LU[c]	LV	NL	NO	PL	PT[g]	RO	SE	SI	SK	UK[b,h]	EUR-27[i]	QEC
IT[b]	Receiving	0	21	523	11	1,756	217	251	268	91	508	68	20	7,290	**57,047**	**59%**
	Sending	0	1	278	3	523	137	526	243	731	250	167	10	3,919	**33,830**	
LT	Receiving	105	0	11	162	156	289	40	3	0	261	0	1	73	**8,496**	**22%**
	Sending	41	0	0	132	40	30	97	19	0	93	0	0	198	**1,892**	
LU[c]	Receiving	220	1	0	0	172	14	2	16	2	93	0	2	0	**3,061**	**245%**
	Sending	554	3	0	2	255	24	46	2,079	35	155	8	7	357	**7,512**	
LV	Receiving	76	182	5	0	92	170	5	5	0	189	0	2	0	**3,957**	**25%**
	Sending	11	176	0	0	14	38	28	2	2	60	0	1	62	**1,000**	
NL	Receiving	762	17	204	9	0	482	83	332	11	780	10	7	6,483	**38,533**	**106%**
	Sending	1,202	39	169	11	0	511	492	710	131	659	26	100	6,051	**40,663**	
NO	Receiving	197	25	10	8	426	0	31	72	0	6,374	0	6	2,389	**18,573**	**85%**
	Sending	162	52	13	56	337	0	87	70	62	6,357	3	28	1,300	**15,708**	
PL	Receiving	5,086	110	106	23	2,275	702	0	32	3	1,186	3	29	877	**124,109**	**16%**
	Sending	302	4	23	7	290	47	0	6	2	174	0	11	254	**20,416**	
PT	Receiving	412	0	3,021	3	1,653	98	4	0	2	178	2	0	2,385	**33,321**	**21%**
	Sending	0	0	494	0	200	0	0	0	0	0	0	0	881	**6,833**	
RO	Receiving	19,710	1	41	6	627	210	3	98	0	366	0	56	0	**108,495**	**5%**
	Sending	1,317	0	9	0	67	12	2	6	0	42	0	122	45	**5,020**	
SE	Receiving	435	49	111	26	680	4,552	70	48	7	0	15	9	2,181	**21,698**	**96%**
	Sending	477	23	104	46	551	4,404	190	100	67	0	24	21	3,451	**20,926**	
SI	Receiving	301	0	12	2	66	3	0	8	0	14	0	2	0	**3,750**	**49%**
	Sending	145	1	5	0	45	1	10	6	0	44	0	4	51	**1,820**	
SK	Receiving	370	1	15	3	256	120	10	1	4	76	1	0	771	**31,369**	**4%**
	Sending	36	0	1	0	19	3	11	0	1	10	1	0	55	**1,171**	
UK[b,h]	Receiving	3,844	63	384	20	6,810	1,628	208	939	13	3,120	22	16	0	**87,249**	**114%**
	Sending	5,810	0	1,305	0	8,011	2,101	0	3,797	0	1,650	883	2,968	0	**99,491**	
EUR-27[i]	**Receiving**	**59,859**	**964**	**9,314**	**509**	**39,602**	**16,878**	**3,774**	**4,691**	**652**	**28,670**	**663**	**1,177**	**96,075**	**982,437**	**80%**
	Sending	**62,269**	**3,494**	**4,515**	**2,167**	**28,804**	**14,702**	**86,517**	**28,246**	**22,205**	**23,865**	**4,610**	**29,858**	**58,878**	**782,920**	
QIC		**96%**	**28%**	**206%**	**23%**	**137%**	**115%**	**4%**	**17%**	**3%**	**120%**	**14%**	**4%**	**163%**	**125%**	

AT Austria, *BE* Belgium, *BG* Bulgaria, *CH* Switzerland, *CZ* Czech Republic, *DE* Germany, *DK* Denmark, *EE* Estonia, *ES* Spain, *FI* Finland, *FR* France, *GR* Greece, *HU* Hungary, *IE* Ireland, *IT* Italy, *LT* Lithuania, *LU* Luxembourg, *LV* Latvia, *NL* Netherlands, *NO* Norway, *PL* Poland, *PT* Portugal, *RO* Romania, *SE* Sweden, *SI* Slovenia, *SK* Slovak Republic, *UK* United Kingdom, *QEC* quality of emigration coverage, *QIC* quality of immigration coverage

[a]Data for 2001

[b]Data for 2000

[c]Reestimated on the basis of data by citizenship

[d]No recent data available

[e]Data for 1998

[f]Migrants to/from the UK only

[g]Excluding 2,683 'migrants' from Portugal

[h]No data on migrants to/from Ireland

[i]Estimate

Source: Council of Europe (2003), Eurostat—NewCronos

into consideration wherever available, one can distinguish three major groups of countries according to the values of the QIC and QEC indicators:

1. One country with very wide coverage of data on European migration flows: Germany.
2. Countries with relatively good or at least satisfactory coverage of data: all countries of Western Europe (apart from France and Greece, with no or partial data), as well as the Czech Republic. In this group, two countries of Southern Europe (Italy and Spain) are characterized by visibly underreported emigration flows.
3. Countries with relatively poor data coverage: Central Europe (apart from Bulgaria and Estonia, with no data, as well as the Czech Republic, with relatively good coverage), together with Portugal. The worst situation is observed in Romania, Poland, the Slovak Republic and Hungary, the latter mainly with respect to emigration.

Moreover, in the early years of the first decade of the twenty-first century, Bulgaria and Estonia reported neither about immigration nor about emigration to the international institutions dealing with the population data. France did not provide any data on emigration. For Greece there were some scarce data about immigration for 1998 only, placing this country in the group characterized by very poor data coverage. In general, the official migration figures for the countries of Central Europe seemed clearly underestimated when compared with the data for their Western European migration partners. The same applies to some of the Southern European 'new countries of immigration', such as Portugal and Greece, and, to a lesser extent and only in the case of emigration, to Spain.

The differences between European countries in the definitions of migrants, as registered by the official statistics, are numerous. According to international recommendations, a long-term migrant is defined as "a person who moves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of destination effectively becomes his or her new country of usual residence" (United Nations 1998, p. 18). Nevertheless, in the period under study, in some countries, notably in the case of the Czech Republic, the Slovak Republic, Poland and Romania, the definition referred to 'permanent migrants', a notion difficult to operationalize in terms of the duration of stay. At the other extreme, Germany—the most important migration country in Europe, applies one of the broadest possible definitions of long-term migrants, which results in serious discrepancies between the data reported by sending and receiving countries (Kędelski 1990; Kupiszewska and Nowok 2008).

The magnitude of the differences between the numbers of migrants according to the definition recommended by the United Nations (1998) and, for example, 'permanent migration' can be assessed on the basis of population censuses. The difference between enumerated populations, which can be attributed to application of different definitions, may be substantial. For example, the 2002 census in Romania showed the difference between the permanent population and the

population matching the UN definition to be about 154,000 persons. In the same year, the respective difference in Poland totalled about 610,000 persons. In the case of Poland, a similar magnitude of this difference—about 590,000 persons—was estimated for the previous census of 1988.

These numbers show that the census-based stocks of population are not fully accounted for by the registration. As the registers of deaths and births are rather precise, the errors are mainly caused by problems with migration registration, be it internal, when a migrant deregisters at the source and never registers at the destination (or vice versa), or international, when the migrant fails to deregister. The migrants in the former category are most likely not very numerous. Those who do not care about formalities would most likely not bother to deregister at all. It may therefore be suspected that this is the international migration which is mainly unaccounted for in Poland. This reasoning applies also, mutatis mutandis, to other postsocialist countries with similar registration systems.

Apart from the differences in the length of stay of long-term migrants, there are also other discrepancies in the definitions. For example, in Romania, the reported immigration figures consider only non-Romanian citizens. A thorough inquiry of the issue of data compatibility is beyond the scope of this chapter (for a complete overview, see, e.g., Poulain et al. 2006); however, it is worth bearing in mind that the problems mentioned constitute a serious limitation of all analyses of international migration. They have to be considered when interpreting the results of the current analysis.

Concluding, there are many discrepancies in the levels of migration data quality among the European countries. The most problematic situation is observed for Central Europe (with no data reported for Bulgaria and Estonia), as well as for three other European countries: France (no data), Greece (no data on emigration) and Portugal. Most of the remaining countries of Western Europe are characterized by at least satisfactory coverage of data.

4.2 International Migration in Europe Between 1945 and 1989: An Outline

Since the end of the World War II, the political division of Europe into the capitalist and communist parts was reflected in entirely different paths of international migration in Western Europe, on one hand, and Central and Eastern Europe, on the other. After the massive postwar migration, caused by forcible resettlement of millions of people in the Central part of the continent, especially Germans and Poles, both parts of Europe started to live their own lives. In the West, rapid economic growth and the demand for foreign workforce led to massive labour-related immigration, which continued even after tightening the policies that followed the oil crisis of 1973. At the same time, Central and Eastern Europe was facing strong state control over all areas of life, of which international migration was no exception, especially

being a very political issue (Stola 2003, 2010). In this section, a brief overview of migration developments in the period 1945–1989 is provided, with a special focus on Central Europe, the migration history of which is described in more detail.

In the West, after the first postwar migration turmoil, two major factors began to shape the migration streams: decolonization and steady economic growth, lasting for almost three decades (Fassmann and Münz 1992). The most notable examples of former colonial empires that accepted significant population inflows from the former colonies were (de Jong and Visser 1997):

- France (including the resettlement of over a million French residents from Algeria after the 1954–1962 war of independence)
- The Netherlands (mainly considering migration from Indonesia in the 1950s, as well as from Surinam and the Antilles in the 1970s)
- The United Kingdom (UK; migrants from the British Caribbean since the 1950s and from India, Pakistan and Bangladesh since the 1960s)

The subsequent decades of the postwar periods can be—very briefly—summarized as follows. First, the grounds for the future economic boom were made in the late 1940s and early 1950s, by the means of the Marshall Plan and the related recovery from war-inflicted damage. Subsequently, over two decades of unprecedented continuous economic growth resulted in the increasing inflow of a foreign labour force, once the local one proved to be insufficient to meet the increasing market demand. In that period, labour migration from Southern Europe (at first mainly from Italy, Portugal, Spain and Yugoslavia, and later from Algeria, Morocco, Tunisia and Turkey) to the booming economies in the Western part of the continent was an important component of overall population flows (de Jong and Visser 1997).

Economic migration to Western Europe slowed down, although did not stop completely after the oil crisis of 1973 and during the economic recession that followed. An important part of immigration to Europe in the 1970s comprised reunification of the families of the earlier labour migrants. In addition, the end of military dictatorship in Greece, the Carnation Revolution in Portugal (both in 1974) and the fall of Franco's regime in Spain (in 1975) contributed to the mass returns of former political emigrants to these countries. During the whole decade of the 1980s, Western Europe in general stemmed the inflow of foreign workers; thus, the main remaining channels of inflow were family reunification and asylum seeking, many of which were economically motivated, both from the other side of the Iron Curtain and from developing countries (Jennissen 2004).

Throughout the postwar period, the main Western European countries receiving international migrants were Germany, France, and the UK, although all were characterized by different geographical patterns of population flows, as noted above. These differences can be explained by historical, linguistic, cultural and economic factors, as well as migration policy developments, including foreign labour recruitment (Fassmann and Münz 1992).

Migration in the communist countries of Central and Eastern Europe has been characterized by three important common features: the east-to-west direction of most long-term population movements, only a few returns and very little migration between these countries, apart from the republics of the Soviet Union. With respect to the latter point, the exceptional cases of movements between the socialist countries concerned temporary workers hired on the basis of intergovernmental agreements (Grzeszczak 1991). Needless to say, the regimes exercised very strict control over all population movements, not only immigration, but also, probably more importantly, emigration. Among all the socialist countries, only the citizens of the Tito's Yugoslavia enjoyed a relative freedom of movement and could travel freely, primarily to Western Europe, in the quest for better employment opportunities.

As mentioned before, a very important component of population flows in the second half of the twentieth century was ethnic migration. Shortly after the end of World War II, about four million ethnic Germans were resettled to Germany from Poland (Latuch 1961), and a further 2.8 million were resettled from Czechoslovakia (Drbohlav 2004). On the other hand, the population inflow to Poland between 1945 and 1950, according to the official data, amounted of over 3.8 million people, mostly ethnic Poles resettled from the territory annexed by the Soviet Union after 1939 (Koryś 2004).

Migration from Poland to Germany continued until the early 1990s. The overall number of *Aussiedler* over the half century from 1950 to 2002 totalled over 1.4 million (BMI 2004). However, many Poles used this opportunity to migrate to Germany using the *Aussiedler* status whilst being in fact economic migrants (Iglicka 1997). In addition, over 151,000 *Aussiedler* managed to migrate to Germany from Romania only in the 1980s, despite the state control and extremely high costs of emigration visas (Gallagher and Tucker 2000).

Furthermore, as ethnic flows are concerned, a mass emigration of about 370,000 Bulgarian Turks to Turkey was observed about 1989 (Vasileva 1992), following the forced Bulgarization policy adopted by the communist regime (Gächter 2002). Nearly half of the total number of emigrants returned shortly after the system changed in 1990 (Vasileva 1992). With respect to other ethnic issues, during the communist period, the three Baltic states (Estonia, Latvia and Lithuania) faced strong population inflows from the other republics of the Soviet Union. This migration, although not international sensu stricto, consisted mainly of Russians (in particular, military personnel) and significantly changed the ethnic structures of the three Baltic republics (Kielyte 2002).

With regard to the main determinants of population movements, apart form the ethnic factors and economic difficulties, emigration from the Central European countries was significantly shaped by the political crises. The most important disturbances that pushed many people out of their home countries on political grounds were:

- The Soviet invasion of Hungary and the fall of the anticommunist uprising of 1956 (200,000 emigrants; Juhász 2003)

- Invasion of Czechoslovakia by the armies of the Warsaw Pact, following the fall of the Prague Spring and the party leadership of A. Dubček in 1968 (104,000 emigrants; Kučera 1994, after Drbohlav 2004)
- Anti-Semitic events of 1968 in Poland, steered by the nationalist fraction within the communist party leadership (13,000 emigrants; Stola 2000)
- Introduction of martial law in Poland in 1981 (160,000 emigrants and persons who decided not to return to Poland from their visits to the West; Stola 2002)

Because of all these factors, the migration history of the socialist countries differed substantially from the migration history of Western Europe. In the former case, hardly any immigration was a reason for a permanent negative net migration, whereas in the latter case the situation was (or eventually became) the opposite. As elaborated further in the next section, the diverse experience of these countries in the postwar period in many cases contributed to preserving the different migration patterns also after the fall of the Iron Curtain.

4.3 Migration Patterns in Europe Since 1990: An Empirical Study

For the purpose of a brief overview of migration patterns in the European countries under study, time series of net migration (immigration less emigration) data for the period 1990–2002 have been analysed on the basis of the data from the Council of Europe (2003, Tables 8). Net migration has been calculated as the residual from the population balance equation, i.e. as the difference in the population stock between the end and the beginning of the year, minus the natural increase (births minus deaths). This solution enables us to overcome some (although not all) problems related to the incomplete registration of immigrants and emigrants, yet the calculated numbers may additionally include the bias resulting from the imperfect statistical registration of the vital events and estimation of annual population stocks. In particular, the use of this approach requires that population stocks are recalculated on the basis of population census results; thus, approximately once in a decade. Otherwise, other problems may appear that are reflected in the data series as the sudden drops or increases of the overall trends, caused by the postcensus "statistical adjustments" of the population figures.

To smooth the data series for the countries with no postcensus recalculations, which was the case of five countries of Central Europe, the net migration figures have been adjusted on the basis of the census information. The size of the "statistical adjustment" of net migration, including unregistered migration from the period between the censuses, ranged from about 24,000 in the Slovak Republic, 52,000 in the Czech Republic, through 214,000 in Bulgaria and 396,000 in Poland to 558,000 in Romania. In this study, a simple method of adjusting the net migration figures has been applied. For Bulgaria, as well as the Czech Republic and the Slovak Republic, census adjustments were distributed uniformly in the past period and, apart from

Bulgaria, this correction was extrapolated for the postcensus years. For Poland and Romania, most of the outflows were observed in the late 1980s and early 1990s, during and shortly after the transformation of the system. Therefore, the adjustment for these countries has been distributed proportionally to the migration balance with West Germany over two longer periods: until and after 1992. Figure 4.1 presents the time series of net migration for the countries under study, grouped according to the common migration patterns, similar historical and cultural features, as well as the geographical location.

Figure 4.1 shows that in the 1990s, the countries of Western Europe experienced the continuation of the migration tendencies from the previous decade. Luxembourg remained a country with extremely high relative migration inflows, followed by Switzerland and only then by the remaining countries of Northwestern Europe. Nevertheless, in absolute terms, the population inflow to Germany was much higher than that to other countries. Especially in the first half of the 1990s, there was a substantial inflow of asylum seekers, most notably as a consequence of the war in the former Yugoslavia. Additionally, the inflow of labour migrants from the formerly socialist countries continued (Jennissen 2004). In the second half of the decade, migration policies of Western European countries began to change, in order to limit the magnitude of the inflows. A clear example of the policy impact can be seen in the trend for the Netherlands, with immigration declining after the full implementation of the Aliens Law (Vreemdelingenwet) from 2000.

Moreover, in the course of the 1990s, all the former emigration countries of Southern Europe (Greece, Italy, Portugal, Spain), as well as Ireland, definitely became countries of net migration gains (Fig. 4.1). Especially in Ireland, but also in Portugal and Spain, the net migration rates were very high in the early twenty-first century, in the former case being likely a result of a very rapid economic growth in the 1990s. Portugal and Spain, in turn, were at the time the preferred destinations and gateways to the other EU countries for migrants from developing countries, in particular from Latin America and the Maghreb (Council of Europe 2003), as well as for retirement migrants (Rodríguez et al. 2004). The former type of migration is also visible in Italy and Greece, as witnessed by numerous 'regularizations' of clandestine migrants (see, e.g., Cangiano 2008).

With regard to the countries of Central Europe, for the Czech Republic and Slovakia, as well as for Hungary, the development of migration trends in the 1990s was to a certain extent stable, with the exception of fluctuations related to the division of Czechoslovakia at the end of 1992. In the Czech Republic and Hungary, the migration balance of the 1990s was positive, which was likely the outcome of a successful economic transformation. In Poland, in turn, the change of the economic system coincided at first with a mass population outflow in the early 1990s, followed by a stabilization of net migration rates around −0.6 per 1,000 inhabitants (Fig. 4.1). Nevertheless, even a traditional labour-exporting country such as Poland is likely to become more and more attractive as a migration destination, especially for people from the former USSR (Ukraine, Belarus).

The irregularities observed for Slovenia have to be seen as the outcome of the armed conflicts that followed the break-up of Yugoslavia in 1991. The positive

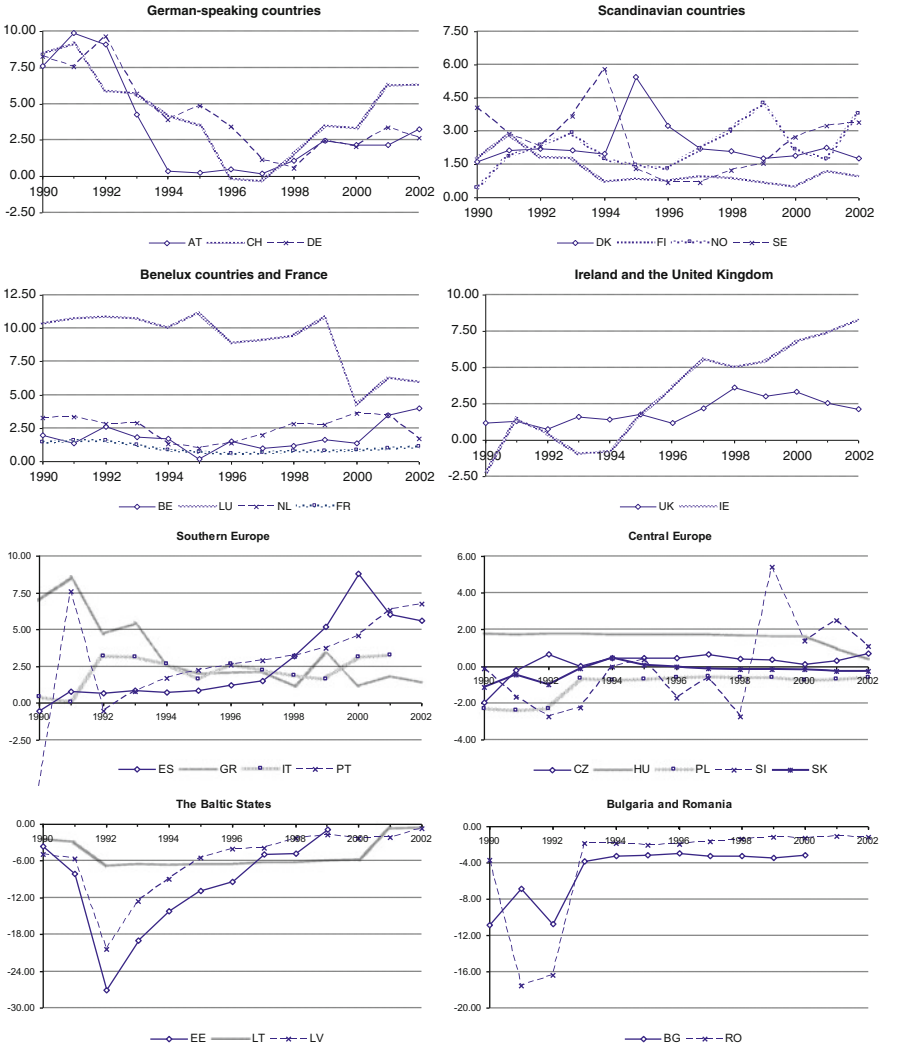

Fig. 4.1 Net migration in the European countries under study, 1990–2002, rates per 1,000 mid-year population. *AT* Austria, *BE* Belgium, *BG* Bulgaria, *CH* Switzerland, *CZ* Czech Republic, *DE* Germany, *DK* Denmark, *EE* Estonia, *ES* Spain, *FI* Finland, *FR* France, *GR* Greece, *HU* Hungary, *IE* Ireland, *IT* Italy, *LT* Lithuania, *LU* Luxembourg, *LV* Latvia, *NL* Netherlands, *NO* Norway, *PL* Poland, *PT* Portugal, *RO* Romania, *SE* Sweden, *SI* Slovenia, *SK* Slovakia, *UK* United Kingdom
Source: Council of Europe 2003, Tables 8, own calculations

net migration that was witnessed in this republic in the Yugoslav times reversed for a couple of years, likely due to the political instability of the whole region, as well as the proximity of the war zone. In addition, between 1991 and 1995, the other post-Yugoslav republics (Croatia, Bosnia and Herzegovina) were an important

source of refugees. The very high net migration value observed for 1999 can be attributed to the inflow of refugees from Kosovo and to the regularization of the status of other refugee groups (Zavratnik Zimic 2004). Contemporarily, as Slovenia is the wealthiest of the Central European new EU member states, it attracts many economic migrants, and this can be expected to continue.

With regard to the Baltic states, two different migration paths could be observed in the 1990s, and are clearly reflected in the time series presented in Fig. 4.1. In Latvia and Estonia, a mass emigration of the mainly Russian population took place in 1992 and 1993, following the dissolution of the Soviet Union. This phenomenon was partially because many ethnic Russians could not obtain the citizenship of the newly independent states. Lithuania, in turn, managed to solve the issue of citizenship prior to 1991 and granted citizenship to all the permanent residents of the republic who wanted it, thus avoiding a mass population outflow afterwards (Kielyte 2002). At the turn of the century, all three countries had similar, slightly negative levels of net migration. With regard to the expected future developments, it is likely that the Baltic states will follow a path similar to that previously sketched for Poland, especially after the accession of these countries to the EU.

Adjusted time series of net migration for Bulgaria and Romania, presented in Fig. 4.1, reflect the mass population outflows at the beginning of the 1990s. Although the shapes of the trajectories are due to applying the presented methods of distributing the census adjustment, the mass population loss of these countries due to emigration in the early 1990s is a fact. The level of socio-economic development of these countries will, no doubt, constitute a strong push factor to emigrate for many more years.

The overall migration trends for the countries of Central Europe indicate that already in the 1990s the Czech Republic, Hungary and Slovenia started to observe positive levels of net migration. This process is likely to continue in the future, strengthened by the expected positive effects of the EU accession, and will encompass most of the other countries of the region (Arango et al. 2009). All the countries of Central Europe are already becoming more attractive both as a migration destination and as ways of transit to the West (Romaniszyn 1997). Only for Bulgaria and Romania is it not certain whether the economic conditions will improve fast enough, for example after the 2007 EU accession, to prevent the continuation of the substantial population outflows that were observed in the 1990s.

4.4 Identification of Major Population Flows Concerning European Countries

Apart from the typology of the countries according to the dynamics of their migration trends, the most important directions of European migration flows can be identified on the basis of available data. For the purpose of this brief overview, the information comes from the Council of Europe (2003) yearbook and from the

NewCronos database of Eurostat. The data on population flows have been estimated as the greater of the values reported by the receiving and sending countries for 2002 or the nearest possible year, as listed in Table 4.1.

Not surprisingly, at the beginning of the twenty-first century, the most important destination country for intra-European migration was Germany, with over 344,000 immigrants from the countries under study in 2002, which constitutes about 40% of total immigration in that year. Nearly every third migrant to Germany in that year originated from Poland (almost 101,000), which represents the biggest single migration flow within Europe, as registered in 2002 by official statistical authorities. The mass inflow to Germany was countered by emigration of nearly 630,000 persons, of which over half (around 335,000) resettled to the remaining 26 countries under study. The latter figure includes over 78,000 migrants from Germany to Poland, mostly return migrants. From this overview it is clear that in the early years of first decade of the twenty-first century Germany was a key migration actor within Europe.

In the ranking of all countries of immigration to Germany according to the magnitude of population inflows, Poland was followed by the Russian Federation, Turkey and Kazakhstan, whereas among the other European countries under study the main sources of migrants to Germany were Italy, Romania and France. Emigration from Germany, in turn (again, mostly return migration), was primarily observed to Turkey, (then) Serbia and Montenegro, as well as to Italy. Such a geographical pattern could be therefore primarily associated with labour migration to Germany and returns of earlier emigrants to their home countries. For the detailed figures depicting population flows between Germany and its European migration partner countries at the beginning of the twenty-first century, see Table 4.1.

The second biggest actor in European migration in the recent period was the UK, with nearly 105,000 immigrants from the remaining countries under study (UK data for 2001, supplemented by the data of the partner countries for 2002). This number constituted over a quarter of the total immigration to the UK in the relevant period. The gross immigration volume was offset by over 126,000 emigrants from the UK to the other 26 European countries (more than 40% of the total). With regard to the origin of immigration into the UK at the turn of the century, the biggest population inflows were observed from Australia, France, Germany and the USA. Emigration from the UK, in turn, was primarily directed to the same countries, and additionally to Spain, which was becoming increasingly important as a migration destination. Needless to say, this situation changed radically after the 2004 enlargement of the EU. Unlike in the case of Germany, most of the registered migration to and from the UK was population exchange with other wealthy OECD countries.

Of the total of nearly 489,000 immigrants to Spain in 2002, only some 153,000 (32%) originated in the remaining 26 European countries under study, and the other 68% came mainly from Latin America and North Africa. Globally, the most important source countries of migrants to Spain at the turn of the century were Ecuador, Argentina and Romania. Apart from the latter country, the most frequent

Table 4.2 Biggest migration flows concerning the European countries around 2002

From	To	Migration size	Data for	Source
Poland	Germany	100,968	2002	R
Ecuador	Spain	89,249	2002	R
Germany	Poland	78,739	2002	S
Russian Federation	Germany	77,403	2002	R
Turkey	Germany	58,648	2002	R
Australia	UK	51,860	2001	R
Argentina	Spain	50,220	2002	R
Romania	Spain	48,671	2002	R
Kazakhstan	Germany	45,865	2002	R
Morocco	Spain	40,520	2002	R
Germany	Italy	36,535	2002	S
Colombia	Spain	34,876	2002	R
Albania	Italy	32,181	2000	R
USA	Germany	27,956	2002	R
UK	Spain	27,249	2002	R
Germany	UK	27,006	2001	R
Italy	Germany	26,882	2002	R
Serbia and Montenegro	Germany	25,773	2002	R

R data according to the receiving country, *S* data according to the sending country (greater of the two is shown)
Source: Eurostat, NewCronos. Migration flows between the 27 countries under study are highlighted in *grey*

European origins of migrants in 2002 included the UK, Bulgaria and Germany. In this case, a distinction between two types of European sending countries is clear. On one hand, there are the labour-sending accession countries (Bulgaria and Romania) and on the other, there are the Western European countries that may be associated with the increasingly popular phenomenon of the 'retirement migration' of the wealthy elderly to the south of Europe (Rodríguez et al. 2004).

Among other important actors of intra-European migration at the beginning of the twenty-first century, one has to point out other sending and receiving countries with numbers of immigrants and emigrants exceeding 50,000 per year around 2002. Four such countries of origin, sorted by the total size of emigration were, Poland, Romania, France and Italy, whereas the four most important destinations are Italy, Poland, France and Switzerland. There is a clear association between the size of a country and the position it plays in the European migration system, Switzerland being the only exception to this rule.

In addition to the overview of migration among the countries under study (presented above as well as in Table 4.1), the biggest population flows concerning Europe at the turn of the century are summarized in Table 4.2. In this table, only the flows exceeding 25,000 persons a year are shown.

4.5 Summary

To sum up, it can be expected that the significance of the major migration countries in Europe will prevail in the coming decades of the twenty-first century. In terms of the directions of flows, labour migration from the Central and Eastern European countries to Western Europe is likely to continue, given the importance of the economic factors described in Sect. 3.5.2. Apart from this, other forms of migration can be expected to become increasingly significant, for example the 'retirement migration' from Northern and Western Europe to the south of Europe. Moreover, an overall mobility increase among the European countries can be also reasonably assumed for the future. More detailed assumptions for the future scenarios of international migration in Europe are outlined in Chap. 5.

Chapter 5
International Migration Scenarios for 27 European Countries, 2002–2052*

Jakub Bijak, Anna Kicinger, and Marek Kupiszewski

5.1 Introduction

This chapter presents assumptions concerning the future developments of international migration in 27 European countries over the period 2002–2052. These assumptions have been developed to serve as an input to forecasts and simulations of population and labour force developments in Europe. Hypotheses regarding the future shape of international migration are complementary to the fertility and mortality scenarios presented in the chapters in Part II of this book. The story underlying international migration scenarios is not only a demographic one, but also to a large extent economic, political, sociological and ethnographic.

Moreover, migration is a phenomenon characterized by a much higher level of uncertainty and is much more controversial in terms of the expectations for the future than the purely demographic components of population change. To

*An earlier, abridged version of this chapter (Bijak et al. 2008a) was published by Amsterdam University Press in the book *International Migration in Europe: New Trends and New Methods of Analysis*, edited by C. Bonifazi, M. Okólski, J. Schoorl and P. Simon. The authors are grateful to Amsterdam University Press for permission to include this material in the current volume.

J. Bijak (✉)
Division of Social Statistics and Demography, ESRC Centre for Population Change, Southampton Statistical Sciences Research Institute, University of Southampton, Southampton, UK
e-mail: J.Bijak@soton.ac.uk

A. Kicinger
Central European Forum for Migration and Population Research, IOM, Warsaw, Poland
e-mail: kicinger@twarda.pan.pl

M. Kupiszewski
Institute of Geography and Spatial Organization of the Polish Academy of Sciences, Warsaw, Poland
e-mail: m.kupisz@twarda.pan.pl

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_5,

incorporate—somewhat simplistically—this uncertainty in the forecasts, three scenarios of international migration have been developed: base, high and low. These three variants correspond to different assumptions concerning push and pull factors of two major types: socio-economic development of particular countries and the expected future migration policies in Europe as discussed in Chap. 2. The scenarios are based on the analysis of the past trends, as well as on expert knowledge and the expectations with respect to future migration developments. Owing to the different factors underlying migration between the countries under study and migration from the remaining countries of the world, these two components of overall migratory flows are treated separately.

The analysis concentrates on registered long-term international migration, as reported by national statistical offices, and excludes all other forms of human mobility, including commuting, pendulum migration, and all irregular forms of population movements. With respect to the definition of migration, given the lack of international consistency in that matter, we assumed the definitions adopted by particular countries.

In subsequent sections of this chapter, two types of scenarios of international migration developments are presented: among the countries under study and concerning population exchange with the rest of the world. In each of the sections, the knowledge-based expectations for the future developments of international population flows are accompanied by a detailed description of the algorithms used for their quantification. Section 5.2 includes additional qualitative assumptions concerning the expected future political developments in the area of the free flow of persons in Europe. Section 5.4 presents a summary of the outcome of the exercise, together with the most important conclusions and some additional remarks about possible future migration developments.

The data on which the analysis is based come from two major sources: the Council of Europe (1997–2003) yearbooks *Recent Demographic Developments in Europe* and the NewCronos database of Eurostat. The data on economic indicators come predominantly from the publications of the World Bank (2003) and United Nations (2003b).

5.2 Scenarios of Intra-European Migration After EU Enlargement

5.2.1 Freedom of Movement in Europe: Status Quo and Expectations[1]

The high profile of migration policy in the public debate regarding the ‘old’ EU-15 countries has heavily influenced the negotiations on EU enlargement. The fears

[1]This section is based on the documents of the European Communities (2002, 2003a, b) and the European Commission (2004a), as well as on press releases regarding the post-enlargement

arising from the growing migratory pressure from the South were further fuelled by sometimes contradictory and exacerbated forecasts about the possible 'flood of workers' from the new member states (Kupiszewski 2002a). Such forecasts, offered both by researchers and by journalists, greatly influenced public opinion. The negotiations in the area of free flow of persons were delicate and sometimes tense (Duszczyk 2002), but eventually the respective negotiation chapters were closed.

The definite conditions of accession of the ten new states to the EU were laid down in the Treaty on Accession and in the Act on Accession, signed on the 16 April 2003 (European Communities 2003a, b). Following the results of negotiations, the treaty provided for transitional periods in the area of the free flow of persons for the citizens of eight new Central European member states, excluding Malta and Cyprus. According to the treaty, the old EU-15 countries were given the right to introduce transitory provisions for two, five or maximally seven years in order to limit access to their labour markets for workers originating from the new member states. The key element of the transitory provisions was the possibility to apply national measures and those resulting from the previous bilateral agreements in lieu of Community law, which normally would have had to be applied.

The decision whether to introduce the transition periods was left to the respective member states. After the first two years following the accession, the EU Council was expected to review the situation, but the decision whether to discard or to maintain the restrictions was again left to the states. Finally, after the five-year period, all restrictions on the free flow of workers should have been lifted, with the exception of the countries where there were serious disturbances of the labour market or a threat thereof. Such countries would have been eligible to extend the application of the transitory measures for a subsequent two years.

According to the Treaty on Accession, the new member states were given the possibility to introduce similar restrictions against the 'old' EU nationals on the principle of reciprocity. Nevertheless, only Poland (until January 2007), Hungary and Slovenia used this opportunity, whereas the Czech Republic, Estonia, Latvia, Lithuania and the Slovak Republic allowed asymmetry in their relations with the EU-15.

The decisions whether to impose the transitional periods were announced by 1 May 2004. Only three countries—Ireland, Sweden and the United Kingdom—did not introduce any transitional measures; however, they imposed some obligations not stipulated in Community law, such as the Workers Registration Scheme in the United Kingdom. The rest of the EU-15 decided to introduce a two-year transitional period in order to protect their labour markets and to calm adverse public opinion. Taking into account the politicians' statements, as well as the economic and political situation of different countries, we set up a scenario of the probable future dates of opening of these labour markets for the new members' nationals. There is always

---

policies on the freedom of movement of persons (*Gazeta Wyborcza* 2004; UKIE 2004). This section presents assumptions made in May 2004, and is based mainly on information available at that time.

some uncertainty about such predictions, originating from the changing political and economic milieu in which the political decisions are taken.

The next wave of liberalization of the rules on the accession to labour markets was supposed to take place in two years' time, thus in 2006. We assumed that in that year Denmark, Finland and the Benelux countries were very likely to open their labour markets for the nationals of the new EU member states. For these countries, the introduction of the two-year transitional period was probably more of an insurance against the unpredictable effects of enlargement than really necessary for labour market protection. Most of these governments (the Netherlands, Denmark and Finland) failed to keep their earlier promises to open the labour markets from the day of enlargement. One of the factors influencing their decision was the fear of being left as the only state with an open labour market and consequently of becoming an economic magnet attracting workers from the new member states. Moreover, opening the labour markets in these countries in 2006 would also have been a remedy for serious shortages of labour in selected sectors (IT, health care, education, construction, agriculture).[2]

Southern European EU members, i.e. Italy, France, Spain, Portugal and Greece, were deemed to be less likely to open their labour markets in 2006 than the countries of Northern Europe. Judging by such economic factors such as higher unemployment rates, as well as official and unofficial statements and declarations of some politicians, the date 2009 seemed to be much more probable than 2006 when considering the opening of their labour markets for workers coming from new EU member states. The popularity of right-wing extremist anti-immigrant parties such as the Northern League in Italy and Front National in France proved to be an additional factor that was supposed to influence the states' decision on the subject.[3]

Germany and Austria, according to statements by the politicians, were almost sure to extend the restrictions on access to their labour markets for the maximal period, i.e. for seven years. High unemployment rates (above 10% in Germany), popularity of anti-immigrant and xenophobic slogans (Haider's party in Austria) and the direct neighbourhood of the new member countries surely contributed to the German and Austrian position during the negotiations on enlargement. Hence, both these countries proposed and supported the idea of transitional periods, with the aim of alleviating public fears of the 'flood of workers' from the East.[4]

Although Norway is not a member of the EU, it belongs to the European Economic Area (EEA), where the principle of the free flow of workers is equally secured. Therefore, no barriers exist now for EU workers to take up employment in

[2]The scenario came true only partly: Finland opened its labour market in 2006, the Netherlands and Luxembourg opened their labour markets in 2007, whereas Belgium and Denmark opened their labour markets only in 2009.

[3]These predictions did not come true. All of the countries in Southern Europe (Italy, Greece, Spain and Portugal) opened up their labour markets for workers from the new EU member states in 2006. Only France continued with the transitional period until 2008.

[4]These predictions turned out to be true. Both Germany and Austria did not fully open their labour markets to workers from the new EU member states until 2011.

Norway and vice versa. With the enlargement of the EU, the necessary agreement on the enlargement of the EEA was signed. The EEA non-EU states (Norway, Iceland and Lichtenstein) were given the possibility to introduce restrictions on access to their labour markets identical to those provided in the Treaty on Accession. All of them, including Norway, introduced such restrictions initially for two years. The assumption that Norway would discard the restrictions in 2006 was founded on the good state of the Norwegian economy, low unemployment rates and the assumption that all other Scandinavian states would lift the restrictions that year.[5]

For many years, Switzerland did not participate in the free movement of workers in Europe as it does not belong to the EU or to the EEA. The agreement between the EU and Switzerland on the free movement of persons from 1994 did not introduce the principle of the free flow of workers between the contracting parties. Instead, it introduced the system of annual quotas of Swiss residence permits for EU workers until 2007 (European Communities 2002). No quotas were foreseen for Swiss nationals in the EU. After 2007, Switzerland was still protected by a special clause in the case of an excessive increase in immigration from EU countries until 2014. Finally, from 2014 the regulation of the free flow of persons between Switzerland and the EU is supposed to be entirely in place, the latter provision accepted by the Swiss in a referendum in 2009. An additional protocol to the agreement was signed in July 2004 to regulate the free movement of persons between Switzerland and the new member countries (DFA/DEA 2004). From mid-2005, the new EU member states would be subject to the transitional periods until the end of April 2011, including a quota system for residence permits. From 2011, the new EU members are supposed to be treated by Switzerland in the same way as the old member states. The year 2014 is due to mark unrestricted flow of labour between Switzerland and the extended EU.

Bulgaria and Romania joined the EU in 2007, although the Treaty on Accession of these countries to the EU was not signed nor accepted until the end of 2005. Bulgaria successfully finished its negotiations on EU membership in June 2004, whereas the Romanian negotiations were still ongoing, but by that time both countries had provisionally closed the chapters on the free flow of persons. Both EU candidates accepted the transitional periods for the free flow of persons identical to those provided by the Treaty on Accession for the eight Central European states that joined the EU in 2004. The reasons for imposing such restrictions likely included, among other things, the economic disparities between Bulgaria and Romania and the EU countries, unsolved issues surrounding the situation of the Roma population and other ethnic minorities in these countries (see Sect. 3.5.3), experience of irregular Bulgarian and Romanian immigration to the 'old' EU countries and the developed migratory networks of these countries' nationals in Western and Central Europe. Therefore, the transitory measures were almost bound to be introduced in 2007 by all or most of the EU members. For the purpose of this study, it was assumed that this process for Bulgaria and Romania would follow the schedule of opening Western

[5]Only Iceland opened up its labour market in 2006, Norway waited until 2009, whereas Lichtenstein maintained the restrictions up to 2011.

European labour markets for the citizens of the new Central European EU members, but with a three-year time delay.[6]

We did not take into consideration any liberalization of migration regimes between Turkey and the EU, as we thought this would be unlikely in the foreseeable future, especially considering that many European politicians explicitly stated that Turkey would not benefit from the freedom of movement of labour after its admission, if at all, to the EU.

5.2.2 Qualitative Migration Scenarios

As mentioned in Chap. 3, international migration flows can be described in terms of the push (unfavourable) and pull (attracting) factors. The current analysis focuses on the two types of such determinants: economic and related to migration policies. There are also other important factors (political disturbances, wars, etc.) that to a large extent shape the international population flows, such as the fall of the socialist system and recent Yugoslav wars. Nevertheless, owing to the unpredictability of such events, they were not considered in setting the scenarios.

There have been numerous attempts to predict migration from Central Europe to the EU-15 countries following the enlargement of the EU, and they are presented here as a background reference for the current scenarios of intra-European migration. These studies, published during the 1990s mainly by Western European researchers focused on East-to-West migration, and did not analyse population flows in the opposite direction. Unfortunately, many studies refer to the "migration potential" of Central Europe, a term lacking precision and not really applicable as a predictor of actual migration streams (Kupiszewski 2002b). The existing studies covered the European origin and destination countries either in whole or only partially, the latter focusing mainly on a group of the then candidate countries, or on Germany as the major destination country.

A comprehensive study by Alvarez-Plata et al. (2003) showed that in most of the previous studies the forecasted numbers of migrants to Western Europe were overestimated. In particular, at the high extreme, Franzmeyer and Brücker (1997) forecasted up to 1.18 million migrants yearly from Central Europe to Western Europe. An overview of selected studies assessing the size of postenlargement migration flows is presented in Table 5.1.

Most of the forecasts mentioned are based on econometric models with purely economic explanatory variables. As noted by Kupiszewski (2002b), such an

[6]The Treaty on Accession was finally signed on 25 April 2005 and Bulgaria and Romania became EU member states on 1 January 2007. The scenario for opening up the EU-25 labour markets for Bulgarian and Romanian workers was not fulfilled. Ten EU-25 member states (Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Poland, Slovenia, Slovakia, Finland and Sweden) liberalized access of Bulgarian and Romanian workers to their labour markets under national law from 1 January 2007. Additional five EU member states opened up their labour markets in 2009—Spain, Greece, Hungary, Portugal and Denmark.

Table 5.1 Selected studies assessing the size of East–West migration after EU enlargement

Study	Countries of origin	Destination	Number of migrants
Layard et al. (1992)	10 CEE countries[a]	EU-15	Potential: 3,000,000
Franzmeyer and Brücker (1997)	10 CEE countries[a]	EU-15	Yearly: 590,000–1,180,000
Orłowski (2000)	10 CEE countries[a]	EU-15	Potential: 1,800,000–3,500,000
Hille and Straubhaar (2001)	10 CEE countries[a]	EU-15	Yearly: 188,000–396,000
Brücker and Boeri (2000)	10 CEE countries[a]	EU-15	Yearly: 335,000 down to 100,000 by 2030
Alvarez-Plata et al. (2003)	10 CEE countries[a]	EU-15	Yearly: 367,000 down to 0 by 2030
Fassmann and Hintermann (1997)	PL, CZ, HU, SK	EU-15	Potential: 721,000–4,000,000
Lundborg (1998)	PL, EE, LT, LV	EU-15	Potential: 1,900,000
Orłowski and Zienkowski (1998)	PL	EU-15	Potential: 390,000–1,500,000
Bauer and Zimmermann (1999)	PL, RO, BG, CZ, SK, SI	EU-15	Total in 15 years: 3,000,000
Salt et al. (1999)	PL, CZ, EE, HU, SI	EU-15	Potential: 500,000
Fertig (1999)	PL, CZ, EE, HU, SI	Germany	Potential: 400,000
Fertig and Schmidt (2000)	PL, CZ, EE, HU	Germany	Total in 20 years: 300,000–1,200,000
Sinn et al. (2001)	PL, RO, CZ, HU, SK	Germany	Yearly: 250,000–270,000 down to 60,000–150,000 by 2020

Abbreviations: *BG* Bulgaria, *CEE* Central and Eastern European, *CZ* Czech Republic, *EE* Estonia, *HU* Hungary, *LT* Lithuania, *LV* Latvia, *PL* Latvia, *RO* Romania, *SI* Slovenia, *SK* Slovak Republic
[a]Bulgaria, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Latvia, Romania, Slovenia, Slovak Republic
Source: Own elaboration on the basis of the study of Centraal Planbureau (2004) and the quoted sources

approach lacks certain features that are desired from the methodological point of view. First, the demographic, social or policy constraints of migration are not considered in such models, which seems to be a serious material omission. Second, the economic variables used as predictors, such as GDP and unemployment, are difficult to forecast themselves and thus increase the uncertainty of migration forecasts to a very significant degree. Therefore, the results of all the studies mentioned will be used only as a background reference for the forecast outcome in the current study, which applies the methodology of knowledge-based scenarios.

The principal difference between the assumptions made in the vast majority of existing forecasts and the ones presented in this chapter is that the former were based on analyses of historical trends, developments in other countries or economic processes. For the purpose of this study we decided that it is more appropriate to add the migration policy dimension to the traditional thinking on future migration developments, therefore addressing some of the criticism of the assumptions made in theoretical models used in migration forecasting (Willekens 1995; Kupiszewski

1996; Fertig and Schmidt 2000). In the current forecasts, three different scenarios of intra-European migration developments are considered: base (likely), low and high, latter two expressing our uncertainty in the form of the expected range of possible deviations from the base scenario. These scenarios differ primarily with respect to the assumptions concerning the expected economic performance of particular countries. The developments of intra-European migration policies are assumed to be the same for all scenarios, with gradual opening of Western European labour markets for the citizens of Central and Southeastern European countries following the outline described in Sect. 5.2.1.

In general, the presence of an overall migration trend is assumed in all scenarios, with gradual implementation of the freedom of movement policy marking temporary deviations from the general trend. This allows three phases of migration developments to be distinguished:

1. *Pre-opening period*, with migration following the overall trend starting from the initial values observed for 2002;
2. *Post-opening period*, following the full implementation of the freedom of movement policy, with increased migratory movements from Central to Western European countries, yet systematically declining over time;
3. *Period of long-term stabilization*, with migration flows returning to their overall trends, which continues until the end of the forecast horizon.

Especially in the first period following the full implementation of the freedom of movement policy, the scope and direction of migratory flows is going to depend heavily on the disparities between the origin and destination countries. For the purpose of the current analysis, the 27 countries under study have been clustered into three groups according to their socio-economic situation: Western Europe, consisting of the EU-15 countries, as well as Norway and Switzerland; Central Europe, composed of the eight new member countries from 2004, and finally Southeastern Europe (Bulgaria and Romania).

It is assumed that liberalization of migration policies will have no impact on migration within Western Europe or within Southeastern Europe. In the former case, the assumption is self-explanatory, whereas in the latter it is envisaged that the excess migration streams from Bulgaria and Romania will be directed predominantly to Western Europe and to a lesser extent to Central Europe. Disparities of income between the clusters are expected to be the only source of additional migration pressure in that case. Adversely, within Central Europe one can expect a slight increase of population movements, owing to the opening of diversified labour market opportunities in various countries.

Naturally, the most important changes can be expected with respect to population flows from Central and Southeastern Europe to Western Europe, as well as, albeit to a much lesser extent, from Southeastern to Central Europe. Their magnitude would depend on income disparities between particular clusters, as well as on the scenario type (highest migration pressure in the low variant, assuming a prevailing income gap in Europe, and vice versa). With respect to eastward migration, it can be assumed that there will be some increase in population flows, but the scope of

this phenomenon will be rather limited in all forecast variants. It can be envisaged that the labour movements between the old and new EU member states will become increasingly two-way flows, as more demand for specific types of labour in the new EU member countries may be required, including highly skilled professionals. Nevertheless, the primary source of eastward migration will likely be the return of former emigrants.

The base scenario therefore assumes a stable socio-economic situation in Europe, most importantly sustainable economic growth and a long-term convergence of income levels in all European countries. In terms of a global trend that would mean an overall increase in mobility of Europeans, following the increase of job opportunities in other countries. These possibilities are likely going to be of key importance for the East–West migration, where the gradual opening of Western European labour markets is expected to constitute a strong pull factor for the citizens of Central Europe. The positive effects of European integration are likely to occur in full in the longer term, which will be visible in the return of the migration flows to their long-term tendencies.

The low scenario, in turn, envisages economic stagnation in Europe, with higher unemployment levels and related structural labour market problems. Especially in the pre-opening and post-opening periods, some economic disturbances may be expected in the countries of Central Europe, similar, but they will be much less intense than those witnessed in East Germany in the 1990s after German reunification. With hardly any factors increasing the overall spatial mobility because of very slow income growth and scarce new job opportunities, the key factor shaping population movements in Europe is likely to be the pressure on migration from Central Europe to Western Europe after introduction of the freedom of movement policy. In this variant the disparities between different regions of Europe are because of unfavourable economic conditions, which would generate substantial migration streams in the medium term. Therefore, the post-opening wave of migration in the low variant is assumed to be higher and to last longer than under the conditions assumed in the base scenario.

In the high scenario, a good overall situation, substantial economic growth and fast convergence of the economies and thus of the living standards are assumed for all European countries. On one hand, this would significantly increase the overall mobility of people within Europe in search of emerging employment possibilities. On the other hand, it will reduce the push factors to emigrate from the less developed regions, including Central Europe. In this scenario, the post-opening increase of the east–west population flows is expected to be a short-term phenomenon, and rather moderate in size.

The assumptions for the low and high scenarios are meant to provide the expected lower and upper bounds of the possible migration developments, rather than the complete 50-year-long trajectories for the countries under study. It seems implausible to believe that the conditions for either high net migration losses or high net migration gains would be that long-lasting. A belief in the existence of the long-term economic ‘equilibrium’ path of growth may contribute an additional argument in that respect.

Following the liberalization of population movements within Europe, one might also expect the occurrence of a short-term phenomenon of 'migration without migration'. In the Western European countries, many of the so far irregular migrants and illegal workers from Central Europe regularized their status once they had such an opportunity. Therefore, shortly after the liberalization took place, an increase in the numbers of migrants was observed in the statistical registration, but not in reality. This hypothesis has been substantiated by a Home Office (2004) report stating that in May 2004 as many as 61% of those who registered under the Working Registration Scheme arrived before 1 May 2004. By September 2004, the share decreased to 12%. This is exactly as predicted by Kupiszewski (2002a).

5.2.3 Quantification of the Assumptions

With regard to intra-European migration scenarios for the period 2002–2052, the forecasted variable is the migration volume between the particular countries within Europe. Following the proposition of Kupiszewski (2002a, p. 106), the initial migration figures for 2002 have been taken as the greater of the values registered by the sending and receiving countries, based on the figures in Table 4.1. The underlying data came from the yearbook of the Council of Europe (2003, Tables 6) and from the Eurostat database (NewCronos). In the multistate population model for multilevel systems (MULTIPOLES) applied in this study (Chap. 11), the crude numbers of migrants are transformed into total migration rates (*TMR*). The scenarios are made on the basis of the *TMR* multipliers (m), satisfying the condition $TMR_{t+1} = TMR_t \cdot m_{t+1}$.

The multipliers m are composed of two multiplicative components: the overall trend (*TR*) for a given scenario, which is constant for the whole forecast period, and the postaccession deviation. The latter component is assumed to occur at the moment of introducing a free-flow policy between particular countries, and gradually diminishes within a given period of time. The postaccession deviation is calculated in such way that the difference between the current *TMR* and its trend follows a logistic curve, diminishing from the postaccession level to zero. In terms of multipliers m, the relevant formula for flows from country i to country j in year t is

$$m_{t,i,j} = TR \, \frac{PAI_{i,j} + \left(TR - PAI_{i,j}\right) \Big/ \left(1 + \exp\left\{-r\left[t - \left(YF_{i,j} - 2002\right) - \frac{1}{2}YS\right]\right\}\right)}{PAI_{i,j} + \left(TR - PAI_{i,j}\right) \Big/ \left(1 + \exp\left\{-r\left[t - \left(YF_{i,j} - 2002\right) - \frac{1}{2}YS - 1\right]\right\}\right)}$$

where r denotes the growth rate of the logistic curve, t is the year, $PAI_{i,j}$ is the assumed post-accession increase in the migration rate expressed as a multiplier, $YF_{i,j}$ is the year when freedom of movement was from country i to country j was introduced and YS is the number of years needed to return to the trend. Specific assumptions have been made:

- $m_{t,i,i} = 1$ for the default zero flows from country i to country i
- $m_{t,i,j} = TR$ for both i, j denoting Western European countries

Table 5.2 Initial post-accession increase ($PAI_{i,j}$) for clusters of countries

From	To Western Europe	Central Europe	Southeastern Europe
Low scenario			
Western Europe	1.00	1.00	1.00
Central Europe	1.50	1.00	1.00
Southeastern Europe	2.00	1.50	1.00
Base scenario			
Western Europe	1.00	1.05	1.05
Central Europe	1.35	1.10	1.05
Southeastern Europe	1.60	1.35	1.00
High scenario			
Western Europe	1.00	1.10	1.10
Central Europe	1.20	1.20	1.10
Southeastern Europe	1.20	1.20	1.00

Source: Own elaboration

- $m_{t,\,i,\,j} = TR$ for $t < YF_{i,\,j}$ and for $t \geq YF_{i,\,j} + YS$
- $m_{t,\,i,\,j} = TR \cdot PAI_{i,\,j}$ for $t = YF_{i,\,j}$

Assumptions for $PAI_{i,j}$ have been established for three clusters of European countries: Western, Central and Southeastern Europe.

In terms of numbers, the overall trend in the low scenario is assumed to be constant throughout the forecast period ($TR = 1$), in the base scenario to reflect a moderate mobility increase by 0.5% yearly ($TR = 1.005$) and in the high scenario to reflect a significant increase by 1% per annum ($TR = 1.01$). In the case of westward movements from Southeastern to Central and Western Europe, as well as from Central to Western Europe, the trends for the high and low variants have been swapped to ensure consistency of the assumptions.

The time needed for the migration flows to stabilize and return to the trend after liberalization of the population movements (YS) is assumed to be 20, 15 and 10 years, respectively, in the low, base and high scenarios. In all cases, the growth rate for the logistic curve r was assumed to be 0.5. Hypotheses regarding the size of the post-accession increase of migration from country i to country j ($PAI_{i,\,j}$) are presented in Table 5.2.

The results in terms of 'hypothetical' trajectories of migration rate developments, in relation to the values observed for the period prior to the introduction of the freedom of movement policy, are presented in Fig. 5.1. In reality, the schedules will be postponed, according to the policy-related assumptions presented in Sect. 5.2 influencing the delay in mutual opening of labour markets by particular countries (YF).

Separate assumptions have been made with respect to the sex and age distributions of migrants within Europe. The distribution by gender has been assumed to be

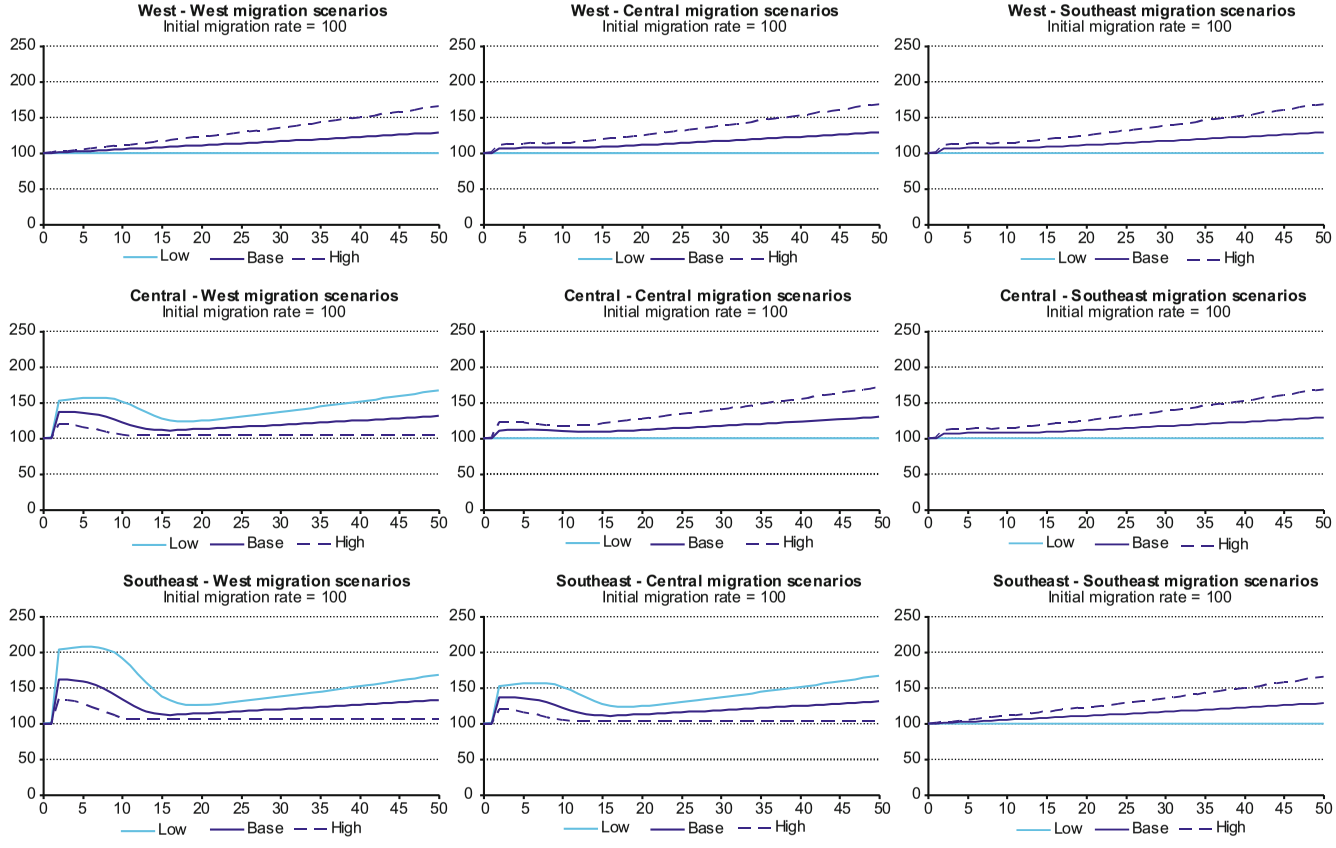

Fig. 5.1 Overview of assumed post-accession intra-European migration developments: low, base and high scenarios; multipliers
Source: Own elaboration

the one observed in 2002, remaining constant throughout the forecast period. The age-specific migration rates have been calculated for the following four groups of countries:

1. Germany, separated owing to its key position in the European migration system;
2. Western Europe: Austria, Belgium, Denmark, Finland, Ireland, Luxembourg, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom;
3. Southern Europe: France, Greece, Italy, Portugal and Spain;
4. Central Europe: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

In most cases, German data on migrants by citizenship have been used as the best available proxy of the distributions by origin and destination. The only exceptions were flows from Western to Southern Europe, where the data of the destination countries have been applied, owing to local specificities in the age structures, namely the presence of visible postretirement peaks of migration.

The input data were again taken from the Eurostat database (NewCronos), except for data for France, where the figures have been estimated on the basis of the study by INED (1999). In all cases, age distributions of migrants have been assumed constant throughout the forecast horizon, i.e. until 2052.

5.3 Scenarios of Net Migration from the Remaining Countries

5.3.1 Qualitative Migration Scenarios

In setting the scenarios of net international migration from the remaining countries of the world (hereafter, the "external" migration), the economic and political situation at the fringes of the enlarged EU has to be considered. The other postsocialist countries, including the former Soviet Union as well as the countries of the former Yugoslavia, are potential sources of large population inflows. A very important way in which the situation in these countries can have an impact on migration to their European neighbours is through the presence of established migrant networks. The situation in the countries of the former Soviet Union will most likely have an impact on migration flows to Poland, the Baltic states, the Czech Republic and the rest of Central Europe. Countries of the former Yugoslavia may in turn generate substantial population movements to Slovenia and Hungary, following the strong historical and cultural ties in that region. These flows depend heavily on further political and economic development of the countries mentioned, and especially on their possibility of joining the EU, which, however, remains hardly predictable. One cannot also completely ignore the ethnic migration of Poles and Germans from the former Soviet Union, etc., although this migration source is already almost exhausted.

The second group of potentially significant sources of population inflows comprises the countries of historically large migration into Western and Southern

Europe, mainly Turkey and the North African countries, as well as other former colonies. In general, it can be envisaged that owing to the presence of migrant networks, these population inflows to Europe will continue, to some extent, regardless of the pace of the socio-economic development in the countries of origin. In general, existing disparities in income and living conditions between European countries and most of the outside world will likely constitute a strong push factor to migrate. This will influence the possible magnitude of migration into Europe, especially taking into the account large countries such as China, especially as there are already significant Chinese migrant networks in Europe.

On the other hand, almost certainly there will be migration policy measures put into place which will be aimed at limiting migration or shaping it in a desired way, e.g. through selective admission of highly skilled professionals. Hence, although the migration potential outside Europe remains very large, its impact is likely to be offset to some extent by these policies. The policies are also likely to depend on economic developments on the global scale: both in the highly developed and in the developing countries. For the purpose of setting the scenarios of net migration from remaining countries of the world, again three variants of global socio-economic developments are assumed:

1. Base scenario, considered to be likely, with a moderate, yet sustained improvement of the economic, political and social situation worldwide, resulting in moderate overall population inflow to Europe and a gradual shift in the places of origin from the neighbouring countries to other developing regions of the world. In this scenario, the policy measures are not assumed to be very restrictive, owing to relatively the good and stable socio-economic situation in Europe.
2. Low scenario, assuming economic stagnation both in Europe and in the rest of the world, resulting in strong migration pressure on the developed countries. The strong push factors in this scenario are offset by a very restrictive migration policy, resulting in a decline of (at least registered) migration. The migration policies are primarily aimed at the protection of European labour markets and reducing possible social tensions related to the inflow of large numbers of immigrants.
3. High scenario, assuming dynamic economic growth and social development, resulting in a need for inflow of foreign labour and thus leading to relatively liberal immigration policies. Economic growth in the developing regions is assumed to be a factor contributing to increased mobility of people worldwide.

In terms of the general assumptions, comprehensive scenarios of the overall net migration for a majority of European countries have been presented by de Beer and van Wissen (1999). In their work, the countries were clustered into five groups: Eastern Europe (Bulgaria, Romania and the former USSR without the Baltic states), Central Europe (remaining postsocialist countries including the Baltic states, Croatia and Slovenia), Northern Europe (Scandinavian countries), Southern Europe (Greece, Italy, Portugal and Spain) and Western Europe (remaining countries of Europe). Two scenarios of population developments were presented: one of ‘uniformity’, assuming convergence of trends of demographic patterns within Europe, based on favourable, strong economic conditions, and one of ‘diversity’,

preserving, under flagging economic development, the current differences between countries. In the 'uniformity' scenario it was assumed that by 2050 net migration rates in all European countries would reach the level of +2.5 per 1,000 population, with the exception of Southern European countries, which will reach a net gain of +3.5 per 1,000. In the 'diversity' scenario, the assumed target net migration rates were correlated with the level of socio-economic development in particular clusters, ranging from −0.5 per 1,000 in Eastern Europe, through −1.0 in Central Europe, +1.5 in Western and Northern Europe, to +3.5 in Southern Europe. Although these scenarios are not directly comparable with the current study, as they relate to the overall net migration of particular countries, they form a valid point of reference in the scenario-setting.

The major shortcoming of the forecasts of de Beer and van Wissen (1999) is that they do not take into the account the migration policy issues, and especially EU enlargement. What seems worthwhile in their study is the clustering of European countries according to similar demographic patterns. In the current work, an analogous grouping is therefore applied, with only three exceptions:

- The Czech Republic and Hungary have been assigned to the Western cluster rather than to the Central one, owing to the change in their migration developments, with positive net migration in the second half of the 1990s, as well as owing to the high level of socio-economic development;
- Slovenia has been attached to the Southern cluster, not only owing to the recent migration history and geographic location, but also owing to very good economic performance, the best among the former European socialist countries.

Given the above, it is envisaged that in all European countries the net migration from the rest of the world will eventually be positive, regardless of the forecast variant. The lowest external net migration rates (*ENMR*) are expected for Eastern Europe, the highest for Southern Europe, with Central, Northern and Western Europe in between. The Northern European countries have been assigned lower target external net migration rates in comparison with Western Europe owing to their slightly more peripheral position in the European migratory system. The highest values, for Southern Europe, reflect the recent migration history, postcolonial ties and the related migrant networks in Portugal and Spain. Their proximity to the important sending countries and regions, such as Turkey and North Africa, also play an important role in that respect. The targets for the low and high variants need to be specified allowing for reasonable deviations from the base scenario, given the assumptions concerning the global socio-economic situation discussed above. Quantification of these assumptions is discussed in detail in the next subsection.

5.3.2 Quantification of the Assumptions

With regard to the population exchange with countries other than the 27 countries under study, assumptions concerning net migration for the particular countries have been made in terms of crude numbers of migrants. The forecasted variable is thus

Table 5.3 Target "external" net migration rates (*ENMR*) per 1,000 population for 2052

Cluster	Countries	Target *ENMR* per 1,000 population		
		Low	Base	High
Southeastern Europe	Bulgaria, Romania	0.0	1.0	2.0
Central Europe	Estonia, Latvia, Lithuania, Poland, Slovak Republic	0.25	1.5	3.0
Northern Europe	Denmark, Finland, Norway, Sweden,	0.5	2.0	4.0
Western Europe	Austria, Belgium, Czech Rep., France, Germany, Hungary, Ireland, Luxembourg, Netherlands, Switzerland, United Kingdom	1.0	2.5	5.0
Southern Europe	Greece, Italy, Portugal, Slovenia, Spain	1.5	3.0	6.0

Source: own elaboration

the "external" net migration (*ENM*). The initial forecasted values for 2002 were estimated as total net migration, reported by the countries themselves, less net migration among the 27 European countries under study.

Assumptions concerning target values of net migration from the outside world are also by necessity judgemental, owing to the higher uncertainty related to the predictions of international migration on a global scale. As proposed in the previous section, for the purpose of scenario-setting, the countries have been grouped in five clusters, according to similar levels of socio-economic development, common migration history, and the geographic and cultural proximity. The cluster-specific target *ENMR* per 1,000 population have been assumed for three forecast variants (Table 5.3).

The *ENMR* have been further transformed into crude target *ENM* numbers by multiplying them by the 2002 population size of particular countries. The results have been taken as target values for 2052 (ENM_{2052}). The initial and target *ENM* values have been bridged by the means of an exponential interpolation, according to the formula

$$ENM_t = ENM_{2052} + (ENM_{2002} - ENM_{2052}) \times \exp\left[-r(t - 2002)\right],$$

where t denotes the year and r the growth rate, assumed to be 0.05. Such a curve ensures a smooth passage from ENM_{2002} to ENM_{2052} and the stabilization of the *ENM* by the end of the forecast period.

With respect to sex and age distributions of the "external" migrants, cluster-specific assumptions have been made on the basis of the clustering presented in Sect. 5.3.1. For Western, Northern and Southern Europe, three countries have been chosen as typical: Germany, Sweden and Spain. Owing to unavailability of similar

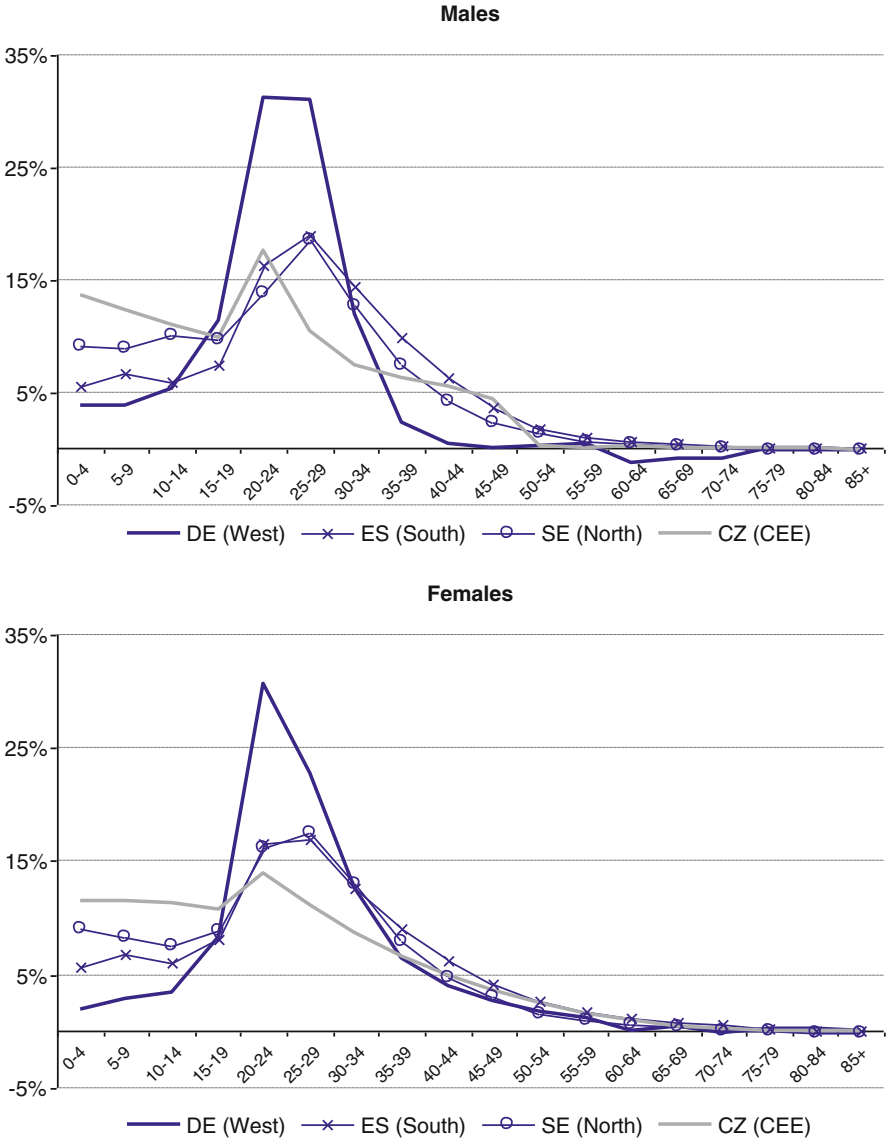

Fig. 5.2 Age distributions of the net "external" migrants, shares of the total. *DE* Germany, *ES* Spain, *SE* Sweden, *CZ* Czech Republic, *CEE* Central and Eastern Europe
Source: Eurostat/NewCronos, own calculations

data for Central and Southeastern Europe, the distributions have been estimated on the basis of the Czech statistics. The sex-specific age distributions of 'net migrants' from outside the system of the 27 countries under study have been calculated in the form of shares of the overall total, as shown in Fig. 5.2.

It is worth noting that the proposed distributions reflect a slight propensity to return, especially among men above 60 years of age. For the remaining clusters, net migration remains positive for almost all age groups, with only very minor exceptions.

5.4 Summary and Conclusions

Forecasting international migration is a very difficult task owing to the high level of uncertainty associated with this phenomenon. As migration is highly sensitive to three unpredictable factors—migration policies, economics and political developments—the results of the forecasts are always uncertain. Therefore, in the current study we created and quantified three knowledge-based scenarios, applying a method widely used in demographic forecasting, in order to accommodate the possible impact of economic factors. We modified the much used method, trying to incorporate in our considerations the expected migration policy changes. This solution addresses, to some extent, the criticism of many existing forecasts of migration. Still, we did not consider the consequences of possible future political disruptions, in particular, armed conflicts or large-scale environmental catastrophes.

The analysis presented assumes that the increase of emigration from the new EU member and accession countries to Western Europe is going to be temporary by nature and thus in the long run a declining trend can be anticipated. To a lesser extent, a slight increase of population movements in the opposite direction can be also expected. The method of scenario-setting proposed in this chapter implicitly assumes that the overall directions of the current intra-European flows will prevail throughout the forecast horizon. In the long run, the stabilization of intra-European migration is envisaged, with an increasing impact of population inflows from outside Europe, as the whole continent is expected to become more and more attractive to immigrants from less developed regions of the world. Notably, this will increasingly be the case in Central and Southeastern European countries, perceived both as migration destinations and possible ways of transit to the West.

Summing up, in the base scenario it is expected that all the new EU members will eventually become immigration countries by 2020, except for Bulgaria and Romania, for which the net migration is going to remain negative throughout the forecast period. In the high scenario, the change of the dominant direction of migration flows is expected to happen earlier for all countries under study. In the low scenario, negative net migration is assumed to prevail in all Central European countries except the Czech Republic, Hungary and Slovenia. With respect to the two components of the overall net migration of the countries under study, it can be clearly seen that the population exchange with other regions of the world becomes increasingly more important than the intra-European migratory movements.

Part II
Past and Future of Fertility and Mortality in Europe

Chapter 6
Fertility Scenarios for 27 European Countries, 2002–2052

Jakub Bijak

This chapter summarizes assumptions concerning future developments of fertility in 27 selected European countries prepared for the period 2002–2052. Fertility dynamics is presented in the context of a theoretical framework as well as of fertility developments in Europe in the second half of the twentieth century. On this basis, knowledge-based expectations for the future are developed and subsequently quantified. The demographic scenarios obtained in this way are compared with those applied in similar studies of national and worldwide (United Nations 2003a) population projections. The results of the study, the fertility scenarios for 27 selected European countries, are summarized in brief in the final section of this chapter.

6.1 Fertility Trends in Europe: The Second Demographic Transition

Since the 1970s, there have been numerous efforts to explain the decline in fertility in developed countries. Several such attempts have been derived from the field of theoretical economics. The first one (Easterlin 1975) was based on the relationship between fertility and 'relative' family income, i.e. actual earnings related to the level desired by the family. According to this hypothesis, decline in fertility is explained by the comparatively low future prospects of relative income, especially when compared with previous generations. The second concept ("new home economics",

J. Bijak (✉)
Division of Social Statistics and Demography, ESRC Centre for Population Change, Southampton Statistical Sciences Research Institute, University of Southampton, Southampton, UK
e-mail: J.Bijak@soton.ac.uk

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_6,

Becker 1991) is an example of applying the neoclassical consumer theory approach in family studies, with demand for children being treated as akin to the demand for durable goods. The drop in fertility in developed countries is explained by the increasing 'opportunity costs' of having children for contemporary women.

In demography, a contemporary paradigm for setting the theoretical background for the analysis of many population processes, with a special focus on fertility, is based on the theory of the second demographic transition (Lesthaeghe and van de Kaa 1986; van de Kaa 1987). This theoretical framework stresses the role of changes in values and norms in modern society, resulting in the adjustment of the demographic patterns and in particular of the fertility-related behaviour. These changes can, among other factors, be attributed to (quoted after Surkyn and Lesthaeghe 2004, p. 47):

(a) Individual autonomy in ethical, moral and political spheres
(b) Related rejection of all forms of institutional control and authority
(c) Increase in expressive values connected with the higher-order needs of self-fulfilment

The most important components of the demographic transition that resulted from the changes mentioned were decline in fertility and in the number of marriages, postponement of marriage and childbearing and an increasing role of informal unions (cohabitation) and extramarital births. Thus, as suggested by Okólski (2004), the crisis of the traditional family as an institution that followed the modernization processes in developed countries can be seen as one of the major factors underlying the decline in fertility. The changes started in Northern and Western Europe in the late 1960s, extended in the 1980s to Southern Europe, followed by Central and Eastern Europe after the fall of the Iron Curtain (Surkyn and Lesthaeghe 2004). Different time schedules of the second transition for the particular groups of countries are clearly reflected in the time series of the total fertility rates (TFR), measuring the hypothetical average number of children per woman in a given period, under a tacit assumption of constancy of age-specific fertility rates throughout reproductive life.

Without going into deeper discussion, it can be concluded that a synthesis of the demographic and economic theories of fertility presented provides a quite complex explanation of the processes that have taken place in Europe since the late 1960s and that are still continuing.

The forerunners of the second demographic transition in terms of decline in fertility were the Scandinavian countries (Denmark, Finland and Sweden) and Luxembourg, where the process started around 1965 and fertility fell to below-replacement levels[1] by 1970. With a delay of some years, the other countries of

[1] In contemporary Europe the replacement level corresponds to a TFR of about 2.08, which under the mortality conditions observed in developed countries and with no international migration ensures the simple replacement of a generation of parents by a generation of children and thus zero population growth.

Northern and Western Europe followed this transition path. A particular situation was observed in German-speaking countries (Austria, Germany and Switzerland), where the TFR declined to about 1.5 by the late 1970s and have remained almost constant since then. Exceptional circumstances were in place in Ireland, which is notorious for very conservative policies and attitudes towards fertility and family issues, where the TFR dropped from the extremely high level of about 4.0 in the early 1970s to below the replacement level only in the 1990s.

A different picture of the progress of the second transition could be observed for the countries of Southern Europe. Italy, Portugal and Spain entered the process first, about 1985, Portugal and Spain, however, starting from significantly higher initial TFR (about 2.8 as compared with 2.3 in Italy). Then, some 5 years later Greece and Slovenia[2] followed the path of decline in fertility. Ultimately only in Portugal did the TFR stabilize, around 1.5, whereas in the remaining countries from this group it fell below 1.3, a level considered as the threshold of the "lowest-low fertility" (Kohler et al. 2002).

In the postsocialist countries of Central Europe, fertility levels were quite high until the political and economic systems changed in 1989. With the exception of Hungary and the Czech part of Czechoslovakia, the TFR at the end of the 1980s were higher than 2.0. An interesting complex explanation of this phenomenon has been provided by Sobotka (2002), who introduced the concept of a "socialist greenhouse"—an artificial social and economic environment characteristic for the socialist countries. This institutional setting shaped the patterns of fertility and family formation by means of various incentives and preferences for young couples, as well as by ensuring a relatively stable and secure situation on the labour market. The socialist economic system, which allowed reconciliation of high participation of women in the labour market with their traditional role in the family, together with the limited access to contraception, led to the relatively high fertility levels, especially at younger ages. A special case was Romania under the regime of Ceauşescu, where introducing the radical pronatalist policy, and at the same time restricting access to abortion and contraception, initially led to very high TFR. These extreme peaks were, however, followed by a rapid decline in fertility to moderate levels that can be seen as reflecting the preferences of families rather than those of the communist regime (Sobotka 2002).

Dissolution of the socialist system resulted in changes of values and norms regarding self-fulfilment, education, sexuality, contraception, consumption and many other areas of life. Transition to the market economy combined with the opportunities of higher earnings, but also with threats related to the insecure situation on the labour market, also affected childbearing preferences of families. The resulting demographic changes such as postponement of family formation and

[2]It is worth noting that in terms of fertility changes, Slovenia can be seen rather as a Southern European country than as postsocialist country, firstly owing to the relatively open character of Titoist socialism in the former Yugoslavia, and secondly owing to the high level of socio-economic development of Slovenia.

childbearing, a rise in the age of motherhood and the increasing numbers of couples with only one child or no children can be seen as direct factors influencing the decline in fertility (Okólski 2004). In that respect, it can be argued that the countries of Central Europe follow the path of the second demographic transition with a certain delay towards Western Europe, yet at a greater pace (van de Kaa 2003). The second demographic transition processes are more advanced in the countries that were successful in transforming their economies, thus in Central Europe. Adversely, in the Southeastern European countries (Bulgaria and Romania), the decline in fertility could to a larger extent result from the unfavourable economic conditions rather than from overall societal change, which was still postponed at the beginning of the twenty-first century (Sobotka 2002). Summing up, it can be argued that in all formerly socialist countries the modernization processes are not completed yet, especially when rural areas are taken into account (Okólski 2004).

On the basis of the common fertility characteristics since 1960, a simple clustering of European countries according to the TFR developments in the last decades of the twentieth century can be made. An overview of fertility patterns for eight groups of countries is presented in Fig. 6.1. The clustering is based on both the similar history of fertility changes, discussed earlier in this section, and the geographic and cultural proximity of the countries. The data come from the Council of Europe (2003) yearbook. In general, as a result of the modernization processes mentioned, at the turn of the century more than half of Europe's contemporary population lived in countries with the "lowest-low" fertility levels, with period TFR below 1.3 (Sobotka 2004). The exceptions are the countries of Northwestern Europe and Portugal, where the decline in fertility was not as deep as in the remaining European countries.

6.2 Fertility Scenario: A Slow Recovery

Both the demographic and the economic theories may provide a useful background for setting the general framework of the future fertility scenario for Europe. It has to be stressed, however, that the precise assumptions, as always in population forecasting, are to a large extent judgemental, as a certain degree of subjectivism is always inevitable in this type of research (Lutz et al. 2000).

If we assume that a moderate yet stable economic growth prevails in Europe in the first half of the twenty-first century, combined with population ageing and related problems of the social security systems, then there will likely be some attempts from the population policy side to counterbalance the decline in fertility by introducing certain policy measures. There may be thus an indirect impact of economic growth on fertility that would act via institutional proxies, e.g. improved childcare systems, more equal division of rights and obligations between both parents, and longer parental leave. Such a scenario would be very much in line with the new home economics theory (Becker 1991), emphasizing the economic aspects of future fertility prospects. An example supporting this hypothesis is given

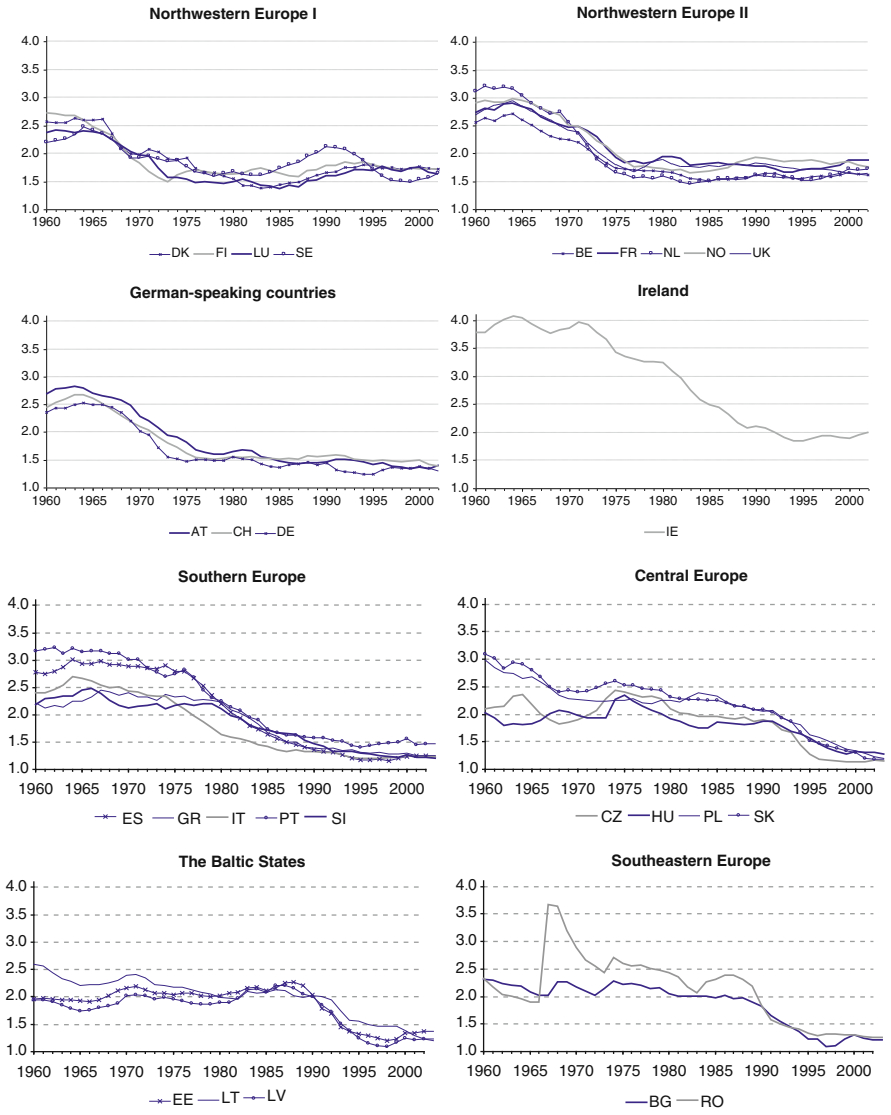

Fig. 6.1 Observed period total fertility rates in eight groups of European countries, 1960–2002. *AT* Austria, *BE* Belgium, *BG* Bulgaria, *CH* Switzerland, *CZ* Czech Republic, *DE* Germany, *DK* Denmark, *EE* Estonia, *ES* Spain, *FI* Finland, *FR* France, *GR* Greece, *HU* Hungary, *IE* Ireland, *IT* Italy, *LT* Lithuania, *LU* Luxembourg, *LV* Latvia, *NL* Netherlands, *NO* Norway, *PL* Poland, *PT* Portugal, *RO* Romania, *SE* Sweden, *SI* Slovenia, *SK* Slovakia, *UK* United Kingdom
Source: Council of Europe 2003, own computations

by the highly developed Scandinavian countries, where the expensive institutional setting, including the factors mentioned above, seemingly contributed to the increase in fertility in the 1990s. On the other hand, it is difficult to expect that the potential recovery of fertility may be attributed solely to economic improvement and decreasing opportunity costs of childbearing, given the nature and magnitude of the changes in societal values (van de Kaa 2003).

At the turn of the century it seemed that the changes in social attitudes spreading in the developed countries over the previous decades had become petrified, and that return to replacement-level fertility in the future could be feasibly assumed, although of course the second demographic transition theory does not exclude the possibility of further changes in societal values. Nevertheless, in the light of strong individualization processes that have been taking place in Europe, there is no evidence that the current decline in fertility may be offset by policy measures (Gauthier 2007).

The reversal of the decline in fertility can occur through the increasing perception of childbearing as a way of self-realization of the parents in a process that is likely to happen first in Western Europe and only afterwards, with a time delay, in Central part of the continent (van de Kaa 2003). At this point the economic and institutional setting mentioned in the previous paragraph may be involved, but only as an additional factor that influences the process, rather than as the main determinant of the fertility trend. In any case, the size of the expected recovery of fertility levels in Europe has to be seen as relatively limited.

According to Bongaarts and Feeney (1998), in the analysis of fertility dynamics it is useful to distinguish two components that contribute to the overall change of period TFR: the *quantum* and *tempo* effects. The *quantum* component is defined as "the TFR that would have been observed in the absence of changes in the timing of childbearing during the period in which the TFR is measured. The *tempo* component equals the distortion that occurs due to timing changes" (Bongaarts and Feeney 1998, p. 272). In the context of the second demographic transition theory, one can expect the following changes with respect to both components:

- The future changes in the timing of fertility (*tempo*) are likely to continue, with the mean age of first childbearing slowly moving to slightly older ages.
- Soon, the fertility *quantum* is expected to stagnate in the Western European countries or even decline further in Central Europe, and only afterwards is a slight recovery expected to commence.

Clustering of countries according to their observed fertility trends also to some extent reflects the patterns of cultural and structural social incompatibilities (Liefbroer and Corijn 1999) that influence fertility patterns. Cultural incompatibility is related to the stereotypes, values and norms determining the role of women in the society (traditional as opposed to modern), whereas the structural incompatibility is related to the possibilities of self-realization of women especially in the labour market. The former can be thus seen as more related to the second demographic transition concept, whereas the second is more related to the new home economics theory. Although these two types of incompatibilities are most often correlated,

there are visible exceptions. The most relevant example is Italy, where the structural possibilities are not utilized owing to the relatively traditional cultural family values (Liefbroer and Corijn 1999, p. 52), resulting in the lowest labour force activity rates among the countries under study in the early years of the first decade of the twenty-first century (International Labour Organization 2003).

On the other hand, countries with the highest labour force participation of women are at the same time the ones with the highest fertility rates in Europe (Norway and Sweden). To a large extent this is likely due to the highly developed institutional framework supporting childbearing, as mentioned previously. This indirectly indicates that low levels of both types of incompatibilities make relatively good conditions for higher fertility in the contemporary society (Muszyńska 2003), yet still lower than the replacement level. An explanation is that the countries with low levels of cultural and structural incompatibilities are relatively advanced in the process of the second demographic transition. Therefore, these countries are already on their way to reversing the declining fertility trends, which currently seems possible only in the favourable cultural and social environment, as suggested by van de Kaa (2003).

Together with the cultural and structural background, common fertility patterns observed in the past as well as the geographic, historical and cultural proximity of countries allow the introduction of a simple clustering of the European countries for the purpose of setting the fertility scenarios for the first half of the twenty-first century. The grouping proposed in this study is based on a simple qualitative analysis of the common features of the countries, and not on the formal clustering methods.

With regard to the Scandinavian frontrunners of the second demographic transition process (Denmark, Finland, Norway and Sweden), one can expect the relatively high TFR (between 1.65 and 1.75 in 2002) to be quite good predictors of comparatively high fertility in the future. Very high levels of economic development and social welfare can likely contribute to the favourable environment for further increase in fertility. Also, both cultural and structural social incompatibilities regarding the role of women in society and the institutional possibilities of reconciling work with family life exist in the Scandinavian countries at low levels (Muszyńska 2003), which additionally supports the optimistic expectations with regard to future fertility developments.

In Belgium, Luxembourg and the United Kingdom, the period TFR of 1.62–1.64, which are stable or even slightly increasing, seem to indicate similar future fertility developments as in the case of Northern Europe, although perhaps to a slightly lesser extent. During the last 20 years, the TFR of the Netherlands observed an almost steady growth (with the exception of the first half of the 1990s) from 1.47 in 1983 to 1.73 in 2002. Assuming a continuation of this tendency, one can expect this country to follow the Scandinavian fertility pattern rather than that of its Benelux neighbours. An additional argument here is a relatively low level of cultural conflict resulting from the liberal attitudes prevailing in Dutch society (Liefbroer and Corijn 1999).

Two other Western European countries (France and Ireland) are characterized by relatively high fertility levels. For France, the 2002 TFR of 1.89 followed a period of a significant increase in the second half of the 1990s and stabilization from 2000. For simplicity, one can assume that fertility in France will remain stable throughout the forecast period. In the case of Ireland, the rapid economic growth taking place in this country and the related modernization of the society can, however, lead first to a further decline in fertility and eventually to a moderate recovery.

In the case of German-speaking countries (Austria, Germany and Switzerland), the trends in period TFR already indicate a stabilization around the current levels of 1.30–1.40, with a history of more than 20 years at levels around or below 1.50. For this reason, although one may expect fertility improvements in the future, their scope will likely be quite limited. The pertaining moderate levels of both cultural and structural incompatibilities in the societies (Muszyńska 2003) can be seen as additional factors limiting recovery of fertility in the future, even despite very good economic performance.

In the countries of Southern Europe (Greece, Italy, Slovenia, Spain), the fertility decline was quite sharp (to 1.21–1.25 in the early years of the first decade of the twenty-first century) and it seems to be at least temporarily durable. Taking into the account certain factors limiting the future perspectives of fertility growth, one can expect further recovery of fertility only to a limited extent. Of key importance here is the conflict between the traditional role of women and the modern societal values (Liefbroer and Corijn 1999), partially due to the relatively high levels of religiosity in these countries. An additional obstacle in reaching higher TFR in the countries of Southern Europe is the domination of the *quantum* effect, resulting in more families with no children or one child, rather than the postponed timing of fertility (Kohler et al. 2002).

The exceptional case among the Southern European countries is Portugal, where despite the historical, geographic and cultural proximity to the other countries from this group, especially to Spain, the decline in fertility was not so dramatic and the TFR eventually stabilized at slightly less than 1.50. For this reason, the fertility scenario for Portugal should slightly differ from the ones for the other countries of Southern Europe, assuming higher TFR.

Despite the common history and presence of the "socialist greenhouse" effect, the countries of Central Europe can be divided into two subgroups, according to the level of influence of cultural and religious traditions (Sobotka 2002). In the Czech Republic, Hungary and Latvia, the societies are to a large extent secularized and can be seen as relatively advanced in the second demographic transition process. Therefore, in these countries fertility stagnation can be expected rather than further decline, followed by a moderate increase in the longer run. Additionally, the economic situation in the Czech Republic is one of the best among the postsocialist countries and can provide a positive background for the recovery of fertility. The ultimate target TFR can be assumed to be similar to those of the German-speaking part of Europe, considering the historically strong cultural ties of these countries with either Germany or Austria. Moreover, in these countries the timing (*tempo*) effect seems to play the important role in determining the decline of the TFR. This

indicates that to some extent the fertility processes are due to the postponement of childbearing and not only to the decreased number of children (Philipov and Kohler 2001; Sobotka 2002), which can constitute an additional argument for the future partial recovery of fertility.

Conversely, the remaining countries from this cluster (Lithuania, Poland and the Slovak Republic), especially with respect to the traditional role of Roman Catholicism and its influence on societal values, much more resemble the countries of Southern Europe (Sobotka 2002). For this reason, both cultural and structural incompatibilities in these societies seem to delay advancement of the second demographic transition. One can therefore expect that there is still place for a further decline in fertility, especially in the short term. Nevertheless, it seems feasible to assume that these three countries will eventually follow Southern Europe in the process of moderate fertility recovery, but with a certain time delay.

Estonia has to be seen as an exceptional case among the former socialist countries of Central Europe. In this Baltic state, the relatively low level of cultural conflict within the society (visible, e.g., in the very high percentages of consensual unions and extramarital births) appears to be correlated with an increase of period TFR in the second half of the 1990s to 1.37 in 2002. Such low cultural incompatibility of Estonian society, as well as the cultural proximity to the Scandinavian countries, allows one to assume higher future TFR for Estonia than for the remaining Central European countries.

Finally, although the two Southeastern European countries (Bulgaria and Romania) are characterized by historical and to some extent cultural features similar to those of the other postsocialist states, one can expect the fertility crisis to be even deeper and more long-lasting. A combination of traditionalist societal values and difficult economic conditions leaves space for a further decline in fertility, as these countries seemingly have not yet fully entered the process of the second demographic transition (van de Kaa 2003). For this reason, one can assume that fertility in Bulgaria and Romania may be even lower than in the neighbouring countries, especially as there were strong quantum effects of the decline in fertility in the countries such as Bulgaria, owing to the strong economic crisis in the early 1990s (Philipov and Kohler 2001).

For all the groups of countries mentioned, the quantitative assumptions concerning fertility scenarios have to be set separately, taking into consideration the probable convergence of fertility trends within particular clusters.

6.3 Quantification of the Assumptions

The methods derived for forecasting or projecting fertility are numerous: from stochastic (Keilman and Cruijsen 1992; Lee 1998; Alho 1998; Keilman 2001) through the conventional scenario-setting (United Nations 2003a and most of the national projections) to the attempts to forecast future fertility on the basis of the expected or desired number of children (Eurostat 1997b). The applicability

Table 6.1 Assumptions concerning target total fertility rates (*TFR*) forecasted for 2052

Cluster	Countries	Target TFR
Southeastern Europe	Bulgaria, Romania	1.40
Southern Europe	Greece, Italy, Slovenia, Spain	1.50
German-speaking countries	Austria, Germany, Switzerland	1.50
Central Europe	Czech Republic, Hungary, Latvia, Lithuania, Poland, Slovak Republic	1.50
Estonia	Estonia	1.60
Portugal	Portugal	1.70
Northwestern Europe (1)	Belgium, Luxembourg, United Kingdom	1.80
Northwestern Europe (2)	Denmark, Finland, Netherlands, Norway, Sweden	1.90
High-fertility countries	France, Ireland	1.90

Source: own elaboration

of the latter method to predicting fertility in Europe seems disputable, as the actual family size in developed countries remains in most cases below the desired one (Bongaarts 2001; Voas 2003).

To obtain most of the advantages of extrapolative and scenario-based forecasts, one can combine them, which should generally improve their performance (Gjaltema 2001). For this reason, the method of scenario-setting applied in this study is partially based on analysing past trends of the overall period TFR, their extrapolation for 10 years into the future and bridging the extrapolated figures with the judgmentally selected target values for 2052. The trend extrapolation for the initial 10 years of the forecast reflects the assumption of the stagnation or decline of the fertility quantum in the near future.

Assumptions on target TFR were chosen judgementally on the basis of the reasoning presented in Sect. 6.2, with an attempt to be as consistent as possible with other, similar studies (United Nations 2003a and the national projections). The method of setting the scenarios of period TFR for the particular countries applied in this study is therefore rather simplistic, without going into the details concerning the age structure of fertility or trends in cohort fertility rates. The reason for this simplification is that the geographic scope of the analysis is broad (27 European countries), and the relevant data are often incomplete or missing. Moreover, as shown by van Imhoff (2001), there is no simple relationship between the period and cohort fertility measures allowing one to be derived from the other. Therefore, more complex assumptions underlying the fertility forecasts have been sacrificed for the sake of applying of a common method to all the countries under study.

For the purpose of the current analysis, nine clusters of countries have been identified, according to the common past TFR development patterns, as well as to the geographic and cultural proximity, as indicated in Sect. 6.2. The clusters and their specific target TFR are assumed as shown in Table 6.1.

For most of the countries, the forecasted increase of period TFR between 2002 and 2052 is expected to range between +0.1 and +0.3. The comparison of the

Table 6.2 Comparison of target TFR assumptions for 2050: different projections/forecasts

Country	National	UN 2002	Current study[a]
Austria	1.40	1.85	1.50
Belgium	1.70	1.85	1.80
Bulgaria	NA	1.85	1.40
Switzerland	1.50	1.85	1.50
Czech Republic	1.62	1.85	1.50
Germany	1.40	1.85	1.50
Denmark	1.80	1.85	1.90
Estonia	1.77	1.85	1.60
Spain	1.50	1.85	1.50
Finland	1.77	1.85	1.90
France	1.80	1.85	1.90
Greece	NA	1.85	1.50
Hungary	1.90	1.85	1.50
Ireland	1.75	1.85	1.90
Italy	1.43	1.85	1.50
Lithuania	1.65	1.85	1.50
Luxembourg	1.80	1.85	1.80
Latvia	NA	1.85	1.50
Netherlands	1.80	1.85	1.90
Norway	1.80	1.85	1.90
Poland	1.20	1.85	1.50
Portugal	1.70	1.85	1.70
Romania	1.30	1.85	1.40
Sweden	1.85	1.85	1.90
Slovenia	1.70	1.85	1.50
Slovakia	1.70	1.85	1.50
United Kingdom	1.80	1.85	1.80

[a]Target values for 2052
NA not available
Sources: United Nations (2003a), national statistical institutes and Eurostat (http://ec.europa.eu/eurostat)

assumptions concerning target TFR for different projections and forecasts for 2050 (or for the latest available year, if the TFR was assumed to remain constant in the final period) is presented in Table 6.2.

From Table 6.2 it can be seen that the target TFR assumed for the purpose of this study are in many cases quite close to the national ones prepared at the beginning of this century. Only in some cases do the assumed targets reflect somewhat more optimism with regard to the further developments of fertility in particular countries. As the assumptions of the United Nations (2003a, b) do not differentiate between the countries and do not take into account the local specificities, they are in this case less useful as a reference.

The TFR for the initial 10 years of the forecast (2003–2012) are derived from an exponential trend: $TFR_t = c + \exp(a \cdot t + b)$, estimated from the past data. The estimation method was ordinary least squares with the constraint $TFR_{2002} = TFR_{2002}{}^{\text{est}}$,

i.e. with the observed values for 2002 being equal to their estimates from the trend. This solution ensured that that the initial forecast values derived from the trend are consistent with the most recent observations. The series used for trend extrapolation depended on the time when the start of the decline in fertility was visible, and therefore were as follows:

- 1989–2002 for the formerly socialist countries, except Slovenia;
- 1980–2002 for Greece and Slovenia;
- 1975–2002 for Italy, Portugal and Spain;
- 1965–2002 for the remaining European countries.

The data were taken from the Council of Europe (2003, Tables 3) yearbook, with the missing 2002 values for Greece and Italy assumed to be the same as in 2001. For all the countries, the fit of the exponential trend was very good, with p values not exceeding 0.0005. For three countries (Lithuania, Poland and the Slovak Republic) trend extrapolation led to extreme fertility losses in the period 2003–2012. Therefore, in these cases an alternative scenario was assumed, with fertility drops declining by a third each year, i.e. with $TFR_t = TFR_{t-1} + 2/3(TFR_{t-1} - TFR_{t-2})$. This solution appeared to lead to reasonable results, which were consistent with the qualitative expectations.

The values for 2012 and 2052 were bridged using a polynomial (cubic) Hermite interpolation ensuring a smooth passage not only from the initial to target values but also from the initial slope ($\alpha = \Delta TFR_{2012/2011}$) to the target one, set to 0 by default. The TFR were thus set to stabilize at their target levels by 2052. The matrix formula for the Hermite interpolation is[3]

$$TFR_t = s^{\mathrm{T}} H b,$$

where $t = 2013 \ \ldots \ 2051$, $s = (t - 2012)/40$, $\mathbf{s}^{\mathrm{T}} = [s^3 \ s^2 \ s \ 1]$, $\mathbf{b}^{\mathrm{T}} = [TFR_{2012} \ TFR_{2052} \ \alpha \ 0]$ and the Hermite coefficient matrix $\mathbf{H}$ is

$$\mathbf{H} = \begin{vmatrix} 2 & -2 & 1 & 1 \\ -3 & 3 & -2 & -1 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \end{vmatrix}$$

As a result, the complete TFR trajectories were obtained in the clusters of countries shown in Fig. 6.2. The lines denote respectively the period fertility levels observed until 2002 and the ones forecasted for 2003–2052 for all European countries under study.

From Fig. 6.2 it can be seen that although the forecast assumes a certain amount of optimism with regard to the slow increase in the number of children, in all cases the target values remain below the replacement level, i.e. about 2.08 children per

[3]The formula follows Weston (2002).

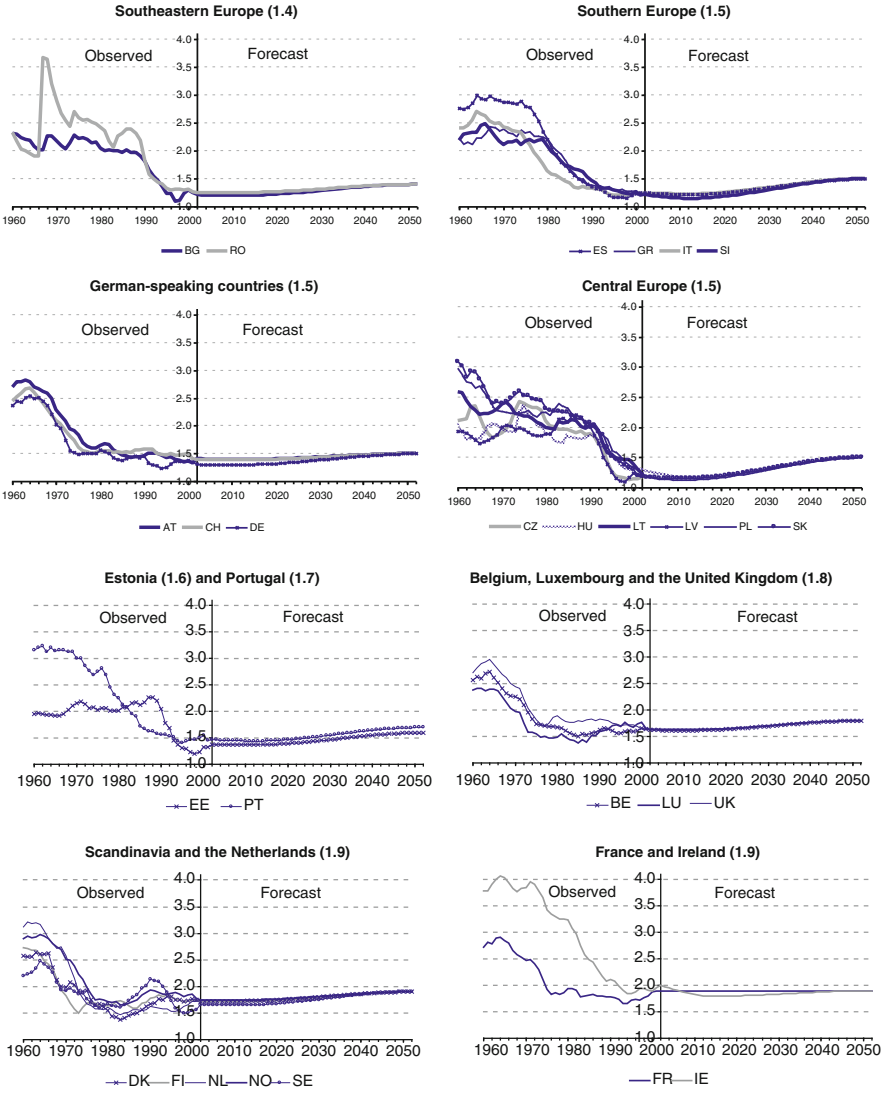

Fig. 6.2 Observed and forecasted average TFR in the clusters of countries (target values in *parentheses*). *AT* Austria, *BE* Belgium, *BG* Bulgaria, *CH* Switzerland, *CZ* Czech Republic, *DE* Germany, *DK* Denmark, *EE* Estonia, *ES* Spain, *FI* Finland, *FR* France, *GR* Greece, *HU* Hungary, *IE* Ireland, *IT* Italy, *LT* Lithuania, *LU* Luxembourg, *LV* Latvia, *NL* Netherlands, *NO* Norway, *PL* Poland, *PT* Portugal, *RO* Romania, *SE* Sweden, *SI* Slovenia, *SK* Slovakia, *UK* United Kingdom
Source: Council of Europe 2003, own computations

woman. This reflects an assumption that the effects of the second demographic transition are long-lasting, although a slight upward shift from the lowest-low fertility levels is already visible by the end of the forecast period. This effect can also be interpreted within the framework of the 'second transition' theory, namely the ultimate increase in fertility may result from perceiving children and family life as ways of self-realization of couples (van de Kaa 2003). The target values for 2052 can thus be interpreted within this framework as long-term stabilization levels of the period TFR (and thus eventually also of the cohort-completed TFR), achieved at the ultimate stage of the second demographic transition. Any attempts to predict the changes in values, norms, attitudes and thus the reproductive behaviour in the long run, beyond 2052, remain beyond the scope of the current study.

6.4 Summary and Conclusions

Summing up, the fertility scenarios presented in this chapter assume a short-term continuation of past trends and a long-term slight increase of the TFR. The target values for 2052 reflect to a large extent the current diversity of childbearing patterns across Europe, as well as the level of advancement of particular countries in the process of the second demographic transition. The assumed target TFR differ significantly, from 1.4 for Bulgaria and Romania to 1.5 for Central Europe, Southern Europe and the German-speaking countries to 1.8–1.9 for the wealthy countries of Northern Europe. Thus, there is a visible lack of convergence of fertility patterns reflected in the assumptions.

Chapter 7
Mortality Scenarios for 27 European Countries, 2002–2052

Jakub Bijak

This chapter presents assumptions concerning expected future mortality in 27 selected European countries for the period 2002–2052. The assumptions are based on mortality theories as well as past trajectories in Europe in the second half of the twentieth century. Special attention is paid to the reduction of East–West and male–female differences in life expectancy. Descriptive, knowledge-based expectations for future mortality are quantified in order to be useful for population dynamics modelling. The mortality scenarios obtained in that way are compared with ones applied in similar studies of national as well as global (United Nations 2003a) population projections.

7.1 Legacy of the Past: East–West Mortality Gap in Europe

Similarly to the explanations of contemporary decline and postponement of fertility, also in the field of human mortality there have been attempts to create a unifying theory that would encompass the past and recent developments of health, longevity and prevalence of various diseases. An important endeavour was made by Omran (1971), who introduced the concept of the 'epidemiologic transition'. In brief, his theory stresses the dominance of different types of diseases in various historical periods, with three stages of mortality developments being distinguished (Omran 1971, pp. 516–521):

J. Bijak (✉)
Division of Social Statistics and Demography, ESRC Centre for Population Change, Southampton Statistical Sciences Research Institute, University of Southampton, Southampton, UK
e-mail: J.Bijak@soton.ac.uk

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_7,

1. Domination of "pestilence and famine" approximately until the first half of the nineteenth century, with life expectancy at birth ranging between 20 and 40 years;
2. "The age of receding pandemics" until the first half of the twentieth century, with life expectancy steadily increasing to about 50 years and with the domination of infectious diseases among causes of death;
3. "The age of degenerative and man-made diseases", with a continuous decline in mortality, and a shift towards cardiovascular diseases, malignant neoplasms and external causes of death, as a result of medical and socio-economic improvements, as well as cultural changes in health-related behaviour.

The theory of epidemiologic transition was developed further, primarily by adding the fourth phase of delayed degenerative diseases (Olshansky and Ault 1986). During this phase, the developments in medicine and public health reduce the prevalence of the most important causes of death, most considerably cardiovascular diseases. As a result, the increase in importance of mortality due to malignant neoplasms can be observed together with the declining impact of diseases of the circulatory system.

The theory of Omran had a strong impact on the way mortality issues are perceived among epidemiologists, but also received a substantial amount of criticism from those who considered the cultural, social and behavioural factors to be the primary determinants of health and mortality in the modern world. As an alternative to the epidemiologic transition concept, the framework for the 'health transition' theory was proposed (Frenk et al. 1991; Caldwell 1993). Its key proposition is that in the modernizing society, modern death risk factors begin to dominate over traditional risks, which implies the concentration of mortality in older age groups, primarily due to noninfectious diseases. A conclusion from this discussion is that, in general, it seems reasonable to include a synthesis of different explanations offered by various scientific disciplines (biology, epidemiology, medicine, demography, psychology, etc.) in setting mortality scenarios, especially when requiring the inevitable dose of judgement (Tabeau et al. 2001).

A comprehensive overview of socio-economic mortality determinants in Europe related to both epidemiologic and health transition theories has been provided by Spijker (2004), together with the empirical evaluation of the impact of particular factors on health and mortality. Absolute and relative income levels, principal measures of economic development and social inequalities, have both proven to be significant factors in the decline in mortality. The only cases of death that were exceptions to this pattern were prostate and lung cancer in Western Europe, seen as the effect of ageing, and traffic accidents in Central Europe, related to a rapid increase in wealth and thus also motorization. A significant impact on the decline in mortality has also been found in the case of the other socio-cultural and behavioural factors, for example the impact of higher education or fruit and vegetable consumption. On the other hand, factors such as the delayed effects of unemployment, risky lifestyles (smoking, excess alcohol consumption) and environmental features, such as air pollution, contribute to increased mortality risk. Surprisingly, the impact of health care expenditure appeared to be of little

significance, but this can be attributed to the way it was measured. The effects of particular determinants were found to be greatest in Central European countries (Spijker 2004). This may result from the East–West mortality differences observed in Europe since the 1970s.

In Western Europe, in the second half of the twentieth century a steady increase in life expectancy at birth for both sexes was observed. White (2002) noted that this advance was typical for high-income countries, where a linear trend in life expectancy at birth (e_0) appeared to explain more of the variability of the phenomenon than the age-standardized death rates, either crude or logged. It was also found that life expectancy changes were the result of both country-specific features and the relative position of the country among all the countries under study with respect to mortality levels (White 2002). Research based on the application of the Lee–Carter mortality model (see also Sect. 7.3) led to a similar conclusion on the basis of studying long-term trends, where a linear decline in mortality was observed among the most developed countries (Tuljapurkar et al. 2000). The main factors underlying the long-term decline in mortality can most likely be attributed to institutional and technological factors (developments in medicine and health care, as suggested by Tuljapurkar et al. 2000), but also to the more hygienic living conditions and adoption of healthy lifestyles by individuals (Olshansky and Ault 1986). Although there are cause-specific differences in mortality patterns between European countries (e.g. fewer deaths due to lung cancer in Northern Europe and more traffic accidents in Southern Europe), the overall mortality in all Western European countries remains at a similar level and a clear convergence of the trends can be observed (Spijker 2004, pp. 101–106).

In the socialist countries of Central Europe, the decline in mortality until the mid-1960s developed along the same lines as in Western Europe. This was mainly attributed to the successful reduction of mortality due to infectious diseases, corresponding to the beginning of the third stage of the epidemiologic transition. Afterwards, when the degenerative diseases started to prevail, Central European countries failed to introduce adequate health policy measures and implement (or could not afford to implement) new developments in medicine. The extensive and highly egalitarian socialist health care system was not able to cope with the degenerative diseases requiring highly trained specialists, modern medical equipment and medicines and expensive medical procedures (Rychtaříková 2002). There are also other explanations for the East–West mortality gap in Europe since the second half of the 1960s. An interesting view has been provided by Vallin and Meslé (2004), who suggested that additionally to the institutional drawbacks mentioned, the socialist system discouraged people from taking responsibility for their health through lifestyle and behavioural changes. This explanation is very much in line with the theory of the health transition stressing the role of cultural, social and behavioural determinants of mortality.

All the factors mentioned resulted in an increase in mortality due to cardiovascular diseases and external causes of death, which in turn caused stagnation of or even a slight decline in life expectancy (Okólski 1993; Meslé 2004a). A visible improvement in the period since 1965 was observed almost exclusively in the

successful prevention of infant and child mortality. On the other hand, the group most affected by the increase in mortality was middle-aged men between 40 and 65 years of age. In this group the negative contribution of circulatory diseases, external causes of death and in some cases diseases of the digestive system to life expectancy was most significant (Meslé 2004a).

The socio-economic transformation that took place in Central Europe in 1989 and in the former Soviet Union in 1991 caused a visible increase of mortality in all countries of the region, again mainly affecting middle-aged men. This mortality crisis was deepest in the post-Soviet republics, and thus also in the three Baltic states included in the current study. The reasons for the unfavourable changes can be sought in the economic crisis of the early 1990s, the transformation of the labour market and the related social costs such as unemployment and increasing poverty. Also the increasing uncertainty in everyday life, unhealthy living conditions and lifestyle, especially in urban areas, and the crisis in the health care system likely contributed to the deterioration of mortality (Tabeau 1996). Negative transitional factors appeared to have an impact for only a couple of years. Recently, in all countries of Central Europe subject to the current study, a slow, yet sustainable recovery from the mortality crisis can be observed, with the post-Soviet countries still lagging behind, especially in terms of male mortality (Meslé 2004a).

A remedy for the unfavourable mortality developments in the former socialist countries can be seen in the improvement of the working and living conditions, together with the promotion of necessary changes in lifestyle. The latter include nutrition habits, approach to work and enhancing the importance of social factors, interpersonal relations and mental hygiene. Hence, the proposed remedies fit well in the framework of the health transition theory. Additionally, organizational changes in the health care and social security systems seem necessary, as does further development of the institutions of the civil society (Tabeau et al. 1998). This observation is important for setting up the long-term mortality scenarios for the countries of Central Europe.

A comparison of life expectancy developments in selected countries, chosen as typical for the different parts of Europe, is presented in Fig. 7.1. The countries shown in the graphs are Sweden (Northern Europe), Italy (Southern Europe), Austria (Western Europe), Poland (Central Europe), Estonia (Baltic state) and Bulgaria (Southeastern Europe). Additionally, a trend of the maximum e_0 value in developed countries is presented. For males the maximum was observed either for one of the Scandinavian countries (Sweden, Norway) or for Greece until 1979 and for Japan thereafter. In the case of females, the maximum e_0 values were observed in Norway until 1981 and afterwards for Japan.[1]

[1]The countries for which the maximum life expectancy is observed differ slightly from the ones quoted by Oeppen and Vaupel (2002), likely owing to the different source of data used in the latter study.

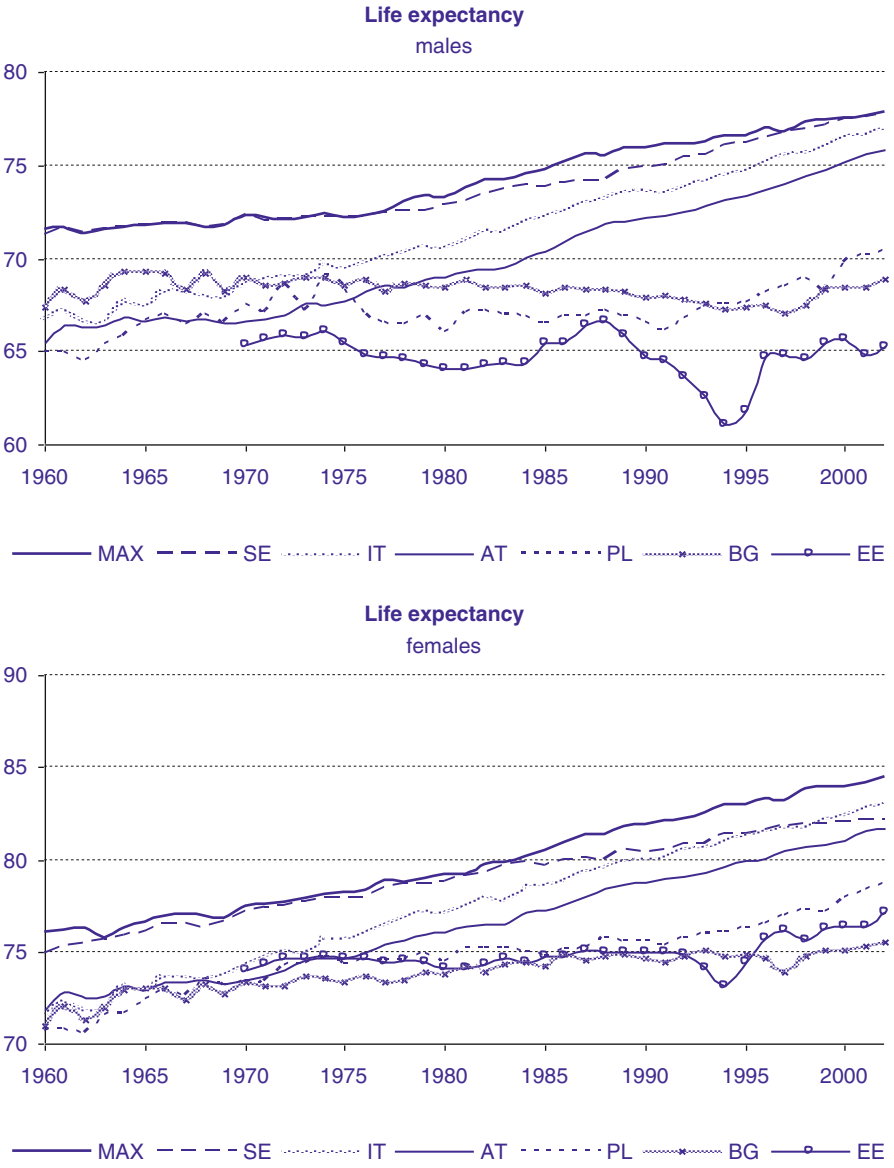

Fig. 7.1 Observed life expectancy at birth (e_0) in six European countries and the maximum e_0 value, 1960–2002. *MAX* cross-country maximum, *AT* Austria, *BG* Bulgaria, *EE* Estonia, *IT* Italy, *PL* Poland, *SE* Sweden
Source: Council of Europe 2003; Eurostat/NewCronos

7.2 Mortality Scenario: Towards a Common European Pattern?

Scientists are unsure how long humans can survive. The views and opinions differ widely. So far, all limits to life expectancy assumed by scientists in the last 90 years have been subsequently falsified in reality (Oeppen and Vaupel 2002). A modern example is the study of Olshansky et al. (1990), who set the 'average biological limit to life', thus the ultimate life expectancy level, at 85 years, and the maximum lifespan at 120 years. On the other hand, Christensen and Vaupel (1996) argued that there is no evidence of genetic limits to life expectancy around 85 years, because only a quarter of the variation in the length of life in developed countries can be attributed to genetic factors. Therefore, the improvement of external circumstances still may lead to very substantial changes in longevity. Moreover, as shown by Oeppen and Vaupel (2002), the life expectancy limit of 85 years has been already surpassed by Japanese females over 50 years of age in 1996. The important conclusion presented by Oeppen and Vaupel is that in the mortality scenarios for developed countries, there is no need to assume any artificial 'ceiling' life expectancy values.

Apart from the question of possible extension of human lifespan, there is still much uncertainty left with respect to future changes in lifestyles, as well as in the environmental and institutional settings. An attempt to predict the future stages in health transition has been made by Martens and Huynen (2003), who described three scenarios of mortality developments on the basis of a review of studies devoted to the expectations in different areas of life (social and policy issues, economy, technology, ecology, etc.). These three scenarios are as follows (Martens and Huynen 2003, pp. 897–899):

1. In the scenario of "emerging infectious diseases", new infectious diseases may emerge (as happened with AIDS in the 1980s) or old ones reappear. This would cause a global increase in mortality, strengthened by enhanced mobility, human behaviour and failures of the health care systems.
2. In the scenario of "medical technology", additional environmental and lifestyle risks can be compensated by advances in medical technology, which would lead to ultimately stable life expectancy, assuming constant economic growth.
3. In the scenario of "sustained health", investments in the public sector might eventually lead to a decrease in the importance of lifestyle-related and environment-related diseases, and the mortality differences between different countries and regions would ultimately disappear.

In this context, bearing in mind the historical developments of mortality in developed countries and the remarks of Oeppen and Vaupel (2002), one can reasonably assume with a certain dose of optimism that the future baseline scenario of mortality developments in regions such as Europe may likely be the hybrid of all three pathways foreseen by Martens and Huynen (2003). More precisely, this would mean that although one cannot exclude the emergence of new infectious

diseases, their impact on public health in developed countries would likely be offset by technological, institutional and behavioural changes. In terms of the assumptions, this would mean that the possible future evolution of mortality in low-mortality countries, including Western Europe, might be more in line with the suggestions of Oeppen and Vaupel (2002) and Lee (2002) rather than with the official projections of the United Nations (2003a, b).

The countries of Central Europe are likely to follow the path of the developed regions, although with a lag that is likely to slowly diminish over time. The observed trends already indicate the upturn from the post-transformation crisis, with respect to both life expectancy and the age-of-death and cause-of-death mortality profiles (Rychtaříková 2002; Meslé 2004a). Assuming sustained socio-economic developments in the future, one can expect both health-related lifestyles and the institutional setting, most notably the health care systems, to eventually catch up with those in the most advanced regions of the world.

With regard to future life expectancy developments, it can therefore be assumed that the maximum level will continue to increase and there should be no fixed limit to it, following the argumentation of Oeppen and Vaupel (2002). For Western Europe, one can envisage a convergence of trends, both to the maximum level and also within this group of countries. For Central Europe, however, only a slow convergence towards the highest values can be reasonably assumed. This is due to both large initial disparities in comparison with most developed countries and the social, economic and institutional drawbacks, from which it will undoubtedly take this region many more years to recover.

Another issue that needs to be controlled in the mortality scenarios is life expectancy gap between genders. Without going into deeper discussion of whether there is a biological lower limit to the excess male mortality, one can quote the findings of Luy (2003), who compared the whole German population with groups of Bavarian Catholic nuns and monks. According to Luy, although females showed similar survival patterns regardless of the group to which they belonged, the life expectancy of monks was considerably higher than that of males in the general population. The main conclusions from this study were that "improvements in men's survival conditions are lagging behind improvements among women and [the] biological factors cannot explain this development" (Luy 2003, p. 667). This seems to indicate that together with lifestyle changes among males there is still place for narrowing the mortality gap between genders, which was also suggested by Meslé (2004b), in line with the health transition theory. The trends in the life expectancy gap between genders in selected European countries are presented in Fig. 7.2.

For the first half of the twenty-first century, a general decline of the differences in life expectancy between males and females can be assumed for all European countries, judging by the trends presented in Fig. 7.1. Moreover, in contemporary Europe the difference in life expectancy between males and females seems to be quite high already, higher than it would be in the absence of negative behavioural factors among the male population (Luy 2003). The gap is especially wide in the Baltic states and to a smaller extent in Southeastern Europe, where the impact

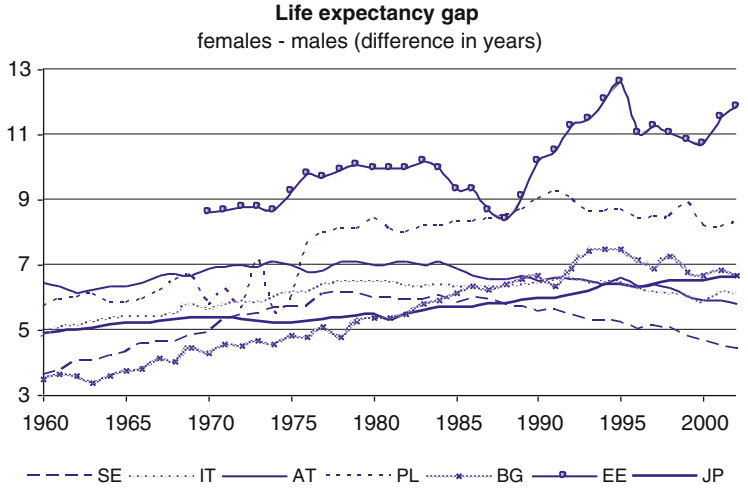

Fig. 7.2 Gender gap for e_0 in selected European countries and Japan, 1960–2002. *AT* Austria, *BG* Bulgaria, *EE* Estonia, *IT* Italy, *JP* Japan, *PL* Poland, *SE* Sweden
Source: Council of Europe 2003; Eurostat/NewCronos

of unhealthy lifestyles or unfavourable living conditions is especially strong. To achieve a reduction of the mortality gap between genders, further improvements in the promotion of a healthy way of living among the male population have to be assumed. The same can be envisaged for the difference in the longevity frontrunner country, Japan, but after a short-term continuation of the increasing trend of the gender gap and a period of stability at relatively high levels.

The main arguments underlying the assumption of future convergence of mortality rates are threefold. Firstly, following the empirical findings of Trovato and Lalu (1996), a pattern of convergence has already been observed in a dozen industrialized countries since the 1970s, and the reduction of the mortality gap between genders was positively associated with the level of socio-economic development (see, e.g., Austria and Sweden in Fig. 7.2). Under the assumption of continuing economic growth, we can thus expect this trend to be maintained into the future. Secondly, at the micro level, smoking—which currently is a large contributor to the mortality gap (Bobak 2003)—is yet another factor by which European men can gain additional years of life simply through changes in behaviour, as well as from social pressure. The current assumptions are based on the expectation of the reduction in smoking, where, in terms of additional years of life expectancy, men have more to gain than women. Thirdly, the changes in occupational patterns can be argued to be another contributing factor: if men increasingly take up less risky jobs (or if jobs become increasingly gender-neutral), this should be reflected in the diminishing gap between men and women.[2] All these assumptions reflect a decline in the gender

[2]The author is very grateful to an anonymous reviewer of the manuscript for this suggestion.

gap, which needs to be controlled in setting the quantitative mortality scenarios. The quantification of country-specific developments of the average lifespan is presented in Sect. 7.3, together with some insights into the implied gender gap.

7.3 Quantification of the Assumptions

Mathematical modelling of human mortality has a long tradition, dating from the pioneering work of Gompertz (1825). Since then, many different models have been developed to serve as tools for explaining and forecasting mortality, created mainly by actuaries and demographers. Among the actuarial models, one may quote the classical model of Heligman and Pollard (1980), as well as a generalized linear model of Renshaw (1991). Among the demographic models for predicting mortality, the most important was developed by Lee and Carter (1992). The model itself has many advantages, including simplicity of formulation and quite good *ex-post* performance results (Lee and Miller 2000). Girosi and King (2008) proposed complex forecasting models incorporating prior information, applying the theoretical framework of Bayesian statistics. Comprehensive overviews of the advances in mortality forecasting have been presented, for example, by Tabeau (2001) and Girosi and King (2008).

Most of the models mentioned forecast the age-specific mortality rates using stochastic methods and therefore require detailed time series of input data. For the simplicity of scenario-setting, aimed to serve merely as the background for the forecasts and simulations of population and labour force developments with a focus on international migration, the use of more advanced forecasting tools has been relinquished. We therefore allowed for more judgemental elements in the forecast in order to obtain one consistent mortality scenario for all European countries. The variable considered for the purpose of running the forecasting model is life expectancy at birth (e_0).

To set up life expectancy scenarios for particular countries, historical data series for the period 1960–2002 were collected from the Council of Europe (2003, Tables 10) yearbook, supplemented with the Eurostat data on life expectancy for Canada, the USA and Japan. The missing observations were interpolated linearly. The historical series were used to estimate the linear trends of the maximum life expectancy, following the proposition of Oeppen and Vaupel (2002). The trends for both sexes are characterized by a very good model fit, with the following characteristics:

$$\begin{aligned}
\text{Males:}\quad & e_{0,t} = 0.1705\,t - 263.62 && t = 1960\ldots2002\\
& \qquad (0.0057)\quad (11.34) && R^2 = 0.956,\ p \approx 0;\\
\text{Females:}\quad & e_{0,t} = 0.2150\,t - 346.11 && t = 1960\ldots2002\\
& \qquad (0.0039)\quad (7.64) && R^2 = 0.987,\ p \approx 0.
\end{aligned}$$

High predicting accuracy of the linear model to the life expectancy series in the most developed countries the second half of the twentieth century can be supported by the results obtained by Tuljapurkar et al. (2000), as well as Lee and Miller (2000), who used the modified method of Lee and Carter (1992). Therefore, in the current study, the estimated trends were used to extrapolate maximum life expectancy until reaching the levels of 80 years for males and 85 years for females. Subsequently, the increase in maximum life expectancy was assumed to gradually slow down, thus reflecting a bit less optimism in comparison with the expectations of Oeppen and Vaupel (2002).

The linear increase of life expectancy during the first and second stages of the epidemiologic transition could be to a large extent attributed to the decline in infant and child mortality. However, given the diminishing returns from the decline in infant mortality in recent years, increasingly more life expectancy gains are due to the reduction of death rates at older ages (Christensen and Vaupel 1996). Moreover, it has been shown that although the probability of death begins to increase after a certain age, its growth is characterized by a decelerating pace (Horiuchi and Wilmoth 1998). Therefore, for the purpose of this study a simple solution is proposed, with a slight long-term reduction of forecasted life expectancy trend slopes, in order to fit the qualitative assumptions presented in Sect. 7.2.

In the case of males, the initial trend slope is assumed to be reduced by 20% after reaching e_0 of 80 years. For females, after reaching the life expectancy of 85 years the following reduction pattern of the initial trend slope is proposed: by 20% for a period of 7 years, by 40% for the subsequent 10 years and by 60% for the remainder of the forecast horizon. This assumption is based on the empirical evidence of decelerating decrease in old-age mortality among Western European women (Spijker 2004, pp. 259–260). The differentiation with respect to the slope allowed for the gap between the sexes to be reduced. Slow convergence of life expectancies for males and females was therefore assumed, as suggested in Sect. 7.2, whereas an initial trend slope for females greater than for males would cause the exact opposite effect.

The mortality scenario assumptions are operationalized in the following way. Firstly, the following difference between life expectancy in 2002 in a given country (e_0) and the maximum one (e_0^{MAX}) was calculated: $d_{2002} = e_{0,2002} - e_{0,2002}{}^{\mathrm{MAX}}$. In the subsequent years, the difference between country-specific life expectancy and the maximum is assumed to diminish exponentially, according to the following formula:

$$d_t = d_{2002} \exp\left[c\,(t - 2002)\,/\,d_{2002}\right],$$

c being a constant equal to 0.1 for males and 0.05 for females, reflecting the assumption of a slower convergence to the maximum life expectancy patterns for females. The formula assumes that the higher the initial difference between the life expectancy for a particular country and the maximum one, the slower the convergence, representing the impact of socio-economic, technological and lifestyle-related drawbacks in the health transition process.

Table 7.1 Comparison of target life expectancy at birth (e_0) assumptions for 2050: different projections/forecasts made around 2000

	Males			Females		
Country	National	UN 2002	Current study	National	UN 2002	Current study
Austria	82.0	80.8	84.5	87.0	86.6	88.7
Belgium	83.9	81.1	84.2	88.9	86.7	88.2
Bulgaria	NA	75.8	79.4	NA	81.6	83.0
Switzerland	82.5	79.9	84.7	87.5	86.0	89.6
Czech Republic	78.9	78.4	82.2	84.5	84.4	86.1
Germany	81.1	80.6	84.5	86.6	86.3	88.5
Denmark	81.0	79.0	84.1	84.0	83.9	86.8
Estonia	75.9	75.8	76.1	81.4	82.7	84.6
Spain	77.7	81.0	84.5	85.5	87.3	89.6
Finland	82.4	79.8	84.1	86.4	86.1	88.5
France	84.3	80.6	84.4	91.0	86.3	89.5
Greece	83.0	79.7	84.4	86.9	84.9	87.9
Hungary	77.0	76.0	79.0	83.0	82.4	84.2
Ireland	*78.9*	78.9	84.1	*84.0*	84.0	87.0
Italy	81.4	79.5	84.7	88.1	85.6	89.6
Lithuania	72.5	76.0	77.0	83.4	82.9	84.9
Luxembourg	NA	80.8	84.1	NA	86.5	88.5
Latvia	NA	75.4	75.7	NA	82.6	83.5
Netherlands	79.6	79.6	84.6	82.6	84.9	87.9
Norway	84.2	80.8	84.7	88.1	86.7	88.5
Poland	*80.6*	76.9	80.8	*85.4*	83.3	86.0
Portugal	79.0	77.9	83.5	84.7	84.1	87.7
Romania	NA	74.4	78.2	NA	80.1	82.3
Sweden	83.6	82.1	84.7	86.2	87.1	89.0
Slovenia	74.0	78.7	82.7	81.0	85.2	87.7
Slovakia	77.1	76.5	80.4	84.0	82.7	85.2
United Kingdom	81.0	80.6	84.6	85.0	85.6	87.7

Sources: United Nations (2003a), national statistical institutes and Eurostat (http://ec.europa.eu/eurostat). Extrapolated target values for earlier years are given in *italics*. *NA* not available

For $t = 2003 \ldots 2052$, the life expectancy forecasted for a particular country is calculated as $e_{0,t} = {e_{0,t}}^{\mathrm{MAX}} + d_t$. The final maximum life expectancy values for 2052 calculated in this way are approximately 85 years for males and 90 years for females, which is notably in the former case higher and in the latter case lower than the values forecasted by the United Nations for Japan within the same forecast horizon (83.7 and 92.5 years). The main reason for the difference is the assumption of ultimate convergence of the trends for both sexes. In all countries, the gap between the life expectancy of males and females is expected to decrease by 2052, the target gap ranging between 2.6 and 8.3 years, with the gap for the maximum life expectancies being 5.1 years. A comparison of target life expectancies according to other projections and forecasts is presented in Table 7.1.

Summing up, in all the countries under study, mortality improvements are expected, resulting in an increase of life expectancy for both males and females. For the projection model, the resultant values of e_0 were subsequently converted into sex- and age-specific mortality rates—the model inputs—according to simple rules concerning change in mortality in broad age groups (0–19 years, 20 or more years, or all ages[3]). Within these, the same pattern of change was assumed for all five-year age groups, which was adjusted in such a way that the implied life expectancy at birth followed the assumed trend, as discussed above. As to specific rules for the 27 European countries, it has been assumed that mortality improvements until reaching a life expectancy of 70 years for males and 75 years for females can be mainly attributed to the reduction of age-specific mortality rates in the age group 0–19 years, including infant mortality. The life expectancy increase from 70 to 80 years for males and from 75 to 85 years for females is assumed to result from reduction of mortality in all age groups. Above the levels of life expectancy at birth of 80 years for males and 85 years for females, the improvements are assumed to result from decreasing mortality of the adult population (i.e. persons aged 20 years or more), with the increasing contribution of life expectancy gains among the elderly population (Christensen and Vaupel 1996). Figure 7.3 illustrates the outcome of the quantification of the forecast assumptions, i.e. the expected trajectories of life expectancy at birth for males and females, as well as the decreasing gap between them, following the argumentation offered in Sect. 7.2. For simplicity of the picture, only the arithmetic averages of e_0 for Western Europe, Central Europe, and Japan (assumed maximum) are shown in the graphs.

Figure 7.3 shows that although for the next 50 years a gradual increase of life expectancy for both sexes in all countries under study is expected, the East–West mortality gap is likely to prevail, albeit narrowing, throughout the forecast period. Judging by the slow mortality changes in the countries of Central Europe in the period 1995–2002, filling the gap towards the Western European countries cannot be reasonably assumed to be an easy and immediate process. Therefore, the process of convergence of all European countries towards a common mortality pattern is expected to last longer than the 50-year forecast period. Nonetheless, the countries of Western Europe themselves are assumed to converge much faster to the maximum life expectancy assumed for Japan, especially in the case of males.

The comparison of the assumptions of different forecasts shown in Table 7.1 suggests that the mortality scenario presented reflects slightly more optimism with regard to future life expectancy improvements than is the case with the national and international forecasts. This would be very much in line with the argumentation of Oeppen and Vaupel (2002), who showed that most of the earlier forecasts underestimated life expectancy increases, which in reality proved to be higher than forecasted. Still, the maximum life expectancy values obtained in the current study for the end of the forecast horizon are slightly more conservative than the ones proposed by Oeppen and Vaupel (2002) or Tuljapurkar et al. (2000).

[3]See Sect. 11.5 for details.

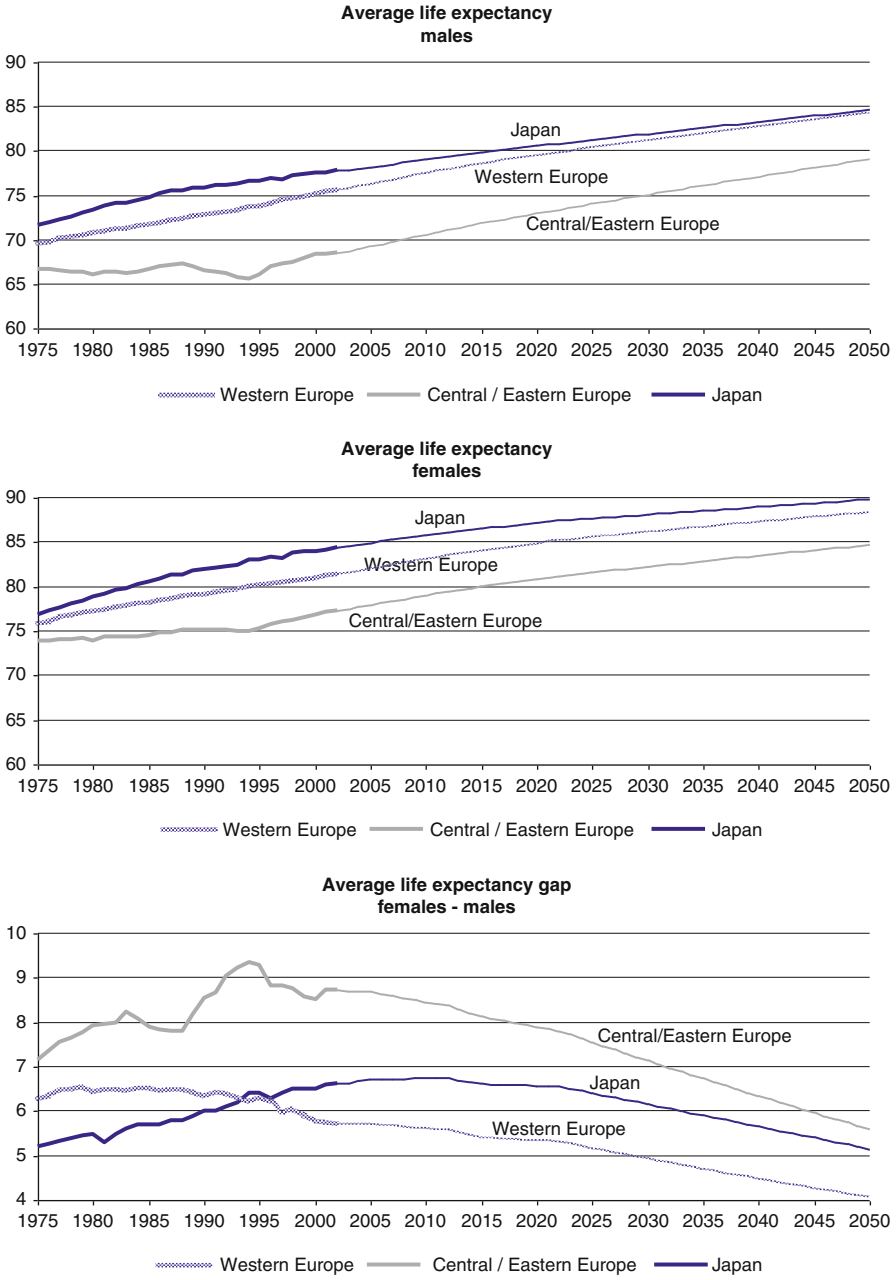

Fig. 7.3 Observed and forecasted e_0 values in Europe (arithmetic averages) and Japan
Sources: Council of Europe 2003; Eurostat/NewCronos, own computations

Nevertheless, the life expectancy patterns for various countries of Europe presented in this study converge to a larger extent to a common model by the end of the forecast horizon than, for example, the ones prepared by the United Nations (2003a). This follows the supposed further advances in the health transition process in all countries in Europe, taking into the account also the relation between the decline in mortality and the socio-economic development. With respect to lifestyle changes, it can be envisaged that in the global modern era, values and norms influencing health-related behaviour will spread relatively quickly among all European countries. Therefore, the cultural and behavioural factors are expected to lose significance in determining the East–West mortality gap much earlier than the ones related to the institutional and economic setting. Nevertheless, the latter factors are also implicitly assumed to ultimately converge to the common levels for the whole continent, again reflecting certain optimism with respect to the future developments of European societies.

7.4 Summary and Conclusions

The highest life expectancy values at the end of the forecast horizon are assumed for Western and Northern European countries: Switzerland, Austria, Germany, Italy, Spain, France and the Benelux and Scandinavian countries. In these countries, the life expectancies are expected to be very close to the maximum ones assumed for 2052 for Japan, i.e., about 85 years for males and 90 years for females. The lowest values of life expectancy are assumed for Bulgaria, Romania and the Baltic states. In particular, the minimum life expectancy envisaged for 2052 for males is for Latvia (76 years), whereas for females it is for Romania (80 years).

When interpreting the scenarios presented it is worth considering that within such a long forecast horizon, unpredictable changes of the factors underlying mortality may occur. In such cases, the future trajectories of demographic variables can be different from the ones presented in this chapter. Hence, the proposed scenarios should be seen mainly as likely future development patterns, assuming rather stable mortality paths and no revolutionary changes, for example, in medicine and the related technology in the coming 50 years.

To conclude this and the previous chapter, under the assumptions presented in this part of the book, the demographic differences between different parts of Europe are likely to diminish slightly, but will by no means completely disappear within the timeframe of the analysis. The patterns for Northern Europe, with the highest fertility levels and longest life expectancy among the countries under study, will no doubt differ from the ones for Central Europe, lagging behind not only in economic, but also in social and epidemiological terms. Nevertheless, all European countries are certainly going to face problems resulting from the population ageing, some to a smaller and some to a greater extent. As the mortality patterns are

assumed to converge slowly in all the countries under study, this is mainly the heterogeneity of fertility that is underlying the differences in the magnitude and pace of population ageing. It can be expected that the current economic and cultural differences between countries, as well as the legacy of the past, visible especially in the case of postsocialist countries, will shape the diversity of demographic patterns in Europe for many more years to come. These issues are discussed in more detail in Part IV.

Part III
Historical Development and Assumptions About Labour Force Participation in Europe

Chapter 8
Models and Factors of Labour Force Participation—Theoretical and Empirical Considerations

Katarzyna Saczuk

8.1 Introduction

In times of rapid change in demographic tendencies, an important question arises about the future performance of institutions that rely on the population structure. Can they still operate in the transformed setting? Two obvious examples of institutions for which this question remains unanswered are pension and social security systems. Longevity combined with a drastic fall of fertility has resulted in population ageing—an increase in the share of older age groups in the total population. This, in turn, has changed the proportions of people supporting and supported by the systems.

The developments of the potential labour force can be directly determined by two kinds of factors only—demographic and economic. Demographic ones take effect through the size and age/sex structures of the total population which form the size and structure of the potential labour force—the group of people in the working age. Economic factors are the decisions of people concerning their participation in the labour force. The decisions determine the labour force participation rates. Other factors, such as religion, culture and tradition, can only influence the labour force indirectly, with the two previously mentioned ones as intermediaries.

K. Saczuk (✉)
Central European Forum for Migration and Population Research, IOM, Warsaw, Poland

Economic Institute, National Bank of Poland, Warsaw, Poland

Warsaw School of Economics, Warsaw, Poland
e-mail: katarzyna.saczuk@gmail.com

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_8,

The terminology used throughout this chapter is as follows. Persons of working age (15 years old or above) can be either *economically active* or *economically inactive.* Any person that is *economically active* can be either *employed* or *unemployed.* If a person is neither employed nor unemployed, that person is *economically inactive.*

An *employed* person worked as an employee or was self-employed for at least 1 h in the reference week for a wage or a salary, or for profit or family gain. Such a person could, in particular, be temporarily absent because of sickness, an accident, leave, vacation or maternity or paternity leave or be a retiree with a pension, a full-time student or a paid or unpaid family worker. However, if the person who worked was engaged only in his or her own housework, did social work or was subject to compulsory schooling, that person was excluded from the group of employed.

A person is *unemployed* if he or she did not work as an employee or was not self-employed for more than 1 h in the reference week, was actively looking for a job (i.e. was registered with a private or public employment agency, placed or answered newspaper advertisements, directly contacted employers, etc. in the 4 weeks preceding the survey) and was available for work. Such a person might, in particular, be a full-time or part-time student. Persons who did not actively look for a job or were seasonal workers awaiting seasonal employment were excluded from the group of unemployed.

The labour force participation rate is the share that *economically active* people constitute in the relevant age group. Throughout this chapter 'labour force participation' will also be referred to as 'labour participation' or 'participation'.

It is important to realize that the definitions given above are not internationally accepted and adopted in research on the labour market. They are rather a common part of the definitions of the countries under study. In practice, the definitions used by the countries differ in the details, which makes the results incomparable and may bias the conclusions of cross-country comparisons. In this chapter, the differences in the definitions will to be disregarded and the data will be treated as is, bearing in mind the possible limitations of such an approach.

In Sect. 8.2 selected models of labour supply are considered, and in Sect. 8.3 the key factors influencing labour force participation are discussed.

8.2 Models of Labour Force Supply

There is no universal model of labour force participation. Each of the models of labour force supply presents and focuses on some isolated reasons for the change in activity status. The four types of models briefly described below—labour–leisure model, household supply model, life cycle allocation of time model and dynamic labour supply model—seem to form the base of most theoretical and empirical research on labour supply (Killingsworth 1983; Pencavel 1986; MaCurdy 1981; Heckman et al. 1981; Blundell and MaCurdy 1999). They will be discussed in Sects. 8.2.1, 8.2.2, and 8.2.3.

8.2.1 Labour–Leisure Approach

The simplest models treat the decision to participate as a choice between labour and leisure ('leisure' is a term comprising all possible non-market activities—it does not matter whether these are schooling, housework or pure leisure; Killingsworth 1983). On the basis of a given real wage rate, the level of non-labour income, the discretionary number of hours (say, per week) to devote to work or leisure and some assumed preference between the two activities, individuals consider if an additional hour is spent on work or leisure. In such an approach for a given utility function (representing the preference between leisure and work) there is a unique level of the wage, called the reservation wage, that is the minimum acceptable wage for the person with such a preference. In other words, if the wage is lower than this reservation wage for a given person, every hour of leisure will be more profitable (in terms of utility) than an hour of work. Such a person will therefore be economically inactive (i.e., not in the labour force). This will be the case at least until the level of the wage reaches the reservation wage or the non-labour income declines. A rise in the wage above this level should induce an individual to look for a job, an hour of which is, in such a case, worth more than an hour of leisure. The same effect can be exerted by a decline in non-labour income. With a sufficiently low level of the latter, an individual may find leisure too expensive and decide to enter the labour market, although not necessarily full time. A discussion of the amount of labour supplied according to the model can be found in Killingsworth (1983, pp. 18, 43–45). According to the model, the probability of labour force participation decreases with the amount of non-labour income, other things being equal, or, from the other side, the probability of labour force participation rises as the wage rises, other things being equal. The model is also used to model the number of hours that individuals want to offer in the labour market. This, however, is less interesting for the current study.

The model also provides simple predictions for people who are already in the labour market. If the wage rate of such a person goes up, it exerts two kinds of effects on that person's labour supply. Firstly, raising the value of an hour of market work raises the alternative cost of an hour of leisure. As leisure becomes more expensive, the person substitutes it with additional hours of work (the substitution effect expands labour supply after improvement of the real wage level). However, as the wage rate goes up, the hours of market work provide more income. This also means that the person can afford more leisure (income effect depresses labour supply with increasing wage rate). The net effect cannot be predicted without an explicit utility function. Many studies have shown that the aggregate labour supply function generally slopes upward (Killingsworth 1983); however, Pencavel (1986) quotes several studies suggesting otherwise.

It is worth noting that the predictions of the model are consistent with the patterns observed in the labour market. If the wage were understood more widely, as both the level of pay and the work conditions, the model might help to explain why its improvement expands labour supply. According to the model, upon an improvement

the possible market wage may become higher than the reservation wages for more people than beforehand, and therefore will attract some of the hitherto inactive. It may also suggest the rationale of low participation rates in the older age groups. For such age groups the possibility of early retirement or other social benefits can produce non-market income high enough to keep them out of the market (Blondal and Scarpetta 1999; see also the discussion on the factors of labour supply later).

The very simplified setting presents only the influence of wage and non-market incomes on decisions regarding labour supply. The simple framework, however, allows modifications and extensions: e.g. endogenizing wage rate (Barzel 1973; Cohen and Stafford 1974; Pencavel 1977) and incorporating costs of work (Cogan 1980; Heckman 1974). Some of the model's shortcomings have been accounted for in the independent models. Two of them are presented in the following sections.

8.2.2 Household Supply Model

The simple model discussed in the previous section does not recognize that within households with two or more persons taking decisions on labour participation, the decisions are not taken independently. They are rather taken jointly as they regard the income and leisure, and therefore the utility, of the entire household rather than of individuals within it. This shortcoming is overcome in the household model of labour supply (Kosters 1966). It takes account of the fact that the labour participation decision of one member of a household influences the decisions of the others. In this model a household tries to maximize household utility by considering the real wage rates of all adult members, household non-labour income, and accessible time. In this model it is the utility of the household which is maximized, rather than the utility of individuals in the household. In such a framework, the raising of the wage of a member who is already in the market, as in the labour–leisure model, has a twofold effect on this member. Firstly, the substitution effect encourages him/her to substitute less profitable (in terms of utility) hours of non-market work or leisure with more profitable hours of market work. Secondly, the income effect makes him/her decrease the number of market work hours, as, with a higher wage rate, the previously chosen number of hours provides a higher income, so the individual can afford more leisure or non-market work. Again, without some explicit utility function the model cannot predict which of the effects outweighs the other. This is, however, not the end of the effects that an initial wage rise has on the household. An increase in the income of one member also lifts the income of the entire household. This, in turn, acting like a rise in non-labour income in the previous model, will have a negative income effect on the other members of the household. Finally, there is also a 'cross-substitution effect', which is a change in the labour supply (hours of work) of one household member as a result of a rise in the wage of another. The cross-substitution effect can be either positive or negative, as its direction depends on whether the hours of market work of members are substitutes or complements.

Simplifying, if they are substitutes, this means that from the perspective of a household, a number of hours are required or a certain level of income is to be provided and it does not matter who in the household actually does the job. An alternative explanation is that there is a particular amount of housework that has to be done, so if a person who performed it so far decides to devote additional hours to market work, owing to a wage rate increase, another member of the household has to take over these duties and possibly give up some hours of his/her market work. In the other case, if the additional hours of market work are complements, they bring income or utility to the household only when they are performed together. This can be most clearly explained by the gain from hours of leisure. If the working members of the household can gain (in terms of utility) from an hour of leisure only if this hour is spent together, one member's gain from an additional hour of market work, as a result of a wage rise, would be outweighed by the other's loss in utility from the last hour of leisure. In such a case, it is better for the household if both members (or more) take up an additional hour of market work or leave their supply of labour (market hours) unchanged.

For substitutes the effect is negative, whereas it is positive for complements. Kaufman and Hotchkiss (2003) quote studies which showed that for a husband and wife with no children the cross-substitution effect was positive or zero, whereas for couples with children it was negative or, if positive, smaller than for couples with no children (Lundberg 1988; Hotchkiss et al. 1997; Lundberg and Rose 2000; Hamermesh 2000). If the household member whose wage goes up is inactive, the situation is analogical, except for the income effect of this member. Since his/her labour supply is zero, it cannot further decline, so the income effect in such a case is zero.

This model may be useful in explaining why the wives of men with high incomes are often economically inactive or why men whose wives decide to enter the labour market often decrease their labour supply (hours of work). It may also help explain the traditional division of labour [poor prospects for women in the market push them out as the value of their work for households (leisure) exceeds the value of their work outside the home owing to market wage rates] as well as its change when the market opportunities for women become too luring to stay at home and spend their time on leisure activities or housework. The common women's labour participation, in turn, induces some men to decrease the number of hours spent on market activities. Some argue that the presence of working women in the household (second earner) allows men to be more choosy and demanding concerning work and related conditions.

There is also a group of models that, after Mincer (1962, 1963) and Becker (1965), recognize that consumption of some of consumer goods requires a certain amount of time. The group is called time allocation models. In this approach, utility depends on commodities (Z_i) which are produced rather than bought. Two kind of inputs are required—market goods and time—which entails two kind of costs: money and forgone earnings. Individuals maximize their utility by allocating time between market work and commodities, which are the direct source of utility. The model can be particularly useful in the analysis and interpretation of substitution and income effects of the change in the income setting or allocation of leisure

time between various activities. Primarily, it was developed for single individuals, but was further developed to model families (Becker 1974, 1975). However, Killingsworth (1983) noted that the distinction between labour and leisure versus time allocation can be a purely semantic problem. As long as leisure is treated as all non-market activities, nothing changes in the labour–leisure approach. And, although the time allocation model(s) often says some things more clearly or in a more striking manner, it usually does not say much that is new (Killingsworth 1983, p. 43).

8.2.3 Life Cycle Allocation of Time and Dynamic Labour Supply Models

The life cycle allocation of time is the concept that tries to explain different levels of participation rates between age groups by optimal timing of possible desirable activities or events in their lives. In other words, an optimizing individual considering taking up an event or activity (such as leisure, education, or work) weighs its potential benefits and related losses. If the losses outweigh the benefits at a given moment of time, the individual postpones the activity. The concept was developed into a dynamic labour supply model to explain numerous 'stylized empirical facts' observed in the life cycles of men and women with surprising regularity (Ghez and Becker 1975; Mincer 1974; Weiss 1972; MaCurdy 1981). They were created to account for the fact that the choices of individuals between leisure and market work are not independent of their choices in the previous periods or plans for consecutive periods. They also depend on decisions regarding labour supply in other periods. For instance, savings from past periods, or borrowings when a rise in the real wage rate is expected, can determine the levels of non-labour income from the labour–leisure setting. The 'intertemporal substitution effect' provides another example. It says that it can be more profitable (from a lifetime perspective) to provide more work in the times (during the career) when the wage rate is relatively high, and take more leisure when the wage rate is relatively low. Dynamic labour supply models predict the amount of work supplied by individuals in their whole lifecycle rather than in a single period. A comprehensive study of dynamic models of labour supply is presented in Killingsworth (1983).

From such a perspective, the opportunity cost of leisure as opposed to work is very high for prime working ages (24–54 years), and most people making the decision choose work and postpone leisure to later in the working life. As they grew older (say, after 55 years), they become less effective and mobile (both geographically but above all in terms of acquiring new skills), and their skills often become obsolete. Unless they are experts with rare and valuable experience, their wages go down, often considerably. Together with the wage, the opportunity cost of not working falls and leisure, in the form of early retirement for instance, becomes an interesting option. From the point of view of optimal allocation of time then,

the optimal time to take leisure is late working age. Such timing may help explain a substantial decrease of participation rates over 55 years of age for both sexes (specific levels of participation rates by age and sex are presented in Chap. 9).

The same concept can explain why most labour market participants choosing the timing of additional years of education place them at the very beginning of their careers. This is first of all due to the opportunity cost of not working being relatively low at the beginning of working life (Killingsworth 1983 after Ghez and Becker 1975; Mincer 1974). Studies on the level of earnings in the life cycle suggest that earnings are relatively low at the beginning of the person's career. They go up gradually and reach a maximum about the age of 35 years. Then they remain high and start to go back down at older ages (as mentioned above). The absolute level of incomes, in comparison with the incomes of other people, and the pace of growth at the beginning and the end of working life depend on the person's characteristics, such as e.g. sex, education and profession. Secondly, individuals decide to take additional years of schooling, although it is costly,[1] because they expect the return will be greater than the cost. If they took the additional education at the end of their working life, even with the assumption that it provides the same return as to the young, they would have only a few years left to benefit from the schooling. Having this in mind, it is more effective to complete additional years of schooling as early as possible, to gain from it for a possibly long time. This reasoning can help explain the very low levels of labour participation rates in the youngest age groups. Recently, the rationale has even been strengthened by technological progress and related structural changes in the labour market which have rewarded education and skills even more.

When talking about the optimal timing of certain activities and events in the professional life, one cannot avoid mentioning that women's decisions concerning economic activity are strongly influenced by their decisions about motherhood and its timing. Considering their decisions in this framework, one should remember, however, that this case, for biological reasons, is different from the one concerning, for example, education, as the decision cannot be taken at any time in the working age.

8.3 Factors of Labour Force Participation

The models outlined in the previous section can be a basis for a theoretical analysis of labour supply. When it comes to discussion of past tendencies and formulation of forecast assumptions, however, a different route seems better. Owing to the scale

[1] It is costly both directly and indirectly, e.g. by preventing them from participating in market work at that time. Even if it does not make some of them give up market work completely at the time of schooling, statistically it forces them to reduce the numbers of hours they would otherwise have worked, which statistically decreases labour supply in the age groups concerned.

of the project, the heterogeneity of labour market mechanisms and the nature and availability of the labour market participation data, it appears more practical to look at economic activity through the prism of the main factors of labour force participation. The impact of these factors is fully consistent with the predictions of the models, as will be demonstrated below.

There are a number of obvious factors, of both economic and non-economic nature, that can be associated with the growth or decline of labour force participation rates. The most important ones are described in the following sections (comprehensive reviews of labour supply can be found in Pencavel 1986; Killingsworth 1983; Killingsworth and Heckman 1986). They will enable the analysis of the past trends of participation, and formulation of the forecast assumptions.

8.3.1 Business Cycle

A good condition of the economy is the most often quoted economic factor that facilitates labour force participation (Pencavel 1986; Killingsworth 1983). This is because a time of economic boom is also a time of high, and often further growing, wages and relatively low unemployment, which may attract inactive persons to the market. This effect is additionally strengthened by more elastic conditions of work offered. Employers, in the face of a limited choice of potential workers or even labour shortages in some sectors, are more willing to accept conditions more favourable to workers, e.g. the job on a part-time basis. The level of wages, high probability of finding a job and elastic solutions concerning employment encourage inactive persons to economic activity, as the alternative cost of non-market activities (the loss of potential earnings) becomes too high—a straightforward result of the models described in Sects. 8.2.1 and 8.2.2. The group of persons attracted this way comprises mainly students, retirees, childrearing women and discouraged workers, who looked for a job but did not find one and gave up.

In times of economic crises, toughening conditions and often falling wages and salaries push part of the group of active persons out of the labour market. This tendency is additionally strengthened by employers, who, in such a case, can choose from many candidates because of growing unemployment and need not accept flexibility in employment. Such unfavourable circumstances effectively discourage potential workers. In contrast to entry to the market, leaving the market may turn out to be permanent, especially for persons from the oldest working age groups. Older people (55 years and older), in the face of difficulties with employment, find early retirement a convenient solution. This is a particularly popular action in countries with social security and pension systems which do not penalize too much those leaving the market earlier with a sudden drop in income or a reduced level of benefits. Detailed analysis of this factor can be found in Blondal and Scarpetta (1999).

8.3.2 Social Security

Were it not for social security, which provides non-market income, leaving the market permanently would be impossible. In general, the conditions created by social security are very important factors influencing decisions concerning labour participation. Certain incentives and disincentives can either encourage people to be or discourage people from being economically active.

Social and disability benefits are examples of such institutions. If they are high enough and are accompanied by lenient eligibility rules, they can be serious competition for employment-related income. This applies especially to people with little education and few skills, women and the oldest age groups owing to their low earnings and unstable employment situation. These people are likely to be hired only for low-paid jobs, and are vulnerable to dismissals connected with the business cycle. Hence, a system of benefits which is generous in comparison with potential individual earnings can discourage people from working and encourage them to claim, often groundlessly, social benefits. In general, protection in the case of real health problems, disability or inability to earn any income is socially desirable. Practice shows, however, that the number of cases of 'disability' and 'health problems' is overresponsive to changes of benefits from the social security and pension system (Coleman 2000, p. 18). According to Parsons (1980), the increased generosity of social welfare transfers, particularly disability payments, can largely explain the increase in non-participation in the labour force of prime-age males since the 1960s.

8.3.3 Pension Systems

Pension systems are a kind of social security but with the target group narrowed by age. They are designed to provide income to older people.

Elderly people (55 years and older) are a special group as far as the need for social protection is concerned. This follows from their difficult situation in the labour market and/or inability to work. Inability to work can be neutralized by various forms of non-employment income provided by social security. Their difficulties in finding employment have only been recognized recently. The degree of inability to work sets the higher bound of economic activity of the elderly. Support or protection of their employment determines how many of those able to work can be kept in the market or brought back to the market.

The relatively weak position of older workers in the labour market stems from their age-related declining mobility (both spatial and occupational), health problems, often obsolete skills and difficulty keeping up with the requirements of the technologically progressing labour market. This, being a cause of frequently negative employers' attitudes to older workers, results in relatively low employment and high unemployment (especially long term) in this group (Palomba

and Kotowska 2003). Poor employment possibilities and high unemployment do not necessarily mean low activity rates. Empirical studies show, however, that these factors do have a significant influence on decisions to leave the labour market, especially for early retirement when possible (Blondal and Scarpetta 1999; a comprehensive review of the models of retirement can be found in Lazear 1986).

Early retirement is a common practice. According to Coleman's (2000) simple calculations based on the unweighted distributions of members of 26 occupational pension schemes at retirement age, the mean real retirement age for man in the UK in 1998 was 56.7 years, with a median age 54.4 years (more than half of men in 1998 retired over 10 years before the 'official' retirement age). As the results of the calculation might have been biased owing to the characteristics of the sample, Coleman conducted another calculation for the total population of the UK. On the basis of the distribution of male participation rates for 1998, the estimated mean age of retirement was about 57.8 years. The example of the UK is not exceptional. Social security and pension systems in many countries are generous enough to create two types of incentives to which potential workers are exposed. Firstly, they do not award workers for additional years of labour activity, especially after achievement of the statutory retirement age (in many cases additional years of work can be penalized, e.g. Belgium, France, the Netherlands; Gruber and Wise 1999), and secondly, they offer various benefits that are competitive with potential earnings from market work (for a comprehensive study on this, see Blondal and Scarpetta 1997, 1999; Gruber and Wise 1999, 2001; Disney and Whitehouse 1999).

The same incentives influence people's decisions on further work after they have reached the standard retirement age. In theory, older people having reached retirement age might combine receiving a pension with work (possibly with special arrangements, e.g. part-time work). In practice, however, disincentives arising from rules or regulations effectively restrict such actions (e.g. means testing of pension benefits after the standard age of retirement, conditioning entitlements on complete withdrawal from work; Blondal and Scarpetta 1999, p. 16). As a result, labour participation rates for age groups above the standard retirement age are very low.

In times of rising life expectancy and ever-smaller cohorts entering the labour market, social security systems, relying heavily on a progressive population structure, turn out to be difficult or even impossible to support (more on this can be found in Chap. 16). Hence, both early retirement and system misuse become too expensive. Currently, there is a tendency among governments to reduce both possibilities. In consequence, the systems are either being modified or replaced so as to provide incentives for longer rather than shorter years of labour activity by penalizing early retirement with a low rate of substitution (the ratio of benefits after retirement to the last achievable wage) and by associating the level of benefits with the number of years of employment. In such a case, early retirement becomes costly, as some potential part of the benefit is foregone owing to the reduced number of years of working life.

In some countries, especially transition countries, retirement benefits have been an important means to alleviate the negative consequences of structural changes of the labour market. In most postcommunist countries, labour markets were

strongly regulated before the transition and certain phenomena and institutions did not explicitly exist. Unemployment provides a blatant example. A propaganda slogan proclaimed "job for everyone", and responsible authorities ensured it was theoretically true. In practice, unemployment existed under such regimes, but took hidden forms; overemployment was the most common one. The beginning of the transformation process brought about a flow of structural changes which also involved the group lay-offs. As a result, thousands of people found themselves in a new, frustrating position of being unemployed. The situation has been difficult for many reasons. Lack of experience of the governments in dealing with such phenomena, insufficient pace of creation of new jobs that might have absorbed a freed labour force in the transforming economy and low mobility of dismissed workers have been the most important. Years of being taken care of did not encourage potential workers, people of productive age, to partake in constant training, upgrade their skills or change professions. It did not prepare them well to compete for jobs in the new setting either. The situation was difficult for older workers in particular, as the chances of their finding their place in the new labour market decreased with age. Therefore, a way to ease the tense social situation was to let them leave the labour market and benefit from the social pension system earlier. This may, at least partially, explain the relatively low participation rates in the oldest age groups in transition countries (Palomba and Kotowska 2003).

8.3.4 Other Institutions and Social Factors

Apart from social security, there are many other institutions that strongly influence labour supply. Child-care facilities are an example. Their development, ease of access and low costs makes combining motherhood and a professional carrier simpler, and therefore facilitates labour force participation. Because of their nature, such institutions influence the economic activity of women to the greatest extent, especially the youngest and middle age groups. Good illustrations of their performance can be found among Scandinavian countries. Despite relatively high fertility rates in these countries, the levels of female labour participation are among the highest in Europe in all age groups. A potential dampening effect of these facilities can be observed in Central Europe. Sudden closure the child-care facilities in postsocialist countries in the process of transformation may have been an important cause for the rapid drop in female participation rates of the 20–34-year age group in these countries (the Polish case is discussed by Kocot-Górecka 2004).

Social habits are another factor that should not be neglected (Vlasblom and Nekkers 2001; for an extensive study, see Vendrik 1993). The influence of habits and attitudes as well as institutional conditions that discourage or encourage certain behaviours can even be stronger than other factors in certain societies. It may be a social custom that the young start their careers in the labour market before graduating. Such a custom results in higher participation rates in the 15–19-year and 20–24-year age groups. In other countries, the young are more often supported

by their parents until they have completed their studies and have found a job (which produces low participation rates for the youngest groups). It is usually the case that the country-specific family and institutional arrangements facilitate conforming to social norms. Green et al. (2001) presented a typology of the welfare states and the related incentives for entry to the labour market.

Similarly, social and cultural factors may determine to what extent women get involved in paid work outside their households, how motivated people are to get a job once they are unemployed or when and why they stay out of the labour market. In some countries, the social security systems have loopholes which enable people who should not be entitled to receive social benefits to receive them, such as early retirement and disability benefits. In such a case, social attitudes that encourage people to claim such benefits can result in lower participation rates than in countries where either the system is designed better or where there is social disapproval of such behaviour. Cultural and social factors can be a major source of differences in labour participation between countries.

8.3.5 Education

A factor that can significantly impact participation is education. It is particularly effective in the youngest age groups (15–24 years), although it applies to all age groups, after its significance has grown in recent decades. Economic and technological developments and changes in the labour market have made education and additional skills profitable, as additional years of schooling or other training can result in more income (net of costs) than an additional year of work without additional schooling or training. Skill level can also be an important determinant of employment opportunities in the labour market. Some research attributes the recent decline in labour supply of prime-age men to the adverse shifts in demand for unskilled labour (Bound and Johnson 1992; Berman et al. 1998).

The effects of education on labour participation are twofold. Firstly, most empirical studies report a strong positive relationship between economic activity and the number of years of schooling (Pencavel 1986; Mincer 1962; Bloch and Smith 1977; Jones and Long 1979; Smith 1980; Killingsworth 1983; Killingsworth and Heckman 1986). The result is consistent with the life cycle model (Sect. 8.2.3).

On the other hand, enrolment in education can adversely impact labour participation and entry to the labour market, especially of the youngest age groups (see Green et al. 2001). The scale of this effect depends heavily on the countries' educational and labour market institutions (e.g. Employment Protection Legislation), as well as on the condition of the economy (Wolbers 2007; Scherer 2005). As stated earlier, in times of hard economic conditions in the labour market, enrolment into educational institutions often precludes any employment so people extending their education are forced to be out of the market. They may also choose to stay out of the market when the chance of getting employed is relatively low (Duncan 1965; Rees and Mocan 1997; Rivkin 1995).

8.3.6 Attitudes of Women to Economic Activity

In recent decades there has been a change in life patterns of individuals. This has been accompanied by a fundamental change in labour participation of women as discussed in depth by Killingsworth and Heckman (1986) in an extensive review with almost a century-long time series. In the case of women, the decision to work or not is closely related to the decision concerning motherhood. These two decisions influence each other and both fertility and labour activity are the results (Kotowska and Matysiak 2008).

Many economic theories and models of fertility provide arguments to support the thesis that it is the labour market situation that has been responsible for the significant decline in fertility in recent decades. Most of them, pioneered by Becker (1960, 1981), consider having children in terms of related benefits and costs. Satisfaction and emotional gains as well as the possibility of future pecuniary profits were the main benefits. The direct expenses and the time devoted to bearing and then rearing children, including the opportunity cost of time devoted to the latter, constituted the costs which for biological and cultural reasons are borne by women. In such a framework, a decrease in gains from having children or an increase of their costs resulted in a decline in demand for children. Hence, the development of a social institution that reduced the need to consider children as a potential future source of income could be the factor that has substantially depressed fertility in developed countries over the last 30 years (Lebenstein 1957; Becker 1960). In addition, the rising cost of women's time increased the cost of having children.

The cost of women's time has risen owing to the alternative market opportunities that opened up to them relatively recently. These opportunities and improvements of women's market position relied upon the increase in the number of jobs in traditional female-dominated occupations, opening up of a wide range of the so far male-dominated occupations and changed legal settings. The new laws were supposed to protect women against discriminatory practices of employers and provide them with better social protection. Altogether, these improvements can attract women to professional careers and therefore may be helpful in explaining both the decline in fertility and the rapid growth in participation rates in almost all age groups in all countries under study.

It is worth noting that changes in both fertility and economic activity of women were closely connected with the change in social attitudes towards working women, especially married or/and with children. According to Kaufman and Hotchkiss (2003), probably the greatest transition in social attitudes concerning married women and work occurred during the 1970s. Attitudes continued to change in the 1980s. They agree, however, that it is difficult to decide whether the change in social attitudes is a cause or a consequence of the movement of women into the workforce, and quote studies that support both sides (Kaufman and Hotchkiss 2003, p. 147). The processes discussed above were simultaneous and, again, closely connected with the demographic changes that Lesthaeghe and van de Kaa (1986) called a 'second demographic transition', related mainly to the change of values and the

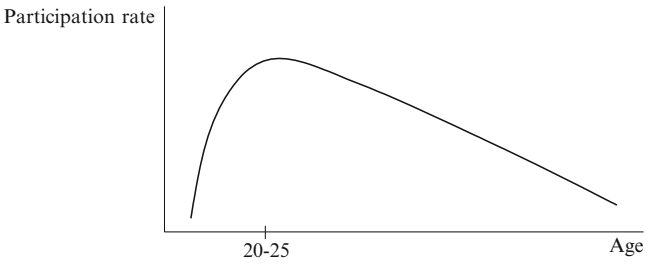

Fig. 8.1 Single-peaked pattern of women's participation
Source: Kocot-Górecka 2004, p. 58

family patterns (see also the discussion in Chap. 6). As before, however, it is difficult to establish the role of the second demographic transition in the above changes, and vice versa.

From the other perspective, women's economic activity can be considered as the result of their fertility decisions. The trace of such an approach can be found in studies explaining the most frequent participation patterns[2] by the decisions concerning motherhood.

In the literature up to the 1990s, three country-specific basic patterns of women's participation were identified (Kocot-Górecka 2004, pp. 58–59). The first pattern is characterized by relatively high participation in the 20–25-year age group, and the systematic decline in the older age groups (a single-peaked curve; Fig. 8.1). According to the theory explaining women's participation by fertility plans, high participation was typical for countries in which women back away from the labour market just after marriage or after bearing the first child (e.g. Ireland, Spain and Luxembourg).

The characteristic saddle within the second pattern (so-called bimodal curve; Fig. 8.2) is caused by women who take a break from market work between 25 and 40 years of age to bear and rear children and return to economic activity when the children reach school age. Activity of this type, was typical, for example for the Netherlands and the UK.

The last pattern was constituted by women who combined their professional careers with motherhood with practically no break in economic activity (inverted U-shaped pattern; see Fig. 8.3). It was typical of countries with high economic activity of women, such as Denmark, Sweden and Poland. Such a pattern is also typical for men, with a difference in levels (participation rates for men are higher in all or almost all age groups) and in the determinants (decisions concerning fertility that exert a strong influence on women's participation patterns do not directly apply to men).

[2]The pattern of participation is referred to as a distribution of participation rates by age groups. It is often used in reference to a group with specific characteristics, such as sex, education, and dwelling place.

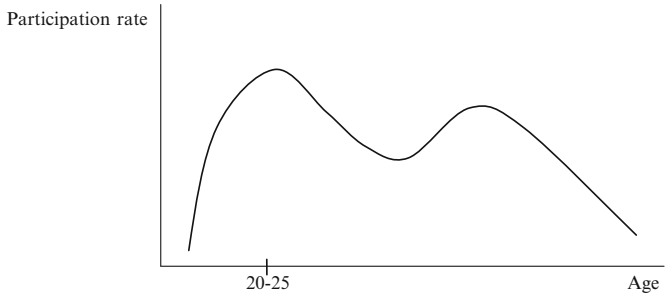

Fig. 8.2 Bimodal pattern of women's participation
Source: Kocot-Górecka 2004, p. 58

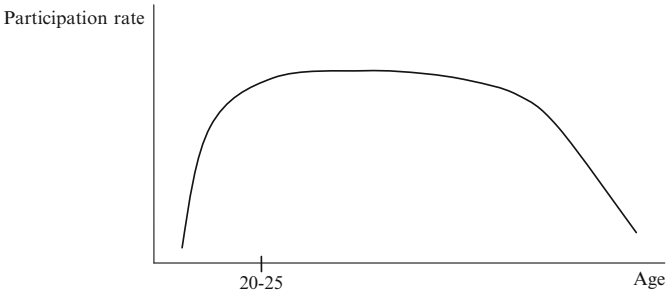

Fig. 8.3 Inverted U-shaped pattern of women's participation
Source: Kocot-Górecka 2004, p. 59

Recent years were marked by significant growth in economic activity of women. In most of the countries under study, no matter what the pattern, the participation rates in all age groups went up. This resulted in lifting up and deformation of the countries' patterns discussed in Chap. 9.

Fertility influences women's participation rates also through their position in the labour market. Since there is a high probability that a woman, especially young and married, will have a child and from the perspective of the employer will disappear from work for a couple of months and will be more likely to take a time off when she returns, employers are less willing to employ a female worker than, for example, a male one. Therefore, women statistically have a lower chance of being employed, and if they are employed at all, this is in a job with a lower wage than that which men receive. Such conditions on the demand side of the labour market negatively impact supply decisions of women, discouraging them from participating in the market. This especially concerns women with poor qualifications and no experience. In the market they can usually expect only earnings at the basic level in the not too stable jobs in the secondary labour market. The analogous effect of discouragement can be seen in the labour decisions of men with very poor skills, whose work is worth little to employers.

Despite extensive research, both theoretical and empirical, no universal model of labour supply has been defined. Instead, a mix of models or factors is usually used to explain the developments or look at some particular features of labour participation. An obvious part of the explanation is that the decision whether to work or not is complex and seems to be driven by different reasons for different groups of the working age population. For example, the motives that seem to determine the decisions of the young with their whole working lives ahead of them are different from those when they mature and then age and approach retirement. Yet other (additional) factors determine the decisions for women, who have to combine their careers with motherhood. This heterogeneity makes it reasonable to consider smaller groups and then focus on models or factors that fit each of them best. We took this approach in the following chapters, where we discuss labour participation trends and their expected future developments.

Chapter 9
Historical Trends in Labour Force Participation in Europe, 1985–2002

Katarzyna Saczuk

9.1 Introductory Remarks

This chapter analyses the dynamics of the labour force participation rates and past trends in labour force participation in the 27 countries studied. The figures presented form a departure point for formulation of assumptions for projection of labour force participation in Chap. 10. The analysis concerns past developments of labour force participation rates by sex, in 5-year age groups, starting from 15 to 19-year age group. The last age group is open-ended and consists of people aged 75 years or more.

The data come from the International Labour Organization[1] and were collected by the Labour Force Survey (LFS). The data from the LFS are incomplete for several countries. They are supplemented with census data and estimates, which is clearly marked in all cases. Data other than from the LFS have only auxiliary character.

The data used in the analysis cover the period 1985–2002 and sometimes data from 1981 are used. The horizon of the historical data was chosen to show the most significant changes that occurred in the labour market in recent decades, on one hand, and to take into account the accessibility of the data, on the other. To show all the changes in the levels of participation rates (especially of women), data from the early 1960s would be needed. However, the data by age groups before 1981 are available only for 5 of the 27 countries (Italy, the Netherlands, Norway, Spain and Sweden).

[1] http://laborsta.ilo.org/ – status as of mid-March 2004

K. Saczuk (✉)
Central European Forum for Migration and Population Research, IOM, Warsaw, Poland

Economic Institute, National Bank of Poland, Warsaw, Poland

Warsaw School of Economics, Warsaw, Poland
e-mail: katarzyna.saczuk@gmail.com

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_9,

Most of the analysis in this chapter relies on data from the period 1985–2002. For 1981–1984, data are available for 12 countries, but for seven of them, namely Austria, Denmark, Finland, France, Greece, Ireland and Portugal, data for more than 1 year are missing. For 12 countries—Austria, Denmark, Finland, France, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain and Sweden—data are available from 1985, generally in the desired 5-year age groups, with minor variations in the youngest and the oldest age groups. For the remaining countries, especially for the postsocialist countries, data are available from the early or mid 1990s. In the case of Bulgaria, only data for the last 3 years are available.

For the last 30 years rapid change concerning economic activity has occurred in labour markets in terms of both rates and stocks. This change, however, cannot be noticed if the economic activity is analysed in the aggregated measures. It can only be seen when data are presented by age groups and sex. The changes in Ireland are a good example. When one looks at the total participation rate between 1981 and 2001, it is clear that the fraction of economically active in the Irish population rose by 25%, from 37.2[2] to 46.4%, whereas the change of the fraction of the population aged 15 years or more rose by 11% (from 53.3 to 59.1%). However, there is no way to conclude from these numbers that the rise of the fraction of the active population by 25% happened owing to the rise of the fraction of active men by 5% and active women by 80% (the change in the population aged 15 years or more is −8% for men and 60% for women). The change is even more surprising when one looks at the labour force participation rates by age groups for the two sexes separately. In Ireland the decline in the male labour force participation rates in the last two decades of the twentieth century ranged from 2% for the 35–44-year age group[3] to 36% for the 65–74-year age group. The change in the female rates ranged from −59% for the 70–74-year age group to 187% for the 35–39-year age group, and was over 100% for five 5-year age groups in the range 30–54 years. The participation patterns are presented in Figs. 9.1, 9.2 and 9.3.

The example above justifies the need to use participation rates for the two sexes and for different age groups. As the level of the participation rate of any of the age groups is barely dependent on the levels of participation of the other age groups, and there are no fixed ratios between the rates in different age groups and over time (see, e.g., the female participation rates in Ireland in Fig. 9.3), it is more convenient to look at the rates of distinct groups separately, unless they show some similarity. This will allow better consideration of the factors that play a significant role in determining the levels of participation and more precise forecasting of their future course.

[2]Census data.

[3]This applies to both 5-year groups included in this range. In this chapter, labour force participation rates are analysed only for 5-year age groups. For simplicity, wider age groups are sometimes used. They should be understood as 5-year age groups included in a given range.

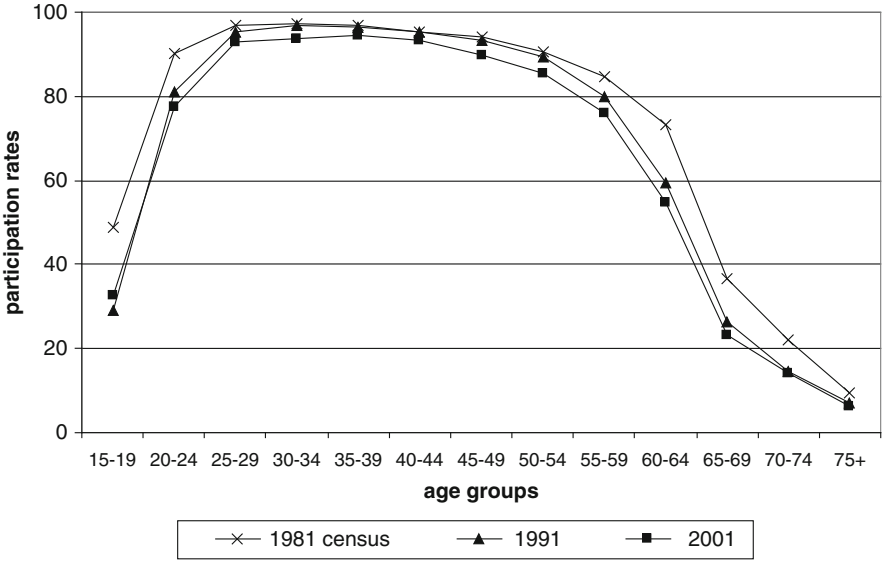

Fig. 9.1 Total participation rates by age group in Ireland, 1981–2001
Source: International Labour Organization 2004

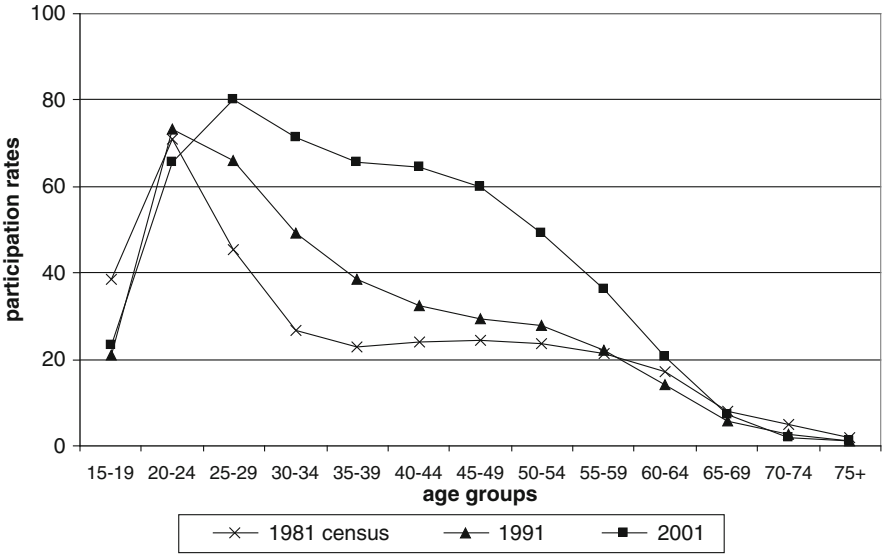

Fig. 9.2 Male participation rates by age group in Ireland, 1981–2001
Source: International Labour Organization 2004

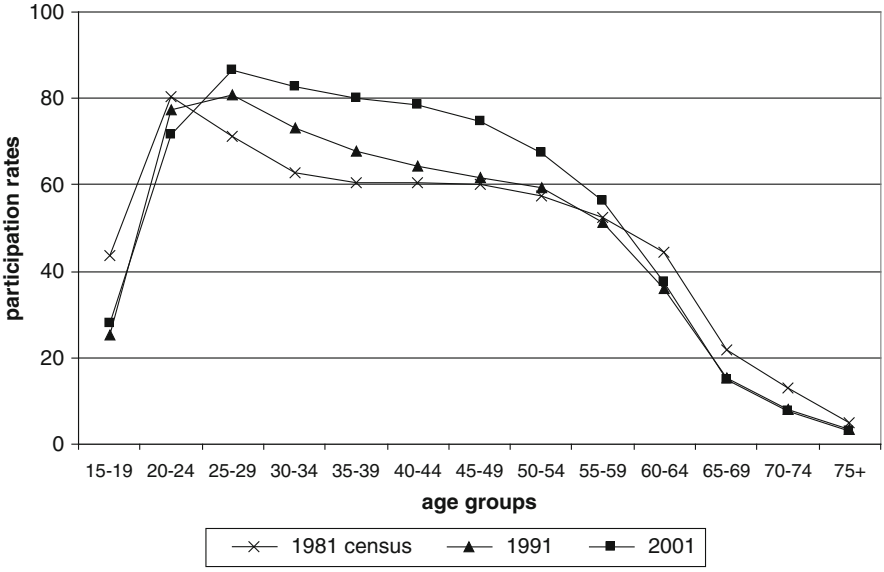

Fig. 9.3 Female participation rates by age group in Ireland, 1981–2001
Source: International Labour Organization 2004

In the next two sections, the trends in male and female labour force participation rates are presented. Owing to similarities of male age-specific profiles of participation, the age groups serve as the main differentiating factor in the presentation. Female age-specific profiles of labour participation differ substantially, as discussed in Sect. 9.2.2, and therefore are organized by the overall level of economic activity and shape of the profiles.

When comparing the data between countries, one has to bear in mind the differences in definitions underlying the data. A notable example is the inclusion of people in military service in the labour market, which can be partly responsible for the variation of the male participation rates for the same age groups between countries, especially in the young age groups. Some countries, such as Spain and Portugal, exclude people doing compulsory service both from the active labour force and from the potential labour force, whereas other countries, such as Poland, exclude them only from the active labour force. Some countries include all people in service in the active labour force, or exclude only conscripts, such as Belgium and France. This makes cross-country comparisons especially in the two youngest age groups unreliable and can partly explain the big differences in labour participation rates between countries. It is worth noting that all countries with the highest participation rates in the 15–19-year age group, such as Austria, Denmark, the Netherlands and Norway, but also Finland, Germany and Sweden, include military personnel (with conscripts) in the labour force.

9.2 Evolution of Labour Force Participation in Europe 1985–2002

Some factors influencing participation in three broad (young, middle and old) age groups are similar for the same age groups for both men and women. Hence, they will be discussed only for men. Women's economic activity is additionally strongly influenced by fertility, which will be discussed in Sect. 9.2.2. This section will highlight mainly the factors that differ women and men in the labour market.

9.2.1 Labour Force Participation of Men

In the middle of the 1980s the pattern of male labour participation was an inverted-U shape for all countries in the study. It did not change considerably between 1985 and 2002. In Fig. 9.4, national upper and lower bounds of labour force participation are shown for 1985 and 2002. They were constructed by taking for each 5-year group the minimum and maximum male participation rates in all countries analysed. Hence, the curves cannot be attributed to any particular country and are purely hypothetical. They rather indicate the intervals between which patterns for all countries can be drawn.

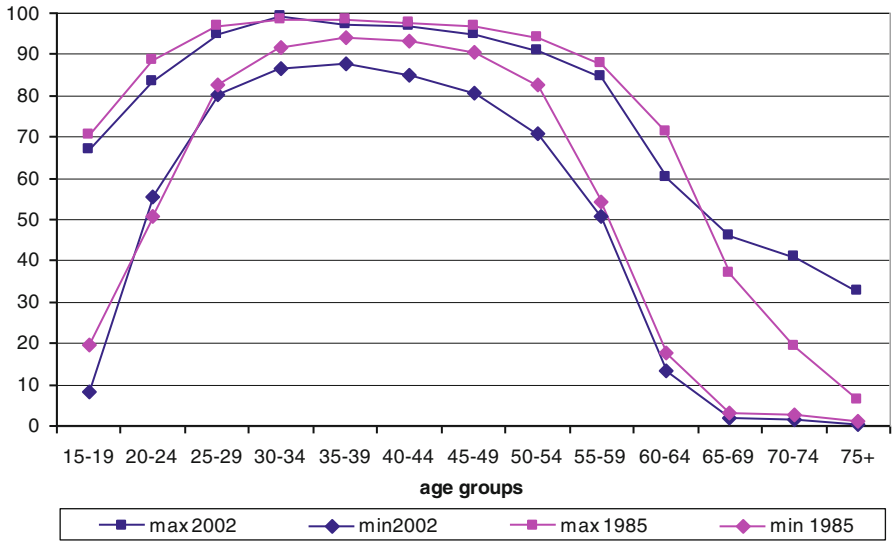

Fig. 9.4 Changes of labour force participation rates of men by age group in 27 European countries between 1985 and 2002. Observed maximum and minimum profiles
Source: International Labour Organization 2004, and own computations

The participation rates of the middle age groups (5-year age groups in the range 25–54 years) range between 80% and nearly 100%, and in the last two decades of the twentieth century did not change much except for a slight decline. Owing to similarity of the participation levels in middle age groups, and supposedly also the factors that determine them, past trends of participation rates will be discussed for all these groups together.

In the young (15–19 years and 20–24 years) and the old (all ages above 55 years) age groups, diverse and often country-specific factors shape the participation rates. In the case of the 15–19-year age group, the span of participation rates reached almost 50 percentage points in 1985, between 19.5% for France and 70.3% for Denmark, and was still well above 50 percentage points in 2002, ranging from 8.6 to 67% for Bulgaria and Denmark, respectively. For the next age group the span was more than 30 percentage points for both years. A quick glance at the data that underlie these figures reveals that the span of participation rates for the older age groups was also wide, although theory might suggest the importance of different factors in this case. As these two broad age groups (15–24 years and 55 years and above) seem to be different from the middle age groups, and different from each other, they are discussed separately.

9.2.1.1 Middle Age Groups (25–54 Years)

For all age groups for both men and women, the labour force participation rates of the male middle age groups are the least variable. In the early years of the first decade of the twenty-first century, they were in the range 70–100% (80–100% for all countries except Romania, Hungary and Poland), as they had done 20 years earlier. The general change during these years shows a slight decline in levels of activity for most of these age groups in all countries.

The greatest decline was reported for the 45–49-year age group—13.9% in Bulgaria between 1985[4] and 2002; most of the changes in the rates did not exceed 5%. Several cases of an increase of labour force participation rates were also observed, for instance all middle age groups in Slovenia between 1993 and 2002, the 40–54-year age group in Hungary and a few age groups in the Czech Republic. They did not, however, change, the overall situation. The average yearly changes of labour force participation rates were smaller than 1% for all age groups and countries, except for the 25–29-year age group in Hungary, Lithuania and Romania (1.1, 1.2 and −1.1% respectively) and the 50–54-year age group in Slovenia (1.6%). Selected data concerning past and current levels of participation rates are presented in Table 9.1.

The general decline is often claimed to be a result of increased generosity of social welfare systems and/or shifts in demand for unskilled labour associated with international trade, technological innovation, an expanded immigrant labour force

[4]The 1985 data for Bulgaria come from the census.

Table 9.1 Characteristics of male labour force participation in 27 European countries, 1985–2002

	AT	BE	BG	CZ	DK	EE	FI	FR	DE	GR	HU	IE	IT	LV	LT	LU	NL	NO	PL	PT	RO	SK	SI	ES	SE	CH	UK
Labour force participation rates																											
Age	2002	2002	2002	2002	2002	2002	2002	2000	2002	2001	2002	2001	2001	2002	2000	2002	2001	2002	2002	2002	2001	2002	2002	2002	2002		
15–19	47.6	13.3	8.6	11.4	67.0	11.0	34.7	11.4	33.6	14.2	8.4	32.5	19.8	18.8	19.0	14.5	61.5	50.0	10.7	30.3	24.7	14.4	13.2	31.0	29.1	–	–
20–24	73.7	63.2	57.5	73.0	83.4	70.6	74.9	55.5	75.4	62.9	61.2	77.4	62.1	73.3	78.0	59.3	81.8	77.0	65.8	73.4	68.4	76.9	63.0	66.2	68.1	–	–
25–29	89.1	92.7	80.4	94.7	90.9	89.0	90.2	91.7	86.2	91.6	88.3	92.8	81.0	91.9	93.8	91.5	93.2	88.9	92.1	90.3	87.0	94.8	90.4	88.6	85.3	–	–
30–34	94.7	94.6	86.8	97.2	93.4	93.4	94.0	95.6	94.7	96.3	91.4	93.8	93.2	92.3	95.1	99.1	95.1	93.3	95.5	95.1	92.0	95.3	96.1	94.6	91.0	–	–
35–39	96.3	94.8	87.7	97.2	93.9	91.1	93.3	96.3	95.9	97.0	89.3	94.5	95.7	89.7	93.4	95.9	95.0	92.6	93.9	95.0	92.8	94.5	94.8	94.8	90.2	–	–
40–44	96.2	92.7	87.0	96.3	92.2	89.4	92.5	95.5	95.4	96.8	84.9	93.3	96.0	88.3	96.2	94.1	94.4	92.6	90.8	94.8	91.3	95.8	95.6	94.1	89.9	–	–
45–49	94.3	90.9	81.5	94.3	92.0	91.4	89.4	94.9	94.3	94.4	80.7	89.6	94.3	87.4	89.4	91.2	92.7	89.9	83.6	92.7	88.5	92.1	90.4	91.8	89.9	–	–
50–54	88.5	81.1	77.1	90.1	88.9	85.2	85.4	90.8	90.3	87.9	71.5	85.3	83.9	85.0	90.6	87.3	89.4	88.9	71.0	87.5	78.3	87.9	82.4	87.4	88.4	–	–
55–59	67.4	53.2	60.2	79.5	83.6	72.3	71.7	65.8	78.0	73.1	55.1	75.8	53.8	75.2	84.6	52.2	73.3	83.6	50.7	74.4	61.8	75.7	53.6	75.1	83.9	–	–
60–64	18.3	19.0	23.9	29.9	42.0	55.5	30.9	15.5	34.0	43.2	14.8	54.6	31.0	41.4	37.9	18.3	26.4	60.0	27.5	52.2	49.2	13.2	20.4	46.6	60.1	–	–
65–69	6.1	3.8	9.1	11.5	18.7	25.0	7.6	3.7	7.4	15.9	4.7	23.3	11.2	23.9	12.8	2.3	9.9	24.1	15.4	33.4	46.1	1.9	9.3	5.3	–	–	–
70–74	3.7	2.1	2.9	6.1	–	10.7	4.4	1.7	3.9	5.8	1.9	14.2	4.5	11.5	6.6	–	4.0	6.7	10.0	26.8	40.9	–	11.4	1.5	–	–	–
75+	1.9	1.1	–	2.5	–	–	–	0.6	1.5	1.4	–	6.2	2.6	–	–	–	2.2	–	4.5	17.8	32.7	–	10.0	0.5	–	–	–
Percentage change of male participation rates																											
	2002/	2002/	2002/	2002/	2002/	2002/	2002/	2000/	2002/	2001/	2002/	2001/	2001/	2002/	2000/	2002/	2001/	2002/	2002/	2002/	2001/	2002/	2002/	2002/	2002/		
Age	1985	1981	1985	1996	1985	1995	1985	1985	1995	1985	1994	1985	1985	1996	1996	1981	1985	1985	1992	1985	1995	1993	1993	1985	1985		
15–19	−15.6	62.2	104.8	−60.4	−4.7	−59.4	−15.0	−41.5	−6.9	−43.4	−48.5	−17.7	−29.5	−33.3	−31.2	−68.5	144.1	9.2	−59.8	−50.3	−38.9	−53.6	48.3	−27.7	−34.9	–	–
20–24	−6.7	−16.1	−33.0	−13.7	−3.6	−14.0	−10.2	−29.0	−3.0	24.1	−7.4	−12.6	−14.7	−13.7	−5.7	−27.2	8.1	−3.4	−19.4	1.0	−15.7	−10.2	8.1	−1.2	−17.8	–	–
25–29	−2.9	−0.5	–	−2.2	−2.5	−2.5	−2.9	−1.4	−1.0	11.0	8.9	−4.3	−11.1	−1.1	4.9	−4.0	0.5	−3.1	−3.4	−4.1	−6.7	−1.8	6.7	−4.7	−7.3	–	–
30–34	−1.8	−1.1	−11.3	−0.4	−1.2	−3.0	−2.8	−0.3	−1.3	5.1	−3.7	−3.8	−4.5	−0.8	−1.0	0.8	−1.0	−3.0	0.0	−2.0	−2.7	−0.7	8.3	−2.5	−4.1	–	–
35–39	−1.3	−0.7	−8.5	0.3	−1.1	−3.3	−3.3	−0.2	−1.2	1.3	−7.7	−2.2	−2.5	−2.0	−2.4	−2.5	−1.1	−3.7	−0.4	−1.0	−2.3	−2.5	8.0	−2.0	−6.7	–	–
40–44	−1.4	−1.1	−8.9	−0.3	−1.4	−4.2	−2.6	−0.6	−1.9	−0.7	0.1	−1.9	−1.5	−3.0	2.8	−3.6	−0.2	−3.1	−2.3	−1.5	−3.6	0.0	6.3	−1.6	−7.1	–	–
45–49	−1.9	0.1	−13.9	0.3	1.8	−1.0	−2.3	0.0	−1.9	−2.4	0.1	−4.4	−1.7	2.5	−0.1	−5.0	2.4	−5.2	−3.9	−1.0	−4.9	−1.6	3.6	−1.9	−6.2	–	–

(continued)

Table 9.1 (continued)

Age	AT	BE	BG	CZ	DK	EE	FI	FR	DE	GR	HU	IE	IT	LV	LT	LU	NL	NO	PL	PT	RO	SK	SI	ES	SE	CH	UK
50–54	−2.0	−5.4	−12.5	0.5	−0.1	−0.5	1.0	0.0	−2.5	−0.6	0.4	−5.5	−5.9	0.2	3.2	−3.0	8.4	−2.2	−6.2	2.0	−7.2	1.4	15.4	−1.8	−5.9	–	–
55–59	−4.3	−24.8	−25.6	2.5	2.2	−5.6	13.3	−4.5	2.9	−5.8	22.7	−9.2	−23.8	2.3	2.4	−3.9	11.7	−2.1	−11.1	1.4	−9.0	13.5	44.9	−4.6	−4.2	–	–
60–64	3.4	−41.2	−39.0	−4.5	−10.3	39.5	−17.6	−48.0	15.3	−20.2	16.5	−18.3	−19.7	15.3	−38.3	−34.6	−4.7	−16.0	−20.5	−10.9	−3.2	−12.6	29.9	−14.0	−7.5	–	–
65–69	22.0	15.2	−68.0	29.2	−34.2	10.1	−36.7	−60.2	13.9	−40.9	−39.7	−9.7	−20.6	44.9	−76.5	−76.5	167.6	−34.7	−16.3	67.8	−4.4	−67.8	5.7	−56.9	–	–	–
70–74	37.0	–	−79.3	–	–	−44.3	−51.7	−48.5	8.3	−60.3	−58.7	−2.7	−10.0	57.5	−83.7	–	–	−50.0	–	–	−10.1	–	48.1	−60.5	–	–	–
75+	72.7	–	–	–	–	–	–	−66.7	−11.8	−75.0	–	0.0	–	–	–	–	–	–	–	–	16.8	–	–	−72.2	–	–	–

Average yearly growth index

Age	2002/1985	2002/1981	2002/1985	2002/1996	2002/1985	2002/1995	2002/1985	2000/1985	2002/1995	2001/1985	2002/1994	2001/1985	2001/1985	2002/1996	2000/1996	2002/1981	2001/1985	2002/1985	2002/1992	2002/1985	2001/1995	2002/1993	2002/1993	2002/1985	2002/1985		
15–19	0.990	1.023	1.043	0.857	0.997	0.879	0.991	0.965	0.990	0.965	0.920	0.988	0.978	0.935	0.911	0.947	1.057	1.005	0.913	0.960	0.921	0.918	1.045	0.981	0.975	–	–
20–24	0.996	0.992	0.977	0.976	0.998	0.979	0.994	0.977	0.996	1.014	0.990	0.992	0.990	0.976	0.985	0.985	1.005	0.998	0.979	1.001	0.972	0.988	1.009	0.999	0.989	–	–
25–29	0.998	1.000	–	0.996	0.999	0.996	0.998	0.999	0.999	1.007	1.011	0.997	0.993	0.998	1.012	0.998	1.000	0.998	0.997	0.998	0.989	0.998	1.007	0.997	0.996	–	–
30–34	0.999	0.999	0.993	0.999	0.999	0.996	0.998	1.000	0.998	1.003	0.995	0.998	0.997	0.999	0.997	1.000	0.999	0.998	1.000	0.999	0.996	0.999	1.009	0.999	0.998	–	–
35–39	0.999	1.000	0.995	1.001	0.999	0.995	0.998	1.000	0.998	1.001	0.990	0.999	0.998	0.997	0.994	0.999	0.999	0.998	1.000	0.999	0.996	0.997	1.009	0.999	0.996	–	–
40–44	0.999	0.999	0.995	0.999	0.999	0.994	0.998	1.000	0.997	1.000	1.000	0.999	0.999	0.995	1.007	0.998	1.000	0.998	0.998	0.999	0.994	1.000	1.007	0.999	0.996	–	–
45–49	0.999	1.000	0.991	1.001	1.001	0.999	0.999	1.000	0.997	0.998	1.000	0.997	0.999	1.004	1.000	0.998	1.002	0.997	0.996	0.999	0.992	0.998	1.004	0.999	0.996	–	–
50–54	0.999	0.997	0.992	1.001	1.000	0.999	1.001	1.000	0.996	1.000	1.001	0.996	0.996	1.000	1.008	0.999	1.005	0.999	0.994	1.001	0.988	1.002	1.016	0.999	0.996	–	–
55–59	0.997	0.987	0.983	1.004	1.001	0.992	1.007	0.997	1.004	0.996	1.026	0.994	0.983	1.004	1.006	0.998	1.007	0.999	0.988	1.001	0.984	1.014	1.042	0.997	0.997	–	–
60–64	1.002	0.975	0.971	0.992	0.994	1.049	0.989	0.957	1.020	0.986	1.019	0.987	0.986	1.024	0.886	0.980	0.997	0.990	0.977	0.993	0.995	0.985	1.030	0.991	0.995	–	–
65–69	1.012	1.007	0.935	1.044	0.976	1.014	0.973	0.940	1.019	0.968	0.939	0.994	0.986	1.064	0.696	0.933	1.063	0.975	0.982	1.031	0.993	0.882	1.006	0.952	–	–	–
70–74	1.019	–	0.912	–	–	0.920	0.958	0.957	1.012	0.944	0.895	0.998	0.993	1.079	0.635	–	–	0.960	–	–	0.982	–	1.045	0.947	–	–	–
75+	1.033	–	–	–	–	–	–	0.929	0.982	0.917	–	1.000	–	–	–	–	–	–	–	–	1.026	–	–	0.927	–	–	–

AT Austria, *BE* Belgium, *BG* Bulgaria, *CH* Switzerland, *CZ* Czech Republic, *DE* Germany, *DK* Denmark, *EE* Estonia, *ES* Spain, *FI* Finland, *FR* France, *GR* Greece, *HU* Hungary, *IE* Ireland, *IT* Italy, *LT* Lithuania, *LU* Luxembourg, *LV* Latvia, *NL* Netherlands, *NO* Norway, *PL* Poland, *PT* Portugal, *RO* Romania, *SE* Sweden, *SI* Slovenia, *SK* Slovak Republic, *UK* United Kingdom
Source: International Labour Organization (2004), own computations

and growing female activity (Parsons 1980; Juhn 1992; Berman et al. 1998; Bound and Johnson 1992; Juhn et al. 1991; Buron et al. 1995a, b). Research suggests that the decline in activity is mostly concentrated among low-skilled and low-paid workers (Juhn 1992). Whereas shifts in labour demand for unskilled workers may be a prime reason for male inactivity, it seems that social security systems and growing women's participation made such an option feasible by provision of non-wage income (labour supply incentives are discussed in more detail in Chap. 8).

The cases of Austria, Denmark, Ireland, Italy and Norway may support the hypothesis of substitution of labour force participation of men and women. In these countries the increases in the female participation rates were accompanied by declines in the male participation rates, although the countries differed in the magnitude of the change for men and women, and in the levels of the participation rates reached around the year 2000. These differences may be due to differences in the social institutions and customs concerning work and family roles in the countries in question.

The cases of other countries reveal slightly different patterns. There are countries where the activity of women went up significantly and the participation of men hardly changed, such as Belgium and France. In Greece and Slovenia, in some age groups economic activity of men rose, despite increases in activity for women. Finally, there are countries where male activity declined, sometimes considerably, despite practically no change in participation of women, as in Finland and Sweden. Again, in these cases social and cultural differences between the countries may be a part of the explanation. The initial levels of participation as well as income differences and changes might also contribute to the explanation.

As percentage differences can be illusive, in some cases it is worth looking at the levels and absolute changes. For instance, the increase of the participation rates in Slovenia or Greece does not seem unusual when the low initial levels of these rates are taken into account. Around 2002, after the increase, the labour force participation rates in the 30–49-year age group ranged between 91.8% and 97% in both countries, which is close to the average for all countries in the study. The 15% increase of the participation rate of the 50–54-year age group in Slovenia between 1993 and 2002 was the greatest increase in the participation rate for all male middle age groups in all countries analysed. It resulted, however, in a rate of 82.4%, which is still one of the lowest rates for this age group in the study.

It can be noticed that in almost all countries analysed the participation rates for the 25–29-year and 50–54-year age groups are slightly lower than for the rest of the middle age groups. Relatively lower levels of participation rates for the 25–29-year age group than for older groups (a few percentage points for most of countries) may be a result of extended education. However, as the type of schooling and training undertaken at this age usually does not preclude work, this effect, although noticeable, is much smaller than for the younger age groups (see later). In some countries the lower participation rates in this group can additionally reflect problems of the young with entering the labour market, high unemployment in this group and the related discouragement.

Different factors may underlie changes in postsocialist countries. In recent years the labour force participation rates in these countries have fallen relatively quickly to reach generally lower levels than in the other countries in the study, with the Czech Republic being an exception. The most substantial decline occurred in Bulgaria, where the participation rates fell below 90% in all male middle age groups. Such tendencies are due to transformation and structural change of the labour markets in these countries (Rutkowski et al. 2005). Related structural unemployment can, through a discouragement effect, push potential workers out of the market.

Similarly, slightly lower levels of participation rates in the oldest group of middle-aged men (50–54 year) can be attributed to the early start of the leaving the labour market. Partly, the early leavers belong to specific professions, such as artists and sportsmen; some of them live in countries with sufficiently generous pension and social security systems (this will be discussed in detail in Sect. 9.2.1.3). In addition, early, sometimes very early, retirement was used in the postsocialist countries to mitigate social tensions which arose due to emergence of unemployment in the first few years of the transformation (Góra et al. 1996). It was used especially in the case of the unemployed who had lost their jobs because of structural changes and whose qualifications were obsolete or inadequate for the new requirements of the modified labour market, e.g. for miners and heavy industry workers in Poland. Again, this effect will be more significant for older age groups.

The male middle age groups have traditionally formed the core labour force. Despite slight declines in the participation rates and increased activity of women, which reduced the share of middle-aged men in the total population of the economically active, this group still constitutes the most stable and basic part of the labour force.

9.2.1.2 Young Age Groups (15–24 Years)

The labour force participation of men in the young age groups, in contrast to the middle age groups, varies more and oscillates around lower levels, especially for the youngest group. Since 1985 the labour force participation rates of young people have generally fallen, mainly due to increased education activities, whose importance has risen considerably over time.

Around 1985, the labour force participation rates in the 15–19-year age group ranged between 19.5% in France and 70.3% in Denmark.[5] Around 2002, the respective numbers were 8.4% for Hungary and 67% for Denmark. In the last decade covered by the study, the labour force participation rates in the youngest working age group fell in all countries except Belgium, Norway, Slovenia and the Netherlands. The fastest decline was observed in the Czech Republic, where the labour force participation rate in 15–19-year age group fell by 60% (on average by

[5]Data for Central and Eastern European countries are not available for this period. Hence, the range of variation might have been wider for all countries in the study.

over 14% a year) for the last 7 years covered by the study. The greatest increase in the participation rate in this age group was observed in the Netherlands. The increase amounted to 144%, from 25.2% in 1985 to 61.5% in 2002, which means that the labour force participation rate in the 15–19-year age group grew by 5% a year on average between 1985 and 2002. Relatively significant increases of labour participation in the youngest age group were also observed in Bulgaria (104.8%), Belgium (62.2%) and Slovenia (48.3%.) In absolute terms, however, they amounted to about 4.5 percentage points. Selected data concerning past and current levels of participation rates are presented in Table 9.1.

Labour force participation rates in the 20–24-year age group varied in a smaller range. In 2002 they oscillated between 55.5% for France and 83% for Denmark, instead of 50.7% for Greece and 88.6% for Ireland in 1985. Since the mid-1980s the labour force participation rates in this age group have fallen slightly in all countries except in Greece, Portugal, Slovenia and the Netherlands. The decline ranged from 1.2% in Spain to 29% in France. The greatest increase was reported in Greece, where the labour force participation rate of the 20–24-year age group changed by 24.1%, from 50.7% in 1985 to 62.9% in 2002.

The labour force participation rates in the two youngest age groups depend greatly on young people's decisions to enter the labour market and on the market's flexibility (Saar et al. 2008).[6] Green et al. (2001) in their comprehensive report on labour force differences among young people in the EU-15 pointed out that *youth transitions* from education to work changed during the 1980s and 1990s. They tended to lengthen, become ambiguous/uncertain and more diverse. There are two clear tendencies. Firstly, in most of the countries, young people postpone their entry to the labour market to older ages than before (see Sect. 8.3.5). Secondly, for a growing share of young people, entry to the labour market does not mean a change from one status to another. Using the language of Green et al. (2001), it means rather getting another status (labour market participant), while still retaining the former one (education). Both tendencies are the result of the growing importance of education in today's labour market.

The first tendency may be reflected by the overall declines of the labour force participation rates in most of countries analysed in the last decades, especially in the younger age group. It can be seen in Table 9.1 that in most of the countries economic activity in the 15–19-year age group declined more than it did in the 20–24-year age group, with Belgium, Bulgaria, the Netherlands, Norway and Slovenia being the exceptions. The second tendency may be identified as the growing popularity of part-time jobs and other flexible forms of employment among young people. These forms allow people to engage in market work without giving up education and, hence, can partly alleviate the depressing effect of the first tendency on labour force participation rates of young age groups. It can be also the case that the second tendency dominates the first one, as has happened in the Netherlands or Norway in the youngest age group. Between 1985 and 2002 in the Netherlands

[6]Definitional issues impacting the labour force participation statistics were mentioned in Sect. 9.1.

Table 9.2 Part-time employment as a percentage of the total employment of the 15–24-year age group for 27 European countries, quarterly data, 1985–2004

	Total		Males		Females	
Country	II 1985	II 2002	II 1985	II 2002	II 1985	II 2002
Austria	–	–	–	–	–	–
Belgium	10.9	17.7	5.2	10.9	17.9	26.4
Bulgaria	–	4.0 u	–	–	–	–
Czech Republic	5.3[a]	4.1	3.7[a]	3.7	7.6[a]	4.5
Denmark	30.2	50.3	24.6	38.8	37.1	62.1
Estonia	15.8[a] u	–	–	–	–	–
Finland	36.5[a]	34.1	27.4[a]	25.3	47.3[a]	43
France	12.7[b]	–	7.5[b]	–	18.7[b]	–
Germany	3.6	13.5	1.3	9.7	6.1	17.5
Greece	6.7	7.6	5.0	6.1	9.3	10.0
Hungary	3.5[a]	3.7	2.9[a]	2.8	4.3[a]	4.7
Ireland	6.2	21.2	5.4	15.6	7.1	27.7
Italy	6.5	9.6	4.7	6.0	9.3	14.8
Latvia	–	13.1	–	8.2 u	–	19.6
Lithuania	–	11.2	–	10.8	–	11.8
Luxembourg	11.6	6.2 u	12.7	–	10.5	7.8 u
Norway	45.8[a]	49.5	33.0[a]	39.4	59.0[a]	59.4
Poland	15.0[a]	21.0	13.8[a]	18.5	16.8[a]	24.0
Portugal	5.2[c]	7.5	3.7[c]	6.4	7.5[c]	8.9
Romania	21.3[a]	13.3	20.3[a]	14.6	22.6[a]	11.7
Slovak Republic	–	1.3	–	–	–	–
Slovenia	14.8[a]	17.6	13.6[a]	11.7	16.4[a]	25.9
Spain	14.0[a]	13.4	9.3[a]	8.0	20.8[a]	21.6
Sweden	42.6[a]	41.0	28.6[a]	28.4	57.9[a]	54.2
Switzerland	17.2[a]	20.4	14.0[a]	14.3	20.5[a]	26.7
Netherlands	21.8	64.0	14.6	56.7	28.7	71.7
United Kingdom	14.5	33.4	9.2	26.2	20.6	41.4

u unreliable or uncertain data
[a]II 1997 data
[b]I 1985 data
[c]II 1986 data
Source: Eurostat (2004)

male labour force participation rates rose by 144% in the 15–19-year age group and by 8% in the 20–24-year age group. At the same time the share of people aged between 15 and 24 years working on a part-time basis in total employment in this group almost quadrupled, from 14.6% in 1985 to 56.7% in 2002. Data concerning part-time employment as a percentage of the total employment in 15–24-year age group in 1985 and 2002 are presented in Table 9.2. The second tendency may also explain the relatively high levels of participation rates in Denmark, Norway and the Netherlands. In all three countries the share of the part-time employed in the total employed in the 15–24-year age group is relatively high and is growing.

It is worth stressing that social habits as well as incentives coming from the family and from institutional arrangements add to the tendencies. If high

participation of the young is commonly accepted in a country, it is usually reflected in social and institutional arrangements. In such a case, it is relatively easy for a young person to work during the education process, also part time. If late and "permanent" entries are the rule, such arrangements are not necessary. Green et al. (2001) presented a typology of the welfare states with the incentives they create, also for the young. It follows from the presentation that, for example, in Sweden, Denmark, Finland and Netherlands, a mix of policies encourages most adults to enter and stay in the labour market. In Belgium, France, Germany, Austria and Luxembourg, a mix of policies tends to limit the share of the population in the labour force. For Italy, Greece, Spain and Portugal family support allows the young to wait a long time for an employment opportunity. Such division of countries is clearly reflected in the data.

In Central European countries the impact of education on the level of labour force participation differs slightly from that in the countries in the rest of Europe. In this group of countries the attractiveness of education can be even stronger than in the rest of Europe, which has historic roots. Until the 1990s, education could hardly influence the labour market position. In the early years of the transformation of the system, this changed and education and skills started to matter. Studies in economics, management or finance were sufficient to obtain a managerial post, owing to general shortages of people with adequate skills and experience. Quick careers attracted many young people to management and finance. Although the possibilities of rapid promotions ran out within the first few years of the transformation, the studies still lure thousands of young people every year. As most of them study full time, the labour force participation rates in the countries of Central Europe are relatively low and have fallen since the early 1990s.

9.2.1.3 Older Age Groups (Over 55 Years)

For the last two decades labour force participation of older workers has generally been lower than for the prime age groups and has decreased. As in the case of prime age groups, this was a result of withdrawal from the labour market. For these age groups, however, these decisions were often related to (early) retirement and, hence, were usually permanent. The scale and pace of the phenomena depended on the country. Selected data concerning past and current participation rates are presented in Table 9.1.

The labour force participation rates in the older age groups decline with age in all countries, except Slovenia. It can be seen in Table 9.1 that the participation rates in all countries in the 55–59-year age group are lower then they are in the middle age groups. For older age groups, economic activity is even lower, with a rapid decline around the age of 65 years in most countries, except Romania and Portugal. The 55–59-year and 60–64-year age groups, i.e. men of preretirement age in most countries, are characterized by relatively high participation rates and smaller variability for the last two decades, compared with the older groups. In 2002 the highest economic activity in the 55–59-year age group was observed in Lithuania (84.6%), followed by Sweden (83.9%), and Norway and Denmark (83.6%), with the lowest being

observed in Poland (50.7%). In the 60–64-year age group, the variation between countries was greater. The highest participation rates were observed in Sweden and Norway, 60.1 and 60%, respectively, and the lowest participation rate was observed in the Slovak Republic, 13.2%.

Over time, the economic activity for the 55–59-year age group rose in almost half of the countries in the study. In the countries where the participation rates had fallen for the last two decades of the twentieth century the declines were moderate (below 10%), except for Bulgaria, Belgium, Italy and Poland. In the first three countries, the economic activity of men in this age group declined by almost a quarter. In Poland, the economic activity of men in the 55–59-year age group fell by 11.1% in the last decade covered by the study. Economic activity in the 60–64-year age group varied more for the last 15 years covered by the study. Participation rates rose for only six countries: Estonia, Slovenia, Germany, Hungary, Latvia and Austria. In the remaining countries they fell, sometimes considerably, in France by almost a half between 1985 and 2002 .

The economic activity of the groups of people aged 65–59 years, 70–74 years, and 75 years and over, as well as its dynamics, is more difficult to compare between countries, as for many countries data are not available. It is only possible to state that the labour force participation rates of the three oldest male age groups differ greatly between countries in most cases do not exceed 25% in the 65–69-year age group, 12% in the 70–74-year age group and 5% in the oldest age group. Slightly higher rates in the two oldest groups are observed in Ireland and Slovenia. Portugal and Romania reported much higher rates.

The decisions of older workers to leave the market early are closely related to the existence of social security institutions, specifically social security benefits and pension systems. As they are supposed to provide non-work-related income to those who cannot support themselves, they are also a source of alternative costs for those still working. The existence of these systems can provide incentives or disincentives to work beyond retirement age. Blondal and Scarpetta (1999) show that, through implicit taxes, pension systems discourage older people from working in virtually all OECD countries. It is very characteristic in Table 9.1 that in most of the countries the economic activity of older men falls drastically after they have reached the standard retirement age (standard retirement ages for selected countries in 2003 can be found in Duval 2003). According to Duval (2003), past changes in implicit tax rates and standard retirement ages explain about a third (31%) of the trend decline in the labour force participation of older males in OECD countries over the last three decades of the twentieth century.

However, older people often leave the labour market permanently before they reach retirement age, choosing different forms of early retirement. Such an option is especially popular among older people with low skills, who were hired for simple or physical jobs at younger ages. Their salaries at the end of their career are very low, and non-market income from social security becomes an attractive option.

The popularity of early retirement is country-specific. Depending on the type of social security and pension systems, as well as the labour market, its scale may

differ. In countries with restricted access to and financial punishment for early retirement (i.e. by significantly lower benefits) the labour participation rates in older age groups should be relatively high. In contrast, in countries with generous systems, and practically no effect of early retirement on benefits, the participation rates should be lower. This can be strengthened by social attitudes which can legitimize or disapprove of early exit from the labour market.

Early retirement has been used in some countries as a way to secure the income and position of older workers (Schiff et al. 2006), for whose probability of finding job is very low. Stimulation of early retirement was a particularly popular tool in Central and Eastern European countries in the early years of the transformation, which partly explains the low levels of labour participation among older people in these countries, e.g. Poland.

In recent decades there has been debate concerning the viability of the social security and pension system. The growing share of the older age groups in the total population, causing a growing burden on the systems, has raised the question of the costs of running the systems in the future. Numerous voices have called for the systems and labour market institutions to be reorganized, and some countries have started to do so (see, e.g., Góra 2001 on Poland, Gál et al. 2008 on Hungary, Sudén 2006 on Sweden and OECD 2005 for an overview of developments). In some countries active employment policies for older people and restrictions on the security system side have already been implemented.

It is worth nothing that the very high participation rates in Romania are not the result of successful policies of this kind. In Romania, a relatively high proportion of the population report to work in the agriculture sector. The number employed in agriculture increased sharply as a result of the transformation reforms (Voicu 2002). The wide definition of employed (at least 1 h of work in the reference week—can be unpaid for the family household, and including landowners) results in the fairly high labour force participation rates.

A comprehensive study of the differentiation of the labour force activity among older workers can be found in Vlasblom and Nekkers (2001).

9.2.2 Labour Force Participation of Females

In recent decades a rapid change has taken place in the labour market. Most of this change should be attributed to modification of the behaviour of women. Evolution in life patterns and in labour market settings in reference to women was accompanied by an increase of their economic activity. In many countries the increased activity of women reached a scale never observed before.

Higher labour force participation concerned mainly women of childbearing and child-rearing age, i.e., 25–49 years. The examination of the evolution of the participation patterns might create the strong impression that the three patterns of participation discussed in Sect. 8.3.6 are just consecutive stages. A single-

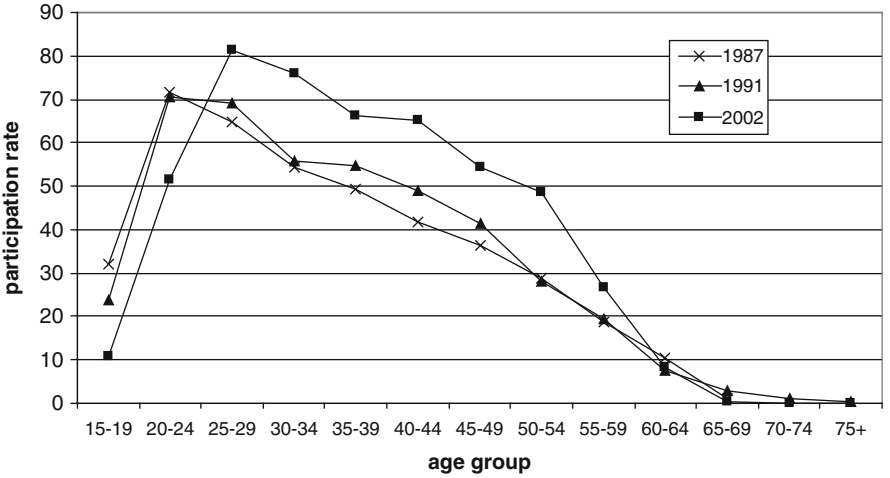

Fig. 9.5 Female labour force participation patterns in Luxembourg, 1987–2002
Source: International Labour Organization 2004

peaked pattern was still observed in some countries in the mid-1980s, e.g. Ireland, Luxembourg (see Figs. 9.3 and 9.5, respectively) and Italy. For the last two decades of the twentieth century it slowly evolved to bimodal pattern in all cases, which was a result of the return of women to the market after bearing a child. The process was facilitated by better market opportunities for women, development of institutions making it easier for women to combine motherhood with market work and change of social attitudes towards working mothers.

In the countries which were characterized by a bimodal pattern of women's participation in the early and mid 1980s, such as Austria and France, the patterns slowly evolved to inverted-U-shaped patterns. This was possible owing to further development of childcare institutions as well as the labour market for women. There are also countries where the female labour force participation already followed the inverted-U pattern in the early or mid 1980s, such as Finland, Denmark and Sweden. In these cases the patterns of participation remained unchanged, with only minor modifications in the levels of participation in certain age groups. The evolution of the participation patterns for Ireland, Luxembourg, Spain and the Netherlands is presented graphically in Figs. 9.3, 9.5, 9.6 and 9.7.

The current female participation rates in the countries analysed show a great variety of patterns. To make presentation of the trends clearer, the countries have been divided into three groups, according to the patterns described in Sect. 8.3.6, as well as their dynamics. The groups are:

– **'**High labour force participation' countries (Austria, Denmark, Germany, Finland, the Netherlands, Norway and Sweden)

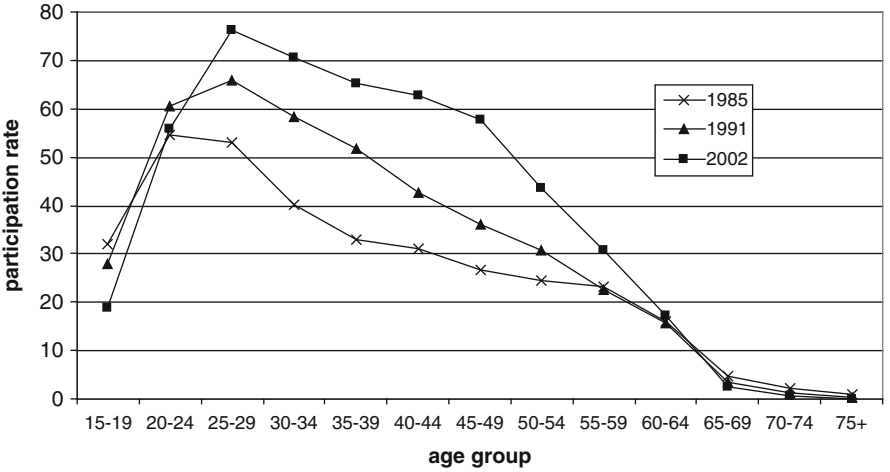

Fig. 9.6 Female labour force participation patterns in Spain, 1985–2002
Source: International Labour Organization 2004

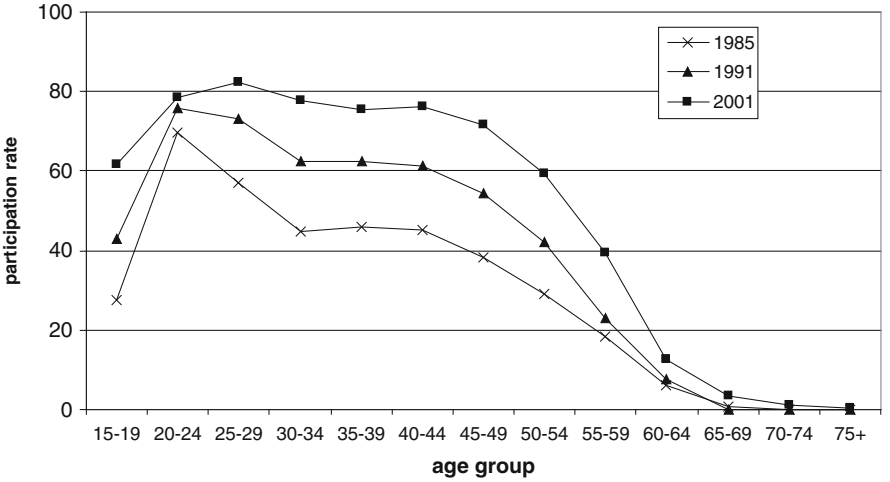

Fig. 9.7 Female labour force participation patterns in the Netherlands, 1985–2002
Source: International Labour Organization 2004

– ‘Low labour force participation’ countries (Belgium, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, Switzerland and the United Kingdom)
– Central European countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia).

For a few countries, such as France, Portugal and Switzerland, it was not evident to which group they should belong. In such cases, the dynamics of the participation patterns, the similarity of the factors of economic activity to those of other countries in a given group, and expected changes were taken into account. The possible future course of participation was allowed for, as the same groups of countries are used in the formulation of the labour force participation scenarios for 2002–2052 (Chap. 10). For instance, the Netherlands was included in the group of high participation countries owing to its dynamics of change and expected further development of labour participation patterns. France and Portugal were classified as countries with low participation owing to factors underlying economic activity in these countries. As far as their levels of participation are concerned, they might have been classified as countries with high participation. Switzerland and the United Kingdom were put in the low participation group owing to their levels of participation in the broad middle age groups. The data in 5-year age groups, and hence the participation patterns for Switzerland and the United Kingdom were not available. They most likely belong to the group of countries with high participation of women.

As said before, the factors shaping the labour force participation of certain groups of women are to a large extent the same as for men. Hence, in this section they will not be discussed. Instead, the following subsections highlight factors applying exclusively to women and that differentiate their position in the labour market from that of men.

9.2.2.1 High Labour Force Participation Countries

The countries belonging to this group are characterized by an inverted-U-shaped labour force participation pattern and high participation rates. The Netherlands is the only exception, as presented in Fig. 9.7. However, considering the dynamics of the change of the participation rates there, it can be expected that the labour force participation pattern will be a inverted U in the not very distant future. All countries in this group experience very high participation, in some age groups it is at the male levels. The levels are close to the ones observed in Central European countries. However, as the factors underlying participation are different in the latter countries, they constitute a separate group.

Within the last 15 years covered by the study, the share of working women rose in most of the countries in this group. It was a result, as in most of countries, of the increase of activity of women in middle and older ages. Only Finland and Sweden were exceptions. In both countries, the economic activity rates fell slightly in most of the middle age groups, in Finland also in the older age groups. However, even

after the falls in participation in a few groups, both countries still experienced the highest participation in most of the age groups. The highest increase in economic activity was observed in the Netherlands in all age groups. Selected data concerning past and current levels of participation rates are presented in Table 9.3. A summary illustration of the change is presented in Fig. 9.8. Figure 9.8 is constructed in the same way as Fig. 9.4. Points in the patterns show the minimum and maximum female participation rates for certain age groups in all countries in a group in a given year.

Diverse tendencies were observed for the two youngest age groups. In Austria, Finland, Germany and Sweden, despite relatively low economic activity, the participation rates in the youngest groups either rose only slightly or even went down. As in the case of men, this follows from the growing importance of education. It does not mean, however, that high levels of participation in the youngest age groups in other countries, such as Denmark and Norway, contradict the importance of education. For the countries in this group, the answer lies in the structure of the labour market. In the countries with the highest levels of participation in the youngest group(s), namely the Netherlands, Norway and Denmark, part-time work, also for the young, is very popular (see Fig. 9.9, Table 9.2). The popularity of flexible forms of employment, which do not preclude education, can explain the exceptionally high levels of economic activity in these countries and the trends in the Netherlands.

The current levels of economic activity in this group of countries are very high, which is possible thanks to social and public policies which make it possible for women to combine a career with motherhood. In these countries high labour force participation, also among women, is socially accepted and supported. It is also noteworthy that in all of these countries, except Austria and Germany, high economic activity is accompanied by relatively high fertility (see Chap. 6). Cross-country comparisons, especially with low participation countries, prove, however, that high fertility does not exclude high labour market activity of women. A discussion on the correlation between fertility and labour participation rates can be found in Kögel (2004) and Engelhardt and Prskawetz (2004).

9.2.2.2 Low Labour Force Participation Countries

For most countries with low economic activity, the pattern of labour force participation resembles the bimodal one, described in Sect. 8.3.6. The patterns of labour participation in some countries, such as Greece, Italy, Luxembourg and Spain, seem to have evolved from a single-peaked pattern. For all countries in the group, the participation rates start from relatively low levels in the youngest groups. Then, they increase rapidly with age to reach their maxima in the 25–29-year or 30–34-year age group and then steadily fall to zero starting from the age of 35–39 years. In the 45–49-year age group there is characteristic slowing of the decrease, which disappears in the early 50s. A summary illustration of the change is presented in

Table 9.3 Characteristics of female labour force participation in Austria, Denmark, Finland, Germany, the Netherlands, Norway and Sweden, 1985–2002

	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75+
Labour force participation rates, 2002 (2001 for the Netherlands)													
AT	33.2	66.0	79.6	80.3	81.6	81.7	78.4	70.2	33.5	8.0	3.5	2.1	0.7
DK	65.6	72.8	79.7	84.4	86.8	87.0	84.9	81.4	71.4	21.2	10.3	–	–
FI	36.9	65.4	80.3	81.6	86.1	88.4	88.9	85.9	71.8	24.3	3.3	1.6	–
DE	27.5	66.4	74.8	77.2	78.8	81.6	81.2	73.8	58.2	16.4	4.0	1.8	0.5
NL	61.6	78.7	82.2	77.7	75.4	76.3	71.6	59.5	39.3	12.8	3.4	1.3	0.4
NO	54.3	71.1	79.3	82.6	84.6	85.4	83.9	81.5	73.9	51.0	17.6	3.5	–
SE	35.5	63.5	78.4	83.7	86.3	88.2	87.2	85.6	79.0	53.4	–	–	–
Percentage change of male participation rates, 1985–2002													
AT	−28.9	−5.4	28.0	35.9	36.2	31.4	34.7	38.2	29.8	45.5	94.4	200.0	75.0
DK	7.5	−11.3	−8.3	−5.0	0.5	2.7	5.7	14.5	24.6	−17.2	14.4	–	–
FI	−0.8	−8.4	−3.3	−4.4	−4.0	−1.4	0.2	2.9	19.1	−23.8	−57.7	−11.1	–
DE	−4.2	−6.2	−0.9	4.9	4.4	3.7	7.4	7.0	16.9	50.5	42.9	0.0	−16.7
NL	123.2	12.6	44.2	72.7	63.9	68.8	87.4	104.5	115.9	106.5	385.7	–	–
NO	25.7	5.3	10.0	14.1	10.4	7.2	7.2	13.4	21.1	12.6	−19.3	−30.0	–
SE	−26.5	−21.9	−10.2	−5.3	−3.3	−4.2	−3.6	0.0	6.2	15.1	–	–	–
Average yearly growth index, 1985–2002													
AT	0.980	0.997	1.015	1.018	1.018	1.016	1.018	1.019	1.015	1.022	1.040	1.067	1.033
DK	1.004	0.993	0.995	0.997	1.000	1.002	1.003	1.008	1.013	0.989	1.008	–	–
FI	1.000	0.995	0.998	0.997	0.998	0.999	1.000	1.002	1.010	0.984	0.951	0.993	–
DE	0.994	0.991	0.999	1.007	1.006	1.005	1.010	1.010	1.023	1.060	1.052	1.000	0.974
NL	1.051	1.007	1.023	1.035	1.031	1.033	1.040	1.046	1.049	1.046	1.104	–	–
NO	1.014	1.003	1.006	1.008	1.006	1.004	1.004	1.007	1.011	1.007	0.987	0.979	–
SE	0.982	0.986	0.994	0.997	0.998	0.997	0.998	1.000	1.004	1.008	–	–	–

Source: International Labour Organization (2004), own computations

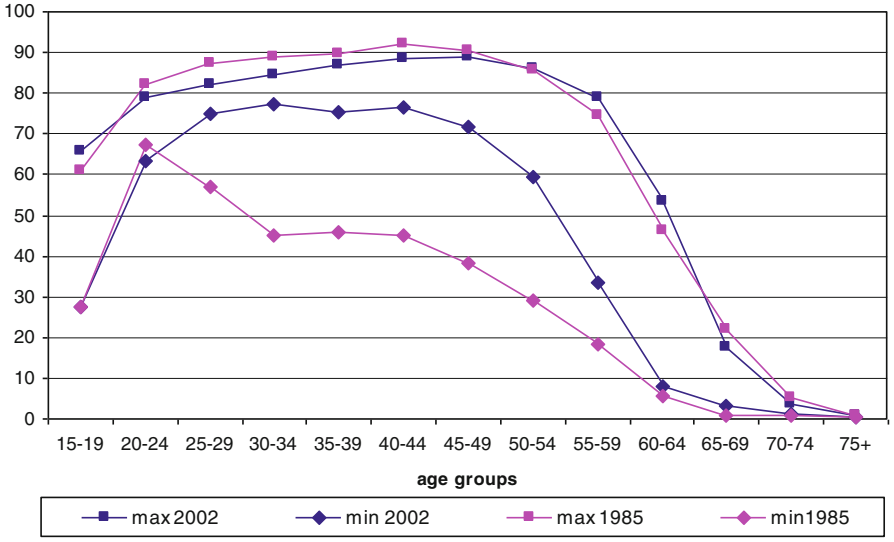

Fig. 9.8 Changes of labour force participation rates of females by age group in Austria, Denmark, Finland, Germany, the Netherlands, Norway and Sweden between 1985 and 2002. Observed minimum and maximum profiles
Source: International Labour Organization 2004

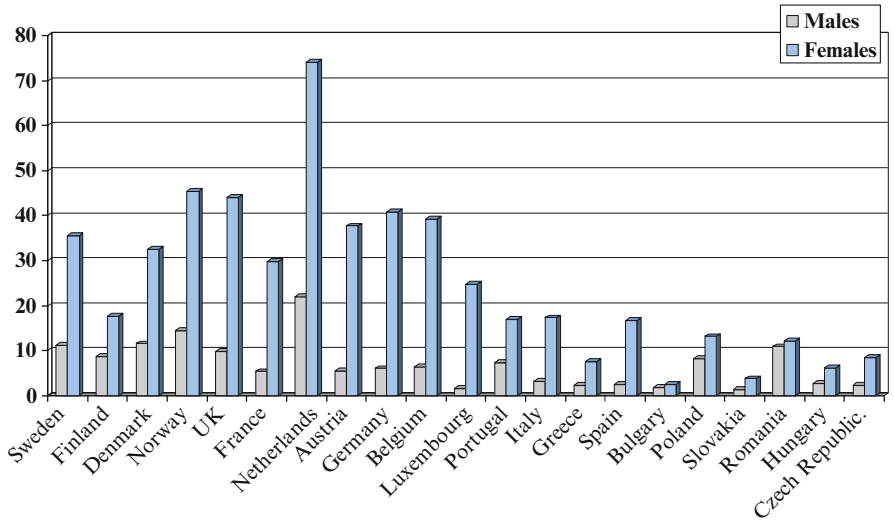

Fig. 9.9 Shares of those employed on a part-time basis in the total population of employed for 21 European countries, 2002
Source: Kotowska 2004

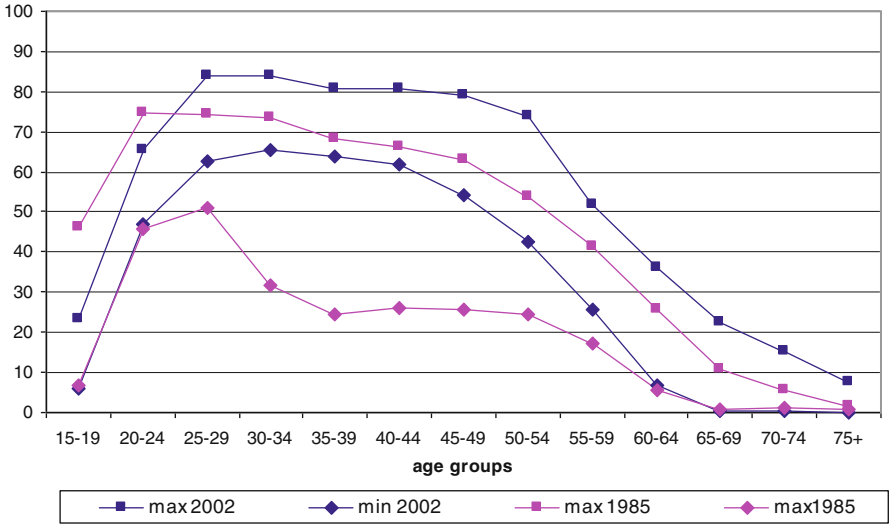

Fig. 9.10 Changes of labour force participation rates of females by age group in Belgium, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, Switzerland and the United Kingdom between 1985 and 2002. Observed minimum and maximum profiles
Source: International Labour Organization 2004

Fig. 9.10, which shows the minimum and maximum female participation rates for certain age groups in all countries in a group in a given year.

In the countries in this group, the labour force participation rates rose in all middle age groups (25–54 years) between 1985 and 2002. The greatest increase was observed in Ireland in all middle age groups. In the 30–49-year age group, the labour force participation rates more than doubled; the rates rose by more than 5% a year on average between 1985 and 2002. The smallest increase was reported in France in the 25–44-year age group and in Greece in the 45–54-year age group. In 2002, the highest economic activity in the middle age groups was observed in France, Belgium and Portugal, and the lowest was observed in Italy, Spain and Greece. Selected data concerning past and current participation rates are presented in Table 9.4.

In contrast to the middle age groups, economic activity in the young age groups generally declined, with the 15–19-year age group in Belgium and the 20–24-year age group in Greece and Spain being exceptions. In 2002, the lowest economic activity in the youngest age groups was observed in France, and the highest was reported by Ireland.

As in the case of men, the economic activity of the older age groups and its change are difficult to assess owing to poor availability of the data. It is, however, worth noting the exceptionally high economic activity of older women in Portugal. Their participation rates, especially for women of postretirement age, are one of the highest in all the countries analysed.

Table 9.4 Characteristics of female labour force participation in Belgium, France, Greece, Ireland, Italy, Luxemburg, Portugal, Spain, Switzerland and the United Kingdom, 1985–2002

Labour force participation rates													
	In	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75+
BE	2002	8.2	55.0	81.9	81.4	76.5	74.7	68.0	51.0	28.5	6.8	1.2	0.5	–
FR	2000	5.9	46.9	79.3	77.9	79.2	80.6	79.3	73.8	52.0	13.5	2.5	0.5	0.3
GR	2001	10.9	53.5	71.7	69.5	66.6	62.3	55.5	42.5	29.0	19.2	6.1	1.8	0.5
IE	2001	23.1	65.6	80.1	71.3	65.7	64.4	59.9	49.1	36.3	20.7	7.1	2.0	1.1
IT	2001	14.0	48.4	62.8	65.4	63.7	61.8	56.4	43.7	25.8	8.7	2.7	1.4	1.0
LU	2002	10.8	51.5	81.5	75.8	66.4	65.3	54.2	48.7	26.6	8.4	0.4	–	–
PT	2002	20.5	60.6	83.9	84.1	80.6	78.3	74.6	66.5	50.7	36.2	22.4	15.4	7.5
ES	2002	18.9	55.7	76.1	70.6	65.1	62.9	57.8	43.7	30.6	17.1	2.5	0.6	0.1
CH	1999	–	–	–	–	–	–	–	–	–	–	–	–	–
UK	2002	–	–	–	–	–	–	–	–	–	–	–	–	–
Percentage change of male participation rates														
	Between	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75+
BE	1981 and 2002	18.8	−22.6	11.7	29.4	40.4	64.5	78.0	66.1	64.7	19.3	20.0	–	–
FR	1985 and 2000	−56.0	−28.4	6.7	13.1	15.8	21.6	25.7	37.2	25.3	−25.0	−51.9	−70.6	−62.5
GR	1985 and 2001	−49.5	17.3	40.9	36.5	27.8	33.1	23.6	11.3	−2.0	−11.9	−43.0	−67.3	−54.5
IE	1985 and 2001	−30.0	−12.2	56.8	125.6	168.2	147.7	134.0	99.6	70.4	42.8	14.5	−37.5	−26.7
IT	1985 and 2001	−45.9	−18.8	7.2	14.9	23.4	34.3	39.6	33.6	24.0	−14.7	−28.9	16.7	–
LU	1985 and 2002	−75.5	−27.0	40.5	64.4	58.9	77.0	78.9	90.2	32.3	−32.3	−91.8	–	–
PT	1985 and 2002	−55.5	−8.9	15.2	14.7	18.7	31.2	41.8	42.4	36.3	40.3	198.7	–	–
ES	1985 and 2002	−41.1	2.2	43.6	75.2	97.9	101.6	115.7	77.6	31.3	6.9	−46.8	−71.4	−87.5
CH		–	–	–	–	–	–	–	–	–	–	–	–	–
UK		–	–	–	–	–	–	–	–	–	–	–	–	–

(continued)

Table 9.4 (continued)

Labour force participation rates														
Average yearly growth index														
	Between	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75+
BE	1981 and 2002	1.008	0.988	1.005	1.012	1.016	1.024	1.028	1.024	1.024	1.008	1.009	–	–
FR	1985 and 2000	0.947	0.978	1.004	1.008	1.010	1.013	1.015	1.021	1.015	0.981	0.952	0.922	0.937
GR	1985 and 2001	0.958	1.010	1.022	1.020	1.015	1.018	1.013	1.007	0.999	0.992	0.965	0.933	0.952
IE	1985 and 2001	0.978	0.992	1.028	1.052	1.064	1.058	1.055	1.044	1.034	1.022	1.009	0.971	0.981
IT	1985 and 2001	0.962	0.987	1.004	1.009	1.013	1.019	1.021	1.018	1.014	0.990	0.979	1.010	–
LU	1985 and 2002	0.935	0.985	1.016	1.024	1.022	1.028	1.028	1.031	1.013	0.982	0.888	–	–
PT	1985 and 2002	0.953	0.995	1.008	1.008	1.010	1.016	1.021	1.021	1.018	1.020	1.066	–	–
ES	1985 and 2002	0.969	1.001	1.022	1.034	1.041	1.042	1.046	1.034	1.016	1.004	0.964	0.929	0.885
CH		–	–	–	–	–	–	–	–	–	–	–	–	–
UK		–	–	–	–	–	–	–	–	–	–	–	–	–

Source: International Labour Organization (2004), own computations

In most countries in this group, public or market institutions do not support the participation of mothers in the labour market. In these countries the family model is fairly traditional and potential help for women is expected to be provided within the family. It is also remarkable that very low levels of participation can be accompanied by very low fertility, such as in Italy and Greece.

9.2.2.3 Central European Countries

Central European countries are distinct from the countries in the groups discussed above for several reasons. Historically, the participation of women in these countries was the effect not of naturally evolving social attitudes, habits and labour market institutions but of state decisions concerning necessary labour supply (Kocot-Górecka 2004). At times of labour shortages, the state encouraged a model of partnership and equal position of men and women in the labour market. This was supported by the development of nurseries, kindergartens and other institutions to make work easier for mothers. The times of labour excess were also the times of motherhood which, as proclaimed, could not be combined with economic activity. This was accompanied by reduction of the number of posts occupied by women, and difficulties for them becoming employed (more on this, in the Polish context, can be found in Kocot-Górecka 2004 and Kotowska 1995). Hence, the female labour force participation rates in Central European countries, until the 1990s, were governed by factors different from those than in the rest of the countries in the study.

Accessibility and quality of data are other issues which make analysis of trends in these countries difficult. For most of the countries in this group, only census data are available for the 1980s and early 1990s. Data from the LFS are only available from the 1990s, so there were too few observations to talk about trends. In addition, the data for some countries, for example for Lithuania, show unlikely variability, which may suggest either a change in definitions or very poor quality.

In 2002, female participation rates were relatively high. In middle age groups they were comparable to those in high participation countries. The highest activity in the middle age groups was observed in Lithuania, Slovenia and the Czech Republic; the lowest was observed in Hungary and Romania. In the young age groups, economic activity was relatively low and, hence, more similar to that in low participation countries. The lowest participation in the youngest age group was observed in Estonia and Hungary, around 6%, whereas the highest was observed in Romania 19.3%. In the 20–24-year age group the respective numbers were 46.7% in Bulgaria and 61.6% in the Slovak Republic. Economic activity of older women was relatively low in Central European countries, except for Romania. The labour force participation rates of women aged 55 years and more in Romania were the highest among all countries analysed. The lowest economic activity in the group of Eastern and Central European countries was observed in the Slovak Republic.

For the last years of the twentieth century the labour activity of women in Eastern and Central European countries changed only slightly in comparison with that in

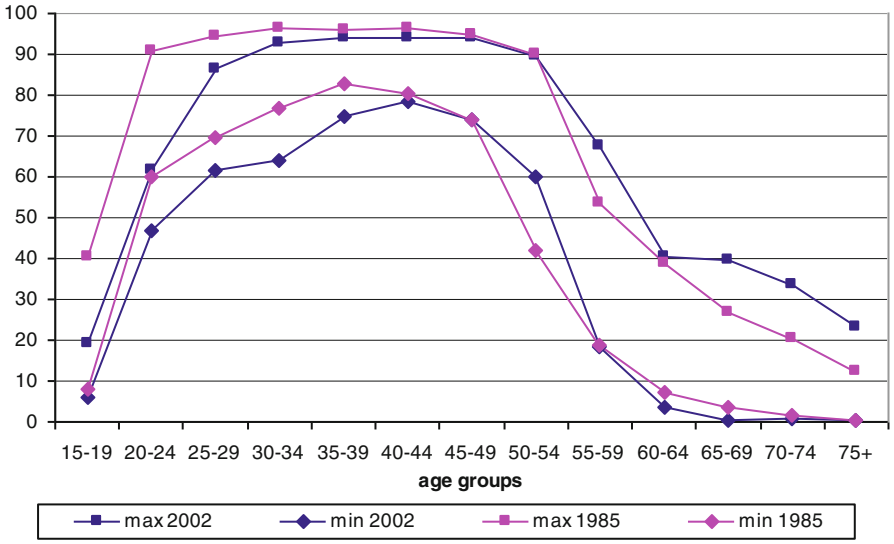

Fig. 9.11 Changes of labour force participation rates of females by age group in Belgium, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic and Slovenia between 1985 and 2002. Observed minimum and maximum profiles
Source: International Labour Organization 2004

the other countries in the study, especially in the middle age groups. A summary illustration of the change is presented in Fig. 9.11. It is worth noting that, owing to lack of LFS data for the mid 1980s, the data used in the figure are either census data for the early and mid 1990s or LFS data for the mid 1990s. Economic activity of women in the middle age groups generally fell or remained about constant in all countries, except Lithuania and Slovenia. A greater change was observed in the young age groups, where economic activity fell. Considerable declines in participation rates were observed especially in the youngest age group, with Bulgaria and Slovenia being the only exceptions. In the older age groups of women, economic activity generally fell, except for Estonia, Latvia and Slovenia.

The female participation rates reported in the 1990s and in the following decade were strongly influenced by a difficult situation in the labour markets in these countries. Transformation has brought changes in labour demand (in terms of both structure and skills/quality) and employment conditions. The changes resulted in redundancy of very many workers, growing unemployment and in many cases discouragement, which explains the falls in participation for almost all age groups in many countries. These falls were, however, moderate in comparison with what could be expected. High levels of participation in these countries, even after their reductions in recent years, are the result of a very strong income effect there. The structural change in the labour market, causing high unemployment, deprived many households of their income. Inflation also reduced the incomes of many of those who did not lose their jobs. These factors forced women, in particular those from

households in which the head has poor skills and/or is unemployed, to engage in market activity. Participation rates and indexes of their change are presented in Table 9.5.

Besides the strong income effect affecting practically everybody, there are a few other features of economic activity typical of countries in this group. In Central Europe, education influences very strongly, more strongly than in the other countries, the two youngest age groups. This is because education gives considerable advantages, which attracts many young people. The advantages are particularly important for women, whose position in the labour market is traditionally weak. The low activity is also facilitated by very common family support until children complete their studies and find jobs.

Another characteristic feature can be noticed in the 25–29-year, 30–34-year and 35–39-year age groups. For some countries, labour participation for these age groups is significantly lower than for the older middle age groups (e.g. Czech Republic, Estonia, Hungary and Slovak Republic) and lower than at the beginning of the 1990s. This phenomenon is a consequence of the institutional setting in these countries. Until the 1990s institutions that were supposed to make it easy for women to combine work and motherhood (e.g. childcare facilities) were provided by the state and were usually free. In the early years of the transformation many of these facilities were withdrawn and were often replaced partially by commercial institutions (e.g. nurseries and kindergartens) which were too expensive for many households.

Relatively low participation rates of older women are another characteristic feature of Central European countries. As for the rest of countries, they are the result of early retirement, but the scale of this phenomenon is greater in the postsocialist countries, owing to structural changes of the labour market in these countries.

9.3 Conclusions

The discussion above documented the recent trends in labour force participation. The aggregated data might suggest that little has changed in the supply of labour. A closer look at the data by sex and age groups proves otherwise. The last two decades of the twentieth century was a time of the dynamic change in economic activity of most age and sex groups. In that period, rapid changes in the labour markets were observed. They were characterized by a substantial increase of economic activity of women and a considerable drop of activity of older workers. The former, accompanied by evolution of social roles and the institutional setting, has led to the expansion of the share and position of women in the labour force. Motherhood still depresses female labour force participation, but in ever more countries the development of childcare services and social habits facilitate relatively high economic activity of women. For many of the countries under study, e.g. Austria, Denmark, Sweden and Norway, the female participation pattern resembles the male one, with only slightly lower levels of age-specific participation rates.

Table 9.5 Characteristics of female labour force participation in ten Eastern and Central European countries, 1985–2002

Labour force participation rates													
	In	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75+
BG	2002	11.4	46.7	69.6	79.1	84.6	84.0	83.5	73.8	35.7	7.7	3.8	0.8	–
CZ	2002	8.6	57.7	64.5	73.9	87.7	91.2	91.4	84.2	37.7	13.1	5.2	2.4	0.3
EE	2002	6.4	51.4	71.9	72.9	80.1	89.8	87.4	81.6	67.6	35.4	18.8	9.7	–
HU	2002	6.1	49.1	61.7	64.2	74.8	78.6	74.9	66.2	29.0	6.0	2.1	1.0	–
LV	2002	11.5	58.9	72.3	82.1	83.0	87.2	85.9	82.8	56.9	23.8	11.5	7.2	–
LT	2000	13.3	60.2	85.4	90.2	93.9	94.1	94.0	89.8	45.3	17.4	7.4	1.8	
PL	2002	7.6	53.8	74.8	79.2	82.9	83.7	77.4	60.2	31.7	13.9	8.2	5.4	1.7
RO	2001	19.3	52.5	73.7	78.5	80.7	79.8	74.0	60.7	46.0	40.6	39.5	33.5	23.3
SK	2002	14.6	61.6	72.5	80.5	88.2	93.2	90.2	79.6	18.6	3.7	0.5	–	–
SI	2002	10.8	52.8	86.3	92.9	92.4	90.1	87.8	63.2	20.0	10.7	9.6	6.0	3.8
Percentage change of male participation rates														
	Between	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75+
BG	1985 and 2002	40.7	–	–	−17.9	−10.8	−11.2	−8.2	−11.7	11.6	−53.3	−59.1	−77.8	–
CZ	1996 and 2002	−62.4	−1.5	5.2	−3.7	0.7	−0.2	0.6	3.7	8.3	−7.1	57.6	–	–
EE	1995 and 2002	−74.0	−11.4	−1.0	−11.2	−8.4	−2.5	−3.7	−1.8	47.9	58.7	51.6	−11.8	–
HU	1994 and 2002	−64.7	−9.9	9.4	−12.2	−12.1	0.8	0.8	18.2	108.6	−10.4	−60.4	−52.4	–
LV	1996 and 2002	−42.8	−3.1	−7.1	3.8	−3.5	−2.9	−1.0	5.7	56.3	30.8	13.9	89.5	–
LT	1996 and 2000	−33.5	−15.3	2.4	2.7	0.6	2.0	4.3	1.0	−28.5	−65.3	−81.9	−95.1	–
PL	1992 and 2002	−62.0	−19.0	4.9	0.3	−3.5	−2.7	−4.3	−2.1	−6.8	−38.8	−21.9	–	–
RO	1995 and 2001	−36.3	−17.8	−3.7	−3.2	−5.2	−4.4	−10.2	−14.9	−7.1	−8.1	−4.4	−6.4	18.9
SK	1993 and 2002	−52.4	−11.9	−12.3	−10.0	−4.3	3.4	1.6	23.2	21.6	−5.1	−58.3	–	–
SI	1993 and 2002/1993	61.2	−4.2	4.1	5.8	8.7	5.4	19.8	67.6	−1.5	25.9	65.5	100.0	–

(continued)

Table 9.5 (continued)

Labour force participation rates														
Average yearly growth index														
	Between	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75+
9	1985 and 2002	1.020	0.962	–	0.988	0.993	0.993	0.995	0.993	1.006	0.956	0.949	0.915	–
CZ	1996 and 2002	0.849	0.997	1.009	0.994	1.001	1.000	1.001	1.006	1.013	1.000	1.100	–	–
EE	1995 and 2002	0.825	0.983	0.999	0.983	0.988	0.996	0.995	0.997	1.058	1.100	1.100	0.982	–
HU	1994 and 2002	0.878	0.987	1.011	0.984	0.984	1.001	1.001	1.021	1.096	1.000	0.900	0.911	–
LV	1996 and 2002	0.911	0.995	0.988	1.006	0.994	0.995	0.998	1.009	1.077	1.000	1.000	1.112	–
LT	1996 and 2000	0.903	0.959	1.006	1.007	1.002	1.005	1.011	1.003	0.919	0.800	0.700	0.470	–
PL	1992 and 2002	0.908	0.979	1.005	1.000	0.996	0.997	0.996	0.998	0.993	1.000	1.000	–	–
RO	1995 and 2001	0.928	0.968	0.994	0.995	0.991	0.992	0.982	0.974	0.988	1.000	1.000	0.989	1.029
SK	1993 and 2002	0.921	0.986	0.985	0.988	0.995	1.004	1.002	1.023	1.022	1.000	0.900	–	–
SI	1993 and 2002	1.054	0.995	1.004	1.006	1.009	1.006	1.020	1.059	0.998	1.000	1.100	1.080	–

Source: International Labour Organization (2004), own computations

The drastic decline of labour force participation in the oldest age groups was related to the development of social security systems and the possibility of early retirement. In many countries, especially postsocialist ones, early retirement plans were used to the secure income and position of older people who would have to be dismissed in the process of structural changes of the labour market.

Drastic decline of the economic activity of young people was another feature of the last two decades of the twentieth century. It was the effect of technological progress, which, creating demand for specific skills and knowledge, increased the value of education. Because the return from additional years of schooling went up, ever more young people engaged in different forms of education. Many of the forms excluded market activity, which lowered participation rates.

A thorough analysis of the past trends discussed above is the departure point for setting the scenario of labour force participation change presented in the next chapter.

Chapter 10
Labour Force Participation Scenarios for 27 European Countries, 2002–2052

Katarzyna Saczuk

This chapter presents assumptions concerning future patterns of labour force participation for 27 European countries (Norway, Switzerland, and the member states of the EU without Malta and Cyprus). The assumptions are defined for people of the age of 15 years or older (thus, of working age[1]), regarded as the potential labour force. The scenarios presented cover the period 2002–2052 and are formulated in terms of the labour force participation rates by sex and 5-year age groups for all countries. In Sect. 10.1 an outlook on the expected changes of labour force participation is presented. More detailed assumptions concerning certain age groups are presented in Sect. 10.2. Section 10.3 concludes the chapter.

10.1 An Outlook on the Future Evolution of Labour Force Participation: Qualitative Assumptions

It can be expected that in the coming decades the process of population ageing will progress and will be accompanied by population decline in many countries. The intensity of these processes will differ from country to country. Population ageing

[1]The broad definition of working age is used here, encompassing people of the age of 15 years and older, but not limited to those below the retirement age. This is done in order to be compatible with labour market statistics and to stress that people can also work after they have reached the retirement age.

K. Saczuk (✉)
Central European Forum for Migration and Population Research, Institute of Geography and Spatial Organization of the Polish Academy of Sciences, Warsaw, Poland

Economic Institute, National Bank of Poland, Warsaw, Poland

Warsaw School of Economics, Warsaw, Poland
e-mail: katarzyna.saczuk@gmail.com

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_10,

will lead to either relative or in some cases absolute decline in the working age population and an increase in the share of the older workers (55 year and older) in the labour force. This, in turn, unless there is a change in patterns of economic activity and institutional settings, may have significant consequences for social security and pension systems as well as the labour market. The decline in the number of younger workers will gradually lead to labour shortages, especially skilled labour. This will result in more flexible forms and conditions of employment and attract to the market some of the hitherto inactive, especially from the older age groups, students and women (see Skirbekk 2003 and Sect. 8.3).

The consequences for the social security and pension systems will stem from the change of the setting in which they operate. Growing proportions of older age groups will reduce significantly the system's contributors to beneficiaries ratio, threatening its viability. As older people will constitute an ever-growing part of the population, the institutions responsible for providing social care and employment income will have to be modified. This will involve serious changes in the rules governing social security systems. New rules should create incentives for the workers to work longer with no breaks in the careers, which ought to increase the age-specific participation rates of older people. Facilitation of higher labour force participation of older workers should also come from the demand side of the market. This should involve flexible work schemes, part-time jobs, etc. to avoid the situation that older people's willingness to work will be confronted with practically no chance of their employment. Legal loopholes allowing the social security system to be used by people who have not contributed to it should be closed. It is expected in the scenarios that these changes will lead to much higher economic activity of older workers in 2052 in comparison with the current levels for most of the countries.

Continuous technological progress and globalization will create demand for highly skilled labour and further increase returns from education (the recognition of changing needs of workers and enterprises was at the heart of the formulation and reformulation of the Lisbon strategy; European Commission 2010). The resulting demand for schooling may negatively influence labour force participation rates in the youngest age groups. This influence will be offset by flexible forms of employment enabling education to be combined with economic activity and will allow growth of the participation rates in the two youngest age groups, 15–19 and 20–24 years.

It can be expected in the coming decades that economic activity of women, especially of childbearing age, will increase further. The process will be particularly dynamic in the countries where the rates are relatively low, i.e. Italy, Spain and Greece. This increase will be due to high opportunity costs (see Sect. 8.3) and further development of institutions that facilitate combining motherhood with a professional career. The impact of fertility on the economic activity of women is expected to decline. The fertility is assumed to increase slightly, but will remain at a relatively low level (see Chap. 6). In the future it should not, however, depress labour force participation of women to the extent it does now. By 2052 all countries in the study should reach an inverted-U-shaped pattern of economic activity of women, with only small differences in the levels of activity between the countries.

The cornerstone for the scenarios is the assumption of the convergence of the labour force participation rates in the countries under study. This will be enhanced by globalization, EU-based economic integration and the universal character of ageing. Progressing economic integration and greatly facilitated information flow will enable transmission of culture and lifestyle patterns. Demographic changes—ageing and depopulation—as well as globalization of production and service provision will constitute an economic reason for the convergence. In the projection, the convergence of the countries' labour force participation patterns to a single, arbitrarily chosen model pattern is assumed. Different patterns have been established for males and females; some geographic variation of the patterns of women's activity has also been accounted for. Although the age-specific labour force participation rates for women are usually lower than those for men, the scenarios for all countries assume that economic activity of older men and older women should stabilize at the same level in the long run. The case of Finland, where the female participation rates in a few older age groups are higher the male participation rates, demonstrates that such an assumption is not unrealistic.

It was assumed that the economies of the postsocialist countries will become similar to the economies of the other countries under study. For this reason one set of target values or pattern of participation has been prepared for men. For women, the pattern for Central European countries has been slightly modified in comparison with the pattern in other countries, because the Central European pattern resembles the pattern for countries with high participation of the middle age groups and the pattern of countries with low participation of the three youngest age groups. The Central European countries are expected to develop in the same direction as the other countries, however at a different pace.

10.2 Assumed Labour Force Participation Rates over the Period 2002–2052

The projections for the labour force participation rates were made using the same method for both sexes and all age groups. Firstly, on the basis of the observed participation rates, the linear trends (l) of the changes of the rates were established for each country (c), sex (s) and age group (a).:

$$l_{c,s,a,t} = \begin{cases} 100 & \text{if } \alpha_{c,s,a} + \beta_{c,s,a}t > 100 \\ 0 & \text{if } \alpha_{c,s,a} + \beta_{c,s,a}t < 0 \\ \alpha_{c,s,a} + \beta_{c,s,a}t & \text{otherwise.} \end{cases}$$

The linear trend is assumed to project the participation rates only in the first few years of the projection. Its influence decreases exponentially and fades away around 2025:

$$\check{l}_{c,s,a,2003} = l_{c,s,a,2003}$$

and for $t \geq 2004$

$$\check{l}_{c,s,a,t} = \check{l}_{c,s,a,t-1} + 2\left(l_{c,s,a,t} - \check{l}_{c,s,a,t-1}\right)\exp\left(c_1\left(t - 2003\right)\right),$$

where c_1 is a negative constant.

Then, target values ($\tau_{c,s,a}$), which are defined as most likely levels of labour force participation in the long term, for all age groups were set. They are presented in Table 10.1 for males and Table 10.2 for females. The justification for these levels is presented below together with the discussion of the importance of specific assumptions for certain age groups. The target values for particular age groups are the same for most countries. Only in a few cases were the target values modified to take into account country-specific factors. The scenarios for female labour force participation take into account the differences in the historical labour force participation rates in the three groups of countries defined in Chap. 9. For each group of countries a separate set of target values, presented in Table 10.2, was assumed. Historical differences will still be visible in the projections, but similarities in factors underlying the future trends are expected to reduce them substantially.

The projected labour force participation rates by country, age and sex ($\varphi_{\mathrm{c,s,a,t}}$) are produced as a combination of the historical trend and the target value:

$$\varphi_{\mathrm{c,s,a,t}} = \check{l}_{c,s,a,t} + \frac{\tau_{c,s,a} - \check{l}_{c,s,a,2025}}{1 + \exp\left(\mathrm{c}_2\left(t - 2035\right)\right)},$$

where c_2 is a negative constant.

The influence of the trend is most significant in the first few years of the projection. It gradually decreases over time. The impact of the target value in the first few years of the projection is hardly visible (less than 0.1%), but it gradually increases, and dominates the trend about the year 2025.

Both the target values and the assumed mechanism of labour force participation change were devised to account for observed tendencies, on one hand, as well as expected convergence of labour supply behaviours between countries and widely understood labour market needs, on the other. The trends from past observations govern the first few years of the projection. The between-country participation convergence and target values determine the labour force participation rates at the end of the projection horizon. Although in many cases the target values require a radical adjustment—especially in the youngest and oldest age groups—they are not controversial in the sense that such levels have already been observed in some countries.

10.2.1 Assumptions for Young Age Groups (15–24 Years)

The key two contradictory drivers of the change in labour force participation of young people will be increased demand for education and increased demand for

Table 10.1 Target values of male participation rates for specific age groups

	Age group (years)												
	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75+
Target value (%)	40	75	93	95	95	95	95	90	70	40	25	15	5

Source: own calculations

Table 10.2 Target values of female participation rates for specific age groups

	Age group (years)												
	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75+
Target value for low participation countries (%)	30	65	75	80	80	80	80	75	60	40	25	15	5
Target value for high participation countries (%)	40	65	80	85	85	85	85	75	60	40	25	15	5
Target value for Central Europe (%)	30	65	75	85	85	85	85	75	60	40	25	15	5

Source: own calculations

labour. It can be expected that technological progress and growingly or increasingly service-based economies will create demand for new skills and a generally skilled labour force. Division of the labour market into primary and secondary will progress. Since only some skills may give way to a primary labour market, a considerably greater share of people will engage in various kinds of schooling and training programmes. As the model of life cycle allocation of time (Sect. 8.2.3) predicts, the very beginning of an individual's professional career is optimal for additional (apart from compulsory) years of education (although a new demanding market may require education some time later in the career as well). For this reason, lower participation should be particularly visible for the youngest age groups. Problems with market entry may limit the growth of young men's participation rates. These problems, together with related discouragement, lower the current levels of participation, and are also expected to influence long-term levels. However, this influence will be alleviated by improving employment conditions.

The participation rates for men in young age groups were expected to fall in the first decade of the projection. This follows from trends that in this period the decline in the participation rates of young group should not exceed 13 percentage points; for most countries it is less than 6 percentage points. When the two young age groups are compared, the assumed falls are smaller for the 20–24-year age group in both relative and absolute terms. After the 2010, gradual convergence to target values (Table 10.1) was expected.

Only three exceptions were made to the rule described above, namely with respect to the participation rates in the 15–19-year age group in Denmark, the Netherlands and Switzerland. The participation rate of the youngest group in Denmark was over 64% for the last 15 years of the twentieth century. It was assumed to remain at about this level, slowly converging to 60% in the last years of the projection, mainly due to increase in engagement in education. In the Netherlands, the participation rate of the youngest group skyrocketed for the last several years of the twentieth century, which is likely to have been a result of the great popularity of the part-time employment among the young. Starting from a level of 25.2% in 1985, the participation rate reached 61.5% in 2001. It was expected to further grow, according to the trend, for following next 10 years and then stabilize. Finally, owing to education as a factor competing with employment, it should start to converge slowly to the level of 60%, like in the case of Denmark. In Switzerland, the labour force participation rate in the youngest age group was expected to converge to the level of 50%.

For many countries a considerable increase of economic activity of the young, particularly in the youngest age group, will be required to reach the assumed target values. For most countries of Southern and Central Europe the increase of the labour force participation rate in the 15–19-year age group will exceed 30 percentage points between 2015 and 2052. For the 20–24-year age group, the assumed target values were closer to the rates achieved in 2002 and, hence, will require a relatively smaller change.

Clearly, the assumed levels of participation may seem to be high, particularly for 15–19-year olds and in the countries where participation of young males was

relatively low and further declines were expected in the short term. However, such high target values rely heavily on two assumptions: (1) population ageing, by its influence on the labour market and social security systems, will lead to labour shortages and (2) better employment conditions (i.e. flexible work schedules, part-time employment) combined with the incentives from the social security system to enter labour market fairly early. It is assumed for the first two decades of the projection that the work environment will become friendly enough to attract more people to the market, especially that it will be easier to combine education with work.

Similarly to the male participation rates, the female participation rates were expected to decline over the first 5–10 years of the projection, in the case of some countries reaching 15 percentage points. Then, in accordance with the mechanism chosen, the rates should converge to the target values, for most countries from lower levels. As in the case of men, the assumed target values will require a significant increase of economic activity in the youngest age group, especially in the countries with low participation and in Central Europe. Owing to exceptionally high current levels of female participation in Denmark, the Netherlands, Switzerland and the United Kingdom, the target values for these countries were modified upwards.

The declines of the participation rates in the first few years of the projection will be, to a great extent, a continuation of the current trends and will be mainly caused by increased enrolment in education. Fertility in these age groups is expected to decline at that time (see Chap. 6), so it should not additionally depress economic activity. Subsequent increases (for most countries) will be possible owing to improvement of work conditions and development of flexible forms of employment, i.e. not precluding further education.

For women the target values in the young age groups are lower than those for men to account for two important factors: education and fertility. Education and its greater meaning in the service-based economy have already been discussed. It is, however, worth stressing at this point that for women schooling and skills are even more important than for men. In the knowledge-based market, skills acquired during the additional years of schooling may open up new possibilities and neutralize the negative influence exerted by gender.

Fertility is an important factor depressing labour participation in the two youngest age groups, although its importance can be expected to decline with time. Lower levels of female labour force participation may also reflect the reminiscences of the traditional division of labour in the household.

10.2.2 Assumptions for Middle Age Groups (25–54 Years)

It was assumed that from 2002 for the next 5–10 years the participation rates of men in the middle age groups will generally continue to fall (in most cases between 0 and 4%). After that period they are expected to slowly converge to the target values, which are assumed to be 93% for the 25–29-year age group, 95% for all 5-year age groups in the range 30–49 years and 90% for the 50–54-year age group (Table 10.1).

The only group for which stagnation or even moderate declines in economic activity can be expected within the first five decades of the twenty first century is middle-aged men. For the last two decades of the twentieth century labour force participation rates of men in the age group between 25 and 54 years have been very stable—they have varied between 80 and 100%. It is assumed in the scenarios that they will stabilize around 90–95% up to 2052. Such target levels will require adjustment, also downwards, of the country rates. In most cases, however, the adjustment should not be greater than 5 percentage points.

The expected initial decline of the rates is a continuation of the trends observed for the last 15 years of the twentieth century. It can be expected that the underlying factors will still be active in this period. Their influence, however, will gradually decline to be dominated by forces attracting prime-age men to the market. These forces will come from both the demand and the supply side of the market.

The arbitrarily set target values assume at least 5% as a long-term fraction of inactive prime working age men, which accounts for the social security possibilities and the fact that men will not be the only breadwinner in many households as discussed in Chap. 9. It also contains a margin for high occupational mobility of workers enforced by the more demanding labour market (e.g. allowing for leave for training).

Additional 2 percentage points of inactivity in the 25–29-year age group are arbitrarily allowed mainly for education. This small margin was taken into account as it is noticeable in the male participation pattern for many countries under study (see Sect. 9.2.1). It is rather symbolic, but it can be justified by the fact that statistically in this age group people have already accomplished the years of schooling they wanted. And even if they have not, the kind of education they may receive in this age group usually does not preclude market activity. In some countries a slower pace of adjustment in this group allows for expected continued problems with the labour market entry of the young.

The chosen target values, particularly for men between 25 and 49 years, may seem to be underestimated, especially for the countries with a tradition of high participation of men, such as Austria, Greece and France (see Table 9.1). The developments of male economic activity in Norway or Sweden in the last few decades, may, however, suggest that decline of male participation rates in countries with high participation of men is likely (Table 9.1).

Another observed feature of the male participation pattern is a slight decline of participation in the 50–54-year age group, preceding an even steeper decline in older age groups. Its continuation was assumed to allow for the expected variety of forms of preretirement inactivity, ranging from the disability-related inability to work to postponement in favour of leisure in the life cycle (see Sect. 8.2.3) or unwillingness to work. The latter applies, first of all, to persons whose market earnings are not high enough to constitute sufficient opportunity cost and keep them in the market (see Sect. 8.2.3). This factor seems to be more influential for older age groups.

Given the observed participation rates in this age group, the target value is very optimistic. It follows, however, from the expectation that the rules of the social and pension systems will be stricter for those retiring early, especially more than

10 years before the current official retirement ages in most countries, and that the factors attracting men to the market will be still effective for this age group.

Middle age groups of women are the groups which experienced substantial increases in labour participation in the last few decades of the twentieth century. The growth was expected to continue for the subsequent decades. It was assumed in the scenarios that all countries would achieve a U-shaped participation pattern of labour activity, which means that participation of all middle age groups will be stable and high. The only difference between the group of countries would be in the levels of the participation rates, which would also differentiate the female participation pattern from the male one. The labour force participation rates are assumed to vary between 75 and 85% in all middle age groups, reflecting practically no break in a professional career for bearing children. This can be possible because of childcare facilities (already present and popular in Scandinavian countries for example).

For most countries, especially from the group with low economic activity, a substantial increase in economic activity of the middle age groups will be required, particularly of women aged 35 years and more. The scenario assumed continuation of the past trends in the first decade of the projection. If a considerable increase of participation in certain age groups is expected, it should be most dynamic around the year 2035. Between 2002 and 2052, the greatest increase will be observed in Italy, Spain and Greece, i.e. countries with the lowest observed economic activity of middle-aged women. Relatively smallest increases will be observed in the group of high participation and Central and Eastern European countries, with several cases of slight decline in some age groups, e.g. in Austria, Denmark and Finland. In Norway and Sweden the target values for the 50–54-year age group were modified upwards, to 80%.

10.2.3 Assumptions for Older Age Groups (Over 55 Years)

The participation rates of men in the oldest age groups show the greatest variability in male activity. In the future, initially slight declines of the rates are expected. Despite differences between countries, it is assumed that the declines will not exceed 10 percentage points for the 55–59-year and 60–64-year age groups, 8 percentage points for the 65–69-year age group, 5 percentage points for the 70–74-year age group and 3 percentage points for the 75 year and older age group, and with the declines for most of the age groups in all countries being less than 3 percentage points. After the 2012, the participation rates should stabilize, and start to converge to the target values (Table 10.1). For most countries this will mean a significant increase of assumed labour force participation in all age groups. In the countries where the participation rates fell in the last decade of the twentieth century, continuation of this trend is assumed to take into account country-specific factors.

In the case of some countries, such as Norway and Sweden, where the participation rates are already higher than the assumed target values, they were modified upwards, mainly for the 55–59-year and 60–64-year age groups. This was done to account for already existing institutions facilitating employment of older workers

in these countries. This reasoning does not apply, however, to countries such as Romania. In this case, the high participation rates follow from the relatively high share of agriculture in the structure of employment in this country[2] and are expected to fall as the structure turns into one typical of developed countries. In Romania upward adjustment of the target values was done to account for the longer time needed for the economy to change.

The participation rates of older women in the first decade of the projection were assumed to follow country trends and then converge to the target values. Continuation of the trends will in many cases mean declines of economic activity of women aged 60 years and over, like in France, Finland and Poland. To account for country-specific factors, the target values for Finland, Norway, Portugal, Romania and Sweden were modified upwards. For some countries, e.g. Bulgaria, Luxemburg and Sweden, owing to the lack of the data, the trends were set as constant (at the last observed level). The rates will start rising after 2017, with the most dynamic change occurring between 2032 and 2042.

The target values for these age groups are the same for all countries, and are equal to the levels for males. This may be surprising, especially bearing in mind past and recent changes in female participation rates. They have always been smaller than for men, in most cases significantly.[3] There is, however, no economic justification for maintaining such a situation. On the contrary, as women live longer, from the perspective of the viability of the pension system, it would be better if they worked longer. Therefore, in the scenarios it is assumed that the levels of the participation rates will be relatively high and the same as for men. Although such levels of participation may seem radical, the example of Scandinavian countries proves that they are not impossible to achieve.

10.2.4 Labour Force Participation for the Total Population

Age-specific curves of labour force participation are not easy to compare and for those who do not specialize in labour issues, they may not be very intuitive. For an easier to understand and more complete picture of the projected economic activity, it is worth examining the impact over time of the afore-mentioned assumptions on labour force participation rates of the total population of men and women, respectively.

[2]The definition of working person includes persons helping on the family farm with no pay, which usually generates high participation rates in countries where the share of agriculture in the employment structure is high and/or where the share of the population living in the countryside is high.

[3]There are exceptions (e.g. Finland in a few 5-year age groups), but generally the participation rates of men are higher than those of women.

Table 10.3 Observed (2002) and projected labour force participation rates for the male population in 27 European countries

	2002	2007	2012	2017	2022	2027	2032	2037	2042	2047	2052
AT	55.9	54.9	54.5	53.6	52.0	50.4	49.7	49.5	49.4	49.0	48.6
BE	49.7	49.9	49.6	48.9	48.1	47.7	47.9	48.7	49.4	49.8	**49.8**
BG	46.9	48.0	48.3	47.9	47.7	48.1	48.7	49.0	49.0	48.4	**47.7**
CH	63.5	64.2	64.2	63.8	62.6	60.9	59.1	58.0	57.1	56.3	55.4
CZ	57.8	56.7	56.2	55.6	55.2	54.7	54.2	52.9	51.6	50.2	48.9
DE	56.4	56.1	55.9	55.1	53.8	52.1	51.0	50.6	50.2	49.7	49.1
DK	58.6	56.7	55.9	55.3	54.3	52.9	51.8	51.1	51.0	51.1	50.9
EE	53.5	54.3	55.5	55.2	54.6	54.3	54.6	54.5	53.7	52.4	51.1
ES	56.2	55.5	55.4	54.8	53.9	52.7	51.3	49.8	48.3	47.3	46.6
FI	54.2	51.3	49.7	48.3	47.3	46.8	47.1	47.8	48.4	48.7	48.5
FR	49.0	47.7	46.4	45.6	45.1	45.3	46.1	47.4	48.4	49.0	**49.3**
GR	54.5	55.3	55.6	55.3	54.7	53.8	52.6	51.2	49.7	48.4	47.4
HU	47.7	48.3	48.4	48.5	48.9	49.8	50.6	51.3	51.7	51.6	**51.0**
IE	53.9	53.9	53.9	53.7	53.6	53.6	53.6	53.3	52.7	51.9	51.1
IT	50.8	49.4	48.7	48.0	47.2	46.6	46.3	46.3	46.5	46.6	46.6
LT	54.5	56.9	59.0	59.7	59.0	57.6	56.5	55.5	54.1	52.1	50.0
LU	52.2	51.7	51.8	51.8	51.3	50.6	50.5	50.8	51.1	51.2	51.1
LV	53.9	53.5	55.0	55.1	54.4	54.0	54.2	54.3	53.6	52.0	50.6
NL	57.7	57.2	56.1	55.1	53.7	52.3	51.5	51.3	51.3	51.2	51.0
NO	56.7	55.8	55.2	54.5	53.5	52.2	51.2	50.6	50.6	50.6	50.3
PL	50.5	50.8	51.2	50.9	50.4	50.1	50.3	50.6	50.3	49.4	48.2
PT	58.8	58.7	58.3	57.8	57.4	57.0	56.3	55.3	54.4	53.7	53.2
RO	56.2	55.3	55.5	55.7	56.0	56.1	56.2	55.9	55.1	53.8	52.8
SE	53.6	50.8	50.2	49.9	49.5	49.1	49.1	49.7	50.2	50.4	50.1
SI	54.6	54.8	54.1	53.1	52.3	51.7	51.4	51.0	50.4	49.7	49.0
SK	55.0	56.2	56.6	56.0	55.4	55.0	54.8	54.1	53.0	51.7	50.4
UK	56.6	56.8	56.9	56.4	55.5	54.2	52.8	51.9	51.3	50.9	50.4

The *shaded areas* indicate temporary increases of economic activity. *AT* Austria, *BE* Belgium, *BG* Bulgaria, *CH* Switzerland, *CZ* Czech Republic, *DE* Germany, *DK* Denmark, *EE* Estonia, *ES* Spain, *FI* Finland, *FR* France, *GR* Greece, *HU* Hungary, *IE* Ireland, *IT* Italy, *LT* Lithuania, *LU* Luxembourg, *LV* Latvia, *NL* Netherlands, *NO* Norway, *PL* Poland, *PT* Portugal, *RO* Romania, *SE* Sweden, *SI* Slovenia, *SK* Slovak Republic, *UK* United Kingdom
Source: International Labour Organization (2004), own computations

To obtain the future size and composition of populations, the results of the population forecast presented in Chap. 13 were used. Assumed age- and sex-specific labour force participation rates were applied to the forecasted population by age and sex, generating the numbers of economically active males and females in each country over time. The respective rates are presented in Table 10.3 (males), Table 10.4 (females) and Table 10.5 (total population).

It is noticeable that between 2002 and 2052 the share of the economically active in the total population of men will go down in most countries. Only in Belgium, Bulgaria, France and Hungary will it rise slightly, but in the first three countries it will still be relatively low. There will also be periods of temporary increase

Table 10.4 Observed (2002) and projected labour force participation rates for the female population in 27 European countries

	2002	2007	2012	2017	2022	2027	2032	2037	2042	2047	2052
AT	42.1	41.6	41.3	40.4	38.8	37.4	36.6	36.2	35.7	35.2	34.8
BE	35.9	35.9	35.5	34.9	34.2	33.7	33.5	33.6	33.8	33.8	33.8
BG	39.6	39.8	39.5	38.7	38.2	37.8	37.3	36.9	36.5	36.0	35.8
CH	48.5	48.9	48.8	48.0	46.7	45.1	43.7	42.6	41.7	40.9	40.2
CZ	43.3	42.2	42.1	42.1	41.9	41.5	40.1	38.5	37.2	35.9	34.9
DE	42.5	42.9	42.9	42.2	40.9	39.5	38.6	38.3	37.8	37.2	36.7
DK	49.7	48.4	47.9	47.4	46.5	45.1	44.1	43.5	43.5	43.5	43.2
EE	43.9	44.1	44.5	43.9	43.1	42.7	42.5	42.0	41.2	40.1	39.2
ES	35.7	34.7	34.0	32.9	31.9	30.8	29.8	28.9	28.0	27.4	27.1
FI	47.3	45.2	43.8	42.5	41.4	40.9	41.0	41.6	42.0	42.1	41.9
FR	41.1	40.2	39.2	38.3	37.7	37.8	38.6	39.7	40.8	41.6	**42.0**
GR	35.4	35.2	34.8	34.1	33.4	32.5	31.6	30.7	29.8	29.2	28.7
HU	35.1	34.9	34.6	34.9	35.5	36.0	36.1	36.2	36.3	36.0	**35.5**
IE	39.2	39.0	38.3	37.4	36.6	36.1	35.5	35.0	34.4	33.8	33.3
IT	30.3	29.1	28.3	27.6	26.7	26.1	25.7	25.5	25.5	25.5	25.5
LT	45.7	46.9	47.9	47.5	46.4	45.0	43.9	42.8	41.2	39.3	37.9
LU	34.7	33.3	32.8	32.3	31.7	31.2	30.9	31.0	31.2	31.4	31.4
LV	43.2	42.8	43.5	43.2	42.5	42.1	41.9	41.6	40.7	39.2	38.2
NL	45.4	45.1	44.3	43.3	41.9	40.6	39.6	39.1	38.8	38.6	38.3
NO	49.3	49.0	48.9	48.5	47.7	46.6	45.7	45.2	45.0	44.8	44.5
PL	40.0	39.7	39.4	39.0	38.7	38.3	38.0	37.5	36.8	35.8	34.9
PT	46.1	45.8	45.2	44.4	43.7	43.1	42.3	41.3	40.4	39.8	39.4
RO	45.5	44.8	44.8	44.9	44.7	44.2	43.6	42.8	41.8	40.7	39.7
SE	47.9	45.5	44.8	44.4	44.0	43.6	43.5	43.8	44.2	44.3	44.0
SI	44.4	44.4	43.6	42.7	41.6	40.6	39.6	38.5	37.7	37.1	36.6
SK	43.4	43.2	42.7	42.1	41.4	40.6	39.1	37.3	35.7	34.3	33.4
UK	44.0	44.4	44.5	44.3	43.5	42.3	41.3	40.7	40.4	39.9	39.4

The *shaded areas* indicate temporary increases of economic activity
Source: International Labour Organization (2004), own computations

of economic activity in several cases, which are marked with a shaded area in Table 10.3. However, they will not change the overall tendency. The scale and the pace of this process will differ between countries.

The assumption that the patterns of labour participation of all countries converge to one pattern, with minor exceptions in several cases, results in smaller differences in economic activity of the total population of men in 2052. In 2002, the economic activity of men ranged between 46.9% in Bulgaria and 63.5% in Switzerland. The respective range in 2052 will be 46.6% for Italy and Spain and 55.4% for Switzerland. The general decline of economic activity is to a small extent a result of the assumed slight decline of the participation rates for the middle age group. Most of the decline comes from population ageing, i.e. growing shares of older people in the total population. The assumed increase of economic activity in the older age groups, although very optimistic in many cases, is not sufficient to make up for demographic trends.

Table 10.5 Observed (2002) and projected labour force participation rates for the total population in 27 European countries

	2002	2007	2012	2017	2022	2027	2032	2037	2042	2047	2052
AT	48.8	48.1	47.8	46.8	45.3	43.8	43.0	42.7	42.4	42.0	41.6
BE	42.7	42.8	42.4	41.8	41.1	40.6	40.6	41.1	41.5	41.8	41.7
BG	43.2	43.8	43.7	43.1	42.8	42.8	42.8	42.8	42.5	42.0	41.6
CH	55.8	56.4	56.4	55.8	54.6	52.9	51.3	50.2	49.3	48.5	47.7
CZ	50.3	49.2	49.0	48.7	48.4	47.9	46.9	45.5	44.2	42.9	41.7
DE	49.3	49.4	49.3	48.5	47.2	45.6	44.6	44.3	43.8	43.3	42.7
DK	54.1	52.5	51.9	51.3	50.4	49.0	47.9	47.3	47.2	47.2	47.0
EE	48.3	48.8	49.6	49.1	48.4	48.1	48.1	47.8	47.1	45.9	44.8
ES	45.8	44.9	44.5	43.7	42.7	41.6	40.4	39.2	38.1	37.3	36.8
FI	50.7	48.2	46.7	45.3	44.3	43.8	44.0	44.7	45.2	45.3	45.2
FR	44.9	43.9	42.7	41.9	41.3	41.5	42.3	43.5	44.5	45.2	**45.6**
GR	44.8	45.2	45.1	44.6	43.9	43.0	42.0	40.8	39.7	38.7	38.0
HU	41.1	41.3	41.2	41.3	41.9	42.6	43.1	43.4	43.7	43.5	**43.0**
IE	46.5	46.5	46.2	45.7	45.3	45.1	44.9	44.5	43.9	43.2	42.7
IT	40.2	39.0	38.2	37.5	36.8	36.1	35.8	35.7	35.8	35.9	36.0
LT	49.8	51.6	53.1	53.2	52.2	50.9	49.8	48.7	47.2	45.2	43.5
LU	43.3	42.5	42.4	42.3	41.8	41.3	41.1	41.4	41.7	41.9	41.9
LV	48.1	47.7	48.8	48.7	48.0	47.6	47.6	47.5	46.7	45.2	44.0
NL	51.5	51.1	50.1	49.1	47.8	46.4	45.5	45.2	45.0	44.8	44.6
NO	53.0	52.3	52.0	51.5	50.5	49.4	48.4	47.8	47.7	47.6	47.3
PL	45.1	45.1	45.1	44.8	44.3	44.0	43.9	43.8	43.3	42.4	41.4
PT	52.2	52.0	51.5	50.9	50.4	49.8	49.1	48.1	47.2	46.6	46.2
RO	50.7	49.9	50.0	50.1	50.1	49.9	49.6	49.1	48.2	47.0	46.0
SE	50.7	48.1	47.5	47.2	46.7	46.4	46.3	46.7	47.2	47.3	47.0
SI	49.4	49.5	48.8	47.8	46.9	46.1	45.4	44.7	44.1	43.4	42.8
SK	49.0	49.6	49.5	49.0	48.3	47.8	46.9	45.8	44.5	43.2	42.1
UK	50.2	50.5	50.6	50.3	49.4	48.1	46.9	46.2	45.7	45.3	44.8

The *shaded areas* indicate temporary increases of economic activity
Source: International Labour Organization (2004), own computations

In most cases, countries with the highest participation rates for the total population in 2052 are also the countries where the labour participation rates for older groups have been modified upwards in comparison with similar countries. Switzerland, Portugal and Romania are good examples. Such sensitivity to changes of the participation rates can demonstrate potential effects of active employment policies targeted at the older age groups.

The labour force participation rates for the total population of men also reveal the great importance of the population structure. As there was hardly any differentiation between countries of the age-specific target values of the participation rates for men, the differences in the participation rates for the total populations in 2052 arise mainly from the initial demographic structure and its developments. The share of the economically active is greater in the countries with a relatively high projected total fertility rate, such as Ireland and the Netherlands, and with a relatively young

population, such as Estonia and Hungary. The case of Switzerland, a country with a relatively old population and the lowest total fertility rate, proves that sufficiently high participation can, to a large extent, make up for negative demographic trends. The effects of demographic trends are even more striking when we look at the labour participation rate for the total population computed with constant age-specific participation rates. There should be a reference here to the respective results or discussion of results – projection of the labour force with constant age-specific participation rates.

Despite assumed rising economic activity of all age groups in all countries, with minor exceptions, overall economic activity of women will generally decline in most countries. The respective rates are presented in Table 10.4. The shaded areas in the table mark temporary increases of economic activity.

Between the 2002 and 2052, economic activity of women will increase only in Hungary and France, in both cases by less than 1 percentage point. In Hungary it will be a result of increased labour participation of women in all age groups; in France it will stem from the relatively young population structure. In the rest of the countries under study, a decline of economic activity of women is expected.

The differences in economic activity between countries are not expected to decline. In 2002 the labour force participation rates for the total population of women in the countries analysed ranged between 30.3% for Italy and 49.7% for Denmark. The 2052 rates will oscillate in an almost equally wide range: from 25.5% in Italy to 44.5% in Norway.

The differences in economic activity of women between countries are partly a result of three patterns (presented in Table 10.2) to which national age-specific participation rates are assumed to converge, depending on in which group the country was classified. However, the main driver of change is the forecasted age structure, which was already seen for men. For example, in Austria or Germany relatively high economic activity will not make up for the relatively old population structure (both countries are assumed to experience very low fertility for the next few decades; Chap. 6). In consequence, the economic activity of women in both countries will be similar to the economic activity experienced by low participation countries. The positive influence of the population structure can be observed in France, where relatively low target values are compensated by high fertility and a resulting relatively young population structure. In 2052 France is expected to experience the fourth-highest female labour force participation rate. It is also worth noting that the economic activity of women in Central and Eastern European countries is expected to be low, despite relatively high target values set for these countries. As in the case of Austria and Germany, this is due to low fertility and the resulting relatively old population structure.

The economic activity for the total population of women also shows substantial sensitivity to changes of age-specific participation rates in the oldest age groups. As in the case of men, countries with the highest participation in the total population of women, i.e. Norway and Sweden, are the countries where the participation patterns were modified upwards for older women.

Combining of the scenarios for men and women produces the scenario for the total population. It can be seen in Table 10.5 that between 2002 and 2052 a general decline of participation is expected, despite the assumed increase in labour force participation in almost all age groups in all countries. This means that in most countries population ageing will progress faster than the expected growth of age-specific participation rates. If the age-specific labour force participation rates remain at their current levels, economic activity will decline more than is expected in the scenarios. The relatively smallest decline in the labour force participation is assumed in Belgium—by 2%—in comparison with 2002 levels. The greatest decline is expected in Spain, by almost 20%. France and Hungary are the only countries where the economic activity of the total population is expected to increase. In both cases the increase should not exceed 5%. In 2052 the economic activity in the countries under study will range between 36% for Italy and 47.7% for Switzerland.

10.3 Conclusions

From a contemporary perspective, the assumed target values for age- and sex-specific labour force participation rates may seem difficult to achieve. Setting them, we kept in mind that ageing societies may destabilize the social security and pension systems and that radical changes, justifying such high rates, will be needed. Such changes should include preventing misuse of the systems by ineligible persons and creating institutional incentives for greater economic activity. Eliminating the possibility of easy access to the systems for unjustified cases will be the most important of these steps. Connecting pension benefits to individual contributions should be built into the redesigned system rules. One may expect that employment regulations will make employment of older workers more favourable. Such actions should abolish, or at least significantly reduce, one of the most important channels of outflow of older people to inactivity, on one hand, and attract them to economic activity, on the other. Employment of older people should also be facilitated by the demand side. As older workers will constitute an ever-growing share of the declining labour force, employers will have to start to perceive them as a valuable labour force.

To see the aggregate effects of the assumptions made for the age groups, estimates of the level of labour force activity for males, females and the total populations in each country were performed. The comparison of the scenarios with assumptions for age groups demonstrates that age-specific labour force participation rates will not be the only factor determining economic activity in the total populations of the countries under study in the coming decades. Demographic developments, especially a change in the population structure, will be at least equally important.

The results are particularly interesting when compared with the EU aims formulated in the Lisbon strategy (European Council 2000). The scheme assumed that, to become a world competitive economy, the average employment rate in the EU member states should rise to 70% in the 20–64-year age group. As the employment

rate is, by definition, smaller than the participation rate for total population, it is evident that the assumptions made in the Lisbon strategy are unjustifiably optimistic.

There are also reasons for optimism provided by the case of Switzerland. The population structure in Switzerland does not differ significantly from that in many of the other countries under study, but expected fertility and mortality developments (Chaps. 6 and 7) will result in relatively fast population ageing. Nonetheless, owing to very high age-specific activity rates, it was the country with the highest economic activity in 2002 and is expected to keep this rank up to 2052. This does not mean that reasonably high participation can fully offset population ageing. It proves, however, that high age-specific economic activity can maintain the economic activity of the total population at reasonable levels in the countries under study for the first half of the twenty first century. The cases of Sweden and Norway prove that relatively high labour force participation in all age groups combined with high fertility can provide a reasonable level of economic activity of the total population in the future.

Part IV
Future of European Populations and the European Labour Force

Chapter 11
Population and Labour Force Dynamics Model

Dorota Kupiszewska and Marek Kupiszewski

11.1 The MULTIPOLES Forecasting Model— Introductory Notes

The population forecasting model applied in this study, the MULTIstate POpulation model for multiLEvel Systems (MULTIPOLES), is a multiregional model as defined in the seminal book by Rogers (1975), combining the features of two methodological traditions of forecasting population dynamics: geographical and demographic. Such a model describes a population as a system, and migrations provide links (interactions) between the spatial elements of this system (Kupiszewski 2002a, p. 36).

The demographic tradition is present in the model through its roots in the cohort-component model, which used to be a principal tool of population forecasting for many years. The assumptions about future fertility and mortality are set in terms of total fertility rates and life expectancy at birth, and are translated within the model into age-specific occurrence-exposure rates. The geographical tradition focuses on the migratory component of the overall population change.

A critical issue in the modelling of multinational populations is how to handle international migration (Kupiszewski and Kupiszewska 2008). MULTIPOLES deals with international migration on two geographical levels. The first level is population exchange between the countries under study, and the second level depicts migration between each of the countries and the rest of the world. Migration between the

D. Kupiszewska (✉)
Central European Forum for Migration and Population Research, IOM, Warsaw, Poland
e-mail: d.kupisz@twarda.pan.pl

M. Kupiszewski
Institute of Geography and Spatial Organization of the Polish Academy of Sciences, Warsaw, Poland
e-mail: m.kupisz@twarda.pan.pl

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_11,

27 European countries is modelled in terms of emigration rates, thus in relation to the population at risk, whereas migration to/from the rest of the world is modelled in terms of crude net migration numbers.[1] MULTIPOLES can also handle internal migration within each country, but this was not taken into account in the current study.

In addition to population modelling and forecasting, the model allows the inclusion of assumptions about future economic activity rates and thus labour force forecasts and projections.

Specifically for the purpose of the current study, several new features have been added to MULTIPOLES. Most importantly, they have made it possible to conduct population and labour force simulations under certain assumptions about the future levels of specific demographic or socio-demographic indicators, therefore allowing the calculation of the replacement migration needed to keep these indicators at a predefined level. It should be noted that both the meaning of the term "replacement migration" and the actual numerical value depend on the assumptions. For example, we may talk about replacement migration needed to avoid population decline or needed to avoid an increase of a specific dependency ratio.

Further in this chapter we present MULTIPOLES in more detail, including various technical information. Section 11.3 is mainly aimed at mathematically minded readers, but we hope it will also be of interest to those who would like to learn about the "kitchen" of population forecasting.

11.2 The MULTIPOLES Concept

One of the most important questions for the design of MULTIPOLES was how to approach the development of populations in the regions which have intense international migration interactions with other regions. This was in fact one of the key issues in population forecasting in recent decades. In the late 1980s and early 1990s, considerable international migration in Europe forced researchers and forecasters to think of the population of a country not as an isolated entity but as a subpopulation of a larger system. International migration flows provide links between the elements of such a system, similarly as internal migration flows do in a traditional multiregional model. This new approach to modelling population of European regions was triggered by at least three factors: (1) massive international migration flows existing at the time have changed the dynamics of national and regional populations in a very significant way; (2) some decision makers considered international migration as a remedy for population aging; (3) political changes, in

[1] It is worth noting that after a recent extension, migration flows to/from the rest of the world can be modelled in MULTIPOLES either in terms of net migration flows, or in terms of emigration rates combined with immigration numbers (Kupiszewska and Kupiszewski 2010). Here we discuss the version used in the simulations presented, i.e. the version with the net migration flows from the rest of the world.

particular the process of the expansion of the European Union, have given political weight to the need for integrated approaches to population modelling.

Phil Rees along with his colleagues from the University of Leeds were the first to respond and implement in practice the new modelling approach in order to explore the consequences of intra-Community migration for regional demographic structures. They created the European Community POPulation projection (ECPOP) model, which was specified for multinational populations (the 12 member states of the European Community) and accounted for three categories of flows (Rees et al. 1992; Rees 1996): (1) international, extra-Community (input data: net migration by country), (2) inter-member state, intra-Community (input data: origin–destination interstate migration matrix) and (3) interregion, intra-member state (input data: origin–destination interregional migration matrix for each country). The age and sex dimensions of both internal and international migration have been reconstructed using the Rogers–Castro (1981a, b, c) models for age- and sex-dependent intensity of migration.

Following the example of the ECPOP model, MULTIPOLES was developed (Kupiszewski and Kupiszewska 1999, 2011; Kupiszewski 2002a; Kupiszewska and Kupiszewski 2005). The construction of the model and its application for population forecasts and projections included the following steps:

1. Construction of the mathematical model and the software that implements the model
   - Defining general modelling approach;
   - Specifying temporal requirements (the duration of a projection step and the maximum temporal extent of the projections);
   - Defining the generic structure of the population system (in particular its spatial, age and sex structures as well as the maximum number of spatial units);
   - Identification of input and output variables of the model;
   - Defining the notation for the variables;
   - Formulating accounting and projection equations for simulating the dynamics of population and labour force;
   - Designing the method for estimating the rates of the demographic events;
   - Specifying the way in which forecast assumptions will be defined;
   - Developing the computer software.
2. Application of the model for solving research questions concerning a specific population system
   - Defining the spatial structure of the population system investigated (the countries to be modelled and their regional division);
   - Specifying the temporal scope of the simulations;
   - Collection and estimation of the data;
   - Formulating the qualitative assumptions about the future changes of the components of population change and future economic activity rates;
   - Translating qualitative assumptions into quantitative parameters of the model;

- Preparation of the input files with the base period data and the scenario data in the format required by the computer software;
- Running the model (this step includes the estimation of demographic rates and calculation of future population stocks according to the projection equations);
- Analysis and assessment of the results.

Below we focus on the first step of the forecast preparation, namely the construction of the mathematical model.

MULTIPOLES is a demographic model with the added possibility of forecasting the economically active population. Approaches other than the demographic one, e.g. economic models and spatial interaction models, may be used exogenously at the stage of the preparation of the scenarios for the individual components of population change, but they do not appear in any way within MULTIPOLES itself.

MULTIPOLES belongs to the family of multiregional cohort-component models. We took the ECPOP model as a blueprint; however, MULTIPOLES differs in many technical solutions from ECPOP. Similarly to ECPOP, it has a hierarchically defined population modelled on three levels. In the further description we assume that these three levels are supranational, national (country) and subnational (regional), although other divisions can be modelled as well (e.g. the world, world regions (country groupings) and countries; or a country with two levels of subnational division).

In the MULTIPOLES version used in the study, up to 30 countries divided into a maximum of 50 regions each, with the maximum of 160 regions in the whole system, can be modelled. As in the case of the ECPOP version implemented by Rees in 1996, MULTIPOLES is based on the bottom-up approach with the national populations calculated as the sum of regional populations and the overall system population calculated as the sum of national populations. This approach guaranties that the consistency of forecasts on national and regional levels is automatically achieved. Unlike in the ECPOP model, the projection equations in MULTIPOLES were built using a *movement* approach, in which morality and migration occurrence-exposure rates are applied to the population at risk in order to estimate the number of demographic events/moves (births, deaths and migration). The population at risk is represented by the average of the population at the beginning and the end of the projection step.[2] In the ECPOP model, a *transition* approach was implemented, in which the equations for population calculations were built by applying the probability of dying and the probability of migration to the initial population (i.e. the population at the start of the projection step).

The MULTIPOLES version used in the current study allows one to prepare population and labour force projections disaggregated into males and females and 5-year age groups: from 0–4 years to over 85 years for population stocks (18 age groups) and from 15–19 years to over 75 years in the case of the labour force (13

[2]When estimating the benchmark occurrence-exposure rates, the population at risk may be represented by the mid-year population or by the average of the population at the beginning and the end of the projection step.

age groups). Population and labour force figures are generated in 5-year intervals and the maximum projection horizon is 50 years, i.e. ten projection steps.

Three types of migration streams are distinguished in MULTIPOLES, as was the case in the ECPOP model: internal migration within each country, international migration within the system and international migration to and from outside the system. All countries not included in the system are termed "rest of the world". This additional "region" is not a part of the modelled population system, but it is an external source and destination of migrants. No information on population, fertility or mortality in this region was collected or modelled in the study.

11.3 Projection Equations of the Model

In this section we present population accounts and projection equations that are used in MULTIPOLES to perform population calculations. The full set of projection equations for a regionally disaggregated population system is given in Kupiszewska and Kupiszewski (2005) and Kupiszewski and Kupiszewska (2011). Here we present a simplified version of the equations relevant for the current study. Modelling the population on the national level using MULTIPOLES is done by assuming that each country constitutes a single region. Accordingly, internal migration is not taken into account, only international migration between countries and net international migration from the rest of the world are considered.

Simulation of the population in MULTIPOLES is performed as a sequence of calculation steps, each covering 5 years. In a single step, the size of the population in each 5-year age group at the end of the current 5-year period is determined by taking into account the population of the cohort at the beginning of the period, the number of deaths and the size of migration. The size of the youngest cohort also depends on the number of births. The accounting and projection equations have to be formulated separately for three types of projection cohorts, i.e. for the cohort of persons born during the projection step, for the oldest age group and for the remaining age groups (see Fig. 11.1).

Two types of variables are needed to describe population change in mathematical terms. Stock variables, $P^i_{ag}(t)$, describe the size of the population of sex g in country i in age group a (i.e. the number of persons aged from a to $a+4$ years) at time t. Event or flow variables describe the number of demographic events observed for each sex and age group in one projection step, i.e. in the period $(t, t+5)$. The flow variables are $D^i_{ag}(t)$, the number of deaths in country i in the period $(t, t+5)$, $M_{\mathrm{IS}}{}^{ij}_{ag}(t)$, the number migration moves from country i to country j within the modelled system (interstate migration), and $N^i_{ag}(t)$, net migration from the rest of the world to country i. Additionally, $B^i_a(t)$ is the number of children born to females in age group a in country i and $B^i(t)$ is the total number of children born in country i in the period $(t, t+5)$. The events should be counted using the period–cohort observation plan: the events occurring in age group a over the period $(t, t+5)$ refer to persons aged from a to $a+4$ years at time t, so who were (or would be)

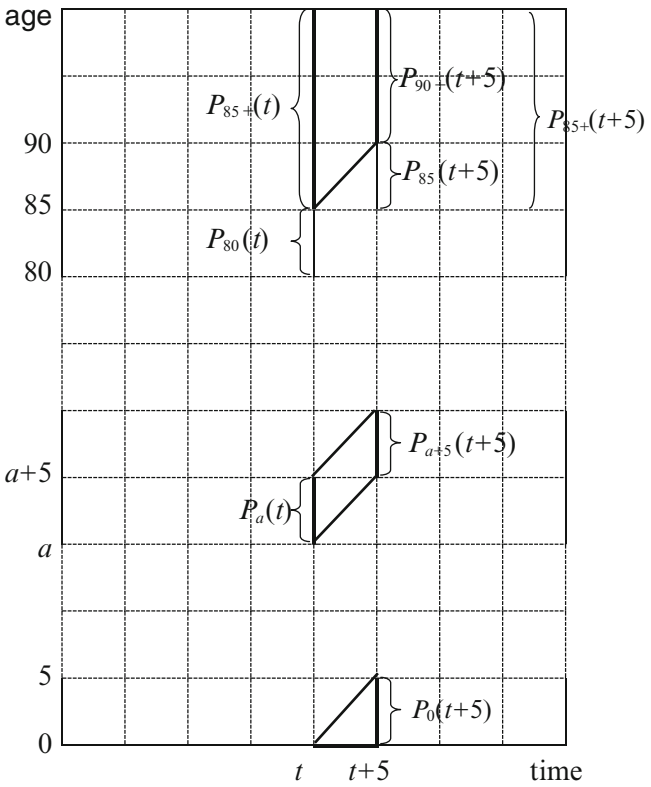

Fig. 11.1 Lexis diagram illustrating the notation used in the multistate population model for multilevel systems (MULTIPOLES)
Source: own elaboration

from $a+5$ to $a+9$ years old at time $t+5$ (as illustrated by the parallelogram in the middle of Fig. 11.1). In the period–cohort observation plan the age grouping is based on the year of birth. It is worth noting that demographic data, especially data on migration, may be available for the period–age observation plan only. In the period–age perspective, age grouping is based on the age at the time of the event, so data for age group a cover the events concerning persons who were a to $a+4$ years of age at the time of the event (the squares in Fig. 11.1).

The accounting equation, linking the population of country i at the end of a projection step with its population at the beginning of the projection step and the demographic events in this country, has the following form for each cohort except the youngest and the oldest ones:

$$P^{i}_{a+5}(t+5) = P^{i}_{a}(t) - D^{i}_{a}(t) - \sum\nolimits_{j \neq i} M_{\mathrm{IS}}{}^{ij}_{a}(t) + \sum\nolimits_{j \neq i} M_{\mathrm{IS}}{}^{ji}_{a}(t) + N^{i}_{a}(t).$$

The above formula is the same for men and women, so for the sake of simplicity we have omitted the sex index, as we do in the remaining equations that are identical for both sexes.

The components of change in the above formula may be expressed in terms of occurrence-exposure rates, defined as the number of events divided by the population at risk.[3] Let us denote $d_a^i(t)$ as the mortality rate in country i in age group a over the period $(t, t+5)$ and $m_{\mathrm{IS}a}^{ij}(t)$ as the rate of emigration from country i to country j in age group a over the period $(t, t+5)$. Assuming that the population at risk may be calculated as an arithmetic average of the population of the cohort at the beginning and the end of the period, the rates may be expressed with the formulae:

$$d_a^i(t) = \frac{D_a^i(t)}{0.5(P_a^i(t) + P_{a+5}^i(t+5))};$$

$$m_{\mathrm{IS}a}^{ij}(t) = \frac{M_{\mathrm{IS}a}^{ij}(t)}{0.5(P_a^i(t) + P_{a+5}^i(t+5))}.$$

Consequently,

$$\begin{aligned} P_a^i(t+5) = & P_a^i(t) - 0.5 d_a{}^i(t)\left[P_a^i(t) + P_{a+5}^i(t+5)\right] + \\ & - 0.5 \sum\nolimits_{j \neq i} m_{\mathrm{IS}a}^{ij}(t)\left[P_a^i(t) + P_{a+5}^i(t+5)\right] + \\ & + 0.5 \sum\nolimits_{j \neq i} m_{\mathrm{IS}a}^{ji}(t)\left[P_a^i(t) + P_{a+5}^i(t+5)\right] + N_a^i(t). \end{aligned}$$

Using matrix notation, we may formulate the accounting equation as follows:

$$\mathbf{P}_{a+5}(t+5) = \mathbf{P}_a(t) - 0.5\mathbf{M}_a(t)[\mathbf{P}_a(t) + \mathbf{P}_{a+5}(t+5)] + \mathbf{N}_a(t),$$

where $\mathbf{P}_a(t)$ is a column vector of national stocks of the population in age group a at time t, and $\mathbf{M}_a(t)$ is a matrix dependent on the death rates $d_a^i(t)$ and on the international emigration rates $m_{\mathrm{IS}a}^{ij}(t)$. Net migration from the rest of the world to each country, expressed as numbers rather than rates, is contained in the vector $\mathbf{N}_a(t)$.

Matrix $\mathbf{M}_a(t)$ is a square matrix with dimension equal to the number of countries. The elements of matrix $\mathbf{M}_a(t)$ are:

[3] We calculate these rates for 5-year periods, so they denote the average number of deaths or emigration events per person during the 5-year period $(t, t+5)$. The rates refer to period–cohort age groups.

Table 11.1 Matrix $\mathbf{M}_a(t)$

Country	1		i		n
1	$d_a^1(t) + \Sigma_j m_{\mathrm{IS}a}^{1j}(t)$		$-m_{\mathrm{IS}a}^{i1}(t)$	$\cdots$	$-m_{\mathrm{IS}a}^{n1}(t)$
		$\ddots$			$\vdots$
i	$-m_{\mathrm{IS}a}^{1i}(t)$		$d_a^i(t) + \Sigma_j m_{\mathrm{IS}a}^{ij}(t)$		$-m_{\mathrm{IS}a}^{ni}(t)$
	$\vdots$			$\ddots$	
n	$-m_{\mathrm{IS}a}^{1n}(t)$	$\ldots$	$-m_{\mathrm{IS}a}^{in}(t)$		$d_a^n(t) + \Sigma_j m_{\mathrm{IS}a}^{nj}(t)$

Source: own elaboration

$$M_a^{ij}(t) = d_a^i(t) + \sum\nolimits_j m_{\mathrm{IS}a}^{ij}(t) \text{ for } i = j;$$

$$M_a^{ij}(t) = -m_{\mathrm{IS}a}^{ji}(t) \qquad \text{for } i \neq j.$$

The diagonal elements give the rate of population decrease due to deaths and emigration to the countries of the system. The non-diagonal elements reflect the intensity of immigration from the countries of the system. Matrix $\mathbf{M}_a(t)$ is shown in Table 11.1.

After solving the accounting equation for $\mathbf{P}_{a+5}(t+5)$, we obtain the following projection equation:

$$\mathbf{P}_{a+5}(t+5) = [\mathbf{I} + 0.5\mathbf{M}_a(t)]^{-1}[\mathbf{I} - 0.5\mathbf{M}_a(t)]\mathbf{P}_a(t) + [\mathbf{I} + 0.5\mathbf{M}_a(t)]^{-1}\mathbf{N}_a(t),$$

where $\mathbf{I}$ is the identity matrix. The projection equation links the population of a country at the end of a projection step to the populations of all the countries at the beginning of the projection step and the intensity of the demographic events in all the countries.

Let us denote

$$\mathbf{S}_a(t) = [\mathbf{I} + 0.5\mathbf{M}_a(t)]^{-1}[\mathbf{I} - 0.5\mathbf{M}_a(t)]$$

and

$$\mathbf{F}_a(t) = [\mathbf{I} + 0.5\mathbf{M}_a(t)]^{-1}.$$

Then the projection equation for all the cohorts except the youngest and the oldest may be written as

$$\mathbf{P}_{a+5}(t+5) = \mathbf{S}_a(t)\mathbf{P}_a(t) + \mathbf{F}_a(t)\mathbf{N}_a(t).$$

This equation is analogical to the one used in the full multicountry, multiregional version of MULTIPOLES (Kupiszewska and Kupiszewski 2005; Kupiszewski and Kupiszewska 2011), as well as in the equation derived by Willekens and Drewe (1984) for multiregional population projections of a single country. The differences

lie in the form of vector **P**, in the way in which matrices **S** and **F** are calculated and the meaning of vector $\mathbf{N}_a(t)$. For example, in the multicountry model without the regional division presented here, matrices **S** and **F** are calculated from the death rates and the rates of emigration to individual countries within the system; in the equation derived by Willekens and Drewe (1984) they are calculated from the death rates, internal out-migration rates and the overall rates of international emigration from the modelled country to anywhere abroad; in the full multiregional version of MULTIPOLES they are calculated from the death rates, the internal out-migration rates and the rates of emigration to individual countries within the system.

The oldest age group is an open-ended group which contains persons who are 85 years old or older, and we use index 85+ for this. The projection equations for this group can be obtained by taking into account (see Fig. 11.1) that

$$\mathbf{P}_{85+}(t+5) = \mathbf{P}_{85}(t+5) + \mathbf{P}_{90+}(t+5),$$

where $\mathbf{P}_{85}(t+5)$ and $\mathbf{P}_{90+}(t+5)$ can be calculated using the formula for $\mathbf{P}_{a+5}(t+5)$ derived above. Thus, we immediately get

$$\mathbf{P}_{85+}(t+5) = \mathbf{S}_{80}(t)\mathbf{P}_{80}(t) + \mathbf{F}_{80}(t)\mathbf{N}_{80}(t) + \mathbf{S}_{85+}(t)\mathbf{P}_{85+}(t) + \mathbf{F}_{85+}(t)\mathbf{N}_{85+}(t).$$

The accounting and projection equations for the youngest cohort, covering persons aged from 0 to 4 years at the end of the projection step, which we denote as cohort 00, have to be derived separately, as births are involved in addition to deaths and migration:

$$P_0^i(t+5) = B^i(t) - D_{00}^i(t) - \sum\nolimits_{j\neq i} M_{\mathrm{IS}_{00}}^{ij}(t) + \sum\nolimits_{j\neq i} M_{\mathrm{IS}_{00}}^{ji}(t) + N_{00}^i(t).$$

As before, we express this equation in terms of the occurrence-exposure rates. The population at risk of dying or migrating can be estimated as the arithmetic average of the number of children in cohort 00 at the beginning and the end of the period $(t, t+5)$, that is $0.5[0 + P^i{}_0(t+5)]$. The death and emigration rates for the birth cohort are therefore:

$$d_{00}^i(t) = \frac{D_{00}^i(t)}{0.5P_0^i(t+5)};$$

$$m_{\mathrm{IS}00}^{ij}(t) = \frac{M_{\mathrm{IS}00}^{ij}(t)}{0.5P_0^i(t+5)}.$$

The accounting equation in matrix notation is as follows:

$$\mathbf{P}_0(t+5) = \mathbf{B}(t) - 0.5\,\mathbf{M}_{00}(t)\mathbf{P}_0(t+5) + \mathbf{N}_{00}(t),$$

where $\mathbf{B}(t)$ is a column vector of births of babies of a given sex in each country during the period $(t,\ t+5)$ and matrix $\mathbf{M}_{00}$ has the form shown in Table 11.1. Solving the above formula for $\mathbf{P}_0(t+5)$, we get

$$\mathbf{P}_0(t+5) = [\mathbf{I} + 0.5\mathbf{M}_{00}(t)]^{-1}[\mathbf{B}(t) + \mathbf{N}_{00}(t)]$$

and then

$$\mathbf{P}_0(t+5) = \mathbf{F}_{00}(t)[\mathbf{B}(t) + \mathbf{N}_{00}(t)].$$

To use the above equation in a population dynamics model we have to specify how the birth vector $\mathbf{B}(t)$ will be calculated. Let us use the following notation:

$b_a^i(t)$ – Fertility rate of females in age group a in country i in the period $(t,\ t+5)$

$B_a^i(t)$ – Number of children born to females in age group a in country i during the period $(t,\ t+5)$

f_g^i – Proportion of newborn children in country i who are of sex g

The fertility rate, $b_a^i(t)$, is defined by the formula

$$b_a^i(t) = \frac{B_a^i(t)}{0.5(P_{a\mathrm{f}}^i(t) + P_{(a+5)\mathrm{f}}^i(t+5))}.$$

The denominator in the above equation refers to the female population, hence the index f, whereas the children born are of both sexes. The number of newborn children of sex g in country i during the period $(t, t+5)$ is

$$B_g^i(t) = 0.5 f_g^i \sum_a b_a^i(t)[P_{a\mathrm{f}}^i(t) + P_{(a+5)\mathrm{f}}^i(t+5)],$$

where the sum is over all fertile age groups.

11.4 Labour Force Projection, Dependency Ratios and Replacement Migration Calculations

The labour force consists of all economically active persons, i.e. employed and those unemployed who are looking for a job. In MULTIPOLES, the size of the labour force in each sex and 5-year age group (from 15 years to over 75 years) is calculated for each country (in 5-year intervals) as the product of the corresponding population size, as calculated by MULTIPOLES, and the labour force participation rate in this

country, age-and sex-specific.[4] Scenarios for the labour force participation rates have to be provided in the input file.

To meet the aims of the current study, MULTIPOLES was extended to include calculations of synthetic indicators of population structure and replacement migration calculations. Three indicators of the structure of the population and the labour force are calculated: old-age dependency ratio (ODR), economic old-age dependency ratio (ODRE) and labour market dependency ratio (LMDR). Let $L^i_{ag}(t)$ and $l^i_{ag}(t)$ denote, respectively, the number of economically active persons and the economic activity rate in age group a, sex g in country i. The following formulae were used to calculate the labour force and dependency ratios in the current study:

$$L^i_{ag}(t) = l^i_{ag}(t) P^i_{ag}(t), a = 15, \ldots, 75+,$$

$$\mathrm{ODR}^i(t) = 100 \sum\nolimits_g \sum\nolimits_{a=65}^{85+} P^i_{ag}(t) \Big/ \sum\nolimits_g \sum\nolimits_{a=0}^{60} P^i_{ag}(t),$$

$$\mathrm{ODRE}^i(t) = 100 \sum\nolimits_g \sum\nolimits_{a=65}^{75+} P^i_{ag}(t)\,(1 - l^i_{ag}(t)) \Big/ \sum\nolimits_g \sum\nolimits_{a=15}^{75+} L^i_{ag}(t),$$

$$\mathrm{LMDR}^i(t) = 100 \sum\nolimits_g \sum\nolimits_{a=15}^{75+} P^i_{ag}(t)\,(1 - l^i_{ag}(t)) \Big/ \sum\nolimits_g \sum\nolimits_{a=15}^{75+} L^i_{ag}(t).$$

ODR gives the number of persons who are 65 years of age or older per 100 persons younger than 65 years. ODRE and LMDR give, respectively, the number. of persons aged 65 years or older who are not economically active (ODRE) or all non-active persons (LMDR) per hundred economically active persons.

In the "replacement migration" mode, the model calculates the number of additional migrants from the rest of the world needed in each country to prevent a decrease of its total population or to prevent an increase of a specific dependency ratio (in comparison with the population size or, respectively, in the comparison with the value of the dependency ratio at the start of the current projection step). Thus, four types of replacement migration calculations can be performed: with non-decreasing national populations and with non-increasing ODRs, ODREs or LMDRs.

11.5 Scenario Setting for Forecasts and Simulations

The first version of the MULTIPOLES, developed in 1996, could be used to run simple projections of the population assuming that the fertility, mortality and migration rates observed in the start year of the projection would remain constant during the projection period (Kupiszewski and Kupiszewska 1998). The program was later extended by adding scenario setting capability for the three components of growth, so that MULTIPOLES could be used as a proper forecasting tool.

[4] In the multiregional applications of MULTIPOLES, activity rates may be specified on the regional level and labour force calculations are performed for regions and countries.

The first application of the extended version was a forecast of regional structures of the elderly populations in Central and Eastern Europe, presented at the UN Economic Commission for Europe conference *Status of the older population: prelude to the 21st century* (Kupiszewski and Kupiszewska 1999). For the purposes of the study presented in this book, scenario setting of migration underwent further modifications: previously, age profiles of migrants were parameterized through Rogers–Castro-type functions, as it was done in Rees's ECPOP model. In the new version it is possible to specify the age distributions of migrants directly.

The input files needed for running the model must contain information about the population in the middle of the start year as well as the scenario data for all the components of population change (fertility, mortality and international migration). For each component, scenarios are set by providing information about this component at the start of the projection and about expected changes in each projection interval. Benchmark data are provided for the period–age observation plan (squares in Fig. 11.1) and are recalculated by the model into the period–cohort rates (corresponding to parallelograms as exemplified in Fig. 11.1) needed for the projection calculations.

For mortality scenarios, information about the number of deaths by country, sex and age has to be provided, which is used by the MULTIPOLES program to calculate benchmark mortality rates. A scenario for the future is set in terms of sex- and country-specific life expectancy at birth in each projection step. Additionally, information on the type of mortality rates change has to be provided. The differentiation of the change types was necessary because research has shown that countries have different patterns of mortality change. In some countries changes occur predominantly in the youngest age groups (Hertrich and Meslé 1999), in others in the oldest (Okólski 1987, 1993; Meslé 1991) or in the working age groups, especially for men (Okólski 1987). There are four possible mortality change types to choose from in MULTIPOLES: (1) a reduction of mortality for all ages, (2) a reduction in the age groups below 20 years, (3) a reduction in the age groups above 20 years, and (4) an increase in the age groups above 20 years. In the scenario subroutine of the MULTIPOLES program, the mortality rates for the appropriate age groups are increased or decreased in order to reach the forecasted life expectancy level. When this cannot be achieved with the initially set type of mortality rate change, an error message is generated and the mortality assumptions have to be redefined. The mortality scenarios used in this study are specified in Chap. 7.

Fertility scenarios are defined by providing the number of births by country and the age of the mother in the start year, and country-specific total fertility rates in each projection step. Data on births have to be disaggregated into seven age groups, starting from 15–19 up to 45–49 (births by mothers outside this age range are assumed to appear either in the 15–19 age group or in the 45–49 age group, as appropriate). In the model, benchmark fertility rates, by country and the mother's age, are calculated and then modified for each projection interval. It is assumed that all age-specific fertility rates change uniformly by the same factor as indicated in

the total fertility rate scenario.[5] The proportion of each sex in births is kept constant, and either may be provided in the input file or is assumed to take a default value. Scenarios of fertility change are discussed in Chap. 6.

Input data on international migration within the system consist of the migration matrix (flows between all pairs of countries) and information about the age and sex distribution of migrants for each direction of flow. These are used to calculate age-, sex- and destination-specific emigration rates for each country. Scenarios for the future are set in terms of multipliers, so the rates for the next projection step are obtained as the product of a multiplier and a relevant migration rate taken from the preceding projection step. The multipliers depend on the country of origin and the country of destination of migrants, but do not depend on age and sex. This means that we assume that the sex and age distribution of migrants is constant throughout the entire projection period.

Scenarios for international migration between the countries of the modelled system and the rest of the world are defined in terms of net migration (average absolute number per year) between the rest of the world and each country in each projection step. The age and sex structures of external migrants are specified by providing the share of males and the relative number of persons in each 5-year age group (separately for each sex).[6] These data have to be provided to MULTPIPOLES for each country and each projection step; however, in the current study it was assumed that the age and sex structures do not change in time. Period–age input data are recalculated into the appropriate 5-year period-cohorts. Scenarios prepared for both categories of migration flows in the current study are presented in Chap. 5.

Labour force scenarios are set by providing economic activity rates for each country, sex and age group (starting with 15–19 years up to 75 years and older) in each projection step. Technically, the input files must contain the rates for the benchmark year and the multipliers that are used to calculate the rates in each projection period. Labour force scenarios are specified in Chap. 10.

Replacement migration calculations require additionally information about the sex and age structures of the potential "replacement migrants". They are defined similarly as for the migrants from the rest of the world in the standard simulations, i.e. by giving the share of males and the relative number of migrants in each age group for each sex. The sex and age structures of replacement migrants are common to all the countries and do not change in time. A scenario concerning the sex and age structures of the replacement migrants is presented in Chap. 14.

The above approach was adopted in the model in order to minimize the data requirements, which are still quite large.

---

[5]The aim of the current study was to investigate the impact of migration and we decided to keep the fertility scenario simple. In the latest version of MULTIPOLES it is possible to set scenarios for fertility rates by the mother's age group explicitly, which allows one to model, for example, the impact of the changes of the average age of childbearing.

[6]It is worth noting that the relative numbers of migrants in each age group are not percentages and they may be positive or negative, depending on whether the net migration in a given age group is positive or negative. These numbers must add up to 100 if the overall net migration to a given country is positive, or to −100 in the opposite case.

11.6 Final Remarks About Modelling

MULTIPOLES allows a systemic treatment of the population of a large multicountry territory, departing from the traditional approach of country-by-country population projections. In particular, it permits a more elegant and still feasible inclusion of international migration into the process of modelling population change. The quality of a forecast, measured by the *ex-post* errors, depends not only on the soundness of the mathematical model and the accuracy of the assumptions about the change of the components of change, but also to a large extent on the quality of the input data. Therefore, improvements in population and migration statistics, in particular harmonization of the definitions and better coverage of migration statistics, are the key to the improvement of population modelling and forecasting. In the current study we placed a lot of attention to data collection (as documented in previous chapters in this book), but we are aware of the deficiencies of the data, especially those concerning international migration.

Chapter 12
The Future of European Populations and the European Labour Force, 2002–2052*

Jakub Bijak, Dorota Kupiszewska, Marek Kupiszewski, and Katarzyna Saczuk

12.1 Introduction

This chapter presents the results of population and labour force forecasts and two simulations prepared under assumptions of (1) constant migration flows on the level observed in 2002 and (2) no migration from countries of the world other than the 27 countries under study, to set a benchmark for comparison with other simulations and forecasts. The timeframe of the study covers 50 years, from 2002 to 2052.

The forecast is based on an overview of migration policies in Europe (Chap. 2), critical assessment of the usefulness of migration theories for forecasting purposes

*The findings presented in this chapter were initially published in a more technical fashion in Bijak et al. (2007).

J. Bijak (✉)
Division of Social Statistics and Demography, ESRC Centre for Population Change and the Southampton Statistical Sciences Research Institute, University of Southampton, Southampton, UK
e-mail: J.Bijak@soton.ac.uk

D. Kupiszewska
Central European Forum for Migration and Population Research, IOM, Warsaw, Poland
e-mail: d.kupisz@twarda.pan.pl

M. Kupiszewski
Institute of Geography and Spatial Organization of the Polish Academy of Sciences, Warsaw, Poland
e-mail: m.kupisz@twarda.pan.pl

K. Saczuk
Central European Forum for Migration and Population Research, IOM, Warsaw, Poland

Economic Institute, National Bank of Poland, Warsaw, Poland

Warsaw School of Economics, Warsaw, Poland
e-mail: katarzyna.saczuk@gmail.com

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_12,

and the analysis of migration push and pull factors (Chap. 3). In addition to this, the scenarios of future fertility and mortality (Chaps. 6 and 7) as well as the scenarios concerning international migration (Chaps. 4 and 5) have been provided separately, as have labour force theories, factors of labour force participation and scenarios of economic activity (Chaps. 8, 9 and 10, respectively). The scenarios presented in those chapters have served as a direct input into the multistate population model for multilevel systems (MULTIPOLES) discussed in Chap. 11, which was used to obtain the results shown in the current study.

The results are presented in two parts: Sect. 12.2 focuses on the population and labour force forecasts for Europe, presenting both the scenario with likely migration developments assumed and the expected uncertainty span as concerns the international population flows; Sect. 12.3 presents two simulations prepared under assumptions of either constant migration flows or migration from countries of the world other than the 27 countries under study, to set a benchmark for comparison with other simulations and forecasts. Finally, Sect. 12.4 offers a brief summary of the outcome of the study, as well as the most important conclusions and recommendations for the future.

Throughout this chapter, the term 'economically active population' is used in accordance with the international definitions (e.g. International Labour Organization 2003) to depict the overall labour supply, i.e. both the employed and the unemployed. Activity rates (also labour force participation rates) relate the number of the active to the overall size of the population, either total or of the specific age group, depending on the context. The terms 'economic activity' and 'labour force participation' are used interchangeably.

A set of measures of ageing and labour market structures are used throughout the book. With respect to the magnitude of the impact of ageing on the population, a commonly used measure is the old-age dependency ratio (ODR), defined as the ratio of the population aged 65 years and more to the population in the 15–64-year age group. For more transparency, throughout the current study the ODRs are shown as percentages, i.e. multiplied by 100. Another simple indicator is the potential support ratio (PSR), the reciprocal of the ODR, indicating how many people aged 15–64 years in a given population can potentially support one person aged 65 years or more. The age limits of 15 and 65 years, dividing the population into preworking, working and retirement age groups, are set arbitrarily (the same for all countries under study for the sake of comparison), following a United Nations (2000) report.

Although simple demographic measures of the advancement of ageing, such as the ODR and the PSR, are widely used in the research on ageing (United Nations 2000), they are only a rough approximation of the impact of the process on the economic situation of societies. To take into account not only changes in the age structure of the population but also changes in the labour force participation, one can introduce alternative measures of the intensity of ageing. Further in this chapter we will focus on two such measures: the *economic old-age dependency ratio* (ODRE) and the *labour market dependency ratio* (LMDR).

Let the ODRE be defined as the ratio of the economically inactive population of retirement age (i.e. persons aged 65 years or more) to the whole active population aged 15 years or more. This measure describes the economic burden of inactive

pensioners on the working population, and is therefore an important indicator of the effects of ageing from the point of view of sustainability of pension systems.

Further, let the LMDR be defined as the ratio of the whole economically inactive population to the whole active population, considering people aged 15 years or more. This indicator can be interpreted as the overall economic burden of the inactive population on the labour market. The LMDR is thus more general than the ODRE, as it considers not only pensioners, but also younger inactive generations, both of which have to be economically supported by the active population. Again, for the sake of better transparency of presentation, throughout the current study both the ODRE and the LMDR will be shown as percentages, i.e. multiplied by 100.

12.2 Population and Labour Force Forecasts for Europe

This section is devoted to the presentation of the three variants of results of the population and labour force forecasts for the 27 countries under study. The forecasts differ, depending on the assumptions concerning international migration developments: base, considered to be the likely one, as well as high and low, setting the plausible uncertainty span, based on the qualitative, judgemental arguments presented in Chap. 5. For fertility, mortality and labour force participation, single, fairly standard scenarios are assumed, and are common for all the forecasts (see Chaps. 6, 7 and 10, respectively). For simplicity, it is assumed that immigrants acquire demographic and economic patterns of host populations immediately upon arrival (for some demographic arguments, see Bijak et al. 2007), although more thorough research on this issue remains beyond the scope of this book.[1]

12.2.1 Base Scenario: Likely International Migration Developments

In the current study, the base scenario of international migration developments has been developed under the assumption of a stable socio-economic situation in Europe, sustainable economic growth and long-term convergence of income levels in the European countries. Within Europe, an overall increase in mobility is expected, following the increase of job opportunities. In the short and middle term this issue is expected to be of key importance for East–West migration, taking into account the gradual opening of Western European labour markets for the citizens of Central and Southeastern Europe. On the worldwide scale, in turn, the base scenario also assumes a moderate improvement of the economic, political and social

[1]In particular, it is assumed here, somewhat simplistically, that with respect to fertility patterns, migrants follow the ‘adaptation hypothesis’ rather than the ‘socialization hypothesis’, that is, adapt host-country patterns rather than preserving the ones from their countries of origin (for a theoretical discussion, see Kulu 2005).

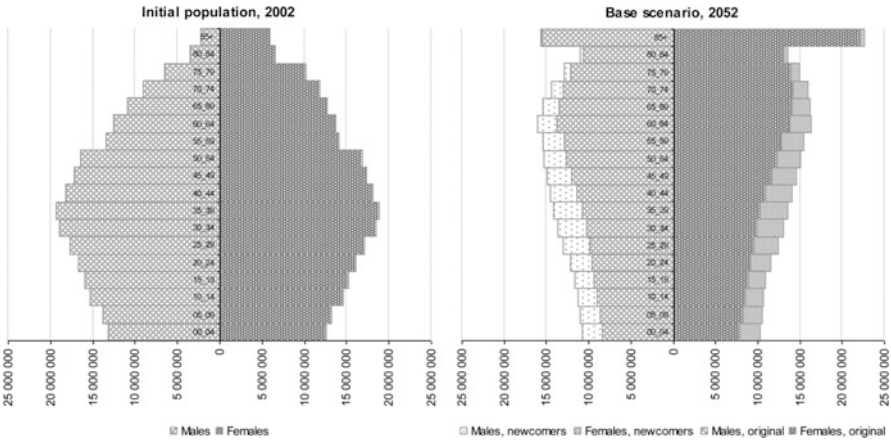

Fig. 12.1 Changes in the age structure in 27 countries, 2002–2052: base scenario
Source: Eurostat, NewCronos for 2002; own calculations for 2052

situation, resulting in moderate overall population inflow from developing regions of the world to Europe. The migration policies in this scenario are not assumed to be very restrictive, owing to relatively stable socio-economic conditions in the countries under study.

Under the said assumptions concerning international migration, the overall population size of all 27 countries under study will remain almost unchanged over the next half a century, increasing only by 800,000, from 494.1 million in 2002, to 494.9 million in 2052. The main mechanism of this stability is the substitution of negative net natural change with an inflow of extrasystem international migrants, that is those coming from outside the 27 countries studied. To assess the impact of extra-system migration, a simulation of population change was run, based on the assumption that there is no migration from the countries of the world other than the 27 countries under study. This simulation is described in more detail in Sect. 12.3.2. In the base scenario, the post-2002 immigrants from outside the system of 27 European countries together with their descendants amount to 80.2 million people at the end of the forecast period, of which 58.5 million people account for positive net migration and 21.7 million for the natural increase of the immigrant population. This simple model calculation allows us to assess the importance of a natural increase of the immigrant population, which accounts for over a quarter of the total growth of this population. This contrasts starkly with the 16% decrease of the initial European population due to a negative natural change and intrasystem international migration.

Population ageing, defined as the increase in the share of the oldest age groups in the total population, is the most important feature of the forecasted population change until the middle of the twenty-first century. In 2002, the 35–39-year age group was the most numerous one. At the end of forecasting period, this position will be taken by the 60–64-year age group (see Fig. 12.1). The right panel of

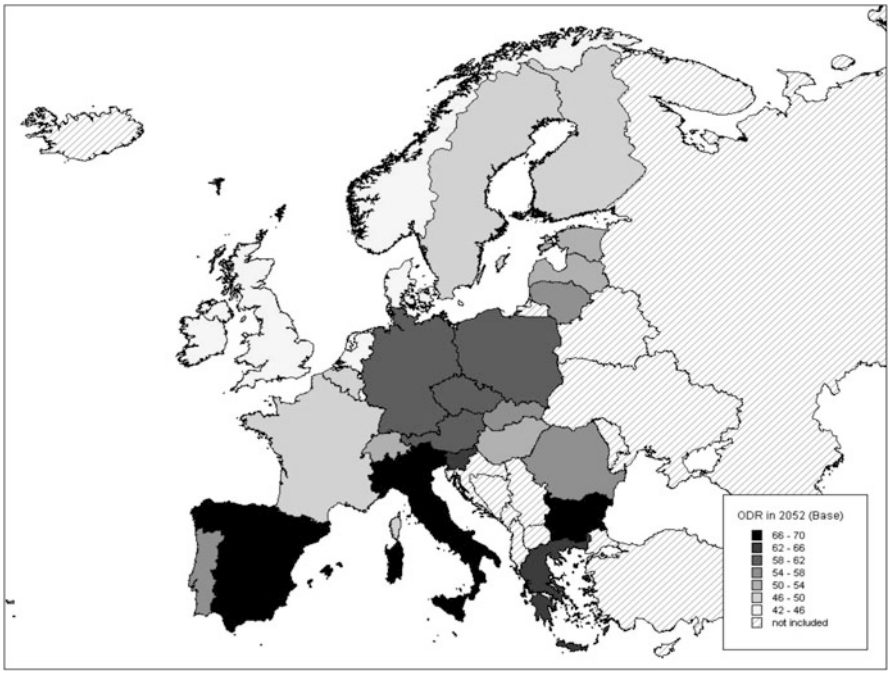

Fig. 12.2 Old-age dependency ratio (*ODR*) in Europe in 2052: base scenario
Source: own computations

the figure shows the difference between the demographic structure of the 2002 population and the one forecasted for 2052, and demonstrates the impact of the post-2002 immigrants and their descendants on the change of the overall population structure.

Largely regardless of the impact of migration, substantial ageing of the European populations is envisaged. The ODR is expected to increase from 23.9 to 54.9%, thus more than doubling (growth by 130%). We expect that at the end of the forecast period the ODR will range from 43.0% in Ireland to 67.4% in Italy and 67.5% in Spain. High fertility is an apparent factor limiting the process of ageing. This is especially visible in Luxembourg (forecasted ODR of 44.2%), the Netherlands (44.5%) and Scandinavia (Denmark 44.7%, Norway 44.9%). Southern and Southeastern European countries, such as Bulgaria (ODR of 66.5%), Slovenia (62.8%) and Greece (62.6%), will experience the most advanced ageing, and all are characterized by very low levels of fertility. The spatial distribution of the ODRs forecasted for 2052 is presented in a map in Fig. 12.2.

The changes are even more visible in the development of the labour force resources. In the base scenario, between 2002 and 2052, the labour force will shrink by almost 10%, from 232.8 million to 209.7 million people. The decline is, however, moderate in comparison with what would happen without migration from outside

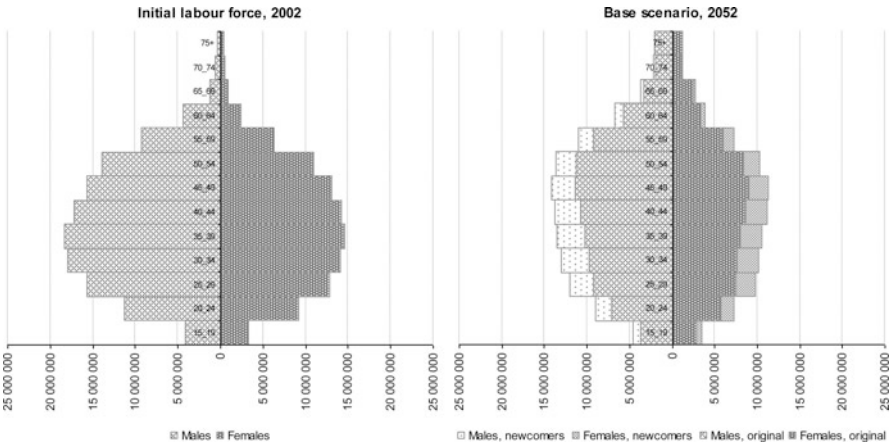

Fig. 12.3 Change in the age structure of the labour force in 27 countries, 2002–2052: base scenario
Sources: Eurostat, NewCronos for 2002; International Labour Organization 2003; own calculations for 2052

the countries under study. Without immigrants from the other parts of the world, the labour force resources in the 27 countries would decrease by 28% (65 million people). In the base scenario, in 2052 immigrants and their descendants will account for one fifth of the total labour force in the 27 countries. Moreover, the decline in the size of the labour force is accompanied by a decline of its share in the total population. The labour force participation rate for the total population, being 47.1% in 2002, is expected to decrease to 42.4% half a century later.

There will also be significant changes in the structure of the labour force. As in the case of the total population, these changes will decrease the proportions of middle age groups. Between 2002 and 2052, the proportion of older workers (55 years and older) is expected increase by 78% (from 11.3 to 20%), mainly at the expense of employed persons aged between 25 and 54 years. The share of the young age groups (15–24 years) in the labour force is envisaged to remain almost the same: 12% in 2002 and 11.6% in 2052. This is mainly due to substantial increases in participation rates assumed for the 15–19-year age group. The size and proportion of the older age groups (65 years and older) in the total labour force is going to more than triple. This is a result of a forecasted increase of labour force participation of older people, as well as of the ageing of the population. A comparison of the labour force age pyramids for all 27 countries in 2002 and 2052 is presented in Fig. 12.3. Needless to say, such changes as portrayed in Fig. 12.3 will require significant adjustments of labour markets in order to meet the needs of an increasing number of elderly workers.

In consequence, both the ODRE and the LMDR—the economic indicators of ageing and the overall burden of social security systems on the labour force—will increase according to the forecast for 2052. In the 27 European countries,

the number of inactive persons of retirement age per person in the labour force is expected to more then double over the next 50 years, with the ODRE increasing from 32.4% in 2002 to 66.4% in 2052. In Italy, the country with the most advanced process of ageing, the ODRE will reach 93.4%.

The financial impact of the inactive population aged 15 years or more on the overall labour force, measured by the LMDR, is expected to rise by 27%, from 76.8% in 2002 to 105.2% in 2052 in the 27 countries under study. This means that on average every economically active person in these countries will support more then one inactive person (excluding children).

The values of both indicators (ODRE and LMDR) for particular countries follow patterns similar to the pattern of the ODR. At the end of the forecast period, the order of countries ranked by the ODRE and LMDR resembles their ranking by levels of fertility in these countries, only slightly modified by the expected labour force participation patterns. The rankings of countries by the ODRE and LMDR at the beginning and at the end of the forecast period are shown in Table 12.1.

The construction of the indicators makes the LMDR more sensitive to the labour force participation pattern than the ODRE. For this reason, the order of countries ranked by the LMDR is almost identical to the order of the participation rates for the total population (and thus also for the population aged 15 years and older).

The analysis of the order of the countries by the ODRE and LMDR provides interesting hints about the relative importance of various determinants of population and labour force change. This information can be useful in particular in identifying effective means to mitigate the consequences of aging. In 2002, Central European countries occupied relatively high ranks in the table, mostly due to young population structures. Their ranks 50 years ahead, however, prove that this factor, as expected, ceases to matter in the long run, being much less important than the pertaining low fertility levels. The case of the Scandinavian countries shows that the relatively high fertility and economic activity levels during the whole forecast period place them at the top of the rankings in 2052. The examples of France and Switzerland show the importance of high fertility and high labour force participation for mitigating unfavourable changes in the population structures.

On the other hand, Southern European countries (Italy, Greece and Spain) demonstrate to what extent the ageing process in Europe can develop. Their position in both rankings stems from the lowest fertility and economic activity levels; it is expected that half a century ahead the share of the active population in all three countries will be less than 40%, and without immigration, this decline would be even more dramatic. The spatial distributions of the ODRE and LMDR forecasts for 2052 are presented in Figs. 12.4 and 12.5.

To assess the importance of observed international migration for the population dynamics we ran a simulation of population dynamics in which international migration was set to zero. Under this assumption, a decrease of the combined 27 national populations by over 79 million can be expected, that is 19% of the total original population. Despite the fact that the decrease spans half a century, almost two generations, one must not underestimate its significance. It is combined with

Table 12.1 Dependency ratios: economic and labour market, 2002 and 2052 (%)

	ODRE				LMDR			
Rank	Country	2002	Country	2052	Country	2002	Country	2052
1	Romania	17.9	Norway	49.9	Switzerland	48.6	Norway	77.2
2	Ireland	22.1	Denmark	50.7	Denmark	50.2	Denmark	78.9
3	Slovak Rep.	23.3	France	51.5	Norway	51.0	Sweden	79.8
4	Denmark	25.5	UK	54.0	Netherlands	58.1	Switzerland	83.9
5	Netherlands	25.8	Sweden	54.1	Portugal	61.1	France	84.4
6	Portugal	25.8	Netherlands	54.2	UK	61.3	Finland	86.7
7	Poland	26.1	Portugal	54.6	Sweden	61.5	Portugal	87.5
8	Switzerland	26.2	Ireland	55.1	Finland	62.1	Netherlands	88.7
9	Norway	26.2	Finland	56.2	Romania	62.9	UK	89.9
10	Czech Rep.	26.5	Switzerland	56.4	Lithuania	63.4	Romania	93.0
11	Slovenia	27.3	Romania	56.6	Slovak Rep.	66.5	Estonia	93.2
12	Lithuania	27.7	Estonia	57.7	Czech Rep.	67.4	Ireland	98.2
13	Estonia	28.7	Luxembourg	59.8	Ireland	69.7	Latvia	99.3
14	UK	29.3	Belgium	61.3	Austria	70.8	Lithuania	102.8
15	Finland	29.3	Latvia	63.0	Slovenia	71.7	Belgium	104.8
16	Latvia	29.9	Hungary	64.0	Germany	72.0	Hungary	105.8
17	Austria	31.0	Lithuania	66.5	Estonia	72.1	Luxembourg	105.9
18	Luxembourg	32.1	Germany	70.3	Latvia	74.0	Germany	106.6
19	Sweden	32.3	Slovak Rep.	71.9	France	81.0	Slovenia	108.6
20	Germany	34.1	Austria	72.5	Poland	81.8	Slovak Rep.	112.1
21	Greece	35.0	Slovenia	72.7	Spain	86.8	Austria	112.8
22	France	36.0	Czech Rep.	73.6	Luxembourg	87.2	Czech Rep.	113.5
23	Spain	36.5	Poland	74.0	Greece	88.5	Poland	114.4
24	Hungary	36.7	Bulgaria	80.2	Belgium	93.4	Bulgaria	116.5
25	Bulgaria	38.2	Greece	83.5	Bulgaria	97.4	Greece	133.7
26	Belgium	39.3	Spain	90.6	Hungary	103.9	Spain	141.3
27	Italy	45.3	Italy	93.4	Italy	113.3	Italy	147.5
	All countries	**32.4**	**All countries**	**66.4**	**All countries**	**76.8**	**All countries**	**105.2**

ODRE economic old-age dependency ratio, *LMDR* labour market dependency ratio
Sources: Eurostat, NewCronos for 2002; International Labour Organization (2003); own calculations for 2052

structural changes visible in the ODR increase by over 60%. The international migration observed now contributes substantially to the vitality of European populations, although alone it cannot reverse the structural changes observed.

12.2.2 High and Low Scenarios: The Uncertainty Span

Further to the base scenario expectations on future migration, which are considered as the probable future developments, the high and low scenarios have been developed to take into account—in a simplified and somewhat deterministic fashion—the

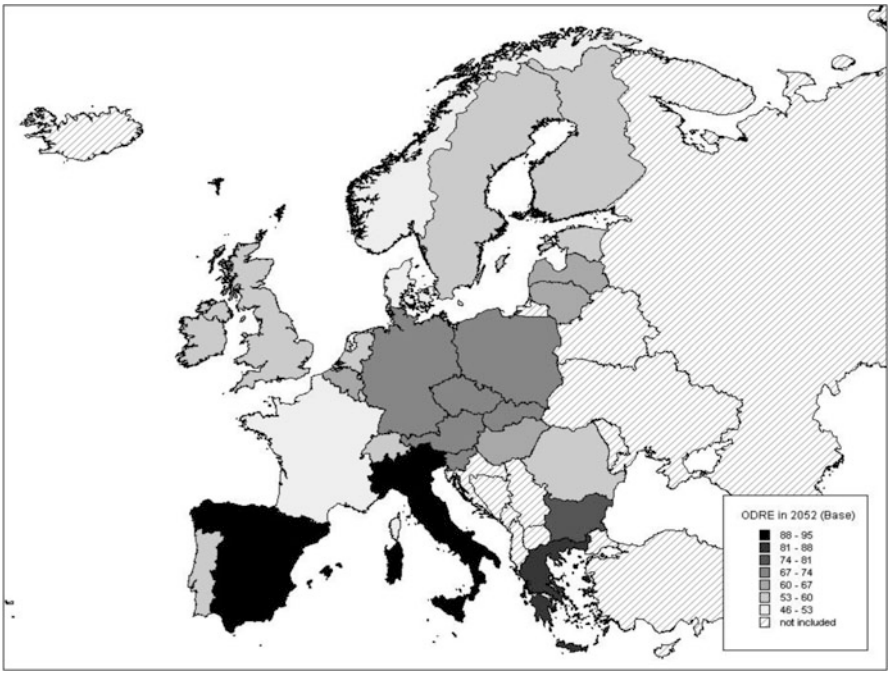

Fig. 12.4 Economic old-age dependency ratio (*ODRE*) in Europe in 2052: base scenario
Source: own computations

expected uncertainty of the migratory phenomena in Europe. In the current study, assumptions concerning the future direction and magnitude of population flows in all forecast variants (base, high and low) were made subjectively, following a qualitative analysis of the migration factors presented in Chap. 5. It is worth noting that the assumptions for the high and low scenarios are meant to provide the envisaged plausible bounds of likely future migration developments, rather than the 50-year-long trajectories for the countries under study. It seems hardly possible that the conditions for very high net migration gains or losses would be so persistent.

In the high scenario, a good overall socio-economic situation is assumed for all European countries, including rapid economic convergence. This will both increase the overall mobility of people within Europe in search of emerging employment possibilities and reduce the incentives to emigrate from the poorer regions, including Central Europe. The increase of the East–West population flows following the opening of the Western European labour markets is therefore expected to be a short-term phenomenon. The assumed dynamic economic growth and social development in Europe is also expected to result in a need for inflow of foreign labour from the other parts of the world and thus lead to a relative relaxation of immigration policies. Economic growth in the developing regions of the world is furthermore assumed to be a factor contributing to the increased mobility of people on a global scale.

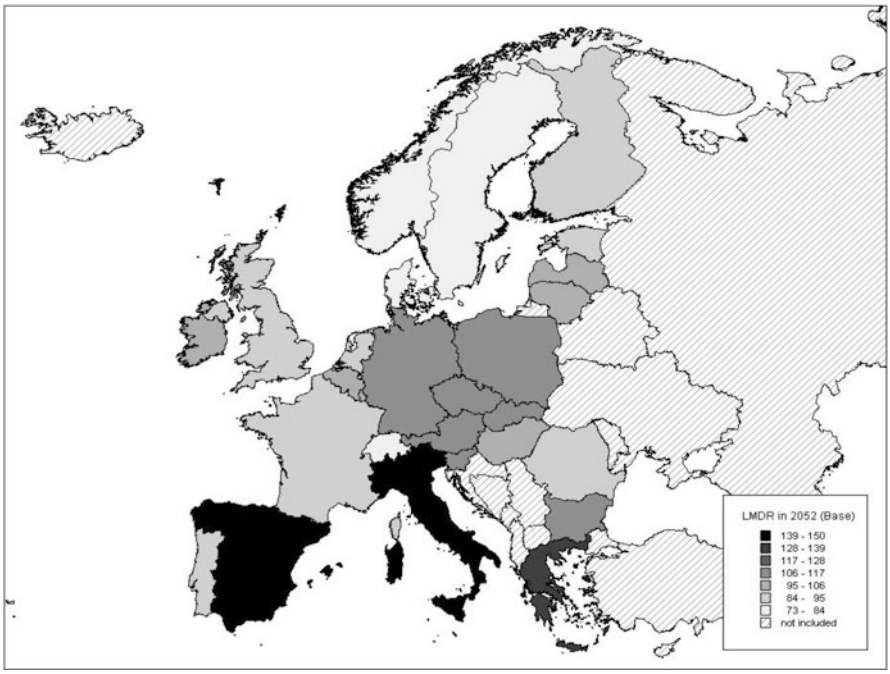

Fig. 12.5 Labour market dependency ratio (*LMDR*) in Europe in 2052: base scenario
Source: own computations

Under such assumptions, the total population size of all 27 countries under study will increase from 494.1 million in 2002, to 563.0 million in 2052, that is by 13.3%. The post-2002 extrasystem immigrants and their descendants will contribute 148.2 million people to the increase in the population of the countries under study. Hence, in the absence of immigration from outside the modelled countries, their total population would be smaller by 35% at the end of the forecast period. By 2052, about 109.0 million people are expected to come as immigrants to the 27 European countries, on average 2.2 million yearly.

The impact of increased immigration in the high scenario leads to a reduced decline in the proportion of the younger generations and to an increase in the older age groups, including the oldest old. In 2052, the most numerous age group is again expected be the 60–64-year-olds. A comparison of the age pyramids for all countries under study between 2002 and 2052 is presented in Fig. 12.6 in the same way as in the case of the base scenario (Sect. 12.2.1).

The ageing process in the high variant of the forecast is obviously slightly less advanced than in the base one, owing to the inflow of more immigrants, who are relatively younger than the host population. The average ODR in 2052 in this scenario is expected to be 48.7%. The ODR is therefore expected to increase in comparison with its level in 2002 by nearly 104%, thus slightly more than doubling.

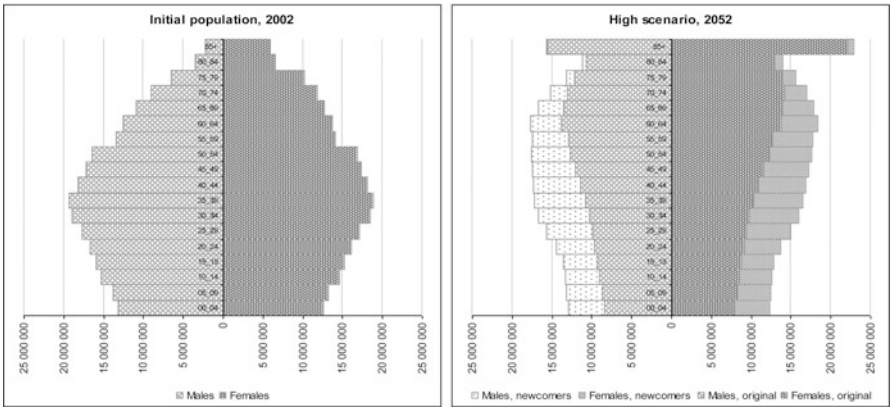

Fig. 12.6 Changes in the age structure in 27 countries, 2002–2052: high scenario
Source: Eurostat, NewCronos for 2002; own calculations for 2052

On the country level, the high-scenario ODRs forecasted for 2052 range from 38.1% for Luxembourg and 38.2% for Ireland to 58.8% for Italy and 60.0% for Spain. With respect to the ODR, the countries under study follow roughly the same order as in the case of the base scenario, only slightly modified by the impact of migration within Europe. Hence, in the high variant, the countries where the ageing process is expected to be least advanced in the first half of the twenty-first century are additionally the Netherlands (ODR of 39.7%) and the United Kingdom (40.5%), followed by the Scandinavian countries. Countries with the most advanced ageing, in terms of the ODR, are again the countries of Southern and Southeastern Europe, including Bulgaria (ODR of 58.7%), Greece (54.7%) and Slovenia (54.1%). The spatial distribution of the ODRs envisaged for 2052 in the high variant of the forecast is presented in a map in Fig. 12.7.

We expect that the increase of the labour force resources in all countries in the high scenario will amount to 5.9%. The increase will be slower than in the case of the total population, resulting in a decline of the share of the labour force in the total population from 47.1% in 2002 to 43.8% in 2052. Slightly higher labour force participation rates for the total population are a straightforward result of increased number of immigrants from other parts of the world. At the end of the forecast period, post-2002 immigrants and their descendants will account for almost one third of the total labour force resources in the 27 European countries.

The alternative assumptions concerning international migration do not bring a radical change with respect to the ageing process and its effects in comparison with the base scenario. By 2052, the ODRE will increase on average to 58.8% (as compared with 66.4% in the base scenario), and the LMDR will reach 97.2% (105.2% in the base scenario). This means that on average every active person will have to support slightly fewer than one inactive person aged 15 years or more. Not surprisingly, this change will favour countries with relatively large migration

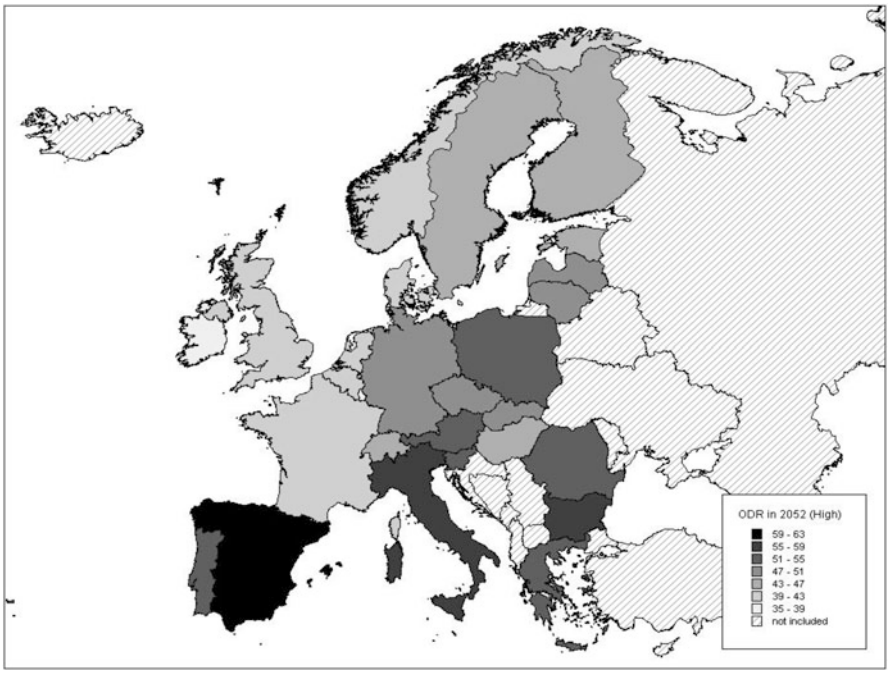

Fig. 12.7 Old-age dependency ratio (*ODR*) in Europe in 2052: high scenario
Source: own computations

inflows. The order of countries according to the ODRE and the LMDR in 2052 for the high scenario is very similar to that obtained under the base scenario. For 2052, the lowest values of both indicators are reached in Norway (ODRE of 46.0%, LMDR of 73.1%) and the highest ones are reached in Italy (ODRE of 81.2%, LMDR of 134.4%). The spatial distributions of the ODREs and LMDRs forecasted for 2052 in the high scenario are presented in Figs. 12.8 and 12.9, respectively.

Opposite to the high scenario, the low variant of the forecast pictures economic stagnation; a depressed labour market and low incentives to migrate, except from Central Europe, where short- and mid-term economic disturbances are assumed. This would provide a reason for the enhanced migration pressure on Western Europe, strengthened by gradual opening of the labour markets within the enlarged European Union. The disparities between the more and less developed parts of Europe are assumed to persist longer in comparison with the base scenario, owing to unfavourable economic conditions. Therefore, the wave of migration in the low variant is assumed to be higher and longer-lasting. On a global scale, in turn, a worldwide economic stagnation is envisaged. This will result in strong migration pressure on Europe from the developing countries, countered by very restrictive migration policies aimed at protecting the European labour markets and reducing the emerging social tensions. These factors would eventually contribute to the decline of at least registered immigration to the European countries under study.

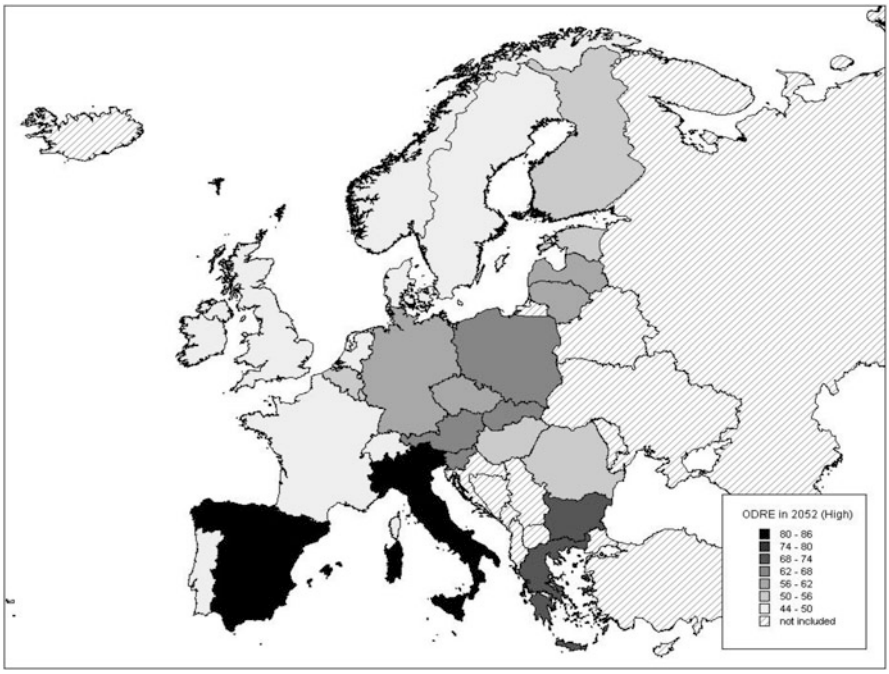

Fig. 12.8 Economic old-age dependency ratio (*ODRE*) in Europe in 2052: high scenario
Source: own computations

Under the low scenario, the overall population will diminish by 9.6%, to 446.9 million in 2052, and the main driver of this reduction will be the limited immigration from the outside world. In this variant, the contribution of the post-2002 immigrants and their descendants to the overall population size will amount only to 32.2 million people by the end of the forecast period (7% of the total). Between 2002 and 2052, the total number of immigrants from outside the system to the 27 countries under study is expected to be only about 22.8 million people, thus considerably less than in the two other scenarios.

Also in the low scenario the age pyramid is much slimmer owing to lower inflow of immigrants from outside the system, resulting in lowering the proportion of the young population. The most numerous 5-year age groups in 2052 are expected be the 60–64-year-old males and the 65–69-year-old females. The low-scenario changes of the age structures for all 27 countries under study in the forecast period are presented in Fig. 12.10.

The average ODR in this variant is expected to reach 60.8% by 2052. On the country level, the ODRs forecasted for 2052 in the low scenario will range between 46.6% for Ireland and 77.1% for Bulgaria. The order of the countries under study is roughly the same as in the other scenarios, allowing for slight alterations caused by the impact of intra-European migration. In this scenario, the countries with the relatively least advanced ageing process in terms of the ODR are expected to

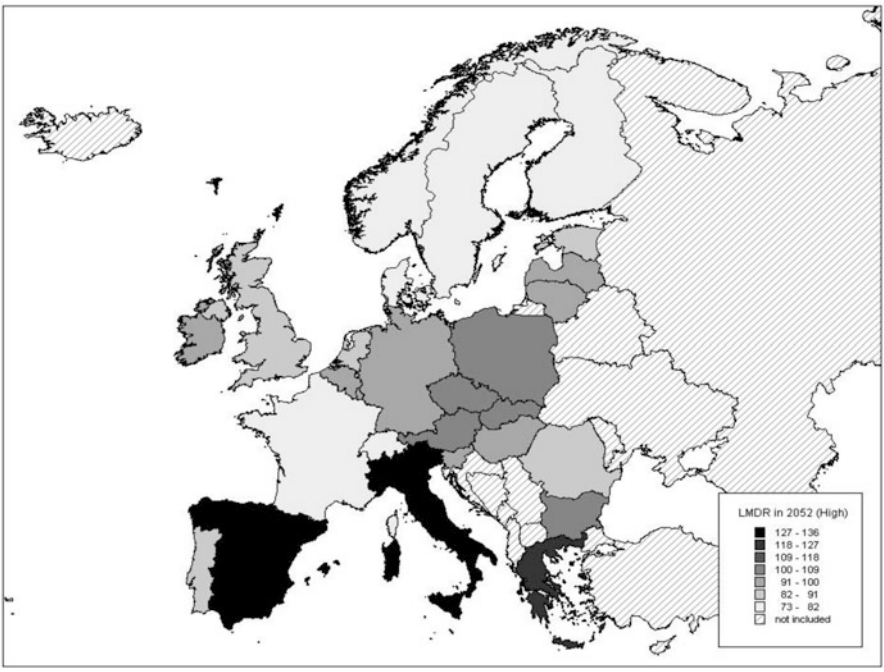

Fig. 12.9 Labour market dependency ratio (*LMDR*) in Europe in 2052: high scenario
Source: own computations

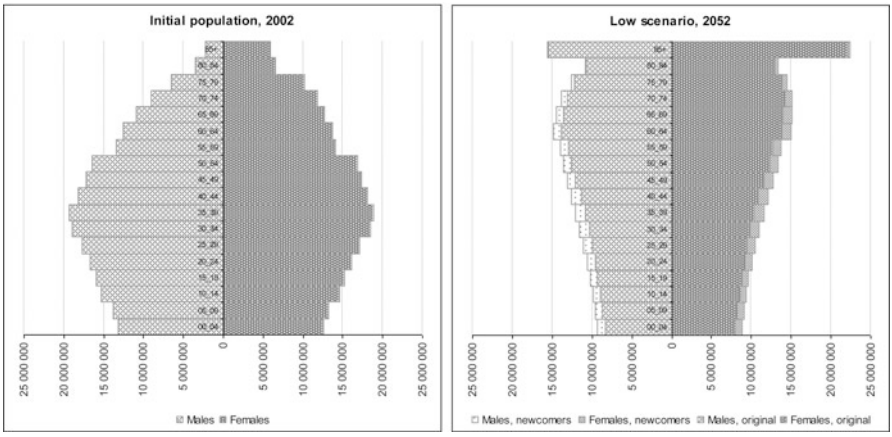

Fig. 12.10 Changes in the age structure in 27 countries, 2002–2052: low scenario
Source: Eurostat, NewCronos for 2002; own calculations for 2052

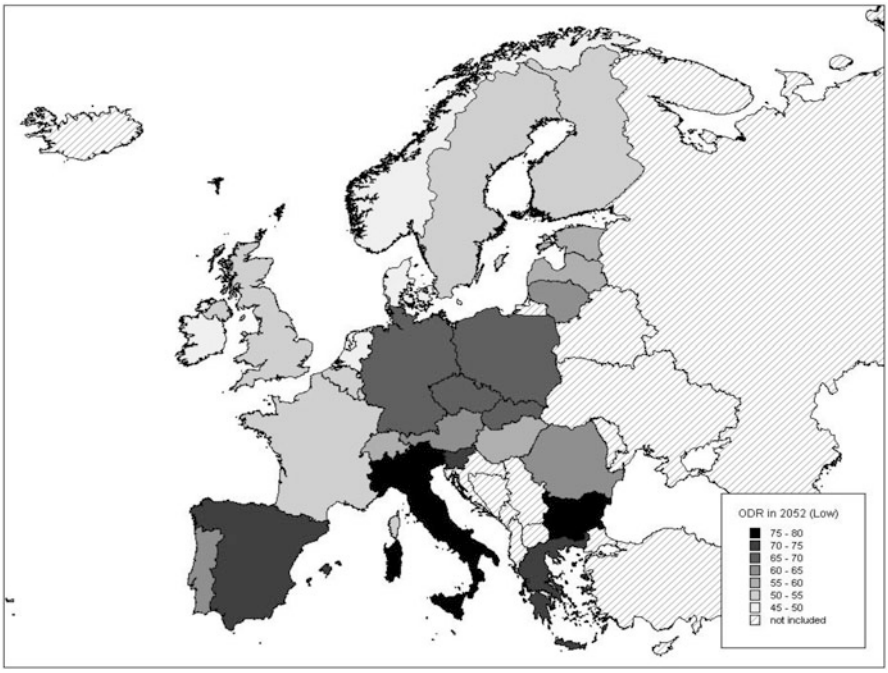

Fig. 12.11 Old-age dependency ratio (*ODR*) in Europe in 2052: low scenario
Source: own computations

be Denmark (ODR of 48.1%), Norway (48.2%) and the Netherlands (48.9%). On the other hand, population ageing is again going to be relatively most advanced in Southern and Southeastern Europe, including in Italy (ODR of 75.5%), Spain (74.2%), Slovenia (71.5%) and Greece (70.2%). A map with the spatial distribution of the ODRs forecasted for 2052 in the low scenario is presented in Fig. 12.11.

The smaller number of immigrants in all age groups, especially the younger ones, will also influence the labour force forecasts in this variant. At the end of the forecast period the overall labour force resources in the 27 countries under study are expected to be 21% (49 million people) smaller than in 2002. In this scenario, the total labour force in 2052 will amount to 184 million people (41% of the total population), of whom 8.7% will be post-2002 immigrants and their descendants.

In the low scenario, the average ODRE forecasted for 2052 for all countries under study will reach 73.6%, and the average LMDR will reach 112.9%. The Scandinavian countries and France and the United Kingdom will demonstrate the relatively smallest ratio of the retired inactive population to the overall labour force size. Similarly, the Scandinavian countries and Switzerland will be characterized by the smallest overall ratio of the economically inactive population (excluding children) to the active one. Again, the smallest values of both indicators forecasted for 2052 will be observed for Norway (ODRE of 53.5%, LMDR of 80.8%), and the

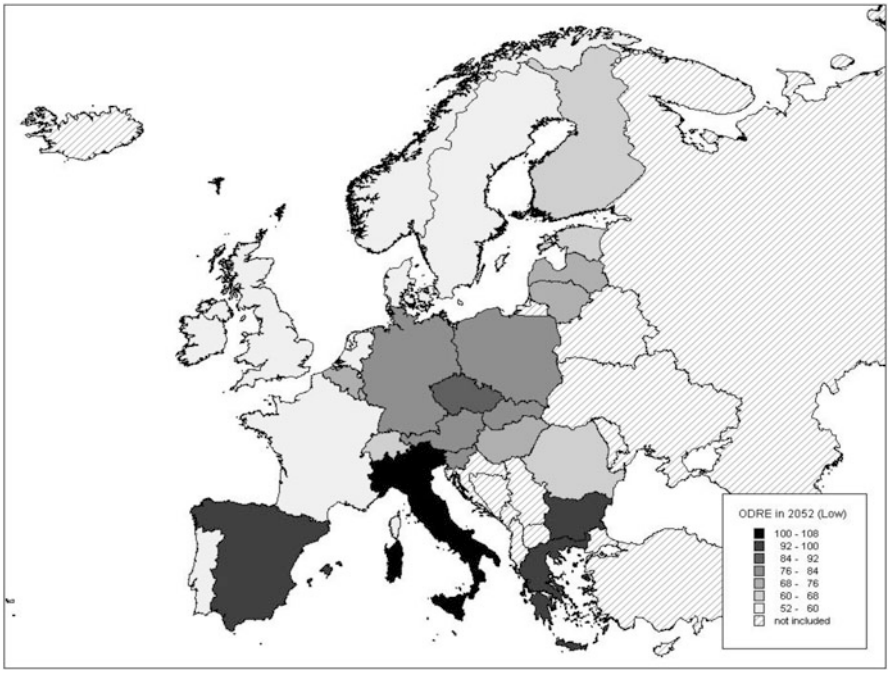

Fig. 12.12 Economic old-age dependency ratio (*ODRE*) in Europe in 2052: low scenario
Source: own computations

highest ones will be observed for Italy (ODRE of 105.0%, LMDR of 160.1%). The spatial distribution of the ODREs and LMDRs for 2052 is presented in Figs. 12.12 and 12.13, respectively.

The uncertainty span between the high and low scenarios considers therefore not only the estimated final population and the labour force size of the 27 countries (differences of 116.1 million and 63 million people, respectively), but more importantly, the age structures and thus the advancement of the ageing process with its economic consequences. The immigrants and their descendants are expected to account for between 7 and 26% of the overall population forecasted for 2052 in the 27 European countries (Fig. 12.14). Their respective shares in the labour force are expected to range between 9 and 32% (Fig. 12.15).

It is worth reiterating that even though in the base scenario for 2052 the post-2002 newcomers (16%) contribute to maintaining the population size at a relatively stable level, migration does not stop the changes in the age structures, which is visible as further progress of the ageing process. Many more migrants, substantially exceeding the numbers envisaged in the high variant, would be needed to keep the population structure of Europe unchanged. This issue is further corroborated in Chap. 14, which is devoted to the results of various simulations of population development, aimed at sustaining various characteristics of the population and the labour market, be it the overall size or one of the dependency ratios.

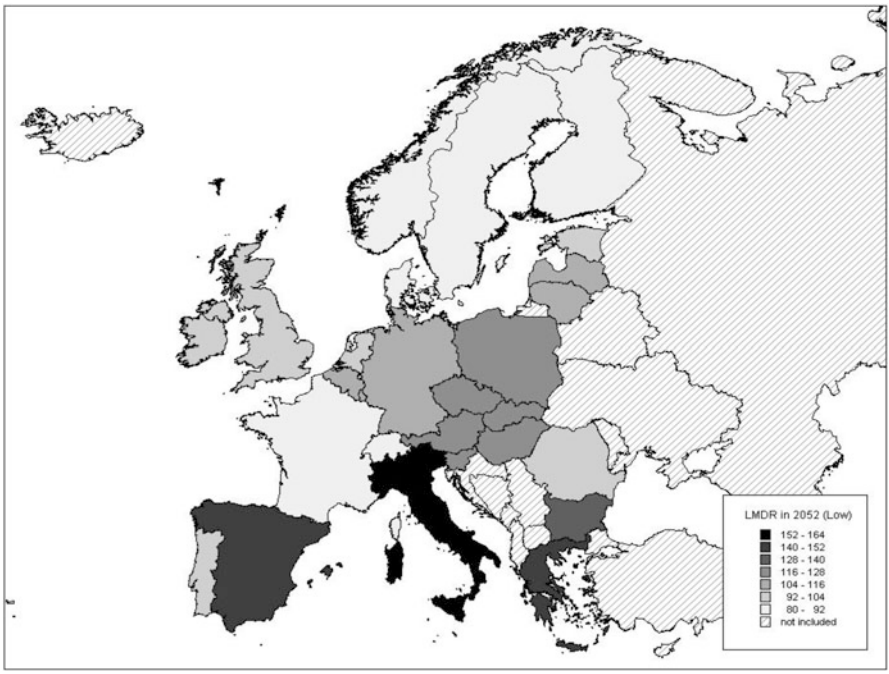

Fig. 12.13 Labour market dependency ratio (*LMDR*) in Europe in 2052: low scenario
Source: own computations

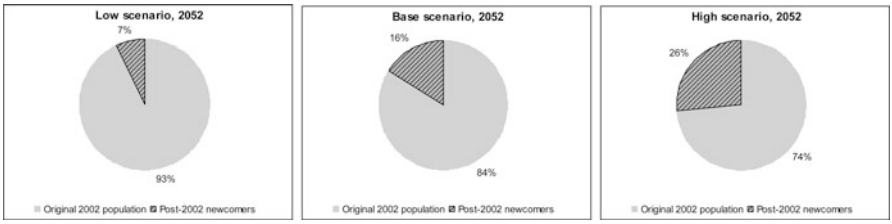

Fig. 12.14 The share of immigrants arriving after 2002 and their descendants in the total population of 27 countries, 2052 (%)
Source: own computations

The comparison of variants of forecasts reveals a significant difference in labour force structures between 2002 and 2052. The shares of the oldest age groups are expected to almost double over the next 50 years, mostly at the expense of the middle age groups (25–54 years). Table 12.2 presents the shares of broad age groups in the total labour force forecasted for 2052 under different migration scenarios.

It can be seen that various migration assumptions can alter the forecasts slightly, but their influence is minor when compared with the overall predicted change. Thus,

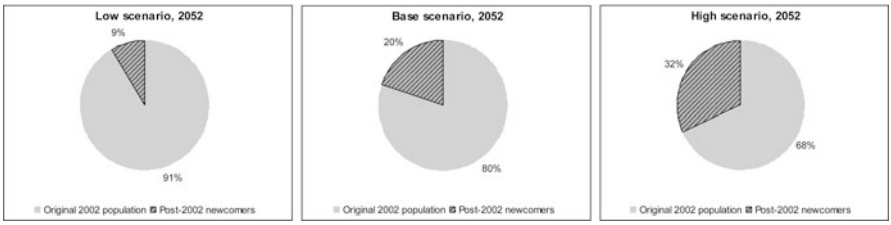

Fig. 12.15 The share of immigrants arriving after 2002 and their descendants in the total labour force of 27 countries, 2052 (%)
Source: own computations

Table 12.2 Shares of age groups in the total labour force of 27 European countries (%)

		2052		
Age groups (years)	2002	Low scenario	Base scenario	High scenario
15–24	12.0	11.6	11.6	11.7
25–54	76.6	67.2	68.3	69.4
55+	11.3	21.2	20.1	18.9

Sources: Eurostat, NewCronos for 2002; International Labour Organization (2003); own calculations for 2052

it should be realized that older workers will constitute ever greater shares of the labour force. To utilize their potential effectively, this issue should be considered a serious challenge. The inevitably growing proportion of older workers in the overall labour force should induce the development of institutions facilitating their employment. Additionally, various incentives for the increase of economic activity of older people will also be needed. The latter issues have been discussed at length by Palomba and Kotowska (2003).

In general, it is expected that the overall labour force resources in Europe will decline over the next 50 years. The share of the labour force in the total population is envisaged to decline by 10% by the end of the forecast period. Most of the decline can be attributed to the increasing share of older people in the total population. The developments of the labour force participation rates of the total population of the 27 countries under study as well as of the population aged 15 years and older in various forecast scenarios are presented in Table 12.3.

The method of forecasting the economic activity (Chap. 10) allows one to distinguish between the economic and demographic factors shaping the share of the economically active persons in the total population. Economic factors reflect the decisions of people in particular age groups whether to participate in the labour force or not. The demographic factors consider the proportions of age groups in the total labour force. The forecast of economic activity envisages increases of labour force participation in all age groups. The greatest rise in economic activity is assumed for the oldest groups (currently having the lowest economic activity rates), which is expected to more than double by 2052. Nonetheless, in none of the forecast

Table 12.3 Forecasted developments of the labour force for 27 European countries, percentage change

		2052		
	2002	Low scenario	Base scenario	High scenario
Proportion in the total population	47.1	41.0	42.4	43.8
Proportion in the population aged 15 years and older	56.6	47.0	48.7	50.7
Relative change in the size of the labour force (2002 base)	–	−21.1	−9.9	5.9

Sources: Eurostat, NewCronos for 2002; International Labour Organization (2003); own calculations for 2052

variants is this sufficient to compensate for increasing shares of the elderly in the total population. To keep the overall activity rates at constant levels, more radical changes in economic activity of the older age groups would be needed.

The declining shares of the labour force in the total population as well as in the population aged 15 years and older in all variants of the forecast imply a growing burden on the economically active population. In the base scenario, the per-worker cost of supporting the pension system (approximated by the ODRE) is expected to more than double within the next 50 years. In the same period, the per-worker social security cost generated by younger age groups is expected to remain more or less constant, or even decline slightly.[2] It has to be stressed, however, that the aggregate indicators used in this study (ODRE and LMDR) are very simplified measures of the social security system costs. Nevertheless, they are useful in assessing the direction and scale of the expected change.

12.3 Simulations of Population and Labour Force Changes Under Status Quo and No Migration Assumptions

12.3.1 Simulation Under the Status Quo Migration Assumption

The first simulation of population development assumes preservation of constant migration patterns, the same as observed at the beginning of the twenty-first century, thus maintaining the current status quo with respect to the external migration

[2]It should be noted here that the economic costs of supporting the younger age groups can be approximated by the difference LMDR – ODRE. In this particular situation, the increase in the overall LMDR can be almost exclusively attributed to the increase of the ODRE, and not to the component related to the population under 65 years.

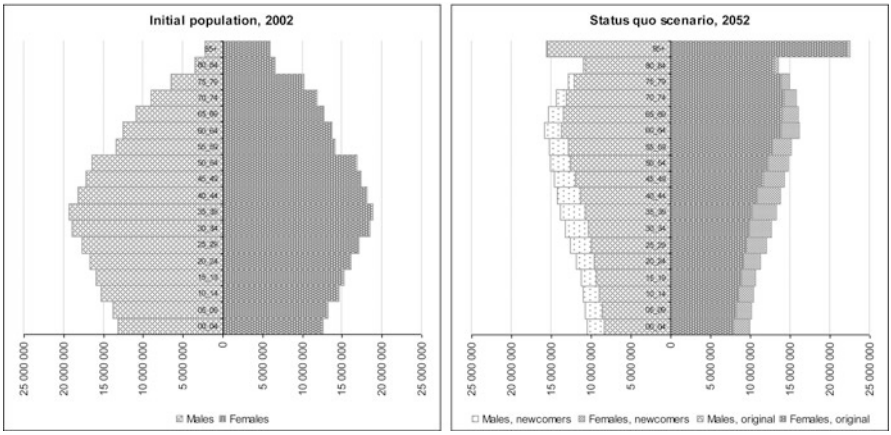

Fig. 12.16 Changes in the age structure in 27 countries, 2002–2052: status quo scenario
Sources: Eurostat, NewCronos; own calculations

exchange of the 27 countries under study. The global results obtained under these assumptions resemble to a large extent the base scenario forecast. If international migration stayed at its current levels throughout the next 50 years, the overall population of all 27 European countries would decrease slightly from 494.1 million in 2002 to 486.4 million at the end of the projection period. In this hypothetical scenario, the post-2002 immigrants from the other countries and their descendants would contribute 71.7 million people to the 2052 population, thus about 15%. Preservation of the current annual net inflow of 1.1 million persons to the countries under study would result in a total of 53.0 million immigrants over 50 years. The assumption of constant migration flows results in a target age structure of the 2052 population for all 27 countries that is very similar to the one obtained for the base forecast, as illustrated in Fig. 12.16.

In terms of the aggregate measures, under the status quo migration assumption the overall ODR for all the countries under study will increase from 23.9 to 56.0%. The ranking of particular countries with respect to their simulated ODRs for 2052 is slightly different from the one forecasted in the base scenario. The indicators range from 39.0% for Ireland to 73.3% for Greece, with Norway (ODR of 42.5%), the Netherlands (42.9%) and Denmark (45.0%) at the lower end, and Italy (69.0%), Slovenia (68.0%), Bulgaria (67.5%) and Poland (67.3%) at the upper end.

The results of the simulation for the labour force of the 27 countries are also similar to the results obtained in the base forecast scenario. With constant migration, the labour force resources will decline by 12% (28 million people) by 2052. At the end of the forecast period, the post-2002 immigrants and their descendants will account for 18.1% of the total labour force of the 27 countries. Also the proportion of the labour force in the total population and the age structure of labour force resemble the those from the base scenario. In the period 2002–2052, the share of the labour force is expected to decline by 5%, whereas the proportion of older age

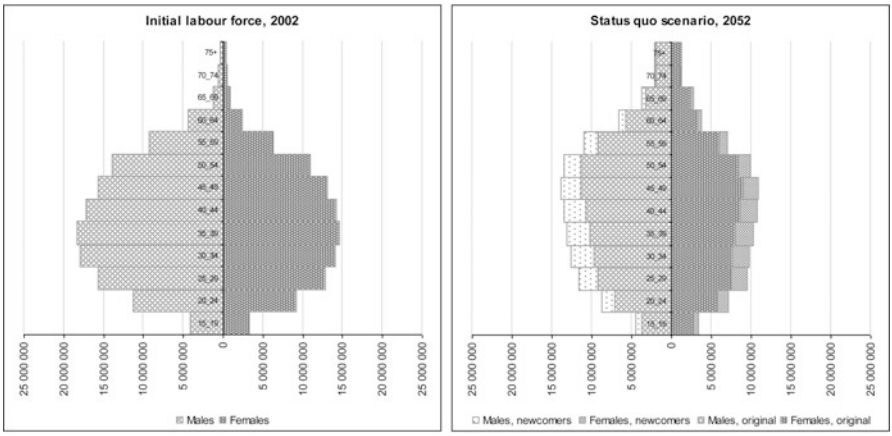

Fig. 12.17 Changes in the age structure of the labour force in 27 countries, 2002–2052: status quo scenario
Sources: Eurostat, NewCronos; International Labour Organization 2003; own calculations

groups (55 years and older) in the labour force is projected to almost double, mostly at the expense of the middle age groups (25–54 years). The initial and target age structures of the labour force, the latter resulting from the assumption of constant migration, are presented in Fig. 12.17.

The aggregate measures of economic effects of ageing (ODRE and LMDR) for the 27 countries together are also very similar to the ones for the base scenario, with some country-level exceptions. In the most notable case of Spain, the unprecedented high immigration observed prior to 2002 when kept constant for the next half a century lowers the projected burden of inactive persons on the active persons in comparison with the base scenario. The cases of Poland, the Czech Republic and the Slovak Republic are the opposite: assumed constant net outflow of migrants from these countries increases this burden. The ranges of indicators simulated for 2052 remain practically unchanged in comparison with the base scenario: the ODRE is expected to reach levels ranging from 47.3% (Norway) to 95.8% (Italy), and the LMDR is expected to range from 74.5% (Norway) to 150.1% (Italy).

12.3.2 Simulation Under No External Migration Assumption

The second simulation of the population and labour force changes assumes no migration exchange of the 27 European countries under study with the rest of the world. As migration seems to be contemporarily an immanent feature of a globalized world (Koryś and Okólski 2004), this scenario has to be seen as purely theoretical. It has been designed to illustrate the impact of international migration on population change in the other forecast and simulation scenarios, rather than to

constitute a plausible trajectory of population developments itself. This scenario is used throughout this chapter to distinguish the 'original' population from the post-2002 'newcomers' and their descendants in the target population and labour force structures expected for 2052.

Should there be no international migration exchange between the 27 countries under study and the other regions of the world, population decline and advancement of the ageing processes would, not surprisingly, be most dramatic. Over the years 2002–2052, the overall population of all 27 European countries would decrease from 494.1 million to 414.7 million, thus by about 16%. The target population structure is also very much advanced in the ageing process, with an average ODR of 64.1% and a corresponding PSR of 1.6 working-age persons 'potentially supporting' the elderly over 65 years. The age pyramids for this scenario can be found in the figures illustrating all other forecast and simulation variants as the ones depicting the 'original' population, thus marked with darker shading.

In terms of the country-specific variation of the aggregate measures of ageing, the ODR ranges from 48.5% for Ireland to 81.8% for Italy. The ranking of the European countries with respect to the ODRs is very similar to the one for the base forecast scenario. At the higher end of the values of this simple ageing indicator there are also Spain (ODR of 80.4%), Greece, Slovenia and Bulgaria, the last three with ratios between 74 and 75%. Again, the ageing processes would be least advanced also in Norway (ODR of 50.2%), Denmark (50.3%), Luxembourg (51.3%) and the Netherlands (51.4%).

In this simulation, even greater changes are expected for the labour force. By 2052 the overall labour force resources will decrease by 65 million people—28% of the initial stock. Should there be no migration exchange with the other parts of the world, in 2052 economically active persons will account for 40.1% of the total population of the 27 countries under study. On the contrary to the changes in scale, the changes of structure of the labour force would not significantly differ from the base scenario forecasts. Again, the share of older age groups in the labour force is expected to almost double by 2052, mostly at the expense of the middle age groups.

Under such a hypothetical scenario, the economic indicators of ageing will show further advancement of this process, the average ODRE reaching 77.6% and the average LMDR reaching 117.0% by 2052. The numbers are high, but only slightly higher than the ones in the low forecast scenario, which gives an additional hint that immigration does not sufficiently influence the tempo of population ageing. The comparison of the ODRE and the LMDR does not reveal any new patterns: the simulated values of both indicators go up for all countries. The order of the countries by their 2052 ODREs and LMDRs is almost the same as in the base scenario, with the lowest ones in the countries with high economic activity and high fertility. It is noticeable that the economic consequences of ageing will progress most rapidly in the countries where they are already most profound, i.e. in Italy, Spain, and Greece, as well as in the Central European countries.

In addition to the scenario assuming no migration exchange of the countries under study with the rest of the world, another simulation was also performed, with

no migratory movements whatsoever, either outside or inside Europe. As the results obtained in the latter variant proved not to differ substantially from the previous scenario, they will not be discussed in detail in this chapter.

12.4 Summary and Conclusions

There are a plethora of studies, including this one, showing that in Europe ageing and, in some countries, declining populations either are or will become important, if not overwhelming, phenomena. The base scenario of our population and labour force forecast, defined in Chaps. 5, 6, 7, and 10, shows that there will be a moderate (0.2% over 50 years) increase in the total population of the 27 countries studied, combined with a reduction of labour force by one tenth and an increase of the ODR by 31%. Two other indicators pertaining to the changes in the labour markets, namely the ODRE and the LMDR are expected to increase by 31 and 34%, respectively, on average. The differences between countries are large: the forecasts show that over the half century the ODRE will increase by a factor of between 1.43 for France and 3.16 for Romania, but in most countries this indicator will more than double. Owing to rather optimistic assumptions concerning the future labour force participation rates, the LMDRs will range from the levels observed in 2002, as in the case of Hungary, to increasing by a factor of 1.73 in Switzerland. Clearly, Europe will face extensive structural changes which will require modification of the financing of social security systems, provision of services and reshaping of many aspects of functioning of societies.

The forecasted demographic changes are cause for a lot of concern. Roseveare et al. (1996) showed that in 20 OECD countries expenditure on social security and health services will exceed income by 2030. In consequence, in many countries pension payments in the pay-as-you-go system will exceed contributions. This is quite understandable. When Bismarck introduced his "Law on Health Insurance for Workers" (*Gesetz betreffend die Krankenversicherung der Arbeiter*) in 1883 and the "Law on Invalidity and Old Age Insurance for Workers and Trainees" (*Gesetz über Invaliditäts- und Alterssicherung für Arbeiter, Gehilfen und Lehrlinge*) in 1889, setting up the foundation of the modern European social security framework, the demographic scene was entirely different: every worker paid into the system, but relatively few survived to draw the benefits. Over the years, the situation changed: most of those who pay survive until their retirement and use the retirement funds. The demographic change have therefore resulted in a declining number of workers and an increasing number of pensioners. Needless to say, the currently prevailing system of repartition of payments from workers to retirees is very sensitive to the size of both groups.

The following chapters deal to some extent with the demographic and labour force aspects of the forecasted imbalances. There are many theoretical possibilities to reduce these imbalances (see, e.g., Bongaarts 2004), but this study will focus on three solutions directly linked to the structural aspects of population dynamics:

two demographic options and one related to the changes in the labour market. The former two are the increased fertility and increased immigration. They will result in an increase of the population in the younger age groups owing to fertility, and predominantly in the age groups between 20 and 34 years owing to immigration. The labour-market solution, in turn, focuses on the increase of age-specific labour force participation rates, reducing the imbalance between the number of those who work and the number of those who use public funds as a source of making their living, without changing the size of the population. Obviously neither of these possibilities is exclusive. One may expect that only a combination of all of them may bring about any significant changes.[3]

[3]In addition, Bongaarts (2004) mentions two other, very important policy options—increasing the retirement age and reducing pension benefits. Although from the perspective of the current study they are of less interest, since they do not rely directly on the underlying structural changes in the population, they will undoubtedly become a part of the policymakers' toolkit in an attempt to ameliorate the economic consequences of population ageing.

Part V
Beyond of Replacement Migration: Results of Population and Labour Force Simulations

Chapter 13
Development and Critique of the Concept of Replacement Migration

Katarzyna Saczuk

13.1 A Development of the Concept of Replacement Migration[1]

For the last few decades demographers in developed countries have been observing progressing changes in the objectives and patterns of life of individuals and households, resulting in a decline in fertility. The latter, for many countries already at subreplacement level (Chap. 6), together with the decline in mortality in all age groups and constantly growing life expectancies at birth (Chap. 7) has resulted in the ageing age structures of populations not faced before. Ageing—a transformation of the age structure to relatively greater proportions of the older age groups—is jeopardizing many institutions shaping social life. An increased ratio of the older to the younger (working) population changes the settings for the pension system, and the possibility of population, and also labour force, decline raises questions about the future of the labour market and economic growth. It is not yet clear how they will be affected by a declining labour force and smaller cohorts of productive age, both in absolute numbers and in relation to the rest of the population (especially to the

[1]Jakub Bijak contributed substantially to Sect. 13.1.

K. Saczuk (✉)
Central European Forum for Migration and Population Research, IOM, Warsaw, Poland

Economic Institute, National Bank of Poland, Warsaw, Poland

Warsaw School of Economics, Warsaw, Poland
e-mail: katarzyna.saczuk@gmail.com

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_13,

old). It can be acknowledged, however, that the way they currently operate will have to change. Therefore, the consideration of measures to mitigate these demographic changes are the focus of the discussion.

Worrying tendencies and their potential effects have given way to consideration of various remedies. There are two possible solutions: either to anticipate and adapt to the potential effects of the tendencies, i.e. prepare social security systems and labour markets for a change, or to reverse the trends themselves, which would allow the status quo to be maintained. Within the latter solution the range of possible means is rather narrow. As any measures to restore fertility are usually expensive and the results are delayed, increase in international migration is an obvious option. Owing to historical experiences policy makers gained in recent large-scale recruitment of the foreign workers in Western Europe, international migration as a solution may seem to be feasible.

Demographers, who were the first to notice the worrying tendencies, were possibly also the first to acknowledge that population ageing and decline are inevitable. Nonetheless, various simulations, also concerned with migration, were widely used to asses the scale and possible developments of populations. Replacement migration, defined as "the international migration that would be needed to offset possible population shortages, i.e. declines in the size of population, the declines in the population of working age, as well as to offset the overall ageing of a population" in a United Nations (2000, p. 5) much quoted publication is on purpose ambiguous, as it depends on the definition of the "shortage" for which it has to compensate.

More than a decade before the United Nations (2000) report, several other attempts were made to simulate the number of 'replacement migrants' required to fill population shortages caused by the ageing process in various countries. The simulations of Lesthaeghe et al. (1988) performed for the 12 countries of the then European Community showed that in order to balance the below-replacement fertility with population inflow by 2050, "record" numbers of immigrants would have to be admitted to Europe, at least a million persons a year. It is worth noting that in the light of the later migration experience of Europe, these figures are not unrealistic any more; moreover, they are very close to the base variant of the current study.

The scenarios prepared by Wattelar and Roumans (1991) for Austria, Belgium, Canada and Spain proved that keeping the potential support ratio (reciprocal of the old-age dependency ratio) at a constant level of 3.0 would require at least doubling of the initial population through immigration. Moreover, the size of population inflows would have to increase constantly, as immigrants would themselves—naturally—be subject to ageing. Further simulations by Gesano (1994) showed that the maintenance of the population size of Italy at its level from the early 1990s would require between 300,000 and 500,000 immigrants yearly, depending on the variant. The immigration peak would be expected about the middle of the twenty-first century, followed by a slight decrease to the levels ultimately ensuring a stable population structure.

Almost at the same time as the United Nations study, an article by Feld (2000) appeared, focusing on 12 European countries: Austria, Belgium, France, Germany,

Greece, Italy, the Netherlands, Norway, Portugal, Spain, Sweden and the United Kingdom. Similarly to the current research, Feld projected the future population and economic activity developments in different variants. Two of them were found as reasonable limits of possible changes in the labour force, combining either high fertility and immigration with low activity rates, or, adversely, low fertility and immigration with high participation in the labour force. The former scenario was associated with an average of 900,000 immigrants a year for the period 1990–2020, whereas the latter one was associated with an average of 300,000 immigrants a year.

Interestingly, in the study of Feld (2000), the variant with lower immigration and higher labour force participation ultimately leads to a higher increase in the active population of the countries under study (by 3.8 million people over 30 years), in comparison with the opposite boundary variant (increase by 1.4 million). This increase is, however, most likely attributed to the timeframe of the analysis. By 2020, the effects of ageing will not be as profound as they are expected to be in the longer run. Until 2010–2015 in most of the countries the 'echo' of the baby boom from the 1950s will prevent an overall population and labour force decline. This finding is corroborated in the current study, which, however, projects the population and labour force resources until 2050, for a period long enough to observe the long-term consequences of assumed below-replacement fertility.

Also about the same time as the United Nations report, a study by McDonald and Kippen (2000) was published, containing future labour force development scenarios for various countries, including eight European ones. The remedies to maintain the absolute size of the labour force in the short run have been found to be increasing either labour force participation (France, the United Kingdom) or fertility (Germany, Sweden), or both (Greece, Italy, the Netherlands, Spain). In the case of the last group of countries, an alternative policy measure instead of promoting fertility can be to allow high immigration, at the level of 0.5% of the current population size a year. Although in such a case the absolute numbers of immigrants were found by the authors as extremely high, in the light of the most recent migration developments this conclusion is not valid any more. Their scenario yielded numbers of immigrants that fall between the base and high forecast variants of the current study and thus can be seen as reasonable, following the argumentation presented earlier in this book.

As a response to the United Nations report, Coleman (2002) presented alternative simulations prepared for the United Kingdom by the Government Actuary's Department. A comparison of the results with the data in the United Nations report shows many similarities in immigration levels needed to preserve the currently observed old-age dependency ratios at the level of 24.3–23.8. Only the projected population size implied by the constant old-age dependency ratio remains visibly lower in the United Kingdom study (118.9 million) than in the United Nations simulations (136.1 million).

The authors of the studies mentioned were very careful in formulating possible recommendations for population policies on the basis of the results obtained. Lesthaeghe et al. (1988) concluded their simulations for the 12 European Community countries with a statement that immigration is not a feasible solution to the challenges of population ageing. Instead, demographic policy means should be

sought elsewhere, especially in the direction of increasing the fertility rates. This idea was later reiterated by Gesano (1994). Direct migration policy implications, in turn, although based on mathematical models and not on projection-based demographic simulations, have been worked out by Blanchet (1989) for France. As the size of projected 'replacement migration' shows visible cycles, he analysed a theoretical possibility of successive waves of immigration and emigration. Such a policy would, however, also imply increasingly high migration flows to keep the population structure constant, and cannot therefore be seen as practically feasible.

The infeasibility of migration policies based exclusively on keeping the potential support ratios constant, or similar criteria regarding population structures, has been repeated by other authors (Wattelar and Roumans 1991; Coleman 1992, 2002). Coleman (1992) additionally concluded that the increased influx of immigrants into Western Europe in order to fill the labour force shortages would not be required within a period of 10–20 years. This statement, however, was made in the early 1990s and need not necessarily hold for the future, for reasons similar to those discussed with respect to the study by Feld (2000). Lesthaeghe (2000) pointed out that replacement migration may be only a partial and temporary solution, limited to the countries with the lowest fertility. Coleman (2002) stressed that policy responses to population ageing should rather be non-demographic, and should focus on economic issues instead. As the most profound and feasible, yet still partial solutions, he proposed an increase in both labour force participation and retirement age. Besides, even from the strictly demographic point of view, there is another argument against 'replacement migration' in the context of counteracting the ageing processes. Namely, it has been suggested that among all processes that contribute to the demographic change, fertility has the most significant impact on the future age structures of populations (Coale 1957; Carrier 1962, after Grundy 2002, p. 818).

The only Central European country that had been subject to a similar study by the time of the current research is Hungary (Hablicsek and Tóth 2002). Later, articles on the Czech Republic (Burcin et al. 2005), Latvia (Lulle 2003) and the Russian Federation (Vishnevsky 2000) were published offering very similar conclusions.

13.2 The United Nations 2000 Report on Replacement Migration and Its Critique

In 2000 the Population Division of the United Nations (2000) published a report entitled "Replacement Migration: Is It a Solution to Declining and Ageing Populations?"[2] The report—not the first on the topic—met with an unusual response, both from academia and from the media. It analyses the relationship between international migration and population decline and ageing, which appear to be universal processes in developed countries.

[2]Selected numerical results of the report are compared with the outcomes of this study in Chap. 14.

Building upon the medium variant of the 1998 Revision of the United Nations World Population Prospects (United Nations 1999a, b, c), the report evaluates five different future migration scenarios and population levels up to the year 2050 in eight countries and two regions, namely France, Germany, Italy, Japan, South Korea, the Russian Federation, the United Kingdom, the USA, Europe and the European Union. The medium variant of the United Nations population projection (United Nations 1999a, b, c) constitutes scenario I. Scenario II is formed by the same projection but amended by assuming zero migration after 1995. Scenario III computes the number of migrants required to maintain the size of the total population at the highest level it would reach in the absence of migration after 1995 in each of the countries. Scenarios IV and V compute the number of migrants required to maintain the size of the working-age population (15–64 years) and the potential support ratio (the ratio of the working-age population, 15–64 years, to the old-age population, 65 years or older), respectively, at the highest level each of them would reach in the absence of migration after 1995.

According to the scenarios, during the first half of the twenty-first century, the populations of most developed countries are projected to become smaller and older, as a result of below-replacement fertility and increased longevity. In the absence of migration, the declines in population size would be even greater than those projected and population ageing would be more rapid (see the results of scenarios I and II).

The results presented as scenario III show that for a number of countries and regions, e.g. France, the United Kingdom, the USA and the European Union, the numbers of migrants needed to offset population decline are less than or comparable to those experienced in the past. For other countries and regions, e.g. Italy, Japan, South Korea and Europe, a much higher level of immigration than experienced in the past would be needed to offset population decline. Additionally, the scale of immigration needed to prevent the working-age population from declining is significantly larger than that needed to offset decline of the total population.

The levels of migration needed to offset population ageing (i.e. maintain potential support ratios) (scenario V) are extremely large, with an often quoted five billion migrants to South Korea between 1995 and 2050. This scenario in all cases entails vastly more immigration than occurred in the past. Therefore, the report states that "maintaining potential support ratios at current levels through replacement migration alone seems out of reach" (United Nations 2000, p. 94). The report strongly suggests that decreasing the potential support ratio is an important problem. It says that fertility should not have a significant impact on the potential support ratio in the countries discussed and theorizes that the potential support ratios could be maintained at current levels, without any migration after 1995, by increasing the upper limit of the working-age population to roughly 75 years.

In conclusion, the report points out the new challenges being brought about by declining and ageing populations and the need for objective, thorough and comprehensive reassessments of many established economic, social and political policies and programmes. According to the report's authors, critical issues to be addressed in those reassessments would include (a) the appropriate ages for retirement, (b) the levels, types and nature of retirement and health-care benefits for

the elderly, (c) labour force participation, (d) the assessed amounts of contributions from workers and employers to support retirement and health-care benefits for the increasing elderly population and (e) policies and programmes relating to international migration, in particular replacement migration, and the integration of large numbers of migrants and their descendants (United Nations 2000, p. 95).

The United Nations report takes up these burning issues. However, the discussion it raised, paradoxically, did not centre on what motivated the report (Abernethy 2001; Meyerson 2001). Reference to and consideration of preceding analyses (e.g. Coleman 1992; Feld 2000) might suggest more sensible assumptions and methods, and, therefore, make the conclusions more practical. It was also noted that the suggestive style of the report and lack of a clearly stated purpose resulted in a great deal of misunderstanding around its publication. The main body of the report is built from theoretical what-if considerations and is not policy advice for governments. Nonetheless, these simulations were understood as a recommendation for future population policies, and the misunderstanding raised many questions and much doubt and confusion concerning possible future directions of the world's development (Abernethy 2001).

The report can also be criticized for its arbitrariness and too narrow perspective. According to Espenshade (2001) there should be no surprise concerning the results of the United Nations report regarding the expected population structure if one bears in mind the assumptions made. It is obvious that authors of any study are free to choose the postulates for the work. They are, however, obliged to discuss the rationale of the choice, preferably referring to the existing literature, which is not the case with the report, argues Espenshade (2001). He also points out that the phenomena addressed in the United Nations document are demographic in origin, but their discussion "fails to recognize the enormous scholarly literature in economics and the other social sciences" (Espenshade 2001, p. 387). A sign of the non-demographic approach could be simulations of the change in retirement age necessary to maintain current potential support ratios, assuming zero migration after 1995. The idea was not, however, given too much attention, and was not developed further.

13.3 A Critique of the Concept of Replacement Migration

Putting aside the United Nations (2000) report, we will look at the criticism of the generic concept of "replacement migration" in general on the grounds of demographics, economics and politics and sociology.

13.3.1 Demographic Perspective

An idea of replacement migration has never been more than a theoretical concept designed to measure the degree of demographic deficiency generated by historical, observed and forecasted demographic trends (Korcelli 2003). However, as it keeps

coming up in discussions and even appears as a suggested policy tool to deal with labour force shortages or population ageing, it may be worthwhile to briefly discuss the potential problems with its use. Previous studies (see Sect. 13.1) have shown that replacement migration needed to maintain certain parameters of populations is very large. Blanchet (1989) showed that replacement migration was ineffective, as any attempts at regulating the age structure of a population through migration motivated only by short-term considerations could postpone the problems experienced, which would return, aggravated, anyway.

As far as population size and structure are concerned, migration proved to have little effect on them, considering realistic levels of net inflow to the countries with subreplacement fertility. In Coleman's (1992) opinion, the European Community should not have needed increased immigration to satisfy quantitative workforce deficiencies at least for the following 10 or 20 years; social security problems caused by ageing should not necessitate it either. In the long run, the situation can only be rectified by increase in fertility. Nevertheless, changes in pension system assumptions concerning retirement age and workforce participation can suit societies better than additional migration streams. As for ageing alone, in the face of current developments it cannot be avoided no matter what the level of fertility is. It was also noted (Coleman 2002) that the numbers of "replacement migrants" are so huge that it is infeasible to find them. Indeed, to keep the support ratio unchanged South Korea should attract in 50 years a number of migrants equal to the 2002 world population (Coleman 2002).

Feld's (2000) conclusions are generally consistent with Coleman's (1992). He analysed in more detail various effects of immigration on the labour market, emphasizing also that the structural changes in the markets, concerning both labour and technology, mean that developed countries may not suffer labour shortages, even in their workforce were to diminish.

Clearly, the use of "replacement migration" to formulate any population or migration policy seems a step too far. On demographic grounds this is a purely theoretical concept, and should not be used for any policy decisions.

13.3.2 Economic Perspective

From an economic perspective, social security and pension systems are the most heavily affected by population developments. The viability of the systems is of major concern, although its inevitable connections with and influence on the labour market, mainly through incentives, savings/investment and the capital market,[3] should also be noted. As for the labour market alone, labour supply shortages, both in quantitative and in qualitative terms, could arise as a result of population ageing and decline.

[3]Extensive analysis of these connections, for selected countries, can be found in Gray and Weig (1999), with no reference to migration however.

An inflow of workers[4] might, theoretically, aid labour markets, providing additional labour supply and improving the ratio of working to non-working people, and hence also the financial standing of the systems. There are, however, serious doubts about the practical aspects of this solution.

In an article on population ageing and decline, especially in working age, and their impact on the labour market, Kotowska (2003) described in detail the background to the potential problems. From the article, one can conclude that, despite expected labour force shortages, there are considerable reserves of the labour force in the countries investigated.[5] The reserves are formed mainly by unemployed and persons of working age but beyond the labour force, especially from the older age groups. The labour markets in the countries do, however, need adjustments to encourage them to become economically active. Such a consideration raises doubt about the motivation for enforcing immigration. Firstly, it is no longer obvious that the import of labour is really necessary. Secondly, it is not clear either if the markets, which cannot absorb all the domestic labour force (the unemployed) or use it without adjusting, will be able to absorb/use any additional labour from abroad. Why should migrants be better than domestic workers? And even if migrants could substitute for them in the qualitative terms mentioned above, can they be simply replaced?

Apart from quantitative aspects, it may be worthwhile to consider the quality of the labour force rather than the size of it. As long as we look at the quantitative results, we can freely add the numbers of migrants to the numbers of domestic people (workers) and say they can substitute for those who are potentially missing for the preferable performance of the economy, or for certain levels of the indicators we look at. When we, however, return to workers, it can be questioned if the immigrant workers could fulfil the labour market needs created by the ageing and expected labour force decline.

One negative aspect of labour force ageing and limited inflow of new, young labourers may lead to a decline in the skills and knowledge pool of the labour force (Palmer and Gould 1986). For the same reason, the labour force will be less mobile, flexible and adaptive. The associated aspects could be the segmentation of the labour market and statistical discrimination[6]—older people are perceived as a labour force of "worse quality" and, supposing they are not highly qualified or specialized (valuable in the sense of human capital accumulation[7]), they are likely to be hired only for low-paid jobs, and would be vulnerable to dismissal connected to the business cycle (so-called second sector of the labour market). From this point of view, labour force ageing is a negative process and it would be good to counteract it somehow. However, by the same argument, inviting migrants seems to be a poor

[4]In such a case migration would be an import of foreign labour which concerns migrant workers only, not migrants in general.

[5]This is also Coleman's (2004) view.

[6]Evaluating the characteristics of the person on the basis of the average characteristics of the group to which the person belongs; for more on this, see Ehrenberg and Smith (1999).

[7]Simplifying, this means that it would be very costly to train a new worker to perform his or her job.

solution. Unless they can prove their good qualifications (which is relatively rare), as a minority group, they are thought to be unskilled and, if at all, they are employed, like older people, mainly in low-paid jobs and are easily dismissed (for more on this, see Ehrenberg and Smith 1999). It may turn out that a particular number of migrant workers does not solve/change anything. Therefore, efforts to change employers' attitudes towards the old and improve the performance of the institutions that might raise the mobility (and also improve the skills) of the old seem to be more reasonable to counteract negative effects of labour force ageing.[8]

As for the pension systems, in the existing literature there is a tendency to look for a solution to the problem of viability of the systems in institutional changes which adjust the systems to the current, and possibly future, demographic conditions, rather than in alteration of conditions (no matter what the costs are), so that the system could operate in the setting it was designed for. As the demographic trends are unlikely to reverse in the foreseeable future, this seems to be a more reasonable direction. It is worth noting that appropriately designed pension systems, already implemented in a few countries, may not only be solvent, but also, through incentives, may improve the situation in the labour market.

13.3.3 Political and Sociological Perspective

The issues that also should not be neglected are of both political and sociological nature. Discussing the matter of possible migration of the magnitude indicated by "replacement migration", one cannot forget about possible assimilation problems and political and social tensions. No matter how beneficial the inflow of migrants might be, in practice the migrants themselves often turn out to be a both politically and socially unpopular group, which makes them more vulnerable to discrimination at both official and unofficial levels (see, e.g., the discussion on eligibility restrictions and unemployment rates; Coomans 2002). The discrimination, assimilation problems, and cultural differences between the native and immigrant populations can lead to serious social tensions and instability, which can more than offset the economic benefits of immigration. Therefore, all these aspects should be subject to thorough examination prior to any steps being taken to implement the concept, even partly.

As far as political aspects are concerned, careful insight into population and migration policies might not only be helpful but could justify the grounds of such a discussion. Zoubanov's (2000) article implies that governments (even in the countries with serious "negative" demographic changes) do not show too much consideration to the matter. It can also be questioned if they consider migration as a feasible solution. The current immigration policies of most developed countries

[8]Evaluation of such efforts and the desired direction of the latter, with reference to potential labour force shortages in the future, can be found in Kotowska (2003).

are rather strict and are not expected to change soon. In this case, bearing in mind that it is governments that are responsible for the policies, all discussion can be only an academic debate.

13.4 Conclusions and Implications for the Research

Population trends in most developed countries are a source of new questions, worries and challenges. The observed phenomena are undoubtedly demographic in nature, but their consequences affect all aspects of our life. They are, among others, economic, social and political, and so should be the measures taken to face up to the consequences.

Looking from the perspective of most of fields, other than demography, one can conclude that the concept of replacement migration can only be thought of as a theoretical measure. Whether the labour market will need additional inflow of labour or not can only be subject to speculation. Since we cannot predict the future course of productivity, we cannot say if the future labour force will be sufficient or not. In recent decades productivity grew relatively faster than the labour force decreased. So, maybe an attempt to replace the missing labour force is an attempt to solve a problem that will never appear in the future. If it does appear, the potential labour force in the unemployed and inactive in Europe can, or even should, be a possible source to meet shortages in the labour market for the next few decades in the first place. Even if this does not suffice, extensive institutional, social and psychological changes in this market will be needed to absorb the foreign labour. As for the pension systems, owing to labour market conditions mentioned already, immigrants make relatively little contribution to receiving countries' pension funds and, over time they also grow older, which often escapes the attention of policy makers. Therefore, institutional changes of these systems seem to be both more realistic and more effective.

Besides, political and sociological issues may alone make the replacement migration concept a purely academic idea. From today's perspective, the political approach to migration inflow in Europe does not herald a radical shift to welcoming immigrants. To the contrary, the rise of anti-immigration political parties, especially in France, and a champion of migrant integration policies, the Netherlands, has created a broad coalition of people frightened by immigration. Sociological issues are not so evident yet, but the increasing social tensions and official as well as unofficial negative phenomena concerning migrants may suggest that they may become more serious problems if migration were to grow to a bigger scale.

Nonetheless, the demographic simulations like the one in the report (United Nations 2000) or in this study are very useful to illustrate the scale of the ongoing changes. The results of simulations and the long-term projections, especially the development of the size and the age structure of the population, can be especially valuable for policy makers. As they often reveal the otherwise hard to predict future processes, they may serve to design measures to diminish particular effects, especially unwanted ones.

Chapter 14
Population Ageing, Population Decline and Replacement Migration in Europe*

Jakub Bijak, Dorota Kupiszewska, Marek Kupiszewski, and Katarzyna Saczuk

14.1 Introduction: Population Ageing

This chapter looks predominantly at the possible role migration may play in containing ageing of European populations. It starts with an overview of the theory and patterns behind the ageing processes in Europe (this section), and contains the results of simulations of migration flows from outside the system of 27 countries which would be hypothetically needed to maintain the sizes and structures of the populations under study (Sect. 14.2). These hypothetical trajectories of the

*Some of the findings presented in this chapter were initially published in Bijak et al. (2008b).

J. Bijak (✉)
Division of Social Statistics and Demography, ESRC Centre for Population Change and the Southampton Statistical Sciences Research Institute, University of Southampton, Southampton, UK

D. Kupiszewska
Central European Forum for Migration and Population Research, IOM, Warsaw, Poland
e-mail: d.kupisz@twarda.pan.pl

M. Kupiszewski
Institute of Geography and Spatial Organization of the Polish Academy of Sciences, Warsaw, Poland
e-mail: m.kupisz@twarda.pan.pl

K. Saczuk
Central European Forum for Migration and Population Research, Institute of Geography and Spatial Organization of the Polish Academy of Sciences, Warsaw, Poland

Economic Institute, National Bank of Poland, Warsaw, Poland

Warsaw School of Economics, Warsaw, Poland
e-mail: K.Saczuk@aster.pl

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_14,

population and labour force alternatively assume migration levels sufficient to keep either the population size or various dependency ratios—the old-age dependency ratio (ODR), economic old-age dependency ratio (ODRE) and labour market dependency ratio (LMDR)–constant.[1] Various simulations are subsequently compared from the point of view of their plausibility and the impact of different assumptions on counteracting the negative economic effects of population ageing. The outcome of the analysis is compared with the outcomes of similar studies in Sect. 14.3. Most importantly, the replacement migration report of the United Nations (2000), hereafter also referred to as 'the United Nations report', is subject to comparative analysis with the outcome of the current research, together with several other studies on the same topic (e.g. Feld 2000).

14.1.1 Population Ageing: Theory, Determinants, Consequences

Population ageing can be defined as a "process, by which older individuals become a proportionally larger share of the total population" (United Nations 2002, p. 1). Ageing is a consequence of low fertility and the related low family size, as well as longer life expectancy in developed countries. As a direct outcome of the demographic transition processes, this phenomenon seems to currently have permanent and irreversible features (Coleman 2002).

From the theoretical point of view, two interrelated components of population ageing can be distinguished: the one caused by decline in fertility and the one caused by increased life expectancy. The former, historically earlier, directly decreases the size of the youngest cohorts, and is therefore referred to as 'ageing from the bottom' of the population pyramid. The latter, in turn, is becoming increasingly important as the conditions for human survival and longevity are steadily improving, directly increasing the numbers of the elderly. This component is referred to as 'ageing from the top,' currently outpacing fertility-driven changes in the population structure (Coleman 2002). The presence of international migration additionally influences the outcome of the ageing process.

Population ageing has become a very important issue, as it appears to have wide-ranging consequences in various areas of social, economic and political life. The most important outcomes and side effects of the ageing processes include (United Nations 2002, passim):

- Increasing public expenditure on pensions, social security and health services, caused directly by the growing number of elderly (and thus of pensioners) in the population;
- Decreasing relative number of persons of working age, causing a shrinkage of the labour force and an increase in the overall burden on the working population

[1] Definitions of all dependency ratios are given in Chap. 12.

in terms of various intergenerational transfers: taxes, other contributions, direct care, family support, etc.;
- Increasing risk of failure of the repartition (*pay-as-you-go*) components of the pension systems, given the factors discussed above;
- Changing public health patterns, as the elderly are more susceptible to various chronic and degenerative diseases and require appropriate medical care;
- Increasing gender bias among the elderly population owing to the differences in the lifespan between males and females, combined with the 'ageing of the aged'—an increase of a share of the oldest-old population;
- Increasing risk of the emergence of intergenerational conflicts, due to the changes in the patterns of resource distributions (growing pressure on facilitating increasingly more means for the elderly).

Although at the beginning of the twenty-first century the problems mentioned are not critical yet, policy makers need to realize that to overcome the possible future consequences of ageing, appropriate measures should be implemented soon. This seems to be a very important policy challenge, embracing many areas of life—economy, social security systems, health care, education—as well as changes in the attitudes and practices towards the elderly and their role in society (National Research Council 2001). In that respect, it seems that there is no shortcut policy path, as there is no feasible solely demographic 'solution' to population ageing and the remedies for its possibly detrimental outcomes need to be sought also among the non-demographic policies (Coleman 2002). On the other hand, certain measures aimed at counterbalancing demographic changes, to any extent possible, can and should be considered as a part of a wider set of policies aimed at dealing with the consequences of ageing.

With respect to purely demographic determinants of ageing, policies aimed at counterbalancing the negative effects of ageing should not interfere with the currently increasing human lifespan—this would be grossly immoral. Measures aimed at increasing fertility are in turn very expensive, and their outcome is not certain and is likely limited in scope (Gauthier 2007)—a return to above-replacement levels (i.e. more than 2.1 children per woman on average) is currently not expected for the future (see also United Nations 2000). Finally, the notion of 'replacement migration', with immigration considered at least partially as a measure against the effects of ageing, is, not surprisingly, controversial. The idea itself dates back to the mathematical demographic model of Pollard (1973), who showed that under certain conditions immigration can lead to a stationary population with a stable age structure being obtained. The findings were further corroborated by Espenshade et al. (1982), who distinguished two populations—local and foreign—as well as by Wu and Li (2003), who proved that such a stationary population would be less affected by the age-related dependency challenges than it would be in the absence of immigration. The 'replacement migration' idea was explored in the United Nations (2000) report, which received a substantial critique (including Coleman 2002; Espenshade 2001), as reviewed in detail in Chap. 13. To address some of this criticism, the current study includes the analysis of selected economic aspects of ageing, which were not covered by the United Nations (2000) report.

Table 14.1 Old-age dependency ratio in Europe, 1960–2000 (%)

Country	1960	1970	1980	1990	2000
Austria	18.5	22.7	24.4	22.2	22.7
Belgium	18.5	21.3	21.7	22.2	25.6
Bulgaria	11.2	13.9	17.9	19.6	23.8
Czech Republic	14.7	17.9	21.7	18.9	20.0
Denmark	16.4	18.9	22.2	23.3	22.2
Estonia[a]	15.6	17.5	18.9	17.5	22.2
Finland	11.6	13.7	17.5	19.6	22.2
France	18.9	20.4	22.2	21.3	24.4
Germany	16.9	21.3	23.8	21.7	23.8
Greece	14.3	17.2	20.4	20.4	23.8
Hungary	13.7	16.9	20.8	20.0	22.2
Ireland	19.2	19.2	18.2	18.5	16.7
Italy	14.1	16.7	20.4	21.3	26.3
Latvia[a]	15.6	17.9	19.6	17.9	22.2
Lithuania	–	15.9	17.2	16.1	20.8
Luxembourg	15.9	19.2	20.4	19.2	21.3
Netherlands	14.7	16.1	17.2	18.5	20.0
Norway	17.2	20.4	23.3	25.0	23.8
Poland	9.5	12.7	15.6	15.4	17.5
Portugal	12.5	14.9	17.9	20.0	23.8
Romania	–	–	16.4	15.6	19.2
Slovak Republic	11.1	14.3	16.7	15.9	16.7
Slovenia	–	14.7	–	15.4	19.6
Spain	12.8	15.2	17.2	20.4	24.4
Sweden	17.9	20.8	25.0	27.8	27.0
Switzerland	15.4	17.2	20.8	21.3	22.7
United Kingdom[b]	17.2	21.3	23.3	23.8	23.8
All 27 countries[c]	15.4	18.5	20.8	20.4	23.3

[a]Figures for 1959 instead of 1960
[b]Figures for 1961 and 1971 instead of 1960 and 1970
[c]Summary figures exclude the countries with missing values for 1960, 1970 and 1980
Source: Own estimates based on Eurostat, New Cronos; United Kingdom 1961–1971 national statistics

Similarly to the study of Feld (2000), we therefore focus on labour supply, although for a wider range of European countries. In particular, apart from the size and structure of the overall population, similar features of the labour force are studied on the basis of the forecasts of labour force participation presented in Chap. 10.

14.1.2 Population Ageing in Europe: An Empirical Overview

From Table 14.1 it can be seen that the process of ageing in Europe progressed substantially in the second half of the twentieth century. The ODR increased from about 15.4% in 1960 to 23.3% in 2000, and this declining tendency cannot be

reasonably expected to reverse in the coming years. Although there was a visible slowdown (or even a small reversal) in the increasing trend between 1980 and 1990, mainly due to births from the postwar baby boom cohorts, currently it seems that the whole process is back at full pace. The magnitude of ageing, as measured by the ODR, differs from country to country and is strongly interrelated with past fertility changes.

With respect to the direction of the overall trend, three major groups of European countries can be distinguished here. The first cluster comprises the countries where the ODR increase was relatively monotonous, without significant temporary increases in pace in recent decades. This group includes the low-fertility countries of Southern Europe (Greece, Italy, Portugal and Spain), five Western European countries (Belgium, Finland, the Netherlands, Switzerland and the United Kingdom) and two countries from Central Europe: Hungary and Bulgaria. It is worth noting that in some cases the initial ODRs estimated for 1960 were very low, most notably for Bulgaria (11.2%), Finland (11.6%) and Portugal (12.5%).

The second group of countries is characterized by a temporary decline in the ODR around 1990, followed by a subsequent increase in the following decade. Such a pattern is attributable to the afore-mentioned size effect of the postwar baby boom cohorts. These countries, many of them among the demographically most affected by World War II, include Austria, the Czech Republic, France, Germany, Luxembourg, Poland, Romania, the Slovak Republic and the three Baltic states: Estonia, Latvia and Lithuania. In the case of Poland and the Slovak Republic (and presumably also Romania, should early data be available), the ODRs in 1960 were very low, amounting to 9.5 and 11.1%, respectively. This group of countries likely also includes Slovenia, another country for which some observations are missing.

The third group comprises three Scandinavian countries (Denmark, Norway and Sweden), which followed very similar patterns of ODR developments not only in terms of direction, but also in terms of magnitude. This group is, however, also characterized by a decrease in the ODR between 1990 and 2000. This decline likely follows the increase in fertility since the late 1970s or early 1980s (Andersson 2003), which may be a result of a strong institutional framework supporting childbearing in these countries. Finally, there is one visible outlier (Ireland) that cannot be attached to any of the groups because in recent decades an ODR decrease has been observed, rather than a decline. This is mostly a consequence of the persisting high fertility levels, as well as the unprecedented magnitude of immigration.[2]

The ODRs, ODREs and LMDRs estimated for 2002 are presented in Table 14.2. The countries under study are separately ranked according to the values of all three indicators in order to give an impression of both the advancement and the spatial differentiation of the ageing process in Europe.

On average, in the 27 European countries the 2002 ODR amounted to 23.9%, which means that for each person aged 65 years or more there were 4.2 persons of working age (15–64 years). The average ODRE of 32.4% indicates that each

[2]Migration and fertility issues are discussed more thoroughly in Chaps. 5 and 6.

Table 14.2 Old-age dependency ratio (ODR), economic old-age dependency ratio (ODRE) and labour market dependency ratio (LMDR) in Europe, 2002 (%)

Rank	Country	ODR	Country	ODRE	Country	LMDR
1	Slovak Republic	16.4	Romania	17.9	Switzerland	48.6
2	Ireland	16.4	Ireland	22.1	Denmark	50.2
3	Poland	18.2	Slovak Republic	23.3	Norway	51.0
4	Czech Republic	19.7	Denmark	25.5	Netherlands	58.1
5	Netherlands	20.2	Netherlands	25.8	Portugal	61.1
6	Romania	20.5	Portugal	25.8	United Kingdom	61.3
7	Slovenia	20.8	Poland	26.1	Sweden	61.5
8	Luxembourg	20.8	Switzerland	26.2	Finland	62.1
9	Lithuania	21.8	Norway	26.2	Romania	62.9
10	Denmark	22.3	Czech Republic	26.5	Lithuania	63.4
11	Hungary	22.4	Slovenia	27.3	Slovak Republic	66.5
12	Finland	22.8	Lithuania	27.7	Czech Republic	67.4
13	Norway	22.8	Estonia	28.7	Ireland	69.7
14	Austria	22.8	United Kingdom	29.3	Austria	70.8
15	Switzerland	23.0	Finland	29.3	Slovenia	71.7
16	Latvia	23.1	Latvia	29.9	Germany	72.0
17	Estonia	23.2	Austria	31.0	Estonia	72.1
18	United Kingdom	23.8	Luxembourg	32.1	Latvia	74.0
19	Greece	24.2	Sweden	32.3	France	81.0
20	Portugal	24.6	Germany	34.1	Poland	81.8
21	Spain	24.7	Greece	35.0	Spain	86.8
22	Bulgaria	24.9	France	36.0	Luxembourg	87.2
23	France	25.0	Spain	36.5	Greece	88.5
24	Germany	25.6	Hungary	36.7	Belgium	93.4
25	Belgium	25.9	Bulgaria	38.2	Bulgaria	97.4
26	Sweden	26.5	Belgium	39.3	Hungary	103.9
27	Italy	28.2	Italy	45.3	Italy	113.3
	All 27 countries	23.9	All 27 countries	32.4	All 27 countries	76.8

Sources: Eurostat, NewCronos; International Labour Organization (2003); own calculations

economically inactive person in the assumed postretirement age group (65 year and older) corresponded to 3.1 persons aged 15 years or more that were economically active. The average LMDR of 76.8% denotes a heavy burden of the economically inactive population on the active one: each inactive person is supported by only 1.3 active participants in the labour market.

From Table 14.2 it can be also seen that the ODR is relatively the least dispersed, whereas the LMDR is relatively the most dispersed among the countries under study. The ODR ranged from 16.4% for the Slovak Republic and Ireland, 18.2% for Poland and 19.7% for the Czech Republic (countries with values lower than the 15th percentile of the ODR) to 25.6% for Germany, 25.9% for Belgium, 26.5% for Sweden and 28.2% for Italy (values higher than the 85th percentile). In the latter group of European countries, ageing is therefore most advanced from the purely demographic point of view.

Taking the other measures into account, we find the order of countries is slightly different. In the case of the economic burden of inactive pensioners on the active population, measured by the ODRE, the respective values range from 17.9% for Romania, 22.1% for Ireland, 23.3% for the Slovak Republic and 25.5% for Denmark to 36.7% for Hungary, 38.2% for Bulgaria, 39.3% for Belgium and 45.3% for Italy. The exceptionally good position of Romania is solely due to application of a broad definition of the economically active population combined with strong income effects in this country (Chap. 9).

With respect to the labour market burden measured by the LMDR, in 2002 the best situations were observed in Switzerland (48.6%), Denmark (50.2%), Norway (51.0%) and the Netherlands (58.1%), whereas the worst situations were observed in Belgium (93.4%), Bulgaria (97.4%), Hungary (103.9%) and Italy (113.3%). It can be clearly seen that in Hungary and Italy, the economically inactive already outnumbered the active participants in the labour market, whereas Bulgaria and Belgium were also slowly approaching the 100% threshold of the LMDR. Interestingly, the countries with the most labour market leeway, in terms of the LMDR, are characterized not only by high levels of economic activity, but also by low unemployment rates and high income per capita (World Bank 2003; United Nations 2003a; Chap. 5). A detailed analysis of labour force participation patterns in particular countries underlying the spatial variation of the LMDR in Europe was presented in Chap. 9.

Summing up, in the current situation of European countries with respect to the effects of population ageing, Italy is a clear outlier, not only in terms of the advancement of the process, but also considering the detrimental economic and labour market effects of ageing. The difficult situation of Italy in that respect is clearly a result of a combination of two independent factors: very low fertility levels and very low labour force participation rates. A serious situation in the labour markets due to population ageing can be also observed for some other European countries, in particular for Belgium, Bulgaria and Hungary. If all aspects of population ageing are taken into account (demographic structures, sustainability of the pension systems and the overall burdens on the labour markets), a relatively advantageous situation with respect to a combination of various dependency ratios can be observed in six European countries. In particular, in Denmark, the Netherlands, Switzerland and Portugal, the effect can be attributed to the relatively high economic participation rates, whereas in Ireland and the Slovak Republic it is mainly due to the young population structures.

14.2 Simulation of Replacement Migration Needed To Maintain Certain Population and Labour Force Parameters

In this section we look at hypothetical demographic and labour supply consequences of 'replacement migration' from outside the 27 European countries. In particular, we calculate the magnitude of inflows theoretically required to maintain the population

size constant at the level observed in 2002, or to prevent various dependency ratios (ODR, ODRE and LMDR) from decreasing. It should be stressed forcefully that we neither advocate the influx of migrants of such a scale as presented in some simulations nor see it as feasible. The whole exercise should be interpreted above all from the point of view of the analysis of the demographic deficit expected owing to low fertility and the advancement of ageing. Subsequently, the simulation results are compared with the forecasts presented in Chap. 12 from the point of view of the plausibility of different assumptions and their impact on counteracting the negative economic effects of population ageing.

14.2.1 Simulation Under Constant Population Assumption

Among the simulations of future population developments done in the current study, one was devoted to answering the question of how many immigrants would be needed to sustain the overall population size of particular countries. Precisely, having adopted the base scenario of international migration between the 27 countries, we calculated the numbers of immigrants from the other countries of the world, in addition to the number forecasted in the base scenario (see Chap. 12). From the methodological point of view, it is worth adding that if the base scenario developments did not forecast a population decline for a particular country and period, 'replacement' immigration was set to zero by default. Hence, in the projection period (2002–2052), the simulated population size can only grow, or at least stay at the same level as in 2002, but cannot decline.

Following these assumptions, the total population of the 27 European countries under study will increase to 532.6 million in 2052, owing to the inflow of 32.8 million immigrants more than in the base forecast scenario. At the end of the projection period, the group of post-2002 immigrants and their descendants will comprise 117.9 million people, thus about 22% of the total. In 2052, the ODR in this scenario would be 51.1%. These figures clearly demonstrate that maintaining the population size alone does not reverse, or even significantly slow down, the ageing processes, which is additionally illustrated in Fig. 14.1.

With respect to the country distribution of additional 'replacement immigrants', the highest numbers were obtained in the simulation for Romania (8.8 million), Poland (6.6 million), Germany (4.7 million), Bulgaria (3.5 million) and Italy (3.2 million). In the case of Bulgaria, the size of 'replacement immigration' would amount to almost half (45%) of the 2002 population, whereas in the case of Romania it would amount to over 40%. In ten countries—Belgium, Denmark, France, Ireland, Luxembourg, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom—the population would not decrease without the inflow of additional migrants from outside Europe, apart from the ones forcasted in the base scenario. Finland would need only 1,700 additional immigrants in the period 2037–2042 to meet the population-size goal. Notably, for all these countries, the target total fertility rates for 2052 were assumed to be 1.8 or 1.9 (Chap. 6).

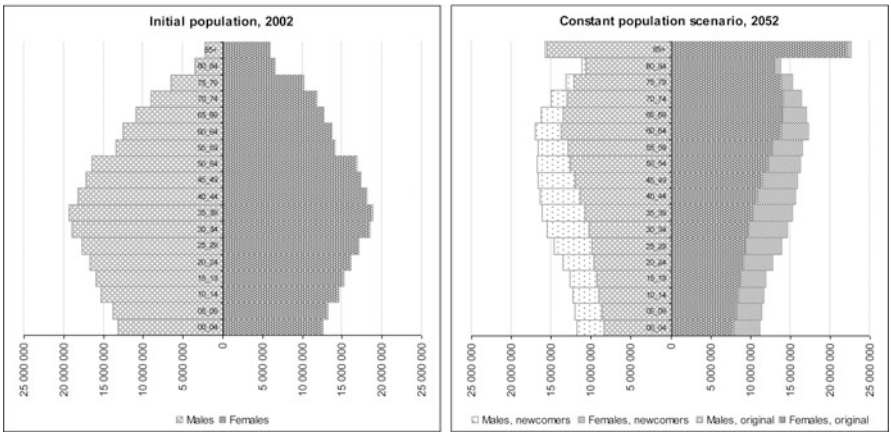

Fig. 14.1 Changes in the age structure in 27 countries, 2002–2052: constant population
Source: Eurostat, NewCronos; own calculations

The additional inflows of 'replacement migrants' are also reflected in the ODRE and LMDR levels simulated for 2052. For the countries that would receive the highest numbers of immigrants relative to their total population, the simulated values of both indicators go down considerably (e.g. for Bulgaria). Therefore, under these assumptions, the average ODRE for all 27 countries together in 2052 would be 61.6%, whereas the average LMDR would be 99.8%, which is only slightly less than in the base scenario.

Under the same assumptions, the labour force resources would hardly change over the whole period from 2002 to 2052, declining by only 0.6% (1.4 million people), to amount to 43.4% of the total population by the end of the projection period. The post-2002 immigrants and their descendants would comprise 27.5% of the total labour force (63.3 million people). Hence, the aggregate results for 27 countries fall between the base and the high forecast scenarios. The age structure of the labour force in 2052 would be almost the same as in the high scenario: young workers (aged 15–24 years) would constitute 11.6% of the total, middle-aged workers (between 25 and 54 years) would constitute 69.1% of the total and older workers (aged 55 year and older) would constitute 19.3% of the total.

It has to be stressed that this simulation scenario was prepared exclusively for the sake of comparison of the results with data in the United Nations (2000) report. Contemporarily, preventing the population size from declining can hardly be considered a rational policy goal in its own right. Some authors even suggest that the opposite could hold: population decline can to some extent be desirable for society and the environment (Burke 1997; Speidel et al. 2009). However, some aspects of this proposition can still be disputed, for example by taking into account division and specialization of labour, which is beneficial for productivity, which is easier in large populations (Espenshade 2001). Nevertheless, regardless of the outcome of the debate on the relations between population and economic growth, it has to be

noted that population decline alone should not be considered as a policy 'problem' and evaluated in a normative way. Instead, these processes can rather be seen as characteristic of yet another phase of human history, especially concerning more developed countries of the world (Bouvier 2001).

Despite the lack of direct policy implications, the 'replacement migration' scenario designed for keeping the population size constant generally fits into the feasible range of possible future international migration developments for most of the countries. On average, the total population inflow is placed somewhere between the base and high forecast scenarios, with the most important exceptions being the countries of Central and Southeastern Europe, in particular Bulgaria and Romania. In these countries, forecasted very low fertility and low immigration levels combined lead to higher numbers of 'replacement migrants' theoretically required to maintain the population size. These numbers do not fit into the span between the low and high migration scenarios, and seem therefore unlikely and infeasible.

14.2.2 Simulation Under Constant Dependency Ratios: Old Age, Economic and Labour Market

Similarly to the simulations presented in the previous section, further calculations were done to assess the numbers of 'replacement migrants' hypothetically required to maintain constant (at least not increasing) dependency ratios: ODR, ODRE and LMDR. The first simulation is comparable with the one in the United Nations (2000) report, whereas the two other simulations try to take into the account some of the criticism to which the United Nations report was subject. The assumption of constancy of particular dependency ratios (or more precisely, not allowing their increase) reflects the aim to preserve the current status quo, rather than to achieve 'optimal' levels of particular measures. For this reason, no subjective maximum threshold values of the ODR, ODRE or LMDR were set. We are perfectly aware that the assumption of constancy of the indicators is purely judgemental. Nevertheless, we deliberately chose this option to show the magnitude of hypothetical 'demand' for migrants needed to maintain the current characteristics of population and labour force structures.

Marinating constant ODRs would require the largest 'replacement migration' levels, roughly consistent with the outcomes of the United Nations (2000) study. Under this scenario, in order not to let the ODR in particular countries increase above the levels from 2002, the 27 European countries would have to accommodate, by 2052, 827.8 million immigrants in addition to the numbers forecasted under the base scenario. Hence, the whole population under study would have to triple between 2002 and 2052, reaching 1.48 billion. The post-2002 newcomers and their descendants would amount to 1.07 billion people in 2052, 72% of the total population. The age structure of the population of all 27 countries would be then heavily dependent on the age structure of the immigrant population, with the exception of the oldest age groups (Fig. 14.2).

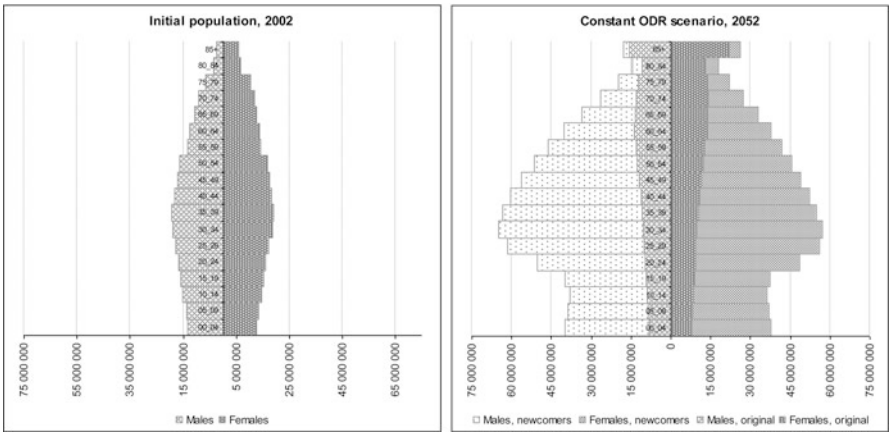

Fig. 14.2 Changes in the age structure in 27 countries, 2002–2052: constant old-age dependency ratio (*ODR*)
Source: Eurostat, NewCronos; own calculations

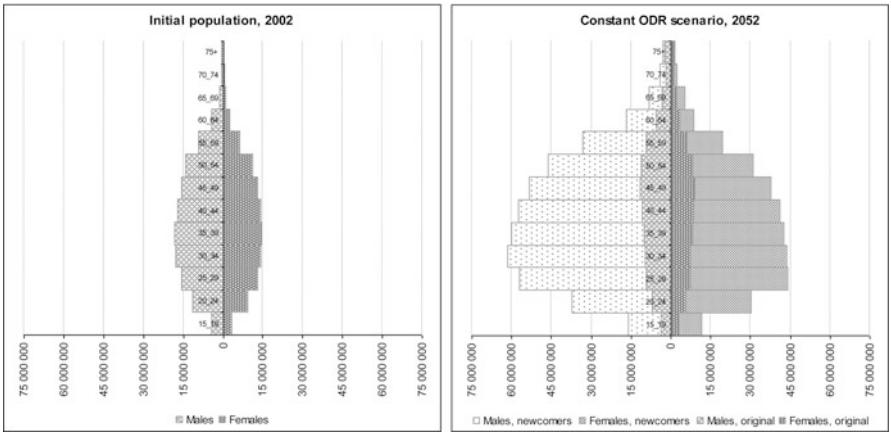

Fig. 14.3 Changes in the age structure of the labour force in 27 countries, 2002–2052: constant ODR
Source: Eurostat, NewCronos; International Labour Organization 2003; own calculations

In terms of labour supply, under such assumptions, the hypothetical labour force would be greater than the one forecasted in the base scenario by 563.1 million people. Hence, the total labour force would also more than triple, reaching 772.8 million people in 2052. By the end of the projection period, the post-2002 immigrants and their descendants would account for 78.3% of the labour force resources in the 27 European countries (Fig. 14.3). The very high migration inflow needed to prevent the ODR from increasing would also considerably slow down

the process of ageing of the labour force. By the end of the simulation period, the proportion of older workers in the total labour force would grow by only two percentage points. Owing to a young age structure of immigrants, the economic consequences of the ageing process would be not only mitigated but also slightly reduced. The 2052 ODREs and LMDRs for the 27 countries together would be 27.8 and 62.2%, respectively, which are less than the values observed in 2002.

Figure 14.2 shows, however, that the simulated population age structure is very far from the smooth and even demographic 'Holy Grail' of stationary population (Lotka 1907) that would guarantee long-term population stability. On the contrary, the 2052 age structure is characterized by a thin base and a substantial 'bulge' in the middle age groups. This directly implies that in the more distant future the inflow of 'replacement migrants' would have to increase continuously to meet the goal of not allowing the ODR to increase. This conclusion is supported by the results of empirical research done for Australia by McDonald and Kippen (1999). They proved that there are declining returns from immigration in terms of its impact on slowing down population ageing (decreasing effects of scale). In other words, each subsequent immigrant contributes to slowing down the ageing processes to a smaller extent than the previous one. For these reasons, the implausible magnitude of 'replacement migration' under these assumptions makes the 'constant ODR' scenario entirely unrealistic.

To address some of the criticism to which the United Nations (2000) report has been subject (Espenshade 2001; Coleman 2002; for an overview, see Chap. 13), some economic implications of population ageing were incorporated into the simulations. Most notably, elaborating on the idea of Feld (2000), alongside the overall population size and structure, the labour force resources were subject to the analysis, on the basis of the forecasts of future labour force participation developments (Chap. 10). This was done in two scenarios assuming constancy of aggregate measures which take into account the labour market structure (ODRE and LMDR). All scenarios implicitly (and somewhat simplistically) assume that the labour force activity patterns for the 'original' population and those for the immigrants are identical.

The scenario assuming a non-increasing ODRE resulted in a similar, but not such dramatic an outcome as compared with the previous one focusing on the ODR. This is a natural consequence of assuming improvements in the age-specific labour force participation. Hence, in order to keep the country-specific ODRE at or below its initial levels, an inflow of 653.0 million people in total would be needed during the whole projection period, additionally to the 'likely' number of immigrants forecasted in the base scenario. The 2052 population in this case would increase to 1.27 billion people; thus it would be over 2.5 times more numerous than in 2002. Sixty-seven percent of this number (861.1 million persons) would be the post-2002 newcomers and their descendants. This magnitude of inflow would suffice to achieve an ODRE of 31.7% by 2052.

The scenario of constant LMDR generates even more 'moderate' results, but that are still very far from being within the range of feasible future trajectories

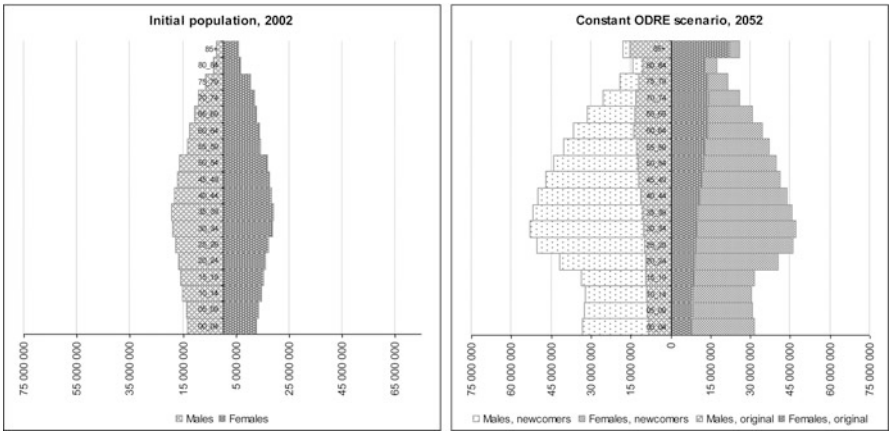

Fig. 14.4 Changes in the age structure in 27 countries, 2002–2052: constant economic old-age dependency ratio (*ODRE*)
Source: Eurostat, NewCronos; International Labour Organization 2003; own calculations

of international migration in Europe. In this case, not letting the country-specific LMDRs increase above their levels from 2002 would require 470.7 million people by 2052, in addition to immigrants who would come anyway according to the base scenario assumptions. This would lead to the total population of all 27 countries reaching 1.07 billion people in 2052, nearly 2.2 times more than in 2002. Here, 61% of this number (651.7 million people) would be the post-2002 newcomers and their descendants. The mean LMDR at the end of the simulation period would be 73.6%.

The population age structures of all 27 European countries projected for 2052 in the replacement scenarios taking into the account the expected labour market developments are presented in Fig. 14.4 (constant ODRE) and Fig. 14.5 (constant LMDR).

Figures 14.4 and 14.5 show that the overall age structures of the population of the 27 European countries in both scenarios are also quite far from being stationary, although not as far from being stationary as the one under the 'constant ODR' assumptions. Inclusion of forecasted changes of labour market participation resulted in a decrease in the number of hypothetical 'replacement migrants', and reduced the imbalances of the age structures of the simulated populations. Besides, also in these simulations, the magnitude of 'replacement migration' differs substantially across countries and depends heavily on the initial values of the respective dependency ratios. Among the three scenarios presented, this one is closest to being feasible, although it is still not close enough to become a rational policy goal. In general, the results proved the complete unfeasibility of immigration-based 'solutions' in keeping the ODR, ODRE and LMDR not higher than their initial levels at the beginning of the twenty-first century.

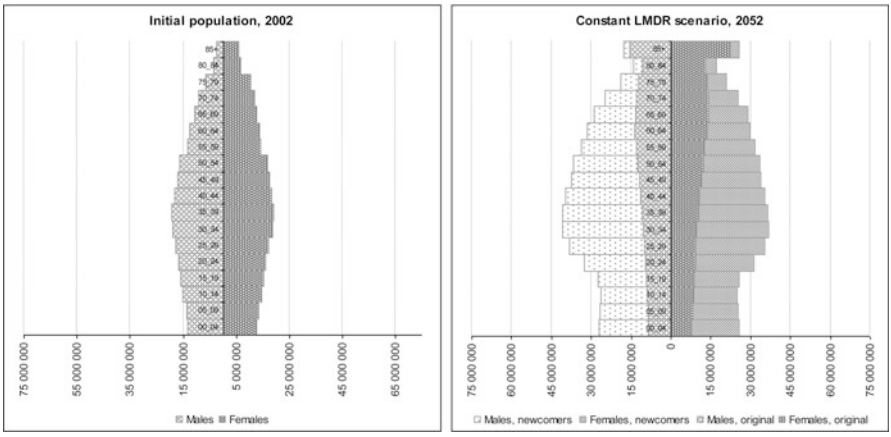

Fig. 14.5 Changes in the age structure in 27 countries, 2002–2052: constant labour market dependency ratio (*LMDR*)
Source: Eurostat, NewCronos; International Labour Organization 2003; own calculations

14.2.3 Comparison of the Results of Forecasts and Simulations

The outcomes of the scenarios presented in the previous subsections can be compared with their reference framework set out by the low, base and high variants of migration forecasts discussed in Chap. 12. Judging solely by the aggregate numbers for the 27 countries under study, it is obvious that only the simulation aimed at preserving the current population size of particular countries yielded results which fell into a reasonable range of future international migration flows. In this case, there may be several local exceptions of low fertility–low immigration countries, such as Bulgaria and Romania, where the immigration required to achieve the population-size target would be unreasonably high anyway. Of the three remaining 'replacement migration' scenarios (constant ODR, ODRE and LMDR), none fit in the feasible range of future population inflows from outside Europe.

Moreover, the three replacement scenarios aimed at sustaining aggregate parameters depicting population and labour force structures lead to the significant dominance of hypothetical post-2002 newcomers and their descendants in the overall population, with their shares about four times higher than in the base scenario (Figs. 14.6 and 14.7). Such numbers—were they not hypothetical—might lead to social and political turbulence before the eventual cultural 'melting' of the society could possibly take place (Espenshade 2001).

Similar conclusions can be drawn with respect to labour force resources, except that in all forecast and simulation variants, the shares of post-2002 newcomers and their descendants in the labour force, projected for 2052, are even higher than for the total population (Figs. 14.6 and 14.7). This is even despite the forecasted improvements of age-specific labour force participation rates, which did not contribute

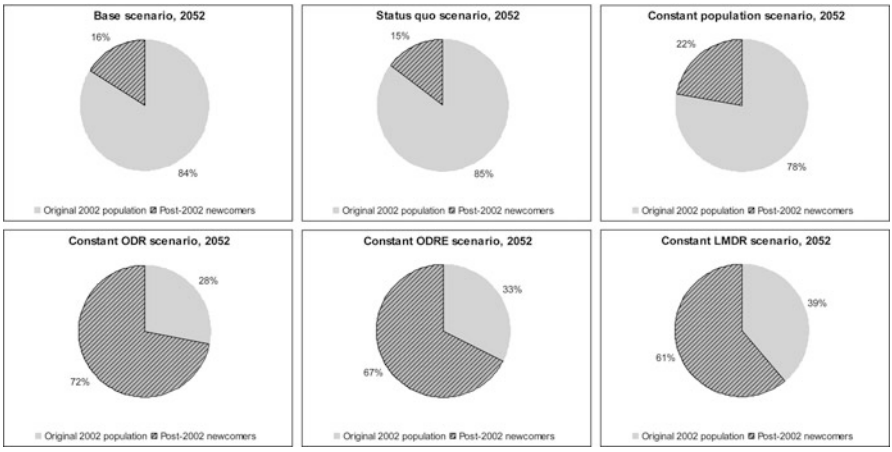

Fig. 14.6 Post-2002 immigrants and their descendants in 27 countries, 2052
Source: own computations

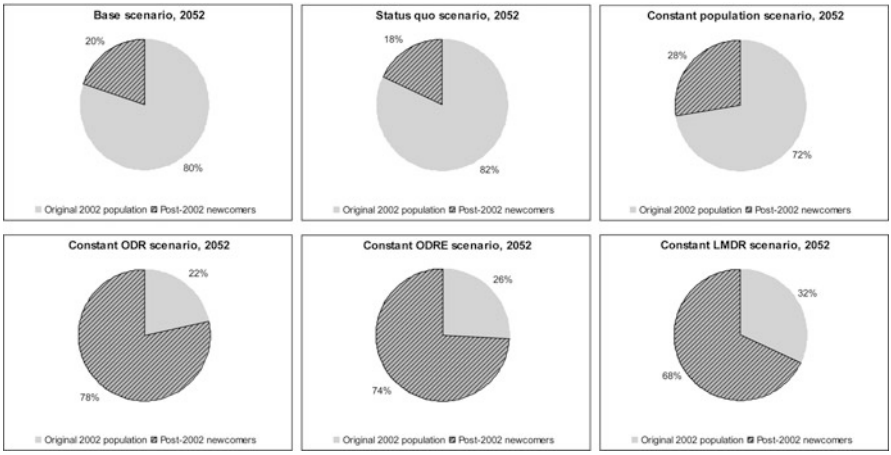

Fig. 14.7 Post-2002 immigrants and their descendants in the labour force of 27 countries, 2052
Source: own computations

much to a reduction of the economic dependency on the active population. From the point of view of the labour force, it is the ageing of the overall population that is a key factor shaping the future size and structure of labour supply.

As noted earlier, the target age structures of both the population and the labour force resources in the base forecast variant and in the 'status quo' scenario are quite similar; the same applies to the high forecast variant and the 'constant population' replacement scenario. The three remaining replacement simulations (constant ODR,

ODRE and LMDR) eventually lead to structures that are distorted by the massive inflow of immigrants in favour of the most mobile groups, i.e. those of the younger productive age. Even though a stable population structure may be achieved in the long run, under the assumptions of constant below-replacement fertility and steady immigration (Espenshade et al. 1982), this is definitely not yet the case in the 50-year period under study.

Given the implausible magnitude of immigration required to sustain the ODR, ODRE or LMDR, as well as the artificial age structures obtained eventually in all three replacement scenarios, it seems obvious that the policy solutions for the problems related to ageing need to be sought elsewhere. This issue will be further elaborated in Sect. 14.4 after a comparison of the results of the current analysis with the results obtained in similar studies concerning Europe presented in Sect. 14.3.

14.3 Comparison of the Results with the Other Studies

This section is devoted to the comparison of selected forecast and simulation results with the results of similar studies, most notably the United Nations (2000) report. Both results and methodological aspects of the study are confronted with the criticism to which the United Nations research was subject. This is done to evaluate the current approach, focusing on changes in the labour force and on the social security burden of the economically inactive population.

In the United Nations (2000) report, 'replacement migration' simulations were done for four Western European countries—France, Germany, Italy and the United Kingdom—as well as for the whole 'old' European Union (EU-15). This allows a comparison of some results in the United Nations report and the results from the current study. The United Nations study also contains aggregate information for the whole of Europe (47 countries), which, although not directly comparable with the 27 countries analysed in this chapter, can provide valuable insights into the ageing process and its implications for the whole continent. An empirical comparison of the results in the United Nations (2000) report and the results from the current study in (the base forecast scenario, as well as in the constant population and constant ODR scenarios)[3] is presented in Tables 14.3, 14.4 and 14.5.

When interpreting the results of the base forecast scenario and the equivalent results from the United Nations (2000) study, the medium variant (Table 14.3), one should note that in all cases the target total fertility rates assumed for 2050 in the United Nations report are higher than those in the current study. On the other hand, the current study assumes much higher (up to five times) net migration than the United Nations report. Since with respect to the advancement of ageing both factors (high fertility and high net migration) work to delay the process, it is not surprising

[3]The United Nations (2000) report uses potential support ratios. For reasons of comparability with the current study they have been recalculated to ODRs.

Table 14.3 Comparison of the results of current study and those in the United Nations (2000) report: base scenario

		Total population (1,000)			Yearly net migration (1,000)			Old-age dependency ratio		
Country/region	Study	2002	2025	2050	2000–2005	2020–2025	2045–2050	2002	2025	2050
France	United Nations	59,418	61,662	59,883	40	0	0	24.57	35.59	44.25
	Current	59,486	66,015	70,177	66	123	120	25.00	36.10	46.08
Germany	United Nations	82,278	80,238	73,303	240	200	200	25.32	36.90	48.78
	Current	82,488	82,728	77,589	213	206	186	25.58	38.61	57.14
Italy	United Nations	57,091	51,270	41,197	34	0	0	27.93	41.84	65.79
	Current	57,157	57,693	54,458	177	209	211	28.17	41.15	67.11
United Kingdom	United Nations	58,955	59,961	56,667	40	40	0	24.69	34.25	42.19
	Current	59,232	63,257	65,426	69	110	108	23.87	31.65	45.05
EU-15	United Nations	375,757	367,342	331,307	470	250	210	25.13	36.63	51.02
	Current	379,350	402,646	403,403	1,222	1,121	1,063	25.00	35.84	53.76
Europe 27	Current	494,178	509,297	496,934	1,060	1,177	1,190	23.87	35.21	53.76
Europe 47	United Nations	728,305	702,335	627,691	757	305	265	22.32	32.68	47.39

The values for 2002 for the United Nations (2000) study were obtained from a linear interpolation of the forecasts for 2000 and 2005. The values for 2025 and 2050 for the current study were interpolated from the forecasts for 2022 and 2027 and for 2047 and 2052, respectively. Yearly net migration for 2000–2005 for the current study shows the data for 2002

Source: United Nations (2000); Eurostat, NewCronos; own computations

Table 14.4 Comparison of the results of the current study and those in the United Nations (2000) report: constant population

		Total population (1,000)			Yearly net migration (1,000)			Old-age dependency ratio		
Country/region	Study	2002	2025	2050	2000–2005	2020–2025	2045–2050	2002	2025	2050
France	United Nations	59,156	61,121	61,121	0	0	91	24.57	35.59	42.92
	Current	59,486	66,018	70,221	66	124	123	25.00	36.10	46.08
Germany	United Nations	81,661	81,661	81,661	215	325	431	25.51	36.50	44.25
	Current	82,488	83,357	83,357	213	284	416	25.58	38.31	52.36
Italy	United Nations	57,338	57,338	57,338	127	256	318	27.62	37.17	49.26
	Current	57,157	58,100	58,100	177	258	373	28.17	40.82	61.73
United Kingdom	United Nations	58,638	58,833	58,833	0	12	116	24.57	34.01	40.16
	Current	59,232	63,263	65,497	69	110	112	23.87	31.65	45.05
EU-15	United Nations	372,440	372,440	372,440	263	869	1,418	25.25	35.97	45.25
	Current	379,350	404,008	415,177	1,122	1,272	1,573	25.00	35.71	52.08
Europe 27	Current	494,178	520,408	532,209	1,060	1,723	2,174	23.87	34.48	50.25
Europe 47	United Nations	727,912	727,912	727,912	1,063	1,879	2,803	21.93	31.25	42.02

The values for 2002 for the United Nations (2000) study were obtained from a linear interpolation of the forecasts for 2000 and 2005. The values for 2025 and 2050 for the current study were interpolated from the forecasts for 2022 and 2027 and for 2047 and 2052, respectively. Yearly net migration for 2000–2005 for the current study shows the data for 2002

Source: United Nations (2000); Eurostat, NewCronos; own computations

Table 14.5 Comparison of the results of the current study and those in the United Nations (2000) report: constant old-age dependency ratio

		Total population (1,000)			Yearly net migration (1,000)			Old-age dependency ratio		
Country/region	Study	2002	2025	2050	2000–2005	2020–2025	2045–2050	2002	2025	2050
France	United Nations	64,458	105,188	187,193	333	1,937	3,196	22.94	22.94	22.94
	Current	59,486	93,215	157,638	66	1,614	2,978	25.00	25.00	25.00
Germany	United Nations	94,737	148,307	299,272	3,251	3,347	4,096	22.68	22.68	22.68
	Current	82,488	123,568	221,813	213	2,483	4,938	25.58	25.58	25.58
Italy	United Nations	66,281	96,664	193,518	1,402	1,886	2,094	24.51	24.51	24.51
	Current	57,157	82,735	152,778	177	1,470	2,978	28.17	28.17	28.17
United Kingdom	United Nations	58,824	86,856	136,138	62	1,421	2,239	24.45	24.45	24.45
	Current	59,232	82,816	144,134	69	1,296	2,364	23.87	23.87	23.87
EU-15	United Nations	413,279	641,056	1,228,341	6,171	12,947	18,153	23.20	23.20	23.20
	Current	379,350	572,783	1,059,706	1,122	10,882	22,135	25.00	24.88	24.81
Europe 27	Current	494,178	747,775	1,398,088	1,060	14,830	32,753	23.87	23.70	23.53
Europe 47	United Nations	778,064	1,212,912	2,346,459	12,410	29,817	50,841	20.79	20.79	20.79

The values for 2002 for the United Nations (2000) study were obtained from a linear interpolation of the forecasts for 2000 and 2005. The values for 2025 and 2050 for the current study were interpolated from the forecasts for 2022 and 2027 and for 2047 and 2052, respectively. Yearly net migration for 2000–2005 for the current study shows the data for 2002

Source: United Nations (2000); Eurostat, NewCronos; own computations

that the ODRs forecasted for 2050 are quite similar in both studies. In most cases, the higher net migration assumed in the current study substitutes for lower expected fertility levels. The only exception is Germany, where the ODR forecasted in the current analysis for 2050 (57.14%) is substantially greater than that in the United Nations report (48.78%). The reason can be found in the persisting low fertility levels assumed in the current analysis, together with hardly any difference in the long-term net migration levels between both studies.

In the United Nations report, as a direct consequence of the assumed paths of demographic development, the population size is expected to decline in all the countries listed in Table 14.3, with the exception of France, where high fertility is envisaged to contribute to a slight population increase by 2050. The population size of all 47 countries of Europe is expected to decline on average by 14%, whereas the population of the EU-15 is expected to decline by 12%. The highest population losses, which are forecasted for Italy (population decline by 28% over 50 years), are a result of the combining assumptions of low fertility and hardly any migration in the future. From the perspective of the current research, this assumption seems unrealistic. The migration factor, to which much more importance is given in the current study, substantially influences the population size. Therefore, although in the current study the low-fertility countries (Germany, Italy) are still expected to observe population losses over the next 50 years, the population decline is not as drastic as in the United Nations study.

The results of the scenario assuming a non-declining total population size (Table 14.4) are not very different from the outcome of the base forecast variant. Moreover, the yearly net migration levels simulated in the current study, as well as those given in the United Nations report, are expected to converge to similar values by 2050, despite the visible initial differences. The United Nations study underestimated the net migration values for most of the European countries (except Germany) for the beginning of the twenty-first century, which could be ex post verified by the data for 2002. Despite these similarities, owing to differences in fertility and net migration trajectories, the ODRs forecasted for 2050 differ significantly between both studies. Again, in all cases the ODRs obtained in the current study are higher than the ones in the United Nations report.

With respect to the population size, an additional factor having an impact on the differences between the results of the current study and those in the United Nations report has to be mentioned. Whereas the United Nations study practically kept the population size constant in this scenario, the population of the 27 European countries in the current study is expected to be 8% higher in 2050 than it was in 2002. The difference is due to a slightly different method applied in the current study in comparison with the United Nations study. International migration flows from the base scenario are assumed to occur anyway. On the top of the regular flows, the additional ‘replacement migration’ is added in order to prevent the population size from declining. Therefore, in the current study some non-zero migration is assumed independently of the development of the overall population size and is the source of the discrepancy mentioned.

The most significant differences between the current study and the United Nations study consider the scenario with replacement migration preventing the ODR from increasing (Table 14.5). Although the yearly net migration levels required to satisfy this assumption are expected to converge to similar values by 2050 in both studies, both the projected ODRs and the overall population size differ for the countries presented. Owing to the visible problem of different jump-off years of the simulations, the population size projected in the United Nations study for 2002 is much higher than the values actually observed, which were applied as the starting point in the current study. The only exception is the United Kingdom, where the ODRs are initially lower in the current study (23.87%) than in the United Nations report (24.45%), but the population size predicted for 2050 is higher.

With respect to other socio-economic factors, it has to be noted that the United Nations report showed the impact of increasing the retirement age, which was not analysed in the current study. In the United Nations report, the average ODR of 47.39% forecasted for 2050 for all 47 European countries in the medium variant, assuming retirement at the age of 65 years, would decrease to 31.95% with five additional years in employment, and further to 20.49% assuming retirement at 75 years. The results for the EU-15 are similar, as the forecasted ODR of 51.02% (retirement at 65 years) would more than halved to 24.27% owing to increasing the retirement age by 10 years (United Nations 2000, pp. 147, 151).

From this evaluation it can be concluded that in terms of the crude demographic outcome, the current study is roughly comparable to the United Nations (2000) study, taking into account different jump-off years of forecasts and simulations. The key difference is the enhancement of the current study by labour market aspects. Focus on the size and structure of the labour force is more appropriate in the analysis of the potential economic problems posed by population ageing. Therefore, even an analysis of aggregate measures of social security burdens, such as the ODRE and LMDR, is a step forward in comparison with the study of the crude ODR proposed by the United Nations (2000). Whereas the ODR is purely demographic, other measures (ODRE and LMDR) take into account the assumed future developments of labour force participation and thus incorporate economic aspects of ageing in the analysis, for lack of which the United Nations report was heavily criticized.

Also with respect to other 'replacement migration' studies (discussed in Chap. 13), the current one focuses more on structural issues concerning the labour markets. To a lesser extent the current study dealt with topics that have already been covered elsewhere, such as the absolute size of the labour force (Feld 2000; McDonald and Kippen 2000), entirely leaving out macroeconomic problems concerning public pensions, health expenditure, fiscal balance and national savings (Roseveare et al. 1996). The issue of a later retirement age was also deliberately omitted, as it has already been addressed in the research of Roseveare et al. (1996), as well as in the United Nations (2000) report and in the study of Coleman (2002).

On the other hand, the selection of countries for the purpose of this study was aimed at treating the enlarging European Union and other highly developed European countries, such as Norway and Switzerland, as one migratory system. In

such a system, migration flows between countries are taken for granted, as following the increasing freedom of movement of labour it is going to be hardly possible to influence them with policy means. In this approach these are only the inflows from the other parts of the world that may to some extent constitute the decision parameters of the policy process.

Taking into account the considerations mentioned above, the last section of this chapter discusses possible policy implications of the outcomes of this study.

14.4 Summary and Conclusions

This chapter had the following objectives:

1. To simulate demographic consequences of an additional inflow of population needed to maintain the size of the population or constant values of the ODR, ODRE and LMDR;
2. To assess the impact of international migration on population dynamics and the labour force in Europe.

We focused, first of all, on the issue of the use of inflow of migrants, not so much as a remedy for aging—as we knew from earlier studies that the numbers of migrants needed to stop it would be extremely large—but as a measure allowing the assessment of the magnitude of the demographic deficit generated over long time by persistent below-replacement fertility. Therefore, it would be misleading to see migration as the sole or main issue of this research. The underlying problem is the measurement of the deficit in the population size and distortion of the age structure.

Let us look at the magnitude of the migration flows that would be needed to maintain the ODR unchanged by the middle of the twenty-first century. In 2052, the inflow of migrants from outside the 27 countries alone would have to exceed 36 million, well above any reasonable absorption capacity of Europe. By 2052, the total population would nearly treble, with a vast share of immigrants in the total population. If we look at the replacement migration as a measure of the demographic deficit, it is clear that the combined increased life expectancy and long history of low fertility results in a need for a remarkably high number of persons hypothetically needed to keep certain parameters of the population constant.

Further, we have asked ourselves to what extent reasonable changes in the labour market, namely an increase in labour force participation rates, could improve the labour supply side of the labour–retirement relationship. Saczuk (Chap. 10) assumed a universal increase in labour force participation rates, especially among the youngest and the oldest age groups. We estimated the number of migrants needed to maintain the ODREs and LMDRs and arrived at potential inflows of 27 million and 16 million persons per year, respectively, in 2052. However large and infeasible these values are, it should be noted that they are lower by 25 and 66%, respectively, than the number of immigrants required to maintain the ODR.

This suggests that policies aiming at the changes in the labour markets and at increasing labour force participation rates may be at least to some extent helpful in curbing the economic consequences of demographic imbalances.

Finally, however, only a long-term increase in fertility patterns might bring about the indispensable demographic change to reduce the ageing process. This is unlikely to happen, because, as argued by Lesthaeghe and van de Kaa (1986) in the second demographic transition theory, the recent fertility change in Europe has occurred because of changes in values, aims and preferences of women and families.

The simulations we conducted show clearly that the long-term consequences of demographic change should be treated by social policy makers and politicians, whose temporal perspective exceeds the next election, with due attention. The changes in social policies aiming at increasing fertility, increasing labour force participation and reforms of pension systems are at the core of the strategies of adaptation of social and economic systems to the new and unavoidable demographic patterns. In particular, sustainability of social security systems may be achieved chiefly through their transformation, from pay-as-you-go redistribution towards systems based on individual savings. From the non-demographic point of view, the combination of increasing labour force participation and increasing the retirement age is also likely to bring profound results in the attempts to offset the negative effects of population ageing. On the other hand, certain demographic population policies should also be considered, aimed at least at preventing fertility from declining further, most importantly by helping women to reconcile work, a career and self-fulfilment with childbearing. Demographic change is ruthless in the sense that it cannot be overcome with marginal or partial reforms. The reforms needed to compensate the population decline-cum-ageing will be painful, will affect entire populations and will reshape the social making of the next generation.

Part VI
Critical Assessment of the Results and Policy Impact

Chapter 15
Critical Assessment of Labour Force Evolution in Europe

Elżbieta Kryńska

15.1 Introduction

Any projection of changes that may affect various economic or social phenomena is burdened by a large degree of uncertainty, obviously being larger, the longer the time horizon that is involved. The same applies to projections of phenomena taking place in the labour market, where the major players are individuals—employers and employees—who make decisions that are not always guided by strictly rational criteria in economic terms. An additional obstacle is the variability of factors comprising the social, economic and political milieu of the labour market. We have good knowledge of the existing factors, but in the future, especially in 50 years, new and unknown factors may appear and those identified today may profoundly change their power and directions of impact.

Despite these reservations, it is worthwhile and advisable to try to identify the changes that may influence the future labour market. In previous chapters interrelationships between international migration, the aging of the population and the evolution of the labour force as well as recommendations concerning a broadly understood demographic policy, including the policy of migration, the labour market and social security were explored. Findings from forecasts and simulations indicating the probable evolution of demographic phenomena (e.g. the number and structure of the labour force) by three scenario variants were presented in Chap. 12. The variants were based on different assumptions concerning the levels of international migration in Europe determined by the evolution of the socio-economic situation, the rate of economic growth, the degree of convergence of incomes in European countries and the migratory policy they pursue. The base

E. Kryńska (✉)
Department of Economic Policy, University of Lodz, Lodz, Poland
e-mail: ekrynska@interia.pl

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_15,

scenario assumed international migration in Europe would stabilize at the present level, the high scenario anticipated an expansion of international migration and the low scenario anticipated its decline.

The forecasts show that the most important problems of the European labour market that are well defined today and show a tendency to deteriorate in time will unquestionably be the *shrinking (or stagnation) of the labour force* in the first place and then *aging of the labour force*, which is connected to the aging of societies caused by the declining numbers of births and increasing average life expectancy.

These issues will significantly determine socio-economic processes in the next half century in Europe in general, and particularly the condition of the European labour market. This chapter is structured as follows. Section 15.2 examines determinants and factors underlying the economic activation of the population, with special focus on the economic activation of older persons, and presents a case study exploring the position of those persons in the Polish labour market and the measures launched to help them re-enter the labour force. Section 15.3 concentrates on the economic activation determinants related to the demand side of the European labour market. The chapter closes with final comments discussing the most important conclusions derived from the analyses made.

15.2 Economic Activation of the Population

It is beyond question that the fundamental preventive measure in the labour market that will allow the potential risks involved in the aging of the European labour force in the next half century to be reduced is economic activation of the population in all age groups.

Both theoretical studies and empirical research identified the key factors that determine the level of a population's economic activity. Divided roughly into economic and non-economic, the first group of factors would primarily contain the level and rate of economic growth, the effective demand for labour, the level of wealth and non-wage sources of household incomes and the real level of wages. The other group would include the degree of development of institutions, social facilities and legislation, the level of personal services, the length of the education period and the youth enrolment ratio, pensionable age, the level of education, social attitudes to work and the preferred family model. These factors are objective, but the decision to take a job (and to choose a workplace) is a subjective decision of an individual changing his or her labour market status, and it is underpinned by a complex assessment of a whole range of economic, socio-living and psychosocial factors. The question arises therefore about the types of factors that can essentially improve the economic activity of the population. Trying to give the answer, I am fully aware of its incompleteness arising from my concentration on the labour factors.

15.2.1 Factors Stimulating the Economic Activity of the Population

The basic stimulants of economic activity were assumed to include improved levels of the population's education, development of atypical forms of employment, making employment a more attractive source of income against its alternative sources and combating discrimination in the labour market.

15.2.1.1 Improving the Level of Knowledge—Education

In modern labour markets, the essential qualitative feature of the labour force is the knowledge, qualifications and vocational skills possessed by its members, and the level of education is the key determinant of employability. Labour market surveys distinctly indicate that as the level of education of individuals increases, the more often they participate in the workforce, and the risk of unemployment and economic inactivity declines. At the same time, in all developed countries a high demand for high-skilled personnel, whose qualifications allow them to take up challenges faced by modern economies, can be observed. The economic activity of the population can therefore be improved by enhancing the labour force's pool of qualifications by developing education and investing more in human capital. The intensity and extent of the investments in human capital do not depend only on the owner. However, employers cannot be expected to put their money into something they do not own, so the role of the state is growing in the following areas: (1) designing and improving the system of education and (2) creating incentives for employers and the labour force to invest in education.

Education understood as a process in which knowledge and skills are acquired, i.e. learning, takes three forms (Okoń 1992):

1. Formal education represented by a system based on solutions that are constant in terms of time and content (classrooms, marks, schools, curricula and textbooks); the system starts with the elementary education and continues as far as higher learning institutions. In addition to general education courses, formal teaching also includes a range of special programmes and institutions offering full-time technical and vocational training.
2. Informal education, i.e. intentional and organized educational activities provided outside the formal school system; it allows a given group of its participants to attain the assumed learning goals.
3. Incidental education being a lifelong, spontaneous and irregular process, in which individuals absorb information, skills, beliefs and attitudes arising from daily experiences and educational impacts of the environment.

Quite naturally, school is the first step in the process of education. Because of that, it is necessary to remove all barriers impeding access to school education at all levels (financial, institutional and psychological) and to reduce the number of dropouts from the system. Another important issue is the high quality of education and its structure, whose integral element is—in labour market terms—a necessary adjustment of the imparted knowledge and vocational skills to make them correspond to the qualitative characteristics of the demand for labour. A gap between the structure of workers' skills and occupations, on one hand, and the demand for labour, on the other, makes workers more exposed to the risk of unemployment. Besides, schools should teach young people how to be creative and resourceful, as these qualities are indispensable to promote entrepreneurialism. For that reason, school curricula need to include topics such as economic life and ways of actively entering the labour market.

The renewal, expansion and enhancement of skills, both vocational and general, should be related to lifelong education. Regardless of its other functions, lifelong education in the modern world comes to be an instrument for restoring and maintaining the labour market balance, but also a way of reducing an individual's exposure to unemployment or economic inactivity. It is necessitated by the dynamic development of sciences, manufacturing techniques and technologies, and by the increasingly sophisticated labour market. Knowledge and skills acquired in schools quickly become obsolete and so we must learn throughout our lives. Lifelong education should be generally available and vigorously promoted. Naturally, the promotion must be accompanied by initiatives beefing up such education, primarily focused on the provision and expansion of institutions offering curricula and forms of instruction meeting the needs and possibilities of the labour force.

The system of incentives encouraging employees and employers to invest in education should take advantage of the following elements:

1. Dissemination of the lifelong education concept and, particularly, removal of the barriers stuck in the minds of low-skilled persons, emphasizing the effectiveness of outlays allocated to education, teaching to perceive education as an investment and not cost and promotion of good practices regarding educational investments.
2. Information and consultancy—improving information about the market of educational services and the quality of available education, expansion of a vocational guidance system open to all individuals and development of advisory services for employers.
3. Establishment of a financial support system for persons inclined to raise their qualifications, particularly for the low-income and unskilled groups of workers (e.g. education vouchers, scholarships, tax relief).
4. Establishment of a system for certifying skills acquired via informal and incidental education.

15.2.1.2 Development of Atypical Forms of Employment

Atypical employment[1] involves the following types of workers: persons contracted by an enterprise for a fixed time or to complete a designated job, part-time workers, some categories of independent workers, workers paid by the day or homeworkers, and some categories of subcontractors.

Atypical employment helps adjust the supply side and the demand side of the labour market to changes taking place in product markets. Its forms are believed to be one of the measures that allow the labour market imbalance problems to be solved and especially structural and business-cycle-related unemployment o be reduced. In addition, they contribute to lower transaction costs represented by outlays spent on handling the buy–sell transaction concluded between an employer and an employee, thus lowering labour costs. Their most important feature is their being also an instrument for economic activation of persons who, for a variety of reasons, might have problems taking a steady, full-time job for an unfixed period of time.

The important thing for the future of the European labour market is, at least today, that the demand for atypical forms of employment is expanding among both enterprises, especially large ones, and labour market policy makers.

Atypical forms of employment are widely applied in large supranational corporations that subject their strategies not only and not mainly to the maximization of profits, especially in the short term, but also to prospective expansion. The corporations develop a so-called global network, whose particular elements function differently from those of traditional enterprises. This process was evocatively described by Reich (1996). The "global network" emerges in the first place from adjusted strategies pursued by large supranational corporations, mainly:

1. Product strategies are modified to meet the needs of individual buyers rather than the mass of customers.
2. Profits derived from the scale or magnitude of production are replaced by profits provided by problem solving and meeting buyers' needs.

Strategy changes involve the reorganization of enterprises that cease to be hierarchically structured, solid pyramids having the characteristics of traditional internal labour markets and become a "spider's web" instead, with the creative team responsible for identifying and solving strategic problems of the corporation sitting right at its very centre. Organizational and management adjustments in large corporations that entail a departure from the hierarchical management towards functionalization and decentralization are accelerated and enabled by the expansion of information distribution technologies. In labour market terms, the major effect is considerably lower numbers of permanent staff in modern corporations. On the corporations' peripheries can be found workers contracted to do specific jobs and

[1] Atypical employment can take various forms, the most important of which are part-time jobs, fixed-time contracts, self-employment replacing employment contracts, on-call jobs, homeworking and teleworking. (See, e.g., Chobot 1997; Hajn 2003).

to provide certain services. Their engagement period is precisely defined and it corresponds to the strategic concepts of the creative team. Because in this world of global competition the labour force happens to be perceived exclusively from the angle of costs, limiting the number of permanent staff is one way of becoming and staying competitive in a changeable market environment. Permanent jobs are replaced by growing numbers of atypical jobs—temporary, usually contract-based, forming no long-term relationship between an employer and an employee, allowing enterprises to respond flexibly to changes in product markets.

Also Thurow (1996, pp. 20–43) pointed to the expansion of temporary and occasional employment instead of permanent employment as a result of the globalization of the world economy (among other reasons, of course).

One source of the expansion of atypical employment, whose solutions are different from those in the traditional system with its unfixed-period employment contract, 8-h working day and fixed working hours that we can observe today is its importance for making the labour market more flexible and for reducing unemployment. In particular, the development of atypical forms of employment improves quantitatively the overall flexibility of employment represented by the adjustability of the number of enterprise workers to variables such as business cycle variations, profitability, real wages and the productivity of labour, as well as changes arising from technological progress and those induced by the government's structural policy (see Rosenberg 1989; Solow 1998; Wiśniewski 1999; Standing 2000).

In developed countries, we can observe today legal and promotional actions intended to expand the range of atypical employment applications and to support flexitime in a manner that accommodates the needs of both employers and employees. The promotion of atypical forms of employment, however, must meet two basic requirements:

1. Atypical workers have to be provided with essentially the same level of protection regarding the terms of their employment as those employed in the traditional system.
2. The principle of workers' freedom to choose atypical employment must be respected.

Application of atypical forms of employment and work organization should always have a rational basis and they should not be overused by employers to reduce their other liabilities. In other words, they cannot serve as an instrument of dictatorship of the strong over the weak (Wratny 2001). It should be borne in mind that jobs created in that regime frequently show unfavourable characteristics: they are lower paid, less stable, prevent workers identifying with the firm and the employer, impede improvement of their skills and promotions and do not ensure the feeling of security in the workplace. For many workers, atypical forms of employment, associated with auxiliary jobs, may mean higher uncertainty of their existence, lower wages and dependence on changes in the economy.

Economic activation of the population based on atypical employment therefore produces an extremely serious problem—the need to develop ways of winning the social partners' acceptance. The experience of some EU member states shows

that this process takes time and negotiations, because most atypical forms of employment deprive workers of some of their existing privileges. The bottom line is, however, that absolutely all labour market players should make an effort to facilitate and encourage the creation of new jobs, even those that are less attractive, by providing employment opportunities.

15.2.1.3 Making Work More Attractive as a Source of Income Against Its Alternative Sources

The known sources of household incomes are proceeds from the sale of production factors (labour, land and capital) and from other sources, among which benefits paid out by the social security system are the most important. On one hand, a free and relatively unrestricted access to the benefits encourages economic deactivation and, on the other, it makes the non-wage labour costs grow, with a consequent decline in the demand for labour. It is also obvious that social security benefits intended to provide relief in cases of poverty and shortage of resources, when predefined circumstances occur, have to be available. Nevertheless, they should not be a substitute for earned income, serving rather as a supportive measure in specific life situations.

In labour market terms, it is important for a welfare system protecting the unemployed to secure primarily the persons' incomes in periods when they are actively seeking employment and to create conditions for their economic activation. However, the range of benefits offered cannot divert workers from seeking jobs. Besides, social benefits offered to persons without jobs or other sources of income who are not considered unemployed should to be tied up with some obligatory activities, e.g.:

1. Seeking a job (if a person is fit for work)
2. Other undertakings, if the worker's physical or mental condition prevents him or her from taking a job (e.g. "inclusion activities", e.g. taking up education or starting a treatment).

In other words, the economic activity of the population could be improved if unemployed but employable persons who could take jobs if they wanted to were removed from the group of the welfare system beneficiaries. The simplest solution allowing economic activity in that area to be stimulated imposes certain requirements or responsibilities on the beneficiaries (e.g. verification of the means of support, examination of the employment record, limiting the benefit payment period, or obligatory job seeking).

An essential issue is the ratio of the amount of social benefits received by employable persons to the level of earned income. The thesis that in order to stimulate economic activity the ratio should clearly indicate higher attractiveness of employment than economic inactivity does not need a special body of evidence. The correct relation should be as follows:

$$\text{Poverty line} < \text{social benefit} < \text{minimum wage} < \text{average wage}$$

Social security systems are different in particular European countries. Many of them seem to need a review that should be followed by the restructuring of social benefits (including benefits paid from the welfare system) towards supporting active job seekers and enhancing motivations for taking jobs.

The labour taxation system also requires revision and possibly transformation targeted at economic activation of some groups of workers within the labour force. The goal is to make workers' take-home pay sufficiently attractive and competitive compared with incomes derived from sources other than legal employment. High labour taxation encourages people, especially those with relatively low earned income (i.e. typically low skilled), to conceal their jobs and to seek income in the "grey" part of the economy, or to apply for various benefits (Sztanderska 2004). A high "tax wedge" has a particularly negative impact on the employment of the least productive persons, whose potential wages are close to the minimum wage.

15.2.1.4 Combating Discrimination in the Labour Market

The term "discrimination" involves cases when people are either disadvantaged or persecuted because of their background, class, nationality, religion, race, etc. Discrimination is easier to define than to discern. In the labour market, discrimination appears when some groups within the labour force having the same abilities, education, experience and skills are treated less fairly than others as regards their access to jobs, professions, promotion and wage rates. Other examples of discrimination may include unequal access to education, apprenticeships or training in the workplace. For that reason, discrimination adds to the emergence of barriers separating workers from the workplace, and produces distinct inequalities in the labour market. The major obstacle impeding access to jobs is discriminatory procedures of employers who apply permanent human traits such as sex, age, nationality, and race to select and assess their future workers.

Discrimination of individuals and entire groups and blocking their access to jobs results in their exclusion from the labour market. Exclusion, regardless of its source, always marginalizes persons in the labour market. As a result, they have problems integrating into the working population and, in extreme instances, such integration becomes virtually impossible. The social and economic consequences of discrimination and inequality in the labour market result in modern labour market policies, especially in developed countries, aimed at large-scale measures to support integration of the marginalized population into the workforce.

Measures preventing labour market discrimination have to be preceded by the proper identification of the discriminated groups and the practices to which they are exposed. This knowledge allows solutions (mostly legal) that counteract discriminatory practices to be designed and their acceptance by the labour market players. Such initiatives, however, represent only a fraction of the set of necessary measures that need to stress adjustments in the mentality of employers, employees and job applicants and new attitudes of all labour market institutions. The measures should emphasize the promotion of antidiscriminatory solutions in the labour law

to improve the awareness and legal knowledge and then disseminate appropriate attitudes among all labour market actors. It is also important for the discriminatory practices, also those outside the labour market, to be disapproved of and rejected by the public.

The set of factors stimulating the economic activity of the labour force discussed in Sect. 15.3.1 was compiled by way of a subjective selection, with the basic criterion being a given factor's weight and importance for producing the expected effect. Other factors which are less significant and relevant to the economic activation of the population (e.g. improved institutional service to the labour market) or those assumed to have rather loose relationships with the process (e.g. encouraging entrepreneurialism), were therefore disregarded.

15.2.2 Extending the Economically Active Life of Elderly Persons

A precise definition of "an elderly person" is quite troublesome, as aging is a multidimensional process, specific to individuals, and having its ecological, cultural and historical determinants (Urbaniak 1998, pp. 15–16). Realizing that the age criterion is an arbitrary measure, we will assume that "an elderly member" of the labour force is a person aged 50 years and older, with the reservation, however, that particular individuals may not fit that criterion.

The labour force aging process and variations in the ratio of the economically active to economically inactive persons it causes give rise to numerous and adverse phenomena. The major consequence of the aging of the labour force is spreading economic deactivation and its effects, mainly (Urbaniak 1998, pp. 43–44):

1. More and more persons deriving their income from social benefits, which increases public spending; the possible effects are, for instance, a tightening of the government's fiscal policy and its further consequences.
2. Growing inefficiency of public pension systems based on revenue redistribution.
3. Building up a tax and quasi-tax burden (social security contributions and other charges) on the economically active persons and employers.
4. Problems with maintaining the real value of old-age pensions, which for social security systems translates into higher transfers of income earned by the economically active population to pensioners.
5. Decreasing number of pensionable years of service per year of drawing an old-age pension, which makes individuals put aside larger portions of their incomes to fund their future pensions.

Researchers (Chap. 14) suggest that growing fertility (indirectly) and higher economic activity of the labour force (directly) are the most effective factors cushioning the economic impacts of the aging of the labour force and are more probable factors than increased immigration. This opinion should be fully supported. Let us consider therefore the basic factors that help improve the economic activity of the population.

15.2.2.1 Determinants of Economic Activation of the Elderly

The process for stimulating the economic activity of elderly persons covers:

1. Activation of persons who decided to take a job at an older age
2. Economic reactivation of persons returning to the labour force after a period of inactivity caused by extended sickness or their becoming entitled to old-age or disability benefit
3. Keeping up the economic activity of employed persons
4. Activation of the unemployed

Stimulation of economic activity of the elderly is expected to extend their economically active life. There are at least three reasons though that make this goal difficult to attain. Firstly, it is commonly believed, and quite often it is true, that the productivity of workers decreasing with their age. This can be typically observed in places where productivity depends on physical strength. Technological progress and structural changes in the economy have challenged the weight and importance of workers' fitness. Unfortunately, the same factors generate new risks, because older workers become unable to catch up with the pace of change, which is without doubt becoming faster and faster. The changes force workers to learn about new equipment, new modes of operating and using it, etc., that is to upgrade their knowledge and occupational skills on an ongoing basis. Secondly, older persons are more frequently than younger persons found to have lower creativity, dynamism and entrepreneurialism combined with an inclination for conservative attitudes. Thirdly, the probability of impaired health, disabilities or even dependence on a third-person's care increases with age.

For these reasons employers may deem an elderly person "a high-risk worker" who does not guarantee the expected degree of involvement in his or her firm's operations. This frequently renders employers reluctant to employ such persons and/or they are made redundant first.

As a result, workers in the older age groups (50 years plus, but under the retirement age) are exposed to economic deactivation rather than activation. The typical causes of the process are given below and they operate either individually or as combinations:

1. Occupational qualifications and skills falling short of the modern labour markets' demands
2. Discriminatory practices on the side of the employers
3. Readily available early retirement and preretirement benefits

15.2.2.2 Economic Activation of the Elderly

It should be stressed that the factors indicated earlier stimulating the economic activation of the population are very useful for extending the period of economic activity as well.

As for the first factor—*improving the level of individuals' knowledge via education*—we need to stress that all members of the public, regardless of their age, should be guaranteed access to lifelong learning. In fact, this approach is entirely accepted and treated in the EU as one pillar of the educational system. Characteristically, numerous educational programmes in the EU serve older workers who were earlier perceived as a group difficult to develop and relatively inflexible.[2] The main argument used in the EU to target training to these persons and to provide them with the possibility of extended participation in the labour force is the aging of societies.

Lifelong education of the elderly should address three important issues. One is the need to customize the educational path by varying the measures and methods used to impart new knowledge and occupational skills, or to enhance the existing ones. Besides traditional methods, particularly important is the introduction of long-distance learning, personal instructors or instructors training small, age-homogenous groups. Another issue is customization of curricula to allow for the diversity of knowledge and occupational skills possessed by the elderly. The most adequate approach in this case seems to be application of modular education and the development of programmes meeting specific needs of small groups of students, or even individuals. The third issue—perhaps the most difficult—is triggering the demand for self-investment among the elderly.

The second stimulant of the economic activity of the population—*development of atypical forms of employment*—is also recommended as an incentive supporting longer participation in the labour force. According to Morris and Mallier (2003), the atypical forms of employment enable elderly persons to retire gradually and smoothly by providing a sort of a bridge between full-time employment and complete economic inactivity.[3] For that reason, governments and employers' organizations in the EU member states recognizing the need to keep elderly workers active should make atypical employment available for them, as recommended by the European Commission.

Regarding the third stimulant—*making work more attractive as a source of income against its alternative sources*—a radical measure discouraging aging workers from withdrawing from the labour market narrows down the range of options that might lead to illegitimate disability benefits or early retirement benefits.

---

[2]For instance, one programme addressing adults is Grundtvig, a component of the SOCRATES II programme. It aims to support lifelong education through innovations introduced to educational offers, raising their quality and making them more available for individuals who want to continue their education and gain new skills at any period of their life to strengthen their labour market position. The major groups of the programme's beneficiaries are adults with special educational needs, low-skilled or unskilled adults, adults residing in rural and underdeveloped areas, and socially and economically disadvantaged persons, as well as other groups of the public facing impeded access to education.

[3]The study referred to discusses two forms of atypical employment, i.e. part-time jobs and own-account work.

Economic activation of the elderly requires one more measure—*elimination of employers' discriminatory practices*. Its implementation is not easy, because, as we already said, discrimination is easier to define than to discern. This measure aims to remove barriers blocking access to jobs, e.g. discriminatory practices of employers who make their personnel decisions conditional on the age of employees or applicants. Age is known to be one of the basic socio-demographic variables that determines many phenomena. Both the results of scientific research and everyday observations explicitly reveal a relationship between the possibility of getting and keeping a job and age, but the "pure" impact of age is difficult to capture, as the variable is "interrelated", correlated with other socio-demographic characteristics such as age, sex, education, and years of service. These reservations aside, the need for measures preventing discrimination of the elderly seems to be undisputable. Such measures should be provided by laws and consistently applied by the institutions involved and the elderly themselves. The usefulness of elderly workers' talents and experience needs to be promoted among employers.

15.2.3 A Case Study: Economic Activation of the Elderly in the Polish Labour Market

The labour force aging problem is especially troublesome in the Polish labour market, where unemployment is very high. The attempts to reduce unemployment using instruments enlarging the pool of economically inactive persons of retirement age had serious and negative impacts on public finance. Consequently, it will be necessary to make the elderly more active in the labour market both today and in the foreseeable future.

15.2.3.1 Labour Force Participation of the Elderly

The Polish labour market shows a very low rate of employment (51.2% in 2003 compared with 64.3% in the EU-15 and 62.9% in the EU-25).[4] Its value is strongly affected by the low economic activity of elderly persons. In Poland, the 2003 rate of employment for persons aged 55–64 years was 26.9%, i.e. it was 14.8 percentage points lower than in the EU-15 and 13.3 percentage points lower than in the EU-25. Between 1997 and 2002 the rate showed a distinct downwards trend (Fig. 15.1).

In 2001, the European Council recommended that the 2010 rate of employment for elderly workers (55–64 years) should be 50%. In Poland, the gap between the 2003 rate of employment in this age group and its suggested 2010 value was as much as 23.1 percentage points.

[4]Eurostat data, http://epp.eurostat.CentralEurope.eu.int/portal/

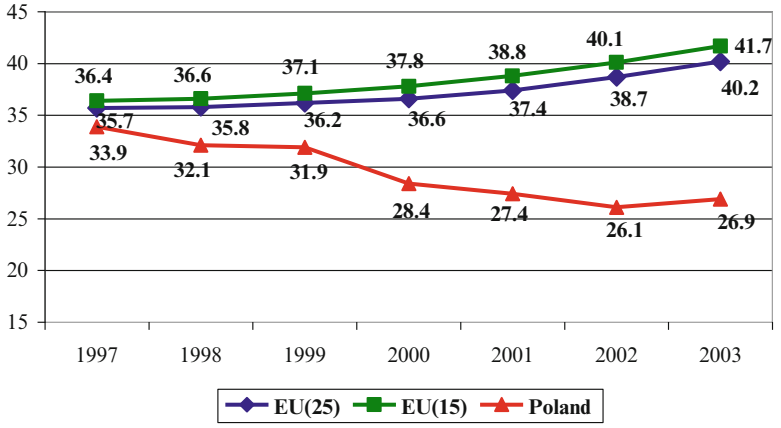

Fig. 15.1 Unemployment rate of persons aged 55–64 years in Poland and the EU, 1997–2003 Source: Employment in Europe 2004, Statistical Annex – Key employment indicators, http://www.eu.int/comm/employment_social/employment_analysis/employ_2004_en.htm

Table 15.1 Employment rate for persons aged 50–years and older in Poland in 1992 (November) and 2004 (fourth quarter)

Age (years)	Employment rate (%) 1992	2004	2004–1992 difference (percentage points)
50–54	62.9	56.7	−6.2
55–59	41.2	33.0	−8.2
60–64	26.5	17.4	−9.1
65+	13.1	6.6	−6.5

Source: GUS (2002, 2005)

Observations over a longer time horizon indicate that in Poland the labour force participation of persons aged 50 years and over has been declining. Between 1992 and 2004 the rate of employment decreased the most persons aged 60–64 years (from 26.5 to 17.4%) and for those aged 65 years and older (from 13.1 to 6.6%) (Table 15.1).

In that period, the employment rate of persons aged 50 years and older fell owing to the unemployment policy pursued by the government. Escalating unemployment lowered the effective retirement age, because some groups of workers were allowed to exercise the early retirement option. This instrument was intended to regulate the labour market and to cushion the impacts of unemployment and industrial restructuring. In other words, the pension system was used as a shield against unemployment. Besides, persons who did not meet some retirement criteria were provided in 1997 with the option of taking preretirement benefits.[5] As the number of available jobs was limited, elderly persons frequently decided to become economically inactive.

[5]Preretirement benefits were abandoned in 2002.

Table 15.2 Average age at withdrawal from the labour force in Poland and the EU

	Age (years)		
Country/region	2001	2002	2003
EU-25	59.9	60.4	61.0
EU-15	60.3	60.8	61.4
Poland	56.6	56.9	58.0

Source: *Eurostat Yearbook 2004*, long-term indicators, http://epp.eurostat.CentralEurope.eu.int/portal/

In addition, in Poland we can observe a young average age at which workers withdrew from the labour force. In 2003, it was 3 years lower than the EU-25 average and 3.4 years lower than in the EU-15 (Table 15.2).

The major problem of the Polish labour market policy is the worryingly high level of unemployment. The 2005 National Employment Action Plan defined a specific objective: the rate of unemployment should be brought down to 15% in 2006. However, the plan did not specify the expected rate of employment, stressing only the need to stimulate the demand for labour. Employment must grow in order to improve the condition of the Polish labour market and to increase household incomes, to lower non-wage labour costs, to reduce the budget deficit and to restore the balance of public finances. Additionally, it is necessary to attain the goals formulated under the Lisbon strategy (with their following modifications). Also, demographic processes that make societies age to a degree that endangers the efficiency of the social security systems must be borne in mind. One way of increasing employment is supporting a longer economically active life by creating relevant incentives for the elderly to take jobs and to continue in employment.

15.2.3.2 Measures Supporting Longer Economic Life—50 PLUS Programme

The key instrument designed in Poland to support an extended economically active life was the government's programme *50 PLUS—Programme for Economic Activation of Persons Aged 50 Years Plus* presented in November 2004. Its strategic goal is improving the rate of employment in this age group, while retaining the necessary social security instruments for persons having the worst position in the labour market.[6] The goal will be attained by:

1. Promoting among employers a non-discriminatory recruitment policy towards workers and job applicants aged 50 years and older

[6]Information about the *Programme for Economic Activation of Persons Aged 50 Years Plus* was obtained from the website of the Polish Ministry of Economic Affairs and Labour (http://www.mgip.gov.pl/Programy/Program+50/).

2. An active proemployment government policy towards beneficiaries of preretirement and early retirement benefits, or those that might acquire rights to such benefits, in order to keep the group within the labour force
3. Enhancing measures that activate unemployed persons aged 50 years and older in order to enable a possibly large group of the unemployed to find gainful employment, or to participate in active labour market programmes
4. Supporting persons aged 50 years and older whose employment status may soon deteriorate because of their dismissal for employer-related reasons

The 50 PLUS programme is targeted at persons beyond 50 years of age, who have the worst position in the labour market:

1. Unemployed persons, especially the long-term unemployed, registered at labour offices
2. Persons approaching the age of preretirement benefits or early retirement, or becoming entitled to them
3. Workers exposed to the risk of redundancy
4. Persons who become disentitled to regular support such as temporary disability pensions because of the entitlement verification process
5. Persons whose rights to disability pensions and rehabilitation allowances are expiring

The 50 PLUS programme was a novelty in Poland for two reasons. Firstly, there had never been a central, regional or local programme with the elderly as the final beneficiaries. The problem of their employment used to be resolved by dismissing them or making them withdraw from the labour force—sometimes voluntarily, but frequently under the pressure of the employer. Thereby the cost of supporting elderly, but employable persons was transferred to the pension system, social security system, or the Labour Fund. Secondly, the programme was developed by the government and was implemented by regional and county authorities and labour market institutions (particularly the public employment service). Its new dimension gave the possibility of inviting social partners to help carry out its tasks, for instance organizations of employers, trade unions, and non-governmental organizations.

The 50 PLUS programme assumes the enhancement of services provided by institutions that help workers struggling in the labour market. The programme's measures take the form of local and regional projects.

There are three separate lines of action distinguished within the programme:

1. Economic activation of the unemployed
2. Assistance to remain in the workforce
3. Helping people re-enter the labour force

Measures intended to implement the former line of action included:

1. *Prioritization of persons concerned by the labour offices*, which means that in the first 6 months of their drawing unemployment benefit, labour offices are obligated to present them with an employment offer, another gainful job offer, training in the workplace or employment as intervention work or public work.

2. *Individual action plans* designed by labour offices for the long-term unemployed.
3. *Enhanced instruments of subsidized employment*, i.e. special types of intervention work for periods longer than in the case of other unemployed persons, i.e. 24 months (alternatively 48 months if the wage costs or social security contributions are refunded every second month). Additionally, in the case of workers referred to intervention jobs, their employers can receive a grant of up to three average wages to equip the new workplace.
4. *Prevention of social exclusion* via extended public work (to 12 months) organized by the labour offices.
5. *Promotion of temporary work and rotational jobs* among high-skilled unemployed persons—Labour Offices help find replacement workers on a rotational basis for periods when the permanent company staff takes training, and fill temporary positions on request from temporary work agencies.
6. Inducement *to start up one's own business* in the form of a one-off, non-repayable grant amounting to 500% of the average wage paid out by the county authorities.
7. *Incentives to employ jobless persons*—some of the costs incurred by an employer on equipping and refitting a workplace are refunded by the county authorities (up to 300% of the average wage).
8. *Financial incentives discouraging persons from economic inactivity in the labour market*—persons entitled to unemployment benefit and taking a job can receive an activation allowance representing the difference between the lowest wage and the earned pay.

The following employment-supporting measures are applied to persons aged 50 years and older who are employed but at risk of redundancy owing to the economic condition of their enterprise or discriminatory practices of their employer:

1. *Standard labour office services* (placement, EURES services, job counselling and occupational information, assistance with active job seeking, etc.).
2. *Monitoring of mass dismissals*. An employer intending to make redundant at least 100 workers over a period of 3 months must agree with the labour office on the scope and types of assistance available for the dismissed workers.
3. *Training*. Workers seeking jobs in the notice period and dismissed for employer-related reasons and persons working for employers covered by bankruptcy proceeding or liquidation are allowed to participate in training financed by the Labour Fund.
4. *Assistance with retraining*. A training allowance is paid out to persons taking training and dismissed by an employer who set up a training fund. Relevant projects will be carried out by the county labour offices and training institutions.
5. *Regional job-retention programmes*. Regional authorities independently or in cooperation with county governments can initiate regional programmes based on the regional employment plan to retain persons and to create jobs for persons aged 50 years and older.

The measures intended to facilitate re-entry to the labour market of persons losing rights to benefits actually resemble those presented above. However, their application requires a large degree of cautiousness, as the benefit-drawing period is typically connected with economic inactivity. The level of skills needed by and the mental readiness of a member of that group of persons to take a job correspond to those characterizing the long-term unemployed. Another consequential aspect is that such persons have already benefited from various forms of welfare, which does not make economic activity very attractive for them.

On the whole, the actions launched within projects in the 50 PLUS programme did not go beyond statutory unemployment combating instruments. They only added individual action plans for older unemployed or set up special support groups for such workers. The hopes for positive results of the programme are connected to the fact that for the first time special measures address the older members of the labour force.

The programme was expected to help activate every year around 50,000–80,000 unemployed workers and persons drawing preretirement benefits, as well as to reduce the numbers of persons dismissed before the retirement age.

The actions being taken under the 50 PLUS programme are entirely harmonized with the EU guidelines. They primarily help improve the efficiency of the public employment service, lift barriers impeding access of older workers to jobs and support the involvement of social partners. Altogether, they should encourage a larger number of elderly persons to enter (in most cases to re-enter) the labour market and to stay there.

15.3 Demand-Side Determinants of the Economic Activation of the Population

The labour market always has two dimensions. The supply side represented by the labour force is accompanied by the demand side, i.e. the absorption of workers by an economy, expressed by the number of jobs. Let us therefore analyse the basic determinants of the economic activity of the population rooted in the demand side. The findings will be used to attempt to indicate the most likely change trends in the long-term demand for labour in European countries, and their influence on the economic activation of the population.

The basic factors that produce variations in the long-term demand for labour are technological progress, relocation of business activities and jobless growth.

15.3.1 Technological Progress

Technological progress is a part of civilization, so it is not a new phenomenon. In modern times, it has clearly accelerated and its main source is the expanding

computerization of information distribution processes and manufacturing technologies. Among researchers investigating the relationships between the current development of sciences, manufacturing technologies and communication, on one hand, and the demand for labour, on the other, a bipolarity of opinions can be found.

One position is that technological progress will bring about a dramatic fall in the demand for labour soon, mainly owing to the increased productivity of labour. That fall will be accompanied by an unequal access to benefits offered by the changes, as well as other phenomena resulting in the social exclusion and marginalization of individuals and entire groups of the public, growing income inequalities coupled with a spreading poverty zone, building up of risk of social diseases and, subsequently, worldwide social and political shocks. The most catastrophic vision of the impacts generated by the processes taking place in modern economies was formulated by Rifkin (2001), who believes that the progressing globalization, particularly the information technology and technological revolution with its reengineering, will dramatically curb the demand for labour, especially hired labour. The present age of information is forecasted to liquidate mass employment as we know it today and to increase informal employment. Following that, it will expand unemployment coexisting with a global depression. In other words, "an end of labour" can be expected, because in the modern world we cannot hope that the concept formulated within the neoclassical stream of economic theory and stating that employment declines brought about by technological progress are offset by the demand for labour triggered by growing productivity, falling prices and growing global demand will be realized (Rifkin 2001).

The other group of researchers reject such risks, and sometimes even ridicule them. They believe that globalization, so strongly associated with technological progress, is becoming the engine of all positive changes for both individuals and entire groups of the public, as it makes higher earned incomes more readily available, improves educational opportunities, especially for lifelong education, reduces pollution in the natural environment, improves health determinants, etc. (Reich 1996, 2000). In the labour market, the effects of technological progress can be found in the restructuring of the demand for labour rather than its changing magnitude. It is worth remembering though that the demand for labour can be treated as constant (or expanding) only in absolute terms, as jobs may become less stable—some will disappear to be replaced by others. This makes employees adjust their qualification profiles: new technologies typically involve a higher level of qualifications, also those unrelated to a specific enterprise. Many traditional trades are declining. The swift progress and diffusion of new technological solutions accompanied by new forms of work organization clearly abate the demand for low-skilled and unskilled labour. The most spectacular phenomenon here is the replacement of direct human involvement by new technologies, which reduces the demand for labour in many fields of activity (mainly manufacturing) and takes it instead to areas where direct human intervention is still needed (mainly some types of services).

According to Morawski (2003), and his view must be agreed with, both positions about the effects of technological progress and globalization processes on the

demand for labour should be treated as extreme, whereas "the truth cannot be found in some literal centre – this would be absurd – but in the wide and changing zone that divides the extreme positions" (Morawski 2003, p. 244).

Beside the issue of the impact of technological progress on the size of the demand for labour, there is another dimension of its influence that has to be considered. Technological progress, particularly in the field of telecommunications and information technologies, makes it easier to coordinate the manufacturing processes that one firm uses in its plants located in many countries. For that reason, technological progress essentially shapes the geographical distribution of the manufacturing industry, which thus becomes more and more universal and global, while preserving its natural local roots.

15.3.2 Relocation of Business Activities and Jobs

One feature of modern economies is the perfect mobility of financial capital that has evolved from international agreements on the functioning of capital markets, particularly in the area of their deregulation that enables free movement of capital. The relatively easy coordination and organization of work in plants held by one enterprise, combined with the freedom of making the geographical expansion decisions, provides unlimited possibilities for relocating the manufacturing activity and some types of services.

Enterprises subject their allocation decisions to economic calculus and their mobile assets go to places where they may be the most profitable. Naturally, one of the factors is the price and productivity of labour (another factor of production), which is less mobile than financial capital. The ease of capital movement actually cancels formal borders between national labour markets. Management boards analyse the characteristics of labour markets (the structure of labour supply, the rate of unemployment) and workers' qualities in different countries, but most of all their price and productivity. As a result, an international demand for labour emerges that essentially determines the size and structure of the local, regional, national and finally continental demand for labour. For instance, we can observe today an inclination to locate production requiring unskilled labour in developing countries, where its supply is abundant and the price is relatively low. The side effect of locating businesses in countries with a relatively high supply of low-priced unskilled labour is the falling demand for this type of labour in developed countries.

The area within which job relocation decisions can be made has been considerably widened by teleworking. Teleworking is the most recent form of remote working that takes advantage of computers and telephone lines, i.e. modern ICT solutions enabling work to be done at any distance from the place where it is done in the traditional manner. As regards the evolving demand for labour, it is important that teleworking has an international range and it is very meaningful for the promotion of equal employment opportunities. It is crucial for underdeveloped countries and regions, to where the developed countries can relocate jobs. Obviously, the

prerequisite for taking them is access to and skills in using modern information technologies and telecommunication solutions, particularly the Internet.

The importance of teleworking expansion for the labour market has two dimensions. Firstly, teleworking contributes to job relocation. There are no substantive obstacles that might prevent designing work or computations commissioned by a Norwegian-based firm from being carried out by providers residing in Sudan or Mozambique. Information centres providing services to European customers can be located in the same place. Secondly, in the future, teleworking may become a perfect substitute for geographical migration of workers doing jobs that do not require direct contact with customers and/or other company staff.

Besides, because of the development of information carriers and teleworking, knowledge has become the most mobile production factor in modern economies and—according to Drucker (2001)—it circulates even easier than money does. Every individual can use knowledge freely, for instance to transfer it to any corner of the world, if there is such a need. At the same time, the international capital that travels unrestricted seeks and finds high qualifications where they are, not only in developed countries. This is consequential for the relocation of the demand for labour.

15.3.3 Jobless Growth

An important factor that significantly determines the evolution of the demand for labour observed in developed countries is so-called jobless growth.

Records of relationships between the labour market and the economic growth processes reveal a certain regularity; namely after each recession an economy absorbs a smaller amount of the labour force than might be expected from the proportions observed in the expansion period of the previous business cycle phase. In other words, in every successive expansion phase following the contraction phase the number of workers increases later and more slowly than the relevant indicators of economic growth. Under very high GDP growth rates, a significant increase in employment seems to be guaranteed. However, when the growth rates are moderate, the relationship is much more variable and dependent on political and institutional decisions.

Jobless growth can be frequently spotted in modern developed economies. Its sources are the subject of numerous discussions and research studies (Kwiatkowski and Tokarski 2004, pp. 281–284). They are sought in the steadily growing productivity of labour combined with technological progress that introduces labour-saving techniques and technologies of manufacturing, but primarily in the development of information technologies. In developed countries, the role that labour once played has been taken over by capital and knowledge. Also high wage and non-wage costs of labour are emphasized. When wages are high and rigid, tax and quasi-tax burdens heavy, social standards exorbitant, selection and recruitment costs high, etc., workers become costly. Paying overtime or outsourcing the necessary services

becomes much less expensive. Additionally, workers have institutional protection provided by less or more powerful organizations of labour and labour law, which does not spur the demand for labour either.

Of course, jobless growth cannot be found in every country (e.g. not in the USA), and where it does take place it is either stronger or weaker. Relations between the pace of GDP changes and their directions, on one hand, and the directions of changes within the demand for labour, on the other, are specific to a country and they depend, inter alia, on the degree to which national labour markets are regulated, on labour costs and many other factors. The point is, however, that until now jobless growth has been characteristic of most European countries.

Jobless growth lessens, and this will be so in the foreseeable future, the relationship between the rate of economic growth and the growth rate of the demand for labour.

15.3.4 An Outlook on Future Labour Demand

A scrutiny of the key factors that will determine the evolution of labour demand in the foreseeable future allows us to conclude about the lack of arguments substantiating the demand's considerable growth in European countries. There are two main reasons for such inference:

1. Some of the demand for labour (jobs) will relocate from developed countries to less developed countries. This process will be facilitated by continuing technological progress. Even though the latter will not replace human labour with automation, it will certainly reduce the demand for workers, especially low-skilled ones. This will make it possible to take the demand for labour (jobs) to less developed countries, where labour costs are lower and labour markets more liberal. Another reason for the relocation of jobs from developed countries to less developed ones will be changes in the organization and functioning of large corporations and the expansion of atypical forms of employment, especially teleworking, as a substitute for geographical migration of the labour force.
2. Despite the positive rate of economic growth in the long term, its effects on labour demand will be limited, because of the consolidating jobless growth. The phenomenon is extremely difficult to eliminate for two major reasons. One is social resistance against labour market deregulation aimed at abolishing the already acquired rights (e.g. protection of employment). The other is constantly rising productivity of labour and of other production factors as a result of technological progress.

The intensity of the processes will be differ in different countries. Nevertheless, in the foreseeable future we can expect tensions will build up in the European labour markets, even if the labour force declines are taken into account. The EU strategic goal set in the Lisbon strategy (sustainable development with more jobs) may be equally important also beyond 2010.

The conclusions are based on analyses of the evolution of the existing and identified phenomena. Quite naturally, the analyses omit events that have not occurred yet, and whose occurrence cannot be anticipated. And the latter can disassemble an entire construction, even the most elaborate one, which should always be taken into consideration.

15.4 Final Comments

The labour market always has two dimensions. Whatever line of action is followed to address one of them, it has to be supported by an in-depth analysis of determinants underlying the other dimension.

Demographic phenomena are objective in relation to those taking place in the labour market, but they determine it to a large degree and indirectly set the trajectory of the labour market's development. The investigation of the relationships between international migration, the aging of the population and the labour force variations (Chap. 12) allows us to formulate two essential conclusions. One is about the labour force evolution in the next half century in the 27 countries examined: depending on the course of the migratory processes, the labour force will decline in most countries or grow slightly in a few. The other conclusion concerns the labour force age structure—the labour force will be aging in all countries. Both forecasted phenomena have serious consequences, mainly negative, for the European economy and public finance in individual countries. The consequences need to be counteracted using a set of diverse measures focused mainly on the labour market area.

Since migration compensates natural movement to a very limited extent (Chap. 12), the strongest emphasis should be put on raising the economic activity of the population. The aggregated level of economic activity of the population hinges on individuals who decide to take, give up or change jobs in response to a sizable and heterogeneous set of economic, social, customary or psychological factors. An attempt to shape them is always burdened by a degree of uncertainty as to the outcomes. Nevertheless, it is useful to identify the factors that explicitly stimulate the economic activation of the population. The following have been classified as such:

1. *Better knowledge (occupational skills and qualifications) arising from the development and higher availability of education*, both school and lifelong. The significance of the factor is revealed by existing empirical research on the main determinants of economic activity. In addition, research shows that high-skilled persons are more adaptable to labour market variations. This finding will be particularly important both today and in the foreseeable future, especially considering the fast pace at which the effects of technological progress are implemented in manufacturing and services.
2. *Development of atypical forms of employment* as a result of adjusted strategies pursued by businesses, on one hand, and as a way of reducing the imbalance

in modern labour markets, on the other. Atypical forms of employment allow economic activation of persons who, for various reasons, either cannot or do not want to take jobs in traditional systems. They also enable at least temporary integration into the working population of persons who, because of their limited productivity, do not receive typical employment offers.

3. *Making work more attractive as a source of income in comparison with alternative sources* in order to enhance the motivation for seeking jobs. The pertinent measures in this case are limiting the availability of various options within the social security system, on one hand, and strengthening the motivating function of wages earned by the lowest paid workers (typically low-skilled ones) by reducing the tax and quasi-tax burden on their wages, on the other.
4. *Combating discrimination* that limits employment opportunities available for individuals and entire groups of the society.

The labour force aging process demands special attention be paid to the issue of extended working life, i.e. to economic activation of older persons. With respect to this, the natural determinants of the process should be considered, such as frequent cases of older persons being unable to catch up with fast changes in the management processes and the labour market, or equally frequently their departure from creative attitudes and behaviours towards a conservative mindset. Because of that economic activity, stimulants for the elderly should allow for individualized approaches, sometimes adapted to meet the needs of even a single person.

Measures improving the economic activity of the population will only be practical when they are coupled with the creation of new jobs, i.e. with a favourable evolution of the demand side of the labour market. According to our present knowledge, however, there is no reason to expect a rapid growth in labour demand in European countries. This conclusion comes from the analysis of the influence exerted by technological progress, job relocation processes and so-called jobless growth on the demand for labour. These three factors may result in jobs being taken away from European countries that will not be offset by jobs generated by economic growth. This may considerably reduce the demand for labour, or make it stagnate at best. In these circumstances, the process of economic activation of the population will actually require implementation of all available measures in order to retain the existing jobs and to create new ones.

Chapter 16
Demography Rules in Pension Systems

Marek Góra

16.1 Introduction

Population structure, especially the age structure, plays a crucial role for development of societies. The role is more crucial than it is commonly perceived. This could be good news for demographers, but it is very bad news for ageing societies. Only recently the scale of the problem has become known to the public. People still tend to think the problem is general, so it should be solved by governments. Individual perception is not really affected. People believe that individually they can avoid the effects of population ageing.

That common thinking stems not only from inertia but also from a lack of a coherent message from experts. This is caused by partial disintegration of economics and demography. Actually, economics itself is disintegrated. Macroeconomics has absorbed microfoundations, but microeconomics has not absorbed the macro perspective. Ageing has a strong macro impact, which is non-intuitive for individuals at the micro level.

A few examples can be useful here. Buying real estate is commonly perceived as a good investment. Capital is highly illiquid but in the long run—on average—it yields reasonable returns. However, the yields are high owing to increasing demand driven mostly by demographic growth. Ageing means less demographic growth, hence also a smaller increase or even a decrease of the demand given other factors remain unchanged. The same concerns various other asset prices. Watching their prices on the stock exchange, people do not see that weaker demographic growth leads to lower—on average—prices of stocks.

M. Góra (✉)
Warsaw School of Economics (SGH), Warsaw, Poland
e-mail: marek.gora321@interia.pl

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_16,

Pensions is the area in which the impact of ageing was observed first. Societies are partially aware of the problem. However, even in this area perception of the effects of ageing is limited and partially biased. In this chapter I present a number of selected issues playing a crucial role in the area of pensions.

16.2 Ageing Societies Are in a Trap

The reason for a common push towards social reforms all over the world is the ever-increasing cost of various social expenditures, especially pensions. However, that pressure is perceived only within public finance. Privatization is often understood as a remedy for the problems of the public pension systems. The situation is more complicated and covers not only public expenditure but also private expenditure (Barr 2002; Barr and Diamond 2006). Both of them strongly depend on the population structure. It will probably be easier to reduce expenditure, hence also to reduce costs for workers, if an increasing number of institutions are privately run. What matters, however, is individualization imposed by private arrangements—not privatization itself.

Ageing is a trap since in the last two centuries societies adjusted their institutional structures to a progressive population structure, similar to a pyramid. What we perceive as ageing is a disintegration of the pyramidal shape of the population structure. This means the disappearance of the foundations of social, and also economic, institutions of societies in developed countries. If the institutions had not been built on the pyramid scheme, then ageing would have not created the problem. The problem is so difficult to solve since societies fully internalized the way the institutions provide them with income with no risk, no effort, just participation. In other words, this means welfare without working. No one wants to give up such a wonderful world. However, that is inevitable owing to the change of population structure, also the projected one, in the vast majority of developed countries. For a detailed presentation of various consequences of ageing see, for instance, ECFIN (2009).

A pyramid scheme means the number of participants newly entering the scheme is constantly larger than the number of people benefiting from the scheme. The return appearing in the scheme is generated by a mechanism absorbing people into the scheme. The mechanism can be based on motivating people to participate or mandating them to participate. Each pyramid will eventually reach the limit of increasing its base. Then it goes bankrupt: it cannot pay its participants according to the rules promised. This final outcome is inevitable even if distant in time, so running any type of scheme based on a pyramid is illegal if it is privately run. Various types of social schemes—especially the traditional Bismarckian pension scheme—are a type of pyramid scheme. It is not illegal since it is assumed the publicly run system cannot go bankrupt. If there is a problem, the state responsible for the scheme can increase the cost of participation, which means increasing the contribution rate or subsidizing the scheme out of general revenues. Increasing

contribution rates and subsidization of pension schemes have often been used. For instance, in Poland the overall contribution rate (covering old-age, disability, survival, injury and sickness benefits) in 1989 was 15.5%, whereas in mid 1990 it reached 45% and was projected to increase even more if the pyramid-based system had not been stopped.[1]

Increasing the cost of participation in the pyramid scheme is the only way to keep it alive. However, that increase cannot be endless since the higher the cost of the scheme, the lower the incentive to work and invest, which leads to higher unemployment and weaker growth. Many countries, especially large EU members, suffer from both of these problems. The cost of keeping the pyramid-based social schemes contributes a lot to that.

The "beauty" of pyramid schemes—financing social expenditure with no cost in the pyramid scheme's early phase—turns into social disaster—unemployment and a loss of welfare—in pyramid scheme's late phase. Pyramid schemes are dangerous, especially when they are "fuelled" by demography. Such schemes are particularly dangerous if they are publicly run since in that case they can be kept alive artificially. The longer they last, the higher is the cost of eventual inevitable collapse.

16.3 Myths on Solving the Pension Problem

Being only partially aware of the consequences of ageing, we tend to believe that there exist more or less "natural" solutions to the problems caused by ageing. Some of the solutions are based on myths. Below I briefly discuss some of them.[2]

16.3.1 Productivity Growth

Productivity growth is often perceived as a solution to the ageing problem. Fewer people work but they can produce more, so eventually we can avoid ageing-based economic slowdown. But can we really?

Productivity growth—being very good itself—cannot solve the pension problem. Let us imagine a country where productivity doubles overnight. Will that solve the pension problem in that country? No, the problem will just replicate at the doubled level of GDP. The problem of pensions is how to divide GDP between the active and the retirees (given stable share of other transfers), and does not depend on the size of the GDP.

The same problem is commonly replicated in countries with a different level of productivity. This stems from using the so-called defined-benefit regime for

[1]The system was terminated in Poland in 1999.

[2]For a broader discussion, see Góra (2003).

pensions and also for some other types of social benefits. Their level is determined in relation to wages. Typically, a benefit equals a given percentage of the wage. In such a regime, the higher the productivity, the higher the wage, hence the higher the benefit. Productivity growth is neutral for sustainability of social systems. It cannot help. In such a situation solvency of social systems in the long run (employment rate given) depends solely on the population structure.

If a pension system is restructured and the defined-benefit regime is abolished, then productivity growth can help. However, this concept leads to a reduction of the level of benefits relative to wages, which is against the traditional way of thinking on social security, especially in Europe.

16.3.2 Immigration

For a couple of decades, immigration has been contributing to the labour force in many countries in Europe. Less labour supply originates from Europe. Additional supply originates from abroad. Could that not continue and let Europe and other developed regions cope with ageing? Well, for some time yes. However, only for some time since large-scale immigration would postpone the problem rather than solve it. Moreover, the scale of immigration that would be needed to offset the decrease of labour supply in Europe would have to be huge (Chap. 14). In Europe it seems hardly possible to absorb immigration on such a scale.

For many reasons immigration is an issue for Europe. Recent developments related to terrorism and measures taken to prevent it will make immigration more problematic for Europe, and hence even less meaningful as a component of measures aiming at reducing the consequences of ageing.

16.3.3 Promotion of Fertility

An increase in fertility would be the solution to the pension problem. Actually, higher fertility would be good for other reasons as well. The question is whether it can really be higher, and if it can, to what extent. I do not pretend to answer these questions. In countries that have succeeded in increasing fertility, such as France (total fertility rate of 2.0 in 2008) and Sweden (total fertility rate of 1.91 in 2008), success means achieving fertility still below the replacement level. It is hardly possible that the pyramid needed for financing pensions at the level close to the current one will appear again. The pyramidal population age structure was a product of the first demographic transition, which in Europe is in principle over. So even very successful policies contributing to higher fertility cannot substitute for policies aiming at adjusting pension systems and many other elements of social life to a population structure characterized by high dependency ratios.

16.3.4 Funding

In the area of pensions, funding is promoted as a remedy for problems of mandatory systems. The recent wave of modernization of pension systems that has been observed all over the world is mostly based on changing the so-called pay-as-you-go systems for funded ones.[3] Is funding a way to solve the demography-based problem? The answer is ambiguous.

Funding itself is just another way of intergenerational exchange. The young have to share a part of the GDP they produce with the retirees—just as in any other type of pension system. For the later group, there is no other way to obtain income to finance consumption. This is the form pension rights are expressed in which makes a difference between funded and non-funded pension systems.

It is the share that each generation contributes to the current GDP that is crucial for pension systems. It can be stable over time or not. In the former case, the system does not need any external intervention and reaches intergenerational equilibrium automatically. In the latter case, the system prefers welfare of one generation over another one. The two cases have nothing to do with funding itself. However, funding helps in reaching the intergenerational equilibrium.

Economists often quote various long-term data on financial market rates of return that have been significantly larger than GDP growth. However, the returns have been generated from portfolios that do not include the entire economy. If an economy were entirely securitized and a portfolio included all possible instruments in a proportion identical to their proportion in the economy, then the long-term rate of return—by definition—would have to be the same as the long-term GDP growth rate. Moreover, financial rates of return above the GDP growth rate are generated only for selected groups of investors. If the group of investors were identical with the entire working population (their shares were identical with their contributions), then the long-term financial rate of return would be the same as the long-term GDP growth rate. If pension expectations are inflated above the equilibrium level, then a bubble is generated in public and/or private finance, or the proportion of shares of GDP allocated to each generation would vary (no intergenerational equilibrium).

The belief that funding can provide people with higher old-age pensions without their paying higher contributions is an illusion. It is a useful illusion, however, since it helps to introduce the intergenerational equilibrium. Funded schemes are almost exclusively based on a defined-contribution regime, which is crucial for reaching the equilibrium. In equilibrium, the so-called replacement ratio (benefit relative to wage; z) is determined by the following three factors only: the burden on the contribution rate (c), the employment rate (e) and the population structure (number of retirees per person of working age; d) (Góra 2003):

$$z = \frac{ce}{d}.$$

[3]Recently, in the time of the financial and economic crisis, many of the reforms have been slowed down or even reversed.

Of the three factors, namely the contribution rate, the employment rate and the demographic dependency ratio, the first one can, in principle, be discretionally adjusted (increased), but that option has already been exhausted, the second one can be slightly adjusted but not much, and the third one is hardly adjustable. Therefore, the population structure is the leading factor determining the outcomes of pension systems, which means the average level of pensions as measured by the replacement rate (z) is, in principle, given. Promising pensions above the equilibrium level z is cheating workers. In fact the only way to increase the replacement rate is to work longer.

16.4 What Does the Pension Reform Mean?

Given the level of burden (c) that has already been put on the shoulders of workers is very high and can hardly be increased, there are only three options for ageing societies.

The first option is to increase fertility to the lower demographic dependency ratio d. If the increases are high enough, which is unlikely, the problem would be solved. Otherwise the option is to work until later ages (higher employment rate e). If this is possible (both socially and physically) the problem is solved; if it is not possible, then the option is to lower inflated pension expectations. Provided that the process is institutionally organized, which means introduction of individual accounts, then the problem can also be solved. If this is impossible, then the only way to go is to attempt to increase the burden on workers, which—irrespective to whether the attempt is successful or not—will lead to a deep structural crisis, a permanent economic slowdown, and in consequence reduction of social welfare.

Contributing to higher fertility and contributing to a higher employment rate are parts of specialized policy areas. Even if both goals are partially achieved, the pension reform itself should aim at a reduction of pension expectations. Actually, the sustainable situation is when expectations equal the amounts the system will be able to pay out. That can be achieved if participation in the pension system is individualized.

Individualization means that the liabilities of each participant are well defined ex ante. Each participant will receive from the system the present value of the contributions he/she will have paid in. This does not mean elimination of "solidarity" within the old-age pension system. Participants will remain in a common system that lets them share various risks. The difference is that the individualized system can be designed in a way that lets societies avoid it becoming bankrupt even after the progressive demographic pyramid has gone, since that type of pension system regime prevents cheating people by overpromising.

Pension reforms are politically difficult for a number of reasons, of which I would like to stress the time inconsistency of the typically short political horizon, on one hand, and the much longer period of participation in the pension system,

on the other. Minor adjustments preferred by politicians can help but only for the time being. They cannot bring intergenerational equilibrium back to the pension systems. The status quo—even if marginally adjusted—cannot be maintained in the future. A reform abolishing pyramid schemes is commonly needed in order to let pension systems survive.

Chapter 17
Recommendations for European Social and Population Policies

Jakub Bijak

This chapter puts forward selected policy recommendations for European decision makers, following the empirical findings of the analysis presented in earlier parts of this book. We start by summarizing the policy-relevant research on the impacts of population ageing and the means to address them. Subsequently, we evaluate various possibilities concerning population policy measures, taking into account their demographic feasibility in the longer run given the projected pace of population ageing. The chapter finishes with a handful of recommendations for EU policy makers at the beginning of the twenty-first century.

17.1 Overview of Policy Research Related to Population Ageing

Given the interest of policy makers in the issues related to population ageing, it is not surprising that the policy implications of the demographic processes have been addressed by many research studies, both in Europe and worldwide. As an example, Grant et al. (2004) provided a very detailed overview of the possible policy measures aimed at dealing with the consequences of population ageing. The specific policy measures are divided into three main groups (Grant et al. 2004, pp. 3–4):

1. Indirect preventive policies (economics, gender issues and education), aimed at creating long-term conditions for higher fertility in the postmodern society through affecting the macro-level socio-economic variables;

J. Bijak (✉)
Division of Social Statistics and Demography, ESRC Centre for Population Change, Southampton Statistical Sciences Research Institute, University of Southampton, Southampton, UK
e-mail: J.Bijak@soton.ac.uk

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9_17,

2. Direct preventive policies (migration, family support, reproductive health, child benefits and family-friendly employment), aimed at the attempts to interfere with the micro-level demographic decisions of the individuals and families with respect to fertility and migration;
3. Ameliorative policies (social security, labour force, health care and support for the elderly), aimed at reducing the impact of ageing on the society and economy.

The main conclusions reached by Grant et al. (2004)—in line with the current study, among others—are that the 'replacement migration' is not a remedy against population ageing and its socio-economic consequences. Instead, durable solutions have to be sought among the policies aimed at the increase in fertility. Ideally, long-term conditions should be made for an increase in fertility using both indirect and direct preventive policy measures, influencing the underlying reasons for the recent decline in fertility. Nevertheless, Grant et al. (2004) stated that there is no single policy that should be recommended in that context, and the effectiveness of various policy measures remains in many cases unknown. In any case, the changes in fertility are expected to be very slow, also owing to the nature of policy-making aimed at changing the attitudes and behaviour of the people. Given that, an important role is to be played by ameliorative policies, which can ease the future socio-economic burden caused by the ageing process. Grant et al. (2004) concluded that the ageing of Europe's population is unlikely to stop, but it can be slowed down, and its negative consequences can be reduced to a certain extent by appropriate policy measures. However, as also noted by Lesthaeghe (2000), although the demographic policies aimed at increasing fertility are not the only remedies for the negative consequences of ageing, in the long run they would need to be introduced in order to avoid the otherwise inevitable problems in the even more distant future. Economic measures are simply a way of "buying time", before "the laws of formal demography – just like those of gravity – will continue to operate" (Lesthaeghe 2000, p. 22).

The efficiency in meeting the policy objectives in the context of population ageing can nevertheless be enhanced by the ameliorative policy measures regarding other areas of socio-economic life. A comprehensive study of Australia by the Productivity Commission (1998) includes a very broad analysis of potential problems and areas for policy actions with respect to ageing. A broad list of the aspects of life that need to be addressed by policy means in this context include economy and labour markets, national savings, retirement income, social expenditure, child care and care for the elderly, health and family services, and education, housing and transport. The study by the Productivity Commission also lists suggestions for further research, particularly in the areas of labour force participation, labour productivity, lifelong education and training, impacts of retirement age, superannuation (pension systems), individual savings, sources of funding for health care and care for the elderly and the welfare situation of older people. From this list it is clear how complex the problem is and how wide the array of corresponding policy measures should be. Seen from this point of view, demographic policies constitute only a fragment of the relevant policy framework.

An interesting standpoint on the long-term impacts of demographic change was presented by Lutz et al. (2004). Their concept of 'population balance' is yet another possible policy goal, not limited to population growth and ageing. The concept of population balance corresponds to such a composition of the population with respect to age, education and other characteristics that would maximize welfare of individuals and intergenerational equity. Social welfare is defined here as a function of three factors: consumption, survival rates and environmental quality. Focusing on the issues of investment in human capital, Lutz et al. (2004) found that fertility and education are in interplay with respect to welfare maximization, and that higher education can compensate for reduced fertility. An experiment with a stable population showed that with a high percentage of educated people (more than 85%), the welfare function can be maximized by total fertility rates below 1.5 (Lutz et al. 2004, p. 329).

The proposal of Lutz et al. (2004) is as a courageous step in the direction of detaching population policies from the bare issues of population ageing and growth. The authors argue that "population growth and ageing are not separated phenomena, but are really two aspects of unbalanced age distributions" (Lutz et al. 2004, p. 331). Therefore, the policy aim should not be limited to achieving zero population growth, nor hindering the ageing process, but should attempt to maximize human welfare, given the magnitude of the demographic change. It is very likely that taking into consideration additional issues such as welfare and human capital will gain more attraction from population policy makers in the future.

The importance of investments in human capital in offsetting the negative socio-economic consequences of population ageing has been also underlined by other authors. For example, two studies carried out under the auspices of the Council of Europe (Avramov and Mašková 2004; Schoenmaeckers 2004) stress the necessity for an 'active ageing' of the elderly and provide an interesting overview of opportunities and limitations in that regard. Additionally, attention needs to be paid to migration policies, the inertia of which is relatively the smallest among the proposed variety of measures aimed at influencing population size and structure. Unlike the attempts to increase fertility or human capital, the effects of implementing either liberal or restrictive migration policies can be visible with a much shorter delay. Therefore, the migration policies will likely fluctuate in response to the changing pressure of the economic needs, public opinion or other factors.

17.2 Long-Term Plausibility of the Proposed Policy Solutions

As mentioned in Sect. 14.3, the long-term infeasibility of the 'replacement migration' policy from the demographic point of view has been reiterated by many authors dealing with the issue (Lesthaeghe et al. 1988; Blanchet 1989; Wattelar and Roumans 1991; Coleman 1992; Gesano 1994; McDonald and Kippen 2000; Feld 2000; Espenshade 2001). The solutions proposed instead include a variety of measures, such as demographic policies aimed at increase in fertility (Lesthaeghe 2000),

as well as necessary economic adjustments (Coleman 2002). The issue of the long-term plausibility of the proposed policy measures is, however, much more subtle than in the case of 'replacement migration', where the absurd magnitude of the 'replacement' speaks for itself.

The interrelations between ageing, 'replacement migration' and other related issues were summarized by van Imhoff and van Nimwegen (2000, p. 10; own translation) in their comment on the United Nations report. They concluded that

> [The] absurd numbers [of 'replacement migrants'] make it clear that migration does not help against the population ageing. The ageing has namely its origin in two processes that have nothing to do with migration: firstly, with fertility changes (previously high, currently low), secondly, mortality changes (ever higher life expectancy). Moreover, it is a misunderstanding to think that the population over 30 years of age is 'extremely old'. Much more so, the populations were 'extremely young' in the past, and at this moment they still are. We should simply accept that the young [population] structure will never come back because of modern mortality and childbearing patterns. Before these processes cause problems in the society, we should adjust the organization of our social life to them, and not talk about immigration in panic.

In the context of European migration policy, it is important that the policy makers do not perceive immigration as a direct remedy against population ageing, but only as a partial measure to reduce its consequences in the short term. Importantly, in a European Commission (2004b) document increased immigration aimed exclusively at preserving certain parameters of the age structures is not considered as a realistic policy means at the level of the EU. From this point of view, this is clearly a crucial outcome of the discussion that took place amongst demographers and policy makers following the controversies marked by the United Nations (2000) report on 'replacement migration'.

In this context this is not surprising that the European Commission (2004b, pp. 16–17) admitted that:

> even somewhat higher net immigration would not dispense policy makers from implementing the EU's internal structural reform agenda to cope with the impact of ageing populations. In particular, in all Member States timely preparations to tackle the budgetary implications of ageing will have to rely on the three-pronged strategy of raising employment rates, reducing public debt, and reforming pension systems.

Such statements indicate that the European Commission has acknowledged the seriousness of the challenges surrounding population ageing. They also give hope that the understanding of the necessity of applying diverse policies will be followed by concrete actions, at the level of both the EU and the member states.

In the evaluation of the long-term plausibility of the demographic policies aimed at increasing fertility, a cost-efficiency analysis of particular policies would be beneficial. The issue is important especially in the framework of the second demographic transition theory of van de Kaa and Lesthaeghe (Lesthaeghe and van de Kaa 1986; van de Kaa 1987), given the advancement of social modernization processes in Western societies (Okólski 2004).

The differentiation between indirect and direct preventive policy measures presented by Grant et al. (2004) can lead to the speculation that the former type

of policies, focusing on long-term sustainable economic development, gender issues and investments in human capital (education), are more likely to give durable results in terms of an increase in fertility. The efficiency of the remaining ones, including family support, child benefits and family-friendly employment, should be perceived rather in the short and middle term. As noted by van de Kaa (2003), the real and sustainable transition to higher fertility can occur exclusively through the changes in the normative systems of societies. Perceiving children and family life as a way of self-realization of the parents seems to be one possibility to achieve this goal in the individualized postmodern world. Nevertheless, the question of whether and to what extent societal values and norms can be influenced by the policy means remains unanswered. Another open issue is whether a return to replacement levels of fertility is at all possible in the light of current knowledge of social processes.

The policies aimed at increasing fertility may be also seen as a way of slowing down population ageing in a longer term. Additionally, as pointed out by Lutz et al. (2003), the process of ageing in Europe is already so advanced that it is causing a negative population momentum. In other words, even if total fertility rates were to return instantly to the replacement level, negative population growth would still be observed over a period of time, owing to the ever smaller generations of newborn from the last decades. Similarly, an increase in fertility would decelerate the ageing process also with a time delay. This has to be considered when thinking about plausible demographic policy measures aimed at counteracting the detrimental impacts of population ageing: the effects of policy measures aimed at increasing fertility would be observed years after these policies are implemented.

From this point of view, the policy goals presented in a green paper by the European Commission (2005), based on the idea of a return to demographic growth, can be seen as somewhat controversial. As pointed out by Lutz et al. (2004), demographic growth alone should not be perceived as an ultimate policy aim, as opposed to the maximization of social welfare through investments in human capital. Clearly, this would be the most efficient and robust way to achieve the other European policy objectives concerning intergenerational equity and solidarity. To some extent such policies may be strengthened by the ones aimed at the increase in fertility, but the latter should be rather perceived as an auxiliary measure and not as the key long-term policy objective that would automatically guarantee realization of the objectives set. This conclusion is especially important, as in the light of the earlier discussion, the important factors in play with respect to fertility changes in postmodern societies may not be directly responsive to policies of any kind. This applies in particular to the social values and norms that are underlying the current below-replacement fertility patterns (van de Kaa 2003).

With respect to the ameliorative policies (using the terminology of Grant et al. 2004), including direct reforms in the areas of social security, labour force, health care and care for the elderly, there is no doubt a desperate need for them, regardless of their ultimate long-term capability to overcome the negative consequences of population ageing. This issue seems to be already understood among policy makers, at least at the EU level. Notably, Fotakis (2000, p. 9) admitted that given the magnitude of demographic changes,

the policy makers are faced with different options. Containing public spending on pensions by rendering pension schemes less sensitive to demographic changes is one of the option. The option is often complemented by suggesting important reforms in the PAYG systems or a shift to a funded system. The latter in fact may ultimately imply, among other, investing on countries with higher potential in human resources and higher economic growth.

It can be added that the last-mentioned option (investments in rapidly developing countries) also cannot be applied without end, as it could eventually turn out to be something similar to the pyramid scheme. Therefore, the true option is to make the pension systems more robust and less dependent on the direct impact of the parameters of the population.

All the problems mentioned above call for multidisciplinary research on the issues related to population ageing, its outcomes and the ways to confront them, as suggested in the seminal report of the National Research Council (2001). The detailed recommendations presented therein included the following priority areas: work, retirement and pensions, private wealth and income security, financial transfer systems, and health and well-being in the ageing populations. Only putting a really significant effort into broad research on the complex issues related to population ageing can contribute to the development of durable policy measures that would ultimately meet the challenges brought about by demographic change.

17.3 Recommendations for European Policy Makers

From the overview presented it can be seen that no migration policy can constitute a sustainable long-term 'remedy' for the challenges related to population ageing. There may be some exceptions where migration policies can mitigate the effects of ageing and, even more so, the labour force deficits on local labour markets in the short term, for example selective recruitment of foreign personnel in sectors such as health care and care for the elderly. In the long run, however, the idea of replacing the ageing generations with ever bigger waves of immigrants would be neither plausible nor efficient. These issues have been summarized in an article by Korcelli (2003), who reiterated that 'replacement migration' is a purely theoretical concept and it cannot be seen as an instrument to balance demographic losses. The migration policy should nevertheless be an active one, aimed at balancing labour demand and supply through the means of selective immigration. Therefore, its aims should be focused on the economy and labour markets rather than on demography.

For the above-mentioned reasons, the population policies cannot be expected to stop or reverse population ageing, at least in the short and middle term. Increased fertility and immigration can slow down the process, but only to a limited extent. Their efficiency is also affected by the fact that the outcomes would be either observed with a time delay (fertility) or would be only temporary by nature (migration). In this context, ameliorative policies concerning other areas of socio-economic life are even more important. This especially refers to labour market participation, retirement age, sustainability of the pension systems, etc.

In the light of the results of the current study, as well as of the theoretical discussion presented before, the following social and population policy directions can be recommended with respect to dealing with the issues related to population ageing in Europe:

1. The idea that immigration can in the long run offset the outcome of population ageing should be ultimately abandoned. Instead of thinking in these categories, European policy makers should focus on developing migration policy measures aimed at balancing the current shortages in the labour markets through the means of selective immigration. These selective policies should be rather cautious and must not be seen as measures to compensate for the decline in fertility.
2. Attempts should be made to create a supportive environment for the individual decisions concerning childbearing. As Kotowska and Matysiak (2008) have suggested, the policy measures could include at least the promotion of gender equality and education, as well as family support and family-friendly employment. It has to be borne in mind that the outcome of such measures would be observed years after their implementation and that the return to replacement levels of fertility may not occur at all in postmodern European societies, given the ongoing changes in the systems of social values and norms.
3. Our research demonstrated that attempts could be made to increase labour force participation, especially among women and the elderly, in order to partially compensate for the labour force decline resulting from ageing. It has to be noted that this can only be an auxiliary measure, as the economic activity rates cannot increase without end. In the case of women, special attention needs to be paid to creating an institutional framework for the reconciliation between work and childbearing. The experience of the Scandinavian countries provides a good example in that respect.
4. The inevitable demographic inequilibrium brings about a deep and urgent need for reform of the pay-as-you-go pension systems, which ought to be replaced by solutions that would not be directly dependent on the population structure and dynamics. Such systems might be based more on individual savings throughout the working life rather than solely on the repartition between generations.
5. There are also implications for other areas of socio-economic life not directly related to the outcome of this study, but nevertheless worth mentioning. First of all, policy measures will need to be introduced also in the areas of health care and support for the elderly. A second important policy goal is the promotion of education and investments in human capital, from the point of view of both individuals (lifelong learning) and societies (increase in productivity and maximization of social welfare).
6. Finally, more attention should be paid to interdisciplinary policy-oriented research on the causes and consequences of population ageing, as well as on the implications of the process for various areas of life. Such research should also address issues of possible interactions between various policy measures, for example, aimed at the increase of fertility and at the increase of female economic activity.

With respect to population policies concerning fertility and migration, it is crucial that adherence to the populist viewpoints should be particularly avoided in the policy-making. Unfortunately, the risk of emergence of such positions is especially high in the case of these components of demographic change, as they are both related to strong public emotions in most of Europe. The problem is that efficient, plausible and durable policy solutions can be exclusively built on the basis of cumulated knowledge of the demographic processes, and not on momentary sentiments. Otherwise, public money will be spent on actions designed primarily with short-term electoral goals in mind, which will prove inefficient in the long run.

Given the pace of population changes, Europe is currently facing one of the last moments available for a peaceful discussion and relatively painless implementation of the appropriate policy measures that would eventually produce results in the coming decades. Failing to do so may result in accumulation of the side effects of population ageing over time. That would eventually require the implementation of significant policy changes anyway, but that at that moment they will likely be more drastic and associated with higher social costs than they would be in the coming years. It also has to be stressed that the outcome of policy measures such as increasing labour force participation and increasing the retirement age, combined with additional features for lifelong learning, will be only a partial solution for the ageing-related challenges.

Biographies

Jakub Bijak is a lecturer in demography in the Division of Social Statistics and Demography, ESRC Centre for Population Change and the Southampton Statistical Sciences Research Institute, University of Southampton. He is also an associate member of the Central European Forum for Migration and Population Research in Warsaw, where he worked from 2003 until 2008. In 2001–2003, he worked in the Demographic Unit of the UN International Criminal Tribunal for the former Yugoslavia in the Hague. His research concentrates on applications of quantitative methods in population studies, with special focus on migration, population forecasting, mortality, and the demography of conflict and violence. In methodological terms, he is interested in demographic applications of statistical methods and decision-making under uncertainty. He has recently published the book *Forecasting International Migration in Europe: A Bayesian View* (Springer, 2010).

Marek Góra is professor at the Warsaw School of Economics (SGH), where he teaches macroeconomics, pension economics, labour economics and economic policy (previously also econometrics and forecasting) and visiting professor at the College of Europe, where he teaches social policy. During his academic carrier, he completed did research at the Erasmus University Rotterdam, and at the London School of Economics. He is a Research Fellow at IZA (Institute for the Study of Labor, Bonn). Marek Góra is an author of many publications in the fields of pension economics, labour economics, unemployment and labour market policies. He is a member of several Polish and international economists' organisations. He worked with the OECD (DELSA). He is the a co-author of the design of the new Polish pension system (based on intergenerational equilibrium) and the leader of the pension reform team. He keeps working on pension reforms in various countries.

Anna Kicinger obtained a PhD degree in political science from the University of Warsaw in 2011 for a dissertation on the historical analysis of Polish migration policy development in the twentieth century. She graduated from the University of Warsaw in international relations (MA with distinction) in 2001. Since 2004

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9,

she has worked as a researcher at the Central European Forum for Migration and Population Research. She has participated in several research projects on international migration and has authored or co-authored numerous publications on migration policy. Her research interests concentrate on migration policy at the EU and state levels, mobility of the highly skilled and integration of migrants in Europe.

Elżbieta Kryńska works at the University of Łódź, where she is Director of the Department of Economic Policy, and in the Institute of Labour and Social Studies, where she is a head of the Department of Employment and the Labour Market. Her professional interests are focused on contemporary labour markets issues, especially on socio-economic determinants of unemployment. She has participated in many seminars and conferences, presenting results of research studies. She is the author of about 250 research articles and books. Professor Krynska has been a project manager in many national and international research projects. She is also a nationally and internationally recognized expert in the area of socio-economic policy, in particular regarding labour market issues. In her teaching activities, she gives lectures for students attending economics courses within bachelor, master, doctorate and postgraduate programmes. She has supervised more than 400 bachelor and master students as well as six doctoral students.

Dorota Kupiszewska has been a principal research fellow at the Central European Forum for Migration and Population Research since its creation in 2002. She holds a PhD degree in theoretical physics. In 1991–1997 she was a research fellow at the University of Leeds, working on projects in the School of Chemistry, the Environment Centre, the Institute for Transport Studies and the School of Geography. Her interests in population research date back to 1996, when she worked on the development of population projection models. Her current areas of expertise include the availability and comparability of migration statistics, population simulations and forecasts, collecting, validating and analysis of demographic and migration data, and estimation of missing data. She took part in a number of European projects focused on migration statistics and demography, including THESIM, PROMINSTAT, MIMOSA and DEMIFER. She is a co-creator of MULTIPOLES—a hierarchical multiregional population projection model specifically designed to handle both international and internal migration.

Marek Kupiszewski is a professor in the Institute of Geography and Spatial Organization of the Polish Academy of Sciences and was the founding director of the Central European Forum for Migration and Population Research. He was the founding head of the International Organization for Migration's office in Warsaw, a lecturer and principal research fellow at the School of Geography of the University of Leeds. He served as a consultant to the World Bank, the United Nations, the European Commission, Eurostat, the Council of Europe, the Organization for Security and Co-operation in Europe, the International Organization for Migration and the Polish Government and as an advisor to the Speaker of the Senate. He has authored or co-authored over 150 articles, book chapters and books. His

current research focuses on international and internal migration issues, the impact of migration on population structures and dynamics, and population dynamics modelling and forecasting.

Katarzyna Saczuk received her MSc degree in economics from the Warsaw School of Economics. Currently she is a senior economist in the Economic Institute of the National Bank of Poland, a teaching assistant at the Warsaw School of Economics and an associate member of the Central European Forum for Migration and Population Research. Her scientific interest covers migration, labour economics and economic modelling. Her current research involves the impact of migration on the Polish labour supply (in the Labour Force Survey), wage determinants and interpersonal income comparisons (as a PhD candidate).

References

Abernethy, V. D. (2001). Comment on Bermingham's summary of the U.N.'s year 2000 "Replacement migration, is it a solution to declining and ageing population?". *Population and Environment: A Journal of Interdisciplinary Studies, 22*(4), 365–375.

Alho, J. (1998). *A stochastic forecast of the population of Finland. Reviews 1998/4*. Helsinki: Statistics Finland.

Alecke, B., Huber, P., & Untiedt, G. (2001). What difference a constant makes? How predictable are international migration? In *Migration policies and EU enlargement. The case of Central and Eastern Europe* (pp. 63–78). Paris: OECD.

Alvarez-Plata, P., Brücker, H., & Siliverstovs, B. (2003). *Potential migration from Central and Eastern Europe into the EU-15 – An update*. Report for the European Commission, DG Employment and Social Affairs, DIW Berlin.

Andersson, G. (2003). *Childbearing developments in Denmark, Norway, and Sweden from the 1970s to the 1990s: A comparison* (MPIDR Working Paper 2003–036). Rostock.

Apap, J. (2003, May 16). *Shaping Europe's migration policy. A comparative analysis of member states' "Green Card" legislation: A comparison of strategies in Germany, Sweden, The Netherlands and the UK*. Paper presented on the conference "National and European immigration policy after the EU enlargement", Fourth European Seminar of CASE and Leopold Kronenberg Bank Foundation, Warsaw.

Appave, G. (2008). Introduction. In *World migration 2008. Managing labour mobility in the evolving global economy* (pp. 1–20). Geneva: IOM.

Arango, J. (2000). Explaining migration: A critical view. *International Social Science Journal, 52*(165), 283–296.

Arango, J., Bonifazi, C., Finotelli, C., Peixoto, J., Sabino, C., Strozza, S., & Triandafyllidou, A. (2009). *The making of an immigration model: Inflows, impacts and policies in Southern Europe* (IDEA Working Paper 9). http://www.idea6fp.uw.edu.pl/pliki/WP_9_Southern_countries_synthesis.pdf

Avramov, D., & Mašková, M. (2004). *Active ageing in Europe* (Vol. 1). Strasbourg: Council of Europe.

Bank, R. (2000). Europeanising the reception of asylum seekers: The opposite of welfare state politics. In M. Bommes & A. Geddes (Eds.), *Immigration and the welfare. Challenging the borders of the welfare state*. London/New York: Routledge.

Barr, N. (2002). Reforming pensions: Myths, truths, and policy choices. *International Social Security Review, 55*(2), 3–36.

Barr, N., & Diamond, P. (2006). The economics of pensions. *Oxford Review of Economic Policy, 22*, 1.

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9,

Barzel, Y. (1973). The determination of daily hours and wages. *Quarterly Journal of Economics, 87*(2), 220–238.

Bauer, T., & Zimmermann, K. F. (1999). *Assessment of possible migration pressure and its labour market impact following EU enlargement to Central and Eastern Europe*. Bonn-London: IZA, CEPR.

Bauer, T., Lofstrom, M., & Zimmermann, K. F. (2000). *Immigration policy, assimilation of immigrants and natives' sentiments towards immigrants: Evidence from 12 OECD-countries* (IZA Discussion Paper 187).

Becker, G. S. (1960). An economic analysis of fertility. In A. Coale (Ed.), *Demographic and economic change in developed countries* (pp. 209–240). Princeton: Princeton University Press.

Becker, G. S. (1965). A theory of the allocation of time. *Economic Journal, 75*(299), 493–517.

Becker, G. S. (1974). A theory of marriage. In T. W. Schultz (Ed.), *Economics of the family* (pp. 293–344). Chicago: Chicago University Press.

Becker, G. S. (1975). A theory of social interactions. *Journal of Political Economy, 82*(6), 1063–1093.

Becker, G. S. (1981). *A treatise on the family*. Cambridge: Harvard University Press.

Becker, G. S. (1991). *A treatise on the family* (Rev. and enlarged ed.). Cambridge: Harvard University Press.

Berman, E., Bound, J., & Machin, S. (1998). Implications of skill-biased technological: International evidence. *Quarterly Journal of Economics, 113*(4), 1245–1279.

Bijak, J. (2010). *Forecasting international migration in Europe: A Bayesian view* (Springer Series on Demographic Methods and Population Analysis, Vol. 24). Dordrecht: Springer.

Bijak, J., Kupiszewska, D., Kupiszewski, M., Saczuk, K., & Kicinger, A. (2007). Population and labour force projections for 27 European countries, 2002–2052: Impact of international migration on population ageing. *European Journal of Population, 23*(1), 1–31.

Bijak, J., Kicinger, A., Kupiszewska, D., & Kupiszewski, M. (2008a). Long-term international migration scenarios for Europe, 2002–2052. In C. Bonifazi, M. Okólski, J. Schoorl, & P. Simon (Eds.), *International migration in Europe: New trends, new methods of analysis* (IMISCOE Research Series, pp. 129–151). Amsterdam: Amsterdam University Press.

Bijak, J., Kupiszewska, D., & Kupiszewski, M.(2008b). Replacement migration revisited: Simulations of the effects of selected population and labor market strategies for the ageing Europe, 2002–2052. *Population Research and Policy Review, 27*(3), 321–342.

Bilsborrow, R., Hugo, G., Oberai, A. S., & Zlotnik, H. (1997). *International migration statistics. Guidelines for improving data collection systems*. Geneva: ILO.

Blanchet, D. (1989). Regulating the age-structure of a population through migration. *Population – An English Selection, 44*(1), 23–37.

Bloch, F. E., & Smith, S. P. (1977). Human capital and labor market employment. *Journal of Human Resources, 12*(4), 550–560.

Blondal, S., & Scarpetta, S. (1997). *Early retirement in OECD countries: The role of social security systems* (OECD Economic Studies No. 29, 1997/II). Paris: OECD.

Blondal, S., & Scarpetta, S. (1999). *The retirement decision in OECD countries* (Economics Department Working Papers No. 202). Paris: OECD.

Blundell, R., & MaCurdy, T. (1999). Labor supply: A review of alternative approaches. In O. C. Ashenfelter & D. Card (Eds.), *Handbook of labor economics* (Vol. 3, pp. 1559–1695). Amsterdam: Elsevier.

BMI (Bundesministerium des Inneren). (2004). http://www.bmi.bund.de

Bobak, M. (2003). Relative and absolute gender gap in all-cause mortality in Europe and the contribution of smoking. *European Journal of Epidemiology, 18*(1), 15–18.

Boeri, T., Brücker, H., Iara, A., Huber, P., Kaczmarczyk, P., Upward, R., & Vidovic, H. (2009). *Literature review*. Deliverable 1. Labour mobility within the EU in the context of enlargement and the functioning of the transitional arrangements. European Integration Consortium.

Bongaarts, J. (2001). Fertility and reproductive preferences in post-transitional societies. *Population and Development Review, 27*(Supplement), 261–281.

Bongaarts, J. (2004). Population aging and the rising cost of public pensions. *Population and Development Review, 30*(1), 1–23.

Bongaarts, J., & Feeney, G. (1998). On the quantum and tempo of fertility. *Population and Development Review, 24*(2), 271–291.

Boswell, C. (2003). *European migration policies in flux. Changing patterns of inclusion and exclusion*. London: Blackwell Publishing.

Bound, J., & Johnson, G. (1992). Changes in the structure of wages in the 1980s: An evaluation of alternative explanations. *American Economic Review, 82*, 371–392.

Bourdieu, P., & Wacquant, L. J. D. (1992). *An invitation to reflexive sociology*. Chicago: University of Chicago Press.

Bouvier, L. F. (2001). Replacement migration: Is it a solution to declining and aging populations? *Population and Environment: A Journal of Interdisciplinary Studies, 22*(4), 377–381.

Brettell, C. B., & Hollifield, J. F. (2000). Migration theory. Talking across disciplines. In C. B. Brettell & J. F. Hollifield (Eds.), *Migration theory. Talking across disciplines* (pp. 1–26). New York: Routledge.

Brücker, H. (2000). *The impact of Eastern enlargement on employment and labour markets in the EU member states – Final report, part I: Analysis*. Brussels: European Commission.

Brücker, H., & Boeri, T. (2000). *The impact of Eastern Enlargement on Employment and Labour Markets in the EU Member States*, DIW, CEPR, FIEF, IAS, IGIER, Berlin-Milan.

Brücker, H., & Siliverstovs, B. (2005). *On the estimation and forecasting of international migration: How relevant is heterogeneity across countries* (IZA Discussion Paper 170).

Brücker, H., Trübswetter, P., & Weise, C. (2000). *EU-Osterweiterung: Keine massive Zuwanderung zu erwarten* (DIW Wochenbericht 21/00). Berlin. http://www.diw.de/diwwbd/00-21-1.html

Burcin, B., Drbohlav, D., & Kučera, T. (2005). Czech Republic population prospects in the mirror of replacement migration concept. *Acta Universitatis Carolinae–Geographica, 1-2*, 47–67.

Burke, B. M. (1997, July). *Uncoupling growth from prosperity: The U.S. versus Japan*. Alexandria: NPG Footnote, Negative Population Growth.

Buron, L., Haveman, R., & O'Donnell, O. (1995a). *The utilization of U.S. male labor, 1975–1992: Estimates of foregone work hours* (Institute for Research on Poverty Discussion Papers 1059–95). University of Wisconsin Institute for Research on Poverty.

Buron, L., Haveman, R., & O'Donnell, O. (1995b). *Recent trends in U.S. male work and wage patterns: An overview* (Institute for Research on Poverty Discussion Papers 1060–95). University of Wisconsin Institute for Research on Poverty.

Caldwell, J. C. (1993). Health transition: The cultural, social and behavioural determinants of health in the third world. *Social Science and Medicine, 36*(2), 125–135.

Cangiano, A. (2008). Foreign migrants in Southern European countries: Evaluation of recent data. In J. Raymer & F. Willekens (Eds.), *International migration in Europe: Data, models and estimates* (pp. 89–114). Chichester: John Wiley.

Carrier, N. (1962). Demographic aspects of the ageing of the population. In A. T. Welford, M. Argyle, D. V. Glass, & J. W. Morris (Eds.), *Society, problems and methods of study*. London: Routledge & Kegan.

Centraal Planbureau. (2004). *Arbeidsmigratie uit de Midden- en Oost-Europese toetredingslanden*. The Hague: CPB Notitie aan de Ministerie van SZW.

Christensen, K., & Vaupel, J. W. (1996). Determinants of longevity: Genetic, environmental and medical factors. *Journal of Internal Medicine, 240*, 333–341.

Chobot, A. (1997). *Nowe formy zatrudnienia (New forms of employment)*. Warsaw: PWN.

Coale, A. (1957). The effects of changes in mortality and fertility on age composition. *Milbank Memorial Fund Quarterly, 34*(1), 79–114.

Cogan, J. F. (1980). Labor supply with costs of labor market entry. In J. P. Smith (Ed.), *Female labor supply: Theory and estimation* (pp. 327–364). Princeton: Princeton University Press.

Cohen, M. S., & Stafford, F. P. (1974). A life cycle model of the household's time allocation. *Annals of Economic and Social Measurement, 3*(3), 447–462.

Coleman, D. A. (1992). Does Europe need immigrants? Population and work force projections. *International Migration Review, 26*(2), 413–461.

Coleman, D. A. (2000, October 16–18). *Who's afraid of low support ratios? A UK response to the UN population division report of 'replacement migration'*. Expert Group Meeting on Policy Responses to Population Ageing and Population Decline, United Nations Population Division, New York.

Coleman, D. A. (2002). Replacement migration, or why everyone is going to have to live in Korea: A fable for our times from the United Nations. *Philosophical Transactions of the Royal Society B, 357*(1420), 583–598.

Coleman, D. A. (2004). *Europe at the cross-roads – Must Europe's population and workforce depend on new migration? International migration: ICPD+10* (Scientific Series "International Migration of Population: Russia and Contemporary World", Vol. 12, pp. 19–33). Moscow: MAX Press.

Coleman, D. (2008). The demographic effects of international migration in Europe. *Oxford Review of Economic Policy, 24*(3), 453–477.

Coomans, G. (2002, June 20–21). *Labour supply in European context: Demographic determinants and competence issues.* European Conference on Employment Issues in the Care of Children and Older People Living at Home. Sheffield Hallam University.

Cornelius, W. A. (2004). Spain: The uneasy transition from labour exporter to labour importer. In W. A. Cornelius, T. Tsuda, P. L. Martin, & J. Hollifield (Eds.), *Controlling immigration. A global perspective*. Stanford: Stanford University Press.

Cornelius, W. A., & Tsuda, T. (2004). Controlling immigration: Limits of government intervention. In W. A. Cornelius, T. Tsuda, P. L. Martin, & J. Hollifield (Eds.), *Controlling immigration. A global perspective*. Stanford: Stanford University Press.

Council of Europe. (1997–2003). *Recent demographic developments in Europe*. Strasbourg: Council of Europe.

de Beer, J., & van Wissen, L. (Eds.). (1999). *Europe: One continent, different worlds. Population scenarios for the 21st century*. Dordrecht: Kluwer.

de Jong, A., & Visser, H. (1997). *Long term international migration scenarios for the European Economic Area* (Eurostat Working Paper E4/1977-6). Luxembourg: Eurostat.

DFA/DEA. (2004). *The EU extension and the extension of the agreement on the free movement of persons*. http://www.imes.admin.ch

DFA/DEA, Integration Office. (2004). *The EU extension and the extension of the Agreement on the Free Movement of Persons*. http://www.imes.admin.ch

Dietz, B. (2000). German and Jewish migration from the former Soviet Union to Germany: Background, trends and implications. *Journal of Ethnic and Migration Studies, 26*(4), 635–652.

Disney, R. F., & Whitehouse, E. R. (1999). *Pensions plans and retirement incentives*. Social protection discussion paper. Washington, DC: World Bank.

Dolowitz, D., & Marsh, D. (1996). Who learns what from whom: A review of the policy transfer literature. *Political Studies, 44*, 343–57.

Drbohlav, D. (2004). Czech Republic: The times they are A-Changin'. In *Migration trends in selected EU applicant countries* (Vol. II). Vienna: IOM.

Drucker, P. (2001, November 3). Survey of the near future. The next society. *The Economist*.

Duncan, B. (1965). Dropouts and the unemployed. *Journal of Political Economy, 73*(2), 121–134.

Duszczyk, M. (2002). *Swobodny przepływ pracowników w negocjacjach o członkostwo Polski w Unii Europejskiej [Free flow of workers in the negotiations on the membership of Poland in the European Union]*. Warsaw: Instytut Polityki Społecznej.

Duval, R. (2003). *The retirement effects of old-age pension and early retirement schemes in OECD countries* (OECD Economics Department Working Papers, No. 370). OECD Publishing. http://dx.doi.org/:10.1787/308728704511

Easterlin, R. A. (1975). An economic framework for fertility analysis. *Studies in Family Planning, 6*, 54–63.

Eberhardt, P. (1999). Ethnic minorities in Central-Eastern Europe. *Geographia Polonica, 72*(1), 125–142.

ECFIN. (2009). Sustainability report 2009. *European Economy*, p. 9.
Ehrenberg, R. G., & Smith, R. S. (1999). *Modern labour economics: Theory and public policy*. Reading: Addison-Wesley.
Engelhardt, H., & Prskawetz, A. (2004). On the changing correlation between fertility and female employment over space and time. *European Journal of Population, 20*(1), 35–62.
Espenshade, T. J. (2001). "Replacement migration" from the perspective of equilibrium stationary populations. *Population and Environment: A Journal of Interdisciplinary Studies, 22*(4), 383–400.
Espenshade, T. J., Bouvier, L. F., & Arthur, W. B. (1982). Immigration and the stable population model. *Demography, 19*(1), 125–133.
European Commission. (2000a, November 22). *Communication from the Commission to the Council and the European Parliament; on a Community immigration policy* (COM (2000), 757 final). Brussels.
European Commission. (2000b, November 22). *Communication from the Commission to the Council and the European Parliament; towards a common asylum procedure and a uniform status, valid throughout the Union, for persons granted asylum* (COM (2000), 755 final). Brussels.
European Commission. (2001a, July 11). *Communication from the Commission to the Council and the European Parliament; on an open method of coordination of the Community immigration policy* (COM (2001), 387 final). Brussels.
European Commission. (2001b, November 15). *Communication from the Commission to the Council and the European Parliament; on a common policy on illegal immigration* (COM (2001) 672 final). Brussels.
European Commission. (2001c, November 28). *Communication from the commission to the council and the European Parliament on the common asylum policy, introducing an open coordination method; first report by the Commission on the application of Communication COM (2000) 755 final of 22 November 2000* (COM (2001) 710 final). Brussels.
European Commission. (2004a). *Free movement for persons – A practical guide for an enlarged European Union.* Available from europa.eu.int (as of 30.09.2004)
European Commission. (2004b). *Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions: First annual report on migration and integration* (COM (2004) 508 final). Brussels.
European Commission. (2005). *Green Paper of 11 January 2005 on an EU approach to managing economic migration* (COM(2004) 811).
European Commission. (2010, February 2). *Lisbon Strategy evaluation document* (SEC(2010) 114 final). Brussels: Commission Staff Working Document. http://ec.europa.eu/archives/growthandjobs_2009/pdf/lisbon_strategy_evaluation_en.pdf
European Communities. (2002, April 30). Agreement between the European Community and its Member Sates, of the one part, and the Swiss Confederation, of the other, on the free movement of persons. *Official Journal L* 114.
European Communities. (2003a, July 18). Draft Treaty establishing a Constitution for Europe. *Official Journal C* 169.
European Communities. (2003b, September 23). Act concerning the conditions of accession of the Czech Republic, the Republic of Estonia, the Republic of Cyprus, the Republic of Latvia, the Republic of Lithuania, the Republic of Hungary, the Republic of Malta, the Republic of Poland, the Republic of Slovenia and the Slovak Republic and the adjustments to the Treaties on which the European Union is founded. *Official Journal C* 227E.
European Council. (1999). *Presidency conclusions, Tampere*, 15–16 October. http://europa.eu.int/council/off/coclu/oct99/oct99_en.htm
European Council. (2000). *Presidency conclusions, Lisbon, 23 and 24 March 2000*. http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ec/00100-r1.en0.htm
European Council. (2002). *Presidency conclusions, Seville*, 21–22 June. http://ue.eu.int/ueDocs/cms_Data/docs/pressData/en/eu/72638.pdf

Eurostat. (1997a). *Comparing data sources for measuring international migration in Central and Eastern Europe* (Eurostat Working Paper 1997/1). Luxembourg: Eurostat.
Eurostat. (1997b). *Births expectations and their use in fertility forecasting* (Eurostat Working Paper E4/1997-4). Luxembourg: Eurostat.
Eurostat. (2001). *Regional labour force in the EU: Recent patterns and future perspectives*. Statistics in focus. Luxembourg.
Fassmann, H., & Hintermann, C. (1997). *Migrationspotential Osteuropa. Struktur und Motivation potentieller Migranten aus Polen, der Slowakei, Tschechien, und Ungarn*. Vienna: Austrian Academy of Sciences.
Fassmann, H., & Münz, R. (1992). Patterns and trends of international migration in Western Europe. *Population and Development Review, 18*(3), 457–480.
Feld, S. (2000). Active population growth and immigration hypotheses in Western Europe. *European Journal of Population, 16*(1), 3–40.
Fertig, M. (1999). *Potential migration from the East to Germany – Time series analysis and scenario: Background report*. Mimeo: Heidelberg.
Fertig, M., & Schmidt, C. M. (2000). *Aggregate-level migration studies as a tool for forecasting future migration streams* (IZA Discussion paper 183). Bonn: Institut zur Zukunft der Arbeit.
Fotakis, C. (2000, October 16–18). *Demographic ageing, employment growth and pensions sustainability in the EU: The option of migration*. Expert Group Meeting on Policy Responses to Population Ageing and Population Decline, United Nations Population Division, New York.
Franzmeyer, F., & Brücker, H. (1997). *Europäische Union: Osterweiterung und Arbeitskräftemigration* (DIW Wochenbericht 5/97, pp. 89–96). Berlin. http://www.diw.de/diwwbd/97-05-1.html
Freeman, G. (1992). Migration policy and politics in the receiving states. *International Migration Review, 26*(4), 1144–1167.
Freeman, G. P. (1995). Modes of immigration politics in liberal democratic states. *International Migration Review, 29*(4), 881–902.
Freeman, G. (1998). The decline of Sovereignty? Politics and immigration restriction in liberal states. In C. Joppke (Ed.), *Challenge to the Nation State. Immigration in Western Europe and the United States*. Oxford: Oxford University Press.
Frenk, J., Bobadilla, J. L., Stern, C., Frejka, T., & Lozano, R. (1991). Elements for a theory of the health transition. *Health Transition Review, 1*(1), 21–38.
Gächter, A. (2002). *The ambiguities of emigration: Bulgaria since 1988*. (International Migration Papers 39). Geneva: ILO.
Gál, R. I., Iwasaki, I., & Széman, Z. (2008). *Assessing intergenerational equity. An interdisciplinary study of ageing and pension reform in Hungary*. Budapest: Akadémiai Kiado.
Gallagher, J., & Tucker, P. (2000). Aussiedler migration and its impact on Braşov's ethnic German population and built environment. *GeoJournal, 50*, 305–309.
Gauthier, A. (2007). The impact of family policies on fertility in industrialised countries: A review of the literature. *Population and Development Review, 26*(3), 323–346.
Gazeta Wyborcza. (2004). *Internet service of the main Polish daily*. http://serwisy.gazeta.pl/ue
Geddes, A. (2000). Thin Europeanisation. The social rights of migrants in an integrating Europe. In M. Bommes & A. Geddes (Eds.), *Immigration and the welfare. Challenging the borders of the welfare state*. London: Routledge.
Geddes, A. (2003). *The politics of migration and immigration in Europe*. London/Thousand Oaks/New Delhi: SAGE Publications.
Gesano, G. (1994). Nonsense and unfeasibility of demographically-based immigration policies. *Genus, L*(3–4), 47–63.
Ghez, G., & Becker, G. S. (1975). *The allocation of time and goods over the life cycle*. New York: Columbia University Press.
Girosi, F., & King, G. (2008). *Demographic forecasting*. Princeton: Princeton University Press.
Gjaltema, T. A. (2001, June 7–9). *Judgement in population forecasting*. Paper prepared for the European Population Conference, Helsinki, Finland.

Gompertz, B. (1825). On the nature of the function expressive of the law of human mortality and on a new mode of determining life contingencies. *Philosophical Transactions of the Royal Society of London, 115*, 513–585.

Góra, M. (2001). Going beyond transition: Pension reform in Poland. In G. Blazyca & R. Rapacki (Eds.), *Poland into the new millennium* (pp. 188–203). Cheltenham: Edward Elgar.

Góra, M. (2003). *Reintroducing intergenerational equilibrium: Key concepts behind the new Polish pension system* (William Davidson Institute Working Paper 574).

Góra, M., Socha, M., & Sztanderska, U. (1996). *Institutional sources of the increase in unemployment in Poland* (SOCO Project Paper No. 42). Vienna.

Górny, A., & Kaczmarczyk, P. (2003). *Uwarunkowania i mechanizmy migracji zarobkowych w świetle wybranych koncepcji teoretycznych*. Prace Migracyjne 49, ISS UW, Warsaw.

Górny, A., Grabowska-Lusińska, I., Lesińska, M., & Okólski, M. (Eds.). (2010). *Immigration to Poland: Policy, employment, integration*. Warsaw: Wydawnictwo Naukowe Scholar.

Grabbe, H. (2002). European union conditionality and the *acquis communautaire. International Political Science Review, 23*(3), 249–268.

Grabbe, H. (2005). Regulating the flow of people across Europe. In F. Schimmelfennig & U. Sedelmeier (Eds.), *The Europeanisation of Central and Eastern Europe*. Ithaca: Cornell University Press.

Grant, J., Hoorens, S., Sivadasan, S., van het Loo, M., DaVanzo, J., Hale, L., Gibson, S., & Butz, W. (2004). *Low fertility and population ageing. Causes, consequences and policy options*. Santa Monica: RAND Corporation.

Gray, C., & Weig, D. (1999, July). *Pension system issues and their relation to economic growth* (Consulting Assistance on Economic Reform II Discussion Paper 41). Cambridge. Available from http://www.cid.harvard.edu/caer2/htm/content/papers/confpubs/paper41/paper41

Green, A. E., Owen, D. W., & Wilson, R. A. (2001). *Regional labour force differences among young people in the European Union* (Eurostat Working Paper 3/2001/E/nº 7). Luxembourg.

Greenwood, M. J. (1992). *The macro determinants of international migration: A survey.* Conference "Mass Migration in Europe: Implications in East and West", IAS-IIASA-IF, Vienna.

Gruber, J., & Wise, D. A. (1999). *Social security programs and retirement around the world*. Cambridge: University of Chicago Press for National Bureau of Economic Research.

Gruber, J., & Wise, D. A. (2001). Social security, retirement incentives, and retirement bahavior: An international perspective. In A. J. Auerbach & R. D. Lee (Eds.), *Demographic change and fiscal policy* (pp. 159–190). Cambridge: Cambridge University Press.

Grundy, E. (2002). Demography and public health. In R. Detels, J. McEwen, R. Beaglehole, & H. Tanaka (Eds.), *Oxford textbook of public health* (4th ed., Vol. 2, pp. 807–828). Oxford: Oxford University Press.

Grzeszczak, J. (1991). Travailleurs etrangers dans les pays socialistes. In M. Rościszewski, B. Czyż, & J. Grzeszczak (Eds.), *The state, modes of production and world political map*, Conference Papers 5, Institute of Geography and Spatial Organization PAS, Warsaw.

Guentcheva, R., Kabakchieva, P., & Kolarski, P. (2004). Bulgaria: The social impact of seasonal migration. In *Migration trends in selected EU applicant countries* (Vol. I). Vienna: IOM.

Guiraudon, V. (2000a). The Marshallian triptych reordered: The role of courts and bureaucracies in furthering migrant's social rights. In M. Bommes & A. Geddes (Eds.), *Immigration and the welfare. Challenging the borders of the welfare state*. London: Routledge.

Guiraudon, V. (2000b). European integration and migration policy: Vertical policy-making as venue shopping. *Journal of Common Market Studies, 38*(2), 249–269.

Guiraudon, V. (2001). De-nationalising control: Analyzing state responses to constraints on migration control. In C. Joppke & V. Guiraudon (Eds.), *Controlling a new migration world* (pp. 31–63). London: Routledge.

Guiraudon, V., & Lahav, G. (2000). The reappraisal of the state sovereignty debate. The case of migration control. *Comparative Political Studies, 33*(2), 163–195.

GUS. (2002). *Aktywność ekonomiczna ludności Polski w latach 1992–2001* (Economic activity of Poland's population between 1992–2001). Warsaw.

GUS. (2005). *Aktywność ekonomiczna ludności Polski IV kwartał 2004* (Economic activity of Poland's population 4th Quarter 2004). Warsaw.

Hablicsek, L., & Tóth, P. P. (2002). *The role of international migration in maintaining the population size of Hungary between 2000–2050* (Working Papers on Population, Family and Welfare No. 1). Budapest: Demographic Research Institute, Central Statistical Office.

Hajn, Z. (2003). Elastyczność popytu na pracę w Polsce. Aspekty prawne [Flexibility of the demand for labour. Legal aspects.]. In E. Kryńska (Ed.), *Elastyczne formy zatrudnienia i organizacji pracy a popyt na pracę w Polsce [Flexible forms of employment and work organization and the demand for labour in Poland]*. Warsaw: Instytut Pracy i Spraw Socjalnych.

Hamermesh, D. (2000). *Togetherness: Spouses' synchronous leisure, and the impact on children* (National Bureau of Economic Research (NBER) Working Paper No. 7455). Cambridge: NBER.

Hammar, T. (Ed.). (1985). *European immigration policy*. Cambridge: Cambridge University Press.

Harris, J. R., & Todaro, M. P. (1970). Migration, unemployment and development: A two sector analysis. *American Economic Review, 60*, 126–142.

Heckman, J. J. (1974). Effects of child care programs on women's work effort. *Journal of Political Economy, 82*(2), 136–163.

Heckman, J. J., Killingsworth, M., & MaCurdy, T. (1981). Empirical evidence on static labour supply models: A survey of recent developments. In Z. Hornstein, J. Grice, & A. Webb (Eds.), *The economics of the labour market* (pp. 74–122). London: Her Majesty's Stationery Office.

Heckmann, F. (2003). From ethnic nation to universalistic immigrant integration: Germany. In F. Heckmann & D. Schnapper (Eds.), *The integration of immigrants in European societies*. Stuttgart: Lucius & Lucius.

Heligman, L., & Pollard, J. H. (1980). The age pattern of mortality. *Journal of the Institute of Actuaries, 107*, 49–75.

Hertrich, V., & Meslé, F. (1999). *The health crisis in the Baltic countries: A common and varied experience*. Paper presented to the European Population Conference, The Hague.

Hicks, J. (1932). *The theory of wages*. London: Macmillan.

Hille, W., & Straubhaar, T. (2001). The impact of EU-enlargement on migration movements and economic integration, results and recent studies. In *OECD, migration policies and EU enlargement. The case of Central and Eastern Europe* (pp. 79–100). Paris: OECD.

Hollifield, J. F. (2000). The politics of international migration: How can we "bring the state back in". In C. B. Brettel & J. F. Hollifield (Eds.), *Migration theory. Talking cross disciplines* (pp. 137–186). New York: Routledge.

Home Office. (2004). *Accession monitoring report*, May–September, London.

Hönekopp, E., & Mattila, H. (Eds.). (2008). *Permanent or circular migration? Policy choices to address demographic decline and labour shortages in Europe*. Budapest: International Organization for Migration.

Horiuchi, S., & Wilmoth, J. R. (1998). Deceleration in the age pattern of mortality at older ages. *Demography, 35*(4), 391–412.

Hotchkiss, J., Kassis, M. M., & Moore, R. (1997). Running hard and falling behind: A welfare analysis of two-earner families. *Journal of Population Economics, 10*(3), 237–250.

Hut, P. (2002). *Warunki życia i proces adaptacji repatriantów w Polsce w latach 1992–2000*. Warsaw: IPS UW.

ICMPD. (2001). *Current Roma migration from the EU Candidate States*. Research report, Vienna.

Iglicka, K. (1995). Migracje zagraniczne w świetle najnowszych ujęć teoretycznych [International migration in the light of the recent theoretical approaches]. *Studia Demograficzne, 121*(3), 19–34.

Iglicka, K. (1997). Przyczyny migracji z Polski w latach 1945–1990 [Reasons for migration from Poland in the period 1945–1989]. In *Migracje i Społeczeństwo, 2*. Warsaw: Instytut Historii PAN.

Iglicka, K., Jaźwińska, E., & Okólski, M. (1995). Współczesne migracje zagraniczne ludności Polski. Badania za pomocą podejścia etnosondażowego [Contemporary international migration of the population of Poland. An ethno-survey research]. *Studia Demograficzne, 126*(4), 3–41.

Iglicka, K., Jaźwińska, E., Kępińska, E., & Koryś, P. (1997). *Imigranci w Polsce w świetle badania sondażowego* [*Immigrants in Poland in the light of an ethno-survey research*] (ISS Working Papers "Prace Migracyjne" 10). Warsaw: Institute of Social Studies, Warsaw University.

Iglicka-Okólska, K. (1998). *Analiza zachowań migracyjnych na podstawie wyników badania etnosondażowego migracji zagranicznych w wybranych regionach Polski w latach 1975–1994* [Analysis of the migratory behaviour on the basis of an ethnosurvey research in the selected regions of Poland in the period 1975–1994]. Warsaw: Warsaw School of Economics.

INED. (1999). *Statistiques des flux d'immigration en France: Année 1999*. Paris: INED.

International Labour Organization. (2003). *LABORSTA database on labour statistics*. http://laborsta.ilo.org

International Labour Organization. (2004). *LABORSTA database on labour statistics*. Internet resource: http://laborsta.ilo.org

Iredale, R. (1999). The need to import skilled personnel: Factors favouring and hindering its international mobility. *International Migration, 37*(1), 89–123.

Jaźwińska, E., Okólski, M. (Eds.) (2001). *Ludzie na huśtawce. Migracje między peryferiami Polski i Zachodu* [People on the swing. Migration between the peripheries of Poland and the West]. Warsaw: Scholar.

Jennissen, R. (2004). *Macro-economic determinants of international migration in Europe* (Population Studies). Amsterdam: Dutch University Press.

Jileva, E. (2003). Larger than the European Union: The emerging EU migration regime and enlargement. In S. Lavenex & E. M. Uçarer (Eds.), *Migration and the externalities of European integration*. Lanham: Lexington Books.

Joly, D., & Suhrke, A. (2004). A new paradigm for the European asylum regime. In D. S. Massey & J. Edward Taylor (Eds.), *International migration. Prospects and policies in a global market*. Oxford: Oxford University Press.

Jones, E. B., & Long, J. E. (1979). Human capital and labor market employment: Additional evidence for women. *Journal of Human Resources, 14*(2), 270–279.

Joppke, C. (1998). Immigration challenges to the nation-state. In C. Joppke (Ed.), *Challenge to the nation state. Immigration in Western Europe and the United States*. Oxford: Oxford University Press.

Juhász, J. (2003). *Hungary: Transit country between East and West* (Migration Information Source). Washington, DC: Migration Policy Institute.

Juhn, C. (1992). Decline of male labor force participation: The role of declining labor market opportunities. *Quarterly Journal of Economics, 107*, 79–121.

Juhn, C., Murphy, K. M., & Topel, R. H. (1991). Why has the natural rate of unemployment increased over time? *Brookings Papers on Economic Activity, 2*, 75–126.

Kaczmarczyk, P. (2004, October 22). *Związki pomiędzy poziomem bezrobocia a zatrudnieniem obcokrajowców* [*Relationships between the level of unemployment and employment of foreigners*]. Paper presented on a conference "Wolność przepływu osób w rozszerzonej UE. Przypadki Polski i Niemiec" [Freedom of movement of persons in enlarged European Union. The case of Poland and Germany], Warsaw.

Kaufman, B. E., & Hotchkiss, J. L. (2003). *The economics of labor markets*. Mason: South Western College Publishing.

Keely, C. B. (2000). Demography and international migration. In C. B. Brettell & J. F. Hollifield (Eds.), *Migration theory. Talking across disciplines* (pp. 43–60). New York: Routledge.

Keilman, N. (2001, August 18–24). *TFR predictions based on Brownian motion theory.* Paper prepared for the XXIV IUSSP General Population Conference, Salvador, Brazil.

Keilman, N., & Cruijsen, H. (1992). *National population forecasting in industrialized countries*. Amsterdam: Swets & Zeitlinger.

Kędelski, M. (1990). Fikcja demograficzna w Polsce i RFN (Ze studiów nad migracjami zagranicznymi) [Demographic fiction in Poland and the FRG (From the studies on international migration)]. *Studia Demograficzne, 99*(1), 21–55.

Kicinger, A. (2009). Beyond the focus on Europeanisation: Polish migration policy 1989–2004. *Journal of Ethnic and Migration Studies, 35*(1), 79–95.

Kicinger, A., & Kloc-Nowak, W. (2008). Combating the illegal employment of foreigners in the enlarged EU. Polish country report. In M. Kupiszewski, & H. Mattila (red.), *Addressing the irregular employment of immigrants in the European Union. Between sanctions and rights* (pp. 195–250). Budapest: IOM,

Kielyte, J. (2002, September 27–28). *Migration movement in the Baltic States: Determinants and consequences*. WIDER conference on poverty, international migration and Asylum, Helsinki.

Killingsworth, M. R. (1983). *Labor supply*. Cambridge, MA: Cambridge University Press.

Killingsworth, M. R., & Heckman, J. J. (1986). Female labor supply: A survey. In O. C. Ashenfelter & R. Layard (Eds.), *Handbook of labor economics* (Vol. 1, pp. 103–204). Amsterdam: North-Holland.

Kocot-Górecka, K. (2004). *Zmiany płodności a aktywność ekonomiczna kobiet w Polsce ze szczególnym uwzględnieniem okresu transformacji* [*Fertility changes and the economic activity of women in Poland, with a special focus on the transformation period*]. Ph.D. Thesis, Warsaw School of Economics, Warsaw.

Kögel, T. (2004). Did the association between fertility and female employment within OECD countries really change its sign? *Journal of Population Economics, 17*(1), 45–65.

Kohler, H.-P., Billari, F., & Ortega, J. A. (2002). The emergence of lowest-low fertility in Europe during the 1990s. *Population and Development Review, 28*(4), 641–680.

Kolb, H. (2005). *'The German "Green Card"'* (Migration Research Group Policy Brief No. 3).

Korcelli, P. (2000). Migration from Poland and the future EU enlargement. In Z. Chojnicki & J. Parysek (Eds.), *Polish geography. Problems, research, applications* (pp. 5–18). Poznań: Bogucki Wydawnictwo Naukowe S.C.

Korcelli, P. (2003). Migracje kompensacyjne a kształtowanie podstaw polskiej polityki imigracyjnej [Replacement migration and creation of the basis for Polish immigration policy]. *Europa XXI, 9*, 143–151.

Korcelli, P. (2006). Replacement migration and the dilemmas of migration policy. *Regional and Local Studies*, (Special Issue), 99–111.

Koryś, I. (2004). Poland. Dilemmas of a sending and receiving country. In *Migration trends in selected EU applicant countries* (Vol. III). Vienna: IOM.

Koryś, P., & Okólski, M. (2004). *Czas globalnych migracji. Mobilność międzynarodowa w perspektywie globalizacji* [*Time of global migration. International mobility in the perspective of globalisation*] (ISS Working Papers "Prace Migracyjne" 55). Institute of Social Studies, University of Warsaw.

Kosters, M. (1966). *Income and substitution effects in a family labor supply model* (Report No. P-3339). Santa Monica: The Rand Corporation.

Kotowska, I. E. (1995). Discrimination against women in the labour market in Poland during the transition to a market economy. *Social Politics, 2*(1), 76–90.

Kotowska, I. E. (2003). Older workers in the labour market and retirement policies. In R. Palomba & I. E. Kotowska (Eds.), *The economically active population in Europe* (Population Studies No. 40). Strasbourg: Council of Europe.

Kotowska, I. E. (2004, December 10). *Europa wobec przeobrażeń rodziny. Czy potrzebna jest europejska strategia prorodzinna?* [*Europe facing family transformation. Is there a need for European family policy?*]. Paper for a conference of the Migration Research Institute 'Polska wobec redefinicji Strategii Lizbońskiej' ['Poland and the re-defining of the Lisbon strategy'], Warsaw.

Kotowska, I. E., & Matysiak, A. (2008). Reconciliation of work and family under different institutional settings. In C. Höhn, D. Avramov, & I. E. Kotowska (Eds.), *People, population change and policies: Lessons from the population policy acceptance study* (pp. 347–370). The Hague: Springer.

Kritz, M., Lim, L. L., & Zlotnik, H. (Eds.). (1992). *International migration systems: A global approach*. Oxford: Clarendon Press.

Kučera, M. (1994). *Populace České republiky 1918–1991 [Population of the Czech Republic, 1918–1991]*. Sociologický ústav AV ČR: Česká demografická společnost.

Kulu, H. (2005). Migration and fertility: Competing hypotheses re-examined. *European Journal of Population, 21*(1), 51–87.

Kupiszewska, D., & Kupiszewski, M. (2005). *A revision of the traditional multiregional model to better capture international migration: The MULTIPOLES model and its applications* (CEFMR Working Paper 10/2005).

Kupiszewska, D., & Kupiszewski, M. (2010). *Demographic and migratory flows affecting European regions and cities. Multilevel scenario model*. DEMIFER project report (Deliverable 4). ESPON & CEFMR/IOM.

Kupiszewska, D., & Nowok, B. (2008). Comparability of statistics on international migration flows in the European Union. In J. Raymer & F. Willekens (Eds.), *International migration in Europe: Data, models and estimates* (pp. 41–71). Chichester: Wiley.

Kupiszewski, M. (1996). *Forecasting international migration in European countries in transition* (Working Paper 96/3). Leeds: School of Geography, University of Leeds.

Kupiszewski, M. (2001a). *A forecast of the dynamics of labour force resources in Central Europe and the consequences of it to the European integration. A regional approach.* A report for the State Committee for Scientific Research, Warsaw.

Kupiszewski, M. (2001b). Demograficzne aspekty wybranych prognoz migracji zagranicznych [Demographic aspects of selected international migration forecasts]. In A. Stępniak (Ed.), *Swobodny przepływ pracowników w kontekście wejścia polski do Unii Europejskiej,* "Zrozumieć negocjacje" (pp. 73–98). Warsaw: UKIE.

Kupiszewski, M. (2002a). *Modelowanie dynamiki przemian ludności w warunkach wzrostu znaczenia migracji międzynarodowych* [The role of international migration in the modeling of population dynamics]. Warsaw: Institute of Geography and Spatial Organization, Polish Academy of Sciences.

Kupiszewski, M. (2002b). How trustworthy are forecasts of international migration between Poland and the European Union? *Journal of Ethnic and Migration Studies, 28*(4), 627–645.

Kupiszewski, M., & Kupiszewska, D. (1998). Projection of Central and East European populations – The model, the data and preliminary results. In J. Fleischhacker & R. Münz (Eds.), *Gesellschaft und Bevölkerung in Mittel- und Osteuropa im Umbruch* (Demographie Aktuell 13, pp. 22–40). Berlin: Humboldt-Universität.

Kupiszewski, M., & Kupiszewska, D. (1999, December 13–15). *Forecasts of regional structures of the elderly populations in Central and Eastern Europe*. ECE UN conference on status of the older population: Prelude to the 21st Century, Sion.

Kupiszewski, M., & Kupiszewska, D. (2008). International migration component in population dynamics model. In J. Raymer & F. Willekens (Eds.), *International migration in Europe: Data, models and estimates* (pp. 309–327). Chichester: Wiley.

Kupiszewski, M., & Kupiszewska, D. (2011). MULTIPOLES: A revised multiregional model for improved capture of international migration. In J. Stillwell & M. Clarke (Eds.), *Population dynamics and projection methods* (pp. 41–60). Dordrecht/Heidelberg/London/New York: Springer.

Kupiszewski, M., Bijak, J., Kaczmarczyk, P., Kicinger, A., Kloc-Nowak, W., & Napierała, J. (2008). Poland. In E. Hönekopp & H. Mattila (Eds.), *Permanent or circular migration? Policy choices to address demographic decline and labour shortages in Europe* (pp. 149–181). Budapest: IOM.

Kwiatkowski, E., & Tokarski, T. (2004). Bezzatrudnieniowy wzrost gospodarczy: Polska i Unia Europejska – tendencje i oczekiwania na przyszłość [Jobless growth: Poland and the EU – tendencies and expectations for future]. In S. Borkowska (Ed.), *Przyszłość pracy w XXI wieku*, [Future of labour in the 21st c.]. Warsaw: Komitet Nauk o Pracy i Polityce Społecznej, Instytut Pracy i Spraw Socjalnych.

Laczko, F. (Ed.). (2000). *Migrant trafficking and human smuggling in Europe*. Geneva: International Organisation for Migration.

Lahav, G. (2004). *Immigration and politics in the new Europe. Reinventing borders*. Cambridge: Cambridge University Press.

Langrish, S. (1998). The treaty of Amsterdam: Selected highlights. *European Law Review, 23*(1), 3–19.

Latuch, M. (1961). *Repatriacja ludności Polski w latach 1955–1960 na tle ruchów wędrówkowych* [Repatriation of the population of Poland in 1955–1960 on the background of migratory movements]. Warsaw: Scientific Papers series, Main School of Planning and Statistics.

Lavenex, S. (1998). Asylum, immigration, and Central-Eastern Europe: Challenges to EU enlargement. *European Foreign Affairs Review, 3*(2), 275–294.

Lavenex, S., & Uçarer, E. M. (2003a). The emergent EU migration regime and its external impact. In S. Lavenex & E. M. Uçarer (Eds.), *Migration and the externalities of European integration*. Lanham: Lexington Books.

Lavenex, S., & Uçarer, E. M. (2003b). Ripples of European integration: Modes and consequences of migration policy transfer. In S. Lavenex & E. M. Uçarer (Eds.), *Migration and the externalities of European integration*. Lanham: Lexington Books.

Layard, R., Blanchard, O., Dornbusch, R., & Krugman, P. (1992). *East–west migration: The alternatives*. Cambridge, MA: MIT Press.

Lazaroiu, S. (2004). Romania: More 'Out' than 'In' at the crossroads between Europe and the Balkans. In *Migration trends in selected EU applicant countries* (Vol. IV). Vienna: IOM.

Lazear, E. P. (1986). Retirement from the labor force. In O. C. Ashenfelter & R. Layard (Eds.), *Handbook of labor economics* (Vol. 1, pp. 305–355). Amsterdam: North-Holland.

Lebenstein, H. (1957). *Economic backwardness and economic growth*. New York: Wiley.

Lee, E. (1966). A theory of migration. *Demography, 3*(1), 45–57.

Lee, R. (1998). Probabilistic approaches to population forecasting. *Population and Development Review, 24*(Supplement), 156–190.

Lee, R. (2002, September 3). *Mortality forecasts and linear life expectancy trends*. Paper for a workshop on mortality, Lund, Sweden.

Lee, R. D., & Carter, L. (1992). Modeling and forecasting the time series of U.S. mortality. *Journal of the American Statistical Association, 87*(419), 659–671.

Lee R., & Miller, T. (2000). *Assessing the performance of the Lee-Carter approach to modeling and forecasting mortality.* Paper presented at the 2000 Annual Meeting of the Population Association of America, Los Angeles.

Lesthaeghe, R. (2000, October 16–18). *Europe's demographic issues: Fertility, household formation and replacement migration*. Expert Group Meeting on Policy Responses to Population Ageing and Population Decline, United Nations Population Division, New York.

Lesthaeghe, R., & van de Kaa, D. J. (1986). Twee demografische transities? In D. J. van de Kaa & R. Lesthaeghe (Eds.), *Bevolking: Groei en Krimp* (pp. 9–24). Deventer: Van Loghum Slaterus.

Lesthaeghe, R., Page, H., & Surkyn, J. (1988). *Are immigrants substitutes for births?* (I.P.D. Working Paper 1988–3). Brussels: Free University of Brussels.

Lewis, A. W. (1954). Economic development with unlimited supplies of labour. *Manchester School of Economic and Social Studies, 22*, 139–191.

Liefbroer, A. C., & Corijn, M. (1999). Who, what, where, and when? Specifying the impact of educational attainment and labour force participation on family formation. *European Journal of Population, 15*(1), 45–75.

Locher, L. (2002). *Migration in the Soviet Successor States* (IZA Discussion Paper 602). Bonn.

Lotka, A. J. (1907). Relation between birth rates and death rates. *Science, 26*(653), 21–22.

Lulle, A. (2003). Replacement migration: Is it a solution for Latvia's ageing and declining population? In *Reuters Foundation Paper, 214*. Oxford: Green College.

Lundberg, S. J. (1988). Labour supply of husbands and wives: A simultaneous equations approach. *Review of Economics and Statistics, 70*(2), 224–235.

Lundberg, S. J., & Rose, E. (2000). Parenthood and the earnings of married men and women. *Labour Economics, 7*(6), 689–710.

Lundborg, P. (1998). The free movement of labour between Sweden and the New EU Members. In *A bigger and better Europe?* Final report from the Committee on the Economic Effects of EU Enlargement, Stockholm.

Lutz, W., & Scherbov, S. (1999). *What do we know about future changes in the proportions of children and elderly in Europe?* (IIASA Interim Report IR-99-12). Laxenburg.

Lutz, W., Saariluoma, P., Sanderson, W. C., & Scherbov, S. (2000). *New developments in the methodology of expert- and argument-based probabilistic population forecasting* (IIASA Interim Report IR-00-020).

Lutz, W., O'Neill, B. C., & Scherbov, S. (2003). Europe's population at a turning point. *Science, 299*(5615), 1991–1992.

Lutz, W., Sanderson, W. C., & O'Neill, B. C. (2004). Conceptualizing population in sustainable development. From "Population Stabilization" to "Population Balance". In W. Lutz, W. C. Sanderson, & S. Scherbov (Eds.), *The end of world population growth in the 21st century. New challenges for human capital formation and sustainable development*. London: Earthscan.

Luy, M. (2003). Causes of male excess mortality: Insights from cloistered populations. *Population and Development Review, 29*(4), 647–676.

MacLaughlan, G., & Salt, J. (2002). *Migration policies towards highly skilled foreign workers*. London: Home Office.

MaCurdy, T. (1981). An empirical model of labour supply in a life-cycle setting. *Journal of Political Economy, 89*(6), 1059–1085.

Mahroum, S. (2001). Europe and the immigration of highly skilled labour. *International Migration, 39*(5), 27–43.

Martens, P., & Huynen, M. (2003). A future without health? Health dimension in global scenario studies. *Bulletin of the WHO, 81*(12), 896–901.

Martiniello, M. (2003). Belgium's immigration policy. *International Migration Review, 37*(141), 225–232.

Massey, D. S. (1987). The ethnosurvey in theory and practice. *International Migration Review, 21*, 1498–1522.

Massey, D. S. (1990). Social structure, household strategies, and the cumulative causation of migration. *Population Index, 56*, 3–26.

Massey, D. S. (1998). *World in motion. Understanding international migration at the end of Millenium*. New York: Oxford University Press.

Massey, D. S. (2001). Theory of migration. In *International encyclopaedia of the social and behavioural sciences* (pp. 9828–9834). Oxford: Elsevier.

Massey, D. (2002). A synthetic theory of international migration. In V. Iontsev (Ed.), *World in the mirror of international migration* (International Migration of Population: Russia and the Contemporary World, Vol. 10, pp. 143–153). Moscow: Max Press.

Massey, D. S. (2003, June 4–7). *Patterns and processes of international migration in the 21st century*. Paper prepared for conference on African Migration in Comparative Perspective, Johannesburg, South Africa.

Massey, D. S., & Taylor, J. E. (2004). Back to the future: Immigration research, immigration policy, and globalization in the twenty-first century. In D. S. Massey & J. Edward Taylor (Eds.), *International migration. Prospects and policies in a global market*. Oxford: Oxford University Press.

Massey, D. S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino, A., & Taylor, J. E. (1993). Theories of international migration: A review and appraisal. *Population and Development Review, 19*(3), 431–466.

Massey, D. S., Arango, J., Koucouci, A., Pelligrino, A., & Taylor, J. E. (1994). An evaluation of international migration theory: The North American case. *Population and Development Review, 20*, 699–752.

McDonald, P., & Kippen, R. (1999, March 18–19). Ageing: The social and demographic dimensions. In *Policy implications of the ageing of Australia's population* (pp. 47–70). Productivity Commission. Conference Proceedings, Melbourne.

McDonald, P., & Kippen, R. (2000, March 23–25). *The implications of below replacement fertility for labour supply and international migration, 2000–2050*. Paper presented to the 2000 Annual Meeting of the Population Association of America, Los Angeles.

Meslé, F. (1991). Mortality in East European countries. *Population, 46*(3), 599–649.

Meslé, F. (2004a). Mortality in Central and Eastern Europe: Long-term trends and recent upturns. *Demographic Research, Special Collection, 2*, 45–70.

Meslé, F. (2004b). Life expectancy: A female advantage under threat? *Population and Societies, 402*, 1–4.

Meyers, E. (2000). Theories of international immigration policy – A comparative analysis. *International Migration Review, 34*(4), 1245–1282.

Meyerson, F. A. B. (2001). Replacement migration: A questionable tactic for delaying the inevitable effects of fertility transition. *Population and Environment: A Journal of Interdisciplinary Studies, 22*(4), 401–409.

Mincer, J. (1962). Labor force participation of married women: A study of labor supply. In National Bureau of Economic Research (NBER) (Ed.), *Aspects of labor economics* (pp. 63–97). Princeton: Princeton University Press.

Mincer, J. (1963). Market prices, opportunity costs and income effects. In C. F. Christ, M. Friedman, L. A. Goodman, Z. Griliches, A. C. Harberger, N. Liviatan, J. Mincer, Y. Mundlak, M. Nerlove, D. Patinkin, L. G. Telser, & H. Theil (Eds.), *Measurement in economics* (pp. 67–82). Palo Alto: Stanford University Press.

Mincer, J. (1974). *Schooling, experience and earnings*. New York: Columbia University Press.

Mitchell, C. (1989). International migration, international relations and foreign policy. *International Migration Review, 23*(3), 681–708.

Morawska, E. (2001). Gappy immigration controls, resourceful migrants and pendel communities: East–West European travelers. In V. Guiraudon & C. Joppke (Eds.), *Controlling a new migration world*. London: Routledge.

Morawski, W. (2003). Praca w globalizującym się świecie. Koncepcje i realia [Labour in the globalizing World. Concepts and realities]. In K. W. Frieske (Ed.), *Deregulacja polskiego rynku pracy* [Deregulation of the Polish labour market]. Warsaw: Instytut Pracy i Spraw Socjalnych.

Morris, D., & Mallier, T. (2003). Employment of older people in the European union. *Labour, 17*(4), 623–648.

Muszyńska, M. (2003). Zróżnicowanie modeli rodziny w krajach europejskich w kontekście statusu kobiety w społeczeństwie [Family models differences in Europe in the context of the status of woman in the society]. *Studia Demograficzne, 2*(144), 55–77.

Muus, P. (2004). The Netherlands: A pragmatic approach to economic needs and humanitarian considerations. In W. A. Cornelius, T. Tsuda, P. L. Martin, & J. Hollifield (Eds.), *Controlling immigration. A global perspective*. Stanford: Stanford University Press.

National Research Council. (2001). *Preparing for an aging world: The case for cross-national research*. Washington, DC: National Academy Press.

Öberg, S. (1996). Spatial and economic factors in future South–North migration. In W. Lutz (Ed.), *The future population of the world: What can we assume today?* (pp. 336–357). London: Earthscan.

Öberg, S., & Wils, A. B. (1992). East–West migration in Europe. Can migration theories help estimate the numbers. *POPNET, 22*, 1–7.

OECD. (2004). *Trends in international migration, SOPEMI Annual Report 2003,* Paris.

OECD. (2005). *Pensions at a glance – Public policies across OECD countries*, Paris.

Oeppen, J., & Vaupel, J. W. (2002). Demography: Broken limits to life expectancy. *Science, 296*, 1029–1031.

O'Keeffe, D. (1995). The emergence of a European migration policy. *European Law Review, 20*(1), 20–36.

Okólski, M. (1987). Umieralność mężczyzn w Europie. Wschodniej i w Europie Zachodniej [Male mortality trends in Eastern and Western Europe]. *Studia Demograficzne, 3*(89), 3–28.

Okólski, M. (1993). East–west mortality differentials. In A. Blum & J. L. Rallu (Eds.), *European population – Demographic dynamics* (pp. 165–189). London: Libbey.

Okólski, M. (1998). Assessing the principal determinants of migration. In T. Frejka, M. Okólski, K. Sword (Eds.), *In-depth studies on migration in Central and Eastern Europe: The Case of Poland*. (pp. 87–104). New York/Geneva: United Nations.

Okólski, M. (2000a). Recent trends and major issues in international migration: Central and East European perspective. *International Social Science Journal, 4*, 329–341.
Okólski, M. (2000b). Incomplete migration. A new form of mobility in Central and Eastern Europe. The case of Polish and Ukrainian migrants. In C. Wallace & D. Stola (Eds.), *Central Europe: New migration space* (p. 95). Houndmills: Macmillan.
Okólski, M. (2004). *Demografia zmiany społecznej* [Demography of social change]. Warsaw: Scholar.
Okoń,W. (1992). *Słownik pedagogiczny* [Dictionary of pedagogics]. Warsaw: PWN.
Olshansky, S. J., & Ault, B. A. (1986). The fourth stage of the epidemiologic transition: The age of delayed degenerative diseases. *Milbank Memorial Fund Quarterly, 64*(3), 355–391.
Olshansky, S. J., Carnes, B. A., & Cassel, C. (1990). In search of Methuselah: Estimating the upper limits to human longevity. *Science, 250*, 634–640.
Omran, A. R. (1971). The epidemiologic transition: A theory of the epidemiology of population change. *Milbank Memorial Fund Quarterly* 49(4), 509–538. (Reprinted in *Bulletin of the WHO,* 79(2), 161–170.)
Orłowski, W. (2000). Migration from Central and Eastern European countries after the accession: Effects for regions, labour markets, and social security systems, *Research Bulletin*, *2*(9), GUS, Warsaw: 7–21.
Orłowski, W. M., & Zienkowski, L. (1998). Skala potencjalnych emigracji z Polski po przystąpieniu do Unii Europejskiej: próba prognozy [Magnitude of potential emigration form Poland after the EU accession: A forecast attempt]. In P. Korcelli (Ed.), *Przemiany w zakresie migracji ludności jako konsekwencja przystąpienia Polski do Unii Europejskiej*, Biuletyn KPZK PAN, 184: 55–66.
Ortega Pérez, N. (2003). *Spain: Forging an immigration policy*. Migration Information Source, http://www.migrationinformation.org
Palmer, J. L., & Gould, S. G. (1986). The economic consequences of an aging society. *Daedalus, 115*(1), 295–324.
Palomba, R., & Kotowska, I. E. (2003). *The economically active population in Europe* (Population Studies No. 40). Strasbourg: Council of Europe.
Papademetriou, D. (2003). *Innovation in the selection of highly skilled immigrants* (Policy Brief 15). Migration Policy Institute, http://www.migrationpolicy.org
Parsons, D. O. (1980). The decline in male labor force participation. *Journal of Political Economy, 88*(1), 117–134.
Pencavel, J. (1977). Work effort, on the job screening, and alternative methods of remuneration. In R. G. Ehrenberg (Ed.), *Research in labor economics* (Vol. 1, pp. 225–258). Greenwich: JAI Press.
Pencavel, J. (1986). Labor supply of men: A survey. In O. C. Ashenfelter & R. Layard (Eds.), *Handbook of labor economics* (Vol. 1, pp. 3–102). Amsterdam: North-Holland.
Philipov, D., & Kohler, H.-P. (2001). Tempo effects in the fertility decline in Eastern Europe: Evidence from Bulgaria, the Czech Republic, Hungary, Poland, and Russia. *European Journal of Population, 17*, 37–60.
Piore, M. J. (1979). *Birds of passage: Migrant labour in industrial societies*. Cambridge: Cambridge University Press.
Plender, R. (Ed.). (1988). *Basic documents on international migration law*. Dordrecht: Nijhoff.
Pollard, J. H. (1973). *Mathematical models for the growth of human populations*. Cambridge: Cambridge University Press.
Population and Environment. (2001). *Population and Environment: A Journal of Interdisciplinary Studies, 22*(4), 355–363.
Portes, A. (1997). Immigration theory for a new century: Some problems and opportunities. *International Migration Review, 31*, 799–825.
Portes, A., & Bach, R. L. (1985). *Latin journey: Cuban and Mexican immigrants in the United States*. Berkley: University of California Press.
Poulain, M., Perrin, N., & Singleton, A. (Eds.). (2006). *THESIM: Towards harmonised European statistics on international migration*. Louvain-la-Neuve: Presses Universitaires de Louvain.

Productivity Commission (1998). *Policy Implications of the Ageing of Australia's Population, Conference Proceedings, Melbourne*, 18–19 March 1998.

Ravenstein, E. G. (1885). The laws of migration. *Journal of the Statistical Society, 48*, 167–227.

Ravenstein, E. G. (1889). The laws of migration. *Journal of the Statistical Society, 52*, 214–301.

Rees, D., & Mocan, N. (1997). Labor market conditions and the high school Dropout rate: Evidence from the New York state. *Economics of Education Review, 16*, 103–109.

Rees, P. H. (1996). Projecting national and regional populations of the European Union using migration information. In P. H. Rees, J. S. C. Stillwell, A. Convey, & M. Kupiszewski (Eds.), *Population migration in the European Union* (pp. 330–364). London: Wiley.

Rees, P. H., Stillwell, J. S. C., & Convey, A. (1992). *Intra-community migration and its impact on the development of the demographic structure at regional level* (Working Paper 92/1). Leeds: School of Geography, University of Leeds.

Reich, R. B. (1996). *Praca narodów. Przygotowanie się do kapitalizmu XXI wieku* [Labour of the nations. Preparations for the 21st. century capitalism]. Toruń: Wydawnictwo Adam Marszałek.

Reich, R. B. (2000). *The future of success. Working and living in the new economy*. New York: Random House.

Renshaw, E. (1991). Actuarial graduation practice and generalized linear and non-linear models. *Journal of the Institute of Actuaries, 118*, 295–312.

Rifkin, J. (2001). *Koniec pracy. Schyłek siły roboczej na świecie i początek ery postrynkowej* [The end of labour. Decline of labour force in the world and the outset of the post-market era]. Wrocław: Wydawnictwo Dolnośląskie.

Rivkin, S. G. (1995). Black/White differences in schooling and employment. *Journal of Human Resources, 30*, 826–852.

Rodríguez, V., Casado, M. A., Casado, J. M., & Taltavull, P. (2004, November 25–27). *European retirement migration to Spain: A present overview and future prospects*. Paper for the EAPS Working Group on International Migration in Europe, Rome.

Rogers, A. (1975). *Introduction to multiregional mathematical demography*. New York: Wiley.

Rogers, A., & Castro, L. J. (1981a). *Model migration schedules* (RR-81-30). Laxenburg: IIASA

Rogers, A., & Castro, L. J. (1981b). *Age patterns of migration: Cause-specific profiles.* In A. Rogers (Ed.), *Advances in multiregional demography* (RR-81-6). Laxenburg: IIASA.

Rogers, A., & Castro, L. J. (1981c). *Model schedules in multistate demographic analysis: The case of migration, WP-81-22*. Laxenburg: IIASA.

Romaniszyn, K. (1997). *Current migration in Central and Eastern Europe* (ISS Working Papers "Prace Migracyjne" 15). Warsaw: Institute of Social Studies, University of Warsaw.

Rose, R. (1991). What is lesson drawing? *Journal of Public Policy, 2*, 3–30.

Rosenberg, S. (1989). Labour market restructuring in Europe and the United States: The search for flexibility. In S. Rosenberg (Ed.), *The state and the labour market*. New York: Plenum.

Roseveare, D., Leibniz, W., Fore, D., & Wurzel, A. (1996). *Ageing populations, pensions systems and government budgets: Simulations for 20 OECD countries* (Economics Department Working Papers 168). OECD: Paris.

Rutkowski, J. J., Scarpetta, S. with Banerji, A., O'Keefe, P., Pierre, G., & Vodopivec, M. (2005). *Enhancing job opportunities: Eastern Europe and the former Soviet Union*. Washington, DC: World Bank

Rychtaříková, J. (2002, June 19–21). *The case of the Czech Republic: Determinants of the recent favourable turnover in mortality*. Paper for the First Seminar of the IUSSP Committee on Emerging Health Threats, Rostock.

Saar, E., Unt, M., & Kogan, I. (2008). Transition from educational system to labour market in the European Union. A comparison between new and old members. *International Journal of Comparative Sociology, 49*(1), 31–59.

Salt, J. (1993). *Migration and population change in Europe* (UNIDIR Research Paper No 19).

Salt, J. (2000, November 10–11). *Europe's migration field.* Workshop on Demographic and Cultural Specificity and Integration of Migrants, Bingen, Germany.

Salt, J. (2004). *Introduction to the Session II on new forms of international migration* presented to the conference on International Migration in Europe: New Trends, New Methods of Analysis. Rome.

Salt, J. (2005). *Current trends in international migration in Europe*. Strasbourg: Council of Europe.

Salt, J., & Clout, H. (1976). *Migration in post-war Europe. Geographical essays*. New York: Oxford University Press.

Salt, J., & Singleton, A. (1995). *Analysis and forecasting of international migration by major groups*. Draft report to the Working Party on Demographic Projections, Eurostat.

Salt, J., Clarke, J. A., Schmidt, S., Hogarth, J., Densham, P. J., & Compton, P. (1999). *Assessment of possible migration pressure and its labour market impact following EU enlargement to Central and Eastern Europe* (Final Report). London: MRU-UCL.

Sawicki, S. (1986). *Prawo państwa do regulowania międzynarodowego ruchu osobowego* [State's competence to regulate international population movement]. Warsaw.

Scherer, S. (2005). Patterns of labour market entry – Long wait or career instability? An empirical comparison of Italy, Great Britain and West Germany. *European Sociological Review, 21*(5), 427–440.

Schiff, J. A., Egoumé-Bossogo, P., Ihara, M., Konuki, T., & Krajnyák, K. (2006). *Labor market performance in transition: The experience of Central and Eastern European Countries*. Washington, DC: International Monetary Fund.

Schmitter Heisler, B. (2000). The sociology of immigration from assimilation to segmented integration, from American experience to the global arena. In C. B. Brettell & J. F. Hollifield (Eds.), *Migration theory. Talking across disciplines* (pp. 77–96). New York: Routledge.

Schimmelfennig, F., & Sedelmeier, U. (Eds.). (2005). *The europeanization of Central and Eastern Europe*. New York: Cornell University Press.

Schoenmaeckers, R. C. (2004). *Active ageing in Europe. Volume 2: Demographic characteristics of the oldest-old* (Population Studies 47). Strasbourg: Council of Europe.

Sinn, H.-W., Flaig, G., Werding, M., Munz, S., Duell, N., & Hofmann, H. (2001). *EU-Erweiterung und Arbeitskräftemigration, Wege zu einer schrittweisen Annäherung der Arbeitsmärkte*. Munich: IFO-Institut für Wirtschaftsforschung.

Sjaastad, L. A. (1962). The costs and returns of human migration. *Journal of Political Economy, 70*, 80–93.

Skirbekk, V. (2003). *Age and individual productivity: A literature survey* (MPIDR Working Paper WP 2003–028). Rostock: Max Planck Institute for Demographic Research.

Smith, J. P. (1980). *Female labor supply: Theory and estimation*. Princeton: Princeton University Press.

Sobotka, T. (2002). *Ten years of rapid fertility changes in the European post-communist countries: Evidence and interpretation* (Population Research Centre Working Paper 02–1). University of Groningen.

Sobotka, T. (2004). Is lowest-low fertility in Europe explained by the postponement of childbearing? *Population and Development Review, 30*(2), 195–220.

Solow, R. M. (1998). What is labour market flexibility? What is it good for? *Proceedings of the British Academy, 97*, 189–211.

Speidel, J. J., Weiss, D. C., Ethelston, S. A., & Gilbert, S. M. (2009). Population policies, programmes and the environment. *Philosophical Transactions of the Royal Society B, 364*(1532), 3049–3065.

Spencer, S. (2002, February 14–15). *Recent changes and future prospects in UK migration policy*. Paper presented at the Ladenburger discourse on migration.

Spijker, J. (2004). *Socioeconomic determinants of regional mortality differences in Europe* (Population Studies). Amsterdam: Dutch University Press.

Stalker, P. (2002). Migration trends and migration policy in Europe. *International Migration, 40*(5), 151–179.

Standing, V. G. (2000). Elastyczne zatrudnienie i regulacje. Konstruktywne myślenie o przyszłości zjednoczonej Europy [Flexible employment and regulations. Constructive thinking about the

future of United Europe]. In S. Golinowska & M. Walewski (Eds.), *Tworzenie zatrudnienia a restrukturyzacja ekonomiczna* [Creating jobs and economic restructuring]. Warsaw: CASE.
Stark, O. (1991). *The migration of labour*. Cambridge: Blackwell.
Stark, O. (2003). Tales of migration without wage differentials: Individual, family, and community contexts. *Institutions and Economic Development, 1*, 2, (79–92).
Stark, O., & Bloom, D. E. (1985). The new economics of labor migration. *American Economic Review, 75*, 173–178.
Stark, O., & Taylor, E. (1989). Relative deprivation and international migration. *Demography, 26*, 1–14.
Stola, D. (2000). *Emigracja pomarcowa [Emigration after March]* (ISS Working Papers "Prace Migracyjne" 34). Warsaw: Institute of Social Studies, University of Warsaw.
Stola, D. (2002). Milion straconych Polaków [A million Poles lost]. *Biuletyn IPN, 14*(3), 62–65.
Stola, D. (2003). Zamknięcie Polski. Zniesienie swobody wyjazdu i uszczelnienie granic w latach 40. i 50. [Closure of Poland: Abolishment of freedom of emigration and sealing of the boundaries in the 1940s and 1950s]. In D. Stola & M. Zaremba (Eds.), *PRL. Trwanie i zmiana*. Warsaw: Wydawnictwo WSPiZ im. L. Koźminskiego.
Stola, D. (2010). *Kraj bez wyjścia? Migracje zagraniczne z Polski 1949–1989 [A country with no exit? International migrations from Poland, 1949–1989]*. Warsaw: Instytut Pamięci Narodowej.
Stouffer, S. A. (1940). Intervening opportunities: A theory relating mobility and distance. *American Sociological Review, 5*, 845–867.
Stouffer, S. A. (1960). Intervening opportunities and competing migrants. *Journal of Regional Studies, 2*(1), 187–208.
Straubhaar, T. (2001). Migration policies and EU enlargement. *Intereconomics, 36*(4), 167–170.
Sudén, A. (2006). The Swedish experience with pension reform. *Oxford Review of Economic Policy, 1*(22), 133–148.
Surkyn, J., & Lesthaeghe, R. (2004). Value orientations and the second demographic transition (SDT) in Northern, Western and Southern Europe: An update. *Demographic Research, Special Collection, 3*, 45–86.
Sztanderska, U. (2004). *Praca dla niskokwalifikowanych*. [Work for the low-skilled]. Gdańsk: Instytut Badań Nad Gospodarką Rynkową.
Tabeau, E. (1996). Mortality in Poland 1989–93: A response to economic reforms? *Studia Demograficzne, 123–124*(1–2), 13–37.
Tabeau, E. (2001). A review of demographic forecasting models for mortality. In E. Tabeau, A. van den Berg Jeths, & C. Heathcote (Eds.), *Forecasting mortality in developed countries: Insights from a statistical, demographic and epidemiological perspective* (pp. 1–32). Dordrecht: Kluwer.
Tabeau E., Spijker, J., & van der Veen, W. J. (1998, September 10–12). *The East–West mortality gap and health-related behaviour: Poland and Hungary compared with nine Western countries*. Paper prepared for the workshop "Demographic development in the post-communist countries", University of Economics, Prague.
Tabeau, E., van den Berg Jeths, A., & Heathcote, C. (Eds.). (2001). *Forecasting mortality in developed countries: Insights from a statistical, demographic and epidemiological perspective*. Dordrecht: Kluwer.
Taylor, E. J. (1986). Differential migration, networks, information and risk. In O. Stark (Ed.), *Research in human capital and development. Vol. 4: Migration, human capital, and development* (pp. 147–171). Greenwich: AI Press.
Termote, M. (1967). Les modèles de migration. Une perspective d'ensemble. *Recherche Economique de Louvain, 33*(4), 413–444.
Thurow, L. (1996). *The future of capitalism. How today's forces shape tomorrow's growth*. New York: Morrow.
Todaro, M. P. (1976). *International migration in developing countries*. Geneva: ILO.
Trovato, F., & Lalu, N. M. (1996). Narrowing sex differentials in life expectancy in the industrialized world: Early 1970's to early 1990's. *Biodemography and Social Biology, 43*(1–2), 20–37.

Tuljapurkar, S., Li, N., & Boe, C. (2000). An universal pattern of mortality decline in the G7 countries. *Nature, 405*, 798–792.

Uçarer, E. M. (2003). Guarding the borders of the European union: Paths, portals, and prerogatives. In S. Lavenex & E. M. Uçarer (Eds.), *Migration and the externalities of European integration*. Lanham: Lexington Books.

UKIE. (2004). *Office of the Committee for European Integration of the Republic of Poland*. http://www1.ukie.gov.pl

UNHCR. (2004). *Statistical yearbook 2002, trends in displacement, protection and solutions*. Geneva: UNHCR.

United Nations. (1998). *Recommendations on statistics of international migration* (Rev. 1). New York: UN Population Division.

United Nations. (1999a). *World population prospects: The 1998 revision. Vol. I: Comprehensive tables*. New York: United Nations Population Division.

United Nations. (1999b). *World population prospects: The 1998 revision. Vol. II: Sex and age*. New York: United Nations Population Division.

United Nations. (1999c). *World population prospects: The 1998 revision. Vol. III: Analytical report*. New York: United Nations Population Division.

United Nations. (2000). *Replacement migration: Is it a solution to declining and ageing populations?* New York: United Nations Population Division.

United Nations. (2002). *World population ageing: 1950–2050*. New York: United Nations Population Division.

United Nations. (2003a). *World population prospects: 2002 revision*. New York/Geneva: United Nations.

United Nations. (2003b). *UN ECE economic survey of Europe, No. 2*. New York: United Nations Economic Commission for Europe.

Urbaniak, B. (1998). *Praca zawodowa po przejściu na emeryturę. Społeczno-ekonomiczne przesłanki powrotu emerytów do aktywnego życia zawodowego*. [Economic activity after retirement. Socio-economic premises in pensioners' return to economically active life]. Łódź: Wydawnictwo Uniwersytetu Łódzkiego.

URIC. (2004). *POLAND. Quantitative data of procedures concerning foreigners in the years 2001–2003*. Warsaw: URIC [Office for Repatriation and Aliens].

Vallin, J., & Meslé, F. (2004). Convergences and divergences in mortality. A new approach to health transition. *Demographic Research Special Collection, 2*, 11–44.

van de Kaa, D. J. (1987). Europe's second demographic transition. *Population Bulletin, 42*(1), 1–57.

van de Kaa, D. J. (2003). Demographics in transition: an essay on continuity and discontinuity in value change. In I. E. Kotowska & J. Jóźwiak (Eds.), *Population of Central and Eastern Europe: Challenges and opportunities* (pp. 641–663). Warsaw: Statistical Publishing Establishment.

van Imhoff, E. (2001). On the impossibility of inferring cohort fertility measures from period fertility measures. *Demographic Research, 5*, 23–64.

van Imhoff, E., & van Nimwegen, N. (2000). Migratie GEEN remedie tegen vergrijzing [Migration NOT a remedy against ageing]. *Demos, 16*(2), 9–10.

van Selm, J. (2003). *The Netherlands: Tolerance under pressure*. Migration Information Source, http://www.migrationinformation.org

van Selm, J. (2005). *The Netherlands: Death of a Filmmaker Shakes a Nation*. At: http://www.migrationinformation.org/Profiles/display.cfm?ID=341

van Selm, J., & Tsolakis, E. (2004). *The enlargement of an "Area of freedom security and justice". Managing migration in European Union of 25 Members* (Policy Brief 4/2004). Migration Policy Institute, http://www.migrationpolicy.org

Vasileva, D. (1992). Bulgarian Turkish emigration and return. *International Migration Review, 26*, 342–352.

Vendrik, M. (1993). *Collective habits and social norms in labour supply. From micromotives to macrobehaviour*. Ph.D. thesis, Maastricht University, Universitaire Pers, Maastricht.

Vishnevsky, A. (2000). *Replacement migration: Is it a solution for Russia?* A paper prepared for "Expert Group Meeting on Policy Responses to Population Ageing and Population Decline. New York, Population Division", Department of Economic and Social Affairs, UN Secretariat.

Vlasblom, J. D., & Nekkers, G. (2001). *Regional differences in labour force activity rates of persons aged 55+ within the European Union*. (Eurostat Working Paper 3/2001/E/nº 6). Luxembourg.

Voas, D. (2003). Conflicting preferences: A reason fertility tends to be too high or too low. *Population and Development Review, 29*(4), 627–646.

Voicu, A. (2002). *Labor force participation dynamics in the Romanian labor market* (William Davidson Working Paper Number 481).

Wallace, C. (2000, November). *Patterns of migration in Central Europe.* Paper on the Conference on Economic and Social Dimensions of EU Enlargement, Brussels.

Wattelar, L., & Roumans, G. (1991). Simulations of demographic objectives and migration. In *Migration. The demographic aspects* (pp. 57–67). Paris: OECD.

Weinar, A. (2006). *Europeizacja polskiej polityki wobec cudzoziemców 1990–2003*. Warsaw: Scholar.

Weiner, M. (1985). On international migration and international relations. *Population and Development Review, 11*(3), 441–455.

Weiss, Y. (1972). On the optimal lifetime pattern of labour supply. *Economic Journal, 82*(328), 1293–1315.

Weston, S. (2002). *An introduction to the mathematics and construction of splines*. Addix Software Consultancy, http://www.addix.com

White, K. M. (2002). Longevity advances in high-income countries, 1955–96. *Population and Development Review, 28*(1), 59–76.

Widgren, J. (1990). International migration and regional stability. *International Affairs, 66*(4), 749–766.

Willekens, F. (1995). Monitoring international migration flows in Europe. Towards a statistical data base combining data from different sources. *European Journal of Population, 10*, 1–42.

Willekens, F., & Drewe, P. (1984). A multiregional model for regional demographic projection. In H. ter Heide, & F. Willekens (Eds.), *Demographic research and spatial policy. The Dutch experience* (pp. 309–334). London: Academic Press.

Wiśniewski, Z. (1999). *Kierunki i skutki deregulacji rynku pracy w krajach Unii Europejskiej [Directions and effects of the labour market deregulation in EU member states]*. Toruń: Uniwersytet Mikołaja Kopernika.

Wolbers, M. H. J. (2007). Patterns of labour market entry, a comparative perspective on school-to-work transitions in 11 European countries. *Acta Sociologica, 50*(3), 189–210.

World Bank. (2003). *2003 World Development Indicators CD-ROM*. World Bank.

Wratny, J. (2001). Instrumenty prawa pracy [Instruments of the labour law]. In E. Kryńska (Ed.), *Stymulacja ruchliwości pracowniczej. Metody i instrumenty* [Stimulating worker mobility. Methods and instruments]. Warsaw: Instytut Pracy i Spraw Socjalnych.

Wu, Z., & Li, N. (2003). Immigration and the dependency ratio of a host population. *Mathematical Population Studies, 10*(1), 21–39.

Zavratnik Zimic, S. (2004). Slovenia: The perspective of a country on the 'Schengen periphery'. In *Migration trends in selected EU applicant countries* (Vol. VI). Vienna: IOM.

Zienkowski, L. (2001). Ekonomiczne aspekty swobodnego przepływu pracowników w rozszerzonej Unii Europejskiej [Economic aspects of the free flow of workers in the enlarged European Union]. In Andrzej Stępniak (Ed.), *Swobodny przepływ pracowników w kontekście wejścia Polski do Unii Europejskiej*, "Zrozumieć negocjacje" (pp. 99–126). Warsaw: UKIE.

Zlotnik, H. (1992). Empirical identification of international migration systems. In M. Kritz, L. L. Lim, & H. Zlotnik (Eds.), *International migration systems: A global approach* (pp. 19–40). Oxford: Clarendon Press.

Zlotnik, H. (1998, June 25–27). *The theories of international migration*. Conference on international migration: Challenges for European populations, Bari.

Zolberg, A. R. (1981). International migrations in political perspective. In M. Kritz, C. B. Keely, & S. M. Tomasi (Eds.), *Global trends in migration: Theory and research on international population movements* (pp. 3–27). New York: Center for Migration Studies, Staten Island.

Zolberg, A. (1989). The next waves: Migration theory for a changing word. *International Migration Review, 23*(3), 403–430.

Zoubanov, A. (2000, October 16–18). *Population ageing and population decline: Government views and policies.* Paper presented at the Expert Group Meeting on Policy Responses to Population Ageing and Population Decline, United Nations Population Division, New York.

Index

M. Kupiszewski (ed.), *International Migration and the Future of Populations and Labour Force Resources in Europe*, The Springer Series on Demographic Methods and Population Analysis 32, DOI 10.1007/978-90-481-8948-9,