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29 AUG 1995



LARGE

GEOGRAPHY
A-0-002
LEE/WJ2

WORKING PAPER

WORKING PAPER 96/19

THE SECOND DEMOGRAPHIC TRANSITION: What Does it Mean for the Future of Europe's Population?

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Commentary prepared for Environment and Planning A

PUBLISHED AUGUST 1996

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ABSTRACT

This paper looks at fertility levels across all European countries in the 1990s drawing on statistics produced by the Council of Europe and the Statistical Office of the European Communities. The statistics paint a picture of low current fertility in most countries, even when measures of generation fertility, less subject to short term fluctuations are considered. These figures presage the long term decline of Europe's population. The consequences of low fertility are investigated by examining sets of population projections for European Union states and for Eastern and Western Europe as a whole. In the short term (to 2020) demographic momentum, immigration from outside Europe and improving life expectancy keep population decline at bay. However, beyond that data population decline sets in on most reasonable assumptions about future fertility. The arguments favouring increased fertility are weak and those supporting continued below replacement fertility persuasive. Our grandchildren and great grandchildren will be faced with a declining and increasingly geriatric population. We need to debate whether this is something that society wishes to change - at the moment it is left mostly to the private decision making of couples.

In this paper I want to raise an issue which is likely to have profound effects in the next century on the direction of population change in Europe. The issue is the continuance of low birth rates in most European countries. What is the situation in the 1990s and how is fertility likely to develop? What are the consequences of such levels continuing and what, if anything, should societies do about it?

1. The first and second demographic transitions

This is not the first time that this issue has been posed. European countries achieved low birth rates in the 1930s and this led to concern about future populations. However, fertility recovered to higher levels after the Second World War and remained high for a generation until the early 1970s. From then, initially in Northern and Western Europe and later in Southern Europe, birth rates fell to low levels. This phenomenon reached the countries of Eastern Europe after 1989, where profound economic shocks consequent on the abandonment of Communism have triggered substantial falls.

These trends have been labelled transitions. By transition we mean a change of “state”. By “state” is meant a combination of birth and death rates constituting a demographic “régime”. The first demographic transition saw the population move from a state of high birth and death rates and slow or zero population increase to a state of low birth and death rates and slow or zero population increase via states in which the birth and death rates move radically apart (as death rates fall) giving very rapid population growth and then move rapidly together as birth rates fall. The end state is one of slow population growth - between 0 and 5 per 1000. Rapid population growth involved rates of 20 to 40 per 1000.

The second demographic transition sees the population move from a state of low birth rates and low death rates, but with the former exceeding the latter to a state where birth rates are permanently below death rates and the population decreases over time. Note that in both these transitions, movement of populations between countries can postpone the consequences of low fertility for the receiving country.

2. Low natural increase in the 1990s

The state of natural increase for the 1990-94 period in European populations is set out in Table 1. Natural increase is the excess of births over deaths. In the table natural increase is expressed as an annual rate per 1000 population. The countries included in the table are those which were members of the Council of Europe in mid-1995 or which had made applications to join. These latter were mainly successor states of the former USSR. The range of experience is wide. A set of countries on the south-eastern periphery of Europe - Albania, Armenia, Azerbaijan and Turkey - have rates of natural increase per annum between 15 and 20 per thousand. At the other extreme are Central and Eastern European states - Bulgaria, Estonia, former German Democratic Republic, Hungary, Latvia, Romania and Ukraine - which are experiencing natural decrease, with greater decreases in more recent years. Some European Union states also have natural decrease - Germany from 1990, Italy in 1993, but the majority have low rates of increase (below 5 per 1000).

Superficially, the natural increase rates do not give cause for concern about future population decrease. They imply populations will be increasing within Europe at an average of about 4 per thousand per annum. The decreases observed in Eastern Europe may be regarded as temporary consequences of the changes in the political economy of former Communist countries.

Table 1. Rates of natural increase in European countries, 1990-94

Country	Rate of natural increase (per 1000 population)				
	1990	1991	1992	1993	1994
<i>European Union countries</i>					
Austria	1.0	1.4	1.5	1.6	1.5
Belgium	1.9	2.1	2.0	1.3	1.2
Denmark	0.5	0.9	1.3	0.9	1.6
Finland	3.1	3.2	3.3	2.7	3.4
France	4.2	4.1	3.8	3.2	3.2
Germany	-0.2	-1.0	-0.9	-1.2	
Former FRG	0.2	0.2	0.4	0.1	
Former GDR	-1.8	-5.9	-6.5	-6.7	
Greece	0.8	0.7	0.6	0.4	0.6
Ireland	6.2	6.1	5.8	4.9	4.4
Italy	0.6	0.2	0.5	-0.1	
Luxembourg	3.0	3.2	2.9	3.6	4.1
Netherlands	4.6	4.6	4.4	3.8	4.0
Portugal	1.4	1.3	1.4	0.8	1.0
Spain	1.8	1.5	1.7	1.1	1.1
Sweden	3.4	3.3	3.2	2.4	2.3
United Kingdom	2.7	2.5	2.6	1.8	2.6
<i>Smaller countries</i>					
Andorra	8.3	8.1	8.5	8.1	8.0
Cyprus	9.9	9.1	10.1	9.1	8.6
Iceland	12.0	10.6	11.1	10.9	10.2
Liechtenstein	6.5				
Malta	7.4	7.4	7.2	6.8	5.8
Norway	3.5	3.7	3.6	3.0	3.7
San Marino	4.8	3.7	2.7	4.1	3.4
Switzerland	3.0	3.5	3.6	3.1	3.0
<i>Visegrad countries</i>					
Czech Republic	0.1	0.5	0.1	0.3	-1.1
Hungary	-1.9	-1.7	-2.6	-3.2	-3.0
Poland	4.1	3.7	3.1	2.6	
Slovak Republic	4.5	4.5	4.0	3.9	2.8
Slovenia	1.9	1.1	0.3	-0.1	0.1
<i>Other Eastern Europe countries</i>					
Albania	19.6	18.1			
Bulgaria	-0.4	-1.6	-2.2	-3.0	
Romania	2.9	1.0	-0.2	-0.6	-0.9
<i>Former Soviet Union countries</i>					
Armenia	16.5	15.2			
Azerbaijan	19.6	20.1	17.7		
Belarus	3.2	1.7	1.1	-1.1	
Estonia	1.8	-0.3	-1.4	-4.0	-5.7
Georgia	8.6	7.8	5.4		
Latvia	1.2	0.0	-1.5	-4.8	-6.8
Lithuania	4.6	4.0	3.2	0.2	-0.1
Moldova	7.9	6.0	5.8	2.3	
Russian Federation	2.3	0.7			
Ukraine	0.5	-0.7	-1.9	-3.6	-4.7
<i>Former Yugoslavia countries</i>					
Bosnia-Herzegovina	8.4	7.3			
Croatia	0.7	-0.6	-1.1	-0.5	
Macedonia	9.7	9.3		8.1	
Montenegro	8.4	8.8			
Serbia	5.3	4.6			
Turkey	* [†]	17.4	17.4	17.0	16.6
					16.2

Source: Council of Europe (1995), Table 1.3

3. Europe-wide low fertility in the 1990s

Natural increase rates are the difference between crude birth and death rates, which are heavily influenced by the age structure of the population. European age structures are currently more favourable for births than deaths. The large post-war (1945-70) baby boom cohorts pass through their fertile years between 1965 and 2010. These cohorts are not subject to high mortality in that period. Low age specific fertility rates (after 1970) applied to these large cohorts yield enough births to comfortably exceed deaths. However, this situation is likely to change after 2000 as the baby bust cohorts come to dominate the births process. Better prognoses of the future direction of population change are obtained if we examine fertility indicators which control for the influence of age structure.

Table 2 sets out two groups of indicators for each European country (where statistics are available): total fertility rates (TFRs) in the columns for years 1990 to 1994 and completed fertility rates (CFRs) for generations of women born in the years 1953 to 1956 in the right part of the table. The TFR represents the number of children a woman would have if she experienced the age-specific fertility rates of the year in question from ages 15 to 50. Completed fertility rates represent the number of children that the generation of women born in the year indicated has had up to the present. The generations selected have almost completed their fertility histories. Women born in 1953 were aged 41 in 1994, the year the statistics refer to, for example, while those born in 1956 were aged 38.

As a rule of thumb, a total or completed fertility rate of 2.1 is required for the population to replace itself in the long run. The extra 0.1 of a birth allows for the mortality of women before the end of their reproductive careers. A slightly lower TFR suffices in Western Europe (2.07 in the UK in 1993, for example) to guarantee replacement but a higher TFR is needed in the high mortality countries of Eastern Europe (2.15 in the Ukraine in 1990, for example) (Council of Europe 1995, Tables 3.3 and 3.6). Only 15% of the TFR observations in Table 2 exceed 2.1 and only Cyprus, Iceland and Turkey have above replacement TFRs in all years.

In what direction are the TFRs moving over the first half of the 1990s? Comparing 1990 figures with 1994 or those for the latest year available, we find 37 countries show decreases in fertility and only 4 countries increases, with 2 recording no change. On the basis of current fertility, Europe's population is not reproducing itself and the situation is becoming more extreme. However, before accepting such a trend as long run, we need to recall that TFRs have been lower for some Western Europe states in some years in the 1970s or 1980s. For instance, in 1977 the United Kingdom TFR was 1.66 (ONS 1996, Table 9), while in 1985 the TFR in both Norway and Sweden was 1.68 (Council of Europe 1995, Table 1.3). Because short run downturns in fertility, often linked to depressed economic conditions, can be compensated for by later rises in fertility, demographers prefer to examine the completed fertility of generations of women.

Table 2. Total and completed fertility in European countries, selected years

Country	Total fertility rate (children per woman)					Completed fertility for women born in year indicated (lifetime births per woman)			
	1990	1991	1992	1993	1994	1953	1954	1955	1956
<i>European Union countries</i>									
Austria	1.45	1.50	1.49	1.48	1.45	1.81	1.78	1.76	1.73
Belgium	1.62	1.64	1.59			1.82	1.81	1.82	1.83
Denmark	1.67	1.68	1.76	1.75	1.81	1.85	1.83	1.83	1.84
Finland	1.78	1.80	1.85	1.81	1.85	1.88	1.88	1.91	1.91
France	1.78	1.77	1.73	1.65	1.65	2.08	2.06	2.04	2.01
Germany	1.45	1.33	1.30	1.28	1.24	1.63	1.61	1.62	1.61
Former FRG	1.45	1.42	1.40	1.39	1.34	1.63	1.61	1.62	1.61
Former GDR	1.52	0.98	0.83	0.78	0.77	1.81	1.81	1.82	1.81
Greece	1.42	1.40	1.39	1.34	1.34				
Ireland	2.12	2.08	2.02	1.93	1.86				
Italy	1.36	1.33	1.33	1.22		1.85	1.83	1.81	1.78
Luxembourg	1.62	1.60	1.67	1.69	1.72	1.59	1.63	1.66	1.60
Netherlands	1.62	1.61	1.59	1.57		1.87	1.87	1.86	1.86
Portugal	1.51	1.57	1.54	1.52	1.44				
Spain	1.30	1.28	1.23	1.26	1.22	2.03	1.95	1.91	1.87
Sweden	2.14	2.11	2.09	2.00	1.88	1.90	1.90	1.90	1.90
United Kingdom	1.83	1.82	1.79	1.76	1.71	2.02	1.99	1.97	1.93
<i>Smaller countries</i>									
Andorra									
Cyprus	2.42	2.33	2.49	2.27	2.23				
Iceland	2.31	2.19	2.21	2.22	2.14	2.57	2.53	2.57	2.49
Liechtenstein									
Malta	2.05	2.04	2.12	2.01	1.89	1.87	1.87	1.86	1.87
Norway	1.93	1.92	1.88	1.86	1.87	2.04	2.04	2.05	2.04
San Marino	1.31	1.25	1.12	1.11	1.20				
Switzerland	1.59	1.58	1.58	1.51	1.49	1.74	1.73	1.72	1.71
<i>Visegrad countries</i>									
Czech Republic	1.89	1.86	1.70	1.67	1.44	2.08	2.07	2.06	2.05
Hungary	1.84	1.86	1.77	1.69	1.64	1.92	1.93	1.94	1.97
Poland	2.04	2.05	1.93	1.85	1.80	2.21	2.20	2.19	2.18
Slovak Republic	2.09	2.05	1.98	1.92	1.66				
Slovenia	1.48	1.46	1.34	1.31	1.32	1.93	1.91	1.97	1.96
<i>Other Eastern Europe countries</i>									
Albania	3.03								
Bulgaria	1.73	1.57	1.53	1.46		2.05	2.02	2.05	2.03
Romania	1.83	1.56	1.51	1.44	1.41	2.24	2.27	2.25	2.24
<i>Former Soviet Union countries</i>									
Armenia	2.84								
Azerbaijan	2.69	2.87							
Belarus	1.91			1.75					
Estonia	2.04	1.77	1.69	1.45					
Georgia	2.21					2.01	2.03	2.07	2.05
Latvia	2.02	1.86	1.73	1.51	1.40				
Lithuania	2.00	1.97	1.89	1.67	1.54				
Moldova	2.39	2.26	2.21	2.10					
Russian Federation	1.89								
Ukraine	1.89	1.81	1.72	1.55	1.50				
<i>Former Yugoslavia</i>									
Bosnia-Herzegovina	1.70					2.04	1.91	1.96	1.92
Croatia	1.63	1.53	1.48	1.52		1.86	1.77	1.86	1.81
Macedonia	2.06	2.30	2.18			2.32	2.30	2.31	2.25
Montenegro	1.79					2.14	2.11	2.16	2.08
Serbia	2.10					2.24	2.20	2.29	2.24
Turkey	3.00	2.91	2.84	2.76	2.69	3.97	3.97	3.93	3.89

Sources: Council of Europe (1995), Tables T3.3, T3.7; Eurostat (1995), Table E-6

4. The fertility of generations: a longer term perspective

Trends in completed fertility are shown in the right hand panel of Table 2. These are not ideal statistics because none of the female birth cohorts have quite finished their reproductive lives, but very few additional births will be added after age 40. For example, the completed fertility rate for women born in 1954 in Finland was 1.88. These women were aged 40 in 1994, the year of report. The age specific fertility rates for Finnish women in 1994 at ages 40-44 and 45-49 were 7.7/1000 and 0.4/1000 respectively. If the generation of 1954 experiences these rates in their 40s, the final CFR or generation TFR will be $1.88 + 5 \times 7.7/1000 + 5 \times 0.4/1000$ or 1.92, an addition of 0.04 of a child. For a higher fertility country such as Turkey, 0.12 of a child should be added to the CFRs in Table 2 to estimate final generation fertility.

The mid-1950s generation fertility indicators are virtually all above the 1990s TFRs - only in Sweden and in Malta do current TFRs exceed the generation measures. The fertility of women currently finishing their reproductive careers has been higher than current fertility extrapolated over a reproductive age span. Some 41% of CFR observations exceed replacement level (using 2 children per woman allowing for the average of 0.1 of a child still to come) compared with only 15% of 1990s TFRs. But, conversely, 59% of the CFR' observations fall below replacement. Even if the first half of the 1990s turns out to be a half decade of temporarily depressed fertility, and current generations in mid-reproductive career catch up to an extent in their 30s and 40s, achieving comparable fertility levels to women born in the mid-1950s, this will not ensure the long run replacement of the populations of 6 out of 10 European countries.

5. Arguments for fertility recovery: unconvincing

How likely is it that fertility rates will recover from their current low levels? The arguments for assuming higher fertility and for assuming lower fertility in the future have been very usefully summarized by Lutz (1994). Three arguments are put favouring higher fertility: homeostasis, cyclic behaviour and pro-natalist policies. The homeostasis argument, that societies will return naturally to reproductive equilibirum because most systems do, is surely philosophical wishful thinking. Some systems may explode or implode. Cyclic behaviour in which the level of fertility responds to the demand for labour in the reproductive years has more merit. We can, I think, expect fertility to recover from very low levels in some Eastern European countries as their economies resume growth. However, Europe is suffering from a high degree of structural unemployment and so the pure form of the cyclic hypothesis put foward by Easterlin (1980) is less relevant. Finally, the pro-natalist policy argument points to the success of Sweden in providing support for child rearing. However, the high cost of such programmes means that they are unlikely to be copied, and in any case both the welfare state and the TFR are in retreat in Sweden (see the figures in Table 1.)

6. Arguments for continuing low fertility: persuasive

Five arguments are put forward favouring low fertility continuing or being achieved where it is not already in place: the trend towards individualism, increasing economic independence of women, increasing partnership instability, preferences for consumption versus children and improving contraception. The improving economic prospects for women, driven by the transition to service dominated economies and helped by equal rights legislation, lowers the incentive for women to bear children and raises the opportunity cost of so doing. The increase in cohabitation is well established in most European countries and results in men-women unions with lower fertility, because of the lesser commitment and greater uncertainties of such arrangements. The costs of raising well educated quality children is very high and many couples prefer to spend their income on other things. Finally, we can recognize that there is considerable scope for improved contraception to keep or push fertility low, particularly in Eastern Europe where there are great health advantages from substituting contraception for abortion as a means of fertility limitation.

7. The consequences of low fertility for projected populations: the national views

Accepting therefore that below replacement fertility is likely to continue in European countries where it has been achieved, and to be achieved in those few where it has not, what are the consequences? One set of consequences is on the future size and age composition of the population, worked out through the impact of fertility assumptions in population projections. We draw out the results of recent projections for selected European countries in Table 3, using data assembled by the Statistical Office of the European Communities (Eurostat 1995) and for Eastern and Western Europe as a whole in Table 4, using projections produced by researchers (Lutz, Prinz and Langgassner 1994) at the International Institute for Applied Systems Analysis (IIASA). Table 3 reports the latest national projections for 13 European Union states and 3 near neighbours. The top panel sets out the assumptions underpinning each national projection for 1994 and 2020. Various trajectories link the two years but the figures provide the essence of the scenario adopted. No National Statistical Office (NSO) sees any prospect of fertility recovering to replacement level though nine out of fifteen assume some increase. Three NSOs (Spain, Ireland and Finland) expect continued decrease. On mortality, expectations are positive. Twelve out of 15 NSOs expect substantial improvement in life expectancy in the next quarter of a century. The exceptions are Denmark, Germany and Spain which envisage no change. Twelve of 15 NSOs expect continued net immigration. Ireland expects net emigration to become a balance of zero in the projection period; the United Kingdom expects net immigration to disappear; Switzerland expects to reverse the direction of international migration. In total external migration adds about 10 millions to the populations of these states over the projection period, though over half of this gain is likely to be in Germany alone.

Improved life expectancies and immigration work to mitigate the effect of reduced births so that only Spain expects the total population to have fallen by 2020, though its mortality scenario is probably too pessimistic. Beyond 2020 continued low

fertility will result in population decrease. For example, the UK population is expected to peak in 2027 (OPCS 1995, p.22) and fall below its 1994 value after 2059. The numbers of deaths at first fall with improving mortality but then increase rapidly after 2020 as the baby boomers (the generations of 1945 to 1970) move into the high risk ages (OPCS 1995, p.35).

Table 3. Projected populations of selected European Union member states and other countries, 1990-2020: assumptions and results from the latest national forecasts

Country	Assumptions								
	TFRs Children per woman		Life expectancies				Net migration		
	1994	2020	Males	2020	1994	2020	1000s per year	1994	2020
Belgium	1.74	1.85	72.6	77.3	79.5	84.2	10	5	
Denmark	1.78	1.80	72.3	72.6	77.8	77.8	11	5	
Germany	(1.29)	1.40	(72.6)	(72.6)	(79.1)	(79.1)	590	(200)	
Greece	1.40	1.99	74.6	77.7	79.4	82.0	30	12	
Spain	1.17	1.13	73.3	73.4	81.0	81.3	35	35	
France	1.78	1.80	73.5	78.0	81.8	86.5	50	50	
Ireland	1.89	1.50	72.8	76.4	78.4	82.4	-10	0	
Luxembourg	1.45	1.45	(71.7)	75.0	(78.5)	81.0	2	2	
Netherlands	1.59	1.80	74.5	76.0	80.5	81.5	25	35	
Austria	1.54	1.56	73.2	76.5	79.6	82.7	17	17	
Finland	**	1.80	1.75	71.9	74.3	79.5	80.7	5	5
Sweden		1.90	1.90	75.9	78.1	80.9	82.4	45	15
United Kingdom		1.83	1.90	74.1	77.6	79.5	82.6	47	0
Norway		1.88	1.88	74.4	77.4	80.5	83.8	11	8
Switzerland		1.59	1.63	75.7	78.4	82.7	85.5	23	-14
Country	Populations								
	Total (millions)			Aged < 20			Aged 60+		
	1994	2020	% change	1994	2020	% change	1994	2020	% change
Belgium	10.10	10.54	4.4	2.44	2.33	-4.5	2.14	3.03	41.6
Denmark	5.20	5.36	3.1	1.23	1.23	0.0	1.04	1.31	26.0
Germany	81.34	81.48	0.2	17.51	14.01	-20.0	16.59	22.60	36.2
Greece	10.41	10.82	3.9	2.60	2.29	-11.9	2.19	2.96	35.2
Spain	39.12	36.88	-5.7	9.99	5.96	-40.3	7.86	10.06	28.0
France	57.78	63.45	9.8	15.26	14.44	-5.4	11.45	16.99	48.4
Ireland	3.57	3.80	6.4	1.22	0.85	-18.0	0.55	0.83	50.9
Luxembourg	0.40	0.41	2.5	0.09	0.08	-11.1	0.08	0.11	37.5
Netherlands	15.34	17.27	12.6	3.75	3.85	2.7	2.70	4.29	58.9
Austria	8.02	8.25	2.9	1.89	1.62	-12.2	1.58	2.19	38.6
Finland	5.08	5.22	2.8	1.30	1.13	-13.1	0.95	1.47	54.7
Sweden	8.75	9.44	7.9	2.16	2.18	0.9	1.94	2.49	28.4
UK	58.28	62.08	6.5	14.78	14.32	-3.1	11.99	15.71	31.0
Norway	4.32	4.86	12.5	1.11	1.15	3.6	0.88	1.18	34.1
Switzerland	6.97	7.53	8.0	1.62	1.61	-0.6	1.35	1.98	46.7

Sources: Eurostat (1995), Tables B-7, I-1, I-7; ONS (1996), Table 6; OPCS (1995), UK Microfiche
Notes: 1. The bracketed numbers are inferred from the data provided in the source.

All these population flows result in profound changes in age structures. In eleven of the countries reported in Table 3 the numbers aged under 20 decrease between 1994 and 2020 while the increases in Denmark, the Netherlands, Sweden and Norway are very modest. In all countries the share that the young make up of the population as a whole falls. Conversely, the population in the retirement ages (here set at 60 and over) is projected to increase by between a quarter and a half by 2020. The lowest increases are for Denmark (26%) and Spain (28%) where virtually no improvement in mortality is assumed - it is likely therefore that the actual increases will be higher. Several countries are predicted to see increases in their 60+ populations of over 50% (Ireland 51%, the Netherlands 59%, Finland 55%). These increases are not directly linked to persistent low fertility but are the consequence of larger generations born earlier in the century moving into old age. Further increases in the share of the elderly are projected to mid-century (Table 4) as the baby boom generations become old.

8. The consequences of low fertility for projected populations: the synoptic view

The projections reported in Table 3 are the central or preferred projections of NSOs. Alternative futures for all of Europe's populations have been constructed in a set of projections carried out by Lütz, Prinz and Longgassner (1994), selected results from which are shown in Table 4 for Eastern and Western Europe as a whole. The top panel in the table sets out the assumptions for the projections. For fertility, mortality and migration components three alternatives - central, high and low were developed. In combination some 27 (3x3x3) projections could be produced, of which nine are reported in Lutz, Prinz and Longgassner (1994) and four are selected in the bottom panel of Table 4. The four are (1) the projection which adopts central assumptions about future trajectories of each of the components of population change, (2) the combination of high immigration, low mortality and high fertility which yields greatest population growth, (3) the combination of low immigration, high mortality and low fertility which produces least population growth (most decrease) and (4) the combination of low immigration, high mortality and high fertility included to estimate the effect of different fertility futures , for comparison with the previous scenario.

How do the fertility scenarios compare with the picture of fertility in the 1990s set out in Table 2? The central scenario in the IIASA projections assumes Europe has a "British/Norwegian/Swedish" future with long run TFRs of 1.8 and 1.7 for Eastern and Western Europe respectively. The high scenario sees TFRs recover to replacement level (Western Europe) or just above (Eastern Europe) and suggests that Europe has an "Cypriot/Icelandic/Maltese future" with TFRs. This scenario combined with high immigration and low mortality projects a 45% expansion in Europe's population in the 60 year interval. The low scenario suggests Europe has a "German/Spanish/Italian" future with a TFR of only 1.3 in the long term. With no immigration from outside Europe and only modest improvements in life expectancy, this scenario implies a fall of nearly a quarter in Europe's population between 1990 and 2050. The impact of assuming high fertility compared with low can be estimated by comparing the fourth projection with the third: with high fertility Europe's population in 2050 will be 829 millions but with low fertility only 559 millions, a difference of 267 millions over 60 years.

Table 4. Projected populations of Eastern and Western Europe, 1990-2020, IIASA forecasts

Region	Assumptions											
	Scenario	TFR Children per woman			Life expectancy, years for women			Net migration 1000s per year				
		1990	2030	2050	1990	2030	2050					
Eastern Europe												
Low	Low	2.00	1.30	1.30	74.7	76.7	76.7	0				
Central	Central	2.00	1.80	1.80	74.7	83.7	83.7	500				
High	High	2.00	2.30	2.30	74.7	90.7	90.7	1000				
Western Europe												
Low	Low	1.61	1.30	1.30	79.4	83.4	83.4	0				
Central	Central	1.61	1.70	1.70	79.4	87.4	87.4	500				
Low	Low	1.61	2.10	2.10	79.4	91.4	91.4	1000				
Region												
Scenario	Populations											
	Total (millions)			% aged 0-14			% aged 60+					
	1990	2020	2050	1990	2020	2050	1990	2020				
Eastern Europe												
<i>Migr. Mort. Fert.</i>	Central	Central	Central	345	374	376	23.1	18.3	17.7	15.8	23.6	29.0
Central	High	Low	High	345	409	519	23.1	22.0	22.9	15.8	23.3	26.2
Low	Low	High	Low	345	340	257	23.1	20.7	19.9	15.8	24.1	34.6
Low	High	High	High	345	382	406	23.1	21.2	21.8	15.8	21.4	21.8
Western Europe												
<i>Migr. Mort. Fert.</i>	Central	Central	Central	377	409	407	18.5	16.9	16.0	19.6	26.4	31.3
Central	High	Low	High	377	441	525	18.5	20.1	20.5	19.6	25.9	28.0
Low	High	Low	Low	377	379	302	18.5	13.0	10.3	19.6	27.2	36.1
Low	High	High	High	377	413	420	18.5	18.3	18.6	19.6	24.9	26.0

Source: Lutz, Prinz and Langgassner (1994), Table 15.3, p.400; Table 16.1, p.426; Appendix A, pp.461-462

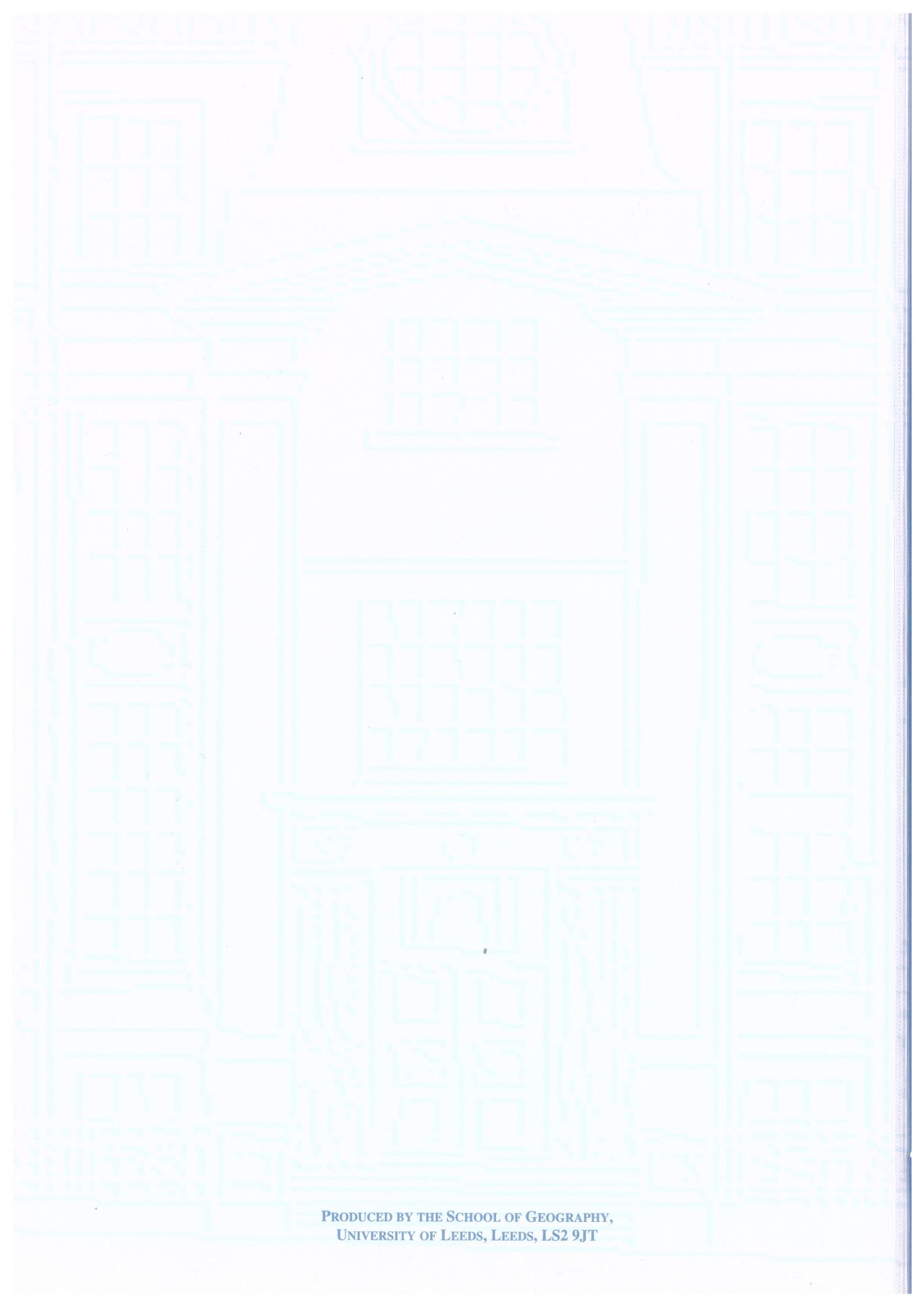
9. Conclusions

The evidence of recent fertility and underlying social and economic trends points to continuing below replacement fertility in European countries. The downward impact of low fertility on total population levels in the short term (to 2020) is mitigated by demographic momentum, continued immigration and improving survival chances in most countries. In the medium term (to 2050) populations are likely to peak and begin to decline. In most countries the numbers of children and adolescents will decrease and everywhere they will make up a smaller share of the population. Activities and industries geared to providing goods and services for this population will see a shrinking market. Continuing low fertility will also serve to increase the share of older age groups in the population.

There is considerable debate across European countries about how to deal with the problems of an ageing population through adjusting pension levels, pensions ages and funding for health care and care in very old age. This debate looks at what will happen in the first half of the twenty-first century. Looking beyond into the second half, we need to debate whether we want, in Europe, a declining and increasingly geriatric population, and, if not, how we can ensure that Europe reproduces itself. There is considerable public interest in the “technical” aspects of fertility (contraception, abortion, *in vitro* fertilisation, surrogate mothers) but rather little about the child making decision (whether to have children and, if so, how many). This is largely left to couples to determine privately. However, this commentary suggests that we should begin a debate if we are interested in the nature of the European society that our grand-children or great-grandchildren (if any) will experience.

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