

INTRODUCTION

Migration and its consequences in 21st century Europe

*David Coleman**

1 Introduction

Momentous changes are going on in Europe. Immigrants are arriving in unprecedented numbers, and they are re-shaping the structures and composition of European populations. Migration tilts the balance between population growth and decline, and moderates population ageing. Gross domestic product is accordingly expanded, although the effect upon individual standards of living remains controversial. The regional distribution of numbers has been changed and the growth of some major cities revived. Populations are becoming much more diversified in their languages, ethnic groups and religion. Eventually, if recent trends continue, the self-identity and even the physical appearance of Europe's people will be changed. Migration is not irreversible. But as far as projected changes take place, their effect will be irrevocable. That would be a globalisation more complete, although highly asymmetrical, than any analogous process affecting the economy or communications.

All this presents European countries with major policy dilemmas. For the most part, public opinion is opposed to high levels of immigration and the changes in the character of neighbourhoods driven by it. But many employers, and consumers of services, clamour for immigrant labour. In countries with chronically low birth rates, additionally handicapped by a European social model of early and generous pay-as-you-go retirement, tight labour market control and high youth unemployment, the growing gap between available domestic labour and workforce needs is only too obvious.

Accordingly the literature on immigration and its effects has hugely expanded, with many specialist journals now devoted to the subject. This Yearbook, devoted to the effects of migration on demographic change and

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population composition in Europe, has its origins in a conference in Vienna in December 2008, held under the auspices of the Austrian Academy of Sciences. About half the contributions to this volume were presented there. Dalkhat Ediev, of the Vienna Institute of Demography, and David Coleman, of the University of Oxford, have acted as guest editors. The papers in the Yearbook cannot hope to cover all aspects of migration and its effects. Nonetheless they offer new insights and new data on a variety of effects and processes: the impact of the 2008/2009 recession on flows; how the fertility of immigrants responds in a new environment; the effects of migration on economy and workforce; new reviews on its effects upon population ageing; and new light on how immigration, concentrated into certain parts of receiving countries, is expanding their regional disparities.

Some topics are a constant theme in many of the papers without being the particular topic of any. They will be discussed here briefly. One is the weakness of data on migration stocks and flows. Data are always a problem in demography but data on migration, and on foreign-origin populations, are the worst. Little wonder that most demographers don't do migration.

2 A difficult and unattractive subject?

Migration itself is a fuzzy category: unlike birth and death ill defined, repeatable, reversible and in the case of illegal immigrants, invisible. It is a complex and multiple process: many different kinds of people moving from many origins to any given country, for different and often unrelated purposes, for different durations of stay and varied probabilities of remaining or returning. The economics and history of earlier migration patterns, climate and the politics and policies of the sending countries and of the receiving country, all help to determine the aggregate gross and net flows. Theory is accordingly fragmented and unsatisfactory. Projecting migration is so difficult that most national statistical offices simply assume a linear continuation of recent levels in projections of national population totals. Migration 'flows' are in any case seldom measured as such; few countries actually measure movements of persons across their border. Most rely on annual changes in registers of population or of foreign residents, or the residue between successive population estimates and natural change (Salt et al. 1994). While improving in the EU (Poulain et al. 2006), statistics generally remain poor and difficult to combine and compare; too often defined not by demographic principles but by 57 varieties of national laws and regulations (Lemaître 2005; United Nations 2006). Similar problems beset the measurement of foreign, immigrant or foreign origin population 'stocks'. The invisible illegal immigrants; the dark matter of migration statistics, are the most serious problem in many countries, measurable only imperfectly and indirectly

(Clarke 2000; Salt 2000). Their recognition through amnesties can radically alter the statistical picture of national population, as in Spain.

Better measured is the contrast between the number of resident immigrants from foreign countries, most on arrival foreign citizens, and the number of resident foreign citizens, most of whom are immigrants. For years most standard European statistics have been citing the latter (of uncertain demographic interest) and treating them as the former. That practice has become grossly misleading. Naturalisation has been pursued energetically as a means of integration, rather than as a reward for it, by many countries. By making immigrants disappear statistically, that practice turns actual major migration inflows into apparent outflows, halving or more the apparent numbers of people of foreign origin living in many European countries (see Dumont and Lemaître 2005). These difficulties are apparent in a number of the papers presented here, but those papers also show new possibilities for analysis of the demographic characteristics of immigrant populations using administrative data and comprehensive microcensuses.

3 Migration paramount

It is instructive to put recent inflows to Europe in the broader long-term context of the history of the expansion and contraction of Europe in the world. The European 19th and 20th century demographic transition, and its transient population growth, has been replaced by the 20th and 21st century demographic transition in the third world, whose temporary demographic surplus provides the raw material of today's immigration to Europe. That marks a major turning point in European history and development.

From the 16th to the early 20th centuries, Europeans pushed out westward and eastward, in the Americas and Siberia, occupying the lands of others and transforming their economy, culture, language, demography and, often, ethnic composition. In many cases, the European newcomers substantially or almost wholly replaced the indigenous populations. Then, European emigration changed the face of other continents and moderated population growth at home, as 54 million crossed the Atlantic in the long 19th century. Now all that is over. Europe is on the road to demographic eclipse in the world at large as it will fall from 22% in 1950 to 7% of global population by 2050, and possibly to demographic eclipse at home as well. The European political, economic and military dominance that lasted from the 18th to the 20th century is clearly finished; and its old identity now open to question. Europe cannot avoid being numerically marginalised by developing countries only part way through their own demographic transition, whose much higher rates of natural increase have left a much more powerful momentum behind them. Like Europe a century ago, they now have population to spare, and it is coming here. With almost universally sub-replacement fertility, and with its demographic momentum almost wound down, the fading natural

increase of recent years is tipping into natural decline in many European countries, notably in the South and, more abruptly, in the East.

Meanwhile immigration, especially from countries outside Europe with vigorous natural increase, proceeds at a rapid pace. Today it is those areas, still only partly through their fertility transition and with growth further propelled by youthful age-structures, that send populations abroad; 60 million from the developing countries lived in the developed world in 2007 (United Nations 2005). Both the EU-15 countries and the United States receive over one million immigrants per year, the numbers generally trending upwards. In 2006, the gross inflow into all the EU-27 countries was 3 million, of which 60% was from non-EU countries, a quarter each from the rest of Europe, the Americas, Asia and Africa (Eurostat news release, 18 November 2008). However since the onset of the economic crisis, some inflows have fallen sharply, as the statistics presented in the “Data and Trends” section by Tomáš Sobotka show.

For obvious reasons migration has tended to increase in the modern world. Economic disparities, demographic pressures, political oppression, Europe’s welcoming human rights culture, the self-perpetuating chain migration arising from kin and family contacts with the traditional societies of non-European sending countries—the ‘cumulative causation’ of Massey and Zenteno (1999)—all facilitate inflow and make it difficult for democracies to control entry. Those factors are likely to be here to stay for most of the rest of the century. Some regard this inflow as a natural and necessary consequence of Europe’s low growth; sucking in population from a world reservoir of abundant non-European sources. Such hydraulic analogies, as though the population dynamics of Europe could be likened to the operation of a lavatory cistern, should be resisted. Let us not forget that immigration can go down as well as up: it can be reversed, by economic and political change at home and abroad, and—with difficulty—by deliberate policy changes. Recent examples include Germany, Denmark and the Netherlands, and the retreat, probably transient, of migration following the 2008-9 economic crisis.

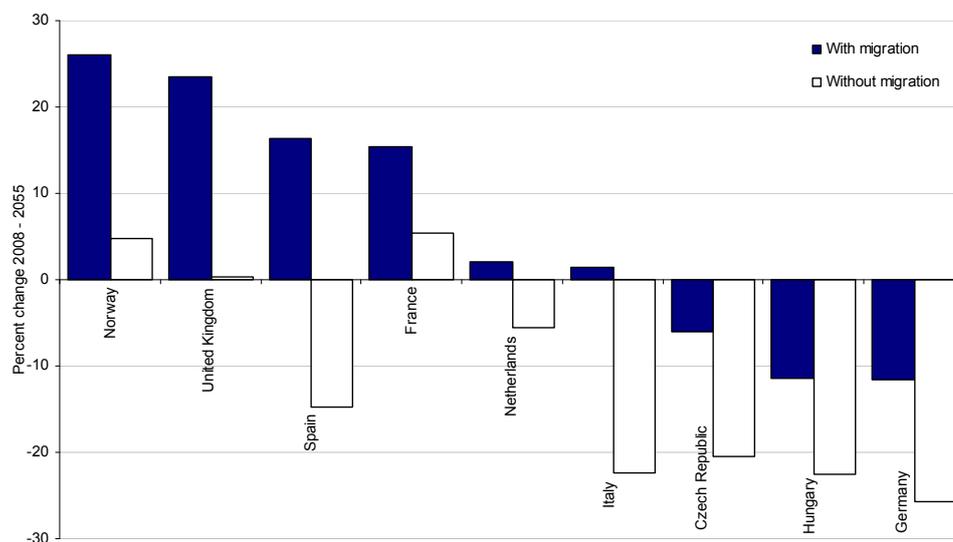
In most European countries today, net international migration exceeds natural increase, and the latter includes births to existing immigrants. Births to immigrant mothers comprise one in four or more of births in the UK, France, Germany and other countries. In the UK and most of Scandinavia, immigration is driving up population growth to levels not seen for decades and it is also an important driver of growth in the US, Canada and Australia. In central and eastern Europe, the effects of very low birth rates and high mortality still predominate. Where natural increase has ceased (e.g. Germany, Greece, Italy, Russian Federation), net immigration has prevented, or slowed, population decline (Salt 2005; OECD 2007). In the least demographically favoured countries, (e.g. Bulgaria) net emigration compounds a serious level of natural decline.

On the most recent (2008) Eurostat projections, some northern European countries are projected to increase by between 15% and 26% by mid-century,

primarily or entirely, through international migration (Ireland, Norway, UK, Sweden, France, and in southern Europe, Spain). These increases contrast with the almost stationary future numbers that were projected for those countries in the 1980s, before the renewed rise of international migration. The western and southern countries are all projected to decline substantially without migration, and Germany even with it (Figure 1). Some of the more prosperous central European countries, for example the Czech Republic and Slovenia, have attracted immigration at a level able to moderate what would otherwise be a large projected decline in numbers. In most of the others, emigration (mostly to the West) and immigration (mostly from the East and South) are more or less balanced, so the imagined absence of all migration would make little difference to projected population size. On these assumptions, countries such as Poland, Latvia, Bulgaria and Romania are expected to lose between 15% and 27% of their population by 2055, with migration or without it, thanks to their low birth rates.

Spain provides us with the most revolutionary example of the effect of migration. Until the early 2000s, Spain's population seemed fated to be driven into substantial decline by its then lowest-low fertility, despite some immigration. But much immigration was not recorded. Once the illegally-resident population was given amnesty by a new government, and migration estimates revised to recognise their real scale, the demographic outlook was transformed. Eurostat projects a Spanish population of 52.7 million by 2055 from today's 45.3, a 14 million addition and 37% greater than projected without migration (38.6 million).

Figure 1:
Effect of projected levels of international migration on per cent population change, selected European countries 2008-2055



Source: Eurostat 2008

Of course, migration is volatile. None of these projections will come to pass in detail. The 2008 financial and economic crisis will surely affect it. Formal labour migration of high-skilled, high-income workers is likely to be most reduced, but that is only a minor part of many flows. Betterment migration of very poor people from impoverished African and eastern European populations is unlikely to be affected, and there is little reason to expect any reduction in the inflow of dependants and old, and new, spouses, or of asylum seekers.

4 Effects upon the ethnic composition of the population

All that is familiar enough. Another important consequence is the growth of populations of foreign origin, European and especially non-European, to proportions never seen before. The growth of non-European populations in particular has introduced novel cultural, linguistic and religious diversity. Among many minority groups, perceptions of separate identity have persisted beyond the immigrant generation, along with residential segregation and difficulties with education and integration into the workforce (OECD 2003, 2008) for example, Turks in Germany (Liebig 2007). In coping with this, receiving societies face challenges in politics and the constitution, education, community relations, trust and solidarity. Reconciling differences in expectations and values is complicated given that the often robust traditions of the newcomers have arrived at the same time as European values (for example with respect to sexual equality) have themselves developed rapidly, while traditional notions of national identity and religious faith have weakened and declined, for reasons unconnected with immigration.

In view of all this, some national statistical offices have made projections to estimate the likely future size and distribution of 'foreign origin' or 'foreign background' populations (immigrants themselves, and persons born locally but with one, or both, parents born abroad). These are summarised elsewhere (Coleman 2006). Major populations defined by national origin are projected separately, and also clustered into larger 'western' and 'non-western' groups (meaning 'developed country' and 'developing country', or high and low Human Development Index) to reflect broad-brush differences. Between one-third and one-half of the foreign-origin populations in European countries around 2000 were themselves of European origin. In general, projected increases are concentrated in the 'non-western' group.

These projections typically incorporate an assumption about the shorter-term persistence of ethnic demographic characteristics, and a longer-term assumption about assimilation. After the second generation, however, all persons of immigrant descent are assumed to become part of the indigenous population, and to be henceforth Dutch, Danish etc., and therefore statistically invisible. That

assumption, which means that without further immigration everyone would eventually indeed be Dutch, Danish etc, may be a little optimistic.

Continued growth of those populations has inevitably led to a diminution of the share of the white population in the national total, bringing with it suggestions of the long-term prospect of its displacement as the majority. That outcome is projected to occur in 2043 in the United States in respect of the white non-Hispanic population, according to the US Census Bureau (2008). It is simple demography that any population with sub-replacement fertility, with a regular net inflow of population of foreign origin, must diminish as a proportion of the total, and eventually be replaced by that immigrant-origin population (except for persons of mixed ancestry, who are likely to become numerous). Almost all western countries have sub-replacement TFR and positive immigration and therefore face that outcome unless birth or migration rates change. With replacement fertility, the indigenous population will persist, but continued migration will diminish its share of the total.

Around the year 2000 in western Europe foreign-origin populations comprised between 8%-18% of total population. They are projected to reach 20%-30% in 2050 given the continuation of recent migration inflows, and considerably higher proportions in younger cohorts and in urban areas. These projections all deliver a similar message. From different starting levels, the rate of growth of the foreign-origin population is linear with a similar slope in different countries, despite varied source countries of origin. Despite the automatic dissipation of the foreign-origin population after two generations according to the assumptions of the projections, linear growth continues unchanged up to the end of the projection period.

Equivalent projections for other European populations have not been published. However, data on births suggest that similar processes are in train throughout western Europe (see Ediev et al. 2007). In France, for example, 23% of births were to foreign women in 2006, and in Germany 25%, approximately equivalent to the 24% of births to immigrant women in England and Wales in 2006. In countries of more recent immigration, however, the proportions are lower: 11.5% in Italy in 2007, for example. But the pace is hotting up: in most of Europe except the East, annual contributions to the population from foreign immigration are approaching the annual contribution from all births. In 2007, net immigration to Spain of 702,000 exceeded the total number of births by 44%. In eight other European countries, net immigration was at least half the number of annual live births (from 50% in Sweden to 93% in Switzerland; Table 1). Overall, the weighted average for western Europe was 44%. Recently the Netherlands had been in the unusual position of emigration exceeding immigration in 2004-2007, partly because of an outflow of Dutch citizens unmatched since the emigration heyday of the 1950s (van Dalen 2007). A number of central and eastern European populations are in a similar position, emigration being about the same magnitude as immigration. As many of those leaving are citizens and many of those entering

are not, population turnover continues (including in the Netherlands) despite negligible migration flows in net terms.

5 The faces of the future?

So far, groups have been discussed as being of one ethnic or foreign-origin group or another, as official statistics present them. Natural human inclinations are beginning to erode that neat picture. They may end up, in the very long run, destroying it altogether. That is because, as minority populations grow, and especially insofar as they become more integrated into the educational system and the labour market, the opportunities for friendship, love and sexual union across ethnic or racial lines are likely to become more numerous. Although some minority groups are very self-contained, strongly preferring arranged marriages and hostile to out-marriage, in general, more and more children are born with mixed parentage as time goes on. Those children may identify, or be identified, as members of either parental group, or neither. When given the chance, many are content, or even anxious, to describe themselves as of mixed or multiple ancestry, at least as far as the US and UK evidence shows. Data on these developments are more advanced in the English speaking world where self-ascribed ethnic or racial categories are employed: register-based official categories have no concept of mixed citizenship. Furthermore the consequent expansion of 'diversity' fits the 'multicultural' policies prevalent in the English-speaking world; Continental emphasis on 'citizenship' encourages more binary assumptions. It also follows that statistics on marriages of persons of local citizens with foreign citizens, readily found in official Continental publications, may in fact mean little. Many of the partners will belong to the same origin, except that one partner is naturalised, the other not.

In the past, mixed unions usually incurred social obloquy or even legal sanction, often conducted in private both by the good and great and by the humble, from Jefferson downwards, and the children marginalised (with some pleasing exceptions, notably Dumas and Pushkin). People of mixed origin have now emerged from social obscurity into global prominence. The eminent geneticist Professor Steve Jones has described this as the face of the future, claiming that 'the future is brown' (Times 7 October 2008). If so, it is a long way off and some groups will quickly become browner (or paler) than others. For example, the 2001 Census of England and Wales revealed that a proportion of the population claiming some Caribbean background were in fact of mixed origin. 71% of the births to Caribbean mothers were described as Caribbean, 18% as mixed. The latter are lost statistically to the 'Black Caribbean' population, which was to that extent diminished in number. The White population gains some of that population, because through self-ascription some of the offspring of the subsequent mixed group may be labelled (by their parents) as being 'white'. To

take another example, at the 2001 census, 55% of the children of Chinese mothers were identified as Chinese, 29% as mixed and 12% as white.

Table 1:
Selected western countries. Comparisons of live births, net immigration and natural increase around 2008 (in thousands)

	Population 1st Jan 2008	Live births	Natural increase	Net immigration	Net migration as per cent of births
Spain	44,475	488	107	702	144
Switzerland	7,509	74	13	69	93
Italy	59,131	563	-7	494	88
Norway	4,681	58	17	40	68
Belgium	10,585	121	20	62	52
Austria	8,299	76	2	31	41
Greece	11,172	110	2	41	37
Denmark	5,447	64	8	20	32
United Kingdom	60,817	771	195	175	23
France	61,538	784	268	70	9
Germany	82,315	683	-141	48	7
11 country total	355,968	3,792	483	1,752	46
Australia	21,015	285	145	213	75
Canada	33,311	357	127	204	57
New Zealand	4,263	64	35	4	11
United States	304,060	4,329	1,881	889	21

Sources: Websites of Eurostat, Australian Bureau of Statistics, Statistics Canada, Statistics New Zealand, US Census Bureau.

Note: US data refer to the period between July 1, 2007 and July 1, 2008; data for Australia, Canada and New Zealand refer to 2007.

6 The contributions to the Yearbook

The papers presented in this volume have not concentrated on such topics although they are alluded to not infrequently. The contributions have been grouped into three loose categories. First and most topical, a paper by Beets and Willekens on the process of migration itself; discussing the extent to which the current economic crisis may or may not change the pattern and volume of immigration into Europe. Papers by Schmid and Kohls, and by Mussino, Iaccarino, Prati and Strozza, address the demographic behaviour of immigrants and their descendants in the receiving country, exploring the extent to which they do, or do not, adapt fertility and other behaviour to new surroundings. Four papers address the demographic and economic consequences of mass migration. The first two, by Gil Alonso and by Ivanov, concentrate on the current and projected labour market and on population structure. Among other issues they consider

whether immigration, or non-demographic adaptations, can adequately compensate for the demographic and economic difficulties arising from population ageing. The next two of these papers, by Golini and Bartolomeo, and by Kostaki, Kotzaminis and Agorastakis, concentrate on the differential regional demographic and economic effects of the migration, which is far from geographically uniform. In the last paper, a more theoretical contribution by Inaba develops a model widely used in epidemiology to analyse more exactly that kind of sub-national demographic change in a multiregional analytical framework. Finally, to complement these analyses and to provide a source of reference, Sobotka has provided a substantial, comprehensive review of European migration trends, supported by numerous up-to-date detailed tables and graphs. Brief descriptions of these papers follow below.

In *The global economic crisis and international migration: An uncertain outlook* Gijs Beets and Frans Willekens begin on a highly contemporary note, discussing the migratory consequences of the financial crisis of 2008, which spread from the United States of America to much of the rest of the world. They show how international migration theory, data on the effect of past financial crises on international migration, and expert opinion and discussion on the Internet (published accounts of empirical evidence are still rare) can guide us to a preliminary view of the consequences. Three theoretical perspectives are used to explore the likely responses to recession: 1) migration as an option in the life course of individuals and households; 2) the effect of social networks and social capital; and 3) macro-economic analysis of migration as an adjustment mechanism in the labour market. All these are connected: individuals have preferences but social networks and economic, political and other conditions change behaviour.

The authors conclude that of all types of migration, labour migration will be affected most, while political and environmental refugees, marriage migration and family reunion will not be much affected. Of existing resident migrants, those employed in sectors that are most stricken by the financial crisis and the recession are more likely to lose their jobs than migrants employed in other sectors of the economy. That means that low-skilled immigrants will be most affected by the worsening of the labour market conditions because they tend to be concentrated in industries which are more sensitive to business cycle fluctuations (for example construction and parts of the service sector) and because they have less secure contractual arrangements in their jobs. However, if migrants have invested heavily in migration and settlement in the country of destination then they are unlikely to return to their country of origin, although remittances home are likely to fall. Inflows may also be restricted by new policies if anti-immigration sentiments increase which may result in restrictive immigration policies. These conclusions, echoed by others (e.g. Dobson et al. 2009) underline the various positive pressures behind current migration streams, and the inadequacy of economic models and economic considerations to account for major movements

in international migration. That is not surprising, given that (despite the assumptions of economists) most legal international migration to Europe in recent decades has not been ostensibly for purposes of work, even though those who migrate for other reasons may work after arrival. An example from the inflows to France in 2005 is given below (Table 2).

Table 2:
France 2005. Immigration (gross flow) by group of nationalities according to reason for admission (per cent)

Group of countries	All	Minor	Student	Worker	Family of foreigner	Family of French	Visitor	Inactive	Refugee	Other	Number	% from each group of countries
All EEA	100	7.7	2.6	33.9	5.7	3.8	0.0	45.5	0.0	0.9	42,876	20.7
Turkey, Switzerland	100	11.9	14.9	10.7	15.1	24.2	2.7	2.2	17.7	0.6	24,404	11.8
Africa	100	8.2	16.7	1.4	16.8	41.1	3.9	5.3	4.5	2.0	95,309	45.9
Asia	100	5.4	45.7	6.2	10.3	13.5	5.9	1.7	10.0	1.4	29,274	14.1
Americas	100	6.3	39.8	8.7	8.6	20.1	12.0	1.5	2.2	0.8	14,941	7.2
Other countries	100	4.7	27.6	17.5	12.5	13.0	15.5	2.1	6.2	1.1	756	0.4
Total non-Europe	100	8.1	23.7	4.4	14.6	31.6	4.9	3.9	7.2	1.6	164,685	79.3
Grand total	100	8.0	19.4	10.5	12.8	25.9	3.9	12.5	5.7	1.4	207,561	100.0

Source: INED statistiques sur les flux d'immigration
(http://statistiques_flux_immigration.site.ined.fr/fr/admissions)

Note: EEA refers to the European Economic Area (all the EU countries, Iceland, Lichtenstein, and Norway).

Reproductive behaviour of migrant women in Germany: Data, patterns and determinants, by Susanne Schmid and Martin Kohls.

Schmid and Kohls examine the influence of migration on fertility among migrant women in Germany. They review the major hypotheses on migrant fertility as a preliminary to a multivariate analysis of the patterns observed in the data. Their overview of the datasets is a valuable update on the varied sources now available for the study of the demographic characteristics of foreign citizens in Germany, and the familiar story of their adequacy or (mostly) lack of it. These range from official vital registration data (limited to data defined by nationality), the official Microcensus, administrative sources, and other panels and surveys including the international Generations and Gender Survey. While the administrative sources are of little use, the Microcensus now permits the construction of a population of two-generation 'foreign background' of the kind described above, amounting to 19% of the total population and one in three of those aged under age 5 in 2008, compared with 8% with foreign nationality. Among major migrant groups analysed, Turkish women show the highest and Polish women the lowest fertility

level, as might be expected. The authors use the Sample Survey of Selected Migrant Groups in Germany (RAM) to analyse further these fertility differentials. They show that mixed couples where the husband is German have lower fertility than those of single immigrant origin. The fertility of Muslim women is elevated when compared with that of other religious groups. Perhaps surprisingly, emotional ties with the country of origin and the level of native and German language skills appear to have no influence on migrants' fertility. Having births in the country of origin seems to be a single most important factor positively affecting migrants' completed fertility.

Short term reproductive behaviour of foreign women who became mothers between 2002-2006 in Italy, by Eleonora Mussino, Claudia Iaccarino, Sabrina Prati and Salvatore Strozza.

While Germany is a country that has experienced major immigrant inflows ever since the guest-worker period of the 1960s, the rise of immigration to Italy has been much more recent although very rapid. Foreigners resident in Italy increased from 1.5 million to 3.5 million in seven years. By 2008 there were 4.5 million foreign citizens in Italy, over 7% of the total population. In the last six years the annual number of births with at least one foreign parent increased from about 41,000 to more than 86,000, over 11% of all births in 2007. That rapid increase in the number of foreigners and in related demographic events has raised public interest in the demographic behaviour of immigrants in Italy. The paper presents an overview of the demographic characteristics of immigrant mothers in Italy, based on the risk of having another child among women who first became mothers between 2002-2006. These unusual parity-based data come from a longitudinal analysis through record linkage of Italian administrative data on births. However, the restricted time-span shows the continued difficulty of conducting research on the demography of foreign-origin populations. The results show considerable variation in fertility between different national origins. Citizenship seems to be one of the most important factors explaining the high heterogeneity of the reproductive behaviour between the mothers. As with the results of Schmid and Kohls, the fertility of unions with a local (Italian) partner tends to be closer to the national norm. Somewhat opposing to the findings for Germany, however, the authors conclude that having had a first birth in the country of origin reduces migrants' likelihood of having another child in Italy. Given the relatively short observation period, this may, of course, reflect disruption or delay of family building because of migration.

Demographic and economic factors of labour supply: Long-term projections and policy options for France, Germany, Italy and the United Kingdom, by Serguey Ivanov.

Ivanov's paper presents labour supply scenarios in France, Germany, Italy and the United Kingdom for the years 2025 and 2050 and discusses their implications for economic growth and welfare, the adequacy of labour supply, and other economic/demographic interactions on an unusually broad canvas. The analyses are supported by a very extensive supply of data in tables and graphs. The projections were based on the major contributing demographic and non-demographic factors that determine labour supply. These are defined as the working-age population, the labour force participation rate, the employment rate, and labour utilisation (defined as the number of hours worked per worker per year, in which Italy comes out top). The assumptions underlying the scenarios varied from plausible, to 'best case scenario', to unrealistic.

The projections point to very different outcomes for the four populations studied, arising from contrasting levels of fertility and immigration, interacting with the highly varied social and institutional factors that determine the proportion of the population that is economically dependent or economically active. In France and in the United Kingdom, relatively high fertility coupled with relatively high continuing immigration at the current levels will lead to only a marginal decrease of the size of the working-age population, and the scenarios do not take into account the recent further rises in fertility in those countries. By contrast, the size of Germany's and Italy's working-age population will shrink significantly by 2025 and, barring a tremendous surge in immigration, greatly by mid-century.

In order to sustain the supply of labour on current trends, unemployment in Italy would have to be reduced greatly, as well as maintaining and increasing the recent increase in the labour force participation rate and keeping immigration high. But even though Germany has substantial demographic reserves and thus a large potential for increasing labour utilisation, unless immigration is increased dramatically, the fall in the working-age population will continue to reduce the labour supply. To a degree varying between countries, governments can control the components of labour supply and capitalise on whatever advantages they may possess. But the author points out that lowest-low fertility is deeply entrenched in Italy and especially in Germany. Even if it is reversed to some extent—as the scenarios assume—reductions in the labour force cannot be avoided. Without substantial increases in fertility, and radical labour and immigration reforms, labour supply will fall by double-digit percentage points. The half-a-child difference in the total fertility rate between France and the United Kingdom on the one hand, and Germany and Italy on the other, accounts for much of the difference in the projected labour market dynamics. The further improvements in labour force participation and utilisation, and the greater immigration needed to arrest numerical decline in Germany and Italy could promote renewed economic

growth if applied in France and the United Kingdom. In more general comments, the author discusses the prospect of population decline in objective terms, pointing out that it is not all disadvantage. But he emphasises that in conditions of declining demography, that the ‘win-win’ possibilities of the past in respect of migration from eastern Europe to the West are over, and that in the new zero-sum game, further emigration from eastern Europe is likely to have marked unfavourable effects on the economies of those sending countries.

Can the rising pension burden in Europe be mitigated by immigration? Modelling the effects of selected demographic and socio-economic factors on ageing in the European Union, 2008-2050, by Fernando Gil Alonso.

Continuing and developing the theme of the previous paper, Gil Alonso reviews population ageing—defined here as the increase in the numbers of retired people—as one of the main challenges which European societies must face. He emphasises that this challenge cannot just be reduced to the demographic factor, but that the latter is nonetheless crucial. However, the construction of highly sophisticated models to analyse the social and economic impact of ageing encounters problems of data availability and comparability between EU Member States. In order to overcome those difficulties, a different approach is used in this paper. A demography-based model (inspired by the work of Calot) using simplified assumptions, has been produced and presented here to assess the implications of ageing for the 27 EU countries over the period 2008-2050, and the relative impact of a series of alternative measures that could be implemented to counteract ageing. The analysis deploys abundant data including some valuable information on the effective retirement age—as opposed to official pensionable age—in various European countries. Analysis focuses on labour supply growth through foreign immigration from outside the European Union. But the paper also analyses the effectiveness of other responses, such as increasing the retirement age and improvements in the rate of employment of the population of working age.

Results confirm the conclusion reached by other studies that immigration by itself cannot counteract ageing in the European Union, as the large and necessarily increasing number of immigrants needed to compensate for the increasing number of retired people—160 million immigrants by mid-century—would be so high that no country could assume the social and political costs of such a process. Immigration can, however, play a complementary role if it is combined with other measures contributing both to increase labour participation and delay retirement. The author emphasises that a diversity of responses is needed in response to the very different circumstances and characteristics of the countries concerned; no one ‘European’ size will fit all. The policy mix should be different in each EU Member State, argues Gil Alonso, depending on the initial value of each variable of the model.

The impact of massive migration flow on regional population structure: The case of Italy, by Antonio Golini and Anna Di Bartolomeo.

A low rate of economic growth is a common problem in many European countries. Here, the authors highlight the role of demographic factors, in particular international migration, in supporting the growth of gross domestic product, particularly through its effects upon the age structure dynamics. Using the Italian example, they show the conditions required to ensure that immigration progresses from a potential to an actual resource for economic welfare.

The authors come to generally favourable conclusions concerning the effect of large-scale migration on the economy of Italy, but express some concerns about regional imbalances and difficulties of integration. Immigration has an immediate effect on national income by increasing the labour force and the participation rate. Demographically speaking, it helps to maintain population size, the working-age population ratio and, thereby, GDP. In particular, migration tends to become necessary to avoid holes in the age pyramid and the corresponding falls in the active population. Taking a pessimistic view on the future of Italian fertility, and recognising that migrants also age, it is assumed that the inflow of immigrants must at least be maintained, or gradually increased, to counteract the perpetual decline and ageing of the Italian population itself and of earlier immigrants. Policy therefore must encourage growing immigration flows. That obviously underlines the need for effective integration policies not only for social reasons but also because immigrants need to be integrated in order to bring them up to the same productivity of the natives. However, nothing is said about what those high and increasing levels of immigration will do to Italian identity, or how Italians might react to an increasingly non-Italian society.

The authors' findings also throw new light on the role of immigration in the current policy debate on Italian federalism. They fear that immigration, concentrated in the North, may exacerbate the economic and structural inequalities between North and South, possibly creating a poverty trap for the southern regions. The higher fertility that used to give the South a demographic advantage has now disappeared, fertility levels being convergent, while southern population size and structure is not much reinforced by immigration. Assuming no resolution of the fertility problem, the authors argue that policies must recognise this problem in order to ensure that migration remains an economic resource and does not become a problem to solve.

Effects of immigration on population growth and structures in Greece – A spatial approach, by Anastasia Kostaki, Byron Kotzaminis and Michail Agorastakis.

Greece, like Italy, is a country which until relatively recently saw its own citizens leaving for other countries, by contrast with the large-scale immigration of foreigners that started only in the early 1990s. The transformation has been relatively sudden and is still developing fast. The number of foreigners in Greece has increased from under 200,000 in 1981 to over three quarters of a million in

2001; from 2% to 7% of the population. These immigration flows comprise various nationality groups with different demographic profiles and structures. This heterogeneity is compounded by a highly differentiated pattern of settlement of various immigrant groups in different parts of Greece.

Using a rich supply of data, the authors analyse the quantitative effects and the implications of immigration on the population size and structure at an unusually detailed geographical level, according to the nationality composition of the foreign population, so as to detect structures otherwise invisible. This is done through data on the population size and the age and sex structure of the native and foreign populations in the 995 Greek municipalities, using four categories of foreign citizens: from developed countries, from the Balkans, from the former communist eastern European countries and from the less developed world. Statistical clustering techniques have been utilised in order to define homogeneous groups of municipalities according to the nationality composition of their foreign population and the severity of immigration impact on the size and on the demographic characteristics of the population in Greek municipalities.

Their analysis shows that the massive inflow of foreigners in Greece has made significant changes in the demographic map of the country; highly differentiated according to nationality and demographic characteristics. It emphasises the need, given the highly heterogeneous nature and geographical distribution of foreign inflows, to analyse such migration at a small spatial scale in order to develop effective, differentiated policies for dealing with it.

The net reproduction rate and the type-reproduction number in multiregional demography, by Hisashi Inaba.

This paper provides a natural and more technical adjunct to the regional and local-based analysis described in the preceding two papers. In supplying a mathematical model that incorporates the migration process in the demographic development of linked sub-populations, it is a contribution of general applicability relevant to a variety of demographic and national circumstances, not limited by specific conditions of time or space, and should be of enduring and general interest. The author shows that in order to study the effects of migration on the demographic changes of populations subdivided into several regions, it is necessary to use the theoretical framework of multistate demography. Although multistate demography has been explored since the beginning of 1970s, its key concept, the multistate net reproduction rate, has long been neglected. The review focuses on multiregional stable population systems and elaborates the definition of the multiregional net reproduction rate. The paper borrows from mathematical epidemiology the concept of the type-reproduction number 'T' (sometimes called the 'state-reproduction number') in order to develop the missing multiregional net reproduction rate, which integrates the diverse reproductive power of all the sub-components of the system.

In epidemiology, the net reproduction rate of a disease organism infecting a particular host (denoted ' R_0 ' in epidemiological usage, not 'NRR') is the key variable in determining its spread and the possibilities of its control. When more than one form of the same host co-exist in a population, with different levels of susceptibility which affect the reproductive characteristics of the infective agent, a single R_0 becomes inappropriate. The parallel is, of course, the inability of one NRR to reflect the reproductive characteristics of the different elements of a multiregional population system linked by migration. The type-reproduction number takes this heterogeneity into account. When only one type exists, $T = R_0$. The author shows that it becomes a useful index to formulate a simple control relation for multiregional population.

The type-reproduction number cannot be defined if the reproduction rate of the multiregional system is greater than one. But in many developed countries not only is national fertility below replacement level but so are all the regional or sub-national fertility rates as well. In that case, the type-reproduction number for each region can be computed. The level of the national (or multinational) fertility can rise above replacement level if the level of reproduction in some of the regions increases substantially, as opposed to every regional level of fertility increasing uniformly (that could be an important consideration in the development of population policies designed to counteract population ageing by encouraging higher national levels of reproduction). The type-reproduction number gives a useful index to formulate the critical fertility level of individuals at specific target states to which population control policy will be applied. With this approach it is also possible to calculate other demographic indices, including the generation length, the intrinsic growth rate and the momentum of population growth, all important in understanding the effect of the heterogeneous individual behaviour of regions in a system upon the dynamics of the whole population. The type-reproduction number is an example of recent rapid epidemiological developments of reproduction rate theory originally borrowed from demography. Now it should be the turn of demography to import ideas from epidemiology.

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