Population Change in Europe, the Middle-East and North Africa

Beyond the Demographic Divide

Edited by
**KOENRAAD MATTHIJS, KAREL NEELS,
CHRISTIANE TIMMERMAN,
JACQUES HAERS, AND SARA MELS**

POPULATION CHANGE IN EUROPE, THE MIDDLE-EAST AND NORTH AFRICA

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List of Acronyms

ADI	Alzheimer's Disease International
AKP	Adalet ve Kalkınma Partisi (Justice and Development Party)
AOW	Algemene Ouderdomswet (universal state pension system in The Netherlands)
APC	Age, period and cohort
CEE	Central and Eastern Europe (Bulgaria, Estonia, Hungary, Poland, Russia, Slovenia, Slovak Republic, Ukraine)
CELLO	Centre for Longitudinal and Life Course Studies (of the University of Antwerp)
CeMIS	Centre for Migration and Integration Studies (of the University of Antwerp)
CFPI	Consumer Food Price Index
CFR	Completed Fertility Rates
CL	Civil Liberties
CPI	Consumer Price Index
CVD	Cardiovascular Disease
DFID	Department for International Development (United Kingdom)
EOLSS	Encyclopedia of Life Support Systems (Oxford)
ESS	European Social Survey
EU	European Union
FAO	Food and Agricultural Organization
FFPI	International Food Price Index (of FAO)
FRG	Federal Republic of Germany
FWO	Fonds voor Wetenschappelijk Onderzoek Vlaanderen (Research Foundation Flanders)
GCC	Gulf Cooperation Council (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates)
GDP	Gross Domestic Product
GDR	German Democratic Republic
GIEWS	Global Information and Early Warning System on Food and Agriculture
GNP	Gross National Product
HDI	Human Development Index
HIV/AIDS	Human immunodeficiency virus infection/acquired immunodeficiency syndrome
IIASA	International Institute for Applied Systems Analysis
ILO	International Labour Organization

IMF	International Monetary Fund
INED	Institut National Etudes Démographiques (French National Institute for Demographic Studies)
IOM	International Organization for Migration
IUD	Intra-Uterine Device
KILM	Key Indicator of the Labour Market
KNAW	Koninklijke Nederlandse Academie van Wetenschappen (Royal Netherlands Academy of Arts and Sciences)
LFS	Labour Force Survey
MA	Median Age
MPIDR	Max Planck Institute for Demographic Research
NAME	North Africa and the Middle Eastern Region
NATO	North Atlantic Treaty Organization
NBER	National Bureau of Economic Research
NCD	Non-Communicable Diseases
NIDI	Netherlands Interdisciplinary Demographic Institute
NL	The Netherlands
NO	Norway
OECD	Organization for Economic Co-operation and Development
ONS	Office for National Statistics (United Kingdom)
PAA	Population Association of America
PAYG	Pay-as-you-go (pension schemes)
PPP	Purchasing Power Parity
PR	Political Rights
PT	Portugal
PTC	Pass-through coefficient
PwC	PricewaterhouseCoopers
RCN	Royal College of Nursing
RDC	République Démocratique du Congo
RWA	Ready, willing and able
SMAM	Singulate mean ages at marriage
TFR	Total (Period) Fertility Rate
UAE	United Arab Emirates
UCSIA	Universitair Centrum Sint-Ignatius Antwerpen
UK	United Kingdom
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNPD	United Nations Population Division
UNWTO	United Nations World Tourism Organization
UR	Unemployment Rates

US	United States (of America)
USA	United States of America
USCB	United States Census Bureau
USE	Utrecht University School of Economics
USSR	Soyuz Sovetskikh Sotsialisticheskikh Respublik (Union of Soviet Socialist Republics)
WEO	World Economic Outlook
WHO	World Health Organization

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Introduction¹

Koenraad Matthijs, Karel Neels, Christiane Timmerman,
Jacques Haers and Sara Mels

Over the past decades, European countries have witnessed profound changes in population trends. In the mid-1960s, in most European countries, people entered into marriages, and to a lesser extent unions, at early ages. The proportion of the population never entering a union (married or unmarried) was at a historical low level. Marriage was quickly followed by the birth of a first child. Nearly universal parenthood and frequent progression to second, but also third and higher-order births kept fertility well above the replacement level. Although less pronounced than in the US, many European countries witnessed a baby boom, producing large cohorts of new-borns between 1945 and the mid-1960s.

The demographic regime in Northern and Western Europe changed dramatically in a period of less than two decades. By the end of the 1960s, a sharp decline in third and higher-order births – following the growing use of efficient contraceptives since the early 1960s – had brought fertility levels down to replacement level (2.07 births per woman in Europe). The growing fertility postponement in the early 1970s – reflecting the increasing enrolment of younger generations in education, at a time when prospects in the labour market deteriorated – gave rise to an era of sub-replacement fertility, with period fertility levels being pushed well below the replacement level. These same trends subsequently shifted to Southern Europe, and, after 1990, to Central and Eastern European countries. The low fertility levels recorded in the latter countries – often below 1.3 children per woman – gave rise to the new notion of ‘lowest low fertility’ to mark this unprecedented trend. The rapid and sustained decline of fertility in Europe leaves its imprint on the age structure of European populations. The large cohorts born in the 1960s have been followed by (much) smaller cohorts born since the early 1970s. This poses new challenges to European societies. Increasing life expectancy among the older generation fuels a process of rapid population ageing, to a large extent the consequence of fertility decline.

The decline of fertility in Europe has increasingly shifted attention to the importance of international immigration from other continents as a key component

1 The idea of the book emerged out of an academic workshop on *Population Change and Europe: Thinking Beyond the Demographic Divide*, organized by the University Centre Saint Ignatius Antwerp (UCSIA) in Antwerp on May 9–11, 2012 (<http://www.ucsia.org>). It convened a multidisciplinary group of about 25 international scholars.

of population dynamics in Europe. As a result of fertility decline, the impact of a natural increase on the growth of European populations weakened. In 2003, Europe's population increased by approximately 1.9 million inhabitants, the result of a positive net migration of about two million people, and a negative natural growth of 63,000 inhabitants (Council of Europe 2005). Migration to Europe increased through 2007 and has subsequently stalled, presumably as a result of the deteriorating economic situation in Europe. These immigration streams and the significant shifts in ethnic composition that have accompanied them (Lesthaeghe 2010) constitute Europe's third demographic transition (Coleman 2006), a transition that has brought migration policy and consequences of the emerging multi-ethnic populations to the forefront of Europe politics.

Whereas Europe's demographic regime is characterized by population ageing and slow growth largely carried by immigration, countries in North Africa and the Middle East – that provide a sizeable share of the immigrants to Europe (Eurostat 2012) – experience contrasting demographic regimes. These countries are, or have been until recently, characterized by high fertility levels and a young age structure. At the same time, these countries have enjoyed a less favourable economic and political outlook than many countries in the EU. The combination of a young age structure and limited economic opportunities as well as a rather unstable socio-democratic environment have typically produced powerful push factors for international migration. Accordingly, the North African and the Middle Eastern (NAME) region offers a fascinating case of the interactions between demographic evolutions and the impact of local/national levels of development on emigration and immigration flows. The social changes and political transformations, which have been building up in the region for a long time – the so-called Arab spring being the culmination – make the NAME-region an especially interesting test case for demographic theories. International migration is central to the understanding of the dynamics within this region. For example, in 2010 a Gallup survey of 350,000 adults in 148 countries showed that while worldwide about 15 per cent of the world's adults say they would like to move to another country permanently (Esipova and Ray 2011), this proportion increases to 26 per cent in North African countries. Further, among those planning to migrate to another country in the next 12 months, 53 per cent of the interviewees reported to be making the actual preparations to move. On the other hand, the NAME-region is also becoming an important region of transit and destination for migrants coming from southern and east Africa (Musette et al. 2006, 2007; Boubakri 2007; de Haas 2007; Berriane and Aderghal 2008). Moreover, in North Africa, as elsewhere in the world, we see a steady feminization of international migration (Boubakri 2010). Recent studies indicate that from these regions, more women tend to emigrate on the basis of own plans, instead of just following family members' migration decisions (Timmerman et al. 2012).

Traditionally considered 'transit migrants' on their way to Europe, many settle temporarily to work and save up money for the onward journey, and to some extent that temporary settlement in North Africa and the Middle East has become

the rule rather than the exception. In addition, a considerable proportion of the migrants, who fail to reach Europe, prefer to settle on a long term basis in North Africa and the Middle East, rather than to return to their poorer and more unstable home countries (Berriane and Aderghal 2008; Collyer and de Haas 2012). In light of the on-going EU crisis, particularly in several southern European countries, North Africa has become an acceptable alternative.

Demographic changes are clearly linked to changes in transnational mobility patterns. This phenomenon is well described in the transition migration theories that challenge the basic assumption of equilibrium models, namely that people in the poorest regions are most likely to migrate to regions with the highest wages. Instead, transition theory identified various stages in demographic transitions, each linked with a phase in state formation, and of course, a distinct type of mobility. However, transitional theories themselves have been criticized as 'largely post-hoc generalizations of empirically observed regularities between demographic and economic transitions on the one hand and migration patterns on the other' (de Haas 2010, 12). Within these theories the concept of agency is totally absent. Macro-categories of migration do not invite the analysis of individual motives that trigger migration, or of potential barriers impeding it. Building further on these insights, it is assumed that when levels of development rise – a process embodied in social transformations, political emancipation and economic progress – the migration rate will also rise, although the emigration rate will grow a great deal faster than the immigration rate.

Current demographic trends raise new questions, challenges and controversies. In this publication, the contributors address contrasting demographic trends in Europe and the NAME-region, i.e. North Africa and the Middle East. The aim is to demonstrate how demographic change interacts with changing economic landscapes, social distinctions and political realities. A variety of drivers contribute to demographic change in the various regions and countries considered, such as family policies, economic realities, the impact of educational differentials and the attitudes towards marriage. On the macro-level the new trends are restructuring the age composition of populations and are reshaping the life courses of individuals and families. In turn, demographic forces impact on the organization of labour markets, on fiscal policies, on the care of the elderly, on migration flows and on political changes that can be quite radical.

The contributions for this volume are divided into three main parts, which focus on (i) population change in Europe, (ii) demographic developments in the NAME-countries, and (iii) possibilities and pathways for migration policies in Europe. Although each contribution to this volume highlights a specific case or particular demographic issues in various countries, the volume as a whole sketches a comprehensive picture of diverging trends, with regionally a-synchronic demographic transitions emerging as an important feature. A wide variety of different drivers of population change can be observed, and although similar demographic evolutions have taken place in the various geographical regions, they have often occurred at different moments in history. These divergences create

social differentials and modify the dynamics of socio-economic realities and political opportunities, resulting in complex migratory flows or the will for radical political change.

The volume provides food for thought for those who are looking for a nuanced perspective on the background and future perspectives of demographic developments in Europe, for a discussion of recent demographic and political realities in the NAME countries, and for those who analyse the effects of contrasting demographic regimes on migration flows to and migration politics in Europe. Students may benefit from the exposure to the theoretical frameworks and contemporary methods of demographic research. Policy-makers may appreciate the variety of perspectives on political challenges for the future.

Content

In the first part of the volume, contributions by Frans Willekens, Jonas Wood et al., and Olivier Thévenon examine demographic change and population policies in Europe. Willekens provides an overview of demographic trends on a global scale, thereby situating population change in Europe from a larger perspective. Since 1800 the world population has already increased by a factor of seven. The growth continues but its rate is declining. The population reached one billion at the beginning of the nineteenth century, 3 billion in 1960, 6 billion in 1999 and 7 billion in 2011. This overall picture masks large differences. In Europe the growth rate has been low since 1950 and fell to zero at the end of the twentieth century. As noted above, more recent increases are attributable to migration. In Asia and Latin America the rate has declined rapidly from 2.5 per cent in 1960 to about 1 per cent today. It remains high in Africa, well over 2 per cent, but is also expected to decline. These diverging trends have created a demographic divide between countries with rapidly growing populations and those with stagnant or declining populations. The figures not only mask large differences between countries, but also between socio-economic groups. Willekens tackles the question of how these changes and differentials can be explained. Population change is the outcome of mortality, fertility and migration. The human desire for a long and fulfilling life is the main driver of demographic processes. Throughout history, the majority of humans tried to postpone death, to prevent the children they could not afford, and to find a good place to raise their children. Science and technology provided the instruments to control demographic processes, but the use of these instruments was conditioned by economic and social change. In several cases, governments and civil society, such as religious groups, have facilitated or inhibited the human desire for a long and fulfilling life and the dissemination of the means to accomplish that goal.

Wood, Vergauwen and Neels draw attention to the regional diversity of trends in Europe and focus on patterns of family formation in Eastern Europe. Throughout the twentieth century economic recessions have raised interest in

the effects of the economic context on fertility. Wood and Neels study the delays in transition to parenthood in Eastern-European countries after 1990, in light of increasing enrolment in tertiary education and the deteriorating economic context between 1992 and 1997. After 1989, many Eastern European countries witnessed a dramatic economic crisis with steeply rising price indices until 1999. During the transition to a market economy, the demand for highly skilled employees rose, and high unemployment levels were found especially amongst young adults. For this group, the unfavourable economic conditions and higher returns on education are incentives to invest in education and delay family formation. The analysis uses individual-level data from the Generations and Gender Surveys conducted in several Eastern European countries in the early 2000s. Multilevel discrete-time event history analyses are applied to model the impact of individual-level educational characteristics and macro-level contextual variables on first birth hazards. The research uses the wholesale price index as an indicator of macro-economic conditions because it has the advantage of closely mirroring prices paid by consumers. Results show significant variation in first birth hazards between 1970 and 2003 for younger age groups, especially after the fall of communism. This decline in first births is closely linked with the educational expansion after 1989. When evaluating educational differentials in first childbearing behaviour between 1970–2003, we see that the educational differences seem to re-emerge after 1991 as first births among the higher educated drop dramatically, and that the negative educational gradient in younger age groups grew stronger after 1990, indicating accelerating postponement in this period. Based on the results, the authors draw parallels between the emergence of lowest low fertility in Eastern Europe and the emergence of subreplacement fertility in North Western European countries in the 1970s and 1980s.

Thévenon addresses the decline of fertility in Europe and focuses on fertility trends and family policies in OECD countries. In light of the recent reversal of fertility trends in several highly developed countries, he investigates the impact of economic development and its components on fertility in 28 OECD countries from 1960 to 2007. He finds an inverse J-shaped association between GDP per capita and the total fertility rate (i.e. a negative relation between those two variables for low GDP per capita that turns into a positive relation once a country's GDP per capita has passed a certain threshold level). This result complements a recent finding of Myrskylä, Kohler and Billari (2009) who found such an inverse J-shaped association between a composite human development index and fertility in countries of the world economy. Thévenon argues that economic development is likely to induce a fertility increase, but is not sufficient to lift fertility to a significantly higher level in all OECD countries. By decomposing GDP per capita into several components, he also identifies female employment as a factor for increases in fertility in highly developed countries. Thus the compatibility of childbearing with female employment emerges as a key factor for an increase in fertility rates. This finding suggests that the existence of institutions allowing parents to combine working activities with childrearing plays an important role for

fertility. In sum, increase in fertility is likely to be small if economic development is not accompanied by institutional changes that improve parents' opportunities to combine gainful employment with family life. Thévenon also discusses the impact of different family policy settings on fertility, using data that span the years 1982 to 2007. The results confirm that each instrument of the family policy package (paid leave, childcare services and financial transfers) has a positive influence, suggesting that the addition of these supports for working parents in a continuum from early childhood is likely to facilitate parents' decision to have children. However these various policy levers do not have equal impact: in-cash benefits covering childhood after the year of childbirth and the coverage of childcare services for children under age three have a larger potential influence on fertility than leave entitlements and benefits granted around childbirth. At given rates of female employment, the extension of childcare service coverage is shown to positively influence fertility trends.

In Part II of the volume, contributions by Paul Puschmann and Koen Matthijs, Richard Cincotta, and Youssef Courbage and Paul Puschmann look into demographic trends in the NAME-countries, as well as their implications for political stability and patterns of (international) migration. Puschmann and Matthijs describe the main demographic changes in the Arab world since the middle of the nineteenth century and compare them with the first and second demographic transition in Europe. They argue that the demographic transition in the Arab World has a double face, as fertility decline in the Arab World is not only driven by birth control within marriage (as was the case in Europe during the first demographic transition), but also by nuptiality decline, i.e. rising singulate mean ages at marriage. According to Puschmann and Matthijs marriage change in the Arab world explains to a considerable degree differences in the demographic transition between Europe and the NAME-region. As a result of rising ages at marriage, the population explosion in the Arab world is quickly coming to an end. This opens up new opportunities, as countries in the region will be better able to balance population growth to its resources and to limit the region's ecological footprint. As such, the demographic divide between Europe and the Arab world is shrinking. At the same time marriage and fertility decline have a positive impact on the bargaining power of women. On the other hand, the demographic transition creates new challenges. As a consequence of high-speed fertility decline, the population of the Arab World is quickly ageing, and this will be reinforced during the coming decades. Moreover, rising ages at first marriage do cause all kind of tensions, both within families, and in society at large. Finally, it is argued that marriage change is a root cause of the Arab Spring.

In March 2008, in an essay published in the journal *Foreign Policy*, Cincotta used a simple demographic model to identify two groups of contiguous states in which there was a high likelihood of the emergence of at least 'one, maybe two liberal democracies' (states rated as 'free' in Freedom House's annual assessment) between 2010 and 2020. One of these groups included the five coastal states of North Africa. UN demographers projected that by 2020, the median age of each

of these countries (Tunisia, Morocco, Algeria, Libya and Egypt) would mature to between 25 and 35 years – a demographic period that has been associated with about a 50 per cent likelihood of liberal democracy. While the forecast of ‘one, maybe two liberal democracies’ has yet to be realized, the first step toward democratization, the removal of the authoritarian head of state, is a *fait accompli* in three of the region’s states – in Tunisia, Egypt and Libya. And, despite tensions playing out between Tunisia’s Salafists and opposing secular and traditional Muslims, the country’s Jasmine Revolution remains, for the time being, on track. Cincotta’s chapter outlines an age-structural theory of democratization. From this perspective he discusses the expectations – as well as the uncertainties – regarding continued political liberalization, and the possibilities for political violence, in the states of the NAME-region from now until 2030. He hypothesizes where observers of the region’s politics should expect high levels of political liberalization, and where they should not, and draws out the implications of this pattern of political change and stasis. Cincotta reflects on what these forecasts, if realized, could mean for European relations with states within the NAME-region, and discusses what these political trends might signify for European Muslims.

Youssef Courbage and Paul Puschmann’s contribution shows how the demographic transition, in its broadest sense a universal phenomenon, has now encompassed the Arab (and Muslim) world. Courbage and Puschmann go beyond descriptive demography to include politics, particularly with an eye on the recent Arab upheavals. This sort of connection between literacy, demography and politics is not a recent discovery. For example, the British historian Lawrence Stone, had already established a link between education and revolution in another setting. He did so in a book published by pure coincidence one year after the May Revolution of 1968. His main finding is that when a population reaches the threshold of 50 per cent literacy among young males, political troubles are likely to ensue. Hence, the trend towards increasing education has been, is still, and will remain an element of social disruption. But disruption will not last forever. Courbage and Puschmann argue that it is possible to anticipate a more serene future. Countries of the NAME-region have now entered in a process of demographic convergence with the developed world. Thus, it inaugurates an era where the youth bulge is declining while the ageing of the population is not yet accelerating. The potential advantages of this emerging demographic dividend in the Arab world and the region are immense, from an economic viewpoint. Yet the most important outcomes may be extra-economic, particularly in the political realm.

Part III of the volume is on pathways for policy. Marga Peeters and Loek Groot argue that on top of the debt crisis in the European Union, demographic change, in particular population ageing, is exerting enormous pressure on public finances. They examine the potential role of immigration for maintaining fiscal stability in the EU-region, vis-à-vis alternative policies that would focus on lowering pension benefits, general increases in labour market participation, and labour market participation of older age groups. Their analyses of the implications of these policy options for 21 EU-countries show that the most publically indebted

EU-economies face the highest increases in public spending on the retiring baby boom generations over the coming decades. Fortunately, for these economies, it turns out that they can more easily adjust their labour market participation than their neighbouring economies.

The contributions by Vincent Corluy and Gerlinde Verbist, and by Ronald Skeldon raise additional considerations for migration policies. Corluy and Verbist underline that recent studies have shown that rising employment levels in Europe have failed to generate the reduced relative poverty rates initially hoped for. In most countries where employment rates increased strongly (surpassing in some cases the Lisbon target), relative poverty rates increased or remained stagnant. A major factor is that a one-to-one relationship between individual employment rates and household-based poverty rates is often absent. Therefore, it is important to link a household's poverty status with its household's work-intensity. Remarkably, the precarious position of immigrants is neglected in this debate of EU-2020 objectives. This neglect is surprising, given the fact that immigrants have high levels of joblessness (both at individual and household level) and are overrepresented at the bottom of the income distribution. Corluy and Verbist investigate the link between low work-intensity and poverty for migrant households, using data from the European Labour Force Survey. They try to distinguish the determinants of this precarious position, focusing on the role of family composition among immigrant households. Compared to natives, the household composition of non-European immigrants is more orientated towards single adult households and larger households. Moreover, with the presence of children in the household, immigrant women tend to stop working much more often than native women do. This gender dimension is particularly salient. The authors analyse how these patterns determine household work intensity, and thus determine household income position. By disaggregating households according to their work intensity, gender, age and the educational profile of their members, they seek to understand the divergent realities between immigrants and native households. Comparing these differences may shed a light on the social uncertainty that joblessness creates and offer insight on social policy measures that can limit excess joblessness among immigrant groups.

In the final chapter, Ronald Skeldon examines four key challenges with respect to international migration facing Europe between now and 2050. The common assumption is that Europe is facing a crisis of migration and that too many people will try to enter from the global South, challenging both its economy and its cultural integrity. While it is almost certainly correct that migration will bring future challenges, Skeldon argues that they may not take the form that many expect. First, finding the labour force that Europe, and particularly Western and Southern Europe, will need, may prove more difficult than anticipated. The emergence of new nodes of attraction for migrants in the European periphery will be an important consideration in this regard. Second, Europe will need to move from a region that needs labour to a region that wants migrants, seeing migrants

as part of state building. This will challenge both indigenous and immigrant populations as national tensions between European states are reinforced by trans-regional tensions. Third, the complex articulation of migration and development is addressed: Can Europe selectively seek out migrants without prejudicing the development prospects of the main areas of origin of migration? Will Europe be a cause of brain drain or a support of brain circulation and development? Finally, and perhaps most crucially, Europe will have to live in a world where the centres of global dynamism have shifted to Asia and to the dominance of trans-Pacific rather than trans-Atlantic relations. The challenge of the future development of China and India on global migration is considered from the perspective of Europe and its possible impact on population movement to that continent.

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PART I

Population Change in Europe

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Chapter 1

Demographic Transitions in Europe and the World

Frans Willekens

Introduction

The world population continues to grow but the rate is declining. The population reached one billion at the beginning of the nineteenth century, 3 billion in 1960, 6 billion in 1999 and 7 billion in October 2011. The United Nations expects that the world population will reach 10 billion around the turn of the century. For centuries, the population growth rate was low, less than one tenth of a percentage per year. The situation changed in the nineteenth century (in France in the eighteenth century). The population growth rate started to increase because children were more likely to survive and women continued to have many children. The rate of growth reached a maximum of over 2 per cent in the early 1960s and has been declining since. Today it is 1.2 per cent and the United Nations expects the rate to reach 0 per cent around 2100. At that time world population growth comes to an end.¹

This overall picture masks large differences. In Europe the growth rate has been low since 1950 and fell to zero at the end of the twentieth century. It increased afterwards because of migration. In Asia and Latin America the rate declined rapidly from 2.5 per cent in 1960 to about 1 per cent today. The rate remains high in Africa, well over 2 per cent, but is expected to decline too. These diverging trends have created a demographic divide between countries with rapidly growing populations and those with stagnant or declining populations. The regional figures mask large differences between countries and between socio-economic groups. More educated people have fewer children. The Demographic and Health Survey for Ethiopia revealed that women without any formal education have on average six children, whereas those with at least secondary education have two children.² More educated women generally marry later and less, use contraception more effectively, have more knowledge about and access to contraception, have greater autonomy in reproductive decision making and are more motivated to implement demand because the opportunity costs of unintended childbearing are higher

1 Based on the 2010 Revision of the World Population Prospects, which was available at time of writing of this contribution.

2 <http://ethiopia.unfpa.org/drive/Fertility.pdf>. Accessed 18 April 2012.

(Bongaarts 2010). They also have higher aspirations for their children. Better-educated persons also live longer and are healthier. Their children are less likely to die in infancy or childhood. A baby born to a Bolivian mother with no education has 10 per cent chance of dying during the first year of life, while one born to a woman with at least secondary education has a chance of 4 per cent (World Health Organization 2008, 29).

About 3 per cent of the world population of 7 billion (214 million people) lives in a country different from the country of birth (IOM World Migration Report 2010). The proportion remained remarkably stable over the recent years, increasing only slightly from 2.9 per cent in the 1990s. Because of population growth, the size of the foreign-born population increased. In Europe and Northern America the proportion of the foreign-born population increased substantially from 6.9 per cent in 1990 to 9.5 per cent in 2010 in Europe³ and from 9.8 per cent to 14.2 per cent in Northern America. In Africa it declined from 2.5 per cent to 1.9 per cent. In Asia and Oceania it remained stable around 1.5 per cent and 1.6 per cent, respectively.

How can we explain these changes and differentials? Population change is the outcome of mortality, fertility and migration. The human desire for a long and fulfilling life is the main driver of demographic processes. Throughout history, the majority of humans tried to postpone death, to prevent the children they could not afford and to find a good place to raise their children. Science and technology provided the instruments to control demographic processes but the use of these instruments was conditioned by economic and social change. In several cases governments and civil society, such as religious groups, have facilitated or inhibited the human desire for a long and fulfilling life and the dissemination of the means to accomplish that goal.

The structure of the chapter is as follows. In the following section, I describe the features the three demographic processes have in common. The mortality transition is covered on p. 20ff, the fertility transition on p. 28ff and the migration transition on p. 31ff. In the conclusion I discuss consequences and some policy implications of the mortality and fertility changes in Europe.

Demographic Transitions: Common Features

Figure 1.1 shows global observed and expected demographic change between 1950 and 2100. In the early period, both the birth rate and the death rate decline. The birth rate is considerably higher than the death rate because, by 1950, large families were still a norm in many parts of the world, whereas infectious disease was not the killer it used to be in the nineteenth century and the first part of the twentieth century. Today low fertility is a fact in many countries of the world. Most couples prefer small families and a considerable proportion remains childless. The

3 Europe is the region defined by the United Nations. It includes the EU27, Switzerland, Norway, Russia, Belarus, Moldova, Ukraine and a number of smaller countries.

United Nations does not believe that in large parts of the world, fertility below replacement level is a long-term trend. Replacement fertility is considered more realistic. For a long period, the declining infant and child mortality determined the trend in the death rate. The recent increase in the death rate and the future increase are associated with an ageing population. An old population has a larger death rate than a young population.

Figure 1.1 World birth rate, death rate and population growth rate (left y-axis), and world population (right y-axis)

Source: United Nations (2011).

The fertility transition and the mortality transition start much earlier in some parts of the world than in other parts and the paces of the transitions differ significantly. As a consequence, population growth varies greatly between regions of the world (Figure 1.2).

Figure 1.2 Population of the world and selected regions (in million), 1950–2100

Source: United Nations (2011).

The processes that underlie demographic transitions are intertwined with science and technology, the economy, cultural change and social and political processes. Some events, such as scientific discoveries, social revolutions, epidemics and natural or man-made disaster, trigger processes that have potentially large impacts on fertility, mortality or migration. ‘Potentially’, because of intermediate factors. Innovations in science and technology have no effect on demographic processes unless humans are ready and willing to adopt the products of that innovation. Three preconditions need to be met for people to change their behaviour. First, people should be aware that they can influence the processes that affect them. They should have sufficient self-efficacy, i.e. the belief that they can succeed when they make an effort. If they believe that success is up to God or another authority, they are less likely to do things differently than their

predecessors and their contemporaries. Second, intervention must be perceived to be advantageous. People should benefit from taking control over processes. Third, they should have the instruments to exercise control. In the 1970s Ansley Coale formulated these preconditions, which he labelled *ready, willing and able (RWA)*. The context was marital fertility decline, but the preconditions are applicable in other areas as well. People increase their control over fertility, mortality and migration if they are ready, willing and able to do so.

The effects of science and technology and the other factors depend not only on *how* persons respond to opportunities for change, but also on *how many* people respond. If only a few people are ready, willing and able to change their behaviour, the population remains unaffected. If many change, the entire population changes. Demographic change is a diffusion process. The select few that initially are ready, willing and able to take control over birth, death and where they want to live, do not trigger a population change unless they have sufficient followers. When the followers exceed a given proportion of the population, spreading is irreversible, although it may take time. Coale, in a study with Watkins, found that if 20 per cent of the population uses modern contraceptives to control their fertility, the diffusion of contraceptive use becomes irreversible (Coale and Watkins 1986). Demographers used that finding to model the fertility transition (e.g. Hilderink 2000).

Population growth and decline, and ageing are outcomes of mortality, fertility and migration processes. Population growth is a consequence of declining mortality and high fertility. Ageing is a consequence of declining mortality and declining fertility. Migration has some effect, but not much. It may affect how fast a population ages, but not that it ages.

Transitions in mortality, fertility and migration have several common features:

- a. *Micro-foundation*. Populations change because individual persons give birth, migrate and die. Individuals are the actors. In order to fully comprehend population change, we should understand why some people die prematurely while other people reach old age; why some women get pregnant and give birth at a young age, why other women postpone or have no children at all; and why some people travel long distances to start a new life while other people never leave their place of birth.
- b. *Embeddedness*. The demographic processes are embedded in a context or environment; they are situated in time and space. The significance of the historical, cultural and political contexts for the demographic transition illustrates the significance of embeddedness. Processes interact with the context, i.e. influence the context and are influenced by it. The context of demographic processes consists of multiple levels. The first is the individual life course. Childbearing, migration and death are life events that may be triggered by other events in the life course or may be enhanced or inhibited by personal and situational factors. Some triggering events are situated early in life. Life-course factors include genetic predispositions,

early-life experiences, occupational status and occupational career, level of education, place of residence and migration career, marital status and marital career, employment status and employment career, etc. For instance the low fertility in Europe cannot be understood without insight in partnerships and strategies to balance work and family life. Changes in mortality from chronic diseases cannot be understood unless lifestyle (e.g. smoking) is considered. Migration is an instrumental behaviour, which can be understood only in relation to other life events. Marriage migration is different from family reunion and employment migration. The second level is the household. Household members exert strong social influence on each other. Some decisions, e.g. migration, are usually made at the household level. Other decisions are influenced by household characteristics. For instance, in societies with a strong son preference, the likelihood of another child depends on the sex of children in the household. If a second or third child is seriously discouraged, such as in China, and ultrasound is available and affordable, the sex of the foetus can be determined and sex-selective abortion may be practiced. The third level is the community or area. Community variables include access to family planning services and health centres, sanitation, educational facilities, etc. Area characteristics include physical characteristics (e.g. to explain environmental migration), social, economic, cultural and political characteristics. The fourth level is the country. Legislation, administrative regulations, welfare regimes and policies affect demographic processes. They enable, enhance, prevent or inhibit processes. For instance, the high fertility in Sweden relative to that in other countries of Europe is attributed to policy measures supporting gender equality. In France it is the availability and affordability of child care. The fifth level is the supra-national level, consisting of groups of countries (e.g. European Union) or organizations at the global level (e.g. United Nations, World Bank, Population Council, Bill and Melinda Gates Foundation, the International Organization for Migration). The embeddedness is illustrated in the many studies that view demographic transitions as part of larger transformations in society pointing at the influence of industrialization, urbanization and secularization in the early stages of the fertility transition in Europe and individualization in the later stages of the transition.

- c. *Path dependence.* The outcome of a process depends not only on current conditions, but also on the history and the dynamics of the process. A number of mechanisms exist that produce path dependence. (i) Events during early stages of the process may have long-term consequences. For instance, the dominant method of birth control in early stages of the fertility transition may remain the dominant method for a long time. Examples include abortion in Russia, sterilization in India and condoms in Japan. Adoption of these dominant methods in these countries is related to particular conditions, actors or policies during the very first stages of

the transition and positive feedback mechanisms that reinforce practices adopted during early stages (Arthur 1989). (ii) During the evolution of a process, institutions (including rules and organizations) may emerge or be established to facilitate, inhibit or monitor the process. Reproductive health programmes and border control policies are examples of such institutions, affecting fertility and migration, respectively. Institutions are usually context-specific. Feedback between individual behaviour and the evolving institutions induces path-dependent transitions. (iii) The transition processes depend on social interaction. Styles of communication in social networks and media vary greatly in time and space. The dynamics that result from the interaction influences the outcome of the process (for a discussion, see Kohler 1997).

- d. *Transition is a diffusion process.* The demographic transition from high to low fertility and mortality and low to high migration involves the transmission of innovative attitudes (about the family, the need to live a healthy life, emigration) and behaviour (e.g., birth control method use, personal hygiene, physical exercise) from some individuals to others. The diffusion of innovation has much in common with the spread of infections and epidemics. Travel and migration are important factors in the spatial (geographic) diffusion. For instance, trade played an important role in the spread of the Black Death in the fourteenth century and migration played an important role in the spread of HIV/AIDS in sub-Saharan Africa. In demography the study of diffusion mechanisms is of a more recent date (see e.g. Committee on Population 1999). Ideas, opinions, attitudes and information on health and family planning practices are transmitted through communication channels. These include mass media and interpersonal communication channels. Communication is more likely to take place between individuals who frequently interact or who are similar (e.g. peers, colleagues, neighbours, etc.). The role of diffusion processes for the demographic transitions has two consequences. The first is a divergence followed by a convergence. Since some groups respond before other groups do, the divergence in a population increases. When more people respond, convergence sets in. The second is the increased response rate among newcomers. A population that starts a transition late, i.e. when other populations (e.g. other countries) are already in an advanced stage, has a higher response rate. In developing countries mortality and fertility declined more rapidly than in Europe, where the start was earlier. The reason is that newcomers have access to knowledge and instruments; they do not need to develop methods of disease control and fertility control but can rely on existing methods.
- e. *Primacy of the individual.* The demographic transitions are part of larger transformations in society. In the later stages of mortality, fertility and migration transitions, a significant feature is the primacy of the individual. Individuals get more personal autonomy in choosing the lifestyle and

life course they want but at the same time they are expected to behave responsibly while interpersonal relationships, solidarity (e.g. partnership), social institutions (e.g. marriage) and social support mechanisms (e.g. intergenerational transfers; social security) are reinterpreted. Over the years, the individual capacity to act independently and to make choices (*agency*) has increased while the role of institutions and social constructs (*structure*) declined (in relative terms). People respond to opportunity structures in their immediate and more distant environment (family, community, country, world). People also respond to what other people do. If some groups in society change ideas about family and children, about birth control, about living a healthy life or about the need to emigrate to improve living conditions, others are likely to follow and that ideational change may trickle down to all groups in society. That social interaction and the resulting diffusion of ideas represent the mechanism of social change. Since young people are more likely to adopt new ideas than old people (e.g. because of their personal opinion and peer pressure), the replacement of old cohort by new cohorts enhances social change (Ryder 1965). A population is composed of individuals, stratified by cohort or generation. Individuals born during a same period encounter major new opportunities and constraints in technology, economics or politics during the same stages of life and, as a consequence, their lives are shaped in similar ways.

The Mortality Transition

Mortality decline is one of the major achievements of civilization. One hundred and fifty years ago, 25 to 30 per cent of the children died of infections and other causes before the age of 5; today it is less than 1 per cent. Life expectancy was around 40. Those who survived to age 5 had a life expectancy of 50 years. Today, in Europe (EU27), less than one per cent of the new-borns die before age 5 and the life expectancy is 79 years, 76 for males and 82 for females (2009 figures). In Europe the mortality decline started around 1800 in France and at the end of the nineteenth century in other countries. Everywhere, the decline follows particular patterns. Initially, infant and child mortality declines and, as a consequence, adult mortality increases. Cardiovascular disease becomes the main cause of death. Smoking and food habits are important risk factors of cardiovascular diseases. If, as a result of cardiovascular risk management, the incidence of cardiovascular disease declines or treatment is successful, people get older and cancer becomes a major cause of death. In Europe, lung cancer is the dominant cancer death among men and may soon replace breast cancer as the leading cancer death among women (Malvezzi et al. 2012). When cancer is conquered and death is pushed back to very old ages, mental diseases (e.g. depression, dementia) are expected to become dominant (Meslé and Vallin 2011). The increase in life expectancy is remarkably stable. Since 1840, the ‘best practice’ life expectancy, i.e. the highest

value recorded in a single country in a given year, rose by about 2.5 years every decade for women and 2.2 years for men (Oeppen and Vaupel 2002). The leader of the league table changes almost every year, however, and leaders may enter extended periods of stagnation, as we will see.

The mortality transition describes the shift of high mortality to low mortality. That shift is characterized by the disappearance of diseases and the emergence of other diseases. In the first stage, mortality is high and erratic (fluctuates around three per thousand). Acute infectious diseases, famine, natural hazards and conflict (war) are the main causes of death. Children have a high probability of dying. Preventive measures such as safe drinking water, hygiene and vaccinations do not exist because the causes of the diseases are not known. Different cholera pandemics in the first half of the eighteenth century killed millions of people around the world. The killing stopped when in 1854 John Snow in England discovered that the infection was caused by contaminated water. That led to the preventive measures of piped drinking water, sewage treatment systems and sanitation. In the middle of the eighteenth century, mortality started to decline (Omran 2005). Several causes of infection, e.g. influenza, were discovered in the nineteenth century and preventive measures taken. As a result mortality declined further.

Today, mortality is low in the developed world, but remains high in poor countries. Many people in the world have no access to preventive measures and continue to face high mortality. Today 11 per cent of the world population has no access to drinking water and more than one third (2.5 billion people) lack access to basic sanitation. In the developing world, it is half (United Nations 2012). One in seven (13 per cent) does not have enough food and is hungry (FAO 2011). Because of these conditions mortality remains high and mortality disparity increases. In Congo (RDC) 18 per cent of the children die before the age of 5, about the same proportion as in Afghanistan. These countries are lagging behind in the demographic transition. High infant and child mortality keep life expectancy low, between 30 and 35 years. Every year, 1.5 million children under 5 die because of diarrhoea (3000 every day), 80 per cent in Africa and South Asia (UNICEF/WHO 2009). It is the second leading cause of death among children under five globally. The main cause is lack of safe drinking water, sanitation and hygiene. Some years ago, Millennium Development Goals have been formulated to reduce preventable deaths.

In Europe, the decline in infectious diseases was the main reason for mortality decline until the first half of the twentieth century. Around the mid-1960s chronic diseases replaced infectious diseases as the main causes of death (Meslé and Vallin 2011). Life expectancy was around 70 years. Cardiovascular diseases and cancer became prominent causes of death. It is interesting to note that at that time the United Nations expected the life expectancy to converge to a maximum value of 75 years. That was before the cardiovascular revolution of the 1970s. But in the 1970s cardiovascular diseases declined as a result of life-saving treatment and prevention based in new insights in risk factors. For instance, in 1980 in the United States, 40

per cent of the people with an infarction died within a year; it declined to about 5 per cent (Weisfeldt and Zieman 2007). Epidemiologic studies, such as the Framingham Heart Study, a longitudinal study that started in 1948 and continues today, established the major risk factors of high blood cholesterol levels, high blood pressure, smoking and obesity. Coronary heart disease and stroke, the two major causes of CVD-related mortality, are not influenced to the same degree by the recognized risk factors. For example, elevated blood cholesterol is a major risk factor for coronary heart disease, and hypertension is the major risk factor for stroke. Physical activity, smoking cessation, and a healthy diet, which can lower the risk for heart disease, also can help lower the risk for stroke. The effect of obesity on mortality has been a subject of extensive debate, in part as a result of an assertion by Olshansky et al., (2005) that the rise in life expectancy could come to an end and turn into a decline because of the obesity epidemic. The debate continues. Childhood obesity causes premature death (Reilly and Kelly 2011) but obesity at higher ages (e.g. age 50) seems to increase disability but not mortality (Reuser et al. 2009).

In 1970, the life expectancy in Europe (EU27) was around 70 for males and 75 for females. In 2009 it was 76 for males and 83 for females. Some countries deviate significantly from the average pattern. Progress was highest in Portugal. In 1970, it had the lowest life expectancy of Western Europe (65 for males and 70 for females). By 2009, it had reached 76 and 82 years, respectively. The reason is that in 1970 Portugal had not yet completed the second stage of the mortality transition. It still had a high infant mortality (50 per thousand, the level of India). Infant mortality declined as expected and in 2009 it reached a low 4 per thousand. Russia is another extreme. In 1970, life expectancy at birth was 63 for males and 73 for females. The female life expectancy did not change much. It increased a little (2 years) until the collapse of the Soviet Union in 1991 and then it declined until 2002 and increased afterwards. In 2009, it surpassed the level of 1991. The male life expectancy declined and reached a low of 58.5 years in 2003. Today (2010), the life expectancy did not yet recover to its 1970 level. Lifestyle, in particular heavy alcohol consumption, is a major factor in the decline. The cases of Portugal and Russia illustrate a major trend of mortality decline, which started in the mid-1960s: Western Europe and other western countries (and Japan) continued to make progress, while countries of East Europe and the former USSR experienced a long period of stagnation and even deterioration. For East Europe the stagnation ended in the 1990s, when cardiovascular diseases started to decline. Meslé and Vallin (2011) explain the differences in the rate of mortality decline by the differences in the rate of adoption of new medical technologies to treat cardiovascular diseases and new means of prevention.

Between 1970 and the end of the 1980s, life expectancy at birth in the former communist countries of CEE (Czech Republic, Hungary, Poland and Slovakia), Russia and the Baltic states (Estonia, Latvia and Lithuania) stagnated or declined. This led to an increasing gap between them and Western European countries. Within a few years of the collapse of the Iron Curtain and the Berlin wall in 1989, life expectancy started to steadily increase, first in the Czech Republic (1990)

followed by Poland, Slovakia and Hungary and much later by Romania and Bulgaria (Meslé and Vallin 2011). The rate of increase was not enough to close the divide between Western and Eastern Europe, although the Czech Republic is catching up. The reason for the lack of convergence is not clear. Leon (2011) suggests that the parallel change is the product of the diffusion of knowledge and ideas that improve public health and medical treatment. Some countries more quickly adopt new technologies and are more aggressively pursuing prevention and lifestyle change (e.g. anti-smoking campaigns, healthy nutrition).

Mortality decline in Western Europe is not uniform either. Two countries, the Netherlands and Denmark, have a deviating pattern. Around 1980, mortality in Western Europe started to diverge. Since mortality decline occurs predominantly at higher ages, life expectancy at age 65 is considered. Figure 1.3 shows the probability of surviving from to age 65 for a selection of European countries and Japan. In Japan, the survival probability increased rapidly in the 1950s and continued to increase until it levelled off in the late 1970s. In the Netherlands and Denmark, the probability of surviving to age 65 was already relatively high in 1950 but it did not increase much further, enabling other countries to catch up and surpass. In the Netherlands and Denmark, males experienced a decline in the probability of reaching 65. Figure 1.4 shows the probability that an individual of age 65 survives to age 85. Japanese women and men experienced a remarkable increase. If the 1950 mortality rates would apply, a Japanese woman of age 65 would have 20 per cent chance to survive to 85. That percentage increased, in particular since the 1970, and in 2009 it reached 70 per cent. The changes in France are similar to those in Japan, but they are less rapid. Mortality improvements in Netherlands and Denmark stagnated, first for males (period 1950–2000) and later for females (period 1975–2000).

Figure 1.5 shows the life expectancy at 65 for a selection of countries. The trend is similar to that of the probability persons of age 65 survive to age 85.

Most countries of Western Europe experienced a steady increase in life expectancy. All countries benefited from the cardiovascular revolution of the 1970s. In the Netherlands and Denmark life expectancy stagnated around 1980.⁴ In the 1950s, Denmark, the Netherlands and Sweden were world leaders in life expectancy. The stagnation puzzled scientists. The stagnation in Denmark is mainly attributed to smoking and alcohol use, although a lower investment in health care than in Sweden may also have contributed (Christensen et al. 2010). In the mid-1990s the life expectancy started to improve again. The reason for the improvement is a decreasing cardiovascular mortality. Christensen et al. attribute the shift to a decrease in smoking and alcohol use and the introduction of the ‘Heart Plan’, which allocated substantial national funding to improve cardiovascular disease treatment. In the Netherlands, smoking has also been a major reason of the stagnation (Mackenbach and Garssen 2010). The stagnation ended in 2002. Mackenbach and Garssen attribute the end or the stagnation to a more active

4 The life expectancy also stagnated in the United States.

Figure 1.3 Probability of surviving to age 65. Selected countries, by sex, 1950–2012

Source: Human Mortality Database (www.mortality.org).

approach toward the treatment of seriously ill patients, associated with increased hospital admissions and life-saving and life-prolonging treatments. The improved treatment was facilitated by a sudden rise in government spending for health care, which started in 2001 after a massive public protest against the waiting lists and other problems of access to the health care system.

What may we expect next? The United Nations expects that the global life expectancy will increase from 68 years today to 81 year at the end of the century. In Europe, it is expected to increase from 75 to 87, in Asia from 60 to 82 and in Africa from 55 to 77 (United Nations 2011). Eurostat projects an increase of life expectancy in the EU27 of 7.9 years for males (from 76.7 in 2008 to 84.6 in 2060) and 6.5 years for females (from 82.5 in 2008 to 89.1 in 2060), implying a convergence of life expectancy between males and females. Eurostat assumes that the life expectancy in the member countries of the EU will converge too. Therefore the organization assumes a larger increase in countries that currently lag behind (European Commission 2012).

The final stage of the mortality transition is characterized by a delay in the age at onset of degenerative diseases, increasing the life expectancy further. A question

Figure 1.4 Probability of surviving from age 65 to age 85. Selected countries, by sex, 1950–2012

Source: Human Mortality Database (www.mortality.org).

of growing concern is whether that increase also means a healthy life. In the EU27, the expected number of years in good health is 61.7 years for men and 62.6 years for women (Eurostat 2012; 2010 figures). At age 65, the remaining healthy life years are 8.7 years for males and 8.8 years for females. *A necessary precedent for healthy ageing is the compression of morbidity.* In 1980, Fries introduced the compression of morbidity hypothesis. It posed that the age at onset of chronic illness may be postponed more than the age at death, squeezing most of the morbidity in life into a shorter period with less lifetime disability. Fries assumed a maximum average life span of 85 years.⁵ Others emphasized the reduction in the fatality of chronic diseases. Advances in medical technology and public health are geared to keep people with a chronic condition alive. As a result, people would live longer in ill-health and/or with an impairment. The debate continues. For a number of

⁵ Later, he clarified his earlier statement and stated that increases in life expectancy do not need to slow or to stop for compression of morbidity to occur. It is the relative rate of increase in morbidity rates and in mortality rates that is the important metric (Fries et al., 2011).

Figure 1.5 Life expectancy at age 65. Selected countries, by sex, 1950–2012

Source: Human Mortality Database (www.mortality.org).

reasons, it remains difficult to establish the presence or absence of compression of morbidity. First, health status is usually self-reported and reporting varies in time and space. Second, it is necessary to distinguish between ill-health and disability. A person with a chronic condition, e.g. a heart condition, may live a normal life, provided adequate medication is available and affordable. Third, disability, which is emerging as the more important concept, depends on the availability of social support and other means to overcome the disability.

Epidemiological research reveals important inequalities in health and mortality. The inequalities are masked by population figures. Risk factors (in particular smoking and obesity) and socio-economic characteristics (in particular education) are important for health and longevity. For example, in the Netherlands, females

and males in households with a disposable income per person of less than 14,000 euros (in 2006) (low income) have a life expectancy that is 7 years lower than those in households with a disposable income per person that exceeds 28,000 euro (high income). In addition, they live 18 years less in good health and the difference in years without disability is 14 years (Knoops and van den Brakel 2010). Among men in the low income category, the age at onset of disability is 62 on average. It is 76 for men in the highest income category. For women, the figures are 61 and 75. High socio-economic inequalities in mortality persist and even increased in several countries of West Europe (Mackenbach et al. 2003). Reducing socioeconomic inequalities in mortality critically depends upon speeding up mortality declines from cardiovascular diseases and other causes of death in lower socioeconomic groups. Recently, Kibele et al. (2013) found similar results for Germany: 65-year-old men with the highest pension incomes could expect to live another 20 years, while 65-year-olds with the smallest pensions could expect to enjoy less than 15 years of additional life. The average life expectancy is increasing among men of all social classes, but is rising much more slowly among men with very small pensions than among their better situated counterparts. It means that the demographic divide between the rich and the poor is increasing.

In developed countries, cardiovascular diseases are being conquered and cancers become the dominant causes of death. When medical progress pushes back the prevalence of cancer and people live to very old ages, mental disorders such as dementia may dominate. Meslé and Vallin (2010) expect a pandemic of 'mental disorders and disabilities'. Alzheimer's Disease International (ADI) estimates the number of people with dementia worldwide in 2013 at 44 million and expects an increase to 135 million in 2050. The growth will shift to low- and middle-income countries. The proportion of patients in low- and middle-income countries is expected to increase from 62 per cent in 2013 to 71 per cent in 20150 (Prince et al. 2013). Meslé and Vallin report that some countries, like Japan and France, are already fighting successfully against the emerging pandemic, while other countries like the United States and the Netherlands are not as pro-active and are likely to be affected more by the pandemic. They attribute the difference in success not to a deliberate fight against specific mental disorders, but to differences in the attention to the health of the elderly. The authors admit that there is no definitive evidence for this interpretation and their conclusion is based on the fact that the United States and the Netherlands are lagging behind the mortality decline among people aged 80 and over. Although the ageing of the population will affect the prevalence of dementia, authors are cautiously optimistic that the incidence of dementia is declining, meaning that dementia is pushed to higher ages. In some countries, including the USA, significant reductions have been reported (e.g. Manton 2005). Recent studies in the UK and Germany confirm the observation in the USA (Matthews et al. 2013; Doblhammer et al. 2014). Better cardiovascular disease management, including a greater awareness of vascular risk factors, and a better education leading to a larger cognitive reserve are factors underlying the reduction in incidence (see e.g. Reuser et al. 2011).

At the global level, non-communicable diseases (NCD), mainly cardiovascular diseases, cancers, diabetes and chronic lung diseases, are the leading causes of death, killing more people than all other causes combined (World Health Organization 2011). Nearly 80 per cent of NCD deaths occur in middle- and low-income countries. In these countries, cardiovascular disease became the leading cause of death.

The likelihood of a major new infectious disease is low but it is not zero. If it occurs, the spread will be rapid because of patterns of international travel and trade.

The Fertility Transition

The fertility transition is the shift from high to low fertility. The transition started in France in the 1790s, immediately after the French Revolution, probably as a result of the role of women in the revolution that triggered an emancipatory movement (Binion 2001, 181). The social unrest that led to the revolution of 1789 was in part a consequence of inadequate food supply and a growing population (following the mortality decline in the eighteenth century).⁶

In the demographic literature, there has been and continues to be a debate on the causes of fertility decline. One school explains fertility changes as a response to changes in mortality. No declines in fertility have been observed in the absence of mortality decline. That school considers zero population growth as the natural state of affairs, a stable equilibrium. Built-in mechanisms, 'preventive checks' such as delaying age at marriage, would reduce the birth rate and 'positive checks', such as famine, misery, plague and war, would increase mortality. Other theories relate the demographic transition to economic and social development.

6 That is the context in which Malthus wrote his *Essay on the principle of Population* (published 1798). Malthus wrote the essay in response to essays by Godwin and Condorcet, two persons who were inspired by the French revolution and the idea of enlightenment. They advocated values of the French Revolution (equality): perfecting society (*perfectibility or man*) through continued social progress and through the growth of our insight in its functioning. The condition is universal education: 'Without education, the perfection of mankind becomes impossible' (Concordet, in Eichengreen, 2011). Malthus opposed the emancipatory movement and warned against the utopians of the French Revolution because social progress would inevitably lead to unchecked population growth and poverty because 'population, when unchecked, increased in a geometrical ratio; and subsistence for man in an arithmetical ratio' (Malthus, 1798, II.1). For the same reason he criticized the English Poor Laws, the predecessors of the modern welfare state, because they would encourage early marriage. Malthus opposed the emancipatory movement in France and used the prospect of a population explosion and food scarcity to convey his argument. Sen (1999, p. 214) reminds us that Condorcet anticipated a voluntary reduction in fertility and predicted the emergence of new norms of small families, based on the *progress of reason*. For some remarks on Malthus vs Condorcet, see Van de Kaa (2010), McNicoll (1998) and Willekens (2014).

These macro-level theories fail to capture the role of agency, i.e. the role of individuals and couples in the fertility transition. There are places in the world that experienced sustained fertility transition without economic development. Kerala in South India is such a place. Kerala combines a low level of economic development (measured in GDP) with a long experience of public health, child welfare and universal education, and its matrilineal system gives women a unique position in society (Nair 2010). Micro-level theories of fertility change emphasize individuals and couples and consider the costs and benefits of children, changes in values and aspirations (quality more important than quantity; self-fulfilment and autonomy; and desire for adequate standard of living). These changes at the individual level are made possible by technological innovation and economic and cultural changes resulting in a greater individual ability to choose. The changes are also influenced by inhibiting factors such as legal restrictions and social control mechanisms. In short, people should be ready, willing and able to control their fertility. The three preconditions must be met jointly to succeed (Lesthaeghe and Neels 2002).

Demographers describe the mechanism through which fertility is reduced in terms of proximate determinants or intermediate factors: proportion marrying, age at marriage (exposure factor), deliberate fertility control (contraceptive prevalence, induced abortions), and natural control (duration of breastfeeding associated with the length of post-partum insusceptibility, and spontaneous abortion or miscarriage). These factors affect fertility directly. Other factors, such as schooling and religion, affect fertility through the intermediate factors. Onset of fertility transition is commonly defined as a 10 per cent drop or more in marital fertility without fertility rebounding thereafter.

Fertility decline started in Europe at the end of the nineteenth century and spread to the rest of the world. In Asia, the fertility transition started in the 1950 and 1960s and in Africa in the 1970s and 1980s (Figure 1.6) (Reher 2004). In most developing countries fertility decline is associated with a rise in contraceptive use to deliberately limit family size. Since 2004 the majority of the world population lives in areas with below-replacement fertility (Myrskylä et al. 2011).

Marriage and deliberate fertility control remain important drivers of fertility change. In recent times and in developed countries, control over fertility became almost perfect and the emphasis on individual autonomy and self-fulfilment continued and became more pervasive. Young adults who value individual autonomy are likely to delay decisions that restrict that autonomy. They are likely to postpone having children. According to Van de Kaa (2008), prevention of conception is the rule and the interruption of the prevention becomes a deliberate act. The growing emphasis on human capital accumulation (education) and the social expectation to be economically active and independent has a delaying effect. Education has a direct effect on postponement of childbearing (incompatibility between school enrolment and becoming a mother) and an indirect effect (opportunity cost of children increases with increases human capital) (Philipov et al. 2006). As a result of the emphasis on individual autonomy and self-fulfilment,

Figure 1.6 Date of onset of fertility transition in selected regions of the world

Source: Reher 2004 (reprinted with permission, Wiley, 2014).

growing numbers of people reject traditional institutions such as marriage. The traditionally strong link between marriage, sexuality and reproduction has been relaxed. These factors create a condition for a sustained low fertility. In some countries fertility declined to extreme low levels with period Total Fertility Rates below 1.3. Part of the shift was due to postponement of childbearing towards higher ages. Because the changes, which were made possible by the availability of safe and reliable contraceptives, are sufficiently different from the earlier demographic changes, Lesthaeghe and Van de Kaa mark them as *The Second Demographic Transition* (Lesthaeghe and Van de Kaa 1986; Van de Kaa 2008). Many European countries started to worry about falling fertility.

But then, quite unexpectedly, fertility in Europe started to increase. Was that turnaround the effect of catching up after a period of postponement or was it related to the further decline of the marriage institution? The erosion of the marriage institution had advanced enough to weaken the link between marriage and childbearing. Cohabitation is on the rise and an increasing proportion of children are born out of wedlock. Myrskylä et al. (2011) explored the positive link between

high development and increased fertility and showed the driver is fertility increase at older ages but only in the presence of gender equality. Gender equality is crucial for fertility increase. In the Green Paper on demographic change, the European Commission (2005, 5) sees the low fertility rate as ‘the result of obstacles to private choices: late access to employment, job instability, expensive housing and lack of incentives (family benefits, parental leave, child care, equal pay)’.

What may we expect next? The United Nations (medium variant) expects that in Europe the number of children a woman has during her lifetime will increase from 1.5 to 2.0 (United Nations 2011). In other parts of the world it will continue to decline. The global Total Fertility Rate will decline from 2.5 in 2005–2010 to 2.03 at the end of the century. In Africa it will drop from 4.6 to 2.1, in Asia from 2.3 to 1.9. The United Nations believes that an equilibrium at zero population growth is a natural state of affairs. Eurostat expects the Total Fertility Rate of EU27 to increase too, from 1.59 in 2010 to 1.64 in 2030 and 1.71 in 2060. Fertility will remain below the replacement level. The largest increases in fertility rates are projected to take place in countries that have the lowest fertility rates today (Latvia, Hungary and Portugal). Eurostat assumes that in the long run fertility levels in the countries of Europe will converge to a same level. In 2060 that same level will not be reached yet. Fertility is expected to be highest in Ireland (TFR of 1.99) and lowest in Latvia, Hungary and Portugal (TFR of 1.51). Scientists differ in their views on the future of fertility in Europe but they agree that fertility will remain below replacement for a long time.

The Migration Transition

Massey (2003) divides the history of international migration in four periods. The first period is the mercantile period (1500–1800). The dominant flow was people leaving Europe to settle in the Americas, Africa and Asia and the dominant reason was agriculture. During that period, 10 million African slaves were forcibly exported to the New World. The second period was related to the spread of industrialization. During the second period, from 1800 to 1929, 48 million people left Europe, with five main destinations: the United States, Canada, Argentina, Australia and New Zealand. The First World War and the economic recession of the 1930s brought migration to a halt. The years 1930–1960 was a period of limited international migration, except for the refugee migration in Europe. Around 1960 international migration became a global phenomenon. Employers in Europe and elsewhere started to recruit immigrant workers (*guest workers*) because a shortage of native labour supply. Labour migration was mainly from South Europe to North and West Europe. Recruitment of migrants in East Europe was not possible because of the Iron Curtain. Only Yugoslavia allowed their citizens to migrate to West Europe. During the same period, colonies became independent. That event triggered considerable (return) migration flows. Massey estimates that, before

1930, 85 per cent of all international migrants originated in Europe. Since 1960, 85 per cent come from Latin America, the Caribbean, Asia and Africa.

In the European Union, three phases of immigration can be identified in the last half century (European Commission 2011). The first is the guest-worker phase. That phase ended abruptly in 1974 when the oil crises produced a recession. Many guest-workers did not return to their country of origin, contrary to the initial expectation. As a consequence, in the 1970s family reunification increased. Refugee migration (asylum seekers) increased in the 1980s and 1990s, and was related to shocks, such as the fall of the iron curtain, wars and ethnic conflicts. The 1951 Convention relating to the Status of Refugees had an important impact on migration. The Convention was designed to protect people from persecution.⁷ In the 1990s immigration dropped, partly due to tighter controls. At the end of the 1990s it increased again and after 2000 an annual net immigration of around 2 million was recorded before dropping to a net migration of about a million in 2009.

Today, globally 214 million persons are living outside of their country of birth, 3 per cent of the world population. In Europe, the foreign-born population is 9.5 per cent of the population (70 million). It is 50 million in Northern America (14.2 per cent of the population), 61 million in Asia (1.1 per cent) and 19 million in Africa (1.9 per cent) (United Nations 2009). In the 1990s countries in South Europe shifted from emigration countries to immigration countries.

A recent Gallup report (Esipova et al. 2011) offers a look at the experiences of people around the world who desire to migrate. The report is based on interviews with more than 750,000 adults worldwide since 2005 and provides information on the decision process and the effects others have on the outcome. The Gallup World Poll found that 14 per cent of the world's adults (15+) population (630 million) say they would like to emigrate if they could. Only 8 per cent of them are planning to do so within 12 months and less than half (39 per cent) of those planning to move say they have already started making preparations. Most individuals stay in what the report calls the *dream stage* and do not continue to the planning stage and preparation stage.

Zelinsky (1971), who proposed the concept of mobility transition, linked migration to the demographic transition and to industrialization and economic transformation (see also de Haas 2010). Skeldon (1990, 1997) extended the mobility hypothesis by introducing the role of nation state formation including the colonization and decolonization. Colonization shaped migration along particular corridors and that path dependence contributed to the emergence of world migrations systems (see later). The link between migration and the demographic

7 The 1948 Universal Declaration of Human Rights recognizes that, 'Everyone has the right to seek and to enjoy in other countries asylum from persecution' (Article 14, Paragraph 1). The 1951 Convention is an implementation of that basic right and focuses on how States should treat refugees. At the end of 2010, 15.4 million people throughout the world were seeking refuge from conflict and persecution (UNHCR, 2011, p. 4). It has become a significant part of irregular migration.

transition is manifest. High fertility countries have a relatively large population of young adults, many of whom may be unemployed and eager to emigrate, unless economic growth in origin countries is sufficient to accommodate the *demographic dividend*. Low-fertility countries experience a shrinking labour force as the baby-boom generation retires. The World Economic Forum (2011) estimates that 'To sustain economic growth, by 2030 the United States will need to add more than 25 million workers, and Western Europe will need to add more than 45 million employees'. Some see the global competition for workers, in particular skilled workers, a mega-trend of the twenty-first century. These drivers of international migration are largely situated at the population (macro) level and emphasize structural factors such as labour supply and demand. Development is defined as economic development. The drivers are formulated in terms of equilibrium-seeking tendencies (homeostatis) (migration as a labour-market adjustment mechanism). Proponents of this perspective consider an equilibrium between the demand and supply of labour as the natural state of affairs.

Communication and transportation technologies changed the landscape for international travel and migration. National borders and long distance no longer are the barriers they used to be. The UN World Tourism Organization (UNWTO) estimates that in 2010 close a billion people entered a foreign country as a tourist (940 million), 4.4 per cent growth compared to 2009. International tourism generated close to a trillion dollars in export earnings. In 2012 the UN expects more than a billion international tourist arrivals. The UNWTO defines tourism as involving a stay away from one's usual place of residence of not more than a year. If the stay is more than a year, it is considered a permanent migration. Different types of migration involve stays of less than one year (e.g. temporary migration, circular migration). The distinction between tourism and migration is becoming increasingly blurred. Resident tourist and lifestyle migrants are concepts used to describe the growing international mobility in search for a better lifestyle or way of life. Torkington (2012) reviews the academic literature on the subject and discusses lifestyle migration between Northern Europe and the Algarve in Portugal, where people from Northern Europe are not considered immigrants but *resident tourists*, even when they settled permanently in the country. The label 'immigrant' is reserved for those of African, Asian and Brazilian origin as well as Eastern European labour migrants. A distinguishing feature of resident tourists, according to Torkington, is that they do not speak the local language and predominantly go to places where they meet their compatriots.

The increase in international tourism and different forms of international migration are manifestations of an increasingly mobile society. Many people are ready, willing and able to migrate in search for a better life. Technological change in communication and transportation enables a global community that is connected. Furthermore, globalization and the associated socio-economic transformations trigger new international migration flows.

Micro-level theories of migration consider individuals. Most people want a better life and many consider migration to achieve that goal. Some want to join their

family, others look for a school, a job, a partner, protection or a better climate. Some like to see new places and meet new people. Migration is instrumental to achieve particular goals in life. The desire to migrate is a consequence of the geography of opportunities. To most people international migration is a life strategy. People migrate for a reason. The usual types of migration such as employment migration, marriage migration, family reunion, residential mobility and retirement migration are manifestations of the dependence of migration aspirations on events and stages in life. Migration is not only part of economic transformation processes, but also of individual developmental processes. De Haas (2010) proposes to adopt Amartya Sen's (1999) definition of development: the process of expanding the substantive freedoms that people enjoy. The *capabilities approach* to development emphasizes creating an enabling environment and opportunities for people to use their functional capabilities (e.g. ability to live to old age, participate in the economic and political activities) (see also Nussbaum 2011). It differs from economic development (measured by GDP); it is the intellectual foundation of the Human Development Index (HDI), which emphasizes health and education. Development means increasing human capabilities.⁸ It calls for increasing self-efficacy⁹ by giving priority to health and education, and by taking down barriers to free choices. In Sen's development concept, agency plays a pivotal role but agency in itself is not sufficient. The execution of agency requires capabilities. The mechanisms by which human development leads to higher levels of migration are: (1) increasing capabilities by loosening constraints on movement, (2) increasing aspirations and (3) increasing occupational specialization (de Haas 2010).

Migration flows exhibit strong path dependence. Once an immigration stream begins, the flow tends to be reinforced through migrant networks and migration policies. As a result, at the population level migration patterns emerge with characteristic migration corridors between places evolving into a migration system. A *migration system* is a set of places (within or across state borders) linked by flows and counter-flows of people, goods, services, and information, which tend to facilitate further exchange, including migration, between the places (de Haas 2010). The settlement of migrants in a place alters the structural conditions for migration through various feedback mechanisms. Migrants transfer money, goods, ideas and information back home. Thanks to cheap phone calls and flights emigrants are more likely to maintain frequent contact with people in their country of origin. They may cause ideational changes and produce new, *transnational* identities. Many of the estimated 40 million overseas Chinese (persons of Chinese descent living outside China), the over 30 million non-resident Indians (persons

8 The capabilities approach is remarkably similar to the approach to development advocated by Condorcet at the time of the French Revolution and vigorously opposed by Malthus.

9 Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives.

of Indian origin who resides outside India), the 1.7 million Turks in Germany and the 150,000 Nederbelgen in Belgium are transnationals. In 2013, migrants worldwide saved enough to transfer an estimated US\$ 550 billion to their countries of origin, 75 per cent or US\$ 414 billion to developing countries (Ratha et al. 2013). Remittances sent home by migrants to developing countries are close to four times the size of official development assistance and represent a lifeline for the poor. Diaspora and other migrant networks influence not only future migration but also trade and investment flows. The World Bank sees Diasporas as important sources of trade, capital, technology, and knowledge for origin countries. The Bank advises low-income country governments to issue diaspora bonds for infrastructure projects and market them to emigrants in rich countries.¹⁰ Ketkar and Ratha (2010) provide the rationale. Diaspora bonds are essentially a form of government debt that targets members of the national community abroad, based on the presumption that their emotional ties to a country make investing in such products worthwhile. Diaspora bonds are a way to capture part of the remittances for national investment projects.

What may we expect next? In the 2010 projections, the United Nations (2011) assumes that net migration in Europe remains constant over the next decades at around 1 million per year and declines gradually after 2050. Eurostat (2011) expects a limited increase of net immigration in the EU27 from around 1 million to a maximum of 1.33 million in 2020, followed by a decline to 0.9 million in 2060. Migration is more difficult to predict than mortality or fertility. The ignorance about what to expect explains the assumption that net migration remains at its current level. The assumed decline in the long run is likely to be based on the belief in the state of equilibrium with zero net migration is the natural state of affairs. Multiple disequilibria are more likely, because of conflict, natural disasters and other events that trigger migration flows. In addition, the geography of opportunities will continue to motivate people to consider migration in search for a better life. Technological developments are likely to take down further barriers to international travel, and short-term and long-term migrations. The nature of migration will change too. The number of transnationals, people who identify with more than one country, is likely to increase.

Today, 9.5 per cent of the population of Europe is foreign-born (United Nations 2009). In the EU27, it is 9.4 per cent or 47 million (Vasileva 2011). About 31 million were born outside of the EU and 16 million were born in another member state. Immigration cannot prevent the ageing of the population. It can delay it a little. In Europe, migration management and the economic and social integration of immigrants remain major challenges.

10 India and Kenya have issued bonds and Nigeria, Bangladesh and the Philippines are planning pilot projects (see e.g. Dilip Ratha's blog on migration, remittances and development <http://blogs.worldbank.org/peoplemove/category/tags/diaspora-bonds>; accessed 15 March 2014).

Discussion

In October 2011, the world population reached 7 billion. The population of Europe was 740 million and the population of the European Union (EU27) 500 million. In 1950, 22 per cent of the world population lived in Europe. Today it is 10 per cent. That figure will drop to 6.6 per cent in 2100 if the United Nations' projections would become reality. Today, two-thirds of the population of Europe is between 15 and 64, which is close to the world average, and 16 per cent is 65 and over, which is twice the world average of 8 per cent. Europe is leading the world in ageing. The other continents will follow, Asia relatively soon and Africa much later. Projections indicate that in 2100, 27 per cent of the Europe's population is 65 and over. The world figure is that every fifth person will be 65 or older. The projected figure is 26 per cent for Asia and 15 per cent for Africa.

These population figures are results of the demographic transition. Europe is leading because the continent was the first to start the transition and is therefore further advanced along the path. Other continents follow. In 2100, the transition is expected to be completed in Asia but not yet in Africa. As a result, the greying of Asia catches up with the greying of Europe. Europe and Asia will be of advanced age when Africa collects the demographic dividend.

During the last 50 years in Europe, the life expectancy increased two years per decade. That is a major achievement. The challenge is to live with that achievement and adapt. Lives should be reorganized because the lifespan has become much longer. That is essentially what many people are doing. They stay in school longer and postpone transitions to adulthood. They enter the labour market later, postpone a stable relationship and postpone having children (Lee and Goldstein 2003). Half a century ago transitions to maturity were compressed into a narrow age span. Today the transition appears to be becoming more diffuse and the transition period longer. Biological, institutional and behavioural barriers inhibit the adjustment of the life course. Women who postpone childbearing run the risk of childlessness, although assisted reproduction and adoption can be an outcome. Incentives for early retirement have grown with the generosity of pension programmes in recent decades. Traditional concepts of age continue to dominate the retirement debate, in particular the debate on retirement age. Sanderson and Scherbov (2010) advocate replacing prospective age for chronological age. Chronological age emphasizes years lived, while prospective age emphasizes remaining lifetime. If pension schemes would express entitlements and benefits in terms of prospective age, a condition would be created that enhances the rescaling of the life course with increase in lifespan. A side effect is a more sustainable pension system. Recent reforms that link pension benefits to life expectancy at (mandatory) retirement age are a first step toward prospective age.

Using prospective age rather than chronological age would also help the debate on differential retirement age. Today, few occupations (hazardous and arduous work) entitle someone to retire early (e.g. after a working life of 30 years instead of 45 years) with full benefit (for a review in OECD countries, see Zaidi and

Whitehouse 2008). The rationale is that they are exceptionally demanding. An alternative approach to equity is to enhance that everyone has the same expected number of years of retirement. People with a low life expectancy at retirement age retire at a younger chronological age than people who may expect to live longer and, therefore, benefit longer. With increasing life expectancy, several inequities are introduced in the social security system because not everyone benefits equally from mortality reduction. In the Netherlands, females and males with low income have a life expectancy that is seven years lower than those with high income, and they spend more years in ill-health and with disability (Knoops and Brakel 2010). Disability starts at age 62 for men with a low income and at age 76 for men with a high income. The differences are even higher at age 65. At age 65, men in the lowest income category have a life expectancy of 15 years while men with the highest income may expect to live another 19 years. Women may expect to live 17 and 23 years, respectively. The differences are not taken into account in determining pension benefits relative to contributions. As a result people with low income subsidize the pensions of people with high income. In the daily newspaper NRC of 13 December 2006, Bovenberg, Mackenbach and Mehlkoph urged to end the *perverse solidarity* (income distribution from poor to rich). Recently, Bovenberg and van Ewijk (2011) called for more heterogeneity in pension schemes (longevity insurance). There is an urgent need for pension reforms that lead to pension schemes that are efficient, sustainable and equitable.

Equity also concerns the intergenerational transfer in pay-as-you-go (PAYG) pension schemes. In these schemes, the working population pays the pensions of the retired population. Funds, collected through taxes or premiums, are not accumulated but spent in the same year. If many contribute and few benefit, the premium is low. That is the case when a large generation (baby boom generation) is active. As the baby boom generation starts retiring, a shrinking working population (baby bust generation) is requested to finance the state pensions of an expanding retired population, implying an increase in compulsory social security contributions and a decrease in disposable income.

To illustrate the effect of ageing and the baby boom generation retiring, I offer an estimate of how much an individual member of the active population should contribute to provide each person over 65 an annual pension of €10,000. To keep it simple, I assume that all members of the active population, defined as persons aged 20 to 64, contribute. For details and the mathematical model, see Willekens (2010a) and for a more elaborate discussion, see Willekens (2010b). In 1957, when the universal state pension (AOW) was introduced in the Netherlands, every member of the active population would have to contribute €1,587 per year to cover the pensions of the persons over 65. During a period of 50 years the amount increases modestly to €2,361 in 2007. The increase depends entirely on the changes in age structure of the population as a consequence of declining mortality and fertility in the period 1957–2007. Although fertility decline between 1957 and 2007 is substantial, the contribution increases less than expected because the baby boom generation contributes in 2007 but not yet in 1957. The true effect of fertility

and mortality decline can be determined using a hypothetical population that is independent of the age structure of the population in 1957 and 2007, and depends only on the mortality and fertility levels in 1957 and 2007. The hypothetical population is the stable population. The growth rate and the age structure of the stable population are derived from age-specific mortality and fertility rates. If in 1957 the age structure of the population would be determined entirely by the mortality and fertility levels in that year, each member of the active population would have to contribute €1,904 to provide a pension of €10,000 to everyone aged 65 and over, an increase of 20 per cent. It means that the real age structure in 1957 was younger than expected on the basis of mortality and fertility in that year. In 2007, the contribution would almost double to €4,615. The difference of €2,361 and €4,615 can be attributed to the size of the baby-boom generation relative to earlier generations. It is the *demographic dividend* of the baby boom generation. Because of their size and the PAYG pension system, their pension contributions increased by not more than 50 per cent in 50 years. If the assumption that all members of the active population contribute is replaced by an assumption that the working population contributes but not the population without paid employment, then the contribution in 2007 would have to be 34 per cent higher (€6,154). If more members of the active population are gainfully employed (and pay contributions) and work longer, then the contribution increases less.

The decline in fertility that started in the mid-1960s with the introduction of the contraceptive pill, will have major consequences for the pension contributions of younger birth cohorts. Until the baby-boom generation starts retiring, the contribution does not change much. When the baby-boom generation starts retiring, the retired population is larger than what is expected on the basis of current and future fertility and mortality levels. The demographic dividend turns into a *demographic debt burden* that falls on the younger generation if the PAYG system is maintained. If the system is gradually replaced by a savings scheme (capitalization scheme) the younger generation carries a double burden: providing for the elderly and saving for their own pension. A policy option that limits the intergenerational inequity built in the PAYG system is to quantify to demographic dividend received by the baby-boom generation, and transfer (part of) it to younger generations. The funding source is the inheritance tax or estate tax, which increases substantially when the baby-boom generation starts dying. In future years the tax incorporates an important demographic dividend (collected by the government).

The pension premium may also be used to demonstrate the impact of increasing fertility. In Europe, low fertility has the attention of public authorities but policies are inadequate. Fertility increase critically depends on improvement in work-life balance. Countries with relatively high fertility have implemented one of three policies. First, labour market policies, with increase in part-time jobs (Netherlands). Second, child care (France). Third, gender equality (Sweden). These are the policies that seem to work. Suppose a policy is enacted that increases fertility by 30 per cent, meaning that the Total Fertility Rate (TFR) increases from 1.72 (in 2007) to 2.24. With the fertility policy, in about 20 years' time, the active

population starts to be larger than without a policy and in about 65 years' time, the elderly population starts to be higher than without a policy. When all members of the active population pay pension contributions and the retirement age remains at 65, then the pension premium declines from €4,615 in 2007 to €3,972, a 14 per cent reduction. The annual number of births increases from about 180,000 to 200,000 (the Netherlands). The number of births increases less than the TFR because of the relatively old age structure of the population. The impact of the policy measure will be felt after a period of about 25 years. First the pension contributions will decline as the additional children born are active. The contribution of €3,972 applies when the distorting effect of the increased fertility on the age structure is phased out. The example illustrates that the effect of fertility policies, even aggressive policies, on pension premiums in a PAYG system with a retirement age at 65 is absent in the short run and limited in the long run. To increase intergenerational equity, barriers to family formation should be removed and persons who raise children should gain pension credits in an individual notional pension account.

Ageing will not go away and Europe is leading the world in ageing. Individuals are adapting to the increased longevity by reorganizing their lives. The young generation delays labour market entry and family formation. They are likely to delay labour market exit, provided barriers to late exit are removed and flexible schemes are introduced that view retirement as a process and not as an event. The reorganization of the life course provides an opportunity to better integrate the different stages of life in a scheme that includes all life contingencies.

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Chapter 2

Economic Conditions and Variation in First Birth Hazards in 22 European Countries between 1970 and 2005

Jonas Wood, Jorik Vergauwen and Karel Neels

Introduction

Throughout the twentieth century economic recessions have raised interest in the effect of economic conditions on fertility. The Great Depression of the 1930s, the oil shocks of the 1970s and the economic recessions in Central and Eastern Europe (CEE) following the turn to market economies have all entailed research on economic determinants of childbearing. The recent economic recession starting in 2008 adds to the long-standing interest in the interaction between economic conditions and fertility trends (Sobotka, Skirbekk and Philipov 2011). Sobotka (2011) states that many studies refer to economic recessions when interpreting fertility decline, but few incorporate economic indicators in their analysis.

A review of the literature shows that at the individual level the relation between economic conditions and childbearing decisions depends strongly on context (Matysiak and Vignoli 2010; Rendall et al. 2013). Although research on aggregate-level economic determinants of fertility provides some evidence of higher birth hazards for unemployed women (Hashimoto and Kondo 2011; Vikat 2004), the majority of empirical evidence supports a pro-cyclical relationship between economic trends and fertility (Sobotka, Skirbekk and Philipov 2011). Research combining individual- and aggregate-level economic indicators indicates that the effect of macro-level economic conditions remains significant when controlling for variation in labour market positions at the individual level (Kravdal 2002), suggesting that general perceptions of economic uncertainty play an important role.

Effects of economic conditions on individual-level labour market positions and childbearing behaviour have been found to vary by age and level of education. Young people are struck hardest by economic crises (Verick 2009) and research finds that particularly young people postpone fertility during economic downturns (Neels 2010; Sobotka, Skirbekk and Philipov 2011). An economic crisis, often resulting in unemployment and financial impoverishment, first affects sectors in which lower-educated employees are over-represented (Verick 2009). However, higher-educated groups are found to react more strongly to changing economic

conditions in their childbearing behaviour (Kreyenfeld and Andersson 2013; Neels, Theunynck and Wood 2012).

The regional scope of existing contributions assessing the impact of macroeconomic conditions on childbearing is often limited to OECD countries (Adsera 2004; Kamaran and Goldstein 2010; Neels, Theunynck and Wood 2012; Neels and Wood 2013), thereby neglecting CEE countries. Although available contributions relate the economic uncertainty after 1989 in former-communist countries to changing childbearing patterns (Kharkova and Adreev 2000; Chase 2003; Aassve, Billari and Spéder 2006; Kotowska et al. 2008; Billingsley and Duntava 2013), Frejka (2008) concludes that, in addition to the need for further research addressing differential findings between micro- and macro-level studies, the pathways through which childbearing has been affected by the transitions occurring in the 1990s in CEE countries remain underspecified. Most studies have focused on unemployment and employment uncertainty, neglecting other economic factors such as inflation and the decline of real wages which contributed to the decline of purchasing power in the 1990s (Billingsley 2011).

This chapter assesses the relation between economic conditions and the timing of motherhood between 1970 and 2005 for 22 countries¹ (Denmark, Finland, Norway, Sweden Austria, Belgium, Switzerland, Germany, France, Great Britain, Ireland, Netherlands, Spain, Portugal Bulgaria, Estonia, Hungary, Poland, Russia, Slovenia, Slovak Republic, and Ukraine). Given the broad regional scope, the analysis also investigates varying relations between economic conditions and first birth timing by European region. In addition, differences in the effect of economic conditions between age-groups and educational groups are examined.

The chapter is structured as follows. The first section discusses educational expansions and economic conditions in Europe, whereas the theoretical framework (p. 49ff.) relates education and economic conditions to the transition to motherhood. The research question emerging from the theoretical framework is discussed from p. 53ff. The section beginning on p. 54ff. documents the data (European Social Survey (ESS) 2006) and method used for analysis. The results are presented from p. 57ff. and we draw the main conclusions from p. 66ff.

Background

The context in which women have progressed to motherhood has changed notably between 1970 and 2005. The subsequent sections discuss (I) the educational expansion and (II) economic conditions which are both leading explanations for

1 In this chapter we categorize the countries into Northern Europe (Denmark, Finland, Norway, and Sweden), Western Europe (Austria, Belgium, Germany, and France), Liberal European countries (Great Britain, Ireland, Netherlands, and Switzerland), Southern Europe (Spain and Portugal), and CEE countries (Bulgaria, Estonia, Hungary, Poland, Russia, Slovenia, Slovak Republic, and Ukraine).

the postponement of motherhood in Europe (Mills et al. 2011; Sobotka, Skirbekk and Philipov 2011; Ni Bhrolchain and Beaujouan 2012).

Educational Expansion

Across Europe, the second half of the twentieth century was characterized by a strong educational expansion. This increase in educational attainment is mainly to be thought of as a rise in tertiary education. Gross tertiary enrolment rates in 2005 across Europe vary between 60 and 100 whereas all countries witnessed rates below 20 in 1970 (WorldBank 2012). In particular the share of women in tertiary enrolment has increased since the 1970s. During the 1970s and 1980s women have been catching up with men and since the 1990s many European countries show higher tertiary enrolment rates for women than for men (UN 2004; WorldBank 2012). The educational expansion first occurred in Northern, Western, and Liberal European countries, and later reached Southern Europe. As women increasingly attained higher levels of education, possibilities in terms of earning power rose which in turn forged enhanced labour force participation of women. In CEE countries this rise in educational enrolment occurred forcefully after the transition to market economies. Enrolment in education before 1989 was determined by the amount of places offered by the communist regimes and particularly tertiary enrolment rates remained low (Ferge 2002; Worldbank 2012). After the collapse of the communist regimes in CEE countries, returns to education increased (in terms of career opportunities and earning potential) which stimulated young adults to prolong education, particularly given the economic downturn witnessed by these generations of young adults in the 1990s.

Economic Conditions

Between 1970 and 2005 Europe experienced severe economic downturns (Figure 2.1). Claessens et al. (2009) state that, on average, OECD countries witnessed about five recessions between 1960 and 2007. In the *Northern European countries* financial liberalization, growing mortgage loans and particularly high-risk loans led to bank bankruptcy, which in turn entailed severe economic downturns with far-reaching consequences concerning economic output and labour market opportunities in the 1990s. The Norwegian recession, triggered by rising oil prices in 1986, started first and also for Denmark negative growths in GDP are found before 1990. This is also reflected by unemployment rates in Norway and Denmark which started rising before recession struck labour markets in Sweden and Finland. Literature notes that Finland suffered most under the recession and witnessed the most substantial drops in output (a GDP decline of 6 per cent in 1991) which led to a depression from 1990 to 1993 (Verick 2009). Unemployment rates reflect this as Finland shows by far the highest unemployment rates in this region in the 1990s. All Nordic countries witnessed a short-lived drop in economic output (GDP) and a recovery within less than five years. However unemployment, striking

youth particularly strongly, typically remained high for some years after economic recuperation started (Claessens, Kose and Terrones 2009; Verick 2009).

In the early 1980s *Liberal countries* witnessed poor economic growths and even declines of economic output. This resulted in higher unemployment throughout the 1980s. After an initial recovery of the economy and labour market at the end of the 1980s, the recession at the beginning of the 1990s entailed high unemployment rates. Whereas Ireland shows unemployment rates over 15 per cent during economic crises, this is around 10 per cent for other Liberal countries and around 5 per cent for Switzerland (Claessens, Kose and Terrones 2009). Depending on the country considered, the 1990s or late 1990s are characterized by economic revival and decline of unemployment. The early 2000s show a stagnating economy concurring with elevating unemployment rates.

Similar to Liberal countries, *Western Europe* shows stagnating economic output and rising unemployment during the late 1970s and the early 1980s which was a result of rising oil prices and the subsequent energy crisis (Sobotka, Skirbekk and Philipov 2011). The beginning of the 1990s reintroduces declines in economic output and higher unemployment levels in all Western European countries but Austria, which shows a weaker decline in economic growth and low unemployment rates (below 5 per cent) throughout the 1990s and early 2000s. Similar to other European regions, the economic recession in the 1990s hampered young adults trying to enter the labour market due to high competition and insufficient labour demand as the baby-boom generation had not left the labour market yet (Adsera 2011).

In *Southern European* countries the late 1970s are characterized by declining economic growth. The early to mid-1980s and the early 1990s are characterized by low economic growth or even decline in economic output. These recessions entailed high unemployment rates. It is remarkable that particularly the Spanish labour market was struck strongly, with unemployment levels among the highest in Europe (Verick 2009; Adsera 2011). Contrary to the short recessions in Northern Europe, the banking crisis starting in 1977 resulted in a long lasting stagnation or even shrinkage of the economy. While the output of the economy failed to recover for many years, particularly youth (age 20–24) unemployment rose drastically (Verick 2009; Adsera 2011). Literature shows that particularly female unemployment in Spain increased in the 1980s and mid-1990s and around 50 per cent of the unemployed had been out of work for more than 12 months. Portugal shows unemployment levels similar to Western Europe.

An economic recession with particular characteristics is the (post-)transitional economic downturn in former-communist countries which was accompanied by many other socio-economic, socio-cultural and political changes. *CEE countries* after 1989 witnessed stagnation or decline of the economy (GDP declines up to 15 per cent for subsequent years) and the emergence and rapid rise of unemployment. Unemployment was particularly unfavourable as CEE countries witnessed a stagnant pool of unemployed people and many women eventually opted out of the labour market. Soaring inflation levels resulted in a decline of real

wages which further worsened economic conditions. Blanchard (1997) calls this output decline a transformational recession since a transition to a more effective economic system implied a reallocation of means (communist regimes typically had disproportionally large manufacturing and small service sectors).

Education, Economic Conditions, and Entry into Motherhood

Education and Entry into Motherhood

Throughout Europe the coincidence of postponement and decline of fertility with rising enrolment in tertiary education has raised interest in the effects of education on fertility. Particularly the shift to later first births is related to rising educational participation (Neels and De Wachter 2010; Ni Bhrolchain and Beaujouan 2012). Literature indicates various pathways through which education can affect motherhood. The Second Demographic Transition theory claims that as women become higher-educated and emphasize self-realization, fertility intentions decline (Van de Kaa 2002; Lesthaeghe 2010). However literature finding higher fertility intentions for higher-educated women, casts doubt on this reasoning (Ruokolainen and Notkola 2002; De Wachter and Neels 2011; Beaujouan et al. 2013; Van den Berg and Neels 2014). Other contributions focus on the postponing effect of educational enrolment due to both structural (for example financial) and cultural (for example normative) constraints (Lappegård and Ronsén 2005). Also many authors discuss the effect of education on knowledge (for example of parenting at younger ages) and contraceptive use has been shown to vary between educational groups (Kravdal 1992; Martin and Juárez 1995).

Economic theories of fertility (Becker 1981; Cigno 1991) have focussed on the effects of increasing education and female labour force participation on costs of childbearing. As the opportunity costs rise (forgone earnings and career opportunities as a result of childbearing), childbearing becomes less attractive (Liefbroer and Corijn 1999; Lappegård and Ronsén 2005). Hence higher-educated women postpone motherhood due to high investments in careers. In addition to the need to build up a career early on in life, higher-educated women are also found to put more emphasis on their role on the labour market (Buchholz et al. 2009) compared to lower-educated women (Friedman, Hechter and Kanazawa 1994). Economic approaches to fertility also note that higher-educated women, given higher earnings may be better equipped for motherhood (that is the ‘income effect’). However, to the extent that the costs of childrearing are manageable for most people in Europe and higher-educated groups show higher child-related spending (Becker 1981), we expect that income plays only a minor role in the transition to motherhood. Literature supports this reasoning as very little research finds income effects on first births.

Figure 2.1 Unemployment rates (UR) EU22 and consumer price index (CPI) EU8, 1970–2005

Sources: OECD and World Bank.

Economic Conditions and Entry into Motherhood

The effect of economic conditions, through delayed entry into the labour force and career uncertainty, is a widespread explanation for postponement of motherhood (Mills et al. 2011). Aggregate-level economic downturns lead to employment uncertainty at the individual level, which in turn delays family formation and also encourages young adults to achieve higher levels of education while residing in the parental household.

Differences between educational groups may be further exacerbated under adverse economic conditions due to varying responses to rising economic uncertainty. For lower-educated women, deteriorating labour market prospects associated with economic crisis may reduce the cost of withdrawing from the labour market and enhance childbearing (Vikat 2004). However this also depends on the availability of replacement incomes. Higher-educated women, who tend to invest in long-term career tracks, postpone motherhood in adverse economic times (Liefbroer and Corijn 1999). For this group, additional investments in human capital are a rational response to adverse economic conditions, further raising opportunity costs. Hence, lower-educated women are expected to progress to motherhood sooner than their higher-educated counterparts who postpone childbearing, particularly in economically challenging times (Sobotka, Skirbekk and Philipov 2011; Neels and Wood 2013). Turning to later stages in the life course we assume that particularly higher-educated women have built up a favourable job position which can protect them from economic downturns whereas lower-educated women witness more precarious labour market conditions throughout the life course.

Besides uncertainty about future labour market opportunities which can lead to longer enrolment in education, pathways through which unfavourable economic conditions delay family formation also include changing housing markets and delayed union formation (Sobotka, Skirbekk and Philipov 2011). Hence precursors to entry into motherhood; graduation, housing and partnering will be postponed in economically challenging times (for example Vergauwen and Neels 2013).

Societal Context

The opportunity costs of motherhood typically depend on labour market opportunities, but are also dependent on (I) normative views on labour force participation of mothers (II) gender equality within the household, and (III) family policy geared towards work-family combination. First, in contexts emphasizing maternal employment stronger effects of economic conditions are expected whereas societies that do not expect mothers to work will presumably witness less effect of economic conditions on timing of motherhood. However we do note that effects of economic conditions can also impact women's transition to motherhood through partners' labour market positions. Second, in case women are assumed to take part in the labour force, equality in the division of household and childrearing

tasks lowers opportunity costs of childbearing for women. Since literature shows that women take up the majority of household and childrearing tasks (Pott-Buter 1998; McDonald 2000; Fagnani 2002; Kreyenfeld 2002; Sobotka 2004; Buchholz et al. 2009; Miettinen, Basten and Rotkirch 2011), family policy supporting work-family combination (for example childcare, parental leave) can support women in the combination of work and childrearing. However income-centred family policy measures can also reinforce pro-cyclical childbearing (for instance in Sweden) accentuating the importance of employment for eligibility to provisions such as parental leave (Neyer and Andersson 2008).

We distinguish five country-clusters: (I) *Northern Europe* (Denmark, Finland, Sweden, Norway) is characterized by a strong emphasis on labour force participation of women and strong support to working mothers in terms of liberal gender role attitudes and family policy (for instance childcare) (Muszyńska 2007; Neels and Theunynck 2012a, 2012b). However income-centred parental leave systems (for example in Sweden) add to the necessity of achieving a favourable labour market position before childbearing and thus reinforce pro-cyclical family formation. (II) *Liberal countries* (Ireland, Netherlands, Great Britain, Switzerland) typically show liberal attitudes towards the combination of childrearing and work, although this does not hold for the Netherlands (see below). Few childcare arrangements and other public family policies supporting working mothers are provided in Liberal countries. Available child care is often private (Great Britain) or policy focusses strongly on part-time work for mothers (Netherlands) (Esping-Andersen 1999; Gauthier 2002; Sobotka 2004; Thévenon 2008). (III) *Western Europe* (Austria, Belgium, Germany, France) holds an intermediate position concerning public support toward working parents with relatively long maternal leaves, but limited childcare provision (Thévenon 2008). However Belgium and France typically display higher reliance on public day care services and pre-primary school compared to German-speaking countries (Morel 2007; Thévenon 2011; Klüsener, Neels and Kreyenfeld 2013). Matysiak and Vignoli (2008) state that in conservative welfare regimes, which also include the Netherlands, 'women have been perceived as only supplementary income providers, working for pay when care duties so permit'. In (IV) *Southern Europe* (Portugal, Spain) male-breadwinner couples are considered the best environment for childbearing and these countries lack family policies supporting work-family combination (Mencarini and Tanturri 2006; Matysiak and Vignoli 2010). Finally, (V) *CEE countries* (Bulgaria, Estonia, Hungary, Poland, Russia, Slovenia, Slovak Republic and Ukraine) witnessed very high support to working mothers during communism whereas after 1989 the degree of support declined (Kreyenfeld 2004; Kantorová 2006; Matysiak and Vignoli 2010). During communism women were expected to participate in the labour force while taking up all childrearing and household tasks which in the literature has been referred to as a double burden (Siemienska 1997; Sobotka 2004; Geisler and Kreyenfeld 2005; Muszyńska 2007; Neels and Theunynck 2012). Available literature shows negative attitudes toward working mothers for post-communist

countries. Hence both before and after 1989 women were held responsible for household and childrearing tasks (Matysiak 2009).

Research Question and Hypotheses

The aforementioned theoretical considerations lead to the following research question and hypotheses: *To which degree do economic conditions influence the timing of motherhood?*

1. We expect to find pro-cyclical timing of motherhood since an economic downturn entails economic uncertainty at the aggregate level and may also induce precarious labour market conditions or even unemployment at the individual level. Further, important precursors to motherhood such as graduation, partnering and housing are expected to be postponed, indirectly affecting the timing of motherhood.
2. Since investments securing a favourable labour market position are typically required at early stages of a career, young adults accentuate postponement of motherhood under unfavourable economic conditions. Women at later stages in the life course are assumed to postpone childbearing to a lesser degree under unfavourable economic conditions due to (I) biological considerations and (II) more stable labour market positions.
3. Pro-cyclical childbearing behaviour is expected to vary by level of educational attainment. We expect higher-educated women to show the strongest pro-cyclical timing of parenthood at younger ages whereas less educated women, given a weaker attachment to the labour market, may be less sensitive to economic conditions. Later in the life course, however, when early career investments start to pay off for higher-educated women in terms of job stability and a favourable labour market position, we expect to find the strongest negative relation between economic conditions and motherhood transitions for lower-educated women due to a higher sense of insecurity.
4. Finally, the impact of economic conditions on the timing of motherhood is expected to vary by societal context. We assume that contexts emphasizing the importance of female labour force participation will witness stronger pro-cyclical timing of motherhood. Contexts supporting working mothers through gender equality at the household level or family policy are assumed to facilitate women to combine work and family, which weakens the effects of economic conditions on the timing of motherhood. However income-centred family policy may reinforce pro-cyclical first birth timing.

Data and Methods

Data

We use data from the third round of the ESS which was conducted in 2006 and contains a demographic module with detailed information on the life course and the timing of key life-events (for example fertility, partnerships, education, employment). These longitudinal microdata are combined with aggregate-level economic data drawn from the World Bank (WorldBank 2013) and the Organisation for Economic Co-operation and Development (OECD).

Literature shows that various macro-level indicators on economic performance and labour market context have been used in fertility research. GDP has been used as an indicator of economic performance and positive relations have been found, however Sobotka and colleagues (2011) conclude that macro-indicators like unemployment more readily identify the pathways through which economic cycles affect fertility. However for CEE countries no unemployment rates before the transition are available since near-full employment was reached. Concerning unemployment rates in the 1990s for CEE countries, Blanchard (1997) suggests that they may not be reliable since incentives to register when unemployed varied substantially over time and across countries. Further, the transitional recession in CEE countries was characterized by high amounts of women opting out of the labour market which is not reflected in unemployment statistics (Blanchard 1997).

Consumer prices and inflation have been used less frequently as measures for economic conditions. Aassve and colleagues (2006) find for Hungary that rising consumer prices – which entailed lower consumption capabilities – have a negative effect on childbearing. Rising inflation of consumer goods is a characteristic of the transitional recession in CEE countries and captures evolutions in purchasing power and economic uncertainty (Aassve, Billari and Spéder 2006). For non-CEE countries Figure 2.2 indicates that year-to-year changes in unemployment rates, consumer price index (CPI), and drops in GDP seem to show a similar pattern when CPI is lagged by approximately 1–2 years. Cross-correlations of the differentiated unemployment and CPI series² are positive for all the non-CEE countries in this study. For 10 out of 15 non-CEE countries (Belgium, France, Finland, Great Britain, Ireland, Sweden, Norway, Netherlands, Spain, Germany) significantly positive correlations are found.

The analyses in this contribution combine individual-level data from the ESS with macro-level information on CPI³ drawn from the World Bank database (WorldBank 2013) and unemployment rates⁴ provided by the OECD, which

2 Results are not shown but available upon request.

3 CPI reflects changes in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed yearly (2005=100).

4 The unemployment rate displays the number of unemployed persons as a percentage of the civilian labour force.

allows us to assess the impact of both individual- and aggregate-level economic conditions on the entry into motherhood for a large set of European countries.

Method

Multilevel discrete-time event-history models of first birth hazards are estimated with a complementary log-log link which allows to interpret the exponentiated coefficients as hazard ratios. Between 1970 and 2005, fertility schedules by age show considerable variation (Frejka and Sardon 2006). Postponement of parenthood has resulted in a substantial decline of fertility rates at younger ages, later followed by an increase of fertility in older age-groups. The onset of fertility postponement itself is subject to substantial variation among countries in Europe (Sobotka 2004; Council of Europe 2005). These varying first birth schedules by age across periods and countries severely complicate comparative analyses of first births. To allow sufficient flexibility to accommodate such trends, all models include a random APC-effect that allows deviations from the fixed-effects hazard function by combinations of (I) five-year age-group between 15 and 49 (A), (II) five-year time period between 1970 and 2005 (P), and (III) country (C). The analytical strategy of this chapter is to assess to which degree the differences in birth hazards between different age groups, periods, and countries change when including substantial indicators for (I) education and (II) economic conditions. The multilevel structure nests person-years (level 1) in persons (level 2), which are in turn nested in APC combinations (level 3). Nesting person-years into persons provides the advantage of correct parameter variance estimation and it allows us to include a random error term at the individual level which controls for time-constant individual-level unobserved characteristics.

Micro-level covariates include (I) age, (II) education, (III) duration since first entry into the labour force and (IV) duration since first entry into cohabitation. Age is included as a cubic effect. Since educational classifications are difficult to compare across countries, the *educational* variable was computed by collapsing the number of years in full-time education into four categories representing the quartiles of the educational distribution in each of the countries considered. The first quartile serves as the reference category throughout the analysis. The time-varying covariate on *duration since first entry into the labour force* captures the number of years since the first entry in paid employment or paid apprenticeship of 20 hours or more per week for a period of at least three months. Given the nonlinear relationship between birth hazards and duration since first employment, the latter is collapsed into four categories: (I) never had paid employment (reference category) and subsequently (II) 1–4 years, (III) 5–9 years, and (IV) 10 years or more since first employment. As time since graduation is not controlled for it is likely that to some extent this covariate will also reflect graduation effects. Further, a time-varying covariate measuring the *duration since the first cohabitation* with a partner or spouse for a period of three months or more is included. Since the distribution of first birth hazards by duration since first cohabitation is typically positively

Figure 2.2 Differentiated gross domestic product (GDP) (in minus %), consumer price index (CPI) (2005 = 100), and unemployment rate (%) NL, NO and PT, 1970–2005

Source: OECD & World Bank, calculations by authors.

skewed, duration since first cohabitation is collapsed into five categories: (I) never cohabited or first year of cohabitation (reference category), and subsequently (II) 1–5 years, (III) 6–10 years, (IV) 11–15 years, and (V) 16 years or more since first cohabitation. The effect of age (quadratic) is interacted with education which allows for different fertility schedules by level of education. At the aggregate level the main covariates of interest are CPI⁵ and unemployment rate which are lagged with one year. Country dummies and five-year calendar time dummies are used as additional macro-level control variables.

The effects of economic conditions are examined over the life-course, distinguishing 2 age groups (15–29 and 30–49). Further, differential effects of economic conditions by level of education and aggregate-level context (country clusters: Nordic, Liberal, Western, Southern, and CEE countries) are considered.

Results

Women 15–29

Results for women aged 15–29 (Table 2.1) show a significant variance of the APC random intercepts for the cubic baseline model (model 1) which indicates that between age-groups, periods and countries childbearing hazards significantly differ. Figure 2.3 displays the random APC-intercepts by country cluster. The intercepts for model 1 show that in Northern, Liberal and Western Europe first birth hazards have declined particularly during the 1970s and early 1980s whereas Southern and CEE countries respectively show declining hazards during the late 1980s and 1990s. The interactions between education and the baseline hazard function (linear and quadratic effects of age) show that the quadratic terms are significantly different for the higher-educated quartiles (model 2) and thus this interaction is included throughout further analyses. Figure 2.3 shows that for women aged 15–29 controlling for education partially explains variation in APC random intercepts (a .022 (.135-.113=.022) decline is found).

Our main micro-level variable of interest (model 3) shows that first entry into the labour force significantly increases the hazard of entering motherhood. Compared to women who have not entered the labour market yet, those who had their first job 1–4 and 5+ years ago respectively show about 30 per cent $((1.291-1)*100=29.1)$ and 50 per cent $((1.494-1)*100=49.4)$ and $(1.545-1)*100=54.5)$ higher first birth hazards. This indicates that labour force entry is an important precursor to motherhood in Europe. CPI at the aggregate-level shows a significant negative effect towards motherhood, depressing hazards by 6.6 per cent $((1-.934)*100)$ for every 10 per cent increase. Variance estimates of the APC random intercepts show a clear decline (from .113 to .062) when

5 Results for CPI display effects of 10 per cent differences in consumer prices, which often occurs in the sample of countries and time-frame used for analysis.

including individual- and macro-level economic indicators to the model. Figure 2.3 equivalently shows that the inclusion of economic variables provides partial explanation for varying birth hazards across different European regions.

Since housing and partnering are important precursors to motherhood and pathways through which economic conditions can influence motherhood (see p. 51), duration since first cohabitation is included (model 4). Compared to women who have never cohabited, the hazards for women who started cohabiting 1–5 years earlier are about 766 per cent higher ($((8.659-1)*100 = 765.9)$). Women who have started cohabiting longer ago show slightly weaker effects, indicating that motherhood is most likely to occur in the first five years following entry into first cohabitation. The inclusion of cohabitation shows that duration since first job loses strength as a predictor of motherhood, suggesting that cohabitation is a stronger predictor for motherhood. In order to control for other aggregate-level structural or cultural changes we include time period as a covariate (model 5). The period dummies show a significant effect with hazards of entering parenthood being highest in 1970–75, a linear decrease up to 1990, and stable or weakly declining hazards thereafter. When controlling for calendar time and duration since the first cohabitation CPI continues to depress first birth hazards significantly. Unemployment rates (Model 5b) are shown to depress first birth hazards by $((1-.961)*100)$ 3.9 per cent for every per cent increase in unemployment. Hence economic conditions at the individual level indicate that entry into working life is a precursor to motherhood, and aggregate-level economic conditions – consumer prices and unemployment – entail pro-cyclical timing of motherhood among young women.

The interaction between education and duration since first job (model 6) shows that the hazard of entering parenthood is 14 per cent $((1-.860)*100)$ lower among lower-educated women who entered the labour market 1–4 years ago. Among lower-educated women, first birth hazards further decrease as duration since first labour force entry increases. The relationship is in the opposite direction for highly educated women, meaning that labour force entry is an important precursor to motherhood, even when controlling for first cohabitation. When first cohabitation is not controlled for (results not shown), the effect of labour force entry is positive for all educational groups. However, a significantly stronger positive effect is found for higher-educated women indicating that first job is a stronger precursor to motherhood for higher-educated groups. The differential effects for CPI show the strongest negative effect for the highest educated group, a 9.22 per cent $(1-(.974*.932)*100)$ decline in motherhood hazards for every 10 per cent increase in consumer prices. Medium high educated women show a 5.04 per cent $(1-(.974*.975)*100)$ decline, whereas the negative effect for lower-educated women is not significant. Despite the negative differential effect for medium and higher-educated women, the effect of aggregate-level unemployment on first birth hazards (Model 6b) does not differ significantly between educational groups. Hence our findings suggest that a first job is an important precursor to motherhood for higher-educated, and also

that – depending on the indicator used – higher-educated seem more sensitive to aggregate-level economic context.

Next we address cross-regional variation in the effects of individual- and aggregate-level economic conditions on motherhood timing. Model 7 illustrates that for Nordic countries labour force entry positively affects first childbearing as women who have not entered the labour force are less likely to progress to motherhood. For Western European countries we also find positive effects of labour force entry on timing of motherhood. Compared to women who have not yet entered the labour force, women who have had a job show motherhood hazards which are around 20 per cent $((1.17-1)*100 = 17, (1.23-1)*100 = 23$ and $(1.19-1)*100 = 19)$ higher. For Liberal countries we find that duration since first job depresses first birth hazards by around 20 per cent $((1-.73)*100 = 27, (1-.81)*100 = 19)$. CEE countries show that having entered a first job more than 10 years ago seems to depress first birth hazards. Finally, Southern European countries do not show significant effects of duration since first job. Concerning the impact of aggregate-level economic conditions on first birth hazards by country cluster, results for CPI indicate that in all clusters negative effects are found. The findings relating unemployment rates to first births (Model 7b) show that in all country clusters but Western Europe significant negative effects are found. The strongest negative relation is found for Liberal countries, CEE countries, and particularly for Southern Europe.

Women 30–49

Results for women aged 30–49 (Table 2.2) also show a significant variance of the APC random intercepts for the cubic baseline model (model 1), although the APC intercepts vary to a much lesser degree compared to the 15–29 age group (Figure 2.4). For Northern, Liberal and Western European countries more recent periods are characterized by higher first birth hazards whereas for Southern and CE Europe we respectively find a U-shaped pattern with low hazards in the 1980s and very little variation. Interactions between education and the baseline hazard function show significant differential effects for medium and higher educational groups (model 2) and thus are included in subsequent models. The inclusion of education in the model results in a .010 decline of the APC variance. This is also illustrated by region (Figure 2.4) as the increasing birth hazards in recent periods particularly in Northern, Liberal and Western Europe are partially explained by higher levels of education.

Duration since first labour force entry has a positive effect on entry into motherhood, increasing first birth hazards by more than 30 per cent $((1.319-1)*100 = 31.9)$ (model 3). The CPI effect indicates that for every 10 per cent increase in CPI the first birth hazards augment by 4.7 per cent $((1.047-1)*100)$. However, the CPI effect turns negative when controlling for individual- and aggregate-level covariates in subsequent models.

Table 2.1 Exponentiated coefficients (hazard ratios) from random-effects complementary log-log model of first birth hazard, women aged 15–29, EU-22, 1970–2005

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 5b
	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>e(b)</i>
	<i>sig</i>	<i>sig</i>	<i>sig</i>	<i>sig</i>	<i>sig</i>	<i>sig</i>
<i>Individual-level covariates</i>						
Age						
. <i>Linear</i>	1.214	1.210	1.167	1.336	1.335	1.278
	***	***	***	***	***	***
. <i>Quadratic</i>	1.046	1.055	1.046	1.072	1.071	1.065
	***	***	***	***	***	***
. <i>Cubic</i>	1.004	1.004	1.003	1.004	1.004	1.004
	***	***	***	***	***	***
Education (<i>Lowest quartile is reference</i>)						
. <i>Medium low</i> (<i>q2</i>)		1.025	.996	.973	.978	1.093
		.968	1.004	.940	.948	1.063
. <i>Medium high</i> (<i>q3</i>)						
		1.055	1.106	.973	.981	1.121
. <i>High</i> (<i>q4</i>)						
Age * Education						
. <i>Lin Medium low</i>		.949	.959	.980	.981	1.012
		.954	.991	.986	.987	1.018
. <i>Lin Medium high</i>						
		1.086	1.127	1.092	1.095	1.183
		*	**	*	*	***
. <i>Lin High</i>						
		.991	.992	.995	.995	.997
		***	***	***	*	*
. <i>Qua Medium low</i>						
		.987	.990	.991	.992	.993
		***	***	***	**	*
. <i>Qua Medium high</i>						
		.991	.994	.994	.994	.998
		***	*			
. <i>Qua High</i>						
Duration since first cohabitation (<i>never cohabited is reference</i>)						
. <i>1–5 years</i>				8.659	8,692	8,901
				***	***	***
. <i>6–10 years</i>				6.369	6,442	7,379
				***	***	***
. <i>11–15 years</i>				3.869	3,914	4,206
				***	***	***
. <i>16–80 years</i>				2.082	2,112	2,160

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 5b	
	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>e(b)</i>	<i>sig</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>
Duration since first job (never is reference)												
. 1–4 years					1.291	***	1.004		1.004		.979	
. 5–9 years					1.494	***	1.025		1.024		1.007	
. 10+ years					1.545	***	1.072		1.070		1.078	
<i>Aggregate-level covariates</i>												
Country (Not shown)												
CPI (lagged 1 year)												
. main/refgroup												
UR (lagged 1 year)					.934	***	.926	***	.949	***	.961	***
. main/refgroup												
Period (1970–1975 is reference)												
. Period 1976–1980									.815	***	.749	**
. Period 1981–1985									.765	***	.714	***
. Period 1986–1990									.692	***	.632	***
. Period 1991–1995									.763	***	.678	***
. Period 1996–2000									.722	***	.601	***
. Period 2001–2005									.726	**	.535	***
<i>Random effects</i>												
Level 3: APC												
. <i>VAR(Cons)</i>	.135	***	.113	***	.062	***	.074	***	.067	***	.055	***
Level 2: Individual												
. <i>VAR(Cons)</i>	.000		.018		.025		.073	***	.083	***	.086	**
N Persons	50457		50457		43366		43366		43366		32050	
N Person-periods	135686		135686		116263		116263		116263		83863	

Note: Significance levels: $p < .100$ (*), $p < .050$ (**), $p < .010$ (***).

Source: ESS (2006) & Worldbank, calculations by authors.

Table 2.1 continued Exponentiated coefficients (hazard ratios) from random-effects complementary log-log model of first birth hazard, women aged 15–29, EU-22, 1970–2005

	Model 6		Model 6b		Model 7		Model 7b	
	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>
<i>Individual-level covariates</i>								
Age								
. <i>Linear</i>	1.344	***	1.288	***	1.339	***	1.284	***
. <i>Quadratic</i>	1.071	***	1.064	***	1.071	***	1.065	***
. <i>Cubic</i>	1.004	***	1.004	***	1.004	***	1.004	***
Education (<i>q1</i> is reference)								
. <i>Medium low (q2)</i>	.751		.983		.973		1.083	
. <i>Medium high (q3)</i>	.809		.892		.965		1.057	
. <i>High (q4)</i>	.793		.654		.993		1.128	
Age * Education								
. <i>Lin Medium low</i>	.962		.993		.982		1.011	
. <i>Lin Medium high</i>	.966		1.005		.990		1.013	
. <i>Lin High</i>	1.095	*	1.163	**	1.094	*	1.180	***
. <i>Qua Medium low</i>	.994	*	.996		.995	*	.997	
. <i>Qua Medium high</i>	.991	**	.992	*	.992	**	.992	*
. <i>Qua High</i>	.997		1.000		.994		.998	
Duration since 1st cohabitation								
. <i>1–5 years</i>	8.672	***	8.882	***	8.690	***	8.800	***
. <i>6–10 years</i>	6.411	***	7.357	***	6.454	***	7.360	***
. <i>11–15 years</i>	3.888	***	4.210	***	3.933	***	4.199	***
. <i>16–80 years</i>	2.016		2.102		2.088		2.158	

	Model 6		Model 6b		Model 7		Model 7b	
	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>
Duration since 1st job								
. 1–4 years	.860	*	.786		1.092		1.118	
. 5–9 years	.813	**	.847		1.236	**	1.185	*
. 10+ years	.767	**	.794		1.405	***	1.283	**
Duration since first job * Education								
. 1–4 years Med low	1.114		1.173		.726	***	.748	***
. 1–4 years Med high	1.092		1.186		.810	***	.837	**
. 1–4 years High	1.600	***	1.755	***	.911		.914	
. 5–9 years Med low	1.132		1.021		1.163	**	1.024	
. 5–9 years Med high	1.219	*	1.100		1.229	***	1.271	**
. 5–9 years High	1.927	***	1.879	***	1.177		1.259	
. 10+ years Med low	1.302	*	1.235		1.095		1.102	
. 10+ years Med high	1.450	**	1.299		.890	**	.839	*
. 10+ years High	2.091	***	2.114	***	.710	**	.872	
					.908		1.005	
					1.024		1.013	
					1.079		1.149	
<i>Aggregate-level covariates</i>								
Country (Not shown)								
CPI or UR (lagged 1 year)								
. main/refgroup	.974		.967	***				
CPI or UR * Education								
. * Medium low	1.006		.994		.914	***	.972	*
. * Medium high	.975	*	.998		.950	*	.964	**
. * High	.932	***	.984		.891	***	.970	
CPI or UR * Cluster								
. * North								
. * Liberal								
. * Western								

Table 2.1 continued

[illegible]

Note: Significance levels: $p < .100$ (*), $p < .050$ (**), $p < .010$ (***)

Source: ESS (2006, Round 3) & World Bank.

Figure 2.3 Random intercepts at APC-level, women aged 15–29, EU-22, 1970–2005

Source: European Social Survey (2006), OECD & World Bank, calculations by authors.

Duration since first labour force entry is no longer significant when duration since first cohabitation is included in the model (model 4). Women who have not entered the labour market are less likely to have cohabited with a partner, and cohabitation is a strong predictor of entry into motherhood. The estimates

for calendar time periods (model 5) illustrate higher birth hazards after 1990, reflecting recuperation of fertility forgone at younger ages. It is noteworthy that the inclusion of time periods entails a large decline in APC-level variance compared to CPI. This means that our substantial indicators for education and economic conditions explain less variance in first birth hazards than other between period differences. Controlling for this positive trend effect, the CPI effect turns significantly negative with first birth hazards decreasing by six per cent for every 10 per cent increase in CPI. The effect of unemployment rate (model 5b) indicates a positive relation between unemployment and first birth hazards for women age 30–49. Hence our findings for this age-group indicate that entry into the labour force is a precursor to motherhood, but also that the relation between aggregate-level economic conditions and first births depends on the indicator considered.

Further sensitivity modelling (model 6–6b) shows that, although women with medium levels of education show lower birth hazards 10 or more years after first entry into the labour force, the effect of duration since first job does not seem to affect entry into motherhood differently across educational groups. The model including the interaction between CPI or unemployment and level of education shows no significant differential effects by level of education.

Model 7 addresses regional variation in the effects of individual- and aggregate-level economic conditions on entry into motherhood. In line with findings for the 15–29 age-group our results show a positive association between first labour force entry and motherhood in Northern and Western Europe, whereas Liberal countries show a negative relation. Whether the effects are significant depends on whether we control for CPI (model 7) or unemployment (model 7b) at the aggregate-level. For CEE and Southern European countries no relation between first labour force entry and motherhood is found. Varying effects of aggregate-level economic conditions by country cluster show a negative relation between first birth hazards and CPI in all clusters, though the only significant effect is found for Southern Europe. The effects of unemployment by country cluster show significant positive relations in Liberal and CEE countries. This might indicate that in addition to the postponing effect of high unemployment for women age 15–29 in these regions, contexts of high unemployment are also related to recuperation of first births later in the life-course. In contrast, Southern Europe (showing the strongest postponing effect for women age 15–29) does not show a positive effect which suggests that high unemployment entails both later and fewer transitions to motherhood.

Conclusion

To which extent can differences in first birth hazards between age-groups, periods and countries be explained by substantive educational and economic indicators? We find that variation of first birth hazards under age 30 is substantially reduced in all country clusters when controlling for increasing education, labour force entry and variation in macroeconomic conditions, indicating that these factors play

Figure 2.4 Random intercepts at APC-level, women aged 30–49, EU-22, 1970–2005

Source: European Social Survey (2006), OECD and World Bank, calculations by authors.

a substantial role in driving fertility postponement (Mills et al. 2011; Sobotka, Skirbekk and Philipov 2011; Ni Bhrolchain and Beaujouan 2012). First birth hazards between ages 30–49 show less variation across age-groups, periods and countries, and the proportion of variance explained by substantial economic

Table 2.2 Exponentiated coefficients (hazard ratios) from random-effects complementary log-log model of first birth hazard, women aged 30–49, EU-22, 1970–2005

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 5b	
	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>e(b)</i>	<i>sig</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>
<i>Individual-level covariates</i>												
Age												
. <i>Linear</i>	.541	***	.622	***	.621	***	.640	***	.639	***	.523	***
. <i>Quadratic</i>	.966	***	.968	***	.968	***	.964	***	.964	***	.949	***
. <i>Cubic</i>	.999	*	.999	**	.999	**	.999	***	.999	***	.998	***
Education (<i>Lowest quartile is reference</i>)												
. <i>Medium low</i> (<i>q2</i>)			.631		.623		.424		.422		.455	
. <i>Medium high</i> (<i>q3</i>)			.326	*	.320	*	.310	*	.307	*	.676	
. <i>High</i> (<i>q4</i>)			.760		.738		.420		.415		.857	
Age * Education												
. <i>Lin Medium low</i>			.842		.844		.803	*	.802	*	.823	
. <i>Lin Medium high</i>			.698	***	.698	***	.729	**	.730	**	.851	
. <i>Lin High</i>			.791	**	.790	***	.747	**	.746	**	.853	
. <i>Qua Medium low</i>			.992		.992		.989	*	.989	*	.991	
. <i>Qua Medium high</i>			.982	***	.982	***	.984	**	.984	**	.991	
. <i>Qua High</i>			.986	**	.986	**	.984	***	.984	***	.990	
Country (<i>Not shown</i>)												
Duration since first cohabitation (<i>never cohabited is reference</i>)												
. <i>1–5 years</i>							10.64	***	10.59	***	10.97	***
. <i>6–10 years</i>							6.735	***	6.713	***	7.532	***
. <i>11–15 years</i>							5.067	***	5.061	***	5.500	***
. <i>16–80 years</i>							3.360	***	3.325	***	3.765	***

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 5b	
	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>e(b)</i>	<i>sig</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>
Duration since first job (never is reference)												
. 1–4 years					1.319	*	1.063		1.041		.959	
. 5–9 years					1.398	***	1.173		1.165		1.098	
. 10+ years					1.325	***	1.182		1.182		1.136	
CPI (lagged 1 year)												
. main/refgroup												
UR (lagged 1 year)					1.047	***	1.032	***	0.940	**		
. main/refgroup											1.027	**
Period (1970–1975 is reference)												
. Period 1976–1980									1.060		1.022	
. Period 1981–1985									.893		.743	
. Period 1986–1990									1.068		.735	
. Period 1991–1995									1.645	**	1.080	
. Period 1996–2000									1.658	**	1.054	
. Period 2001–2005									1.979	***	1.216	
<i>Random effects</i>												
Level 3: APC												
. <i>VAR(Cons)</i>	.052	***	.042	***	.040	***	.037	***	.022	***	.003	
Level 2: Individual												
. <i>VAR(Cons)</i>	.030		.023		.022		.039		.022		.048	
N Persons	12913		12913		11682		11682		11682		9334	
N Person-periods	34396		34396		30825		30825		30825		24078	

Note: Significance levels: $p < .100$ (*), $p < .050$ (**), $p < .010$ (***).
Source: European Social Survey (2006, Round 3) & World Bank, calculations by authors

Table 2.2 continued Exponentiated coefficients (hazard ratios) from random-effects complementary log-log model of first birth hazard, women aged 30–49, EU-22, 1970–2005

	Model 6		Model 6b		Model 7		Model 7b	
	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>
<i>Individual-level covariates</i>								
Age								
. <i>Linear</i>	.637	***	.519	***	.638	***	.523	***
. <i>Quadratic</i>	.964	***	.948	***	.964	***	.950	***
. <i>Cubic</i>	.999	***	.998	***	.999	***	.998	***
Education (<i>q1</i> is reference)								
. <i>Medium low (q2)</i>	.613		1.003		.417		.447	
. <i>Medium high (q3)</i>	.305		1.217		.314		.678	
. <i>High (q4)</i>	.317	*	.976		.429		.866	
Age * Education								
. <i>Lin Medium low</i>	.798	*	.822		.802	*	.824	
. <i>Lin Medium high</i>	.737	**	.858		.734	**	.851	
. <i>Lin High</i>	.750	**	.855		.752	**	.857	
. <i>Qua Medium low</i>	.989	*	.991		.989	*	.991	
. <i>Qua Medium high</i>	.985	**	.992		.984	**	.991	
. <i>Qua High</i>	.984	***	.990		.984	***	.990	
Duration since 1st cohabitation								
. <i>1–5 years</i>	10.59	***	10.83	***	10.71	***	11.00	***
. <i>6–10 years</i>	6.703	***	7.456	***	6.718	***	7.545	***
. <i>11–15 years</i>	5.052	***	5.429	***	5.070	***	5.534	***
. <i>16–80 years</i>	3.329	***	3.710	***	3.349	***	3.814	***

	Model 6		Model 6b		Model 7		Model 7b	
	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>
Duration since 1st job								
. 1–4 years	1.629		2.383		1.793		1.788	
. 5–9 years	1.730		1.759		2.041	**	2.043	**
. 10+ years	1.353		1.937	*	1.637		1.684	
Duration since first job * Education								
. 1–4 years Med low	.572		.182		.724	***	.775	
. 1–4 years Med high	.777		.455		.709		.719	
. 1–4 years High	.695		.444		.980		.970	
. 5–9 years Med low	.548		.530		1.434		.941	
. 5–9 years Med high	.537		.419		2.013	**	1.634	
. 5–9 years High	.844		.779		1.895	**	1.574	
. 10+ years Med low	.665		.435	**	1.184		1.114	
. 10+ years Med high	.805		.475	*	1.088		.889	
. 10+ years High	1.120		.710		.849		.816	
					.803		.813	
					1.028		1.009	
					1.144		1.124	
<i>Aggregate-level covariates</i>								
Country (<i>Not shown</i>)	Country (<i>Not shown</i>)							
CPI or UR (<i>lagged 1 year</i>)	Period (<i>Not shown</i>)							
<i>main/refgroup</i>	.923	**	1.013		CPI or UR * Cluster * Period			

Table 2.2 continued Exponentiated coefficients (hazard ratios) from random-effects complementary log-log model of first birth hazard, women aged 30–49, EU-22, 1970–2005

	Model 6		Model 6b		Model 7		Model 7b	
	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>e(b)</i>	<i>sig</i>	<i>e(b)</i>	<i>sig</i>
CPI or UR * Education								
. * <i>Medium low</i>	1.000		.996	. * <i>North</i>	.962		.987	
. * <i>Medium high</i>	1.037		1.017	. * <i>Liberal</i>	.978		1.044	**
. * <i>High</i>	1.029		1.025	. * <i>Western</i>	.932		1.058	
				. * <i>CEE</i>	.952		1.111	**
				. * <i>South</i>	.897	**	1.005	
Period (1970–1975 is reference)								
. <i>Period 1976–1980</i>	1.081		1.042					
. <i>Period 1981–1985</i>	.918		.765					
. <i>Period 1986–1990</i>	1.103		.755					
. <i>Period 1991–1995</i>	1.687	***	1.114					
. <i>Period 1996–2000</i>	1.686	*	1.090					
. <i>Period 2001–2005</i>	2.000	***	1.264					
				<i>Random effects</i>				
Level 3: APC								
. <i>VAR(Cons)</i>	.021		.002		.022	***	.000	
Level 2: Individual								
. <i>VAR(Cons)</i>	.023		.046		.023	***	.042	
N Persons	11682		9334		30825		9334	
N Person-periods	30825		24078		11682		24078	

Note: Significance levels: $p < .100$ (*), $p < .050$ (**), $p < .010$ (***).

Source: ESS (2006, Round 3) & World Bank.

indicators is small which suggests that elevated fertility at higher ages is related to other factors (Neels and Wood 2013).

Using entry into the labour force at the individual level, and CPI and unemployment rates as aggregate-level economic indicators, we find indications for a pro-cyclical relationship between economic conditions and timing of parenthood (hypothesis 1) (Sobotka, Skirbekk and Philipov 2011; Neels and Wood 2013). However the relation depends on which age-group is considered (hypothesis 2). For women age 15–29 the timing of motherhood is found to be stimulated by entry into the labour force, whereas CPI and unemployment at the aggregate-level induce first birth postponement. The latter effects are significant when controlling for delayed labour force entry at the individual level (in line with Kravdal (2002)). For women age 30–49 first entry into the labour force is also a precursor to motherhood. For this age-group our results indicate a negative relation between CPI and first birth hazards whereas the relation between unemployment rates and first birth hazards is positive. The latter finding might indicate that in contexts with high unemployment – which is found to forge first birth postponement for women age 15–29 – more first births occur later in life.

This chapter also investigates varying relations between economic conditions and first birth timing by education. Models exploring the interaction between labour force entry and education among women aged 15–29 indicate that particularly for higher-educated women labour force entry predicts motherhood, suggesting that highly educated women more often choose to invest in a career before becoming a mother. Also indications for a stronger negative effect of aggregate-level conditions are found for highly educated women younger than 30. We relate this finding to our theoretical assumption that particularly higher-educated postpone family formation to safeguard long-term career opportunities in the labour market (Liefbroer and Corijn 1999). Higher-educated women more often engage in long-term careers which require high investment at early stages. Hence a birth before the first entry into the labour force or during unfavourable economic times might jeopardize the further career.

Available research on the relation between economic conditions and childbearing indicates that the relation between economic conditions and childbearing depends on the context considered, particularly when focusing on individual-level economic conditions (Sobotka, Skirbekk and Philipov 2011; Matysiak and Vignoli 2010; Rendall et al. 2013). This chapter contributes to this literature as varying effects of both individual- and aggregate-level economic conditions on the transition to motherhood by country cluster are investigated for a set of 22 European countries.

Effects of economic conditions at the individual- and aggregate level vary by country cluster (hypothesis 4). Concerning the relation between labour force entry and entry into motherhood, a positive association is found in Northern and Western Europe, indicating that a first job is an important precursor to motherhood. Southern European and CEE countries show no effect of labour force entry on motherhood. This finding could be the result of contextual characteristics of these countries. Southern European countries are characterized by a lack of family

policies supporting the combination of work and family as male-breadwinner couples are still considered the best environment for childbearing (Mencarini and Tanturri 2006; Matysiak and Vignoli 2010). During the communist era in CEE countries educational enrolment was more compatible with childbearing and women more regularly first achieved the desired amount of children before entering the work force (Sobotka 2004), while after 1989 the economic recession led to high inactivity and many women gave up looking for a job as entry into the labour market was extremely cumbersome. Women in Liberal countries show lower first birth hazards in the subsequent years after labour force entry. This indicates that women living in Liberal countries, in contrast to women from Northern and Western European countries, witness entry into the working life to be less of a precursor to motherhood. This finding may be related to few public arrangements (for example childcare) and the financial burden towards (private) child care (Viitanen 2005). Concerning the effects of CPI all country clusters show negative relations toward first birth timing for women 15–29 whereas for women age 30–49 Southern Europe is the only region displaying negative effects. Unemployment is found to induce first birth postponement for women age 15–49 particularly in Southern Europe, CEE countries, and Liberal countries. Whereas CEE countries and Liberal countries show positive effects of unemployment on first birth hazards for women age 30–49, no signs of recuperation is found for Southern Europe.

We conclude that this chapter contributes to the understanding of changing patterns of transitions to motherhood in Europe and in particular with respect to the role of education and economic conditions for women aged 15–29. This contribution highlights the predictive power of education and economic conditions at both the individual- and aggregate level for variation of first birth hazards for young adult women in Europe.

Limitations

A first limitation of this study is a lack of the couple/household perspective due to a lack of retrospective information on partners in the ESS data. Second, no control for date of graduation was used in the analyses since no date of final educational attainment is provided in the ESS data.

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Chapter 3

Decreasing Fertility in Europe: Is It a Policy Issue?

Olivier Thévenon

Introduction

Since the late 1960s, birth rates have been falling across Europe and in most economically advanced countries. The timing, intensity and persistence of the fertility decline vary across countries. In some the decline is ongoing, however, in a growing number total fertility rates have started to increase. The mechanisms behind this reversal are being debated. Is it purely the consequence of childbearing postponement across generations, or does it reveal more structural changes in the relationships between economic development, women's participation in the labour market, social norms and fertility behaviour?

Moreover, fertility rates have started rising again in a minority of countries, while in others they remain persistently low. Explaining these differences is key, as is a better understanding of the factors that have made it possible for fertility rates to recover in some countries but not in the others. Recent literature has started to document this issue, emphasizing that the fertility upswing, as well as economic development, have been accompanied in many countries by structural improvements in the conditions for adults (and especially for women) to combine work and family life. These studies focus on explaining cross-country differences in fertility levels and trends at national level.

Factors which are claimed to be driving fertility trends include socio-demographic, economic, institutional and cultural aspects. In particular, recent analyses have emphasized the changing relationships between economic advancement and fertility, given that economic progress is now accompanied by changes in attitudes, institutions and policies that make it possible for the most advanced countries to combine increases in both fertility and female employment rates. The extent to which all these changes explain the recent upturn in fertility rates in some countries over and above the postponement of childbearing is debatable, however.

Against this backdrop, this chapter provides an overview of fertility trends in OECD countries and their key economic and institutional determinants. We discuss, in particular, the role of economic development and of family policies in supporting fertility. We argue that, despite its positive role in fertility, economic development alone is unlikely to raise fertility to the level that would

guarantee population replacement, even if accompanied by policies favouring the combination of work and family life. Fertility rates may stabilize in the future at rates that are significantly lower than replacement level. The reasons for worrying about such a situation are less of a policy concern if we consider the large uncertainties regarding the future of the gap between the desired number of children and actual fertility behaviour. But there is also no reason for putting too much emphasis on the objective of raising fertility from a macroeconomic point of view. First, the increase in human capital of future generations is a key parameter that will attenuate the effect of lower fertility and population ageing on economic outcomes. Second, despite ambitious policies, increases in fertility rates may actually only have a weak effect on the financial sustainability of welfare states, far below what is needed to address the problem of population ageing. Many goals achieved by raising fertility can actually be achieved through other policy instruments (Sanderson 2011). Yet, even if family policies have limited effects on raising fertility, they may serve other important goals, such as supporting the work-life balance, fostering emancipation and gender equality, enhancing family well-being, or reducing child poverty. Increases in fertility rates have now become a by-product of policies aiming first and foremost at improving the work-life balance (Thévenon and Luci 2012).

Fertility Trends and Underlying Dynamics

Fertility Rates since 1970

Birth rates have been falling across the region, as illustrated in Figure 3.1 by the sharp decline in Total Period Fertility Rates (TFR). In most countries, they have fallen well below 2.1 children per woman, the rate required to maintain populations at current levels without immigration. The timing, intensity and persistence of the fertility decline varies across countries, however. Two phases can be observed: decline – essentially due to the combined influence of postponement – and increase denoting ‘recuperation’ for those women who have postponed childbearing to a later age.

In general, the TFR fell significantly from the 1970s in Europe, and then stabilized or even increased slightly in the early 2000s.¹ The decline was especially sharp in countries showing the highest fertility rates in the early 1970s, such as Central Asian countries, but also in Mexico, Chile, Turkey and Korea. In Europe, fertility rates were already around or below replacement rate in most countries in 1970, but the decline continued up to the late 1990s in many countries. TFRs fell

1 The total fertility rate (TFR) is highly sensitive to the timing of births: having children later in the life cycle lowers the TFR, so completed fertility will be underestimated. Some authors have therefore proposed that TFR estimates be adjusted for variations in mothers’ age at childbirth (Bongaarts and Feeney 1998; and Goldstein et al. 2009).

Figure 3.1 Decreasing fertility rates

Note: Countries are ordered by increasing TFR in 2011. 2007 for Canada, Czech Republic, Estonia and Slovenia; 1971 for Chile; 1980 for Estonia, Israel.

Source: OECD Family database; UN Demographic Statistics.

most sharply in southern and eastern regions where fertility rates are still far below the EU average – and below 1.6 infants per woman. These so-called ‘lowest-low fertility countries’ have TFRs persistently around or below 1.3 children per woman (Kohler et al. 2006). In 2008, Korea had the lowest TFR at 1.2. The persistence of these low fertility rates raises concerns about the decline of the overall population in these countries.

The dynamic has been much weaker in the western and northern parts of Europe, where fertility rates are closer to replacement level despite a decrease in TFRs with respect to the early 1970s. Here also, fertility rates started rising again after a period of decline. The recovery started relatively early (in France, for example) or has been particularly steep since the start of the new century, as is the case in the United Kingdom, Finland and Iceland. Other OECD countries show contrasting patterns: Australia, New Zealand and the United States are among countries with quite high fertility rates, while in Japan and Korea they remain persistently low.

Most of the Caucasian and Central Asian countries also saw a very sharp decline in the TFR after 1990 and a slight increase after 2005 (Vobecka et al. 2013). Fertility rates in the Caucasus – Armenia, Azerbaijan, Georgia – are now all below replacement level, and the same applies to Ukraine and Russia. By contrast, the countries of Central Asia show higher fertility rates which are well above replacement levels in 2011. All these countries now have a TFR below the population replacement threshold of 2.1 children per woman. Recent trends across these countries are contrasting, however. TFRs have continued to decrease sharply in Tajikistan, Turkmenistan and Armenia over the last decade, while a fertility upturn has occurred in Kazakhstan, the Kyrgyz Republic especially, and, to a lesser extent, in Uzbekistan, Ukraine and Russia. In the latter country, total period fertility rates declined steeply from the late 1980s through to the mid-1990s, but started to rise again from 1999 onwards (Frejka and Zakharov 2012).

It appears, therefore, that most countries of the developed world have recently seen a recovery in fertility rates after a significant decline over the past decades. This trend reversal is often seen as a logical consequence of the postponement of childbearing by younger generations (Goldstein et al. 2009; Bongaarts and Sobotka 2012). This postponement occurs in two phases with regard to total fertility rates: they initially fall because births that occurred at young ages in the past are no longer taking place; they then recover, after a certain lapse of time, thanks to the ‘recuperation’ of births taking place at an older age.

Whether the process of postponement fully explains TFRs cycles remains unclear, however. A first reason is that the postponement of childbearing is accompanied (and partly due) to structural and/or cultural changes affecting fertility decisions (Lesthaeghe 2010; Goldstein et al. 2009). Luci-Greulich and Thévenon (2013) have pointed to the changes in the labour market and in the way fertility behaviour is linked to women’s labour market decisions, suggesting that the upturn in total fertility rates has occurred first and foremost in countries where support for the work-life balance has been enhanced. In this context, the ‘recuperation’ of

Figure 3.2 Recovery in TFRs in most countries from 1995 onwards

Source: OECD Family database; UN Demographic Statistics.

fertility is likely to be partial, in the sense that these changes towards childbearing at an older age may also be accompanied by lower fertility norms.

Influence of the 2008 Economic Crisis

The recent economic crisis has changed the context in which fertility decisions are taken. In particular, the rise in unemployment creates economic uncertainties which may cause households to put off the decision to have children. The consequences can be short term – if births are simply postponed – or longer term if recession persists over time, and if no catch-up process is observed after the recession.

The evidence relating to the effect of the ongoing recession on fertility rates is still relatively scarce, one reason being that data for the most recent fertility behaviour is not yet available in all developed countries, another reason being that fertility declines in response to a crisis with a time lag of a few years (Sobotka et al. 2010). Recent changes in fertility rates suggest, however, that the rise in TFRs observed since the early 2000s has either stopped in many countries, or even reversed in some others (Figure 3.2). Most strikingly, the decrease started early after the 2007 economic shock in the US and become more significant over the years, with a total decrease of almost 0.2 children per woman between 2007 and 2011, with the crisis seeming to affect the fertility behaviour of the most vulnerable minorities (Mather 2012).²

In Europe, the crisis has been more severe in vulnerable countries such as Spain, Greece or Bulgaria. Fertility rates have also fallen sharply in Iceland since 2009 and especially 2010. By contrast, fertility rates declined steadily throughout the 2000s in several countries, but especially in Portugal where fertility remains very low. Goldstein et al. (2013) have found a strong association between fertility and unemployment in the southern, Eastern and Central European countries. The greatest impacts are found at the youngest ages and for first births, which makes sense because unemployment rates have jumped drastically among young people who are also able to postpone childbearing most easily. This finding is compatible with the idea that fertility plans are in strong competition with the need to secure a labour market position, but can be revised more easily at a younger age than at an age where there is often less uncertainty about employment and less opportunity to adjust fertility plans because of biological constraints.

Significantly enough, the countries with a high level of welfare and family support (France, Norway, but also the UK and Slovenia) are more resilient to the

2 Responses to economic downturns in fertility behaviour differ in respect to gender and socio-economic status (see OECD, 2011 for a review of results). Poorly educated and unskilled men are likely to show the largest decline in birth rates. For women, available evidence for Germany and Sweden suggests that those with high levels of educational attainment are most likely to postpone childbirth, especially when they have no children; the lower-educated often maintain or increase their rate of entry into motherhood (Hoem 2000; and Kreyenfeld 2005 and 2009).

recession: they seem to have succeeded so far in cushioning the impact of the economic shock on fertility.

Of course, the extent to which the effect of the economic recession will or will not persist over time, whether it will be followed by a recuperation of births or will be conducive to lower completed family size, is still unknown.³

Goldstein et al. (2013) found that fertility rates at a younger age seem to respond to adverse economic conditions such as, for example, unemployment rates. Whereas Latvian fertility rates markedly declined in 2009, fertility in the other Baltic countries showed no major downturn, one explanation possibly being that generous parental leave schemes were introduced shortly before the economic crisis.

Reasons for Low Fertility

Postponement of childbirth

The postponement of childbirth can be best reviewed by considering trends in age-specific fertility rates. Broadly speaking, there are two relevant features: 1) a sharp decrease in fertility rates of women below the age of 30 which started almost five decades ago in most countries covered here,⁴ and, 2) a significant increase in fertility of women in their thirties. Figure 3.3 shows a marked increase in fertility for women aged 30–34 in most OECD countries since the mid-1990s. Few countries deviate from this general pattern, as age-specific fertility rates continue to decline for all age groups: Korea, Mexico, Japan, but also Albania, Armenia, Azerbaijan, Kyrgyzstan, and Tajikistan.

The increase in fertility after 30 years of age, which has been driving the upturn in total fertility rates since the late 1990s, thus illustrates that young women have postponed childbearing in comparison to older generations, but are now ‘catching-up’. However, it is unlikely that the increase in ‘postponed’ births will raise TFRs to the levels recorded in 1980s (Frejka and Sobotka 2008).

The postponement of births is the overall result of women’s increasing level of education which is strengthening their attachment to the labour market and career aspirations (OECD 2011; Goldstein et al. 2009). Postponement is facilitated by the diffusion of modern contraceptive methods, whose use varies across countries (Frejka 2008a). The use of modern contraceptives reduces the number of unwanted and mis-timed pregnancies and births. It is very likely that modern contraceptive methods have facilitated the changes towards new and more restrictive norms on

3 Evidence on the effects of previous economic recessions suggests that unemployment spells seem to affect the timing of births, but not the final family size (Adsera 2005b and Kravdal 2002). In France, only repeated spells of long-term unemployment among males seem to have a small negative effect on family size (Pailhé and Solaz 2009).

4 The OECD Family database (indicator SF2.3) shows long-term trends in age-specific fertility rates for a few countries.

Figure 3.3 Increasing fertility after 30 years of age

Source: Demographic Yearbook 2008, United Nations Statistics Division.

ideal family size, but they cannot be seen as a principal cause of contemporary low fertility (Leridon 2006).

Reduction of family size

A look at Completed Fertility Rates – i.e. at the number of children women have at the end of their reproductive life – and at the distribution of family size gives a better understanding of cross-national differences in fertility. Figure 3.4 shows the distribution of the number of children by women born around 1960 (i.e. for women whose fertility period has been ‘completed’). It suggests that the greatest variation in a country occurs where there was a propensity for women to either remain childless, or to have a total of two children or more in their lifetime.

Figure 3.3 continued **Increasing fertility after 30 years of age**

In all countries, women are most likely to have two children at the end of their reproductive period (the numbers in Figure 3.4 are Completed Fertility Rates (CFR)). The distribution of women's final family size varies greatly across countries, however. Cohort data suggests that permanent childlessness among women at the end of their reproductive period is highest in Italy, Germany and Finland, with above 18 per cent of women born around 1960 remaining childless. Childlessness has also been increasing steeply across the cohorts born after 1950 in Austria, Belgium, England and Wales, Greece, Ireland, the Netherlands, and the United States (Breton and Prioux 2009). Among more recent cohorts, childless women represent a growing share among women born after 1960 in Eastern European countries (Poland, Romania, Hungary especially), but a much lower proportion of women – less than 10 per cent – are childless at the end of their

reproductive years in most other Eastern European countries. By contrast, a stable and comparatively low proportion of women remain childless in France and Nordic countries (except in Finland). Childlessness has remained far less frequent in Eastern European countries, which are nevertheless experiencing a period of low fertility.

In general, countries with relatively high rates of permanent childlessness (over 15 per cent of women aged over 45) have CFRs below 1.8 children per woman, but Finland is an exception with a rate above 1.9. High rates of childlessness do not always lead to differences in CFRs. For example, Austria and Spain have very different rates of cohort childlessness, 22 per cent and 13 per cent, respectively, but the same CFR of 1.7 children per woman.

In almost all countries, about 10 to 20 per cent of women have only one child at the end of their reproductive period, but this proportion is over 30 per cent in the Czech Republic, Portugal and the Russian Federation, where very large families are also relatively rare. By contrast, Russia and Ukraine are still characterized by a persistent and almost universal progression to the first birth. One-child families have become as frequent, or even more so, as families with two children in Russia and Czech Republic, as is the case in other Eastern European countries (Romania, Hungary, Poland Slovakia, Czech Republic) for the most recent cohorts who have completed their fertility (Breton and Prioux 2009; Sobotka 2011).

By contrast, at least 30 per cent of women have three or more children in France, Norway, Poland, Sweden, and the United States (Anglophone countries have a relatively low incidence of one-child families and a high incidence of large families, McDonald 2010). These five countries with a relatively high proportion of large families have high CFRs compared with most European countries (Frejka 2008b).

More widely, low fertility countries (as captured by low TFRs) show a marked lower propensity to have at least two children and a lower progression ratio towards three children or more (Figure 3.5). By contrast, there is no clear distinction between low and high fertility countries regarding the propensity to have at least one child. Thus, the propensity to have at least one child is comparatively high in many Eastern European countries despite low TFRs, while the transition to an additional second or third child is much lower than in most high fertility countries. Interestingly, one can notice that Germany or Romania are low fertility countries where propensities to have children are comparatively low from the first child on. In contrast, Poland, Russia or Ukraine are characterized by a rather high propensity to start a family, but a low probability to enlarge the family size with a second child or more. However, once women have given birth to a second child, their propensity to have a third child is comparatively high. Furthermore, the situation of Japanese women is different since they have a medium-level propensity to start a family, however, they have a high propensity to enlarge the family with a second (and respectively a third) child once the first (and respectively a second) child is born.

Figure 3.4 Many women have two children, however, large cross-national variations exist in completed family size

Note: Countries are ranked by decreasing proportion of women with no child at the end of their reproductive period. The numbers in the chart reflect the completed fertility rate (CFR) which is the number of children actually born per woman in a cohort of women by the end of their childbearing years (normally, women who are 45 or over are considered to have completed their childbearing years; this end-year is often set at 49). CFRs are not available for Belgium, Germany, Hungary, Ireland and Mexico. 1. 1962-66 for Australia; 1963 for Greece, Portugal and Spain; 1964 for Hungary; 1960 for Canada, England and Wales, Sweden; 1959 for Finland; 1955 for Belgium, Germany and the United States; 1953 for Norway. Unfortunately, cohort data for the same year are not readily available, but the use of data on cohorts of women born within 10 years of each other provides an adequate picture of the main cross-country differences. 2. Estimates for the Western Länder of Germany only.

Sources: Australian Bureau of Statistics; Andersson et al. 2009; Frejka 2008b; Sardon 2006; Frejka and Sardon 2007; and McDonald 2010.

The same statistics are not available for countries in Central Asia, but recent studies suggest that the decrease in TFRs has been driven mainly by lower propensities to have a second child, while the frequency of a first birth has often remained quite stable. Spoorenberg (2013) emphasizes that, in general, lifetime progressions to the first birth remained fairly stable up to the mid-1990s in Central Asia, while the propensity to have a higher order of births started to decline significantly from the early 1990s onwards. Births of third and higher orders were most affected by the sharp drop – but less significantly in Uzbekistan. Lifetime progressions to fourth and fifth births were almost halved during the period. Symmetrically, the upturn in fertility rates observed since the early 2000s has been essentially due to an increase in higher order births (fifth or higher order births) in Kazakhstan. In comparison, the fertility rise resulted from an increase of first- and second order births in Kyrgyz republic where third- and fourth order births have

continued to decline. In other words, high rates of childlessness do not necessarily lead to low fertility rates if many women have large families.

Two features limit the recovery in TFRs: childlessness and, for those parents who have children, a decline in the number of large families, i.e. those with 3 or more children. In this context, the lowest low-fertility countries (i.e. those with TFRs persistently below 1.6 children per woman) are characterized by a sharp decline in the number of large families. For example, in Italy or Spain, less than 15 per cent of cohorts born in 1965 have had 3 children or more. In Japan and Korea, the share of women with four children or more in the cohorts whose childbearing has been completed has fallen from 60 per cent to about 10 per cent in Korea and 5 per cent in Japan.⁵ Childbearing, when it occurs, is also postponed to a great degree in comparison to a few decades ago: the increase in women's age at the birth of the first child is particularly pronounced, for example, in Germany, Greece, Italy and Spain.

Having at least one child is still very common, even in low fertility countries, but the progression to a second birth does not happen as frequently or as quickly as it does in high-fertility countries. The propensity to remain childless is also high in some countries with a low fertility rate, but not in all. Permanent childlessness is particularly high in South Europe (Italy, Greece) and German-speaking countries (Austria, Germany), while it is much less frequent in Central Asia and in the Eastern part of Europe – except Poland – although permanent childlessness is increasing sharply across the youngest cohorts. Childlessness also still remains a marginal phenomenon in Japan and Korea, with rates below 4 per cent for the cohorts of women born in 1945 or later. These two countries also stand out from other countries as having an extremely low proportion of out-of-wedlock births, demonstrating a strong persistence of traditional norms regarding entry into motherhood.

As mentioned already, the increase in female education is a key factor that explains the postponement of childbearing observed everywhere (Blossfeld 1995; Goldstein et al. 2009). Its effect on completed family size seems to vary considerably across countries, however. A striking feature is the small variations of final family size in terms of the level of education in Nordic countries: women with higher levels of education may delay entry into motherhood, however, fertility differentials decrease with age as more educated women progressively 'catch up' with their peers, and differences in CFRs by educational level are small, especially in Finland and Sweden (Andersson et al. 2009). Also, education levels only seem to have a limited effect on childlessness: its incidence ranges from 11.6 per cent in Norway to 17.3 per cent in Finland for the cohort of women born in 1955–59, and the difference between women with high and low education is 6 percentage points

5 In Japan, 73 per cent of women born in 1905/09 had 3 or more children, but the proportion was only 31 per cent for women born in 1935–39 and 27 per cent for those born in 1948–52. Korea shows a similar trend: 87 per cent of women born in 1916–20 had 3 or more children, but only 36 per cent of women born in 1950–1954 (Atoh et al. 2004).

Figure 3.5 Correlation between total fertility rates and parity progression ratios

Source: Human fertility database.

in Norway, but less than 2 points in the other countries.⁶ Fields of study and the subsequent types of profession seem to matter more in terms of explaining inter-individual variations in lifetime fertility in those countries where longstanding support for the work-life balance has helped to minimize the differences of levels of education (Hoem et al. 2006).

How Can Fertility Trends Be Explained?

Various factors affect fertility patterns: economic development, changes in the population composition of national territories, changes in social norms for childbearing, as well as both policy and the environments of labour markets. Much attention has been paid in academic research to the influence of all these factors on fertility trends over recent years.

Economic Development

Several recent research papers have studied the effect of economic development on fertility trends. Based on data for over 100 countries, Myrskylä, Kohler and Billari (2009) argue for the existence of a so-called ‘inverse J-shaped’ relation between the human development index (HDI) and total fertility rates, suggesting that fertility rates start increasing again after a certain level of human development has been reached. However, Harttgen and Vollmer (2012) have revisited this topic and have found that the reversal in the HDI-TFR relationship is neither robust to UNDP’s recent revision in the HDI calculation method nor the decomposition of the HDI into its education, standard of living and health sub-indices. Moreover, the use of a composite measurement of human development masks the particular contributions of each of the indicator’s components (GDP per capita, life expectancy and school enrolment) and thus does not reveal why in some countries, especially highly developed ones, a rise in fertility occurs in conjunction with increases in human development.

For this reason, Luci-Greulich and Thévenon (2013b) investigated the impact of economic development and its components on fertility in 30 OECD countries from 1960 to today. They found that the strong negative correlation between GDP per capita and fertility no longer holds for high levels of per capita economic output; the relation, instead, seems to turn positive above a certain threshold

6 An interesting trend change took place in Norway and Denmark: in the early cohorts, highly educated women remained childless most frequently; in later cohorts, women with low education are more likely to remain childless. Across Nordic countries there is little variation in levels of childlessness for highly educated women. For those born in 1955–59, the incidence of childlessness is highest in Finland, at 17.1 per cent, and lowest in Norway (14.6 per cent). Childlessness differs most among women with the lowest levels of education: 19.2 per cent for this cohort in Finland and 8.6 per cent in Norway.

level of economic development – although few countries have already passed the threshold of GDP per capita (around 30.000 USD) which seems to be associated with an upturn in fertility rates. Furthermore, by decomposing GDP per capita into several components, they identify female employment as a co-varying factor for the fertility rebound that can be observed in several highly developed countries. Pointing to important differences in the compatibility between childbearing and female employment, their results suggest that fertility increases are likely to be small if economic development is not accompanied by institutional changes that improve parents' opportunities to combine work and family life (see below). This conclusion is consistent with those of Myrskylä et al. (2011) who argue that the reversal of fertility trends is conditional on gender equality: countries ranking high in development, as measured by health, income and education, but low in gender equality continue to see declining fertility. Gender equality is therefore crucial for countries wishing to reap the fertility benefits of development.

In this context, the 'lowest-low fertility countries' have much lower fertility levels than the values predicted by the actual level of per capita GDP. For instance, in Japan and Germany, income levels are only somewhat below the estimated turning-point value and very close to those of New Zealand or France: economic development thus does not explain the persistence of low fertility in these two countries.

By contrast, Anglophone and Nordic countries, as well Belgium, France and the Netherlands, achieve higher TFRs than would be predicted on the basis of their per capita income. In France and New Zealand, TFRs are high while GDP per capita is below the estimated turning point. Thus, in these two countries the fertility 'rebound' took place at a stage of economic development at which a further decrease in fertility rates could have been expected in the absence of country-specific factors. High fertility countries such as Iceland, Ireland, Norway and the United States are at a stage of economic development which predicts a positive influence of income and consumption growth on fertility.

Strikingly, the line dividing countries below and above predicted fertility levels coincides with the classification of countries with and without significant public and/or flexible workplace support for the reconciliation of work and family life (Thévenon 2011). Moreover, co-variation of fertility trends with the increase in female employment rates found by Luci-Greulich and Thévenon (2013b), suggests that the increase in GDP per capita actually captures increased female labour market participation as well as greater possibilities for work-life reconciliation afforded by increased household income.

In all, it seems that subject to cross-country variation in current outcomes, many countries can expect an increase in economic development to coincide with an increase in TFRs. However, the increase in fertility rates is likely to be small, unless economic development is accompanied by other institutional change in the areas of work and family reconciliation, norms and attitudes towards childbearing, and the direct cost of children.

The relation between fertility and economic development is different in Eastern European countries and Central Asia which have recently experienced the end of communism and the transition to a market economy. Before this transition, fertility was relatively stable in many former socialist countries during the 1970s and 1980s when the corresponding cohort fertility was exceptionally steady (Frejka and Sobotka 2008). After the transition, despite dramatic changes in their living conditions, women in former socialist countries did not immediately adjust the onset of childbearing by not having or postponing the arrival of their first child (Frejka and Sobotka 2008; Sobotka 2011; Spoorenberg 2013). Fertility rates fell dramatically at a later stage, however. Nevertheless, despite similar trends, such as plummeting fertility rates and a postponement of childbearing in the 1990s, considerable diversity in family and fertility patterns emerged during the 1990s and 2000s (Sobotka 2011). This is reflected in strong contrasts between countries in the diffusion of cohabitation, non-marital fertility, timing of births and marriages, share of one-child families, and abortion rates.

There are major differences in terms of economic prosperity, social stability and the overall success of economic transformation, meaning that the region has become extremely differentiated (Sobotka 2011). A few countries, especially in post-Soviet Eastern Europe and in the Balkans, experienced economic collapse which depressed their GDP levels by 50 per cent or more. In the early 2000s Macedonia, Moldova and Ukraine still had lower per capita GDP than in 1989, i.e. before the onset of the transition to a market economy. These countries, including Russia, witnessed a protracted crisis with a continuous economic decline over the 1990s marked by massive poverty, sharply deteriorating living standards, and a failure of the governments to provide essential social and health services.⁷

Many Central European countries (especially the Czech Republic and Slovenia), in contrast, saw a comparatively smooth economic transition, maintaining lower poverty rates, a relatively comprehensive social security net, moderate unemployment levels and gradual wage increases after 1992.

The transition to a market economy also introduced growing inequalities. Labour markets and wages became more differentiated by social status, but also by region. The intensity of income inequality also varied across countries: in a few countries such as the Czech Republic, Slovakia and Slovenia, income differences (GINI) remained relatively small, whereas countries of the former Soviet Union and south-eastern Europe saw a massive rise in earning and income inequalities (Aslam et al. 2005; Heyns 2005).

In this new context, fertility patterns are strongly differentiated between countries and between social groups. Economic transformation seems to have affected fertility rates in two different ways (Sobotka 2011). On the one hand, first births remained relatively stable during the difficult period of the 1990s in

7 These changes were accompanied by a dramatic drop in life expectancy in many Eastern countries, especially in Russia where male life expectancy fell by 7 years, from 64.5 to 57.4 years, between 1989 and 1994.

countries where real wages slumped most severely, such as Lithuania, Moldova, Russia and Ukraine. This paradox was pointed out by Sobotka (2011: 285), 'poor economic prospects, uncertainty, and low level of social security appear to have contributed to the perseveration of an early childbearing pattern rather than stimulate its postponement'. Similarly, in Central Asia, the propensity to have a first birth remained quite stable during the 1990s, while second and third births were more responsive to the collapse of the Soviet Union (Spoorenberg 2013). A postponement of first and second births occurred in Uzbekistan, Kazakhstan and the Kyrgyz Republic over the post-independence years, while changes in the transition to a third birth had already occurred before the end of the Soviet Union in response to earlier structural and/or cultural changes (Schumacher and Spoorenberg 2010; Spoorenberg 2013). By contrast, first births were postponed in the more successful economies of central Europe, such as the Czech Republic or in Hungary.

Population Composition

Changes in population composition are also a factor influencing fertility trends, since fertility behaviour is not homogeneous within countries and varies across population groups. In general in Europe and the US, fertility rates for foreign-born populations are relatively high in comparison with native-born populations (Sobotka 2010; OECD 2011). However, since recent migrants often represent only a small proportion of populations, their effect on the overall TFRs is often small. Hence, while their TFRs are relatively high, their overall effect on birth rates is limited, ranging from 0.05 to 0.1 children per woman (e.g. between 3 and 8 per cent).

However, differences in fertility behaviour by ethnic groups are a major determinant of recent fertility trends in Central Asia, where population movements increased after the break-up of the Soviet Union and where the departure of large numbers of people from the region modified the ethnic composition of the populations of these countries (Spoorenberg 2013). For example, Russian females in this region are far less 'at risk' of having a second or third birth. In Kazakhstan, while the vast majority of Kazakh women had a third child in the early 1980s, the proportion of Russian women with a third birth was below 50 per cent. In the mid-1990s, this proportion was 70 per cent among the former, and 15–20 percentage points lower among the latter (Spoorenberg 2013).

Social Norms of Childbearing

Social norms of childbearing influence fertility decisions as they affect accepted behaviour among relatives, friends and/or other groups in society. Norms help shape preferences regarding childbearing and the timing of births, but also affect questions of who should care for children and how work should be matched with family-life choices. Norms are not fixed, however, and expectations regarding

childbearing and the division of household work have been changing considerably over the past decades (Lesthaeghe 2010).

In most countries, marriage is no longer a prerequisite for having children, as it was only a few decades ago, and this reflects a major shift in attitudes. The number of out-of-wedlock births has increased since the early 1970s in almost all OECD countries and encompasses over half of births in Bulgaria, Estonia, France, Norway, Mexico, Slovenia and Sweden, making marriage almost irrelevant for childbearing. By contrast, a slower rise has been observed in Southern and in Eastern European countries.

During the Soviet era, marriage in Central Asia was early and universal, and was quickly followed by a birth (Spoorenberg 2013). Marriage rates remained relatively stable during the 1980s in Central Asia, but declined during the 1990s before rebounding during the perestroika period. In general, changes in marriage rates have been more pronounced in Kazakhstan than in the Kyrgyz republic and in Uzbekistan.

Figure 3.6 shows that fertility rates are highest in countries where at least one third of births occur outside marriage. By contrast, the proportion of non-marital births is still very small in low-fertility countries such as Japan, Korea⁸ or Italy.

Figure 3.6 The proportion of births out-of-wedlock is increasing

Source: OECD Family database, SF2.4 and UNECE.

8 Japan and South Korea are the two OECD countries where childbirth remains strongly associated with marriage. In these two countries, the postponement and subsequent decline in marriage rates was the main determinant of the TFR decline up to the late 1990s. The proportion of women who have never married has risen very sharply in Japan, from 7.2 per cent in 1970 to 26.6 per cent in 2000, while in Korea it increased from 1.4 per cent to 10.7 per cent over the same period (Lesthaeghe 2010). In both Japan and Korea, very few married couples remain childless, and in Japan, marital fertility has remained quite stable over time (Atoh et al. 2004). There has been a recent decline of marital fertility in Korea (Lee 2009, 2010; and Suzuki 2009) which has contributed to the growing number of smaller families in that country.

The sharp decline in marriage rates in these countries gives some indication of the ongoing change: with educational attainment among young women equal or superior to that of young men, it is no wonder that young women want to be part of the workforce, and find it increasingly difficult to abandon paid work for homemaking. Hence, they delay and/or forego marriage while large parts of society still expect them to sacrifice their labour market aspirations (Eun 2007; and Suzuki 2010). By contrast, other countries with traditional attitudes towards family formation such as Greece and Spain are experiencing a modernization of norms which has contributed to a recent increase in TFRs in these countries (Billari 2008; and Lesthaeghe 2010). In general, countries where young women's labour market aspirations are most at odds with prevailing traditional norms on marriage, childbearing and gender roles at home are also the countries where low fertility is most persistent.

The Cost of Children

The economic cost of children is also a determinant of fertility and its evolution, since raising and educating children requires income, goods and especially time. Having children incurs both a direct and visible cost and an indirect and less visible one (Willis 1973; Thévenon and Luci 2011), and the increase in these costs is considered to be a key driver of the decline in TFRs since the early 1970s (e.g. Hotz et al. 1997).

Direct costs of children include the additional consumption incurred by households because of their presence: housing, food, clothing, childcare, education, transport, leisure, etc. Surveys⁹ of the literature on child costs suggest that a child accounts for approximately 15–30 per cent of the budget of a childless couple. The variation depends on several factors like the child's birth order, their age, the parents' education and income level and the bargaining power of household members.¹⁰ Nevertheless, both housing and education are key spending factors for families with children. In this context, the rising price of housing, and the longer time spent in education – or the growing importance attached by parents to it – are likely to establish a barrier to fertility (OECD 2011).

Households also bear 'indirect' costs when having children because parents, usually mothers, invest time in caring, educating and raising children, rather than in paid employment. These costs can be measured by the earnings foregone by parents who reduce their working hours or stop work altogether (opportunity

9 See especially OECD (2011) and Thévenon and Luci (2012).

10 The cost of the first child is often found to be greater than that for each subsequent child, because of economies of scale related to shared infrastructure (e.g. bedrooms) or the re-use of clothes and other articles. The cost of children increases with the age, mainly during adolescence and the transition towards adulthood.

costs). Full-time leave or temporary reductions of working hours can also incur costs by lowering long-term career prospects.¹¹

Labour Market Status

Against this background, public and workplace policies have been progressively introduced in order to help parents who combine work and care responsibilities, thus reducing the costs of having children. These policies, along with changes in attitudes, help explain the change in the relationship between female employment and TFRs at the aggregate level across countries shown in Figure 3.7. In 1980, most of the countries with higher female employment rates had low fertility levels (data available for a restricted number of countries). By contrast in 2009–2010, the highest fertility rates were observed in countries which also have high rates of female employment. Hence, although work and family reconciliation is achieved by different means, Nordic and English-speaking countries are able to combine high female employment rates with high TFRs. The choice between employment and motherhood is less stark in these countries, even though there is still often a trade-off between having a large family and female employment at individual level (Matysiak and Vignoli 2008). Moreover, securing employment has increasingly become a condition men and women aim to meet before entering into parenthood. In particular, Rendall et al. (2014) found that women and men in ‘dual-earner’ regimes, in particular, had higher rates of entry to first parenthood when employed ‘full-year, full-time’ in the year prior to fertility exposure compared to those partly employed or not at all in the year prior to fertility exposure.

By contrast, many of the lowest-low fertility countries (Albania, Moldova, Romania, Greece, Hungary, Italy, Japan, Korea, Poland and Spain) show comparatively low female employment rates. Nevertheless, a change in signs of the correlation between fertility and female employment rates, from negative to positive, also seems to have occurred in Central and Oriental Europe, for which Kotowska (2013) finds a strong increase in the correlation during the 2000s.

The intensity of work is also negatively associated with the presence and number of children. The likelihood of being in full-time employment was 1.5 times higher or more for childless women than for mothers with children aged

11 One way of measuring these costs is to compare the total earnings foregone by mothers over their career after childbirth with the earnings profile of childless women. The earnings profile of the former compares unfavourably with the latter; this is the so-called ‘family gap’ (OECD 2002; Harkness and Waldfogel 2003; and Davies and Pierre 2005). For example, Sigle-Rushton and Waldfogel (2007) estimate that a working mother with two independent children (aged 25 and 27) in Germany and the Netherlands has, on average, only 42–46 per cent of the cumulative earnings of otherwise similar female employees. The proportion is 58 per cent in the United Kingdom, but the ‘family gap’ is much smaller in Finland, Norway, Sweden or the United States where mothers earn 80–89 per cent of non-mothers’ earnings.

20–44 in Austria, Spain, Hungary, the Netherlands, Poland or the UK through the 1990s and up to the mid-2000s (Thévenon 2009). By contrast, the likelihood of working part-time increases with the number of children in all countries, although especially so in the Netherlands where the vast majority of employed women work part-time. The analysis of trends in employment status in relation to family status show diverging trends in Europe: while differences in labour market status with the number of children seem to be narrowing in some countries like France, polarization appears to have increased over time between women having a full-time job but few children, and women with a large family who are more and more likely to have a part-time job.

Diverse aspects of labour market conditions play a role in fertility. First, workplace practices such as long working hours and working weeks make it harder to juggle work and care commitments and have been found to negatively affect fertility rates (Schmitt 2012; Luci-Greulich and Thévenon forthcoming). By contrast, part-time employment opportunities have a positive effect on fertility rates in OECD countries, especially among women with a higher educational level (D'Addio and Mira D'Ercole 2005; Del Boca et al. 2009; Adsera 2011). Mills et al. (2008) suggest that it is not so much shorter working hours, but rather control over working time that strengthens intentions to have children in European countries.

Furthermore, easy access to permanent positions (such as those in the public sector) is correlated with faster transitions to births, while short-term contracts are associated with delayed fertility instead (Adsera 2011). Schmitt (2012) suggests that the effect of labour market status on fertility behaviour is country-specific and depends on its embeddedness in welfare regimes. For example, he found that occupational uncertainty – part-time work or work with a fixed-term contract – hampers transitions to parenthood in Germany, but is inconclusive for the UK. Among highly educated women in both Germany and the UK, however, a high degree of labour market integration – shown by higher working hours and/or gains in earnings – is found to delay family formation.

The macro-level situation of labour markets also seems to matter. In this regard, high rates of unemployment are conducive to a decrease in fertility rates (Adsera 2004; Sobotka et al. 2011; Luci-Greulich and Thévenon 2013), but it is hard to identify a clear effect of the degree of labour protection on fertility at national levels (Luci-Greulich and Thévenon 2013).

Lastly, the opportunities for mothers to combine work and family life increase when fathers take on a larger share of unpaid work. Emerging evidence from the Nordic countries suggests that involvement of fathers in caring for the first child brings forward the birth of the second child (Skrede 2005; Duvander and Andersson 2006; Duvander et al. 2008; Lappegard 2009). A more equitable division of unpaid work within households contributes to couples having additional children.

Figure 3.7 Motherhood and employment are less incompatible now than in 1985

Sources: OECD Family database, SF2.1; World Bank data.

Family Policies

In this context, reducing the obstacles to childbearing has become an issue of growing importance on the policy agenda of many OECD and European countries, despite some hesitations linked to the fact that fertility issues are often considered to be part of the private sphere (OECD 2011; Philipov 2011). However, the persistent decrease in fertility rates has pressed policymakers into action in many countries, often with the aim of promoting demographic renewal and/or reducing barriers to family formation so that adults can have as many children as they desire. In other words, policies are designed to reduce the gap between intended and achieved fertility in many countries, as shown by Figure 3.3.

Here, the ‘ultimately intended family size’ is estimated by combining the number of children that women aged 25–39 ‘intend’ to have and those already born (Figure 3.8). The ultimately intended size is particularly small in Italy, Spain and Austria where ideals of fertility below the replacement rate have emerged (Goldstein et al. 2003). Nevertheless, the significant share of ‘intended’ births highlights the potential barriers households may face in seeking to realize their intentions.¹² Moreover, the two-child family emerges as a clear dominant ideal in all European countries in comparison with other family sizes (Rita Testa 2012).

In this context, a widening literature is attempting to assess the influence on fertility behaviour of policies targeting families with children (see Thévenon and Gauthier 2011 for a recent overview). There is considerable evidence that family policies can influence the timing of births, but it is less clear whether family policies actually help to significantly raise completed family size. Some cross-national studies have investigated the impact on fertility rates of money transfers, leave and childcare policies, and expenditures for families (Gauthier and Hatzius 1997; Adsera 2004; D’Addio and Mira D’Ercole 2005; Hilgeman and Butts 2009; Kalwij 2010).

12 More precisely, the European Commission’s Eurobarometer (2006) opinion survey on Childbearing Preferences and Family Issues in Europe reveals that the two-child family is the most frequent ideal in the EU25-countries, with low-fertility countries such as Poland, the Czech Republic, Slovakia, Bulgaria, Spain, Portugal, Germany and Italy affirming the same average fertility intention (2 children) as other European countries. This means that in low-fertility countries, important individual and/or institutional barriers exist which prevent individuals from ‘realizing their fertility intentions’. When asked the reason for having fewer children than intended, individual barriers such as health problems, advanced age or lack of partner are mentioned on average in the EU25 as often as institutional barriers such as difficulties combining work and family life. Unfortunately, no country-specific information is available for this question in the Eurobarometer.

Figure 3.8 ‘Fertility gap’ between intentions and realization

Note: Countries are ranked by the decreasing ultimately intended family size of respondents. This information is based on survey responses to the question: ‘And for you personally, what would be the ideal number of children you would like to have or would have liked to have had?’

Source: Eurobarometer 2006: childbearing preferences and family issues in Europe.

Most recently, Luci-Greulich and Thévenon (2013) investigated the impact of these policies on fertility trends in 18 OECD countries over the years from 1980 to 2007. They suggest that each instrument of the family policy package (paid leave, childcare services and financial transfers) has a positive influence on average, suggesting that the combination of these forms of support for working parents during their children’s early years is likely to facilitate their decision to have children. Policy levers are not found to have the same weight, however: in-cash benefits covering childhood after the year of childbirth and the provision of childcare services for children under age three have a larger potential influence on fertility than leave entitlements and benefits granted around childbirth. Moreover, the authors point out important differences in the influence of each policy measure across country groups with different family policy systems. These results based on cross-national comparison of fertility trends converge with studies focusing on country-specific situations and/or analysing more precisely the impact of a single measure or a policy reform.

In all, countries where fertility rates have returned to comparatively high levels after a period of decrease have also implemented policies that help women to combine work with family formation. The effectiveness of policies and/or workplace practices to support childbearing is argued to be a major determinant of achieving high fertility and female employment rates. By contrast, countries with low fertility rates also often show comparatively low female employment,

suggesting that they fail to provide the support needed to combine work and childbearing.

Is Low Fertility a Policy Concern?

The persistence of low fertility rates raises many concerns for public policies, as it contributes to the process of population ageing that is primarily driven by the increase in life expectancy. This process will indeed have major implications for national economies and their social challenges: the workforce composition will be affected, and with it the potential for achieving economic growth and for maintaining currently generous levels of state welfare provision (Tyers and Shi 2012; EC 2012). Yet, new needs for social support (especially for young people and older adults) are emerging at the same time (see, for example, Bloom et al. 2012), and will call for an ‘expansion’ of social spending rather than a ‘retrenchment’.

In this context, stopping the fertility decline or even raising fertility rates is often seen as a key challenge for the policy agenda of countries with low fertility rates. However, although (very) low fertility raises concerns, there are also reasons for not worrying too much. One should not overstate the effect that policies can have on raising fertility; and even if policies are successful, the contribution of the ensuing fertility increase may be insufficient to cover the financial burden of population ageing. Moreover, although low fertility may lead to population shrinkage in the medium to long run, the average increase in educational attainment may produce a rise in total productivity that may at least partly offset the decrease in the number of active people helping to finance the welfare state. For these reasons, the replacement rate (i.e. 2.1 children per woman) is no longer the reference that policy makers should set as a realistic target. Setting a fertility target is not easy, however, since taking TFRs as a reference to measure the ‘fertility gap’ between desired and achieved fertility is likely to overstate this gap.

The Size of the Future ‘Fertility Gap’ Is Uncertain

To what extent the existence of a ‘fertility gap’ is a global policy concern is not obvious, for two reasons. The first – which is relevant for all countries – is that taking TFRs as the sole reference in order to forecast fertility trends is not satisfactory, as it is very sensitive to changes in the timing of childbirths. Thus, the postponement of childbearing automatically causes the TFR to fluctuate (downwards, then upwards) so the actual level of completed fertility is not predictable. The extent to which an initial decrease in TFR will be ‘recuperated’ by births occurring later over the life-cycle depends on the extent to which cohorts are postponing births but not actually foregoing childbearing altogether. If births are recuperated, TFRs will overstate the long-term decrease in fertility, while some other ‘tempo-adjusted’ indicators of fertility can provide a better approximation

of the trends of 'completed family size' or a more accurate estimation of the gap between fertility ideals and actual behaviour (Table 3.1).

For this reason, Sobotka and Lutz (2011) argue that the use of TFRs frequently leads to incorrect interpretations of period fertility levels and trends, resulting in distorted policy decisions and, potentially, in misguided policies. For this reason, tempo-adjusted estimations of fertility rates that aim at correcting measures of fertility for distortions due to changes in the timing of births provide a means of predicting the long-term 'fertility gap' more accurately. It provides an estimation of fertility rates with the control of the changes in the timing of birth, and thus is likely to reflect more accurately the short-term changes in the quantum of fertility. For this reason, they predict fertility rates which are far higher than the standard TFRs and which lead to measures of the fertility gap that are much lower than those using TFRs. Purely from a measurement point of view, the needs for policies boosting fertility are therefore less clear, especially in Western and Northern Europe.

Fewer People but a More Educated and Productive Workforce?

The second reason for not being too pessimistic about the move towards lower standards of fertility comes from the unprecedented rise in human capital and productivity that has accompanied population trends over the last decades. European and OECD countries have made substantial investment in human capital, achieving significant increases in the educational attainment of men, but especially women. Progress in educational attainment among women and men has led to improvements in labour productivity and labour force participation, but also in child mortality, fertility, and health. In this regard, universal education of young women makes a particularly important difference (Schultz 2002; Lutz and KC 2011). Indeed, women empowered through basic education are in a better position to improve their own health and that of their children and other family members (Schultz 2002). They have better access to information, a more rational approach and may gain power in the household that enables them to pursue their own priorities, including those regarding children. In this respect, women with a higher education typically want fewer children, have better access to contraception and are often more inclined to spend more money on children.

The education gradient of fertility varies across countries and there are large uncertainties about the current and future extent of fertility differences by levels of education or fields of study. However, it will remain a key parameter of population trends. Thus, Lutz and KC (2011) look at predictions of population trends with scenarios that differ with respect to future school enrolment rates. For the world population by 2050, their results suggest a big impact of education trends on population size: a difference of 1 billion people can be expected between their most optimistic scenario in terms of growth in female educational enrolment and their most pessimistic, where enrolment rates are maintained at their current level.

Table 3.1 **Measuring the ‘fertility gap’**

	(1) Personal ideal family size	(2) Actual + intended family size	(3) TFR	(4) Tempo adjusted TFR*	(5) Gap 1 (1)–(3)	(6) Gap 2 (1)–(4)	(7) Gap 3 (2)–(4)
Western Europe	2.44	2.36	1.88	2.05	0.56	0.39	0.31
Northern Europe	2.57	2.35	1.85	1.95	0.72	0.62	0.41
Southern Europe	2.08	1.81	1.37	1.46	0.71	0.61	0.35
Austria + Germany	2.07	1.88	1.34	1.62	0.74	0.45	0.25
Central-Eastern Europe	2.09	2.04	1.31	1.60	0.79	0.50	0.44
EU-27	2.21	2.06	1.53	1.72	0.68	0.49	0.34

Note: Data are weighted by population size of countries in given regions.

Source: Columns (1) and (2): *Eurobarometer* 2006 data analysed by Testa (2006). (3) and (4): *I/D* 2010. Sobotka and Lutz (2011).

Nations with more educated men and women will therefore have fewer children, which in turn will lead to a decrease in population numbers. However, the decrease in population size may be accompanied by an increase in the average level of education that may boost future prospects for productivity and economic growth. This will occur if, for example, the relationship between the increase in education and economic growth identified for the past decades is maintained in the future, in which case economic growth may not only be driven by the average increase in human capital, but also boosted by the effect of women's level of education catching up with that of men (Thévenon and Salvi del Pero 2014).¹³ This is of course speculative, but consistent with findings by Crespo Cuaresma (2014) who estimated the change in educational attainment levels to be the primary source of the demographic dividend of the past decades. They also suggest that the effects of human capital go beyond the role that education plays as a determinant of labour force participation. In all, the increase in education is likely to create an 'economic dividend' that may outweigh the economic gap created by population ageing in the short to medium run.

Limited Impact of Fertility Variations on the Solvency of Welfare States

Much of the concern about low fertility focuses on the cost and fiscal sustainability of the welfare states placed under pressure by population ageing. However, even if low fertility is costly for welfare states, variations in fertility rates may have only a small impact on the financial sustainability of welfare programmes. The reason for that is twofold. First, low fertility has moderate adverse economic effects and may not lead to lower standards of living overall; second, although increases in fertility rates would help to finance the welfare state in the long run, the evidence suggests that variations in fertility rates may actually have only a small impact on financial equilibrium.

To understand this, Lee and Mason (2013) acknowledge that decline in fertility rates has two fundamental effects on the economy. First, it reduces the relative number of children, makes the population older, and raises old-age dependency. Second, it slows population growth which leads either to lower saving rates or more capital per worker, thereby raising consumption. How these two processes combine and affect the economic returns depends on fertility levels: at high levels of fertility, these two processes work in the same direction and fertility decline has unambiguously favourable economic effects; at low levels of fertility, the age structure effect turns negative and eventually outweighs the population growth effect. In that case, very low fertility is fiscally costly in countries with large public old-age support systems, and population ageing will require painful adjustments to these programmes.

13 Thévenon and Salvi Del Pero have actually found that a more equal gender distribution of education enhanced the positive effects of increases in average years spent in education in OECD countries between 1960 and 2008.

However, policies initiated to raise fertility are likely to have a limited impact on the solvency of welfare states. A first reason is that low fertility does not lead to lower standards of living overall – at the aggregated level. The authors estimate, on the contrary, that fertility maximizing life-time consumption is lower than replacement level, generally between 1.5 and 2 births per woman when the capital-output ratio is assumed to be constant at 3; but the optimal fertility rate is even lower – typically between 1.0 and 1.6 births per woman – when it is assumed that there is a choice of both fertility and saving rates. In that situation, the effects of pronatalist incentives are not guaranteed, even if a significant shift in fertility rates reduces the burden of population ageing on public finances. To measure this burden, the authors estimate a ‘fiscal support ratio’ which is defined as the ratio of population-weighted age-specific tax payments to population-weighted age-specific costs of benefits. Yet, ‘optimal’ fertility for the public sector (i.e. which would maximize the fiscal support ratio) is much higher than the current level, and far above replacement rates. An increase towards replacement rates would thus increase solvability in countries with the lowest low-fertility levels, but would leave public budgets in deficit. Nevertheless, in many low fertility countries, the fiscal ratio achieved with fertility rates at replacement level is not very different from the ratio that would arise if fertility rates were set at their optimal level with regard to their effect on the fiscal ratio (Lee and Mason 2013).

Conclusion

This chapter has provided an overview of fertility trends in Europe and other OECD countries over the past decades. A widespread convergence towards lower standards of fertility has been shown, but cross-national variations in the distribution of completed family sizes are large. These variations are mostly due to marked differences in the proportion of women who remain childless and the proportion of women having two children or more in their lifetime. On top of these global trends, total fertility rates have started to rise again in many countries since the early 2000s, suggesting that the first phase of decreasing rates was largely due to the postponement of childbearing. We also reviewed the literature investigating the factors driving fertility trends. We discussed, in particular, the role of economic development and of family policies in supporting fertility, arguing that economic development alone is unlikely to raise fertility to the level that would guarantee population replacement.

The evidence suggests, instead, that countries which recently experienced a slight but certain increase in their fertility rates are those where female employment also increased over the same period, and where the reconciliation of work and childrearing was made easier. Yet, although increased support for the work-family balance positively affects fertility trends, the impact of policies remains limited and these policies are unlikely to raise fertility in low fertility countries up to population replacement rates in the near future. Yet, while not raising fertility

to a very high level, these policies achieve important goals for families' well-being, especially by helping parents to balance work and family. The realization of fertility intentions is therefore becoming more and more a by-product of policies improving families' overall living conditions and of 'reconciliation', the primary goal of which is not to enhance fertility. Paradoxically, pronatalist policies that do not protect women's positions in the labour market may fail to significantly raise fertility levels.

The extent to which this is a policy concern was discussed in the last section of the chapter. We highlighted three reasons why below-replacement fertility should not be seen as a major cause of concern. First, since TFRs are sensitive to changes in the timing of births, a great deal of uncertainty exists in terms of the extent to which they can be used to accurately measure (and compare) 'fertility gaps'. Second, lower fertility is accompanied by an increase in education and in the average human capital of the population, creating an 'economic dividend' which may partly respond to the needs created by an ageing population. Last but not least, increases in fertility rates, even if significant, may have only a weak effect on the financial sustainability of welfare states, far below the needs associated with population ageing. In this context, pronatalist policies may fail to meet their objective in the sense of generating an active population of sufficient size to relieve welfare states from the burden of population ageing. Indirectly, however, policies associated with high fertility and supporting the work family balance and gender equality in paid and unpaid work, may have an effect by increasing the active population, regardless of their impact on (aggregate) fertility. They may also help to reduce socio-economic differentials in fertility achievements which in turn may, marginally but undoubtedly, impact fertility rates. In order to strike the right balance, additional policies promoting active ageing and immigration may be necessary, alongside those designed with a view to increasing fertility.¹⁴

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14 On the contribution of migrations to population replacement, see especially Billari and Dalla Zuana (2011) and Wilson et al. (2013).

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PART II

Demographic Change in the
NAME Region

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Chapter 4

The Demographic Transition in the Arab World: The Dual Role of Marriage in Family Dynamics and Population Growth

Paul Puschmann and Koen Matthijs

Introduction

The Arab World belongs to the group of countries in which the demographic transition is in full swing, as both fertility and mortality have declined considerably over the last few decades. At first glance, the Arab World is experiencing the same kind of demographic processes Europe went through in the past, only later and faster. However, a closer investigation of the key variables involved in the transition uncovers some important differences in the mechanisms behind fertility decline. Whereas in Europe the fertility decline (during the first demographic transition) was the result of birth control within marriage, in the Arab world fertility decline is also driven by rising ages at marriage that in turn shortens the reproductive career of women (Rashad 2000; Rashad and Khadr 2002; Fargues 2005).

In Western Europe, the fertility decline went hand in hand with a mimetic desire for marriage, which manifested itself into lower ages at marriage and a declining number of permanent singles (Matthijs 2002). Today, in the Arab world, the opposite is the case, as ages at marriage have risen in such a way that scholars are talking about a marriage revolution (Rashad 2000). However, inclining ages at marriage in the Arab countries are not the result of a diminished desire for marriage (Engelen and Puschmann 2011a). Marriage continues to be one of the main goals in the life of young people in the Arab world, which is illustrated by the fact that marriage has stayed more or less universal in most Arab countries.

In this chapter we will focus on the dual role of nuptiality change. On the one hand, it creates all kind of new opportunities for people living in the region, on the other, it gives rise to new challenges. As marriage postponement accelerates fertility decline, population growth slows down faster. For many reasons, this is likely to lead to different outcomes. First, it creates a demographic momentum, which can boost the economy temporarily through the presence of a large and cheap labour force (Bloom, Canning and Sevilla 2001). Second, the fact that parents rear less children, will lead to more human capital, as parents can spend more time and money on each individual child (Becker 1960). Higher investments in human capital do increase per-capita income and consumption, opening up

possibilities for growth (Lee and Mason 2010). Third, fertility decline is likely to result in wealth concentration, as family capital is divided among a smaller number of inheritors. Fourth, as population growth decelerates, a smaller share of public expenditures will be used to give new people access to existing public services, like education, health care, infrastructure and transportation. This makes it possible to improve the quality of these services and to alleviate poverty more efficiently (Kent and Haub 2005).

Simultaneously, the damaging effects of population growth to the environment will decrease. The region has been suffering in the previous decades from food shortages and a decline in water-availability per capita, leading to water-scarcity and desertification (Al-Weshah 2002). This has led to political tensions and conflicts, and has been a driving force behind massive rural-to-urban migration and high-speed urbanization, with all its negative consequences including high unemployment rates, growing inequality, social unrest, and the rise of shantytowns (Knerr 2004; Nedoroscik 1997; Puschmann 2011). Decelerated population growth will help governments and urban planners tackle these challenges. Last but not least, postponement of marriage and fertility decline can be beneficial for women. The fact that ages at marriage have risen faster among females than among males, has reduced the age gap between husbands and wives. This trend is likely to increase the bargaining power of married women. Moreover, because married life starts later and women dedicate less of their life-time to reproduction, women's possibilities of performing paid labour and activities outside the household are growing (Engelen and Puschmann 2011a).

Nuptiality and fertility decline also create new challenges. As a result of high-speed fertility decline, the population of the Arab world is ageing at an increasingly faster pace. As a result, a growing number of people will have to rely on care from shrinking proportions of working-age people. It will be necessary to take measures, otherwise the pension system will break down, the health care system will fail, and long-term economic development will be undermined. Without governmental intervention the burden of an ageing population will be passed on to the family. Accordingly, elderly people who have no relatives will especially suffer, as they will not be able to count on care and assistance from family members. Ageing might have especially severe consequences for women because it is likely that they will have to act as prime carers for the elderly in their family. This would mean that the burden of feeding and rearing a great number of children will be replaced by the care for an even larger number of older relatives.

Nuptiality change also creates tensions within families, especially because young people in the Arab world still prefer to marry (young), but can do so only at more advanced ages (Bakass and Ferrand 2013). Since marriage is postponed, young men and women keep on living, for an extended period of time, with their parents and remain under their authority. This is not self-evident for several reasons. First, the children are better educated than their parents, but still have to obey them at an advanced age. Second, parents continue to control the sexuality of their unmarried daughters, as pre-marital sex is still taboo (especially for women)

and might lead to family shame (Saadawi 2007). This limits the day-to-day life of unmarried females. Third, a main transfer of wealth between parents and children is delayed, because children are expected to contribute to the budget of the family of orientation, limiting their own opportunities to save for their future family (Booth 2007).

These frustrations within the household seem to have started to merge with dissatisfaction about the political situation, culminating in the so-called Arab Spring. Contrary to scholars trying to explain the late revolutions in the Arab countries mainly in terms of a youth bulge (Cincotta 2012; Cincotta this volume), we argue that the Arab spring is closely related to the marriage revolution. The youngest generation in the Arab world has invested more time and money in education, which has heightened their expectations about their future. However, their opportunities in life have not increased accordingly. Conversely, they face relative deprivation: compared to the less-educated generation of parents and grandparents, young people today have a harder time reaching their goals in life, including marriage and family formation. These young unmarried people, who lack the privileges related to married life – sexual intercourse, independence, authority, social status – make the government responsible for their situation, as it has failed to provide them with acceptable economic opportunities. At the same time, the fact that they are unmarried makes them more willing to participate in revolts against undemocratic and corrupt regimes (Marks 2011a, 2011b).

This chapter starts with an introduction to demographic transition theory. In this section, the key concepts related to the first and second demographic transition are reviewed, and some critics are discussed. Next, we describe the core processes of the first demographic transition in the Arab World. Subsequently, we will have a look at the characteristics and the causes of marriage change, as the Arab ‘marriage revolution’ greatly influences fertility decline (Rashad and Khadr 2002). Next to persistent below-replacement fertility, rising ages at first marriage, increasing divorce rates, growing rates of cohabitation, and increasing numbers of births out of wedlock, are main characteristics of the second demographic transition (Van de Kaa 2002; Lesthaeghe 2010). We will evaluate if marriage change in the Arab World actually can be put under the header of such a concept. Subsequently, we will deal with the consequences of marriage change. First, we will have a look at the (potential) positive effects of declining population growth rates, i.e. a restoration of the balance between population size and resources, and women’s empowerment. Second, we consider side-effects such as ageing and rising tensions within families and society at large. Finally, we will show that marriage change is one of the drivers of the Arab Spring.

Before we start our inquiry, it is important to define the region under study and to describe it from a geo-political perspective. We define the Arab world as the countries which are member states of the Arab League, apart from Comoros because of its specific geographic location (in the Indian Ocean, north of Madagascar). Thereby, we include the following 21 countries: Morocco, Mauritania, Algeria,

Tunisia, Libya, Egypt, Sudan, Syria, Lebanon, Iraq, Palestine, Kuwait, Saudi Arabia, Qatar, Jordan, Bahrain, United Arab Emirates, Oman, Yemen, Djibouti and Somalia. These countries can be grouped into four main regions: The Maghreb, the Mashreq, the Gulf and the peripheral countries in the south (Table 4.1).

Table 4.1 The Arab countries grouped into four main regions

Region	Country
Maghreb	Algeria
	Libya
	Morocco
	Tunisia
Gulf	Bahrain
	Kuwait
	Oman
	Qatar
	Saudi Arabia
	United Arab Emirates
Mashreq	Egypt
	Iraq
	Jordan
	Lebanon
	Palestine
	Syria
Periphery	Djibouti
	Mauritania
	Sudan
	Somalia
	Yemen

In all above-mentioned countries, Arabic is an official language and Islam is the most practiced religion. At first sight the Arab world is relatively homogeneous. This is only partially true as this area is home to several ethnic and religious minorities, like Shiites, Christian Copts, Jews, Blacks, Berbers, Kurds, etc. Economically speaking, the region is diverse, as it contains some of the richest (Qatar and United Arab Emirates) and some of the poorest countries (Djibouti, Yemen, Mauritania, Sudan and Somalia) in the world. These differences in development among neighbouring Arab countries are to a large degree explainable on the basis of the availability of oil reserves, internal political (in)stability, involvement in the Arab-Israel conflict, the degree to

which macro-economic reforms (mainly economic liberalization) have been implemented, and differences in fertility (Winckler 2005, 1–5). Within the Arab countries, differences in living standards among the poor and rich are huge, as in most states social security systems are absent or defect, and only a small minority of the population takes advantages of the country's natural resources.

Demographic Transition Theory

The First Demographic Transition

The concept of the demographic transition is usually credited to the American demographer Frank Notestein. In his 1945 article *Population: the long view*, he formulated a three-stage model of population change, which has become one of the most fruitful generalizations in the field of social sciences (Kirk 1996). According to that three-stage model (Figure 4.1), every country in the world, sooner or later, experiences a shift from high to low death and birth rates. The initiation of the demographic transition is a clear break from the past, as mortality decline starts without any structural change in fertility, opening up the way to high population growth. As before the transition, many babies are born, but now many of them reach maturity, leading to a constant rise in life expectancy. In a second phase, fertility starts to decline and as a result the population gradually begins to slow down. In the third and final stage, a new equilibrium establishes as both birth and death rates settle at the same low level. Population growth is slow again, but a young population has been replaced by an older, ageing population.

Today, the world can be divided roughly into countries which have completed the first demographic transition (e.g. Europe and North America), countries in which the shift is in full swing (e.g. North Africa and the Middle East) and countries which only more recently experienced some decline in mortality and fertility (most notably Sub-Saharan Africa). The Western countries were the first to experience the transition and the first to complete it. In Europe a structural decline in mortality started around the middle of the eighteenth century, thanks to better hygiene and improved infrastructure. During the nineteenth century, mortality continued to decline due to the introduction of vaccination programs, improved food production, the reorganization of urban areas (e.g. construction of water pipes and sewers) and the improvement of working and living conditions (Livi-Bacci 2012). During the twentieth century mortality rates further declined and life-expectancy rose higher and higher, but the rate of change became slower.

Figure 4.1 The first demographic transition model

From about the middle of the nineteenth century on, mortality decline was followed by fertility decline. Married couples in the Western world started to reduce the number of births within marriage by way of withdrawal and rhythm (Lesthaeghe 2010). Fertility decline was largely a result of parent's reaction to the fact that less children died premature (Lee 2003). Simultaneously, economic motivations also drove this shift in reproductive behaviour. In the course of the nineteenth century it became financially more attractive to have less children, as they started to contribute less to the family budget (e.g. prohibition of child labour), while their education became more expensive, mainly as a result of the introduction of compulsory school attendance (Caldwell 1976, 1981; Kirk 1996). While economic change seems to have fostered a motivation to reduce fertility, religion and culture acted as a barrier, temporarily preventing some people in some regions to reduce fertility at a time when this had become economically rewarding (Lesthaeghe and Wilson 1986; Engelen 1998). The Catholic church, for example, did everything to prevent their members from applying any form of birth control (Schoonheim 2005; Schoonheim and Hülsken 2011). More recently, scholars have pointed out the role of diffusion mechanism, depending on social networks and the family with regard to the spread of birth control techniques (Bras 2014; Szreter 1996; Van Bavel 2004).

Although the first demographic transition model has generally turned out to be a good description of the development of fertility and mortality, important deviations from the model have been observed as well. In France, for example, fertility decline preceded mortality decline. Next, the post-war baby boom caused in several Western and non-Western countries, an unexpected upheaval in fertility, which was not anticipated in Notestein's model (Van Bavel and Reher 2013).

However, the largest deviation from the model is probably illustrated by the baby-bust of the late 1960s, which paved the way to sub-replacement fertility. That is the moment where according to Ron Lesthaeghe and Dirk van de Kaa (1986), a second demographic transition started.

The Second Demographic Transition

Ron Lesthaeghe and Dirk van de Kaa (1986) pointed out that the second demographic transition started in North-Western Europe, and from there will spread gradually to other parts of the globe. The main characteristics of this transition are continued sub-replacement fertility, rising numbers of childlessness couples, drops in marriage and remarriage rates, and rising celibacy, cohabitation, divorce and extra-marital fertility. Lesthaeghe and Van de Kaa link those demographic trends and contrast them to the main characteristics of the first demographic transition. Whereas declining fertility during the first transition is perceived as an altruistic decision of parents to make sure that every child would fare better by reducing resource dilution, below-replacement fertility is described as the outcome of individual choices (Van de Kaa 1987). The era of the 'king-child' has been replaced by that of a 'king-couple' (Ariès 1980; Van de Kaa 2004). Not only has the motivation behind fertility decline shifted, also the means to achieve it. Whereas birth control during the first transition was mainly practiced by withdrawal and rhythm, more reliable ways of family planning (the pill and the IUD) have become common practices during the second transition (Lesthaeghe 2010). As contraception became more reliable, the ties between sex and reproduction became weaker (Zwaan 1993).

In terms of nuptiality the second demographic transition is also a strong turning point. During the first transition men and women married more often and younger, during the second demographic transition, marriage was increasingly delayed, and more and more people never married. Moreover divorce, which had been a rarity during the first transition, became a common occurrence during the second transition, on the principle that 'a good divorce is better than a bad marriage' (Lesthaeghe 2010, 212). Simultaneously, cohabitation became increasingly popular, first as a prelude to marriage, then as a substitute and finally as a postlude of matrimony. The next step was to disentangle the link between marriage and reproduction. From the 1980s on, a large increase in the numbers of births out of wedlock was observed in many North-Western European countries, illustrating that for many young people marriage had become completely obsolete (Zwaan 1993).

Deep societal and ideational changes are supposed to drive the second demographic transition. Lesthaeghe and Van de Kaa (1986) mention the shift from a society based on solidarity, in which the family functioned as a linchpin towards a society in which individual autonomy and self-fulfilment are the new devices. This shift embraces profound changes in gender-roles, a de-standardization of the

life course (Elzinga and Liefbroer 2007), and a waning influence of traditional powers, like the state and the church

The second demographic transition theory has not remained uncontested. Scholars have argued that there is only one transition and that the post-1965 developments are a continuation of the first transition or a special feature of it (Cliquet 1992; Coleman 2004). Next, sub-replacement fertility, one of the main features of the second demographic transition, already existed in the inter-war period (Van Bavel 2010). This raises doubts about the onset of the second transition. Moreover, as there is no clear endpoint, the concept of transition might actually not apply. After all, there is no clear shift from one equilibrium to another (Sobotka 2006). Next, ideational changes may not have been the drivers behind changes in fertility and nuptiality. For Belgium, Neels and De Wachter (2010) made assumable that post-1970 changes in union formation and fertility are related to structural changes in society rather than to value changes towards reproduction. Last but not least, it has been questioned whether the second demographic transition will actually spread from North-Western Europe to other parts of Europe and even to other continents (Liefbroer and Fokkema 2008).

The Demographic Transition in the Arab World

Mortality Decline

It was not before the era of European colonial rule (roughly the latter half of the nineteenth until the middle of the twentieth century) that a structural decline in mortality took place (Tabutin and Schoumaker 2005, 515).¹ The colonial powers, notably the French and English,² introduced all kinds of measures to improve health and life-expectancy. Among those measures were improvements in hygiene (notably sanitation programs in urban areas), the introduction of vaccination programs, increased use of antibiotics, and the establishment of health care services. However, only by the middle of the twentieth century, major epidemic diseases like cholera, typhus and malaria had disappeared (Tabutin and Schoumaker 2005, 515).

After independence, improvements in health services have decreased mortality further. There are, however, big differences in the level and development between and within countries. This has to do with differences in living standards, economic growth, and the density and quality of health services. In the oil-producing countries of the Gulf, economic growth and increasing living standards went hand in hand, and in many of these countries medical treatment in health services is free (Al-Qudsi 2010). As a result, life-expectancy rose and inequalities in health between socio-economic classes are relatively small. Elsewhere in the Arab

1 In Algeria colonization started already in 1830.

2 The Italians in Libya.

world, differences in health reflect social inequalities, as the poorest part of the population lives not only under worse conditions, but also suffers from limited access to health care (Akl et al. 2007; Al-Qudsi 2010).

Due to the absence of reliable statistics for most countries in the Arab region, it is hard to describe the decline of mortality before the middle of the twentieth century. Egypt and Algeria are two exceptions, as these countries disposed already during the first decades of the twentieth century of a reliable vital registration system. In Algeria, a slow but structural decline of mortality occurred during the first four decades of the twentieth century. Before and during the struggle for independence (1940s and 1950s) mortality rose steadily. However, from the 1960s on, mortality started to decline again, this time at a faster speed. In Egypt, a structural decline in mortality started in the 1920s, an interruption occurred in the 1940s, and mortality decline continued in the latter half of the twentieth century.

Around the middle of the twentieth century, large differences in mortality existed among the Arab countries. In countries like Kuwait, Qatar and Lebanon crude death rates were relatively low (12‰ to 15‰), while Somalia (32‰) and Yemen (29‰) had high rates. In other Arab countries, death rates fluctuated between 20‰ and 25‰. During the latter part of the twentieth and the first decades of the twenty-first century, mortality decline continued in all countries. As a result, in the period 2005–2010, most countries had a crude death rate below 7‰, except for Somalia (15‰), Mauretania (10‰), and Sudan (9‰). The lowest rates are observed in the Gulf States, especially the United Arab Emirates (1‰), Qatar (2‰) and Bahrain (3‰).

Declining mortality, especially among infants and children, results in considerable increases in life expectancy at birth (Tabutin and Schoumaker 2005, 594). All countries in the region made progress, but there are differences. In the Gulf countries, life expectancy is close to Western European levels. Countries like Somalia and Mauretania lag behind. In Somalia for example, life expectancy at birth (both sexes combined) has risen from 33.2 to 55.2 years in the period 1950–2010. In the same period, life expectancy in Qatar increased from 54.7 to 77.9 years. In both countries some 22 years were added to the life-expectancy at birth, but there are still differences, mainly as a result of differences in living standards, economic development, educational attainment, and quality, availability of and access to health care.

Population Growth

Like Europe in the past, the Arab world is experiencing a population explosion today. Population growth in the Arab world is, however, considerably larger. North Africa and the Middle East turned into the second fastest growing world region after Sub-Saharan Africa (Dhonte, Bhattacharya and Yousef 2000; Roudi-Fahimi and Mederios Kent 2007). The population of the Arab World grew from about 76 million inhabitants in 1950 to 359 million in 2010 (Figure 4.6). This growth is almost entirely the result of natural population growth.

Figure 4.2 The demographic transition in Algeria, 1876–2010

Source: Tabutin, Vilquin & Biraben (2002) p.13; United Nations World Population Prospects: The 2010 Revision.

Figure 4.3 The demographic transition in Egypt, 1907–2010

Source: Tabutin, Vilquin & Biraben (2002) p.13; United Nations World Population Prospects: The 2010 Revision.

Figure 4.4 Increasing life expectancy at birth in Arab countries (both sexes)

Source: United Nations World Population Prospects: The 2010 Revision.

Figure 4.5 Rates of natural increase (%) in Arab countries, 1950–2010

Source: United Nations World Population Prospects: The 2010 Revision.

Figure 4.6 Estimated total population of Arab world and its sub-regions, 1950–2050

Note: Projections 2010–2050 (Medium Variant)

Source: United Nations World Population Prospects: The 2010 Revision.

Thanks to declining fertility, rates of natural increase are slowing down in the Arab World (Figure 4.5). In countries like Qatar, Saudi Arabia, Morocco and Lebanon, the decrease is pronounced. In most Arab countries the natural increase rate is now below 1.5 per cent. In Lebanon it is even below one per cent. However, in Egypt, with a population of more than 81 million inhabitants (the most populous country in the Arab world), the natural increase rate declined only from 2.68 per cent (1985–1990) to 1.87 per cent (2005–2010). Djibouti has a high natural increase rate of 1.89 per cent, but for the other peripheral Southern Arab States the figures are considerably higher: Mauritania 2.47 per cent, Sudan 2.44 per cent, Somalia 2.87 per cent, Yemen 3.16 per cent. Natural increase will stay higher in the peripheral states than in the rest of the Arab world during the next decades as fertility decline has only recently started in these countries.

Although for the Arab world as a whole, natural population growth is close to total population growth, this is not the case for the sub-regions. This has to do with differences in net-migration. While the Maghreb and Mashreq-countries, apart from Jordan, are considered sending areas, the Gulf states are marked net-receivers. As a result, in Morocco, Algeria, Tunisia, Libya, Egypt, Syria, Lebanon, Palestine and Iraq, total population growth is tempered by migration, while in Jordan, Kuwait, Oman, Saudi Arabia, Qatar and the United Arab Emirates total population growth is strongly reinforced by immigration.

Notwithstanding the fact that fertility levels and natural rates of increase are declining in most countries, the demographic explosion in the Arab World has not

Table 4.2 Net-migration rates in Arab countries, 1960–1965/2005–2010

	Net-migration rate	1960–1965	2005–2010
Maghreb	Morocco	-3.3	-3.6
	Algeria	-11.2	-0.9
	Tunisia	-10.1	-0.4
	Lybia	6.2	-0.7
Mashreq	Egypt	-0.3	-0.9
	Jordan	7.1	7
	Syria	-0.6	-0.6
	Lebanon	1.9	-0.6
	Palestine	-13.7	-4.7
	Iraq	0	-1
Gulf	Kuwait	82.1	22.2
	Saudia Arabia	5.7	8.2
	Qatar	54.4	132.9
	United Arab Emirates	62.5	106.3
	Oman	-3.4	11.7
Periphery	Mauritania	-0.4	0.6
	Sudan	-1	0.7
	Djibouti	35.7	0
	Somalia	-0.1	-6.8
	Yemen	-3.7	-1.2

Source: United Nations, World Population Prospects.

yet come to an end. According to the projections of the United Nations (medium variant), the population of the Arab World will grow to 400 million inhabitants by 2015, 500 million by 2030 and 600 million by 2045. The peripheral countries in the Southern Arab World and the Mashreq countries will have the highest growth rates. Lowest growth rates are found in the Maghreb countries, where the combination of considerable emigration and low fertility rates will lead to moderate population growth.

Fertility Decline

It was only during the period of independence that fertility started to decline in the Arab World. Towards the middle of the twentieth century, differences in fertility among the countries were small. The total fertility rate fluctuated around seven; the only exception was Lebanon, with a total fertility rate of 5.7 in 1950 (estimations United Nations). Compared to other developing countries, fertility was high in

the Arab countries, as ages at marriage were low, marriage almost universal, and child-bearing highly valued (Casterline 2009, 5). Pre-transitional fertility rates in the Arab countries were the highest in the world (Rashad 2000).

Since most Arab societies around the middle of the twentieth century had no social security system, the family played a central role in social life. Care for the sick, elderly, disabled and economically deprived persons was a family affair. This explains why marriage was early and almost universal, and why fertility was high, far into the twentieth century (Roudi-Fahimi and Mederios Kent 2007, 8). Moreover, Muslim culture encourages marriage and family formation, as those events are believed to strengthen the individual, the family and the *Ummah*, i.e. the world's Muslim community (Bowen 1981, 19; Omran 1992).

Until 1965 no structural decline in fertility is observed in the Arab countries, apart from Lebanon. However, towards the end of the 1960s, the fertility transition initiated in Bahrain, Egypt, Morocco and Tunisia. Djibouti, Iraq, Jordan, Kuwait, Palestine, Qatar and the United Arab Emirates followed in the period 1970–1975. A late start of fertility decline occurred in Algeria, Libya, Oman, Saudi Arabia, Sudan and Yemen.

There are considerable differences regarding pace of decline. Pioneering countries, like Egypt, experience a slower decline than latecomers, like Algeria and Oman. This is not true for Sudan and Mauretania, where fertility decline started late, but the pace of decline was slow. Extremely slow fertility decline is observed in Mauretania and Somalia. Remarkable drops are observed for Algeria, Oman and the United Arab Emirates.

As a consequence of differences in the start and pace of the decline, the disparity in fertility levels has increased over time. Today, there are Arab countries, like Yemen and Somalia, where the total fertility rate is still above 5. On the other hand, in countries like Algeria, Lebanon, Tunisia and the United Arab Emirates, fertility is below replacement level.

Apart from differences in fertility between countries, there are differences between regions within countries, and between rural and urban areas. Generally speaking, fertility is lower in urban areas than in the countryside. There seems to be a link between the level of urbanization and the level of fertility. Likewise, fertility is linked to literacy rates, per capita GDP, contraceptive prevalence and (infant) mortality levels (Eberstadt and Shah 2011, 19).

Like mortality decline, fertility decline initiated later in the Arab world than in Western society, but evolved at a faster speed, since more effective techniques to control/decrease fertility were available. Moreover, rapid decline in fertility was facilitated by the fact that Islam provided less cultural and religious resistance against birth control. Compared to the Christian Church, and especially the Roman Catholic Church, the modern *Ulama* – the educated class of Muslim legal scholars – perceived family planning usually as a practice that was not against the will of God. Most Muslim legal scholars have reasoned that the Quran does not forbid couples to space and to limit the number of births. Moreover, they reason that family planning is not against Islam as coitus interruptus (*azl*) was already

practiced at the time the prophet Mohammed lived; he knew about it and did not forbid it. Consequently, most of the *Ulama* have agreed that family planning is allowed if both the husband and the wife agree, and the sexual pleasure of the wife is not denied (Roudi-Fahimi 2004). As a result of this rather liberal point of view, there has been only minor religious opposition against the establishment of family planning programs in most Arab countries. Some religious leaders, like the Egyptian theologian and jurist Mahmut Shaltut even strongly supported these programs (Bowen 1981, 169).³

There is however, a more important reason why fertility declined fast in the Arab World. Whereas in Europe, fertility decline was accompanied by a decrease in average ages at first marriage and proportions of lifetime singles, fertility decline in the Arab world was coupled with a systematic incline in the age at first marriage, and the proportions of lifetime singles stayed roughly similar to prior levels (Engelen and Puschmann 2011a). Rashad and Khadr (2002) have shown that marriage decline in the Arab countries has played a larger role in fertility decline than family planning. In Algeria, fertility decline between 1977 and 1992 was more or less completely a result of marriage change. In Morocco a 3.59-decline in total fertility rate occurred between 1961/1963 and 1995; 65 per cent of this change was due to changes in marital status and 35 per cent was due to changes in marital fertility. In Tunisia, rising ages at marriage account for about two thirds of the decline in total fertility between 1966 and 1988. In Jordan, 81 per cent of changes in fertility in the period 1961–1990 was the result of rising ages at marriage (Rashad and Khadr 2002, 42).

Within the Arab World, high fertility and total population growth rates have been perceived as major challenges to development. In countries like Tunisia, Morocco and Egypt, fast population growth was quickly perceived as a threat. As a result, national family planning programs were established in the 1960s and 1970s. Countries in the Mashreq region saw less urge to temper population growth. Until the middle of the 1970s the Syrian government, for example, still stimulated population growth by giving premiums to large families and forbidding contraception and its promotion. Things changed, however, as the 1970 census made clear that fast population growth had caused unemployment and that many extra governmental expenditures were needed to provide the population with food, education and health care. Towards the end of the 1970s and the early 1980s the attitude of the Syrian government changed, as it turned into an advocate of family planning (Winckler 1998, 457).

3 Most of the religious opposition has been on the local level, as less educated Muslim leaders oftentimes thought that birth control intervened with Gods will and was thus *haram* (forbidden by god). Moreover, some religious leaders have reasoned that limited population growth would weaken the Ummah (the larger Muslim community).

Political opposition against birth control has been widespread in the Arab countries at times when family planning programs were introduced (Bowen 1981; Winckler 1998).

The Gulf countries have kept on following a pro-natalist policy longer, as these countries were obviously in need of a larger labour force, which is also indicated by their large immigration ratios. However, in the 1990s, Qatar and Kuwait started to make family planning services available, and Saudi Arabia moved away from a restrictive point of view towards an indirect support (Population Division 2003, 23). Contraceptive use in the Gulf is lower than in the rest of the Arab World except for the southern Arab states, where only recently family planning programs have been adopted.

Thanks to marriage decline, fertility started to decrease in most of the Arab countries years before governments realized that there was a real problem and started to implement family planning programs.

The Marriage Revolution in the Arab World

Marriage in the Arab world has undergone such profound changes during the previous decades that scholars have started to talk about a marriage revolution (Rashad and Osman 2003; Tabutin and Schoumaker 2005). Ages at first marriage have risen considerably, especially among females. Around the middle of the twentieth century, females in Morocco, Algeria, Mauretania, Libya, Kuwait and Saudi Arabia married on average between their eighteenth and twentieth birthday, and it was not uncommon that girls married between the ages of 12 and 15. Today ages have gone up. In several Arab countries the singulate mean ages at marriage (SMAM) among females have risen to around 30, and considerable proportions of women marry in their thirties.

Legal changes, prolonged education and increasing labour participation of women, are three main factors why ages at first marriage have increased. In several Arab countries minimum ages at marriage have been established, and in other countries the minimum age at marriage has been heightened (Roudi-Fahimi 2010). On average, the higher a girl is educated, the later she marries. Rashad and Osman (2003, 26–9) have shown that for uneducated females the chances of being married in age category 20–24, were at least twice (Tunisia and Egypt), and in some countries even three times higher (Algeria and Yemen) than for girls who had finished their secondary school. Education keeps girls temporarily away from the marriage market. Entering matrimony is supposed to occur only once education is finished. At the same time education might make females more selective in their partner choice (Marks 2011b, 26).

Paid labour among women is another factor which tends to increase age at marriage. Although females in the Arab World have the lowest employment rates in the world (Fargues 2005, 46), important change has taken place recently (Figure 4.11). Since 1985 the percentage of women in the labour force has increased in many Arab countries.

Another reason why ages at marriage have risen, is the transition from arranged marriages to free partner choice. In the past, it was common that parents

Figure 4.7 Mortality decline in Arab countries (crude death rates), 1950–2010

Source: United Nations, World Population Prospects, the 2010 revision.

Figure 4.8 Fertility decline in Arab countries (TFR), 1950–2010

Source: United Nations, World Population Prospects, the 2010 revision.

Figure 4.9 Singulate mean ages at marriage (SMAM) among males

Source: United Nations, World Marriage Data 2008.

Figure 4.10 Singulate mean ages at marriage (SMAM) among females

Source: United Nations, World Marriage Data 2008.

Figure 4.11 Percentage of females (ages 15+) active at the labour market
Source: United Nations, Statistics Division, Key Indicator of the Labor Market: ILO_KILM Database 5ed_2007.

chose a partner for their children (Khlat 1997; Olmsted 2011). Today, a majority of youngsters is allowed to choose their marriage partner (Rashad, Osman and Roudi-Fahimi 2005). Arranged marriages usually occur earlier in life, since the parents of the groom and bride can start the quest for a marriage earlier. In the case of free choice, males and females start their search when they are mature (Carmichael 2011; Carmichael, De Moor and Van Zanden 2011).

Skewed sex-ratios at marriageable ages are another reason why ages at first marriage have risen. This is especially the case for Qatar and the United Arab Emirates, which received in the recent past large numbers of unaccompanied male migrants, working mainly in the oil-industry and construction (McFalls 2007, 21). As a consequence, there has arisen a female shortage in the marriage market, which makes it harder for males to find a partner. This is a reason why men in that region often search for their partner outside their country of residence (Rashad, Osman and Roudi-Fahimi 2005).

The rising cost of weddings is another cause of marriage postponement. Towards the end of the 1990s the average cost of a wedding in Egypt amounted up to about \$6,000, while yearly GNP per capita income was only \$1,490 (Singerman and Ibrahim 2001). That explains why young men and their families spent years saving sufficient money.⁴ Among other things, money needs to be saved for the wedding party, the *Shabka* (consisting of rings or gold), the dowry, housing, furniture, electronic devices (televisions, satellite antennas, refrigerators, etc.).

The trend towards more expansive wedding parties and bridal gifts started in the Gulf Countries when oil business reached a high in the 1970s and marriage celebrations grew larger and larger. However, when the oil boom was over, more men in Saudi Arabia, Bahrain, Qatar and the United Arab Emirates were no longer able to afford such an expensive start of marriage, which had become the expected norm. As a result, more men started to search for partners from abroad, who had less costly expectations. To counteract that native females increasingly remained single, marriage fund-foundations were established. The United Arab Emirates' Marriage Foundation, for example, intends to support marriages between UAE-nationals by reducing the cost of a wedding. If a man from the UAE has an income below a certain level and intends to marry a woman from the UAE, he might apply for a wedding grant (Rashad, Osman and Roudi-Fahimi 2005, 6).

The unaffordability of marriage has led to an incline in non-conventional forms of marriage, like *urfi*, *misyar* and *muta'a* marriages (Singerman 2007; Rashad, Osman and Roudi-Fahimi 2005). These marriages are clandestine, secretive and not covered by public administration, as marriage partners sign their own certificates. Partners engaging in such arrangements mostly do not share a household on a permanent basis, they rather meet in hotel rooms, apartments or flats (Singerman

4 Traditionally, three quarters of the costs of the marriage are borne by the groom and its family. However, an increasing number of brides and their families are willing to share a larger part of the costs of getting married. Increased labour participation of females facilitates this development.

Figure 4.12 Skewed sex-ratios in the United Arab Emirates

Source: UN, World Population Prospects 2010.

Figure 4.13 Skewed sex-ratios in Qatar

Source: UN, World Population Prospects 2010.

2007, 29). Such non-conventional marriages are especially attractive for males, as they do not include wedding parties and reduce the financial responsibilities of men towards their wives. Notwithstanding the large attention to the phenomenon in the media, estimations suggest that only a small proportion of the population engages in non-conventional marriages. For Egypt, Sahar El-Tawila and Zeinab Khadr (2004) estimated that only 4 per cent of the population in the age-category 18–30 was engaged in *urfi* marriages. Among students it amounted up to 6 per cent (Singerman 2007, 29).

Apart from rising ages at marriage and the rise of non-conventional marriages, a decline in polygamy is observable as well (Tabutin and Schoumaker 2005). Polygamy has never been widely spread in the Arab world, but has always been a part of the marriage system, as Islamic law allows a man to marry up to four women as long as he is able to provide for them and treat them equally. Only in Tunisia polygamy has been forbidden by law (in 1956, Tabutin and Schoumaker 2005). Recently more limitations on polygamy have been implemented in several Arab countries. For example, the new family code in Morocco permits a woman to add a clause to the marriage certificate in which she expresses that her husband is not allowed to marry a second wife.

While so many changes regarding marriage have occurred previously, it is striking that consanguinity has stayed a specific feature of marriage in the Arab world. Traditionally, Arab Muslims and Christians prefer sons to marry a daughter of their father's brother. Family honour, modesty, family solidarity and property consolidation have been put forward as the most important reasons why this type of cousin marriage, which outside North Africa and the Middle East is rare, functions as an ideal in the Arab world (Khlat 1997). In some Arab countries consanguinity decreased, in others it expanded (Tadmouri et al. 2009).

A Second Demographic Transition?

Declining marriage is a characteristic of the second demographic transition in Europe, and has been interpreted as an outcome of the weakening of the institution of marriage and the empowerment of women. For several decades ages at marriage in the Arab World are on the rise, females are enjoying more education, the number of women that perform paid labour is growing, women's rights are improving, and modern forms of birth control (pill and IUD) are used more frequently. Accordingly, one could argue that the Arab World has entered the second demographic transition. However, simultaneously important features of this transition are (still) absent or are only present in an embryonic phase (Table 4.3).

Table 4.3 Summary of the most important features and developments of the first and second demographic transition in Europe and the Arab countries

First Demographic Transition		
	<i>Europe</i>	<i>Arab world</i>
Mortality decline	Gradual: eighteenth–twentieth century	Fast: twentieth century
Fertility decline	- Gradual: ±1850–1940 - Result of traditional forms of birth control	- Very Fast: 1960 – today - Result of rising ages at marriages and traditional and modern contraception within marriage
Nuptiality	- Declining ages at marriage - Increase in marriage intensity	- Rising ages at marriage - No major change in marriage intensity
Union Formation	No or very few cohabitation	No or very few cohabitation
Population growth	Strong	Extremely strong
Second Demographic Transition		
	<i>Europe</i>	<i>Arab world</i>
Union Formation	Rise in consensual union	- Consensual unions are rare or non-existent - Rise in non-conventional marriages
Marriage	- Rising ages at marriage - Decline in marriage intensity	- Marriage stays a prime goal in life - Rising ages at marriage - Marriage is still universal
Divorce	Strong rise in divorce rates	No clear rise in divorces; partially even decline
Fertility	Below-replacement fertility	Most recently below-replacement fertility, mainly in certain urban areas
Contraception	Modern techniques; self-fulfilling conception	Modern techniques; mainly preventive contraception
Births out of wedlock	Strong rise from 1980 on	Marginal phenomenon
Sexuality	In- and outside marriage; weakened link with love, marriage and fertility	Mainly restricted to marriage; rise in non-penetrative pre-marital sex. Brides are still supposed to enter marriage as a virgin Still a strong link between, love, sex, marriage and reproduction

Marriage decline in Europe (roughly from 1970 on) took the form of rising ages at first marriage, growing rates of cohabitation, an increasing number of births out of wedlock, and a strong incline in divorce rates (Van de Kaa 1987). Such a weakening of the marriage institution has not been observed in the Arab countries, although the legal and socio-economic position of women has improved and non-conventional forms of marriage have risen in the recent past. The age at first marriage increased, but marriage has stayed more or less universal. Crude marriage rates have risen in most Arab countries over the previous decades (Table 4.4), while the percentage of ever-married in the age category 45–49 saw only minor changes (Table 4.5). Only in Lebanon a rise in permanent celibacy is observable.

Table 4.4 Crude marriage rates, 1970–today

Countries	Around 1970	Around 1985	Around 1995	2000 or later	
				Second latest	Latest
Algeria	4.7	5.6	5.5	8.5	9.6
Iraq	4.1	8.0	5.6	6.8	9.6
Qatar	3.1	3.0	2.8	3.4	3.7
Lebanon	7.9		8.8	7.4	7.2
Libya	7.3	4.9	4.8	5.3	6.0
Saudi Arabia			3.4	4.6	5.2
Syria	9.9	8.9	8.5	10.7	10.6

Source: World Marriage Data.

Table 4.5 Ever-married at ages 45–49

	1970s		2000s	
	Females	Males	Females	Males
Algeria	98.8	97.5	96.2	97.7
Morocco	97.7	96.6	93.2	93.3
Lebanon	93.1	94.3	87.7	93.1
Syria	97.6	97.3	95.4	98.5
Jordan	97.6	98.4	94.6	97.8
Bahrain	98.1	92.2	91.2	91.7
Egypt	96.1	96.2	98.3	n.a.

Source: World Marriage Data 2008, n.a.: not available.

Although data on cohabitation and births out of wedlock in the Arab countries are scarce or even non-existent, there is reason to believe that both are small-scale phenomena, as they are taboo and in many countries against the law (Olmsted 2011, 410; Youssef 1973, 334–5). In the United Arab Emirates, for example, cohabitation and giving birth to a child out of wedlock is illegal and can lead to imprisonment. In the case of foreign nationals, it can also lead to deportation (Kirdar 2010.). Under such circumstances, cohabitation and births out of wedlock can only be marginal.

When it comes to divorce, no systematic increase has been observed, and in some countries (such as Egypt and Libya) an opposite trend is taking place (Table 4.6). Declining divorce rates are likely related to rising ages at marriage, to the transition to free partner choice, and to the improved rights of women. Early marriages lead more often to divorce (Roudi-Fahimi 2010), and the same is probably true for arranged marriages. As both phenomena are declining, unions become more stable. In the past, divorce was more widespread in the Arab world as males could easily divorce and remarry, while that was not true for women. By only recalling three times ‘You are repudiated’, and reporting this to the local authorities, a man could divorce his wife (Naamane Guessous 1990; Tabutin and Schoumaker 2005). Due to legal changes, this is in several countries (for example Morocco) no longer possible. Furthermore, legal changes have led to increased financial obligations towards divorced women, which makes men less willing to divorce.

Table 4.6 **Crude divorce rates, 1970–today**

Country	Around 1970	Around 1985	Around 1990	2000 or later	
				Second Latest	Latest
Egypt	2	1.6	1.1	0.9	0.9
Lebanon	0.6	1	1.1	1.2	1.1
Iraq	0.4	0.1	1.5	–	–
Libya	2	0.9	0.3	0.3	0.3
Palestine	–	–	1.3	1.1	1
Qatar	1.6	0.8	0.9	0.8	1
Syria	0.6	0.6	0.8	0.9	1
United Arab Emirates	–	–	0.9	0.9	0.9

Source: World Marriage Data 2008.

Traditional ideas around sexuality and family formation, for example that a woman should enter marriage as a virgin, are still much alive among the Muslim

population in the region. In conservative circles, the ritual in which a blood-stained sheet is shown to the guests at the wedding night, as sign that the woman has been deflowered, is still practiced. Moreover, medical virginity tests and the rush on hymen restore surgeries do illustrate that women are still expected to stay virgin before marriage (De Jong et al. 2005, 53). This is another reason to believe that the recent changes in marriage and fertility do not (fully) match the concept of the second demographic transition. In the Western World, the second demographic transition went hand in hand with a gradual disentanglement of the links between love, marriage, sexuality and reproduction (Zwaan 2004, 66). Such a disentanglement has not (yet) been observed for the Arab world as love, sexuality and reproduction are in principle still a prerogative for married people. However, in principle it is perfectly feasible that the next generation of young people in the Arab world will experience a cultural and a sexual revolution similar to Europe in the 1960s. There are signs that changing attitudes and behaviours are underway. A recent study showed that in Rabat, young men and women are increasingly practicing pre-marital non-penetrative sexual activities (Bakass and Ferrand 2013). These groups might very well pave the way towards a second demographic transition similar to Europe. However, cultural and religious opposition against such a new development will be great and for the moment marriage is still a holy institution.

Reducing the Demographic Divide

The world is roughly divided into countries characterized by high life-expectancy, low fertility (an old population) and (upcoming) population decrease, and countries with low life-expectancy, high fertility (a young population) and population growth. This demographic divide has recently caught the attention of demographers (Kent and Haub 2005). Although demographic variables are not the only determinant of wealth and well-being, high fertility and massive population growth frequently form a barrier to economic development (other factors remaining equal). Most countries with high population growth are also countries with high poverty, high illiteracy, endemic health problems, and little-developed infrastructure (Kent and Haub 2005).

The so-called quantity-quality trade-off explains the challenges of high fertility and high population growth to a large degree (Becker 1960). Parents have a limited number of resources available which they have to divide among their offspring. Consequently, the more children in a family, the less resources remain for each individual child. The resource dilution model stipulates that the chances of receiving high quality education, health care, housing, et cetera decreases as the number of siblings increases. The decline of fertility opens up the road to the upbringing of so-called high-quality children.

High fertility and population growth also lead to challenges at the state-level. Instead of using tax revenues to invest in the quality of public services, more money is needed to supply the growing population with existing services. Instead of investing in the quality of education (better buildings, more equipment in the form of books, computers, sophisticated methods), developing countries with high population growth spend most of their educational budget in building new schools and contracting more teachers. As a consequence the quality of education often lags behind (out-of-date schoolbooks, no or limited computer equipment, old-fashioned methods of instruction). Comparable challenges are found in the fields of health-care, infrastructure, transportation and housing (Kent and Haub 2005).

High population growth also causes environmental problems. In the long run, growth leads to scarcity of arable land, insufficient water, overgrazing, deforestation, desertification, air and water pollution, and depletion of natural resources. In this sense, population growth adds to the destruction of ecosystems, and reduces the earth's (re)producing capacities. Population growth can generate or reinforce natural disasters, famines and political conflicts. All these factors form a challenge for the Arab World, as is proven by massive rural-to-urban migration, high-speed urbanization, growing shantytowns, rising food imports, growing water-scarcity, desertification and high unemployment rates among young people. Because of high population pressure in the countryside, and limited resources in the form of employment, arable land, water resources, millions of Arab country-dwellers in the course of the twentieth century made their way to major cities in the hope of finding employment and a better living in regions with expanding industry and/or services. In the case of cities like Cairo, Alexandria, Damascus, Casablanca and Algiers, more migrants moved to the city than jobs were created and affordable dwellings were constructed. As a result, shantytowns arose and illegal housing expanded in major Arab cities (Puschmann 2011). In that sense, a relocation of poverty and misery from the countryside to the cities occurred, creating major challenges for the urban authorities.

Rapid population growth combined with ongoing rural-to-urban migration also leads to food and water shortages. Water availability per capita has been declining over the last decades (Al-Weshah 2002). This means that the countries in the region become more dependent on water and food supply from abroad, and that the risk of political conflicts rises.

Family planning may help to reduce population growth and its negative effects on development. Gradually the balance between demographic expansion and economic development can be restored, which will open up new opportunities. Programs to tackle poverty, improve living standards, eradicate shantytowns, and improve housing conditions are more likely to be successful if population growth is tempered. Quality investments in education, health-care and infrastructure will increase human development and improve the region's competitiveness. Declines in population growth will help to avoid natural disasters and will limit the region's dependence on food and water supply from abroad. Equally, unemployment

will decrease as the influx of young people at the labour market is reduced. The reduction of offspring will lead to capital concentration, which in combination with increased education opens up new possibilities for investments. Finally the accelerated decline of fertility and population growth will decrease rates of rural-to-urban migration and will open up new possibilities to reorganize the urban environment.

Empowerment of Women and the End of Patriarchy?

Since women only enter marriage at later ages and since age differences between spouses are becoming smaller, women's bargaining position and agency within the family and society is growing. Whereas previously, adult life started with marriage and family formation, females in the Arab countries today enjoy a prolonged period of single life in their family of orientation. This opens up new opportunities: more and more girls go to school longer and participate in the labour market. The gap in literacy rates between girls and boys has largely disappeared, and at universities females are already better represented than males (Courbage and Puschmann 2015, this volume). Many young females in the Arab world today are not only better educated than their mothers, they are also better educated than their fathers and husbands. In the long run, this might break down the patriarchal system (Fargues 2005, 47).

When it comes to labour participation women still lag behind, as paid labour is until today largely dominated by males. Nevertheless, major increases in the proportions of women that perform paid labour outside the household has been observed and there is reason to believe that women already contribute more to the economy than the statistics reveal, because women's work is highly under-registered (Fargues 2005, 46; Fernea 2000). Women actually dominate certain fields of the labour market, like education, social work and domestic work, while in fields like justice, journalism, television and advertising, they are making major leaps forward. At the same time female leadership is becoming more common. Women occupy important executive posts in politics, religious organizations and non-governmental organizations (Fernea 2000). These new opportunities are made possible by supportive legal changes. In Morocco, for example, a law was passed in 2002 which assured that women had to have at least 10 per cent of seats in parliament.

As women are making progress outside the household, their position is also strengthening within the household. They enjoy more power over the household's resources and consequently have a greater say in decisions related to spending (health care, clothes, shoes, make-up, and so on). Women also have more influence on the purchase of expensive items, like real estate and cars. Moreover, women's agency has improved as they more often successfully – with or without a veil –

surpass the borders between the private and the public domain. This is possible because marriage occurs only later in life and the number of children is small. As a result women spend more time on non-reproductive related activities.

Since the mean age at marriage increases faster among women than among men, the age gap between spouses has grown smaller. This results in an increase in the bargaining power of women within the family. In general small differences in age between spouses have been interpreted as an indicator of more egalitarian relationships. In relationships in which men are older than their female partner, men enjoy advantages regarding status, experience and power (Van de Putte et al., 1235). With the trend towards age-homogamy these advantages of men are declining.

In certain regions in the Arab World, for example in Egypt, marriages in which females are older than their husbands (in the past a rare phenomenon) have recently become considerably more frequent (Osman and Shahd 2003). In these 'younger husband-older wife marriages', females have generally more power than in the conventional 'older husband-younger wife marriage', not only because of the age difference, but also because of educational and occupational advantages, which usually go hand in hand with this type of marriage. Males in the Arab world, especially from the lower social strata, increasingly marry older females from the higher social strata – especially divorced, widowed or single females who surpassed the socially acceptable age at marriage – because they cannot afford the costs of marriage with younger females (Osman and Shahd 2003). The women who marry a considerably younger husband avoid marginalization by entering matrimony, while at the same time they increase their power, as their husbands are less experienced, less educated and financially dependent.

Declining gender-inequality indexes illustrate that relationships are becoming more equal and that gender discrimination is diminishing (Table 4.7). These indexes are based on indicators related to reproductive health (maternal mortality ratio and adolescent fertility rate), empowerment (female share of parliamentary seats and female attainment in secondary and higher education) and labour participation (percentage of women in the labour force).⁵ These indexes range between 0 and 1, whereby 0 indicates a situation in which complete gender equality exists, and 1 points to a situation in which females are as highly discriminated as possible in every domain of life. Judged on the basis of the gender-inequality indexes, women in Kuwait, Libya, the United Arab Emirates and Tunisia have made most progress during the previous years, while in Saudi Arabia and Sudan no progress has been made. Yemen is one of the countries with the highest gender inequality indexes in the world, although some progress has been made recently.

5 United Nations, Human Development Reports: <http://hdr.undp.org/en/statistics/gii/>.

Table 4.7 Gender-inequality index

Country	1995	2000	2005	2008	2011
Algeria	0.46	0.52	0.46	0.43	0.41
Egypt	0.67	0.65	0.60	0.58	n.a.
Jordan	0.64	0.60	0.51	0.48	0.46
Kuwait	0.59	0.44	0.36	0.30	0.23
Libya	0.67	–	0.37	0.33	0.31
Morocco	0.71	0.69	0.54	0.53	0.51
Saudi Arabia	–	–	0.68	0.69	0.65
Sudan	0.72	–	0.65	0.63	0.61

Source: United Nations, Human Development Reports.

Although the position of women has improved in several Arab countries, we are still far from gender equality. The fact that women in the Arab World have the world's lowest participation rates at the labour market and in politics, is telling enough (Fargues 2005). Urgent issues like violence towards women, female genital mutilation and polygamy are showing that many women in the region are still suffering. Especially in countries where Islamic Law is still dominant – like in Saudi Arabia – females have only limited rights inside and outside the family. As a consequence they keep being dominated by their husbands and have very limited freedom of movement outside the household. Notwithstanding some protests, women in Saudi Arabia still today are not allowed to drive a car. Legal change is needed. A good example is Morocco's 2004 *Moudawana* (family law code) reform, which improved women's status and liberty in many domains of life. However, legal change alone is not enough as social practice often considerably deviates from law, especially if it comes to issues within the privacy of the family. Education and political campaigns can help to open the road towards a new mentality in which the position of women is revalued.

Accelerated Ageing

Although most reports on the Middle East and North Africa today are concerned with the fact that the Arab World has one of the youngest populations in the world, ageing has already started and will accelerate. Median ages are on the rise as the proportions of youth are dropping, while the percentage of (in-active) elderly people is increasing. A growing number of elderly people will have to rely on care from shrinking proportions of young people. As a consequence, burdens for the next generation and insecurity among the older generation is likely to augment.

As in Europe today, ageing will become a challenge for Arab societies in the future, but in a different way. First, the pace of the ageing process will evolve

faster than was the case in Europe, as mortality and fertility decrease faster in most Arab countries than in historical Europe. This makes it necessary to develop an ageing policy, to avoid negative consequences related to health-care, old-age pensions, and labour market performance. As ageing proceeds, pressure will arise on pension systems. These systems are likely to fail and even collapse if the current low retirement ages are not be raised (Kárpáti 2011). In the Arab World, ageing will cause other challenges than in the West, as in most countries in the region the primary safety-net is not a social security system, but family assistance (Olmsted 2005; Rashad, Osman and Roudi-Fahimi 2005). This means that the costs ageing generates will largely be carried by families and individuals. As the coverage of the pension systems in the region is low, few people in the region will be able to rely on retirement payment (Kárpáti 2011).

Due to differences in the timing and pace of the fertility transition there are major regional differences in the ageing process (figures 4.14 to 4.23). The 'good' news is that during the next decades the richest Arab countries will be most affected by ageing, while the poorest countries will be least affected. The Gulf States will be most affected, as fertility has declined profoundly, and life-expectancy has risen spectacularly. Since most of these states provide health-care for free, public expenditure related to medical care will rise massively. An important factor is migration. The oil-rich countries of the Gulf have attracted huge numbers of migrants, which are often not accompanied by partners and are badly integrated. As they grow older, these people will likely experience difficulties as they are unable to rely on family assistance. The Maghreb is the second region which will be most affected by ageing. The high pace of demographic change in combination with poor social security provided by the states, makes this region vulnerable to the ageing process. Social inequality is likely to augment. A rift may arise between those families which can rely on remittances from abroad and those families which do not have such additional resources. In the Mashreq, and especially in the peripheral Southern Arab countries, the (negative consequences of the) ageing process will start later, as fertility has only recently declined. This gives these countries extra time to implement adequate ageing policies.

Some groups will be more affected by the consequences of ageing than others. Childless couples will face more difficulties. Women are more vulnerable than men because they live longer. The extra care needed for the elderly will largely be provided by younger females, which will decrease their chances to work outside of the household and consequently will decrease their potential to raise an extra income. While young females will have to spend less time and energy on child-rearing, they will increasingly have to look after elderly family members. Problems can partially be solved if the number of homes for the elderly could be extended and if the cost of care in such homes could be provided by the state. However, such a policy would only be effective if the willingness of elderly people to move to old people's home increases. Currently, a very negative attitude towards such institutions exists as elderly people feel disowned by their children, if they are sent to such an institution.

Figure 4.14 Age structure of the Arab population 2010

Source: UN, World Population Prospects 2010.

Figure 4.15 Age structure of the Arab population 2050 (projections)

Source: United Nations, World Population Prospects, the 2010 revision.

Figure 4.16 Age structure of the Gulf States 2010

Source: UN, World Population Prospects 2010.

Figure 4.17 Age structure of the Gulf States 2050 (projections)

Source: United Nations, World Population Prospects, the 2010 revision.

Figure 4.18 Age structure of the Maghreb 2010

Source: United Nations, World Population Prospects, the 2010 revision.

Figure 4.19 Age structure of the Maghreb 2050 (projections)

Source: United Nations, World Population Prospects, the 2010 revision.

Figure 4.20 Age structure of the Mashreq, 2010

Source: United Nations, World Population Prospects, the 2010 revision.

Figure 4.21 Age structure of the Mashreq, 2050 (projections)

Source: United Nations, World Population Prospects, the 2010 revision.

Figure 4.22 Age structure of the Periphery 2010

Source: United Nations, World Population Prospects, the 2010 revision.

Figure 4.23 Age structure of the Periphery 2050 (projections)

Source: United Nations, World Population Prospects, the 2010 revision.

Realistic Extremes: Desperate Adolescents, Overstrained Parents, Family Conflicts

Since delayed marriage is in some cases not the result of free-choice, but of hardship, higher ages at marriage will create frustrations among youngsters and tensions within families. Although youngsters in the Arab World have invested more in education than their parents, meeting the economic requirements for marriage has become more difficult. This can result in problems since marriage is linked to the transition to adulthood. As long as youngsters are not married, they are not fully perceived as adults, because they have no (religious and legal) allowance for sex and because they have not yet taken the responsibilities of setting up a household. Moreover, marriage is perceived as a religious obligation (Marks 2011b, 24). In this light, delayed marriage is a source of frustration. It may also lead to tensions within and between families as marriage in the Arab world is not only an individual decision, it also concerns families. The tricky point is that young people are expected to marry, want to marry, while marriage has become more difficult to attain.

As few singles set up independent households, youngsters spend a prolonged time of their life in their family of orientation. This limits the youngster's freedom, and extends the obligations of both parents and children. For unmarried females the limitations are most severe. Since women are up-to-now expected to preserve virginity until marriage, a female's freedom of movement is limited. In the patriarchal Arab world, parents and brothers try everything to control the sexuality of their families' unmarried females in order to preserve the honour of the family. Breaking the rules on female sexuality may lead to shame and may even result in honour killings (Zuhur 2003). In order to avoid females losing their virginity before marriage, parents and brothers try to keep unmarried females as much as possible in the household. Contact with non-relative males is prohibited. Girls who are spotted with men face the risk of social gossip, which brings shame to the family and might in turn decrease the females' chances of getting married.

In societies in which girls marry on average at age 30, the requirement of virginity is many times more demanding than in societies where the age at first marriage is 18. Limiting females comings and goings for another 12 years, is not evident. The fact that parents are often dependent on their daughter's income makes things more complicated. Moreover, girls are often better educated than their parents. Under such conditions it has become less likely to force daughters to obey. Females try to keep relationships secret, which causes fear and stress.

A less dramatic, but still urgent issue, is the financial burden which an extended period of life in the family of orientation brings about. As children live longer within their family of orientation, the time in which parents take care of their children is extended. This means that parents need to provide their children with food, clothes and housing during an extended period of time (Singer 2007, 14). Simultaneously, the main financial transfer between parents and children is postponed, which is still another way in which the opportunities

of youngsters are limited before marriage. At the same time, youngsters are expected to contribute to the family budget, which limits their possibilities for private spending and saving money for later married life.

Marriage, Youth Bulges and Revolution

Discussions on the background of the recent revolutions in the Arab world keep going on. Scholars point to a wide range of political (the pursuit of democracy, the end of corruption, etc.), economical (high unemployment rates, high food prices, etc.) and technological (role of the internet and social media) causes. Moreover, some analysts in the field are of the opinion that demographic factors play a decisive role in the outbreak of the Arab spring (Cincotta 2012; Cincotta 2015, this volume). These authors focus on the so-called youth bulge theory (Möller 1968/69; Goldstone 1991; Urdal 2006; Heinsohn 2006; Cincotta 2012). According to this theory, the risk of revolutions and armed conflicts increases if there is an excess of young (15–24 years) people, especially young men.

There is no evidence that revolutions can be predicted solely on the basis of the existence of a specific type of population structure, i.e. a youth bulge. First of all, many revolutions have happened in the absence of such youth bulges. Second, young populations do not necessarily experience revolutionary events. During the nineteenth century, the Netherlands was characterized by a population structure which resembles today's Egypt. However, no notable revolution took place. Third, the Arab countries in which revolutionary events took off are themselves characterized by a great diversity in population structures. Tunisia, for example, has a much older population than Yemen. Both countries experienced revolution more or less at the same time. Judged on information on proportions of people aged 15 to 24, one would have expected that the Arab Spring had occurred much earlier in countries like Egypt, Libya and Tunisia. Consequently, models based on the youth bulge theory are unable to explain the timing of revolutions (Engelen and Puschmann 2011b).

A crucial missing factor in the existing debates, is the marriage change. Marriage has stayed one of the highest aims of young people in the Arab world and although youngsters have invested more time, energy and money in education than previous generations, access to marriage has become more difficult. This is one of the great disappointments of the Arab youth today. This has to do with the fact that their transition to adulthood is delayed and their sexuality is restrained during the prime of their life. This is reinforced by the fact that unmarried people are more eager to protest and use violence against the existing order than married people. Studies confirm that violence and social disorder is higher amongst (young) unmarried men (Courtwright 1998; Daly and Wilson 1990; Sampson, Laub and Wimer 2006). Marks (2011a) found evidence that unmarried males in Egypt are more willing to take part in high-risk political activity than married males.

The Dual Role of Marriage in Family Dynamics and Population Growth

In this chapter we have shown that the profound changes in the marriage regime will have both positive and negative effects on Arab society. That is why we are talking about a dual role of marriage, a kind of Janus face. On the one hand, rising ages at marriage help to shrink the demographic divide between the Arab Countries and the West. Tempered population growth will have major positive impacts for individuals, families and society. Reductions in unemployment, declining rural-to-urban migration, poverty reduction, less environmental damage and more effective urban planning are some of the expected effects. Moreover, families will be released from the burden of feeding a great number of children. For children it will mean that parents will be able to give more attention to them. Parents will have more resources available for each individual child.

Rising ages at marriage also have important positive effects on the position of women. Since marriage is postponed and the number of offspring reduced, women have more time available to engage in non-reproductive activities. This improves their bargaining power as paid labour gives them more power over the household's resources and consequently a greater say in all kind of decisions. Furthermore, as the age at first marriage has increased faster among women than among men, the spousal age gap is reducing.

However, marital change also brings about new challenges. Because of the advanced pace of fertility decline, ageing in the Arab world will accelerate. This will form a burden for the next generation. Since most states in the region provide only limited social security for their subjects, individual families will bear most of the extra costs ageing brings about. Ageing will affect especially women, because they have higher life-expectancy, less financial means, and less chance to rely on family assistance. Ageing could also create new limitations to women's freedom of movement, since most of the care for elderly people will be provided by women.

Marital change also brings about frustration, tensions and conflicts in families and society at large, because delayed marriage is not a free choice, but amongst others, a result of economic hardship. Furthermore, marital change implies a postponement in the transition to adulthood, which in turn, brings about limitations from and extra obligations toward parents. For females the limitations are severest, amongst other things because of the requirement of virginity before marriage. Young people are most frustrated because they have invested more in their future, but can reach major aims in life – like marriage – less easily. All these frustrations are likely to have contributed to the willingness to protest and riot against existing regimes in the Arab world.

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Chapter 5

Who's Next?

Age Structure and the Prospects of Democracy and Conflict in North Africa and the Middle East

Richard Cincotta¹

Introduction

Much has been written describing how Middle East experts were blindsided by a pair of successful popular uprisings, first in Tunisia and then in Egypt. Writing in *Foreign Affairs*, political scientist Gregory Gause (2011) recounts how regional specialists, like himself, overestimated the strength and cohesiveness of North Africa's regimes and failed to grasp the limited depth of personal allegiances that either Zine El Abidine Ben Ali or Hosni Mubarak could secure from the military's highest ranks. Another article in the same journal, by Nassim Taleb and Mark Blyth (2011), draws a strikingly dissimilar conclusion, describing North Africa's dramatic political events as a 'black swan' – the unpredictable terminus of a build-up of tensions brought to a head by complexly interacting forces.

Little, if any mention has been made, however, of two articles (Cincotta 2008, 2009) describing the relationship between demography and rise and stability of liberal democracy that was printed in *Foreign Policy* in March of 2008 – more than two-and-a-half years before Tunisian demonstrators took to the streets of Sidi Bouzid. In that essay, I published the following conclusions:

The first (and perhaps most surprising) region that promises a shift to liberal democracy is a cluster along Africa's Mediterranean coast: Morocco, Algeria, Tunisia, Libya, and Egypt, none of which has experienced liberal democracy in the recent past. ... Interpreting [this forecast] conservatively, we can expect there will be one, maybe two, in [this] group that will become stable liberal democracies by 2020. (Cincotta 2008, 81–3)

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That forecast appeared again in print in 2009 in the Woodrow Wilson Center's *Environmental Change and Security Report*, and its underlying statistical analysis has been detailed in more recent publications (Cincotta and Doces 2011; Cincotta 2013a). Whereas, from 2008 to 2010, I presented these results at several venues, few analysts of politics in the North Africa-Middle East Region (NAME), or elsewhere, found the methods credible or the results plausible. When, in February 2008, I presented these forecasts as the luncheon speaker at a US State Department-sponsored meeting on the future of NAME, the group of academic experts – some of them native to the region itself – broke into laughter.

At the time, regional analysts considered the authoritarian regimes of North Africa to be highly stable. Demography was well outside these researchers' educational backgrounds or interests, and they seemed certain that political relationships between elites were the key to understanding the region's future, and tracking demographic trends could provide few insights.

Of course, the predicted outcome of 'one, maybe two', North African *liberal democracies* (in this research, states assigned FREE status in Freedom House's annual assessment)² has yet to be realized (Freedom House 2014), and despite the fact that Tunisia is poised on the doorstep of liberal democracy, and 2020 is still eight years away, such an outcome is by no means a certain finale for the Arab Spring. Nonetheless, Tunisia's 'Dignity Revolution' and the subsequent establishment of a constitution have transformed the distant hope for an open, competitive political system into a near-term possibility.

Was the forecast focused on North Africa a lucky guess? Or did it make use of data that were unavailable to regional specialists? The answer to both questions is 'no, not at all'. The forecast was a product of a 'schedule' that was generated by a simple model using publicly available demographic data. The model evolved from a modest, overtly reductionist,³ research program in political demography, initially supported by the (US) National Intelligence Council, which focused

2 Freedom House has annually assessed each country and territory of the world since 1972. Freedom status is derived from the average of scores for political rights (PR) and civil liberties (CL) assessed in Freedom House's annual survey. Both PR and CL are scored from 1 to 7, the score of 1 representing the highest level of freedom. The averages of PR and CL scores, which range from 1.0 to 7.0, are divided into three categories: FREE (1.0 to 2.5); PARTLY FREE (3.0 to 5.0); and NOT FREE (5.5 to 7.0).

3 While most social sciences recoil at the work 'reductionism', it is a necessary and vital element of scientific research. Much of what political scientists study appears to be largely impenetrable by cause-and-effect models. Some of the greatest strides in the natural sciences have been made by producing computational models that abandon trying to capture the unmanageable complexity of the real world, for something workable (which itself can be deep and complex) – including statistical mechanics in physics, and evolutionary stable strategy (ESS) theory in evolutionary biology.

on identifying early-warning indicators of political change from public-access demographic data.⁴

In the following chapter I begin by briefly providing background on ongoing debates over the leading structural indications of democratization, and by outlining the *age-structural maturity thesis* – the theoretical relationship between *age structure* (a population's distribution, by age) and the state's probability of attaining and maintaining liberal democracy (high, unambiguous levels of political rights and civil liberties, which are indicated by Freedom House's *FREE* category). Next, I review the functional form and characteristics of the *logistic age-structural model of liberal democracy* (referred to as the age-structural model). Then, in the latter portion of this chapter, I present a table of the model's updated forecasts for the states of the NAME region. And, in the conclusion, I provide my own perspective on these forecasts' implications for Europe.

What does the model's output suggest? The array of probabilities generated by the age-structural model suggest that, over the next 20 years (from 2015 to 2025) European leaders should expect conflict and tensions to persist in Iraq and in Syria, and on the Arabian-Peninsular state of Yemen. In terms of the region's possibilities for further political liberalization, the states of the Maghreb (the Arab west) – Tunisia now, and then Morocco, Algeria, and Libya around 2020 – are likely to remain the most promising. Which ones might rekindle the political and economic hopes of the Arab Spring? By itself, the age-structural model is unable to tell.

The model suggests that popular demand for political liberalization is likely to grow stronger in these states, and likewise in the age-structurally maturing states of Turkey, Lebanon and Iran. However, champions of political liberalization in these countries will contend with the ideological and organizational power of various forms of Islamism, which have, so far, demonstrated their ability to deter a rise to high levels of democracy. Thus, by 2025, the region is likely to have settled into a mix of regimes including a substantial proportion of partial democracies. These not-so-liberal states – often called anocracies – are likely to be deterred from further liberalization by the constraints on civil liberties imposed by political Islam, or by monarchs and other political elites who have cordoned off their political system from Islamist inroads and control.

4 The current program of research on the relationship between population age structure and state behavior entails three related components. The first focuses on the development of a simple worldwide univariate model – the *Logistic Age-structural Model of Liberal Democracy* – and its dissemination and use by analysts in intelligence and defense-related early-warning efforts. The second component is concerned with generating multivariate alternatives to the logistic model. These alternatives have been used to test and improve the model, and to better understand why and how it works. The third effort focuses on systematizing the process of early warning, on generating forecasts and testing them, and on expanding an age-structural theory and narrative that supports them.

Two notable (and somewhat surprising) political shifts in this region are suggested by this analysis. Between 2020 and 2025, Saudi Arabia's slowly but steadily maturing citizen-resident population is projected to attain an age-structural configuration that, for other monarchies that passed this milestone and survived it (such as Thailand, and before that, only a handful of European monarchies), has been associated with the commencement of the devolution of their monarchical powers to elected executives. Whether a Gulf Arab monarchy, awash in oil rents and wielding significant regional power, will follow suit, however, is uncertain.

The second notable shift is likely to occur in Israel. Changes in Israel's sub-national demographic composition are driving its domestic political discourse and the field of political parties. The coming decade could further strain Israel's democracy, as its government will be pressured to reform policies and institutions that previously defined the relationship between the state and its most rapidly growing, high-fertility minorities – the ultra-Orthodox (Haredim), Israeli Arabs, and West Bank settlers.

The Demographic Divide

Three hundred years ago, the average fertility, age-related mortality, and age structure of the populations inhabiting Europe's collection of empires and states were probably very similar to those populations of the political entities that stretched across NAME. Today, the age structure of Europe's population is substantially older (a higher median age) than that of either North Africa or the Middle East. Under-30s now comprise less than 35 per cent of Europe's population, while more than 17 per cent of all European residents are 65 years of age and older (seniors). In contrast, in NAME, those under 30 make up about 58 per cent of all residents, while seniors, those over 65, comprise just 5 per cent. Why the divide?

The differences arose principally from the timing and pace of fertility decline. Europe's demographic transition began earlier, and proceeded more slowly than the ongoing declines in NAME. For example, it took Sweden – unaided by modern medicine and mass-produced contraceptives for much of its transition – about 90 years to decline from a birth rate above 35 births per 1,000 individuals in the population (ca. 1865), to a rate that settled under 15 per 1,000 (ca. 1955) (Chesnais 1992). It will likely take Tunisia about 40 years (1980 to 2020) to make the same decline, while Iran's transition is likely to cover that same ground in somewhat less time.⁵ Meanwhile the birth rates of the populations of Yemen and Iraq, now at 31 births per 1,000, have declined at a much slower pace than those of Turkey, Lebanon, Iran, or the Arab-majority states of the Maghreb (UNPD 2013).

While Europe's total population is holding steady (~743 million, which includes Russia), that of the NAME region (~430 million) continues to grow at

5 The forecast of Iran's transition relies on the medium variant fertility projection published by the UN Population Division. *World Population Prospects*, 2009.

a significant pace –about 1.8 per cent per year. The principal sources of state-level population growth are the wide gaps between declining death rates and still-elevated birth rates that typically occur during the early and middle stages of the demographic transition. Today the birth-death gap is widest in sub-Saharan and in parts of South and Central Asia. In NAME, the gap is narrowing rapidly in most states. In 14 states, scattered across southern, central and eastern portions of Europe, death outpaces birth – although the rate of decline, in each, remains below one per cent per year (UNPD 2013). Europe's barely growing population – which seems to be edging toward its historical peak – represents the sum of offsetting trends between these declines, and slow growth in its northern and western sub-regions, plus immigration.

The Age-structural Transition

The focus of this essay is on only one aspect of this demographic divide: on population age structure and its association with dramatic political change. This relationship, which some political scientists find befuddling, is actually quite intuitive. When in youthful populations the frequency of childbearing is in decline, large cohorts of children and adolescents are gradually replaced by successively smaller cohorts, triggering an *age-structural transition* (Figure 5.1) – a fairly predictable progressive sequence of age distributions, each with an 'older' median age.

The result: dramatic slowing of growth in the number of children eligible for schooling, greater per-pupil educational investment and attainment (Lee and Mason 2011), and fewer inexperienced young adults vying to enter the workforce (Easterlin 1968, 1987). Moreover, the transition tends to precipitate a gradual shift in society's demographic centre of gravity – away from a social environment dominated by children, adolescents and young adults who have been raised in large families, to a milieu that is increasingly influenced by educated men who were raised in small families and educated women who participate in the trained workforce. In some states, this transformation has been associated with a sharp rise in household and government savings (Higgins and Williamson 1997).

Theoretically, the spread of a small family norm, subsequent age-structural maturation, and slowing workforce growth should be associated with the gradual deterioration of extended family and clan networks, challenging the maintenance of kin-based patronage and applying upward pressure to the costs of recruitment of young-adult males to organizations that perpetuate political violence (Urdal 2006; Weber 2012). Over the past half-century, states experiencing a more mature age structure have been less prone to the rise of intra-state political violence than those with youthful populations (Urdal 2006).

The pattern of increased individuation and decreased intra-state political violence remaining in the wake of the age-structural transition's progress through Europe, across East Asia, and then through the America's suggests that these may be

Figure 5.1 Country-level age structures along the path of the age-structural transition

Source: UNPD, 2013.

its most transformative social bi-products. Arguably, no transition, either political or economic in nature, can boast such extensive and largely irreversible effects.

Today's broad global range of fertility rates (from just above one child per woman in Taiwan to about seven in Niger) along with regional and within-region variation in the timing and pace of fertility declines, have given rise to an extraordinary diversity of population age structures. To characterize their position within the age-structural transition, I group country-level populations into four transitional phases: *youthful* (a population with a median age less than, or equal to, 25.0 years), *intermediate* (25.1 to 35.0), *mature* (35.1 to 45.0), and *post-mature* (greater than 45.0). I will refer to these phases throughout this article.

Because the populations of the six Gulf Cooperation Council (GCC) states (Bahrain, Saudi Arabia, Kuwait, Oman, Qatar, and United Arab Emirates) include relatively large proportions of temporary labourer migrants, these states are categorized using the median age of 'citizen residents', which were obtained from the US Census Bureau's International Program Centre (USCB, IPC 2012), rather than the aggregated country-level estimates and projections that are available in the public-access databases generated by the UN Population Division and the US Census Bureau.

Theory: The Age-structural Maturity Thesis

The relationship between population age structure and democracy – the *age-structural maturity thesis* – is a synthesis of two more firmly established theories: the *youth bulge thesis*, and the *authoritarian bargain thesis*. Proponents of the youth-bulge thesis have convincingly demonstrated that states with a youthful age structure face an elevated risk of experiencing armed intra-state conflict and other types of within-state political violence (Möller 1968; Goldstone 1991, 1999; Mesquida 1996; Urdal 2006; Cincotta and Leahy 2007; Leahy et al. 2007).

Proponents of this theory argue that the high frequency of civil and ethnic unrest reflects the ease with which idealistic, peer-sensitive, risk-seeking young adult males can be mobilized for political violence by both state and non-state actors in opportunity-poor societies. More recent research suggests that these risks often persist in states even when a vast majority of the population is in its intermediate or mature age-structural phase when a state's territorial boundary encompasses a significantly large, politically active, youthful minority – particularly a group segregated in a sub-national region, or a residentially segregated urban group (Cincotta 2011).

The *authoritarian bargain thesis* harkens to a 350-year-old observation of the English political philosopher Thomas Hobbes. Writing in the seventeenth century, Hobbes argued that states are born of a trade-off: when threatened by insecurities, the 'ruled' willingly trade their political rights and civil liberties to the 'ruler' for guarantees of security (Hobbes 1994, original published 1651/1658). In other words, commercial and military elites, as well as propertied citizens and other

vulnerable groups, can be expected to support an illiberal regime when they fear that a more open society would expose them, their family, and their property to violence.

Combining the two theories generates an expectation that is easily tested: countries with youthful age structures, when compared to those categorized as intermediate or mature, should be much less likely to establish and maintain *liberal democracy* – a regime assessed as ‘FREE’ in Freedom House’s annual survey (Freedom House 2014). In fact, since 1972, when the survey began, the mean proportion of youthful countries that have been assessed as FREE has remained under one fifth (18.3 ± 0.8 per cent)⁶ of the annual pool (Figure 5.2). Moreover, the vast majority of these youthful-but-liberal regimes have shown themselves to be extremely ephemeral (Figure 5.3) – while several liberalize each decade, just as many slip to PARTLY FREE (a partial democracy) or NOT FREE (an autocracy), the victim of electoral violence, a crackdown on the opposition or the centralization of executive power, an insurgency, or a coup d’état (the collapse of Mali’s liberal democracy in March 2012, being the most recent example). As expected, when median age increases, so does the proportion of states assessed as FREE.

Getting beyond a median age of 25 years (MA-25) clearly appears as a milestone for a modern state – and arriving at a median age near 30 years seems even better, particularly in terms of attaining liberal democracy and maintaining that regime type. Over the four decades, about half (51.7 ± 3.4 per cent) of all countries with intermediate-aged populations have been assessed as FREE. For countries that attain an intermediate age structure, approximately a third of the boost in liberal democracy can be credited to the ‘age-structural timing’ of their ascent to liberal democracy, the other two-thirds are due to the increased stability as a liberal democracy. For states in which the population has entered the mature phase of the age-structural transition ($n \geq 15$ from 1988 to 2012), more than 8 out of 10 states (83.8 ± 1.6 per cent) have been assessed as FREE.

However, states can sometimes ‘behave more youthfully’ than they mathematically appear. The persistence of significantly large, politically organized, youthful minorities in states with intermediate or mature majority populations can be a harbinger of intra-state violence and inhibit the ascent and stability of liberal democracy. The driver of this inhibition can take the form of political restrictions and discrimination against youthful minorities, or on curtailed civil liberties and political processes that are associated with ongoing-conflict and post-conflict situations – as in the case of Sri Lanka during after the 1983–2009 civil war, and in post-civil-war Lebanon.

Instances of intra-state conflict that are associated with a youthful minority – one that is significantly more youthful than the politically dominant majority – are common. Nonetheless, they have not been studied or compared as an age-structural phenomenon. Examples include Turkey’s prior conflict in the Kurdish

6 Estimates of the mean of these age-structural groups are reported only when $n \geq 15$. Each estimate of the mean is followed by its 0.95 confidence interval.

Figure 5.2 The proportion of states assessed as Free in Freedom House's annual survey, according to age-structural category, 1975 to 2005 (10-year intervals)

Source: Freedom House 2014, UNPD 2013.

southeast, the recent flare up of violence in Egypt's Sinai Peninsula, strife between the Aceh on Sumatra and the Indonesian state in the early 2000s, and violence associated with the Pattani Muslims in southern Thailand.

So far, getting 'demographically older' has decreased the likelihood of an onset of intra-state conflict and increased the statistical likelihood that states will, in general, reach high levels of democracy and remain there. It remains to be seen, however, whether this dictum will hold true for the European and East Asian states that are poised to advance, during the next two decades, into the post-mature phase of the age-structural transition (Cincotta 2012b). It would not be surprising if liberal democracies with post-mature populations were to experience difficulties maintaining their FREE status. Advanced aging sets the stage for numerous plausible catalysts for such a retreat, including: rollbacks in the provision of vital services due to state indebtedness; social and political tensions between indigenous populations and more youthful migrants (where applicable); and ideological tensions over taxation and its allocation (Jackson and Howe 2008).

Figure 5.3 Outcomes (continuous years assessed as Free) for states that rose to Free in Freedom House's annual survey during the period from 1972 to 1989, by median age

Source: Freedom House 2014, UNPD 2013.

The Democracy Debate

The most widely recognized conceptualization of democratization is one that was elaborated first by Samuel Huntington (1991), who described the temporal pattern of emergence of democracies in empirical 'waves' – periodic surges of new democracies, separated by ebbs of authoritarian resurgence. The Third Wave, the principal focus of Huntington's research, began in southern Europe in the early 1970s with the democratization of Portugal, Greece and Spain, and then seemingly spread to states in Latin America and the Caribbean, to East Asia, and ultimately to Africa. However, not all of this liberalization took permanent hold. The greatest share of authoritarian reversals occurred in the 1970 and '80s in Latin America, and then in the following decades in sub-Saharan Africa.

Because of the geographic and temporal 'clumping' of democracies, regional and country analysts have been drawn to theories that envision democratization as a powerful process of ideational contagion (Whitehead 2001), or to inductive approaches that conceptualize democratization as a difficult-to-predict triumph of a liberalizing movement over a closed political culture controlled by entrenched elites (Hellman 1998). Acemoglu and colleagues (2006) have taken a more complex theoretical approach that they support with econometric modelling,

arguing that democratization is the product of incremental institutional change, during which elites, motivated by their desire to maintain order and safeguard their property, have quelled popular grievances by ceding portions of their power to redistributive institutions controlled by the populace.

Challenging these studies, are a set of reductionist models (including the age-structural maturity thesis) that have sought to predict the rise of democracy and attainment of democratic stability based on measurable state-level structural indicators. The most widely cited of this research is Przeworski and colleagues' comprehensive statistical study of structural factors that have been hypothesized as contributors to democratization. The results of their large-n regression analysis led these authors to conclude that, from among the structural indicators studied, the most significant contributor to democracy was per-capita income (GDP per capita) adjusted for purchasing-power parity (PPP).

Studies by Richard Cincotta (2008, 2009, 2013), by Cincotta and John Does (2011), and by Timothy Dyson (2013), and by Hannes Weber (2012) have shown that, when controlling for per-capita income and growth, however, various measures of population age structure continue to register highly significant statistical contributions to the attainment and maintenance of democracy. Cincotta and Does (2011), and Weber (2013) have argued that the dissipation of the youthful component of the age structure influences the timing of the rise to high levels of democracy, and perhaps more significantly, its maintenance. Dyson (2013), as well as Cincotta and Does (2011) and Cincotta (2013), acknowledge that this relationship is probably broader – that age structure and declines in average family size are complexly cross-linked to household and society-wide transformations in educational attainment, income growth, and the gendered structure of societies and institutions, which may also contribute to declines in political violence and promote trends favouring stable liberal democracy.

The case for human capital's statistical contributions to democratization, which the aforementioned studies find to have a weaker effect than either income or age structure, is much less straightforward. In a study that builds its case on econometric modelling, economists Edward Glaeser, Giacomo Ponzetto and Andrei Shleifer (2006) have argued that the widely apparent correlations between education and democracy are indicative of a populace that is capable of mobilizing against the elite, and organizing to achieve democratic concessions and to defend them. In a study that takes account of age-structural patterns of educational development, Wolfgang Lutz, Jesús Crespo Cuaresma, and Mohammed Jalal Abassi-Shavazi (2010) use age and sex-related educational data to determine three synthetic age-structural components of educational attainment – total education, education among older cohorts, and female education – that statistically explain Freedom House's political rights scores.

So, which is it? To some extent, probably all of these; such seemingly irresolvable debates and irreconcilable statistical results appear with frustrating frequency in the social sciences. Typically, they suggest a system of complex feedbacks – dynamics in which the factors that are hypothesized to drive the

dependent variable can also be demonstrated to influence each other, and may be driven, as well, at some levels, by the so-called dependent variable, itself.

Numerous ‘overlaps’ in this literature suggest that these feedbacks may work powerfully across generations and at various levels of social organization – at the level of the state, community, family, and individual. For example, the complexity of feedback loops in the demography-democracy relationship are suggested by research documenting relationships between girls’ education and fertility (Lutz and Gujon 2008), fertility and societal levels of educational spending (Lee and Mason 2011), the timing of fertility and women’s own educational attainment (Klepinger et al. 1995), education, economic growth and democracy (Murtin and Wacziarg 2011), and family income and children’s educational attainment (Copeland and Costello 2010) (among other relationships).

Food Prices and the Arab Spring

Just months after popular uprisings toppled Tunisia’s and Egypt’s authoritarian regimes, a trio of complex-system researchers – Marco Lagi, Karla Bertrand and Yaneer Bar-Yam – published a brief article (Lagi et al. 2011) linking these demonstrations with high levels of FAO’s international food price index (FFPI). Their food price threshold model, which predicts outbreaks of deadly (fatality-associated) social conflict when the FFPI tops 210, has since become a popular explanation for the initiation of the Arab Spring. Unlike the other models, however, it is focused on conflict, not democratization.

Despite its popularity, not everyone is convinced of the connection by this coincidence of events – least of all, international food policy analysts. Several of these analysts have shown that in Tunisia – the political epicentre of the Arab Spring, the most successful pro-democracy movement, and the enabler of other anti-regime movements that soon followed (see Laipson et al. 2011) – government food-price controls held fast. Either before or during the demonstrations that ultimately toppled President Ben Ali, Tunisia’s consumer food price index (Abderrahim and Castel 2012) shows few signs of being influenced by the rapid rise of the FFPI (Figure 5.4).

The first evidence suggesting that Tunisia’s pro-democracy demonstrations erupted independently of the surge in international food price actually preceded the article by Lagi and his colleagues. On January 31, 2011, GIEWS – the on-the-ground early warning system of the United Nations Food and Agricultural Organization (FAO) – released a bulletin reporting ‘relatively stable domestic prices despite high international food prices’ in Tunisia’s consumer food markets during the winter months of 2010 to 2011. The bulletin (GIEWS 2011) also stated that ‘the hike in international food prices has not translated into high domestic prices. [And Tunisia’s] consumer price index of food (CFPI) declined slightly from 131 to 129.9 between November and December 2010’.

Figure 5.4 A comparison of Tunisia's consumer food-price index (CFPI) and the FAO's food price index (FFPI). Both indices use the January 2005 food-basket price as the index (100.0)

Source: Abderrahim and Castel 2012, FAO 2014.

An April 2012 review of Tunisia's pre- and post-revolution inflation trends by the African Development Bank's Chief Economist Complex (Abderrahim and Castel 2012) makes it similarly clear that the Tunisian government's food-price management, which includes tightly regulated prices on some staples (on about 30 per cent of common food items), and a compensation fund for subsidizing poor consumers and farmers, buffered Tunisia's food prices through 2010 and into July 2011. The authors note that the local index rose sharply (although below 4 per cent per year) only after the transition government relaxed some controls in mid-2011 in order to relieve fiscal pressure on the compensation fund and slow the accumulation of debt.

A World Bank report (Ianchovichina et al. 2012) compared consumer food prices among the countries of the region. Because food price controls insert a time lag between international food prices and the response in local consumer markets, food policy analysts use a lag indicator called the *pass-through coefficient* (PTC). The PTC estimates the proportion of the change in the FFPI that is transmitted to the *consumer* food-price index over a specified time (usually six months or a year). The lower the coefficient, the more protected local food markets are from international price spikes.

According to this report, Tunisia and Algeria maintained the lowest food price PTC during the 2010 to 2011 period. Six months after a one-unit rise in the FFPI, Tunisian and Algerian consumers could expect to experience an average food price increase of only about one-twentieth of a unit. In contrast, Egyptian consumers were much less sheltered – that country's PTC for the same six-month period was higher, allowing a rise of 0.33 units for every unit of FFPI. And in local markets in the some of the Gulf States, the coefficients were even larger.

Particularly for Tunisia, which kicked off the Arab Spring, there is virtually no suggestion, from any reliable data, that complaints about food prices were a root cause. In fact, at the height of popular demonstrations in Tunis, during the first week of January 2011, Ben Ali's government announced that food prices would be lowered (Daragahi and Hassaini, 7 January 2011). No one responded.

Models and Methods

In this research, my objective has been to provide analysts with probabilistic expectations of a state being assessed as *FREE* in Freedom House's annual survey during (1) the current year, and (2) within the relatively near-future. To generate these probabilities, I use the *logistic age-structural model of liberal democracy* (referred to as the 'age-structural model') – a previously published and tested function (see Cincotta 2013a; also, regression tables, Appendix 1 and 2 of this article) that replaces a univariate linear version that produced very similar output over most of its range (Cincotta 2009; Cincotta and Doces 2011).⁷

The Logistic Age-structural Model

The logistic age-structural model is also a univariate function. It uses, as input, only the country-level median age (*M*) in a specific year, *y*, to generate a probability, *p*(*M_y*), of that state being assessed as *FREE* in Freedom House's annual assessment (taken at the end of year *y*). Because the logistic age-structural model ignores factors other than age structure that could ultimately influence the assessment, its probabilistic output is referred to as 'naïve' – acknowledging that the consideration of other factors are likely to enhance final forecasts, or alter the level of certainty around that expectation.

The logistic age-structural model takes the form:

$$\pi(M\psi) = \varepsilon\xi/1+\varepsilon\xi, \quad \xi = \beta_0 + \beta_1M\psi;$$

7 The linear form of the age-structural model is $p(\mathbf{M}) \cdot 100 = 3.398\mathbf{M} - 48.21$, where $p(\mathbf{M})$ is the probability of a state being assessed as *FREE* and $\mathbf{M}$ is the median age (in years).

where ξ is the logit, and β_0 and β_1 are parameters that were fit, using an iterative logistic-regression algorithm, to annual data indicating the presence or absence (1, 0) of FREE. Maximum log-likelihood estimates for these parameters yielded:

$$\pi(M) = \frac{\varepsilon(-5.230+(0.1811M))}{1 + \varepsilon(-5.230+(0.1811M))}$$

This output of this general model, continuously spanning the current range of country-level median ages ($15.0 < M < 46.0$), produces a symmetrical logistic curve (Figure 5.5) having an inflection point appearing very near to where the probability of FREE, $\pi(M)$, equals 0.50 – a point that I refer to as $FREE_{50}$ (or the 50–50 benchmark, in several prior publications). For the logistic age-structural model (and for prior linear versions of the model), states with a median age of 28.9 years have a probability of 0.50 (± 0.04) of being assessed as FREE (Cincotta 2013a).

Twelve Addenda: Observations and Working Hypotheses

The statistical nature of the age-structural model's forecasts presents both challenges and opportunities to users. Since its 'expectations' are statistical, the model is unable predict with certainty (i.e., deterministically) that an individual state will be assessed as FREE, or not, at some future time. At best, the model can identify a collection of states among which one should expect a certain proportion to be FREE, or not, during a range of near-future years.

This seemingly modest analytical accomplishment is actually an enormous leap over alternative approaches. By ordering states based on these probabilistic expectations, researchers can focus on the low-probability cases at each end of the logistic curve – on the few states that achieved high levels of democracy age-structurally early, and the few that have retained authoritarian regimes age-structurally late – and ask, 'Why?'. Determining structural factors and regime qualities that explain low-probability behaviours and atypical patterns of democratization has become a rewarding part of the age-structural modelling effort and has added needed detail to the age-structural theory of liberal democracy.

Thus, armed with these expectations and more than 40 years of FH and UNPD data, factors that are hypothesized to either slow or speed the pace of political liberalization can be tested – statistically, for quantifiable factors, and by repeated observation for those that are difficult to quantify. Twelve factors that have withstood some degree of testing, and add nuance and detail to the age-structural theory, are listed, below. Each is tagged in one of three ways: as a product of repeated statistical observations [SO]; as a product of repeated qualitative observations [QO]; or as a working hypothesis derived from limited observations of any kind [WH].

Admittedly, most of these addenda are not unique to this analysis. These serve to corroborate other researchers' observations. However, a few appear to be wholly original observations or working hypotheses that may not have been

Figure 5.5 Two graphs: (a) logistic age-structural model of liberal democracy (existential model) and (b) the gain and loss models.

Source: Cincotta 2013a.

obvious, or even detectable, absent the expectations generated in age-structural time. Of course, none of these observations qualify as complete studies of a factor. All could benefit from testing and refinement, making them candidates for further research.

1. *To remain Free when very youthful, it pays to be less populated [SO].* States with under 5 million residents – small-island states (including Mauritius, Sao Tome, Jamaica and Cape Verde) and the least populous terrestrial states (such as Belize, Botswana, and Costa Rica) – have frequently attained FH's FREE status well before their MA-25. Notably, nearly all have managed to continuously retain that status beyond two decades (see Weber 2012).

2. *Among more populous states, 'demographically early' transitions to liberal democracy entail risks [SO].* From 1972 to 1992, half of all precociously FREE regimes (FREE with a population at MA-25 or younger) were downgraded to either NOT FREE, or to low levels of PARTLY FREE, within a decade after initially attaining FREE status (Figure 3) (examples include Ghana (1980–82), Nigeria (1983–84), and Chile (1972–73)).⁸ Nonetheless, among those that fell less dramatically, several reclaimed FREE status within five years of its loss (for example, Senegal (2007–2012), India (1976–1979), and Trinidad and Tobago (2000–05)).
3. *Revolutions at youthful age structures rarely, if ever, end in stable liberal democracy [QO].* The vast majority of political uprisings against authoritarian regimes in youthful country-level populations (i.e., at MA-25.0 or younger) ultimately morph into violent conflict – either instigated by elements of the populous, or by reacting security forces. Where violent, youth-led revolutions effect regime change, autocracy (NOT FREE) is typically replaced by another autocratic regime or by a partial democracy (PARTLY FREE) (see Stephan and Chenoweth 2011).
4. *Military rulers and their descendant-regimes rarely survive beyond median-age-35 [QO].* Neither military 'care-taker regimes' (such as Argentina's *el Proceso*, or the *State Peace and Development Council* in Myanmar) nor military-descendent neo-patrimonial authoritarians (such as Pinochet in Chile, Ben Ali in Tunisia, Mubarak in Egypt) are likely to remain in power past MA-35 (Cincotta 2009, 2008). Historically, military regimes have sought means to exit politics around FREE₅₀.
5. *Ideological political monopolies and charismatic founding figures often persist beyond median-age-35 [QO].* The small proportion of states that have successfully resisted transitioning to FREE status beyond MA-35 are controlled either by a regime that is organized by a single, ideological party, which is synonymous with the state (China, Cuba, North Korea), or by a regime in a multi-party system, that is led by a charismatic founder or founder-like figure (Singapore, Russia) (Cincotta 2008, 2009; Cincotta and Doces 2011).
6. *Regimes controlling rentier states or high-growth economies often persist beyond median-age-35 [SO].* Regimes profiting from substantial oil and mineral rents or exceptionally high rates of economic growth (Crespo Cuaresma et al. 2012; Cincotta 2013) typically lag behind the model's age-structural expectations for political liberalization.
7. *Democratic transitions have also been constrained by the intimidation and political manipulations of militarily superior neighbours [QO].* Militarily

8 In this analysis, a low level of PARTLY FREE status is identified by a freedom score of 4.5 or 5.0 (this category ranges from 3.0 to 5.0). Freedom scores for NOT FREE range from 5.5 to 7.0. See note 1 for an explanation of the relationship between freedom scores and freedom status.

- strong authoritarian neighbours, particularly those with the economic capacity to maintain or expand an extended sphere of strategic influence (for example, Soviet dominance over Eastern Europe, Syrian and Iranian support for Hezbollah in Lebanon, and Saudi Arabia's incursion into Bahrain) have often deterred political liberalization or destabilized liberal regimes in states with an age-structurally mature population – states that the Existential Model assigns a high probability of FREE status (Cincotta 2013).
8. *Armed conflict can delay or destabilize transitions to liberal democracy [SO].* The presence of a major conflict (greater than 1,000 battle-related deaths per year)⁹ also delays transitions to FREE status or can prompt its decay (Cincotta 2013; also see Urdal 2006). Since the majority of major intra-state conflicts occur among states with youthful age structures (Urdal 2006; Goldstone 2002, 1990; Mesquida and Weiner 1991; Möller 1960), this effect explains much of the fragility of youthful liberal democracies and the reluctance of elites in youthful states to pursue high levels of democracy.
 9. *Ethnic tensions, particularly those involving a youthful, politically organized minority, tend to delay transition to liberal democracy [QO].* In countries that seem demographically on schedule to transition to high levels of democracy, stalling can occur in the wake of sporadic outbreaks of low-level violence (as in Myanmar in 2013) or against a background of residual ethnic tensions following coups d'état and conflicts (as in Fiji and Sri Lanka).
 10. *Muslim-majority states, as a group, appear delayed in their transition to stable liberal democracy [SO].* Currently, the number of Muslim-majority states that are assessed as FREE (in FH's assessment of 2013, only Senegal) is far fewer than the age-structural model predicts (Cincotta 2013). Some of the gap can be credited to the narrowly youthful range of the 47 Muslim-majority states in this analysis – from Niger (MA-15.0 years) to Albania (MA-32.9), with Pakistan (MA-22.5) at the centre of the distribution. Among the nine states above MA-28.0, the rise of Islamism in its varied political forms, along with the resistive effects of oil and mineral wealth (see rule 4 in this list), in a few cases, may have deterred further liberalization. And, while FH's 2013 analysis recognized Tunisia's progress nearly (but not quite) to FREE status, the organization's analysts also downgraded Indonesia to PARTLY FREE, following eight continuous years as FREE (2004–12)).
 11. *Monarchs manage political transitions – up to a point [WH].* Historically, monarchies that have survived in a state where the population has surpassed MA-35 did so by managing a slow and minimally volatile political transition. Before entering the mature phase of the age-structural transition (MA-35 to 45 years), these monarchs have typically cultivated a loyalist

9 The data used in this analysis was obtained from the Uppsala Conflict Data Program/PRIO Armed Conflict Dataset, which can be accessed at: http://www.pcr.uu.se/research/ucdp/datasets/ucdp_prio_armed_conflict_dataset/.

political party, transferred much of their assets to the private sector, and ceded nearly all of their executive powers to civilian government. Forms of instability tend to prevail when the throne has failed to initiate this transition (as in Bahrain) during the intermediate period (MA-25 to 35), or withheld some of its executive powers past MA-35 (as in Thailand).

12. *Advanced population aging can affect the liberalness of democracies [WH].*

It is still too early to draw firm conclusions about the political prospects of the handful of liberal democracies with rapidly aging populations that are near MA-45. However, political dynamics are already in play in a few states, including Greece and Hungary, which could be interpreted as warning signs of contradictions between a *post-mature population* (an MA greater than 45.0 years) and *stable* liberal democracy. In these states, declines in *freedom scores* (the average of political rights and civil liberty scores, from which freedom status categories are determined) including mounting public debt, popular protest against public-sector layoffs and pension reforms, and tensions over apparent shifts in ethno-religious composition. The next two decades will surely test the stability and durability of liberal democracy in *post-mature* age structures.

Summarizing Expectations

In the following analysis, a regional summary table (Table 5.1) is used to provide the user with the model's expectations for each independent North African and Middle Eastern state. To provide indications of each state's political condition and trend, the table provides (by column): (1) the current median age (in Table 1, values for 2013); (2) the model's estimation of the current probability of that political entity being assessed as FREE; (3) the current Freedom House status (FREE, PARTLY FREE, or NOT FREE); (4) the projected median age in 2030 (using the UN Population Division's medium fertility variant); (5) the year in which the population is projected (or was estimated) to reach $FREE_{50}$ (median age of 28.9 years); and (6) inhibiting and facilitating factors (from the model addenda) that could help forecast its political dynamics. In this table, the region's states are ordered by the year that they reach $FREE_{50}$, starting with the earliest $FREE_{50}$ at the top of the table, to the latest at the bottom.

The Regional Summary Table

Before discussing the age-structural model's expectations for the region's states (summarized in Table 5.1), I will make several observations about the overall arrangement of states in regional the summary table. In fact, when ordered by their $FREE_{50}$ values (the year that they attain MA-28.9 years), regional summary tables show similar general properties: states assessed as FREE typically cluster at the top; those assessed as NOT FREE are typically found primarily at the bottom; states

with resilient forms of authoritarian regimes appear ‘out of place’ among FREE and PARTLY FREE states; and the most unstable liberal democracies appear out of place in the bottom half of the list, juxtaposed to states assessed as NOT FREE. The distribution of PARTLY FREE states typically provides an indication of the quality of political development and ideological tensions in the region.

For NAME, nearly all of the states that are currently assessed as FREE or PARTLY FREE are clustered near the top of the list, where current median ages and probabilities of FREE are highest. The states categorized as NOT FREE, are mostly situated near the bottom. Low on the list, however, are two states categorized as PARTLY FREE in January 2013: Egypt and Kuwait. Both have freedom scores (averaged political rights and civil liberties scores) that put them on the lower margin of this freedom status category (Freedom House 2014). Egypt, and perhaps Kuwait, will likely be re-categorized as NOT FREE in January 2014 due to declines in political rights and civil liberties during 2013.

The range of age structural conditions across the Middle East and North Africa is extraordinary – from Cyprus, with MA-35, and Tunisia and Israel at MA-30, to the UAE (citizen residents, only) and Yemen at about MA-19. While Tunisia reached its FREE₅₀ point in 2010, the year during which its revolution began, current projections suggest that six of the region’s states – including Iraq, Yemen and Kuwait – are unlikely to achieve a similar age-structural configuration until after 2040.

Perhaps the most striking characteristic of the region is the absence of a state with a rating of FREE amongst the four states that have recently attained, or nearly attained, FREE₅₀: Tunisia (rated PARTLY FREE in 2012), Lebanon (PARTLY FREE), Turkey (PARTLY FREE), and Iran (NOT FREE). According to Freedom House’s freedom scores, since 2010, only Tunisia has liberalized – and then, even that relatively small and ethnically homogeneous state, progress stalled. Clearly, the impediment to further liberalization in each case has been the political influence of some form of Islamism, even in its moderate forms in Tunisia (when the Ennahda Party dominated the interim government) and Turkey (under the AKP). In contrast, another Muslim-majority state near its FREE₅₀ point, Indonesia, was assessed as FREE continuously from 2005 to 2012 (downgraded in Freedom House’s analysis of 2013). In that Southeast Asian state, political Islam has had much less political impact.

The current lag in political liberalization in NAME is evident in comparisons with other regions (Figure 5.6). Nonetheless, there is a positive side to this delay – the region lacks the youthful, short-lived liberal democracies that punctuated Latin America’s political landscape in the 1970s and ‘80s, and are currently a feature of West African regional politics. Several of Latin America’s youthful liberal democracies were lost abruptly to coups d’état, and succeeded by violently repressive regimes – including Pinochet’s regime in Chile (1973–90), and a succession of military-dominated regimes in Argentina (1976–80).

Table 5.1 Regional summary table

Source:	Data (FH, 2014)	Data (UNPD, 2013)	Model Output [†]	Model Output [†]	Data ^{††} (UNPD, 2013)	State-specific factors	State-specific factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Independent State	Freedom status	Median age 2013	Probability of FREE 2013	Probability of FREE 2025	FREE ₅₀ (median age = 28.9 years)	Factors inhibiting democratization or destabilizing democracies*	Influential Internal and External Actors
North Africa and Middle East	Dec. 2013	(years)	(probability)	(probability)	(year)	2013	2013
Cyprus	FREE	35.2	0.76	0.88	1984 (FREE since 1986)	Partition*	UN Peacekeeping Mission (UNFICYP)
Israel	FREE	30.1	0.56	0.61	2006 (FREE before 1972)	Youthful minorities* (<i>Haredim, Israeli Arabs, Settlers</i>), Recurring conflict (<i>Hamas, Hezbollah</i>)*	---
Tunisia	Partly Free	30.3	0.56	0.77	2010	Islamists (moderates, <i>Ennahda</i>)	---
Lebanon	Partly Free	29.8	0.54	0.81	2011	Youthful minority (<i>Shiites</i>), Islamists, Ethnic tensions, spillover from Syrian Civil War	Hezbollah (supported by Iran and Syria)
Turkey	Partly Free	29.4	0.52	0.71	2012	Youthful minority and Armed conflict (<i>Kurds</i>), Ruling Islamists (moderates, <i>AKP</i>)	---
Iran	NOT FREE	28.5	0.48	0.74	2014	Political monopoly, Ruling Islamists (conservatives)	Clerical Elite

Table 5.1 continued Regional summary table

Source:	Data (FH, 2014)	Data (UNPD, 2013)	Model Output†	Model Output†	Data** (UNPD, 2013)	State-specific factors		State-specific factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Independent State	Freedom status	Median age 2013	Probability of FREE 2013	Probability of FREE 2025	FREE ₉₀ (median age = 28.9 years)	Factors inhibiting democratization or destabilizing democracies*		Influential Internal and External Actors
North Africa and Middle East	Dec. 2013	(years)	(probability)	(probability)	(year)	2013	2013	
Morocco	PARTLY FREE	27.0	0.42	0.58	2020	Sporadic intra-state conflict (<i>Polisario</i>)	Monarchy	
Algeria	NOT FREE	26.9	0.41	0.58	2020	Armed conflict (<i>AQM</i>), Oil and mineral rents	Military	
Libya	PARTLY FREE	26.6	0.40	0.58	2020	Sporadic intra-state conflict, Oil and mineral rents	---	
Bahrain [a]	NOT FREE	26.1	0.38	0.55	2022	Ethnic tensions, Oil and mineral rents	Monarchy, Saudi Arabia	
Saudi Arabia [a]	NOT FREE	23.3	0.27	0.47	2026	Oil and mineral rents	Monarchy	
Egypt	NOT FREE	25.2	0.34	0.46	2029	Youthful minority (<i>Sinat Bedouin</i>) and Armed conflict	Military	
Syria	NOT FREE	22.4	0.24	0.39	2030-35	Ethnic tensions, Armed conflict (<i>civil war</i>)	Iran	
Jordan	NOT FREE	23.4	0.27	0.36	2035-40	Ethnic tensions	Monarchy	
Oman [a]	NOT FREE	21.5	0.21	0.31	>2040	Oil and mineral rents	Monarchy	
Kuwait [a]	PARTLY FREE	20.0	0.17	0.26	>2040	Oil and mineral rents	Monarchy	
Qatar [a]	NOT FREE	20.4	0.18	0.25	>2040	Oil and mineral rents	Monarchy	

Source:	Data (FH, 2014)	Data (UNPD, 2013)	Model Output [†]	Model Output [†]	Data ^{††} (UNPD, 2013)	State-specific factors	State-specific factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Independent State	Freedom status	Median age 2013	Probability of FREE 2013	Probability of FREE 2025	FREE ₅₀ (median age = 28.9 years)	Factors inhibiting democratization or destabilizing democracies*	Influential Internal and External Actors
North Africa and Middle East	Dec. 2013	(years)	(probability)	(probability)	(year)	2013	2013
Yemen	NOT FREE	19.1	0.14	0.24	>2040	Ethnic tensions and Armed conflict	---
Iraq	NOT FREE	19.7	0.16	0.23	>2040	Ethnic tensions and Armed conflict	Iran, Turkey, Saudi Arabia
UAE [a]	NOT FREE	18.5	0.13	0.18	>2040	Oil and mineral rents	Monarchy

Note: [†] These probabilities were generated using the model: $\pi(\mathbf{M}) = \varepsilon \xi / (1 + \varepsilon \xi)$; $\xi = -5.230 + (0.1811 \mathbf{M})$; where $p(\mathbf{M})$ is the probability that a state is assessed as FREE in Freedom House's annual survey, and $\mathbf{M}$ is the country-level population's median age in years. ^{††} FREE₅₀ corresponds to the year that $p(\mathbf{M})$ is estimated or projected to surpass a probability of 0.50 (± 0.04) using the previously described model. This version of the model generates an output of 0.50 when the input, $\mathbf{M}$, is a median age of 28.9 years.

The estimated median age of states in the Middle East and North Africa Region in 2013 (column 2) and the corresponding probability (col. 3) of being categorized as Free by Freedom House. Political entities (col. 1) are sorted by year (col. 6) that they are estimated or projected to surpass Free50 (median age of 28.9 years). The following columns suggest factors that could deter a rise toward Free status or make its maintenance difficult (col. 7), and those that influence the pace of democratization (col. 8). For the states of the Gulf Cooperation Council [a], the median age of the citizen-resident population was used to generate probabilities (excluding labor migrants)

Reflections on the Future

The proximity of Europe to NAME, coupled with the facts that perhaps as many as 20 million North African Arabs, Turks, Kurds and Iranians now make Western Europe their home (my extrapolations, see Savage 2004; Grim and Karim 2011), and that Europe remains a primary target destination for refugees from the region, provides sufficient reasons for EU member states to seek a larger role in the development of NAME. The age-structural model's expectations provide analysts and policymakers with some valuable hints to the region's near-term future.

In this final section, I use the summary table (and supporting quantitative and non-quantitative data) to address three questions.

- First, which states, among those in NAME, appear as the most promising candidates for transitioning to stable, high levels of democracy, and when should that political transition occur?
- Almost as importantly, which states appear to be the least promising for making a transition to liberal democracy, and why?
- And finally, which states could surprise analysts, and how? In other words, which are undergoing significant age-structural changes for which this limited analysis has difficulty making assessments?

The Most Promising

As of this writing (in 2013), the 2008 forecast of 'one, maybe two' liberal democracies in North Africa remains plausible. The states of interest in this forecast have been, from the outset, those of the Maghreb – Tunisia, Morocco, Algeria and Libya; each very different than the other in terms of resources, regimes and history. Because of Habib Bourguiba's post-independence reforms – his initiatives to guarantee women's rights and promote girls' education, to outlaw polygamy and give women the right to initiate divorce, and his insistence on the availability of modern contraceptive services – Tunisia's age-structural transition, which reached $FREE_{50}$ (median age 28.9 years) in 2010 is about a decade ahead of its neighbours in the Maghreb (Morocco, Algeria and Libya), and 18 years ahead of (a much more youthful) Egypt.

A review of Freedom House data suggests that an 'age-structurally timely' transition to liberal democracy rarely happens in the course of a year. A timely political transition – where a state assessed as NOT FREE, with a country-level population near its $FREE_{50}$ point, began a political transition that concluded in a FREE assessment that remained stable thereafter – has usually taken anywhere from three years (Portugal, 1973–76; Chile, 1987–90) to eight years (Indonesia, 1997 to 2005). And while the grievances of Tunisia's youth may have contributed to the relentless quality of the revolution, the country's age structure is poised to give its leaders some respite. In the coming decade, Tunisia's labour force growth rate will slow dramatically – as relatively smaller cohorts of young adults graduate from

Figure 5.6 Regional paths of age-structural progress

Note: While advancing in median age, the proportion assessed as Free in North Africa and the Middle East (NME) has remained the same. The other regions are sub-Saharan Africa (SSA), Asia-Pacific (APC), North and South America (NSA), and Europe (EUR).

Source: Freedom House 2014, UNPD 2013a.

high schools and take their place among the working ages (Figure 5.7). Thus, if Tunisian secular politicians are, at all, capable of overcoming Islamist objections to constitutionally guaranteed civil liberties, then analysts should expect the final stretch of their political transition to occur between 2014 and 2019.

Morocco, Algeria and Libya are each currently projected to reach $FREE_{50}$ in 2020. Despite their demographic, ethnic (Arab-Berber mix), religious, and geographic affinities, the present regimes of these states differ substantially. Morocco's monarchy has done what monarchies do best as they approach $FREE_{50}$ (MA-28.9 years) – closely manage the forces of political transition as it slowly and carefully devolves legislative functions to elected officials, while strengthening the judiciary and retaining key executive powers and tight control over the military. If political liberalization continues at its current slow pace, it is (in my opinion) likely to produce a constitution that would preserve a place for the Moroccan crown and make it difficult for Islamists to unravel democratic institutions and guarantees of press freedoms and women's rights.

Few political scientists recognize that Algeria's population passed through a period of fairly rapid fertility decline, starting from a TFR well over six children per woman in the early 1980s, to a level around 2.9 today. Surveys suggest that fertility may have declined to slightly lower levels and then increased again – an unusual dynamic, if indeed that is the case. For most analysts of this region, political liberalization in the near future in Algeria seems utterly implausible.

Yet, countries like Algeria – states headed by a military-backed non-ideological regime with populations that are shedding their youthful age structure – have often experienced the rise of a vocal democracy movement as they approach $FREE_{50}$, and have been exceptionally vulnerable to regime change and political liberalization. Nonetheless, the country's vast oil wealth, an economic feature that appears to statistically slow the pace of democratization (Crespo Cuaresma et al. 2011; Cincotta 2013a), as well as occasional activity by AQM-affiliated insurgents in the country's southern reaches, adds uncertainty to its forecast.

Libya's future is even cloudier. Besides its substantial oil reserves, residual intra-state conflict between pro-government forces, jihadists and tribal militias continue to thwart the consolidation of government rule. Yet analysts should recognize that the model – although it disregards those important factors – places Libya's naïve probabilities for liberalization higher than Egypt's. Recent UN Population Division projections (2012) situate Egypt's attainment of $FREE_{50}$ in 2029. That projection could retreat further. Egypt's rural areas remain youthful and its fertility decline, though significant, has proceeded at a significantly slower rate than states of the Maghreb, to the west.

In the Middle East, the most age-structurally promising states remain Lebanon, Turkey and Iran. Each has attained a level of fertility that is near replacement (just above the two-child per woman level), or slightly below, and each has substantially raised the average level of educational attainment and income over the past two decades. Despite Lebanon and Turkey's proximity to $FREE_{50}$ and the fact that Freedom House has previously assessed both as $FREE$ (Lebanon, 1972–74; Turkey, 1974–79), their freedom scores have recently declined. For Lebanon, the greatest impediment to liberalization lies in the unchecked power of Hezbollah, whose Shi'ite militia controls significant portions of the country's south, while the party's political wing maintains a near-strangle hold on its political system.

Turkey's recent downward trend in freedom scores suggests that a ruling Islamist political party, even the country's centre-right Justice and Development Party (AKP) which proudly displays its democratic credentials, might be incapable of leading a democracy through further liberalization – enough to qualify for the assessment of $FREE$ in Freedom House's annual survey. The AKP government has adeptly managed Turkey's economy, the state's conflict with the Kurdish minority, and its foreign affairs. Nonetheless, by periodically jailing reporters and harassing the secular press (Filkis 2012), and by backtracking on women's rights, the AKP flaunts its disinterest in achieving a depth of democracy that would provide Turkey with Freedom House's annual assessment of $FREE$ – and, arguably, defining an Islamic democracy that contrasts dramatically with notions of liberal democracy that emerged first in the West.

Despite Iran's dramatic demographic changes since the mid-1980s – declining from 6 children per woman to around two in about 20 years – the possibilities for liberalization over the coming decade are, according to this analysis, significantly less hopeful than for either Lebanon or Turkey. Iran's authoritarian theocratic political monopoly and strict ideological political elite demonstrate qualities that

Tunisia

Figure 5.7 Estimates of the population age structure of Tunisia in 1965, 1990, and 2010, and the medium fertility variant projection for 2025

Source: UNPD 2013.

are reminiscent of regimes that successfully resisted democratization as they approached and surpassed $FREE_{50}$ – such as China, which passed $FREE_{50}$ in the late 1990s after dismantling a democracy movement (Cincotta 2009b). Whereas the Chinese regime employed the People's Liberation Army (PLA) to crush the Tiananmen demonstrations, Iran's clerical regime recruited young men to the Basij, a religious paramilitary organization that was instrumental in suppressing student riots in 1999 and pro-democracy protests that followed Iran's 2009 presidential elections.

The Least Promising

Eight of the region's 20 states (40 per cent) are projected to reach the $FREE_{50}$ point after 2030, six of which are likely to reach that point beyond 2040, including Iraq and Yemen – and perhaps decades beyond then. All are located in the Mashreq (the Arabic-speaking eastern portion of the region) or on the Arabian Peninsula. Four are sparsely populated Gulf-Arab monarchies in which the population count includes a significant proportion of labour immigrants: Kuwait, Qatar, UAE and (to a lesser extent) Oman. The citizen-resident portions of these rentier states are still very youthful – all under MA-22 years, and aging very slowly. Most analysts would suggest that these small, wealthy Gulf monarchical regimes are likely to continue unchallenged into the foreseeable future. Bahrain is an exceptional case; now at MA-26, the population of the tiny kingdom has advanced into the intermediate portion of its age-structural transition, where some movement toward political liberalization might have been expected without the intervention of the Saudi Arabia's army.

Syria and Jordan, both states with youthful populations experiencing relatively slow fertility declines, are projected to reach $FREE_{50}$ between 2030 and 2040. Accordingly, the end of Syria's civil war is unlikely to bring substantial liberalization to the state. The analysis also suggests that Jordan's monarchy is still nearly a decade from reaching an age structure that might produce sufficient stability to induce the monarchy to exchange some of its executive powers for a role in a constitutional monarchy.

The Most Difficult to Discern

In the mid-2020s, two states in the region are likely to undergo significant demographic shifts, the political outcomes of which are very difficult to envision. The first, Israel, is a nearly unique demographic case. Despite the longevity of Israel's liberal democracy, the resilience of its democratic institutions could be tested over the coming decade by parliamentary confrontations and political manoeuvring that respond to the proportional rise of several youthful and politically active minorities: Israeli Arabs, ultra-Orthodox Jews (Haredim), and West Bank settlers.

At play are special relationships between the state and each of Israel's minorities, to which significant numbers of Israeli voters now object. The ultra-Orthodox, who now comprise about 10 per cent of Israel's eight-million-plus population, have lived a largely conscription-exempt, state-subsidized life style, and their religious leadership controls the institutions of Israeli Jewish life. While the Israeli-Arab population growth rate is slower than either the ultra-Orthodox or settler populations, Arab citizens now comprise 21 per cent of the population, yet Israeli-Arab Muslims and Christians (but not Druze citizens) remain exempt from conscription and other national service. West Bank settlers, a diverse group who

now comprise about 6 per cent of Israel's citizens, have been the beneficiaries of generous housing subsidies and costly security arrangements.

Parties representing these (mutually antagonistic) groups now comprise nearly a third of the Knesset, Israel's national legislature. In the January 2013 election, a newly organized centrist party, Yesh Atid, rode popular sentiments for reform to a prominent position in the Likud-led government (Cincotta 2013b). Whereas the pace and momentum of minority population growth guarantee that Yesh Atid's reform agenda will remain at the frontline of Israeli politics, the trajectory of the reform movement's political future is very difficult to predict.

The other state of demographic interest is Saudi Arabia. Current projections of Saudi Arabia's citizen-resident population suggest its arrival at $FREE_{50}$ around 2026 (US Census Bureau, International Program Center, 2012). While few would expect the Saudi monarchy to initiate a full transition to democracy, it would not be out of the question for the royal family to seek to establish greater political participation and representation from an urbanized and increasingly educated public.

As examples, only a handful of late twentieth-century examples of 'managed' monarchical transitions toward higher levels of democracy are on the record – including Spain, 1975–77; Thailand's beleaguered transition; and the beginnings of liberalization in Morocco's and Malaysia's regimes. Nonetheless, the age-structural timing of their changes is similar to the situation that Saudi Arabia will encounter during around 2026, and perhaps in Jordan in the mid-2030s.

The degree of future political change in Saudi Arabia could depend upon the outcome of political liberalization in neighbouring Egypt, which seems to hold little promise at this time. Jordan's monarchy is likely to look to the end-product of Syria's precarious youth-led revolution, the outcome of which still remains in doubt. No doubt, because of rising tensions among states in the region, the Saudi and Jordanian monarchy will be reluctant to cede control of their military, and other core executive powers with foreign-affairs implications, to civilians. The ability to bargain with reformers and, in some cases, distance themselves from other sources of state power, has allowed Arab monarchies to moderate the pace of political change.

Recommendations

Three recommendations follow and attempt to meld the age-structural model's projections and theoretical perspective to the current realities of the North Africa and Middle East region. Briefly stated, my concluding points are:

- *Tunisia remains the state that is statistically most likely to attain liberal democracy, and to maintain it, in the region's near future.*

The importance of an Arab-majority liberal democracy cannot be overstated. For that reason, Tunisia should remain a high priority for the EU and other donors in

terms of stimulating trade, extending credit and promoting technical exchange, and providing economic and security assistance. For Tunisia, the time is ripe for private investment. Over the coming five years (2015 to 2020), Tunisia's increasingly favourable age structure and educational profile are likely to encourage political stability and economic growth.

- *Although a decade behind Tunisia, the states of the Maghreb – Morocco, Algeria and Libya – stand out as the region's second tier of potential political transition.*

The age-structural model suggests that by 2020, Tunisia's neighbours in the Maghreb are likely to attain conditions indicating – statistically, at least – that one or more is due to further liberalize. To 'catch up' to Tunisia in these larger, more ethnically diverse and geographically expansive states, governments expand rural services, increase student retention, and improve women's status.

- *Among age-structurally youthful states of the Middle East, the EU and other donors would do best to support efforts that build political and economic stability, and strengthen state legitimacy and human security, rather than concern themselves over the lack of progress toward democracy.*

Perhaps no conclusion of this research program has been stronger than the one indicating that, under some circumstances, states can ascend to liberal democracy 'age-structurally too early'. States that achieve liberal democracy before attaining MA-25 years have a low chance of maintaining that regime type – while getting nearer to 30 years helps. Historically, a 'precocious transition' tends to leave a state vulnerable to episodic declines in political rights or civil liberties, or to abrupt regime change and a return to low levels of partial democracy or autocratic rule.

From a theoretical standpoint – that of political demography – foreign-directed economic assistance in NAME, or elsewhere, is likely to produce its most meaningful and lasting effects within those states in which population age structure is working for, rather than against economic, social and political development. Today, within this age-structurally diverse region, demography is most supportive of economic and political development in the Maghreb – states that are experiencing the first stages of their 'demographic bonus' period.

The near-term stability of states in NAME appears to teeter upon their abilities to put the most politically vibrant and rapidly growing segment of their adult population – their young adults – to work at a decent wage. Yet, there has been no recent shortage of national plans and state-financed microeconomic schemes to employ youth, nor a dearth of assistance from abroad seeking the same end – and all with nearly negligible success.

With but a few exceptions, national economic planning in NAME has generally failed to explicitly acknowledge what was made clear in the much-noted UNDP-sponsored *Arab Development Report* (UNDP 2006) – that youthful age structures,

a product of sustained high fertility, pose an impediment to state-financed efforts to reduce youth unemployment, to increase educational attainment and boost savings. Ultimately, the answer to this economic and social conundrum gripping the region lies not among the men who demand jobs, or among those who can create jobs, but among the women who today can lay claim to only a secondary role in their societies.

Appendices

Appendix 5.1 Comparison of logistic regression models

Global data set, 1972-2011	Model 1A	Model 2A	Model 3A	Model 4A	Model 5A	Model 6A	Model 7A
Variable list							
<i>Explanatory Variables</i>							
Median Age [MA] (years)	0.181*** (0.004)	0.136*** (0.007)	0.158*** (0.012)	0.198*** (0.009)	---	---	---
PPP-adjusted Income [INC] (LN(2005 international dollars/capita))	---	0.658*** (0.044)	0.872*** (0.069)	---	1.210*** (0.038)	1.299*** (0.061)	---
Young-adult (15-29 years) Educational Attainment [YA-EDUC] (proportion with some secondary or tertiary education)	---	---	-1.172*** (0.280)	0.487* (0.235)	---	1.032*** (0.243)	4.644*** (0.159)
Constant	-5.230 (0.125)	-9.633 (0.341)	-11.052 (0.202)	-5.791 (0.166)	-10.991 (0.336)	-12.124 (0.463)	-3.323 (0.113)
FREE ₅₀ (0.50 probability of FREE)	28.9 (± .4) years				\$8824 (± ~\$570) (PPP, 2005)		71% (± 2%)
N	5790	4321	3266	3942	4326	3269	3945
Pseudo-r ²	0.27	0.35	0.40	0.34	0.27	0.36	0.23

Appendix 5.2 Comparison of logistic regression models

Global data set, 1972-2011	Model 1B	Model 2B	Model 3B	Model 4B
Variable List				
<i>Explanatory Variables</i>				
Median Age [MA] (years)	0.148*** (0.005)	0.036*** (0.011)	0.151*** (0.013)	0.153*** (0.010)
PPP-adjusted Income [INC] (LN(2005 international dollars/capita))	---	1.210*** (0.062)	1.302*** (0.087)	---
Young-adult (15-29 years) Educational Attainment [YA-EDUC] (proportion with some secondary or tertiary education)	---	---	-1.302*** (0.035)	1.188*** (0.263)
<i>Dichotomous controls</i>				
Major conflict ensuing (>1000 deaths)	1.296*** (0.261)	1.309*** (0.264)	1.915*** (0.251)	1.391*** (0.690)
Muslim majority state (>50% of citizen- resident population)	2.165*** (0.148)	3.167*** (0.203)	2.571*** (0.227)	2.072*** (0.196)
Resource rentier state (mineral & oil rents >15% of GDP)	0.067 (0.136)	1.288*** (0.176)	1.915*** (0.251)	0.690** (0.233)
Growth economy (>7% GDP growth/year)	0.648*** (0.121)	0.431** (0.145)	0.077 (0.178)	0.767*** (0.150)
Constant	-8.346 (0.323)	-17.346 (0.629)	-17.900 (0.765)	-9.576 (0.430)
N	5790	4321	3266	3942
Pseudo-r ²	0.33	0.47	0.40	0.34

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Chapter 6

Does Demographic Revolution Lead to Democratic Revolution? The Case of North Africa and the Middle East¹

Youssef Courbage and Paul Puschmann

In this chapter we will show how the demographic transition, in its broadest sense a universal phenomenon,² now encompasses the Arab (and Muslim) world. Beyond the stage of descriptive demography, we would like to pay attention to the elements of politics related to the demographic transition, particularly with regard to the Arab Spring, which started in late 2010. The connections we will draw between education, demography and politics are, in itself, not completely new. In fact, the British historian Lawrence Stone (1969) already established a link between education and revolution in an article published one year after the May Revolution of 1968.³ His research suggests that once populations reach the threshold, in which 50 per cent of their young males are literate, political trouble arises. The link between increased levels of education and social disruption can also be found in other regions, such as the Arab world today, where young people are, from a demographic point of view, the dominant group in the population and the driving force behind protests and revolution.

In this contribution, we will investigate how a youth bulge is present all over North Africa and the Middle East, from Morocco to Iran. The presence of this youth bulges increases the risks for violence and revolution in this world region. However, disruption will not last forever. On the basis of demographic indicators, it is possible to predict a more serene future and a process of convergence with the Western world in terms of political development. This process will form the onset of an era in which the youth bulge is declining, while the group of aged persons is

1 Many of the idea's and materials presented in this chapter build on Courbage and Todd (2011).

2 The demographic transition refers to the shift from a traditional population regime with high death and high birth rates to a population regime characterized by low death and low birth rates (Livi-Bacci 2012).

3 Lawrence Stone analysed the execution of King Charles the First in 1649, but he did not include demographic developments in his analysis.

still relatively small. The economic advantages of this new demographic stage will be immense for the Arab and Muslim world. Yet, the most promising outcomes might be that of a political nature, as we will show in this chapter.

From the Demographic to the Democratic Revolution

Since December 2010, the speed, abruptness and scope of events in North Africa and the Middle East have taken everyone by surprise. However, the way that the events in the Arab World were perceived differs substantially from one world region to another. While the European and Arab media were initially very optimistic about the potential outcomes, the Israeli media, seem to have perceived the Arab Spring, at first, as a degenerative development with many potential negative outcomes. Ehud Barak, the Israeli Minister of Defence, went so far as to qualify 'that tsunami of events' as a kind of *intifadas* (Lister and Flower 2011).

Revolutionary events can be perceived as inevitable. The revolutionary processes that took place in early modern England and then burgeoned in France towards the end of the *Ancien régime*, before spreading throughout Europe and the world during the nineteenth and twentieth century, have also reached the Arab countries. For the past four decades, depending on their level of advancement, the Arab countries have been experiencing cultural, demographic and anthropological transformations, as well as changes in family systems, which resemble the changes that Europe has gone through since the English (1640–1660) and French Revolutions (1789–1793). Contrary to many essentialist or culturalist views, as expressed by Bernard Lewis (1990, 1993, 2001), Samuel Huntington (1993, 1996) and others, the Arab world is no exception.⁴ Its development is not intrinsically different from observed evolutions in other human societies. Conversely, the Arab countries are on the road towards modernity and stability, a road which is being paved by demographic and democratic revolutions.

Education at the Root of the Transformations

The multiple transitions that the Arab countries are going through nowadays were first and foremost triggered by access to education for boys, and later on, for girls. While the youth in the Arab world were almost completely illiterate

4 Both Lewis and Huntington argue that a clash between Western countries and the Arab world is inevitable, because Arab culture and Islam are perceived as fundamentally incompatible with Western values, democracy and modern development. The authors demonstrate, however, that Arab and Muslim countries are experiencing the same developments as Western countries went through in the past, including increased education among males and females, declining mortality and fertility, a trend towards more egalitarian relationships between men and women, secularization, etc. Therefore, a convergence of civilizations is much more likely to occur than a clash of civilizations.

a few decades ago, today most young people in North Africa and the Middle East are able to read and write by the ages of 20 to 24 (see Figure 6.1). Several effects of this transformation are well-known and well-studied, such as the link between education and fertility decrease (Courbage 2009; Fargues 1988; Tabutin and Schoumaker 2005; Zuryak 1977). It is important to recall, that at the root of modernization processes and the demographic transition, gaining the ability to read, and especially to write, is an essential step for the individuation of the human being and the acquisition of autonomy (Cipolla 1969; Furet and Ouzouf 1977). Nevertheless, a holistic vision is still missing, linking the multiple stages of increased education to revolution.

Figure 6.1 Percentage of Arab youngsters (15–19 years) by sex who are able to read and write, 2010

Source: National population censuses and demographic surveys providing (il)literacy rates by age and sex.

Demographic Metamorphosis and Mental Change

Even though fertility has been the most significant and paramount factor that was affected by education, education also triggered mortality decrease. This demographic shift can be dated back to the seventeenth century when advances in medicine contributed also to decreasing mortality rates in Europe, which further advanced fertility decrease (Livi-Bacci 2012). In the developing world, the connection remains very clear, even still today. Infants and children of higher educated parents, and especially of higher educated mothers, have lower odds of passing away prematurely (Caldwell 1979; Caldwell and McDonald 1982; Cochrane 1986).

Similarly, but with some historical delay, Arab fertility would not have fallen if mortality had not taken the lead, pushing life expectancy from 40 years in the 1950s to over 75 years today. This was to a large degree the result of a large reduction in infant and child mortality. Because more children survived, parents started to feel an incentive to limit the number of offspring. On the macro-level, mortality decline gave rise to strong population growth, which sooner or later was perceived as an obstacle to future (economic) development (Winckler 1998).

The mortality reduction was not only spectacular by its demographic effects, but also by its psychological implications. Arab populations are very often – hastily – characterized as fatalistic (even by themselves) (Moughrabi 1978; Patai 1973), and Arabic language is indeed filled with fatalistic expressions (Farghal 1993). Fatalism might have been rooted in the everyday character, death, embraced in past Arab societies. It simply was a banal phenomenon in every corner. The mortality decrease then became akin to a psychological revolution, reshaping the psyche of populations moving away from a fatalistic attitude and towards a more rationalized, agency-based mentality, in which people themselves (instead of god, fate and/or predestination) realize that they influence the course of history.

In line with this trend towards more agency, people in North Africa and the Middle East started to control their own fertility like European populations had begun to do from the eighteenth and nineteenth century on. Thus, fertility in North Africa and the Middle East fell from 7.5 children per woman on average in the period before the fertility transition, to less than 3 today, with several countries near or below replacement level (2.1). Hence, today Iran's fertility rate (1.8) is lower than that in Scandinavia; in Lebanon where 60 per cent of the population is Muslim, the fertility rate (1.6) is lower than in Belgium (1.8); and Tunisia (2.05), Morocco (2.19) and Turkey (2.10) are only slightly above the TFR in France (see Figure 6.2).

The progress in education – especially female education – has caused a delay in the age at first marriage and has increased the spread of contraception (Courbage 2009), to where there are basically no theological obstacles for Muslims and for large groups of Arab Christians (Bowen 1981; Esposito 2002). This spurred the decrease in fertility down to a low European average of 2 children, in the most advanced parts of the region like North Africa, Lebanon (not only among the Christians but also the Muslims, Sunnis and Shiites alike), Turkey and Iran (Courbage and Fargues 1997; Courbage 2009).

Towards a More Open and Egalitarian Society

Another core aspect of societal change related to the demographic transition concerns marriage. Matrimony is no longer the sacred religious and social obligation that it used to be. In Morocco, for example, 42 per cent of men and 33 per cent of women aged between 30–34 years (some by personal choice) were still single in 2010. In Algeria, Tunisia, Libya and Lebanon the singulate mean age at marriage (SMAM) for women approaches or exceeds 30 years now, almost double

Figure 6.2 TFR in the Arab countries before the fertility transition (1960–1970) and in 2010

Source: Calculations based on national data from the World Fertility Survey, Demographic and Health Surveys, PAPCHILD, PAPFAM, Gulf Surveys, birth registrations and population censuses.

of what it was in the 1960s (Courbage and Todd 2011). But not only the timing and intensity of marriage have decreased, the very nature of marriage itself has changed as well. The occurrence of endogamy or the so called ‘Arab marriage’, i.e. marital unions between family members, has been cut by half. Going beyond mere demographic calculations, we would like to underscore that when a society shifts from endogamic to exogamic marriages, like in Morocco for example, where marriage with relatives has fallen from 30 per cent to 15 per cent between 1995 and 2010, society becomes more open.

Furthermore, patriarchal social structures and mentalities no longer seem to resist demographic changes, which in turn weakens the very basis of traditional patriarchal system. In Morocco, Tunisia, Lebanon, Iran, Turkey and in some areas of Syria (e.g. the Alawite, Druze, Ismaili populated provinces) the TFR is now close to, or below, two children. As a consequence, the probability of not having at least one son greatly increases as fertility continues to decline (see Figure 6.3). Where the risk of not having at least one son was negligible or low when the TFR was above four children, it has become significant in those countries where the TFR has approached two. Thus 25 per cent of the couples in the Maghreb, Lebanon, Turkey or Iran and in coastal and mountainous Syria today accept the possibility of having only two daughters without a male heir, apparently in contradiction with the teachings of Islam, or more profoundly, with the deeply rooted age-old patriarchal ideology (Courbage and Todd 2011).

Figure 6.3 Probability (%) to remain sonless by average number of children

Source: Own probability calculations based on a sex-ratio at birth of 105 boys to 100 girls.

Finally, gender roles are subject to change due to the demographic transition. First, because women devote less of their time to reproductive tasks and have more opportunities to earn an independent living. Second, because ages at marriage have increased faster among females than among males, the age-gap between husbands and their wives has narrowed. Third, legal change in several Arab countries led to a situation in which women have more rights than was previously the case. All these trends have increased the bargaining power of women (Fargues 2005). Released from traditional role patterns, Arab women (Iranians also) have burst onto the scene during the Arab Spring, from Casablanca to Dera'a and even in remote Sana'a. *Purdah* or female seclusion seems to have come to an end. As a result of successful educational and demographic transitions, Arab societies are being reshuffled, and new roles for women are being created. This is especially proven by women's entry to secondary and higher education. In secondary education, net enrolment ratios are now higher for girls than for boys in a majority of the Arab countries, from Algeria (68/65) to Palestine (87/82), including the Arabian Peninsula and its emirates: Kuwait (92/88). Even more impressive is the enrolment of girls in universities, with the surprising result that in a majority of Arab countries, girls are now better educated than boys (see Figure 6.4). These figures might soon influence employment, politics, media and other spheres of Arab society.

Figure 6.4 Enrolment ratio at university level (18–24) by sex and country, around 2010

Source: Estimates from national statistical accounts.

Going a step further, we claim that the aforementioned elements of societal openness might be conducive to revolt, especially when the population is governed by autocrats as is the case almost everywhere in the Arab region. Thus we would argue that a subtle combination of demographic changes, the inter-connectedness of mass education, mortality collapse, and an increasing choice in marriage and fertility, might well act behind the scenes of rebellion against abject living conditions and absence of freedom.

Ambivalent Effects of Education and Contraception

There is a hidden face to education. Education, as well as contraception, are ambivalent factors with simultaneously positive and negative consequences. From the philosophers of the Enlightenment until Émile Durkheim, only the positive consequences of the acquisition of education for males and females were considered, e.g. that fertility decline is indispensable for economic progress. However, by the end of the nineteenth century, the dark side of modernization was also emphasized: Due to higher levels of education, there was an increase of suicide. By the same token, learning to read and write made individuals, and the masses, more mindful of their circumstances, and cultural progress might well sow the seeds of psychological destabilization. Concretely, we observe in Arab societies where literacy is rising that:

- Sons can read and write while their fathers, who still hold absolute power in patriarchal societies, cannot;
- Sisters are getting educated, as much as, or more than their brothers;
- Wives become as educated as (and sometimes more than) their husbands;
- The spread of birth control (a phenomenon that follows literacy) weakens or eliminates the traditional domination of men over women.

Thus, universal education might imply a direct destabilization of relations of authority in the family (Fargues 2005). These disruptions, in turn, might contribute to a psychological disorientation in society. Indirectly, contraception can have the same influence. The increasing use of contraception is a welcomed development, since limiting the number of children allows parents to invest more resources and attention in each child, who is then better fed and educated, receives better medical treatment and more affection. Parenting in a smaller family, particularly with regard to father-mother interactions, becomes more democratic, freer, which can have an overall positive impact on society and governance. On the other side, a household in which an illiterate father wields authority over educated children with access to knowledge beyond the parents' reach – especially in a patriarchal society – may prove an explosive combination.

We may conclude that women's education is a destabilizing factor for society at first, as is the growing practice of birth control. The psychological tension of this change ('who will guarantee that the men will not be cheated on?') cannot be underestimated, especially in such societies where remnants of patriarchy have not completely disappeared. A vivid illustration of the link between sexual anxiety and political activism (in this case Islamist terrorism for a Kashmiri) may be found in Salman's Rushdie (2005) novel, *Shalimar the clown*.

Secularization: A Pre-condition to the Demographic Transition?

Besides the above described and well-known factors related to the demographic transition, we would now like to discuss the influence of secularization dynamics on fertility. A return to history shows that the secularization of individuals followed the emergence of education across the various strata of European society, although at varying tempos.

France, where fertility started to decrease by the second half of the eighteenth century, was the most precocious in this regard. By means of *coitus interruptus* and a sort of primitive condom made out of animals' intestines, French women went against the explicit teachings of the Church by actively curtailing their reproduction. *On trompe la nature jusque dans les campagnes*, lamented a Catholic priest of Ile-de-France (Ariès 1971). The rest of Europe underwent the same processes of secularization a century later, where the fertility transition was delayed, even though most of these countries had higher literacy rates than France.

Against all odds, Arab societies, which have undergone an exceptionally fast fertility transition, are also experiencing this same process of secularization. But

how to measure it? Surveys on attitudes about secularization are very rare, and still somewhat taboo in most Arab countries. Only in Morocco, officially one of the most conservative Arab countries in religious matters, where the King is at the same time 'A Commander of the Faithful', these types of surveys could be taken (El Ayadi, Rachik and Tozy 2006). Those surveys demonstrate that, contrary to stereotypes and preconceived ideas, religious practice is receding among the younger generations, as only 47 per cent (36 per cent among young males and 59 per cent among young females) claim to be religiously minded.

The degree of religiosity has a clear impact on the act of voluntarily limiting the number of children. Contraception, either for European Christians or Arab Muslims, implies that they start to feel solely responsible for their reproduction and that 'divine intervention' is no longer considered the genesis of procreation. Individuals understand their new meaning: to give life, without being dictated by the family, the tribe or by any political or religious power. Empirical data, even if limited, help to illustrate this major shift in attitudes. Whereas some 40 years ago when the first surveys on the attitudes toward procreation in the Arab world were taken, an important number of women answered the question 'what is your ideal number of children?' with non-numerical responses, like: 'It is God's will', 'I don't believe in spacing births, it is God who decides ...' etc., today such non-numerical responses have almost completely disappeared from the surveys.

When we discuss a process like secularization, it is important to note that it weighs heavily on the relations between different cultural regions. Contrary to many alarmists who decry a 'clash of civilizations', the Arab and Muslim worlds, in general, and more peculiarly, North Africa are now undergoing secularization. Secularization, however, should not be equated with either atheism or even agnosticism. Rather, it means that an individual can be totally secular in one's daily behaviour, – notably for the ability to give life – while he or she at the same time goes to church, to the mosque, or to the synagogue. There is no radical contradiction. Arab societies are witnessing a phenomenon of 'disenchantment of the world', in the sense used by Max Weber, which occurred in the West two centuries ago.

Hence, contrary to the line of reasoning of the essentialists, the Arab world is currently experiencing a demographic transformation, that is also affected by increased secularization. It might look ironic, even provocative, to raise this issue of secularization at a time when the Islamist parties are accumulating electoral victories one after the other, from *Ennahda* in Tunisia to the *Parti Justice et Démocratie* (PJD) in Morocco in 2011, and the Muslim Brotherhood and the *Salafists* in Egypt in 2012 and their emergence elsewhere (Libya, Syria and Yemen). However, these victories of Islamists may be only of temporary nature, as Mohamed Morsi is, for example, already dethroned and the Muslim brotherhood in Egypt has been banned (again). The temporary resurgence of Islamist regimes can best be understood by taking into account the fact that most Arabs have only known the worst side of secular powers, autocrats and despots, with the Syrian and Iraqi Baath parties, or in a milder form Ben Ali in Tunisia, Qaddahfi in Libya

or Mubarak in Egypt and Ali Abdallah Saleh in Yemen. Moreover, the French revolution and the 1848 revolution did not immediately lead to the instalment of stable democratic governments in Europe. After the French revolution, Napoleon Bonaparte reigned with an iron fist over France and larger parts of Europe. In 1848, his nephew became democratically elected, but he managed to quickly overthrow the democratic institutions before next elections were organized. As a result of his successful *coup d'état*, France turned once again into an empire.

A Democratic Revolution or Chaos

Democracy or Islamist Chaos?

There is no need to explain the violence in the Arab countries as a particular brand of Islam. It should be enough to recall the suddenness of the demographic transition within these countries compared to the one century it required in Europe, as exemplified in a fertility drop from 7.5 to less than three or two in a matter of four decades. This does not mean, however, that the Arab countries might not still be living in a state of disorientation, because of the sudden change of mentalities associated with rising literacy and the interconnected transitions related to male and female literacy and the use of contraception and fertility decrease. Moreover many non-Muslim countries which are entering the key stages of literacy and birth control today, also encounter massive political disruption, like Rwanda, Kenya, Côte d'Ivoire, Sri Lanka and Haiti to name but just a few.

Researchers from the North, as well as from the South, and also most media, are mistaken when they present these crises as a regressive phenomenon, when they could also be defined as crises of the transition to modernization that disorient people and destabilize political regimes. It is therefore curious that, instead of looking at its positive and encouraging trends, researchers only seem to view the negative aspects of the changing Arab demography. In this regard, some recent analyses have focused on the demography of the Arab or Muslim world as a potential cause for increased radicalization and destabilization; like for instance, the strategic report 'Towards a Grand Strategy for an Uncertain World', written by retired NATO generals and high ranking officers (Naumann et al. 2005). Their assessment suggests that the Arab and Muslim countries constitute the world's most volatile area because of their 'youth bulge', a demographic explosion that increases uncertainty and favours the easy spread of political fanaticism and radical Islam.

The View from the Youth Bulge

The 'youth bulge' is a concept coined by political scientists, notably G. Fuller (1995), J. Goldstone (1991) and G. Heinsohn (2003, 2006, 2007). In a first phase of the demographic transition, the size and share of the more turbulent segments

in the population, the youth, increases. This youth-bulge is usually measured as the increase of the 15 to 24 years old, in relation to the total population or to the 'mature' segment of the population aged 25–64 years (Courbage 1997). The measure in itself only counts a mechanical effect in the whole sequence of the demographic transition: Mortality decline and fertility deceleration (or sometimes increasing and then declining fertility) contribute to the impressive reshaping of the age-structure of a population. According to the burgeoning literature on this subject, an excess of young adult males in a population leads to social unrest, war and terrorism, as 'third and fourth sons' (within the same family) find no prestigious positions in their existing societies. Therefore, these 'lost sons' rationalize their impetus to compete with religion and political ideology.

Looking as far back in time as the ancient Greek wars, a strong match can be found between the frequency of violent outbreaks (from war to terrorism) and the ratio of a young male population to its more mature segments in society. Heinsohn (2003, 2007) goes as far as to view most historical periods of social unrest and most genocides as the by-products of demographic youth bulges: European colonialism, fascism and more recently the on-going conflicts in Darfour, Afghanistan, Palestine/Israel, etc. Hence, 'Age composition must be considered as a major coefficient in the incidence of violent behaviour' (Moller 1968: 255).

For Samuel Huntington, demography is a major determinant in the clash of civilizations,⁵ especially between the Muslim and non-Muslim civilizations: 'Population growth in Muslim countries and particularly the expansion of the 15–24 years, provides recruitment for fundamentalism, insurgency and migration. Economic growth strengthens Asian governments, demographic growth threatens Muslim governments and non-Muslim societies' (Huntington 1996: 103). For Huntington there is a direct connection with the increasing level of education: 'Islamist activists include a disproportionately large number of the best educated and most intelligent young people in their respective populations, including doctors, lawyers, engineers, scientists ...' (Huntington 1996: 113).

Many explanations were given to explain the reason why young people, Arab or otherwise, are more inclined to gravitate toward violence than mature-aged persons. One of the reasons could be that the concept of death among the youth is presumably less developed due to an underlying physical basis, namely that the brain's prefrontal lobe, which inhibits inappropriate behaviour, does not reach its full development before mature age (Casey et al. 2005). Statistically, there are more homicides and crimes against property committed by youngsters than by the older population (Ferdinand 1970; Steffensmeier et al. 1989). Also family demography plays a role: in larger size families, where there are more youngsters, violence tends to be higher than in small families. Hence, it is easy to jump to the conclusion that terrorism and suicide operations are phenomena closely associated with youth, and therefore,

5 To be fair one has to acknowledge that the concept of a 'clash of civilizations' has been developed by Bernard Lewis (1990) before being immortalized by Samuel Huntington (1993, 1996).

with populations where the youngsters are still the predominant group. Finally, the lumpen youth class, the street idlers who have nothing to do because of the high unemployment rate, are tempted by riots, violence and radicalism. Celibacy and the huge delays in age at marriage, further create sexual frustration in conservative societies like Arab and Muslim societies – but not only there, as the example of Ireland in the nineteenth and the beginning of twentieth century shows – which might lead to violent acts.

The main problem with this school of thought is that it considers a rapidly moving reality as static and attributes this transient phenomenon to civilizational and religious factors. Arabs and Muslims are deemed reluctant to modernize and their demographic behaviour is believed to be determined forever. The youth bulge, the end-result of an ephemeral high or increasing fertility, is considered as an unchanging and intrinsic feature of the Arab population. Moreover, the Arab psyche is believed to be reluctant to progress. Therefore, these authors are unable to acknowledge the profound diversity among Arab societies. Their sole explanation for their behaviour is the common religion. Yet, figures 6.5 and 6.6 show that there were, and still remain, significant differences among Arab countries in the region, and that the youth bulge is a transient phase in the demographic transition. Hence, why should we not forecast more peaceful societies, after the political disruption and the Islamist radicalization?

To investigate the youth bulge in more detail and to look at the potential of the democratic transition, we will look at eight Arab countries of the Near East: Egypt, Syria, Lebanon, Palestine, Saudi Arabia, Iraq, Jordan and Yemen and four from the Maghreb: Morocco, Tunisia, Libya and Algeria.⁶

In only four decades Lebanon, Morocco, Algeria and Turkey will have reached a convergence with the developed world in terms of population structure. In 2050, the demographic situation of these more advanced Arab/Muslim countries will be similar to that of Europe, North America and Australia with 12.8 per cent aged 15–24 years and a ratio of the 15–24/25–64 of 23.4 per cent. Iran will be even more advanced. Yet, these countries underwent severe youth bulges which belong to what we can call the ‘dark’ side of the demographic transition. It is an error of the followers of Bernard Lewis and Samuel Huntington, however, to consider a historical phase as ever-lasting and determined by the very essence of the Arabs or Muslims and their religious beliefs. The peak of the youth bulge belongs to the past in most of these countries:

- Algeria 2004
- Egypt 2005
- Iran 2005
- Lebanon 1976

6 The Emirates of the Persian Gulf: Oman, Kuwait, Qatar, Bahrain and UAE are not represented; here the charts would be meaningless due to the strong presence of foreign-population.

Figure 6.5 The youth bulge and its future in the Maghreb, 1965–2050

Note: 2010–2050: Medium variant.

Source: United Nations World Population Prospects 2010.

Figure 6.6 The youth bulge and its future in the Middle East, 1965–2050

Note: 2010–2050: Medium variant.

Source: United Nations World Population Prospects 2010.

- Libya 2000
- Morocco 2000
- Palestine 2014
- Saudi Arabia 1999
- Syria 2001
- Tunisia 1985
- Turkey 1997
- Yemen 2011

The demographic projections in figures 6.5 and 6.6 – based on data from the United Nations – also demonstrate that after these difficult phases, the worst is over. The Arab and Muslim world are currently at the heart of the transition to modernity; as we are at the end of the youth bulge and in the middle of a universal process of modernization, a long cycle in which literacy, secularization and then declining fertility first highlight the differences between areas, and then lead to a general convergence. Some Arab and Muslim countries have already joined Europe by low fertility standards (e.g. Lebanon, Tunisia, Morocco, Iran); others are still on the road (like Yemen and Palestine), but their fertility is sharply declining. All will have converged with developed regions within a very short time span.

All this demonstrates that there are solid grounds for optimism, regarding the demographic, economic and political developments in North Africa and the Middle East. As the youth bulge, the favourite scarecrow of the enthusiasts of the clash of civilizations, has started to decrease, the demographic transition opens now new avenues. The decreasing pressure on the labour market, mainly due to the booming young population, is noteworthy. The reshaping of the age structure, a straightforward result of fertility decrease, will accommodate an expansion of the economic growth, and labour productivity will be the winner in this shift from quantity to quality. Furthermore, each member of the labour force will be in a position to transfer more in cash, or goods, to his or her old parents. This may limit the impact of ageing which will probably become an even more serious issue in the Arab countries than it is in Europe, because of the suddenness in the growth of the size and share of the cohort of the elderly.

The slowdown of ‘demographic investments’ versus ‘economic investments’ allows the state to turn its attention, as an economic actor, to the more directly production-related job-creating sectors. The private sector will also win from this demographic transition. The changing age-structure relates to an increase in the number of the adults compared to the young people, thus the ratio of producers to consumers. The falling fertility rate is generating an expansion of the age-groups with higher propensity to save, thus increasing the national saving-rate.

Less visible, but nonetheless very real, is the impact of fertility decline on narrowing the income distribution gap. Before the demographic transition started, not only did a smaller share of national income go to the poorer workers, but they also had to support larger families. Differential fertility in Arab countries among rich and poor was a significant factor in living standards disparities. The reduction

of rich/poor fertility gaps is a lever for economic take-off, as we know from the example of the Asian tigers (Bloom and Williamson 1998).⁷

Lower wealth disparities and a fairer distribution of knowledge strengthen the middle classes and favour pluralism. Therefore, it is not exaggerated to equate the demographic transition to the democratic transition.

The Road to Democratic Transition

The exact timing of the Arab revolutions was largely unforeseen. It is like forecasting an earthquake. Seismologists know for sure that a fatal event must happen, but they are completely unable to predict when it will occur. The same is true for social scientists or demographers who can forecast on the basis of their indices – literacy, urbanization, fertility, marriage, exogamy, youth bulge, unemployment, etc. – that something (a revolution? rebellion? upheavals?) has to occur in these countries, but they cannot predict when and how. Why has Tunisia paved the way with the first Arab revolution, followed by Egypt, where, by all means, the overall situation was much worse? Why later on Libya and Yemen? How might the situation in Syria (and Bahrain) evolve, in view of their peculiar demographic heterogeneity?

Forty-eight years ago, the Muslim world was viewed by social scientists as a very peculiar reality. Dudley Kirk (1966), the renowned American demographer, developed a special set of ‘laws’ for Muslim demography: Fertility was universally high, showed no significant trend to decline and was believed to remain higher than for believers of other religions. The collapse of fertility in the Arab and Muslim regions is a vivid proof that Dudley Kirk’s lines of reasoning were erroneous. Only essentialists and culturalist thinkers could have thought that the Arab or Muslim world is by nature adverse to progress or modernity. However, as underscored in the introduction, comparative history enables one to understand that we are in the midst of a universal process, in which the demographic transition is a key component that leads societies from literacy to secularization, to contraception and ultimately to political revolution. Such processes started in Europe and did not stop at the gates of the Arab world. Here, its development in just four decades is a unique element, yet also an example of the acceleration of history.

Going one step further, we infer that if Arabs have adhered to the demographic transition in all its phases, including education,⁸ contraception and secularization,

7 For more details on the forecasted economic effects of Arab demographic transition, see Courbage (2003).

8 The acquisition of basic education has been an element of the Arab revolutions much more than the so-called ‘new technologies’, including internet, Facebook and Twitter, which were only instruments that spread the knowledge and the necessity of the political changes but were not at its roots. In any case, the internet is not conceivable without a certain ability to read and write.

they are also ready for the long way to political revolution and democratization. As we noted already earlier, in-depth transformations at the individual level cannot go without a reshuffling of long-established hierarchies, like the absolute paternal authority of the father over his children, since the latter are more often better educated than their illiterate father. Becoming as educated and sometimes more than their husbands, women are less and less supportive of passive submission to the will of their spouses. The same can be said about the authority that the brother traditionally holds over his sisters. Hence, the demographic transition led to a cascading silent questioning of the once immutable balance of power within, and organization of, the family.

But demographic transition is not *un long fleuve tranquille*⁹ (a bed of rose). It is instead a road dotted with many obstacles and multiple risks. One of the risks we alluded to, is derived from the ultimate resistance by the patriarchal and 'machist' components of these societies. It requires more than a few decades to change the nature of the relations among sexes, from male domination to peaceful and quieter interactions. The threat hanging over male supremacy explains why the nostalgic *Salafist* way of thinking, a return to the mythic perfect society of the beginnings of Islam, seduces some segments of the society, now so visible and audible in the landscape: the Islamic veil, the Islamic beard, the thundering minarets. All in all, beyond the veil, the beard and the minaret, one has to observe the ineluctable progresses of education and contraception.

For the largest parts of the (non-*Salafists*) population of North Africa and the Middle East, however, contraception and delayed age at marriage are now the norms. A small family size, the pattern to which the Arab societies are now more and more adhering to, brings about a decrease of pressure on family resources and makes the relations among spouses or between parents and children less tense and more egalitarian. The *pater familias* can no longer reign with an iron fist to impose discipline in an overcrowded household, cluttered with a dozen of children. All of which cannot but produce a beneficial input on the societal and political spheres. Even more what is occurring at the individual and family level inevitably will spill over at the societal level. Since after all, society is but the projection of the small family level to the large macro-level. The questioning of authority never stops at the micro level. The simple person who challenges the authority of his father, will soon contest the legitimacy of a President – especially a President for life – as is the case in Arab countries.

Although this line of reasoning is not that prominent – usually because of the segmentation of social sciences: demographers study population matters, political scientists study politics, etc. – it is even less common to look how individual and family transformations affect politics,¹⁰ even if it is the utmost futile to detach the changes at the individual and family level from those of the global sphere. Pursuing this issue, it is not exaggerated to claim that, although on a world or

9 To paraphrase the title of a French movie directed by Etienne Chatiliez in 1988.

10 An exception is Valge 2007.

on the Arab scale there are exceptions, a correlation exists between the stage of demographic transition and the stage of democracy. In other words, in societies where family size is still of the ancient regime, the odds for autocrats or despots to rule are very high. Therefore, the transition of the demographic regime to a small family size appears a necessary – although not sufficient – condition to move out of authoritarianism on the route to democracy.

Unsurprisingly there are unavoidable gaps between the pace of demographic and political transitions. Tunisia, in every respect the most advanced Arab country with regard to literacy, fertility and marriage, urbanization, gender-equality, etc., which had on top a religious and ethnic homogeneity, had to wait until January 2011 to experience the Jasmine revolution. On the basis of positive indicators like the TFR which was not far from 2 already ten years ago, we could have expected the overthrow of the authoritarian regime earlier. At the opposite, Yemen, with the worst demographic (a TFR still as high as 5) and socio-economic indicators, far apart from those of Tunisia, could get rid of its autocrat, which was in power for some three decades, just a few months after Tunisia. Between those two extremes we find Egypt, Libya and Syria, who are at the same stage of their demographic transitions, but are experiencing diverging political itineraries.

A paradox of history is that most often it is the political power which lies at the start of the modernization process, a process that will prove fatal to its survival. Arab rulers, whose sole objectives were and still are to stay in power, have unconsciously sowed the seeds which have prepared their fall. In Tunisia where Bourguiba, the first president for life, who would have kept the power for eternity before being kicked out by another autocrat, as well as almost everywhere else the process of modernization (access to education, to contraception and secularization), has worked in accelerating their fall and the emergence of democracy. Some autocrats were more careful, like the previous king of Morocco, Hassan II. After the upheavals in Casablanca in 1965, he was smart enough to foresee that universal education could be fatal to his regime and ordered a deceleration of educational progress, enabling him to retain his power until his death (Vermeren 2011). In other countries like Syria, autocrats sacrificed the quality of education, and with it its modernizing role. So, only with a few exceptions, limited to some periods of their history, no Arab country was able to block for good the social demand which has fuelled the demographic transition and which will prove to be the death sentence of these regimes.

Conclusion

To sum up, in all North African and Middle Eastern countries the access to a majority of boys being able to read and write, followed by a majority of girls being also able to read and write, has increased the level of consciousness of individuals (cf. their individuation), which led secularization going hand in hand

with contraception, fertility decrease and diminishing family size. All are pre-conditions that favour democratic transition.

The common denominator for all these countries is the speed and suddenness of their demographic transition; even for the countries lagging behind in their demographic transition, such as Yemen where fertility is still very high (five children), the fertility rate nevertheless fell drastically. In 1990 the TFR of Yemen was double the value of today. Even in the rich and conservative countries of the Arabian Peninsula, the demographic transition has been particularly speedy. One can wonder if these countries (except Bahrain) will remain, thanks to their rental economies, protected forever from the currents of Arab upheavals.

People cannot take such a control of their demographic destiny and let others decide their political future!

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PART III

Pathways for Policy

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Chapter 7

Ageing and Fiscal Sustainability in the European Union

Marga Peeters and Loek Groot¹

Demographic Pressure, Equal Benefit and Equal Pressure

Demographic change exerts pressure on public finances and labour markets. In this study, we analyse the demographic dynamics in the European Union (EU) up until 2100 and present different strategies to cope with the challenge of ageing (building on Groot and Peeters 2012, and Peeters and Groot 2012). The aim of this study is to investigate whether the EU economies, currently under fiscal distress due to the financial crisis, will be able to cope with the fiscal impact of the retiring baby boom generations in the decades to come. This impact does not only involve the public budget for the society as a whole, but also the fiscal burden for the actual workers who, in the EU social security systems, mainly pay for the old age pension benefits of the current old age generations. In our analyses of the policy options, we explicitly take account of these workers by imposing a no-change in fiscal pressure for these workers from 2010 onwards.²

Moreover, considering public pensions as being part of an implicit contract between generations, we impose a fairness criterion, inspired by generational accounting (see for a comparison e.g. Auerbach et al. 1999; Kotlikoff 2002; Meijdam and Verbon 1997; Siebert 2002; Sinn 2005; Van der Horst et al. 2010), that the net benefit from public spending has to be equal across persons of different generations (see also Teulings and De Vries 2006). This is what we call *equal benefit*. So independent of the number of persons in a generation, each person

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2 Since we abstract from inflation, all monetary variables are expressed in real terms. This assumption is motivated by the fact that one advantage of PAYG pension systems relative to a funded system is that it offers a better protection against inflation. Moreover, it is difficult, if not impossible, to predict inflation for the more distant future, differentiated by country.

should then be entitled to the same public benefits when old and the same fiscal burden when of working age. The main rationale for imposing these fairness criteria is that the best chance to maintain the implicit contract between generations is when the terms of the contract are fair. More specifically, for each country the public pension benefit (or the public expenditures on pensions per old aged) is maintained at the level for the most recent year for which we have data, which is 2010. Moreover, in the simulations the fiscal burden of the dependent population per full time worker is pitched to its (country specific) level in 2010. These operationalizations can be interpreted as weak principles of intergenerational fairness: one's public pension benefit or one's fiscal burden when working should not depend on the relative size of the birth cohort to which one belongs. This implies that with changing demographics, e.g. a shrinking workforce and more old aged, something has to give in, which in our scenario analyses (except in the first one when we allow pension benefits to be cut) amount to changes in government debts, migration flows or changes in the labour participation rate of the workforce or of the old aged.

This brings us to four policy options to accommodate the fiscal pressure from changing demographics: lower pension benefits, higher labour force participation of the native working age population, more migration or more older people at work (e.g. by means of raising the retirement age).

With respect to the strategy of raising labour force participation, Peeters and Groot (2012) showed that there is a negative correlation between the projected future change in demographic-induced fiscal pressure on the one hand and the present labour market participation rate (measured in full-time equivalents) of the working age population on the other hand. This is good news because it suggests that countries facing higher and/or increasing fiscal pressure also have more room to raise their labour force participation rate. In our view this negative correlation can be interpreted as a legacy of the baby boom generation born after the Second World War. The reasoning here is that when the baby boom generation was of working age, it was relatively cheap to have generous public pensions, generous public health care, generous family allowances and gratis education because the total fiscal cost of all these programs could be shared among a relatively high number of workers (that is, the population share of those of working age was high relative to the population shares of the young and old aged). Interpreted in terms of generational accounting, this amounts to an *intergenerational transfer*: benefits bestowed to the young and old aged financed by those who at that time belonged to the baby boom generation. However, the baby boom generation also had the opportunity to bestow benefits on their own cohort, mainly by introducing relatively generous and easy accessible social assistance, unemployment benefits, disability benefits, sickness benefits and, more recently, paid parental leave schemes. One may expect that the more extensive this set of welfare state arrangements is, the lower the labour force participation rate will be. In terms of generational accounting, this amounts to an *intragenerational transfer*: benefits to the non-working part of the working age population financed by the working part

of the working age population. Both effects together might explain the present state of affairs as a legacy of the period in which the baby boom generation was of working age, coinciding with the period of the vast expansion of the welfare state in developed economies.

Alongside raising labour force participation, immigration of young people is a strategy to alleviate the fiscal pressure due to ageing. Future migration flows will be influenced by demographics. Firstly, migration flows will most likely be from countries with low GDP per capita, high young age dependency ratios and low labour market participation rates towards countries with high GDP per capita, high old age dependency ratios and high labour force participation rates among those of a working age. Secondly, a higher life expectancy, determined by the age-specific death rates in the longevity tables, implies a structural higher fiscal burden of ageing. Because it is structural, net migration will not be of much help, unless the flow of migration is itself steady and structural. However, in a country in which the shape of the population pyramid is at odds with its stable counterpart, net migration might be an option.³ For instance, suppose there is a bulge in the pyramid for the old aged. The comparison with the stable pyramid shows to what extent the bulge is just a temporary phenomenon (e.g. due to the retirement of the baby boom generation). A temporary flow of net immigration of young people might then help to cushion the fiscal pressure of the temporary bulge of old aged. As Clemens (2011) has shown, there is potentially a large welfare gain of migration flows from low-wage to high-wage countries. One may expect larger temporary shortages of labour and hence higher wages in ageing economies and hence more immigration, the more the projected population share of the old-aged is above its stable population share. Obviously, countries that have accumulated a large government surplus and/or a strong net international investment position will have a lower incentive to rely on immigration to alleviate the fiscal pressure of ageing.

The outline of the rest of this chapter is as follows. We start by presenting for 21 EU countries the old age dependency ratios for the period 2010–2050 and the levels of public debt and labour force participation rates in 2010. Next, we illustrate the rise of public debt-to-GDP ratio for these economies, only accounting for the additional fiscal spending ensuing from the ageing populations. In response to this, four policy options are proposed to prevent the rise in debt. The final section wraps up the main results and concludes.

3 We make use here of Lotka's stable population theory (see e.g. Rowland 2003) where the age-specific death rates determine the shape of the stable population pyramid and life expectancy. One can think of the stable pyramid as the age structure of the population that would result without idiosyncratic disturbances such as baby booms, migration flows or epidemics.

Demographic Projections and Fiscal Facts

The demographic changes that EU countries face is shown in Figure 7.1. It presents old age dependency rates for 21 EU countries for the years 2010 and 2050. We calculate these rates, however, in a specific way. The number of older people in a country is not related to the number of persons that are of working age, but to the number of persons that are actually working, measured in full-time equivalents. Throughout our analyses in this study we will do this, in view of the fact that the workers carry the burden in Western pay-as-you-go (henceforth PAYG) social security systems, concerning the additional spending due to the ageing population. While the population of older people increases, the population of working age people shrinks. The share of people that is actually working is determined by the labour participation rate, expressed as full-time work equivalents (similar to the analyses in Peeters and Groot 2012b).

As Figure 7.1 illustrates, there is considerable variety in the ratio of older people and active workers. Luxembourg, on the one extreme, has little more than two older people per 10 full time workers in 2010 while Germany, on the other extreme, has more than six. For the year 2050, these ratios almost double across the board, implying that Luxembourg goes from two to four and Germany from six to (almost) 12. The countries in which these old-age dependency rates are increasing most from 2010 to 2050 are the Slovak Republic (181 per cent), Poland (152 per cent), Spain (148 per cent), Portugal (137 per cent) and the Czech Republic (133 per cent). These changes will require additional public spending (on pensions, health care), even if public spending per person is kept at the level of 2010.

As Table 7.1 shows, among the five countries that top the list in terms of demographic change, only Portugal scores high in the list of the ratio of public debt to GDP in 2010. The Slovak Republic, Poland, Spain and the Czech Republic list far lower. Table 7.1 also presents labour force participation rates measured in full-time equivalents. From a macro-economic perspective, the lower the debt-to-GDP ratio and the lower the participation rate, the more room there is to carry the fiscal burden of rising pension benefits. In the next section, we simulate the rise in the debt-to-GDP ratio due to ageing in case of no policy change.

Rising Public Debt in Case of No Policy Change?

Abstracting from public health care expenditure, we assume that older people receive a public pension, pitched at the level of 2010. The extra fiscal spending on older people is then the product of the additional number of older people at time t (OP_t) in deviation from 2010 and the level of the public pension, denoted here by φ_{2010} :

$$G_t^{age} = \varphi_{2010} * (OP_t - OP_{2010})$$

equation (1)

Figure 7.1 Older people to full time workers in the period 2010 and 2050 in persons, per 10 full time workers

Note: The labour force participation rate of 2008 is assumed to remain constant during the subsequent years (for a motivation, see Groot and Peeters, 2012).

Source: Authors' calculations based on demographic statistics of the United Nations (UN) and labour participation statistics of the Organisation for Economic Cooperation and Development (OECD).

The public debt at time t accumulates this spending on older people and equals the debt in the previous period plus this additional spending, denoted as

$$D_t = D_{t-1} + G_t^{age}$$

equation (2)

Table 7.1 The status quo in 2010

Country	Public debt	Labour participation
	% GDP	% working age population
Greece	142	61
Italy	119	51
Belgium	97	48
Ireland	96	66
France	84	49
Portugal	83	62
Hungary	80	54
Germany	80	49
United Kingdom	77	57
Austria	70	56
Netherlands	64	52
Spain	60	51
Poland	56	49
Finland	48	59
Denmark	44	59
Slovak Republic	42	52
Sweden	40	59
Czech Republic	40	64
Romania	35	59
Bulgaria	18	56
Luxembourg	17	75

Note: Data for Cyprus, Estonia, Latvia, Lithuania, Malta and Slovenia are lacking in the OECD database, for which reason we have 21 instead of 27 countries.

Source: Authors' calculations based on International Monetary Fund (IMF) World Economic Outlook (WEO) of Autumn 2011 and OECD databases.

So the debt only grows if the number of old people entitled to a public pension grows. Figure 7.2 shows the debt-to-GDP ratio, defined as

$$debt - to - GDP - ratio_t := \frac{D_t}{GDP_t}$$

equation (3)

with GDP defined as the product of average productivity (w), the labour force participation rate in full time equivalents (*part*) and the size of the working age population (*WAP*). Starting in 2010, based on actual values, from 2010 onwards, the debt-to-GDP ratio is simulated using *equation (3)*. Figure 7.2 illustrates the

median of the debt-to-GDP ratio across the 21 EU countries along with a band indicating the width of the minimum and maximum, for intervals of five years in the period 2010 until 2100. This band is divided into four parts, each part containing 25 per cent of the countries. For a description of the data, see Groot and Peeters (2012) or Peeters and Groot (2012).

Debt in % of nominal GDP

Figure 7.2 The evolution of EU public debt in case of no policy change

Note: Until 2010 actual values, from 2010 onwards simulated according to *equation (3)*. The dark line is the median across the 21 countries. Each of the four areas represents 25% of the economies, respectively.

Source: Authors based on UN and OECD and UN.

Starting from a level of 60 per cent in 2010, there is a strong increase in the median debt-to-GDP ratio and it crosses the dashed 100 per cent line in 2045. The threat of increasing fiscal pressure thus looms for a majority of EU countries, especially for those located in the upper three bands, even though in this scenario only the public pension expenditures are taken into account.

expected change in public debt from 2010–2025
in %-points of GDP

Figure 7.3 Current debt and expected fiscal spending in 2025
Source: Authors' calculations.

While the debt-to-GDP ratios increase across the board, we wish to analyse how this works out for the individual countries and for the near future. In order to do so, we take a cross-sample of Figure 7.2 at the year 2025 and relate them to the debt-to-GDP ratios of 2010 as presented in Table 7.1. Figure 7.3 shows the scatterplot.

Poland faces the highest additional fiscal expenditures as a percentage of GDP, more than 18 per cent-points, but starts from a rather low debt-to-GDP ratio, slightly above 50 per cent. At the other extreme is Ireland, which has a rather young population in comparison with the other economies. Countries such as Greece, Italy and Belgium show additional fiscal burdens in between 6 and 12 per cent, but they start with rather high debt-to-GDP ratios.

Remarkable is the fact that the relationship between the current debt (of 2010) and the expected public debt increase is positive, as the regression line in Figure 7.1 clearly shows. The adjusted R^2 of the trend line is rather low, due to outliers Poland and Ireland. Apart from Poland and Ireland, the positive relationship is highly significant, implying that the expectations are that EU economies with already a high debt in 2010 face more fiscal pressure in the coming decades due to ageing than the economies that start with lower debt levels. This brings us to the different policy options.

Policy Options

Due to the increase of demographic pressure in economies that are ageing, policy makers can take various measures, ranging from lowering pension benefits to raising the retirement age. In all scenarios, we maintain a constant fiscal pressure per worker (see *equation (4)* below). Only in the first scenario, we allow the pension benefit to vary, but in all other scenarios also the level of the pension benefit is kept constant. Scenario two illustrates the required change in the participation rate of the working aged, scenario three the required migration and scenario four the required change in employment of older persons.

Scenario 1: Lower Pensions

According to our own definition, *demographic pressure* is the pressure coming from the incremental fiscal spending due to demographic change, such as state pensions or health care costs, per working person in a certain country. In an economy that is in transition towards a society with relatively more elderly people as a share of the total population, this pressure increases for three main reasons. First, more state pensions are going to be paid as the number of retired persons increase. Second, public health costs increase, as elderly people need in general more health care than young people. Third, a higher share of elderly entails a lower share of the working age population. The fiscal pressure thus contains a nominator (pension and health care costs) and a denominator (workers) effect.

Social security systems, as they exist in most developed economies worldwide, are pay-as-you-go (PAYG) systems.⁴ It implies that workers pay (in the form of social security premiums) to cover the costs of public pensions, as well as public health care expenditures, unemployment and other social security benefits. Limited to the costs of public pensions only, the demographic pressure put on workers at time t equals

$$\text{pressure per worker}_t := \frac{\varphi_t * OAP_t}{part_t * WAP_t} \quad \text{equation (4)}$$

The nominator gives total old age government expenditures, equal to expenses per old age person (φ) times the number of old aged (OAP). The denominator gives the workforce in full-time equivalents, equal to the labour participation rate ($part$) times the number of people of working age (WAP).⁵

An ageing society by definition implies that the share of the old in comparison to the working age population increases. The change in pressure from the current state, t_0 , to time T ($T > t_0$), is given by

$$\Delta_{T-t_0} \text{pressure per worker} = \Delta_{T-t_0} \frac{\varphi * OAP}{part * WAP} \quad \text{equation (5)}$$

with $\Delta_{T-t_0} x := x_T - x_{t_0}$. Under the assumption of a constant participation rate, a mounting pressure thus comes either from a rise in the old age dependency ratio and/or from more generous pension benefits. The fairness criterion that the pressure per worker should not change implies that the change in pressure per worker in *equation (5)* is zero. Together with the assumption of a constant participation rate (see scenario 2 for this assumption to be lifted), this leads to the following expression for the future generosity of the pension:

$$\tilde{\varphi}_t = \tilde{\varphi}_{t-1} * \frac{OAP_{t-1} / WAP_{t-1}}{OAP_t / WAP_t} \quad \text{equation (6)}$$

4 In our notation, a PAYG pension system can be described as:

$$part_t * WAP_t * w_t * t = b_t * OAP_t \text{ so } t = \frac{(b_t / w_t) * OAP_t}{part_t * WAP_t}$$

with w_t the average productivity of a full-time worker and t the flat tax rate required to fund public pensions.

5 The total population (POP) is split in young (YAP), working age (WAP) and old people (OAP), that is $POP = YAP + WAP + OAP$ where the young are below 15 and the old above 65 years (see Groot and Peeters, 2012).

Figure 7.4 shows the results. It follows that all countries need significant cuts, even up to 35 per cent in 2040 in comparison with 2010. This is of course due to the rising old age dependency ratios (see also Table 7.1), where a sharper rise in this ratio relative to its value in 2010 corresponds to a sharper cut in pension benefits. From a social point of view, simply cutting pension benefits in order to keep the fiscal pressure per worker constant is not a very attractive option, if only because one of the core basic values underlying a fair intergenerational contract is violated. Therefore, we turn to other policy options that simultaneously maintain equal benefits and equal pressure per worker over time.

Figure 7.4 Required cut in pensions to maintain fiscal pressure at the level of 2010

Source: Authors based on UN and OECD data.

Scenario 2: Raising Labour Participation of the Working Age Population

Instead of paying pensioners less, adjustments can be made so that the working age population of persons between the age of 15 and 65 will work more (for instance by raising the statutory number of hours of a working week, discouragement of early retirement and promoting higher employment among housewives).

Given the demographic changes as reflected in the old-age-dependency ratios, we can calculate the future path for the participation rate in such a way that

not only the fiscal pressure per full-time worker remains constant, but also the pension benefit:

$$\overline{part}_t = \overline{part}_{t-1} * \frac{OAP_t / WAP_t}{OAP_{t-1} / WAP_{t-1}}$$

equation (7)

where we assume that φ , the parameter for the generosity of the pension, remains constant. The last term is the inverse of the last term in equation (6). Therefore, in a similar vein as above, the required increase in the ‘cost-neutral’ participation rate is determined by demographics, that is the rise of the old age dependency ratio.

Labour participation rate, in % of the working-age population

Figure 7.5 Required labour participation to maintain fiscal pressure at the level of 2010

Source: Authors based on UN and OECD data.

Figure 7.5 illustrates the outcomes for the 21 EU countries. In 2010 the median participation rate is 56 per cent of the working age population and has to rise to 76 per cent in 2025 to keep both fiscal pressure and pensions constant. Figure 7.5 also shows that for most countries it is feasible, in principle at least, to increase their participation rate for the next decades to come, as the required participation

rate remains well below 100 per cent. For the countries situated in the upper 25 per cent-band, additional measures are probably necessary (see the next sections).

Although this figure is almost the mirror image of Figure 7.4, the starting points matter. After all, it is the size of the adjustment or the percentage change that matter in pursuing these policy options. Therefore the country in which pension benefits have to be cut most in percentage points in comparison with 2010 does not need to be the same country that has to raise its participation rate the most.

This is illustrated in Figure 7.6. Take for instance Greece and Italy. The upper panel shows that Greece has to raise its labour participation rate more than Italy, in order to maintain a constant fiscal pressure per worker. However, in the scenario of the benefit cuts, Greece has to cut slightly less than Italy. This follows from the fact that Greece has a higher labour participation rate than Italy in 2010 (64 per cent in comparison with 54 per cent), but paid far lower benefits in that year than Italy did. On the same footing, the required change in the participation rate is highest for the Czech Republic, but the required change in the pension benefit is highest for Poland.

The regression lines in Figure 7.6 indicate the highly relevant finding that the more heavily indebted economies require less change in labour market participation or smaller cuts in pension benefits, in comparison with the less indebted economies. This is good news because it suggests that countries facing the highest adjustment burdens also have more room to raise their labour force participation rate or their debt-to-GDP ratio.

Although Figure 7.6 only presents the results for the year 2025, similar relationships are found for all the intermediate years between 2010 and 2050. This follows from the panel regressions as presented in Table 7.2. The left side of this table shows the results of the required changes in the participation rate as the dependent variable, regressed on the public debt ratio in the year 2010 and year dummies. The estimated reaction coefficient of the debt ratio is -0.07 and significant (the t -statistic is -2.5), so more highly indebted economies have to adjust their participation rate less. The right panel shows the regression results where the endogenous variable is the expected change in debt, as shown in Figure 7.3. The estimated reaction coefficient of the debt ratio is 0.12 and significant (t -value of 3.95), indicating that more highly indebted economies are expected to have a larger increase in their debt levels due to ageing than the less indebted economies.

Scenario 3: Adjusting the Labour Force by Allowing More Migration

In the ageing economies, instead of requiring the existing working age population to work more, policy makers may also choose to enlarge the working age population by allowing more (young) immigrants.⁶

6 The UN statistics that we use assume that the migration stabilises or fades out over the projection period. Therefore, our migration scenario represents *additional* migration, on top of this trend.

Figure 7.6 Public debt, benefit cuts and adjustments in participation rates
Source: Authors' calculations.

Taking again as point of departure constant fiscal pressure and benefits, we can calculate the required number of migrants. *equation (8)* states that the working age population of 15 to 65 years (WAP_t) at period t is equal to the working age population in the previous period (WAP_{t-1}), plus the generation of 15–19 year old persons that join the working age population in period t ($WAP15_19_t$), minus the

Table 7.2 Panel regressions for 2010–2050

Endogenous variable is the required change in labour participation rate of the native population		Endogenous variable is the expected change in debt
	Coefficient (<i>t</i> -statistic)	Coefficient (<i>t</i> -statistic)
constant	37.8 (18.0)	10.8 (4.8)
debt ratio 2010	-0.07 (-2.5)	0.12 (3.95)
fixed effects	significant	Significant
number of obs.	168	168
	0.69	0.59

Source: Authors' calculations.

generation that retires ($WAP_{60-64,t-1}$). In addition, the size of the working age population increases by the net migration flow ($NMIG_t$ measures the number of immigrants minus emigrants), but diminishes by the number of people of working age that passes away (DTH_t).

$$WAP_t = WAP_t + WAP_{15-19,t} - WAP_{60-64,t} + NMIG_t - DTH_t$$

equation (8)

As net migration is our instrumental variable that is to be adjusted to meet the objectives in this scenario, we denote it with a hat on top of $NMIG$.

Imposing that social benefits per old age person remains the same ($\varphi_t = \varphi_{2010}$, $t > 2010$) and assuming that the participation remains the same ($part_t = part_{2010}$, $t > 2010$), to maintain a constant fiscal pressure per worker gives

$$\frac{\varphi_t * OAP_t}{part_t * \widehat{WAP}_t} = \frac{\varphi_{t-1} * OAP_{t-1}}{part_{t-1} * WAP_{t-1}}$$

equation (9)

This can be rewritten as

$$\widehat{WAP}_t = WAP_{t-1} \frac{OAP_t}{OAP_{t-1}}$$

equation (10)

Substitution of *equation (8)* into *equation (10)* and collecting terms results in

$$\widehat{NMIG}_t = \widehat{WAP}_{t-1} * \left(\frac{OAP_t}{OAP_{t-1}} - 1 \right) + WAP60_{t-1} - WAP15_{t-1} + DTH_t$$

equation (11)

If the number of old aged is equal to the number in the previous period, then the number of migrants only need to make up the difference between the number of retired plus deceased minus the new entrants in the working age population. In an ageing population, the number of retired will be higher than the number of young entrants. If also the number of old aged rises, then the required number of migrants is even higher.

As Figure 7.7 shows, the median country needs per 10 native full-time workers 10 migrants in 2040. Although the required numbers are high, one has to take into account that in this scenario it is assumed that migrants accommodate to the same participation rate as the native population and that the required number of migrants is expressed per 10 *full-time* workers. If migrants have a higher participation rate than natives and if expressed relative to the number of natives of working age, the required numbers are far lower. As mentioned in the introduction, migration will most likely be from poor countries with many young people towards ageing countries with high GDP per capita. To facilitate this process, not only for migration within the EU – between on the one hand Western and Central and Eastern countries on the other – but also for migration from outside the EU, transitional labour market policies might be useful.

Scenario 4: Adjusting the Labour Force by Employing Older People

Instead of changing the migration policy, policy makers may also choose to enlarge the working age population by stimulating older people to remain in the labour force longer or to work part-time. We assume that older persons still active on the labour market are not receiving a pension benefit at the same time. An older person thus either participates in the labour market and earns his or her own living or enjoys a public pension benefit, but not both at the same time. We can then calculate how many older workers are needed to sustain the pressure per working person and pension benefits at the level of 2010.

In *equation (12)*, the determination of the working age population of 15 to 65 years (WAP_t) at period t is as before, but now we add the share of older people that work, defined as α , with $0 \leq \alpha \leq 1$, multiplied by the number of older people.

$$\overline{WAP}_t = WAP15_{t-1} + \overline{WAP}_{t-1} - WAP60_{t-1} + NMIG_t - DTH_t + \overline{\alpha} * OAP_t$$

equation (12)

per 10 native workers

Figure 7.7 Required immigrants to maintain fiscal pressure at the level of 2010

Source: Authors based on UN and OECD data.

The parameter α is the instrumental variable here. In case it is zero, no older people work, while a positive value for α indicate that some older people still work. Until and including the year 2010 persons above 65 retired, so $\alpha=0$ for $t \leq 2010$. Taking into account that a share of $(1 - \alpha)$ of the older people still receive pension benefits and adjusting *equation (5)* accordingly, gives

$$\frac{\varphi_t * (1 - \bar{\alpha}) * OAP_t}{part_t * \bar{WAP}_t} = \frac{\varphi_{2010} * OAP_{2010}}{part_{2010} * WAP_{2010}}$$

equation (13)

Using again $\varphi_t = \varphi_{2010}$ and $part_t = part_{2010}$ results in

$$\overline{WAP}_t = \left(1 - \bar{\alpha}\right) * WAP_{2010} * \frac{OAP_t}{OAP_{2010}}$$

equation (14)

Substitution of equation (12) into equation (14) and collecting terms and solving for α

$$\left\{ WAP_{15-19_t} + WAP_{t-1} - \overline{WAP}_{60-64_t} + NMIG_t - DTH_t + \bar{\alpha} * OAP_t \right\} * \frac{OAP_{2010}}{WAP_{2010}} \\ = \left(1 - \bar{\alpha}\right) * OAP_t$$

$\Leftrightarrow$

$$\bar{\alpha} * OAP_t * \left(1 + \frac{OAP_{2010}}{WAP_{2010}}\right) = OAP_t -$$

$$(WAP_{15-19_t} + \overline{WAP}_{t-1} - WAP_{60-64_{t-1}} + NMIG_t - DTH_t) * \frac{OAP_{2010}}{WAP_{2010}}$$

$\Leftrightarrow$

$$\bar{\alpha} = \left\{ WAP_{2010} - (WAP_{15-19_t} + \overline{WAP}_{t-1} - WAP_{60-64_{t-1}} + NMIG_t - DTH_t) \right\} \frac{OAP_{2010}}{OAP_t} \\ * \frac{1}{WAP_{2010} + OAP_{2010}}$$

equation (15)

The share of working older people needed to fulfil our criteria is now expressed in terms that are either exogenous in our model (the generation of young workers WAP_{15-19_t} , the old age dependency rate in 2010) or projected (number of older people OAP_t , net migrants $NMIG_t$ and the number of deaths DTH_t). With α determined by equation (15), we can easily calculate the number of older people at work by $\alpha * OAP_t$. The working age population WAP_t is calculated by means of equation (14).⁷

7 Here it is also interesting that the number of migrants needed (scenario 3) or the number of older people (scenario 4) is independent of the costs of the public pensions (φ), as follows from equations 10–15. So whether the costs per older person only concerns pensions, or also old age health care costs, whether they are high or low or in nominal or real terms, the required number of immigrants or older people to participate in the labour force remain the same.

Figure 7.8 shows the outcomes. While the shape of this figure, pointing at the rather small band up to 2040 and the broad band around 2060, is quite similar to the one in Figure 7.7, the required number is far lower. Up until 2040 for the median country only 2 older people are required to work for each 10 native workers. By consequence, this is only one fifth of the required number in the migration scenario. The reason is of course that increased labour force participation of the old aged is a double edged sword, since both the number of workers increase and the number of pension beneficiaries decrease.

Figure 7.9 pitches the public debt ratio in relation to the required number of migrants and the required number of old age workers in the year 2025. As follows, the countries with a higher debt ratio have to adjust less than the countries with a lower debt ratio. This is in line with the results for the adjustment of the labour participation rate of the working age population, as illustrated in Figure 7.5.

Overall Results of the Scenarios

Table 7.3 summarises the main results emerging from the scenario analyses. Policy makers can choose between the three options of (1) raising the labour market participation of the working age population (2) migration or (3) employment of older persons. Policy mixes are also possible. This implies for Portugal, for instance, that it either increases its labour force by 20 per cent from 2010 to 2025 or that it allows for four more immigrants per 10 workers or that it stimulates one native older person to work per 10 workers. Alternatively, it can take a mix of these options, being an interior point of these three extremes.

We also analyse to which extent countries can keep their fiscal pressure per employee constant by adjusting the participation of the labour force to 60 per cent (see equations (4) and (5)). The result, given in Figure 7.10, ranks countries from highest to lowest in terms of this adjustment. The length of the bars indicates the total adjustment burden in 2025 to keep the pressure per employee at the same level as in 2010. Germany ranks highest in terms of adjustment, followed by Belgium and France (see also Table 7.1). These countries hardly have to make other adjustments in case they succeed in stimulating their non- or part-time working age populations to work more, such that the overall participation rate of the working aged increases to 60 per cent in full-time equivalents. The figure further shows the achieved adjustment in case, in addition to this adjustment of the participation rate to 60 per cent, first 1 immigrant per 10 native workers were to join their labour force and, second, the remaining required adjustment is effectuated by inserting older people into work. The latter concerns at most 1 older person per 10 native workers. As follows, in this case no other adjustments are needed for any of the countries.

Figure 7.8 Required older workers to maintain fiscal pressure at the level of 2010

Source: Authors based on UN and OECD.

Summary and Policy Conclusions

This chapter departed from two fairness criteria, called *equal benefit* and *equal pressure* per worker. The first implies that a person is entitled to the same public benefits in real terms as any other person in the society, irrespective of the cohort to which one belongs (whether one belongs to the baby boom generation or not should not make a difference for the pension benefit). Analogously, the second criterion of equal pressure per worker implies that the tax rate to fund public pensions for a full-time worker is also independent of the birth year. We pitch the pension benefit and fiscal pressure at the level of 2010 and impose both criteria from 2010 onwards.

Greece, Italy, Belgium, Ireland and France have the highest public debt-to-GDP ratio among the EU-countries. Using United Nations projections on demographic developments, our calculations on future public pensions show that the relationship between these expenditures and the debt-to-GDP is positive. Already highly indebted EU-countries thus face relatively high increases in public expenditures, a result that is more due to the relatively high pension per old age

Table 7.3 A summary of the policy options' outcomes from 2010 to 2025

Country	Public debt in 2010	Adjustment labour market participation	Adjustment in migration	Participation of old age workers
	% GDP	% -points working age population	migrants per 10 native workers	old age workers per 10 native workers
Greece	142	15	3	1
Italy	119	13	4	1
Belgium	97	15	6	1
Ireland	96	28	8	1
France	84	19	8	2
Portugal	83	20	4	1
Hungary	80	17	5	1
Germany	80	16	5	2
United Kingdom	77	14	5	1
Austria	70	18	5	1
Netherlands	64	29	10	2
Spain	60	15	5	1
Poland	56	35	13	2
Finland	48	33	9	2
Denmark	44	20	6	1
Slovak Republic	42	34	11	2
Sweden	40	16	5	1
Czech Republic	40	39	9	2
Romania	35	20	5	1
Bulgaria	18	17	4	1
Luxembourg	17	19	4	1

Note: Policy choice between the three options of: (1) raising the labour market participation of the working age population; (2) migration; or (3) employment of older persons. Policy mixes are also possible.

Source: Authors' calculations.

person than to the higher number of old age people. However, our analyses also point out that some of the highly-indebted EU economies have to adjust their labour markets far less than the less-indebted economies to maintain the criteria of equal benefit and equal pressure. This follows from our scenario analyses in which we investigate three labour market options: (1) raising the labour market participation of the working age population, (2) more immigration or (3) higher employment of older persons. Comparing Greece, Italy, Belgium, Ireland and France with Poland, the latter characterized as a rapidly ageing economy with a low level of public debt in 2010, shows that these highly indebted countries have

required migrants in 2025
per native worker

required old age workers in 2025
per native worker

Figure 7.9 Required migrants and old age workers in relation to public debt

Source: Authors' calculations.

Figure 7.10 Adjusting the participation of the native population to 60%

Note: The length of the bars represents the total required decrease in the old age dependency ratio in 2025, while the figure indicates the share of full time work equivalents obtainable by increasing the labour market participation to 60% by the dark coloured bars. Countries are ranked according to the highest adjustment in labour market participation to make, from the highest (Germany) to the lowest (Romania). Portugal, Luxembourg, Ireland, Greece and the Czech Republic already have rates above 60%.

Source: Authors' calculations. Available upon request.

to increase the labour participation rate of their labour force far less than Poland. We also test econometrically the significance of the positive relationship between the debt ratio and the expected increase in old age spending and the negative relationship between the debt ratio and the required labour market adjustment. The relationships are not rejected at the 5 per cent-level and robust over the period 2010 to 2050.

On the one hand, this is good news as the EU economies that are in the most dire public finance situation face a relatively lower labour market adjustment burden to accommodate the on-going ageing of their population. On the other hand, however, the adjustments to make are still substantial.

Finally, the scenario analyses point out that maintaining both the current generosity level of public pensions and the current fiscal burden on workers in each of the EU countries require that in 2025 the participation of the working age population increases by at least 13 per cent-point, to allow for at least 3 immigrants or at least the employment of 1 old person per 10 native workers. Alternatively, one can opt for a combination of these three policy options, in which case the adjustment burden can be spread over more options. Interestingly, except from a few exceptions, such as Luxembourg, current participation rates (measured in full-time equivalents) are rather low, which means that many of the EU countries would already be largely out of the woods if they were able to increase the labour market participation rate of the working age population to 60 per cent in full-time working equivalents (see Figure 7.10). This holds in particular for Germany, Belgium and France but also for Poland.

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Chapter 8

Is a Rise in Employment Always Positive from a Social Perspective? A Household Dimension of the Precarious Labour Market Integration of Immigrants in Belgium

Vincent Corluy and Gerlinde Verbist

Recent studies have focused on the complex relation between individual and household employment (Gregg and Wadsworth 2008 and 2010; Brandolini and Viviano 2013; Corluy and Vandenbroucke 2013 and 2014). An important reason for this increased interest is the fact that European countries have failed to reduce relative poverty rates as initially hoped (e.g. de Beer 2007; De Graaf and Nolan 2011). In most countries where employment rates increased strongly (surpassing in some cases the Lisbon target) relative poverty rates increased or remained stagnant. A major factor is that a one-to-one relationship between individual employment rates and household-based poverty rates is often absent (see e.g. Vandenbroucke and Corluy 2013). Therefore, it is important to explore levels (and changes) of household employment, the main drivers of those changes and its relation with individual employment rates.

It is remarkable that the precarious position of immigrants is neglected in the current debate of EU2020 objectives. This neglect is surprising; given the fact that immigrants have high unemployment levels (both at individual and household level) and that they are overrepresented at the bottom of the income distribution.

In this chapter we explore the changes in employment at both individual and household levels. At the household level we compare labour market outcomes of individuals by origin. Household structures differ between natives and immigrants and, even more important in this context, also the way employment is distributed over households is remarkably different within one country. An important explanation for these differences over origin is the labour market inclusion of women. Among natives, the increasing labour market participation of women has led to higher levels of polarization, defined as a more unequal distribution of individual employment over households as might be expected from a random distribution. Among non-European immigrants, female labour market participation in Belgium is extremely low, both in absolute and relative terms. However, this leads to rather low levels of polarization. Comparing these differences can shed

light on the social precariousness that joblessness creates and offer insight in social policy measures that can limit excess joblessness among immigrant groups.

Introduction

A principal policy goal of the EU Lisbon strategy is the increase of member States' employment levels. Many countries succeeded in achieving these employment goals, sometimes even surpassing the Lisbon targets. With individual employment levels at a historical high, the failure to reduce relative poverty rates is striking. Research has tried to find an explanation in the divergence between individual and household employment levels (Gregg and Wadsworth 2008 and 2010; Brandolini and Viviano 2013; Corluy and Vandenbroucke 2013 and 2014). A major factor for increased poverty levels despite high employment is that a one-to-one relationship between individual employment rates and household-based poverty rates is often absent (see e.g. Vandenbroucke and Corluy 2013).

At the same time, it is remarkable that the precarious position of immigrants is neglected in this debate. This neglect is surprising; given the fact immigrants have high unemployment levels (both at individual and household level) and that they are overrepresented at the bottom of the income distribution. This chapter aims to fill that gap by exploring the changes in employment at both individual and household levels of both immigrants and natives. We take Belgium as a case study. Belgium is an interesting case as immigrants' employment situation is one of the worst of all EU15 member states.

Since 1995, individual joblessness has decreased considerably in Belgium. More individuals found their way to employment than ever before, and this both for immigrants as for natives. At the household level, however, immigrants and natives did not follow the same pattern. Where natives made the transition from a breadwinner model to a dual earner model (with 'full-employment' households as the median social situation), immigrants' increase in employment did not make the same transition at the household level. Rather, immigrants' increase in employment confirmed the older breadwinner model (in the best case), with mainly one male income supporting the family and the vast majority of immigrant women not taking up any employment. These diverging household employment patterns strongly affect immigrants' overall labour market situation.

We explore these transitions first by discussing why a household perspective is relevant to study labour market outcomes of immigrants. We present the increasing importance of immigration for Belgium's population growth and the increasing share of households that have at least one non-EU15 national as a member (in this chapter also referred to as 'immigrant'). We further point to important differences in household composition between natives and immigrants.

In a second step, we compare individual and household employment rates. We take the household perspective into account (how many adult members are active on the labour market) as employment is *differently* distributed over native and

immigrants households (p. 258ff.). Following this, we present factors affecting household joblessness, such as age, gender and education. As these factors can only explain part of the differences in household joblessness over origin, we introduce the concept of polarization. The polarization index which we calculate is based on a counterfactual (or ‘expected’) household joblessness rate, i.e. the rate that would occur if jobs were randomly distributed over the population, given the specific household size structure of the population under examination. Polarization is defined as the difference between the actual and the expected household joblessness rate. Finally, we trace the changes of polarization over time. We wrap up the analysis in a concluding section.

Definitions and Data

We use Labour Force Survey (LFS) data from 1995–2010. This dataset allows detailed labour market integration analysis at both levels of aggregation. Additionally, it offers sufficient cases of immigrants and their extended family. In this chapter, we only disentangle natives, EU15 born and non-EU15 born respondents. The Belgian sample contains approximately 25,000 respondents every quarter and includes person and household-level variables related to demographic characteristics, family and household structure and detailed information concerning employment.

Employment can be measured on an individual level or on a household level. National employment rates are typically based on the proportion of working-age individuals who are in ILO employment. Using this individual indicator, non-EU immigrants perform badly in Belgium, both in absolute terms and relative to natives (OECD 2012). Household-based employment indicators aggregate individual labour market participation at the level of households. This can be done in many different ways.¹ In this chapter, we will use ‘household employment rate’ as a short cut for the proportion of individuals in households where at least one working-age adult is in employment, using the traditional ‘ILO concept’ of employment. Thus, a household is labelled as ‘jobless’ when all the working age adults are out of work. The estimates are confined to the population of working age (20–59 years old), excluding full-time students (within the age bracket 20–24 years old). Throughout this chapter we will use ‘adult’ as a short cut for working-age adults. We make no distinction between the unemployed and the inactive.

In this chapter we define immigrants by their country of birth. At the individual level three groups are distinguished: native born, EU15 born and non-EU15 born. At the household level distinction by origin is more complex. We define native households as those households that consist only of native born adults. EU15 households have at least one EU15 born adult in the household, but they do not

1 Corluy and Vandenbroucke (2013) discuss alternative concepts of household employment and the underlying definitions of employment and work intensity.

have any non-EU15 born adult present. This means that for example in two adult households only the following combinations are possible: a EU15 born adult with a EU15 born adult or a EU15 born adult with a native. Non-EU15 households contain persons who live in a household with at least one non-EU15 born adult, potentially in combination with a native. In this case the presence of a EU15 born adult is excluded. This definition of origin at the household level excludes the combination of households with EU15 born adults and non-EU15 born adults. In our sample individuals living in that kind of mixed origin household structure is only less than one per cent of the entire working age population (but growing).

Why Is a Household Perspective Relevant in Discussing Labour Market Outcomes?

Immigration was and will remain responsible for a large part of Belgium's population growth. The impact of immigration is even stronger when we look at changes in the labour force. Over a period of merely 15 years, the share of individuals at working age born in another country has substantially risen, from 10.8 per cent to 16.2 per cent (see Figure 8.1). This rise is mainly driven by an increasing presence of non-EU15 born immigrants, whose share has more than doubled over this period (5.1 per cent to 10.6 per cent).

In Figure 8.1, we also present the growing importance of *households* with immigrant backgrounds. We cluster the country of birth of all working age adults present in the same household. When at least one EU-born adult lives in the household, whether or not together with another EU-born or native adult, we define this household as of EU origin. When at least one non-EU born adult lives in the household (potentially together with a native), we define that household as non-EU origin. In 2010, around three quarters of all adults live in a household of which all adults are born in Belgium. More than 13 per cent lives in a household where at least one non-EU born adult is present. This share has more than doubled over a 15 year time period. Another 8 per cent lives in a household with at least one EU15 born adult. Remarkably, the co-housing of EU-born and non-EU born adults is rather scarce in Belgium (only 0.7 per cent in 2010).²

Most indicators that evaluate (changes in) labour market outcomes, such as (un)employment rates, are measured at the individual level. But individual decisions whether or not to take up employment are to a certain extent the result of a negotiation within the household individuals are living in (Chiappori, 1988). The outcomes of this household bargaining might differ between origin groups (for example because different roles are assigned to women) (MacPherson and Stewart 1989; Cobb-Clark and Connolly 2001). But also over time the household distribution of employment might change. An increased policy focus on the active

2 In the further analysis the share of individuals living in a mixed origin household, with at least one EU-born and non-EU born adult present in the same household, is dropped.

Figure 8.1 Individuals at active age by country of birth (*above*) and household origin (*below*), Belgium, 1995–2010

Source: LFS, 1995–2010.

welfare state or feminization of the labour market can result in higher participation rates. For immigrants, an additional assimilation process can be at work. Literature on assimilation pointed to the fact that over time, immigrant labour market outcomes come closer to native socio-economic outcomes, as measured at the individual level (Chiswick 1978; Borjas 1975; Amuedo-Dorantes and de la Rica 2007).

Therefore, a focus on households is at its place to study employment patterns and outcomes. Figure 8.2 presents household compositions for natives (left) and immigrants (right). Interestingly, when only counting the number of working age adults, household compositions are quite similar for natives and immigrants. The bulk of working age adults lives in a couple, irrespective of the origin of the household members. Of course this figure does not tell us how many children and elderly live in these households. Including them may give an entirely different picture of family compositions for immigrants and natives (see for example Figure 8.5). Figure 8.2 also indicates that there is an evolution towards more single adult households, both for individuals living in native and non-EU born households. On average, the share of individuals living in a single-adult household is a little higher among native households than among non-EU born households. For natives, the trend towards more single adult households is most outspoken (with an increase of 6.2 percentage points), and this evolution is driven by an accumulated decrease in the share of adults living in a two-adult and three-adult household, respectively -4.0 and -2.2 percentage points).

Focusing on immigrant households, Figure 8.2 indicates that almost half of all adults who live in a couple are both non-EU born. We call these homogeneous non-EU born (or immigrant) households, although of course variation exists in the specific country of origin. The other half of all non-EU born adults in a couple lives together with a native adult. We call them mixed (or heterogeneous) origin households. In bigger households, the share of adults who lives in homogeneous non-EU born households decreases further. Less than one third of individuals in a household with three or more adults lives in an entirely homogeneous non-EU born household. Non-EU born immigrant households are also confronted with a decreasing share of classic two-working age adult households (-4.9 percentage points). This decrease is similar to that of natives, but is divided over single-adult and multiple adult households simultaneously.

Individual and Household Employment Patterns

This section plots the differences in employment levels between natives and immigrants (non-EU born) at both the individual and the household level. Interestingly, the individual employment position of immigrant women has improved over the last 15 years (see Appendix Figure 8.1). Their increased employment, however, did not result in the same distribution of employment over households. Two trends can explain this. First, the employment rate of immigrant

Figure 8.2 Household composition by origin, adults in native (*above*) and non-EU15 born households (*below*) Belgium, 1995–2010

Source: LFS, 1995–2010.

men has been growing alongside that of immigrant women, although at a slower pace. But because their initial employment levels were so low, this increase of employment leads to a decline in household joblessness (more households finally get one adult (male) employed) rather than a strong growth in their full-employment household rate. Second, although the increase in the employment rate of immigrant women is strong (the change over time is even stronger than among native women), they still have a lot of catching up to do as their initial employment levels were so low. In 2010 merely 40 per cent of non-EU born women were at work. These huge differences in non-employment at the individual level induces a different marginal efficiency of increasing employment. In a society with a substantial share of household joblessness each percentage point growth in individual employment translates in a higher probability of decreasing household joblessness. In a society with high levels of individual employment, a saturation point has been reached, making it is much harder to decrease household joblessness (see Corluy and Vandenbroucke 2013).

Figure 8.3 shows individual and household employment rates from 1995 to 2010. For adults living in a native household, the individual employment rate has significantly increased (with 7.4 percentage points) over the last 15 years. Despite this increase, we observe a household joblessness rate that remained more or less constant (with a limited decrease of about 1.4 percentage points) for natives. In a counterfactual situation, where individual employment would be equally distributed over households, the household joblessness would be around 3.6 percentage points lower in 2010.

In native households, the improved labour market integration at the individual level has mainly benefitted those households where already a certain level of employment had been acquired (Cantillon 2012; de Beer 2007). The share of full-employment households grows with 13.8 percentage points. For 2010, the observed full-employment household rate lies 4.7 percentage points higher than one would expect from a random distribution of employment over households. Over time, the distance between expected and observed household joblessness and household full-employment has grown substantially.

The picture of individual and household based employment rates is quite different for adults in non-EU born households. The individual employment rate of individuals living in an immigrant household increased with 8.4 percentage points over 15 years, ending up at 58.7 per cent in 2010. Immigrants' individual employment rate grew at the same pace as that of natives. However, the individual employment rate gap between adult in natives and non-EU born households is big and remains constant over time at around 20 percentage points.

Despite similar changes in individual employment rates, household joblessness evolved differently. Native household joblessness (nobody in employment) remained constant during the rise of individual employment rates. In immigrant households, this did not happen. The rise in individual employment translated in a *decrease* of household joblessness, i.e. families where previously nobody was employed now saw one (mostly male) family member getting employed.

Figure 8.3 Individual and household employment rates, Belgium, adults in native (*above*) and non-EU15 born households (*below*), 1995–2010

Source: LFS, 1995–2010.

Interestingly, the individual employment position of immigrant women has improved over the last 15 years (see Appendix Figure 8.1). Their increased employment, however, did not result in the same distribution of employment over households. Two trends can explain this. First, the employment rate of immigrant men has been growing alongside that of immigrant women, although at a slower pace. But because their initial employment levels were so low, this increase of employment leads to a decline in household joblessness (more households finally get one adult (male) employed) rather than a strong growth in their full-employment household rate. Second, although the increase in the employment rate of immigrant women is strong (the change over time is even stronger than among native women), they still have a lot of catching up to do as their initial employment levels were so low. In 2010 merely 40 per cent of non-EU born women were at work. These huge differences in non-employment at the individual level induces a different marginal efficiency of increasing employment. In a society with a substantial share of household joblessness each percentage point growth in individual employment translates in a higher probability of decreasing household joblessness. In a society with high levels of individual employment, a saturation point has been reached, making it is much harder to decrease household joblessness (see Corluy and Vandenbroucke 2013).

Figure 8.3 shows that household joblessness among non-EU households has decreased with 7.6 percentage points. Still, the observed household joblessness in 2010 is 3.6 percentage points higher than in the case of a random distribution of individual non-employment (i.e. there is still polarization, see later).

A comparison of the left and right graphs in Interestingly, the individual employment position of immigrant women has improved over the last 15 years (see Appendix Figure 8.1). Their increased employment, however, did not result in the same distribution of employment over households. Two trends can explain this. First, the employment rate of immigrant men has been growing alongside that of immigrant women, although at a slower pace. But because their initial employment levels were so low, this increase of employment leads to a decline in household joblessness (more households finally get one adult (male) employed) rather than a strong growth in their full-employment household rate. Second, although the increase in the employment rate of immigrant women is strong (the change over time is even stronger than among native women), they still have a lot of catching up to do as their initial employment levels were so low. In 2010 merely 40 per cent of non-EU born women were at work. These huge differences in non-employment at the individual level induces a different marginal efficiency of increasing employment. In a society with a substantial share of household joblessness each percentage point growth in individual employment translates in a higher probability of decreasing household joblessness. In a society with high levels of individual employment, a saturation point has been reached, making it is much harder to decrease household joblessness (see Corluy and Vandenbroucke 2013).

Figure 8.3 indeed makes clear that a similar increase of employment at the individual level (for natives and immigrants) resulted in a divergent distribution of

individuals' jobs over households between native and immigrant households. As immigrants' household joblessness decreases and natives' household joblessness rates remain relatively constant, there is a convergence of joblessness rates over a relatively short period of time (with a gap decreasing from 17.5 to 11.3 percentage points). However, while among native households, the full-employment household became a 'median situation', immigrant households 'merely' entered into a breadwinner model scenario (with an additional family member in employment). Consequently, the full-employment household rates, where all adults are employed, have further grown apart between natives and immigrants (from 24.1 to 29.8 percentage points). Also, the growing origin gap in the household *mixed*-employment rate stems from a decreasing gap in the household joblessness rate (-6.2 percentage points over 15 years) and an increasing gap in the household full-employment rate (+5.7 percentage points).

Interestingly, the individual employment position of immigrant women has improved over the last 15 years (see Appendix Figure 8.1). Their increased employment, however, did not result in the same distribution of employment over households. Two trends can explain this. First, the employment rate of immigrant men has been growing alongside that of immigrant women, although at a slower pace. But because their initial employment levels were so low, this increase of employment leads to a decline in household joblessness (more households finally get one adult (male) employed) rather than a strong growth in their full-employment household rate. Second, although the increase in the employment rate of immigrant women is strong (the change over time is even stronger than among native women), they still have a lot of catching up to do as their initial employment levels were so low. In 2010 merely 40 per cent of non-EU born women were at work. These huge differences in non-employment at the individual level induces a different marginal efficiency of increasing employment. In a society with a substantial share of household joblessness each percentage point growth in individual employment translates in a higher probability of decreasing household joblessness. In a society with high levels of individual employment, a saturation point has been reached, making it is much harder to decrease household joblessness (see Corluy and Vandenbroucke 2013).

The strong decrease in household joblessness among immigrants with the rise of their individual employment is good news for policy makers: policies that aim to reduce individual joblessness among immigrants, can result in a strong increase of immigrant families where at least one person would become employed and hence where the risks of poverty reduce. New jobs among the immigrant population indeed seem to go to the 'right' households: to those who did not have any employment before. With natives, this positive trend did not materialize: new jobs went to families which already had employment. We will come back to this diverging evolution when we introduce polarization into the discussion.

Household Joblessness by Household Size

Household joblessness rates vary considerably by household size. Other things being equal, the more working age adults are present in a household, the lower the risk of joblessness. Hence, individuals living in a single-adult household are more likely to be unemployed than individuals in bigger households. This relation holds for individuals in both native and immigrant households (see Figure 8.4). But, the difference in household joblessness between individuals in a single-adult household and a couple is much bigger in native households as compared with immigrant households.

For natives, the risk of joblessness for singles equals 5.2 *times* the risk of joblessness of couples in 1995. This ratio increased to 6.5 in 2010. Household joblessness did decrease for both singles and couples, but at a faster pace for couples. A similar downward trend in joblessness is found among immigrant singles. But the ratio of the risk of being jobless between singles and couples is much smaller, evolving from 1.4 in 1995 to 1.9 in 2010. Joblessness among singles seems to be much less prevalent among immigrants.

Figure 8.4 Household joblessness by household size and origin, Belgium, 1995–2010

Source: LFS, 1995–2010.

Because household joblessness is decreasing faster among immigrants than among natives (new jobs among immigrants go more to jobless households), the ethnic gap in household joblessness *decreases*. For singles, this ethnic gap in household joblessness decreases from 18.6 percentage points in 1995 to 15.1 percentage points in 2010. For couples, the ethnic gap in household joblessness fell from 33.3 percentage points to 19.5 percentage points over the same period.

Among couples, we can distinguish homogeneous and heterogeneous cohabitation by origin. For individuals in a 'mixed origin' household (i.e. one native and one non-EU born adult) the household joblessness rate has not changed over time. In 1995 the household joblessness rate was similar for native and mixed couples. In 2010, the ethnic gap between mixed origin and native couples grew to 7 percentage points.

Very Different Realities behind Non-Employment for Immigrants and Natives

As mentioned in the introduction, the fact that poverty has not improved despite a historical increase in individual employment, has a lot to do with the concept of household joblessness. We need an analysis of how the new taken-up jobs were distributed over the population. But before we do that, it is important to first check who composes the households we talk about. There are important differences between natives and immigrants to take into account. The social realities behind household joblessness are indeed rather different for immigrants and natives. In this section we look at the different age structure, levels of education and gender effects for immigrant and native jobless households. We also look at the differences in having children in one's household. The different age, gender, children and educational profiles, are important to keep in mind from a policy perspective. Policies addressing household joblessness may work for one household profile, but completely miss its aim at another household type, such as that of immigrants, holds than native families do.

Figure 8.5 contrasts individual characteristics of working-age adults in both jobless households (dotted lines) and all households (full lines).

We first focus on the diverging age structures of native and immigrant households. Population ageing in Belgium manifests both in the native and in immigrant households. For both immigrants and natives, the average age profile of the working age population has slightly increased. This evolution, however, is slower for immigrants and their average age profile remains far younger than that of natives. Around 20 per cent of native couples and 30 per cent of native single adults are between 50 and 59 years old.³ For immigrants, these shares are

3 In our concept of household size we only count the number of working age adult present in the same household. A single adult household counts thus only one working age adult, but he/she can live together with an older individual (aged 60 or older).

Figure 8.5 Characteristics of individuals in the working age population and in jobless households, natives and non-EU born, Belgium, LFS

Source: LFS, 1995–2010.

Figure 8.5 continued Characteristics of individuals in the working age population and in jobless households, natives and non-EU born, Belgium, LFS

10 and 15 per cent for respectively couples and singles. The older age profile of natives, as compared to immigrants, becomes more striking when we look at individuals living in jobless households. Almost half of all jobless native singles in 2010 are between 50 and 59 years old. For native couples these shares are even 10 percentage points higher. Belgium is known for its extremely low activity rate among the aged workforce and 'early retirement schemes'. For immigrants, this age aspect is of an entirely different dimension, with individuals living in a jobless household only being slightly older than the average work force, many of them looking for a job and not enjoying the 'comforts' of early retirement benefits.

The second column of Figure 8.5 compares the educational level of natives and immigrants across household types. Over the last 15 years, levels of education of the working age population improved. The share of natives without secondary education declined with about 20 percentage points. A similar trend occurred for non-EU born immigrants, but the decrease in the number of low-educated individuals is less pronounced. Having attained only low educational levels, increases the risk of living in a jobless household, regardless of people's origin and household setting.

The third column of Figure 8.5 compares inactivity levels by origin and household types. The first thing that strikes is the very high level of inactivity among jobless natives: more than 70 per cent is inactive. For native couples the share of individuals who do not actively present themselves on the labour market (so they are not ILO 'unemployed') even reaches 80 per cent. The constant, very high inactivity levels among native jobless households is remarkable, certainly because inactivity rates among the native working age population are low and they also have been declining over time, regardless of household size. This combined trend results in a proportion of inactivity of 7 to 1 for individuals in respectively a jobless household or the entire population (while in the mid-nineties jobless couples were confronted with a four times higher probability). The older age profile of natives' jobless households, with more than half being between 50 and 59, should be kept in mind too. The people populating the native jobless households are older and much more likely to be on early retirement or not actively seeking a job anymore, hence inactive.

Inactivity is also an acute problem among non-EU born individuals. Despite substantial decreases over time (for example -13.5 percentage points among couples) still 30 per cent of the entire non-EU born active age population is not active on the labour market. Those rates are mainly driven by female immigrants who have never entered the labour market or leave the labour market at the moment their first child is born (Budig and England 2001; Lundberg and Rose 2000). Despite these substantial shares in the total population, inactivity rates of jobless households are smaller among immigrants. One way to explain this is the fact that employment is more equally distributed among immigrant households, resulting in a distribution where inactive adults live together with active partners. We referred earlier to the fact that the male breadwinner model is still gaining importance among immigrants, with one male partner taking up employment and

women staying home. So even if the individual employment rate of immigrants is far below that of natives, jobs seem to go more to jobless households. This is not the case for natives. Inactivity of natives is more concentrated with singles and with couples where both (older) partners are inactive. However, a big minus for the fact that joblessness is lower for immigrants is that this means that their unemployment levels are alarmingly high. Joblessness is the sum of people who are inactive and of people who are unemployed (but looking for a job). If about 60 per cent of immigrants in jobless households are inactive, that means that 40 per cent is (cyclically) unemployed and are actively looking for a job. The share of unemployed people living in a jobless household grew substantially, as the inactivity levels of the entire population decreased. This trend is outspoken for immigrants (with 40% of individuals in jobless households being ILO unemployed in 2010). The decrease in inactivity of the entire population (natives and immigrants alike) materialized differently for natives and immigrants. Natives took up more employment, while immigrants, attempting the same, faced much more unemployment.

In addition to the problematic unemployment situation of immigrants' jobless households, we point out that even if joblessness rates for immigrants have gone down, they are still problematically high. Still 30% of immigrant households are inactive, and thus do not seek employment. For natives, these rates are lower. For native couples it is 10% and for singles the rate is 20%.

The last factor that generates different household profiles and results, is the presence of children. Immigrant and native households also differ substantially on this point. If we would only take into account the number of working age adults in a household, we would conclude that the household structure of natives and immigrants does not differ substantially (as described in Figure 8.2). However, as the last column of Figure 8.5 shows, origin and family types start diverging when it comes to the presence of children. There are twice as many single immigrants who live with at least one child in the household as compared to natives. Also for immigrant couples a far higher share of adults live together with a child (a 20 percentage point difference with native couples).⁴ This disparity in the presence of children becomes even stronger when looking at individuals in jobless households. Immigrant jobless households have about as many children as the level found for the general immigrant population. Around 80% of immigrant jobless households have children. In contrast, native jobless households have a far lower share of children rich households than the share of the general native population: there is a difference of about 30 percentage points. Again, it is useful to keep the different age profile of immigrant and native jobless households in mind. While native jobless households are far older than the average population, the immigrant

4 It is interesting to see that in a couple with a native and non-EU born adult the presence of children lies between both extremities of homogeneous origin couples. As discussed for example by Milewski (2012) fertility rates of second and third generation immigrants do (slowly) converge.

jobless households are substantially younger (just slightly older than the general population). Taken together, we observe that both single immigrants as immigrant couples have many more children in their households than native families do.

The Concept of Polarization

The above sections reveal that employment is unevenly distributed among households in Belgium. Individual employment rates have increased for most segments of the population, natives and immigrants alike, but the effects on household joblessness vary. For Belgian natives, the increase in individual employment resulted in a sharp increase of the number of dual earner households: both men and women are employed. With the rise of women's employment, jobs were taken in by individuals who live in a household with one partner already at work. New jobs did not go to native jobless households. The share of native jobless households remained more or less stable. In contrast, immigrant increase in individual employment resulted in a more 'equal' distribution of jobs over previously jobless households. As the individual employment rate of immigrants was very low, the uptake of jobs resulted in more families coming out of the jobless household status. These evolutions can best be understood through the concept of polarization.

With polarization we mean a measurement of the inequality of job distribution over households. Gregg and Wadsworth (2008) propose the use of a counterfactual random distribution of jobs over households to evaluate the level of 'polarization' (or inequality) in the distribution of jobs over households. Polarization is the difference between the observed household joblessness and the counterfactual (or 'expected') household joblessness. It is the gap between the lines with and without little squares presented in Figure 8.3. Interestingly, the individual employment position of immigrant women has improved over the last 15 years (see Appendix Figure 8.1). Their increased employment, however, did not result in the same distribution of employment over households. Two trends can explain this. First, the employment rate of immigrant men has been growing alongside that of immigrant women, although at a slower pace. But because their initial employment levels were so low, this increase of employment leads to a decline in household joblessness (more households finally get one adult (male) employed) rather than a strong growth in their full-employment household rate. Second, although the increase in the employment rate of immigrant women is strong (the change over time is even stronger than among native women), they still have a lot of catching up to do as their initial employment levels were so low. In 2010 merely 40 per cent of non-EU born women were at work. These huge differences in non-employment at the individual level induces a different marginal efficiency of increasing employment. In a society with a substantial share of household joblessness each percentage point growth in individual employment translates in a higher probability of decreasing household joblessness. In a society with high levels of individual employment, a

saturation point has been reached, making it is much harder to decrease household joblessness (see Corluy and Vandenbroucke 2013).

So polarization measures the extent to which there are more (or fewer) jobless households than expected under the hypothesis of a random distribution of jobs over households, given the household size structure. In this chapter we compare levels of polarization between origin groups, based on their individual employment rates and their household composition.

$$P_{origin} = wp_{origin} - wp_{origin}^e$$

$$P_{origin} = \sum_{k=1}^K \pi_{k,origin} wp_{k,origin} - \sum_{k=1}^K \pi_{k,origin} n_{origin}^k$$

$$P_{origin} = \sum_{k=1}^K \pi_{k,origin} (wp_{k,origin} - n_{origin}^k)$$

With

$$\sum_{k=1}^K \pi_{k,origin} = \text{household size structure of origin group}$$

$$n_{origin} = \text{individual non-employment rate of origin group}$$

$$wp_{origin} = \text{actual share of individuals of origin } i \text{ living in jobless households}$$

$$wp_{origin}^e = \text{expected share of individuals of origin } i \text{ living in jobless households}$$

$$wp_{k,origin}^e = n_{origin}^k$$

$$wp_{origin}^e = \sum_{k=1}^K \pi_{k,origin} n_{origin}^k$$

The risk of household joblessness decreases with household size. *Ceteris paribus*, the probability of having no adult in employment is higher in a smaller household than in a larger one. If the share of individuals in smaller households increases, we expect a given rate of individual joblessness to lead to higher household joblessness, all other things being equal. Hence, in this counterfactual approach, the ‘expected rate’ of household joblessness is a function of both individual joblessness and the size structure of households.

Figure 8.6 shows observed and expected household joblessness by household size, with respectively full and dotted lines.

Figure 8.6 Observed and expected household joblessness, native (*above*) and non-EU (*below*) households, Belgium, 1995–2010

Source: LFS, 1995–2010.

Over the whole period under review, observed and expected household joblessness are higher in single-adult households, for all origins, even though singles' joblessness rates decrease over time. But, the gap between observed and expected household joblessness (that is, the level of polarization within this particular household group) differs strongly by origin. Among natives, levels of polarization in single-adult households are large, around 11 percentage points, and constant over time. Among immigrants, levels of polarization also remain quite stable over time, but at a much lower level, around 2 percentage points. Among natives, singles and lone parents (i.e. the adults in single-adult households) are typically less in employment than might be expected from a random distribution of employment. Among immigrants, household joblessness of single-adults is more or less equal to what might be expected of a random distribution of employment.

The evolution in the subgroup of couples is different. Among natives, the observed household joblessness among couples diminishes, but the decrease in expected household joblessness is stronger. Since the mid-nineties, the level of polarization in native couples is growing. For immigrants the picture is entirely different. We distinguish between 'homogeneous' immigrant couples, where both partners are immigrant, and 'heterogeneous' immigrant couples, where one partner is immigrant and the other native. These two subgroups display different polarization trends, which tend to neutralize each other. Homogeneous immigrant couples faced a very high level of polarization in 1995. Hardly any employment went to these homogeneous couples, and if so, it was concentrated in a small share of households. Over time, however, the distribution of employment became more equal among homogeneous immigrant couples, driven by improving individual employment rates for all immigrants. Despite that trend, levels of polarization are still around 5 percentage points in 2010. On the other hand, 'heterogeneous immigrant couples' (couples with one native and one non-EU born) make an opposite movement. Their observed household joblessness rates have slightly grown, even though the *expected* household joblessness rates have significantly fallen. Since 2000, the relation between observation and expectation in the heterogeneous immigrant couple changed: the level of polarization decreased and then became negative. That trend towards negative polarization is again related with the male breadwinner model. Household joblessness among immigrant couples diminishes because one adult in the household starts working, in most cases the male partner.

Figure 8.7 Absolute levels of polarization and its weighted prevalence over household size structures, native household (*above*) and non-EU household (*below*), Belgium, 1995–2010

Source: LFS, 1995–2010.

Until now, we have discussed household composition and levels of polarization by household size separately, respectively in Figure 8.2 and Figure 8.6. Overall levels of polarization can only be explained, however, if both polarization by household size and distribution of the population over household composition are taken together: we integrate them in Figure 8.7.

Figure 8.7 combines Figure 8.2 and Figure 8.6. The left graph of Figure 8.7 displays polarization results for natives and the contribution of each household group in it (the weighted contribution of polarization by household size, weighted by household structure). The triangles indicate that overall polarization for natives rose. Work became more unequally distributed over households. This can be explained by the combined effect of the following trends. First, more natives are living in single households. We know from Figure 8.6 that polarization for single households is quite strong (but constant over time). The increase of their share in the population and the fact that there is high polarization, renders their share in overall polarization higher. In 2010, 83 per cent of polarization in native households is due to the weighted contribution of polarization in these single-adult households. Also for native couples (striped bars in Figure 8.7) their share in overall polarization increased. Even though Figure 8.6 only indicates a slight increase in polarization for native couples, as they represent 60% of the population, this trend has quite an impact on overall polarization. Their weighted contribution to polarization is 13 per cent in 2010.

Again for immigrant households, the story is rather opposite. Only 16 per cent of polarization is due to single-adult polarization. Immigrant singles are far less polarized and, despite similar household structures as natives, their weighted contribution to polarization is much smaller than is the case for native. Overall levels of polarization for immigrants are mostly driven by couples. Their weighted contribution to polarization equals 55 per cent. Moreover, bigger households among immigrants have declining levels of polarization. Even though the number of larger households (with more than 2 working age adults) among immigrants remained stable, more people took up jobs in these households. Hence, jobs became better distributed over all immigrant households.

We conclude that polarization is equally high for both natives and immigrants, but is decreasing for immigrants and increasing for natives. The decrease for immigrants is mainly due to positive changes over time in larger immigrant households, while the increase for natives is related with an increasing negative distribution in couples. We now turn to an analysis of the changes of polarization over time.

Decomposition of Household Joblessness over Time

The overall level of polarization can change due to changes in the level of polarization in one or more of the household subgroups (singles, couples, bigger households). We refer to this type of change as ‘within-household change’. But,

the overall level of polarization can also change due to changes in household composition; for instance, overall polarization may increase if an increasing share of adults become part of a household type where polarization is higher, without changes in the polarization in that subgroup itself. We refer to this second type of change as ‘between-household change’.

Consequently, changes in overall household joblessness can be decomposed into four terms. First, (i) changes in individual joblessness that affect the expected rate of household joblessness (for a given household composition). If individual employment levels change and we distribute these jobs over households randomly, then the expected household joblessness rate will change. Second, (ii) changes in household compositions affect the expected rate of household joblessness. Here we refer to demographic changes that generate changes in household composition, e.g. an evolution towards smaller households makes it harder to drop household joblessness, *ceteris paribus*. A third component covers (iii) between-household polarization changes, i.e. changes in the household structure that impact upon the degree of polarization, given subgroup polarization levels. As society evolves towards an increase in households where there is more polarization, such as e.g. single mothers with a higher than average risk of household joblessness, polarization also increases. Finally we distinguish (iv) within-household polarization changes, i.e. changes in polarization levels of a certain household type.

Formally, the decomposition of changes in household joblessness (Δwp) has the following terms:

$$(i) \sum_{k=1}^K \Delta n^k [0.5p_{k,t} + 0.5p_{k,t+1}]$$

(contribution by changes in the individual non-employment rate n)

$$(ii) \sum_{k=1}^K \Delta \pi_k [0.5n_t^k + 0.5n_{t+1}^k]$$

(contribution by changes in the household structure)

$$(iii) \sum_{k=1}^K \Delta \pi_k [0.5(wp_k - n^k)_t + 0.5(wp_k - n^k)_{t+1}]$$

(contribution by ‘between household polarization’)

$$(iv) \sum_{k=1}^K \Delta (wp_k - n^k) [0.5\pi_{k,t} + 0.5\pi_{k,t+1}]$$

(contribution by ‘within household polarization’)

With:

n = individual non-employment rate in the population

k = the size of households (the number of working-age adults)

K = the maximal size of households in the population

π_k = the share of the population living in households with size k

wp_k = the actually observed rate of jobless individuals in households with size k

The first and the second term in the decomposition add up to change in the ‘predicted’ rate of household joblessness wpe . The third and fourth term add up to the trend in polarization. Figure 8.8 presents such a decomposition of changes in household joblessness over the period 1995–2010.

Figure 8.8 Decomposition of the change in household joblessness, individuals in native and immigrant households, 1995–2010

Source: LFS, 1995–2010.

Figure 8.8 decomposes the changes in household joblessness for the entire working age population (left column) and the working age population defined by the origin composition of the household they live in. The white square indicates the change in household joblessness over time. Household joblessness decreased much more for immigrants than for natives. Among natives, household joblessness decreased with (merely) 1.4 percentage points between 1995 and

2010 (middle bar). In the same period, however, individual joblessness decreased with 7.4 percentage points. Hence, the increase of individual employment did not affect all households equally. If today's household size structure of natives would be the same as in 1995, and no changes in polarization would have occurred, household joblessness would be 3.9 percentage points *lower* today. Even though individual joblessness decreased with 7.4 percentage points for natives, the shift towards more single-adult households diminishes the impact of decreasing individual joblessness on household joblessness: it reduces the expected decrease in household joblessness from 3.9 percentage points to around 2.7 percentage points.

At the same time, polarization for natives increased, both because of 'change within' and 'change between': polarization increased in all household subgroups (both singles and couples) and the household size structure shifted towards single households which have a higher polarization level.

The combined effect of what could be expected because of increasing individual employment levels, taking into account shifts in household composition towards more single households, and the increase in polarization, is a limited decrease in household joblessness among natives (-1.4 percentage points). The very limited decrease in household joblessness, is a consequence of the fact that new jobs were taken up by people (mostly women) who already lived in a household where somebody (mostly the male partner) was employed.

Figure 8.8 (right bar) shows an entirely different picture for non-EU immigrants. Contrary to natives, household joblessness rates for non-EU immigrants have substantially decreased (with almost 8 percentage points). At the same time, individual employment increased substantially, with 8.2 percentage points. This means that the new jobs taken up by immigrants were mostly taken up by immigrants who live in a household where nobody was in employment. The expected change in household joblessness among immigrants, if no changes in household composition nor polarization would have occurred, equals -7.6 percentage points, which almost equals the actual change in household joblessness. This higher elasticity of household joblessness of immigrants is due to their (still) high levels of household joblessness.

The demographic trend towards more single-adult households is also at work among immigrants, but at a slower pace. The combination of changes in individual employment and household composition results in an expected decline in household joblessness of 7 percentage points among immigrants.

Additionally, changes in polarization affect changes in household joblessness for immigrants. Within household types, polarization has decreased over time. This 'within households' polarization (horizontal lines) is stronger than the polarization shifts between households. Among immigrants there is no big demographic shift towards household types that face much higher polarization.

The combined effect of the expected changes in household joblessness and the changes in polarization results in a significant decrease in household joblessness of 7.9 percentage points among immigrants.

Explaining Trends in Polarization: Conditional Polarization

Polarization is the difference between the actual distribution of employment over households and a counterfactual random distribution. It allows us to measure inequality in the distribution of jobs over households. The construction of that counterfactual can be refined by taking into account observable traits of individuals, such as age, gender and education that are known to influence both household formation and labour market integration. Relaxation of the random distribution of employment allows us to explore the importance of common observed characteristics on polarization. We relax the random distribution of employment by allowing the expected employment rates to vary for age, gender and education. Doing so, we can take into account that the chances of employment are very different for different profiles, such as men vs women, high skilled vs low skilled, young vs old.

The concentration of non-employment in certain households may be due to many factors, as previously shown. Conditional polarization can enhance our understanding of the underlying processes that drive polarization among natives and immigrants. Indeed, we can compare the ‘unconditional polarization’ index (the counterfactual being based on household size only) with a ‘conditional polarization’ index, taking into account variation of employment rates over individual characteristics (see Gregg et al. 2010). The closer the predicted household joblessness (after conditioning on a characteristic) comes to the actual household joblessness, the more important that characteristic is in explaining polarization.

In single-adult households, relaxation of the random distribution of individual employment explains a substantial part of polarization. For single-adults polarization can be understood as a higher non-employment risk for certain population groups without the opportunity of pooling (or mating) at the household level. The counterfactual joblessness rate which does not take into account factors such as gender, age and education, is significantly lower than the actual observed joblessness rate of native singles. Once we bring in the factors of age, gender and education (factors that we know to be related to higher non-employment probabilities), the joblessness rate shifts towards the actual joblessness rate. These factors’ effect on joblessness becomes visible. The shift indicates that polarization of singles can, at least partly, be explained by gender, age and education. Singles seem to have more characteristics that decrease their chances of employment, which can partly explain polarization. Over the entire period, differences in individual employment by gender explain almost 10 per cent of polarization among single natives. In 1995, the combined effect of all three characteristics explained almost 50 per cent of polarization in single native households. In 2010, those traits still explain almost 35 per cent of polarization.

Again the story is different for immigrant singles. As shown higher, polarization among single non-EU born adults is rather limited, as compared to both single natives and immigrants couples. The relevant employment rates over individual

characteristics such as age, gender and education do almost entirely explain levels of polarization for immigrant singles. Figure 8.9 (p. 282, top graph) shows that household joblessness among single adult immigrants equals what one could expect on the individual employment rates by gender, age and education.

In couples (Figure 8.10), a correlation between the employment status of household members may reflect a tendency for individuals who share common characteristics to live together. If couples share common characteristics, then it is harder to explain polarization trends by characteristics. For natives, for example, men and women's employment level has become quite similar. Hence differences in characteristics cannot add to the explanation of polarization. When individual employment rates in couples differ strongly, such as is the case with immigrants, more of polarization can be explained by introducing age, gender and education into the analysis.

Figure 8.10 (p. 283, bottom graph) shows that the combined effect of gender, age and education could explain substantial shares of polarization in homogeneous immigrant couples. In 1995, around 33 per cent of polarization among these couples was due to the very low labour market opportunities of low-skilled non-EU born immigrants. Over time, that explanatory effect has faded away, possibly because labour market opportunities have slightly increased and at least one adult in the household has entered the labour market.

When we take only gender into account, we see that the different labour market outcomes of women and men have a neutralizing effect in hetero-sexual couples. When nearly all men are in employment and only few women are, the conditional counterfactual on gender will predict fewer jobless households. This is clearly the case for immigrant couples over the entire period.

Figure 8.10 (bottom graph) shows that household joblessness based on individual employment rates by gender lies at least 3 percentage points lower than the random distribution of employment.

In 1992, we see that also for natives expected household joblessness, conditional on gender, lies below the random counterfactual household joblessness. At that time, much less women were at work and the breadwinner model was still the norm for native households. Hence we could expect even lower joblessness levels if we control for gender. When native women increasingly entered the labour market, the counterfactual household joblessness conditional on gender has gradually evolved towards the expected household joblessness, as is the case for natives in 2010. Feminization of employment explains the increase in polarization for natives.

Conclusion

Belgium underwent a hike in individual employment rates of its working population. If we focus only on individual employment, Belgium seems to evolve commendably towards the Lisbon targets of high employment. However, if we take

a household perspective into account, the situation is far less rosy. Additionally, when we take an immigrant perspective into account, the picture becomes even more complex.

Individual employment increased significantly both for natives as for immigrants. However, the distribution of these jobs over households evolved differently for immigrants and natives. Through the concept of polarization we traced the inequality in the distribution of jobs over households. For both natives and immigrants, actual household joblessness is higher than what we would expect if new jobs would be randomly distributed over households. In 2010, these levels of polarization in the native and immigrant population are identical, with a 3.6 percentage point difference. But here ends the similarity between immigrant and native households.

For natives the increase in employment resulted in an increase of polarization, while it is decreasing among non-EU immigrants. The distribution of employment among natives becomes more unequal, while among immigrants there was a trend towards more equality. This has a lot to do with natives and immigrants' initial employment levels, but also with household compositions and changes of household compositions over time. First, the share of single households increased within the native population. Native single households have, partly due to their gender, age and educational profile, lower employment chances. Hence they get less of the share of employment increase. The increase of single households contributed a lot to natives' high polarization levels. Second, the share of couples in the native population remains constant, but the distribution of employment became more unequal. Native women, previously living in male breadwinner families, massively entered the labour market. The model hence rapidly changed to a dual earner model, with 'full-employment households', where new jobs were taken up by women who were in a household where the male partner was already employed. The increase of employment did not benefit native jobless households. The native jobless households have a particular older age profile, resonating Belgium's notorious early retirement practices. This has not changed over time (1195–2010).

Immigrants' rise in individual employment played out very differently. The decrease of polarization has to do with the much more problematic starting point for immigrants. Immigrants' levels of inactivity and unemployment were much higher. The rise of individual employment did not lead to the introduction of the dual earner model into immigrant families, but rather to a decrease of household joblessness: more men entered the labour market, pulling their families out of inactivity and unemployment and developing a male breadwinner model. The newly taken up jobs were taken up by jobless families, resulting in a more equal distribution of employment over the immigrant population. Still there is polarization among immigrants. Polarization in the immigrant population is, contrary to the native population, not mainly driven by singles. Only 16 per cent of polarization is due to single-adult polarization, but the weighted contribution of polarization in couples equals 55 per cent. This means that while among natives

Figure 8.9 Observed and (un)conditional counterfactual household joblessness in single-adult households, native (*above*) and non-EU immigrant (*below*) households, Belgium, 1995–2010

Source: LFS, 1995–2010.

Figure 8.10 Observed and (un)conditional counterfactual household joblessness in couples, native (*above*) and homogeneous immigrant (*below*) households, Belgium, 1995–2010

Source: LFS, 1995–2010.

mainly single-adult households are disadvantaged, among immigrants the highest levels of polarization are observed in couples.

When we take the changes in polarization over time, native couples are most responsible, due to the transition to the dual earner model. The decrease in polarization among immigrants is mainly related with decreasing polarization in couples and bigger households. The increase in employment that took place among immigrants resulted in a far more equal division of these jobs over couples and bigger households where at least one person took up employment. For them, joblessness fell and polarization decreased. From a poverty perspective, this decrease in joblessness for (larger) immigrant households is important. Contrary to the older profile of native jobless households, the age profile of immigrant jobless households is decidedly younger, with an important presence of children.

It is important to note, however, that even though individual joblessness fell continuously since the mid-nineties for immigrants, the labour market position of immigrants is still problematically weak, both at the individual and the household level. Our analysis showed that gender is an important factor to take into account. Gender explains a great part of polarization, but differently so for natives and immigrants. The precarious employment position of immigrants in Belgium is strongly related with extremely low employment rates of immigrant women. Although we observe a substantial decrease in individual joblessness of non-EU born women, more than 50 per cent of this group remains out of employment in 2010. The household size plays an important role in the labour market integration of women. The ethnic gap in employment for single women is around 10 percentage points. The ethnic gap for women living in couples mounts up to 40 percentage points. Because around 60 per cent of both immigrants and natives at working age lives in a couple, this huge employment difference of women explains a substantial part of the bad employment position of immigrants in Belgium, both at the individual and household level.

Appendix 8.1

Individual employment rates by origin, gender and household size, Belgium, 1995–2010

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Chapter 9

International Migration: The Future Challenges for Europe

Ronald Skeldon

This chapter will examine four key challenges facing Europe over the years to 2050 with respect to international migration. The common assumption is that Europe is facing a crisis in migration and that too many people will try to enter from the global South bringing a challenge to its economy and its cultural integrity. The assumption is correct in that migration will bring a challenge for a future Europe but perhaps not in quite the ways that many expect. First, finding the labour that Europe, and particularly Western and Southern Europe, will need may prove more difficult than anticipated and the emergence of new nodes of attraction for migrants in the European periphery will be examined. Second, Europe will need to move from a region that needs labour to a region that wants migrants and sees migrants as part of state building. This will provide a challenge to both indigenous and immigrant populations as national tensions between European states are reinforced by trans-regional tensions. Third, the challenge of migration and development will be considered: that Europe can seek migrants without prejudicing the development prospects of the main areas of origin of migration. Will Europe be a cause of brain drain or a support of brain circulation and development? Finally, and perhaps most crucially, Europe will have to live in a world where the centres of global dynamism have shifted to Asia and to the dominance of trans-Pacific rather than trans-Atlantic relations. The challenge of the future development of China and India on global migration will be considered from the perspective of Europe and its possible impact on population movement to that continent.

Background: Ageing, Immigration and Emigration

The future pattern for demographic change in Europe is well established and has been considered in other chapters of this book. Simply, the population of Europe will expand slowly to around 744.2 million in 2020, after which it will slowly decline to stabilize around 674 million late in the twenty-first century (United Nations 2012). Perhaps more to the point is what is projected to happen to the labour force, or the population 15–64 years old. This was projected to reach a peak of 504.8 million in 2010 and to decline thereafter, and by a quarter by 2100. The ageing of the population is reflected in the increasing number of dependants

relative to those available to support them and this is one of the major challenges facing a future Europe. It is worth noting, however, that this demographic shift is not confined to Europe but is widely spread among those societies that have experienced rapid fertility decline around the world, including the developing economies of East Asia. However, like fertility decline itself, Europe is among the forerunners of this shift and its policy responses will be closely observed elsewhere.

Migration is just one of the options available to countries that are seeking to boost their labour forces, although it is unlikely to be the major option compared with extending the length of the working life, increasing automation or changing welfare entitlements. Nevertheless, migration, as it has been in the past, will be an integral part of the changes experienced in a future Europe.

Europe has been considered a continent that has shifted from net emigration during the nineteenth and first half of the twentieth centuries to net immigration from the latter part of the twentieth century to the present. The countries of southern Europe were the most recent to experience this trend (see Zimmermann 2005; Calavita 2004; Cornelius 2004). Immigration, and particularly irregular migration, has been seen by several governments as being out of control and in need of much tighter regulation. However, the 2008 financial crisis acted to dampen population movements towards Europe and marked decreases in the volume of immigration were observed in Iceland, Ireland, Portugal and Spain in particular (OECD 2013, 18). Nevertheless, except for Ireland and Iceland, the migration did not reverse, showing that even during the most severe economic downturn in decades most of Europe continued to attract migrants. Hence, the decline in even Southern Europe's labour force from 2010 implies a continuation of immigration in order to maintain economic viability during a time of extreme financial stress.

However, immigration need not necessarily be the only future challenge for international migration in Europe; emigration will also take place and may resume and increase from certain areas. An ageing Europe may not maintain its economic dynamism in the face of competition from other parts of the world. However, one need not assume an economic slowdown as a main cause of emigration as dynamic economies tend to be characterized by exchanges of population, and we can expect significant numbers of Europeans to leave as other groups arrive.

While the United Kingdom, for example, has experienced record levels of net immigration over recent years, it is also a significant country of emigration, with an estimated 5.5 million citizens overseas in the early twenty-first century, or around 9.2 per cent of the population (Sriskandarajah and Drew 2006). This proportion is not too far below those for 'classic' countries of emigration such as Mexico or the Philippines, where the proportions outside their borders are between 10 and 12 per cent. In the year 2000, the United Kingdom was estimated to have more skilled migrants outside its border in absolute numbers than any other country, at 1,441,307 (Docquier and Marfouk 2006, 175). The same World Bank report indicates that Germany ranked fifth in the numbers of skilled outside its borders. The very high rate of youth unemployment currently being experienced in the

Iberian peninsula may also encourage emigration and considerable anecdotal reports of educated Portuguese leaving for Brazil and Angola appear in the press.

This chapter is concerned primarily with global flows of international migrants to the European Union from other parts of the world. However, international migration from one country to the other within the Union also occurs, as does migration within the individual countries of the Union. While the latter is rarely controversial, the migration of workers from the poorer economies of southern, and later of eastern, Europe to the more dynamic economies of northern and western Europe has proved as controversial, if not more so, in some countries as the immigration from outside the European Union itself. In the context of the ageing population of the United Kingdom, for example, and the reluctance of British workers to engage with low-paying and often seasonal labour, the movements from the countries of accession in May 2004, and particularly from Poland, have proved a domestic political flashpoint. Most importantly, these movements illustrated the significance of labour market policy, not just in those countries that opened their labour markets to foreign labour at the same time as the accession of the countries to the area of free movement, but also in those countries where labour markets were the most flexible, even without guaranteeing protection. These issues are well covered in OECD (2012).

Immigration as a Solution to Ageing Populations

Yet, although emigration persists and even increases from European countries, immigration dominates the political agenda. Central to these concerns is how a declining labour force can support an ageing population without allowing an immigration that is going to change the 'traditional' character of European societies. The answer is simple: all immigration will ultimately change societies but the issue is the extent to which society will be changed and how many migrants will be required. These are not easy questions to answer. In 2001, the United Nations produced a series of estimates of the number of migrants that would be required using a number of assumptions under the title *Replacement Migration: Is It a Solution to Declining and Ageing Populations?* (United Nations 2001). These scenarios were not policy prescriptions but simply hypothetical estimates of how many migrants would be needed if certain conditions were to be met: for example, to offset the projected decline in populations, to maintain the ratio of workers to dependants, or to maintain a support ratio of workers to the elderly. These were seen against projections with current assumptions of net immigration and with assumptions of zero immigration. The year 1995 was taken as the base year, with estimates of the numbers of migrants under the various scenarios computed to 2050. For the 47 countries and areas of Europe, a level of migration much higher than was occurring around the year 2000 would be required to offset population decline. However, for the then 15 member states of the European Union, an immigration more or less similar to that experienced in

the recent past would seem to be sufficient (United Nations 2001, 4). Nevertheless, trying to maintain the labour force to population ratio or seeking to hold constant the old-age dependency ratio would involve substantially greater migration. The assumption in the United Nations population projections for Europe was for a net intake of 428,000 migrants a year to 2015. However, to ensure that the working population would not decline from its then projected maximum number in 2005, a net average of 3.6 million migrants would be needed every year from 2005 to 2050, an eightfold increase over the assumed net-migration rate in the 1990s. To keep the old-age support ratio at its 1995 level, a net annual average of 25.2 million migrants would be required from 1995 to 2005 (United Nations 2001, 84).

Clearly, these numbers for net immigration to Europe are unrealistic but again it needs to be emphasized that this exercise is hypothetical, and simply indicative of the 'what if' scenarios examined. They do, however, show that immigration is not a viable strategy to replace cohorts lost to fertility decline. Not only would the numbers of immigrants required be politically unacceptable to native populations but it is not entirely clear from where the very significant numbers of migrants would be sourced. Nevertheless, accepting that net immigration cannot stop or reverse the decline in labour-force growth or the support ratio for the elderly, it is likely that migration can be used to add to the labour force in key strategic areas.

However, attempts to forecast future labour needs in specific areas are fraught with difficulty. Such attempts are still a highly inexact science as is well demonstrated in the essays in Ruhs and Anderson for the United Kingdom (2010). Not only is one trying to predict the direction of local, regional and global economic cycles but which industries will be established in which area in order to gauge which types of workers will be required within a specific time frame. Developments in technology in each industry will also impact upon the numbers and types of workers needed. Nevertheless, and despite all the uncertainties, certain trends can be identified, such as in the case of the health sector below.

Immigration and Specific Sector Needs

The health sector is one of those areas. Projections for the United Kingdom suggested shortfalls in the number of nurses in 2010 of around 14,000 (WHO 2007, 5). Shortfalls in the number of general practitioners and junior doctors were estimated at 1,200 and 1,100 respectively. The Netherlands, Norway and Switzerland have published reports of shortages of nurses of 7,000, 3,300 and 3,000 respectively, ranging from 1 through around 5 per cent of the registered workforces. In the United Kingdom, cutbacks to funding nurse training programmes from the early 1990s had perhaps been the major factor accounting for the shortages observed later in the decade (RCN 2012), which were then projected forwards to 2010. The response of the United Kingdom was twofold: to increase funding for training programmes from the last years of the twentieth century, which saw the number of annual entry of nurses into the profession

increase sharply from 2002–2003; and the importation of nurses from overseas to fill the shortfall. The number of nurses from overseas sources increased markedly from 1995–1996 from around 3,000 a year to peak at over 15,000 in 2001–2002, declining equally sharply from 2003–2004 to return again to about 3,000 a year as more locally-trained nurses came on stream (data presented in RCN 2012, 14). During the peak years of nurse immigration to the United Kingdom, the vast majority came from outside the European Union, whereas, after 2007–2008, the majority of nurses came from other parts of the European Union. In the context of an ageing society, the supply of nurses is primarily a function of the funds directed towards the training of domestic workers. The importation of nurses from overseas is primarily to fill shortfalls caused by fluctuations in funding. Yet these fluctuations continue, with the post-2008 financial crisis being accompanied by the implementation of austerity packages, which have seen a resumption of the importation of nurses, even if most are from the European Union, and a flat-lining, even decline, in the total number of nurses available owing to cutbacks to the domestic training programmes.

The proportion of foreign doctors in countries of the European Union has increased markedly over recent years. For example, foreign-trained doctors increased from 1 per cent of the total in France in 1970 to 6 per cent in 2005. For Denmark, the Netherlands and the United Kingdom, the respective growth in the percentage of foreign-trained doctors over the same period was from 3 to 11; from 1 to 8; and from 26 to 33 per cent. No increases were observed for Germany or Sweden over the period (WHO 2007, 11). Countries within the European Union generally have a higher dependence upon foreign doctors than they do on foreign nurses, although that dependence varies markedly across countries and considerable intra-European Union mobility exists. The number of foreign doctors is negligible in Estonia, Slovakia and Poland, at under 1 per cent, while it is high in Switzerland, Slovenia, Ireland and the United Kingdom at between 22.5 and 36.8 per cent (Wismar et al. 2011, 61–2). It is perhaps noteworthy that the enlargement of the European Union did not bring either a ‘swamping’ of destination countries with migrants from other parts of the European Union or a marked ‘brain drain’ of doctors from origin countries (Maier et al. 2011, 64).

Not only will the demand for health professionals rise as the population ages but so, too, will the demand for the lower-paid and the less regulated labour market for care workers. Again, in the United Kingdom, the proportion of foreign-born workers in the care sector increased from 7 to 18 per cent between 2001 and 2009 from around 40,000 to 130,000, at the same time as the absolute number of British-born care workers also increased (figures cited in Shutes 2011).

Thus, although the demand for migrant workers is influenced by the changing age composition of the population, it is not determined by it. Issues of availability of trained personnel or how attractive particular activities appear to local workers are also fundamental. It takes several years to generate the skills in particular areas such as geriatric health, and remuneration and job conditions often are such that they are unattractive to local workers. Also, definitions of skills and shortages

can be problematic and time-specific, and employers often make the case for the cheapest and most malleable labour with the lowest expectations: migrant labour (see Ruhs and Anderson 2011, for example).

Thus, the critical challenge for Europe is to formulate a plan for its future labour needs in which appropriate training regimes, including the funding for those regimes, and adequate compensation packages are integral parts. Migration will also play a part in this planning in order to bridge short or longer-term gaps and skill mismatches against demand. Nevertheless, migration should not simply be the importation of labour in order to meet shortages. In the first place, these can rarely be exactly matched but, more importantly, the ethical question must be raised over any migration policy that simply focuses on the importation of labour. While considerable variation exists among European countries in terms of their migration policies, most are 'reluctant countries of immigration' in that migration has not been recognized as part of nation building (see Cornelius et al. 2004). Unlike the 'settler' countries of the United States, Canada, Australia and New Zealand, and despite migration being an integral part of the origin of European nations (see Heather 2009), modern approaches to migration in Europe have focused precisely on the issue of temporary workers to fill gaps in the labour market.

Temporary, Circular and Longer-term Immigration

Current approaches that focus on 'circular migration' appear to be taking the same approach forwards: European states continue to favour a non-permanent approach to immigration. The guest-worker programmes of the late 1960s and early 1970s were essentially abandoned from the mid-1970s as European countries attempted to close the doors to immigrants after they found that temporary migrants tended to become permanent, even in the face of economic downturns. That said, however, an analysis of the German programme found that some 70 per cent of the 30 million Turks who went to Germany between 1960 and 1999 did go home (Martin 2004, 228). To all intents and purposes, it was a remarkably successful temporary migration programme, although the 30 per cent of workers who remained and later sought to bring their families provided an unanticipated development for which Germany was not prepared.

However, the early twenty-first century has seen a 'resurrection' of such programmes under different guises and with a clear division into skilled temporary workers who are needed and welcome and unskilled temporary workers who are also needed but not so welcome (see Castles 2006). The major problem with depending upon any type of temporary migration programme is that a country allows into its borders a group that can never be fully accepted: the workers are admitted on the basis that they will go home. This is therefore a group that is not supposed to integrate and one to which the provision of certain services may be denied, involving serious ethical challenges to European states. However, the issue is being smoothed with a development veneer at present in the idea of

‘circulation’. Migrants are brought to the developed world to undertake a specific task during which time they will send remittances back home and learn new skills that they can use upon return. The benefits are many. First, the developed country clearly benefits as the temporary migrants fill labour gaps. Second, the migrants benefit, as they learn new skills and earn more money than they could at home. Third, the developing country of origin benefits through the receipt of remittances and the fact that it does not lose its human capital, which is enhanced through training. It appears to be a ‘win-win-win’ solution to problems of migration and development. Nevertheless, when a programme seems too good to be true, it usually means precisely that.

Circular migration programmes experience ‘leakage’ for a number of reasons. Employers may not wish to see the labour force that they have spent time and money on training constantly turning over; they may favour a more stable long-term workforce and lobby for extensions of contract. Those who have secured longer-term contracts may seek to have family members join them and, with children in school, essentially become settled. After spending one or two years at a destination in higher paid employment than at home, migrants may not wish to return and ‘disappear’ into the local community when the time comes for them to return. Migrants may marry citizens and then have the right to remain. Hence, it may neither be in the best interests of the host country nor legally possible to enforce return, and particularly when most of the evidence indicates that migrants appear to contribute positively to host economies. For a recent review of the evidence, see Goldin et al. (2011, 164–78).

The distinction drawn between countries of immigration such as the United States, Australia and Canada and reluctant countries of immigration such as those in Europe that wish to depend on temporary or circular migration rather than permanent migration may be somewhat deceptive. The critical difference is that the former consider immigration to be a central part of nation building while the latter do not. In reality, however, the differences may be blurring. Traditional immigration policies often prove cumbersome and unresponsive to changes in an increasingly globalizing world and particularly in the context of emerging and changing demands for labour. The United States, Australia and Canada have all developed temporary or non-immigrant classes of admission that have come to surpass the permanent immigrant categories of admission. For example, in 2010, the United States accepted 1.04 million under permanent immigrant categories while admitting 2.82 million temporary workers and their families.¹ Australia admitted 213,409 migrants through the permanent channels in 2010–2011, while temporary entry arrivals amounted to 504,671. Canada admitted 280,681 in its

1 The actual total number admitted through the I-94 non-immigrant category was 46.5 million in 2010, including 35.1 million short-term visitors for pleasure and 5.2 million visitors for business. Students, exchange visitors and diplomats were other major categories in this overall channel of admission. See United States (2011). For Canada and Australia, see Canada (2010) and Australia (2011)

immigrant channel against 383,929 in non-permanent categories. These figures are not directly comparable due to definitional differences but they do show the importance of temporary entry channels in the traditional countries of immigration. What is also clear is the linkage between them with, in the Australian case, fully 40 per cent of the permanent immigrant intake of 2010–2011 being sourced onshore, or among those who had previously entered through a temporary channel.

In a competitive global environment for talent around the world, temporary categories of entry are increasingly being used: countries in Europe are no exception in this regard. However, perhaps the major political and ethical challenge for Europeans is to develop a more open and transparent system of longer-term or permanent migration, which directly leads to citizenship and is considered to be part of nation building. The United Kingdom is perhaps further down this path than neighbouring countries but has no clear difference between immigrant and non-immigrant categories. A country that never followed guest-worker programmes in the 1950s and 1960s, relying instead on its ex-colonies, the United Kingdom today has moved towards granting settlement for certain categories of workers, as well as for family formation and reunion. For example, these two categories over the year to end December 2011 represented 43 and 31 per cent respectively of the intake of 163,477 (ONS 2012). Conversely, the United Kingdom has never developed extensive or exclusively temporary programmes except for those for students and a few limited-life, sector-based programmes such as the Seasonal Agricultural Worker Programme or those to bring in workers for the hospitality sector. It is simply assumed that the future importation of unskilled labour on a short-term basis will be met through movements from the expanded European Union. Nevertheless, the stated overall aim of the current government is to limit the numbers of those coming to the United Kingdom to the ‘tens of thousands from the hundreds of thousands’.² In 2011, long-term immigration to the United Kingdom remained roughly where it had been since 2004 at around 593,000. However, given the decline in long-term emigration to 343,000, almost certainly the result of the economic crisis following 2008, the net migration of 250,000 was very similar to the highest ever end-of-year estimate for 2010 at 252,000 (ONS 2012).

An observed convergence in immigration policies around the world has been critically examined (Cornelius 2004, 15–17). However, it is not so much a case of European countries moving towards models of immigration similar to the ‘classic’ cases of North America and Australasia. All countries are making policy adjustments towards a new mixed norm of immigration involving both longer and shorter-term channels in the context of increasingly integrated global labour markets and ageing populations. Although a clear legal definition may exist between permanent and temporary immigration channels, in reality the clear distinction may be difficult to sustain. Some of those admitted in

2 See for example, the BBC News Report of 14 April 2011, ‘David Cameron rejects Cable immigration criticism’, at: <http://www.bbc.co.uk/news/uk-politics-13072509>.

permanent channels may return home or move on quite quickly. The turnover among Chinese immigrants from Hong Kong and other parts of eastern Asia to Canada and Australia has long been observed. See the essays in Skeldon (1994), as well as Pe-Pua et al. (1996) and Beal and Sos (1999), for example. Others admitted under the temporary programme may wish to become permanent migrants, as the Australian data cited above on onshore sourcing of immigrants demonstrate. Hence, a 'bridging' between the two sets of channels must be both expected and provided. The critical challenge for European states will be to respond adequately to make these adjustments to provide both permanent and temporary channels in a timely and transparent way. This will be particularly important in the context of newly emerging destinations for migration in the area now considered the developing world or the 'Global South'.

Alternative Destinations and Origins for Migration

A common assumption seems to be that Europe will remain an indefinite source of attraction for migrants from around the world, and particularly from parts of the developing world. Currently, Europe contains five of the 10 largest economies in the world. By 2050, only two, Germany and the United Kingdom, are projected to be in the top 10, and, although the other three of the original five, France, Italy and Spain, are still in the top 20 economies, the world will be a very different place (PwC 2011). Four Asian economies are projected to be in the top 10, China, India, Japan and Indonesia, as well as Brazil, Mexico, Russia and the United States. Given that the population of Japan has already begun to decline absolutely and that the labour forces of Russia have been in decline since 2010, the populations of China and Korea are projected to decline from 2020, and of Brazil from 2030, the context for global international migration is likely to be very different (Skeldon 2013). On the edges of Europe, Turkey could be the world's twelfth largest economy by 2050 and its labour force will have begun to decline from 2040. While the North African economies will still be relatively small, their labour forces will also have begun to decline from 2040. Turkey, the North African economies and Mexico may be essentially outward expansions of existing European and North American core economic regions. All labour force projections are taken from United Nations (2012).

Although Asian economies are operating essentially exclusive migration policies at present, with very few exceptions, how sustainable these will be in the face of declining labour force growth and dynamic economies remains to be seen but is a subject beyond the current concern. What is important for Europe is that the expected pattern of global development over the next generation will see the source areas of much recent migration to Europe go through their demographic transitions to low fertility. These areas will not only not have a 'surplus' population of young people available to emigrate to Europe but, given their own patterns of development, may themselves need to import labour and migrants. This scenario

seems more likely to occur in the eastern and south-eastern margins of Europe, but perhaps, too, in North Africa. A challenge for European governments is to start thinking where they will find their labour, both skilled and unskilled, 10, 20 and 30 years from now. Not to do so will reflect a serious lack of vision.

Brain Drains and Current Ethical Issues

Of more immediate concern is the impact present patterns of international migration are having on the developmental potential of countries of origin. Not usually a question raised by American, Canadian and Australian immigration officials, the question how to make immigration policies development-friendly was raised within the Department for International Development (DFID) of the United Kingdom more than a decade ago. Specifically, given the discussion above on the need to import skills to meet certain shortages in Europe, and particularly in the medical sector, the impact on the health of poorer countries is an important ethical issue. This discussion relates to the classic brain drain argument of the developed world exploiting the scarce human capital of developing countries.

Recent research on the topic argues for a more nuanced interpretation (Skeldon 2009). It is not simply a question of the highly trained being educated at poor origin-country expense, and moving to the higher remuneration in developed countries of destination. The vast majority of the skilled in the global system come from other developed economies, plus a relatively small number of rapidly developing and/or middle-income economies such as China, India, the Philippines, Mexico and Egypt. The movement of health professionals, in particular, essentially represents a progressive exchange of personnel among relatively advanced economies with a general upward bias towards the United States (OECD 2004). Nevertheless, a minority of professionals do come from poorer countries. However, substantial numbers are trained in the developed world rather than at home mainly at the expense of foundations or of the families themselves. Being trained in the developed North obviates the issue of accreditation and allows the migrants to fit more easily into professions in host countries.

Nor are the developmental consequences of the exodus of the skilled on countries of origin necessarily always negative (for example, Mountford 1997; Stark 2004). The important point for European migration, however, is not the intricacies of the various arguments but the policy responses that ensue. The assumption that the emigration of the skilled from the developing to the developed world is negative for countries of origin has led to the development of policies seeking to manage the recruitment of the skilled, and particularly health workers. At the international level, policies that fall under the rubric of 'ethical recruitment' have gained prominence. For example, the Department of Health of the United Kingdom introduced a Code of Practice on International Recruitment in 2001, revised in 2004, which advocated that there would be no active recruitment of healthcare professionals from some 154 developing countries. Clearly, and ideally,

all recruitment of workers irrespective of profession and skill should be 'ethical' and measures to improve the whole process of recruitment and remove abuses worldwide can only be welcomed and supported. However, caution must be urged about the application of any policy that creates a barrier to migration between origin and destination. Migrants, and particularly skilled migrants, are 'exceptional people' (Goldin et al. 2011) and will know how to circumvent obstacles placed in their path. At best, they will go to countries without such a code of practice; more generally, they will enter legally through a back door into a private-sector institution or, at worst, will enter through irregular channels and not be able to practise legally the profession in which they have been trained. Most critically, there is the issue of state interference in the individual's right to move.

These latter points should not cast doubt on the need for ethical codes of recruitment but they should raise doubts about the advisability of introducing any policy that might advocate self-sufficiency in any sector, and particularly in the health sector. The interchange of skills, and the interchange of peoples, ideas and practices, among nations is a more important factor in development than attempts to contain personnel, no matter how important their contribution to particular areas might at first appear. The long discussions that led up to the draft WHO Global Code of Practice appear to have taken this critical point on board, with broader recommendations (Pearson 2010). Rather than policies that seek to limit any particular forms of migration, European governments may wish to focus on two areas: first, on funding and providing personnel for training programmes in developing countries and programmes tailored specifically to their needs; second, and perhaps most importantly from the point of view of ethical challenges for Europe in international migration, to focus on diaspora engagement. Central to this endeavour is the promotion of circular migration of the skilled back to home countries to promote development.

The issues of diaspora involvement in development and the role of return migration in that development are still open to debate. For useful assessments, see Sharma et al. (2011) and Kuznetsov (2006). Neither diasporas nor return migrants will cause development by themselves but clearly they can support and facilitate development. Once the origin economy becomes viable and opportunities exist to return to, migrants will return for longer or shorter periods. Host governments in developed destination countries can develop ethical international migration programmes to work with diaspora organizations to facilitate the short-term or longer return of the skilled. These may involve training programmes in hospitals or universities, the establishment of business enterprises or any number of support activities in urban or rural areas. Some of these returnees will be returning essentially as expatriates, citizens of the developed country, on different pay and conditions from local workers, and their migration is perhaps better seen as part of the circular migration of developed country nations, or North-South migration. This is a part of the emigration from developed economies observed at the outset of this paper.

Conclusion

This chapter has sketched the main political and ethical challenges facing governments in Europe in dealing with future international migration. It has looked at the likely macro-level scenarios of both immigration and emigration. Europe will be faced not only with the issue of attracting migrants to ageing populations but will also have to deal with continuing emigration. Immigration itself cannot be a solution for ageing in Europe or a substitute for cohorts lost to fertility decline but it can be a viable strategy to fill gaps in the labour market at several skill levels, both high-skilled and low-skilled. However, this chapter has argued that part of any future ethical immigration strategy will be developing policies to attract would-be future citizens. Long-term as well as short-term immigrant channels will be required to attract and retain migrants, as well as to fill particular employment needs. These strategies will become of greater importance, it is argued, in the context of newly emerging alternative destinations for migration within the global system. The continued attractiveness of Europe as a destination cannot be simply taken for granted and governments need to consider where future migrants are likely to come from. Several of the current source areas of migration to Europe are already well on their way to fertility decline. Given that Europe will have to continue to attract migrants, the impact of these migrations on economies of origin was examined here. It is argued that ethical programmes of immigration should focus more on promoting diaspora engagement than with any attempt to limit the number of skilled coming to Europe.

The future patterns of migration to and from Europe are not a given. As the economic crisis post-2008 and the current euro crisis have shown, we must be prepared for the unexpected, and particularly with a relatively volatile demographic variable such as migration. However, excluding the impact of these short-term economic cycles, it is the longer-term shifts, those that have seen the emergence of economic dynamism in other parts of the world, which are likely to underlie the future directions of global migrations. The direction that Asian economies in particular will take, not just as sending societies but as centres of attraction for migrants, will affect not only Europe but also North America and Australia. It may be that we will move into a world dominated not so much by longer-term migration but much more by short-term mobilities. Whatever the future outcome of migration and mobility, significant challenges, both political and ethical, will be presented to policy makers in Europe.

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