Working Paper

What Difference Do Alternative Immigration and Integration Levels Make to Western Europe?

Wolfgang Lutz and Christopher Prinz

WP-92-29
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ABSTRACT

The population of Western Europe (EC plus EFTA) is seen as consisting of three sub-populations: the natives, the East-European immigrants, and the non-European immigrants. Different immigration levels assumed from Eastern Europe and from the rest of the world add to the non-native populations while different levels of "integration" describe the transition intensities from the non-native sub-populations to the native category.

The paper gives alternative population projections to 2050 based on six scenarios with different assumptions on net migration, "integration", as well as fertility and mortality in the three categories. The results indicate that (i) in the case of no further immigration the total population of Western Europe will start to decline after 2010; (ii) the rate of integration into the native population influences the future size of the non-European population much more than alternative levels of immigration; (iii) in the long run the Eastern Europeans will be quantitatively insignificant; (iv) the Western European population is bound to significant population aging no matter what happens with immigration; and (v) in the short to medium run immigrants contribute to the alleviation of the pension burden.

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WHAT DIFFERENCE DO ALTERNATIVE IMMIGRATION AND INTEGRATION LEVELS MAKE TO WESTERN EUROPE?

Wolfgang Lutz and Christopher Prinz

1. Introduction

The scientific analysis of migration is full of uncertainties. Much more than the other demographic components of population change, mortality and fertility, migration depends on short term changes in the field of policy and other hardly predictable fields. While in modern societies mortality tends to change very slowly from year to year and even fertility which is largely the result of individual behavior only shows annual increases or decreases by a few percentage points, migration intensities can double or quadruple from one year to another. And the European experience of the past five years is full of examples of such entirely unpredicted and very massive fluctuations in migration levels.

An extreme example for this irregularity and unpredictability of migration streams in Europe is immigration into West Germany in 1989. In this one year alone more than 720,000 ethnic Germans (about half of them from East Germany and half from other European countries) entered West Germany which was not much less than the cumulated number of ethnic German immigrants (811,000) over the previous nine years 1980-88. And over that period ethnic Germans had comprised about 60% of all immigrants to West Germany (see Heilig et al. 1990).

What can demographers, who are asked to prepare population projections, do in the face of such tremendous uncertainties, that sometimes seem to come close to chaotic behavior, when the death of a politician or the passing of a new law out of a very specific political constellation can trigger the migration of millions? One possible reaction for scientists is to abstract from short term fluctuations and look at the longer term trends. Under a long term perspective patterns are certainly more stable than on an annual basis. But still when looking at immigration levels since 1950 in industrialized countries one finds that only in the classic immigration countries USA, Canada, and Australia there have been rather stable levels of immigration. All European countries show significant long term changes. Even France and Germany, the biggest immigration countries in Europe, experienced great ups and downs with a peak in the 1960s and a low in early 1980s. A number of smaller countries (Austria, Denmark, Netherlands, Norway) switched from migration losses to migration gains at around 1960. Another group (Finland, Greece, Italy, Portugal, Spain) experienced this reversal of pattern around 1975. In a number of Eastern European countries net migration has been continuously negative at varying levels (Wils 1991).

Another possible approach for the scientist interested in future migration is to look at the economic push and pull factors that underlie the decisions to migrate, or to study the socio-cultural aspects and identify established channels of migration because one of the basic findings of the analysis of international migration over the centuries seems to be that migrants follow existing paths. Such analysis can help to better understand the potential for migration. A large fraction of the papers presented at this conference seem to fall into this category. But talking about potentials is different from talking about actual migration. The latter is very much dependent on specific short term policies. The introduction of a new visa regulation can effectively interrupt a migratory stream no matter how great the migration potential if it can be fully enforced. In this sense migration policies have two aspects: first the content of the policy itself and second the degree to which the policy can be enforced. The proportion of illegal immigrants seems to vary greatly from one country to another. A final interesting question in this context is whether legal immigration restrictions can in the long run resist strong push factors from outside and especially pull factors from inside that will find their lobbies within the domestic political establishment.

For this paper a third general approach was chosen that neither relies on the extrapolation of past trends nor exclusively refers to migration potentials as a proxy for actual migration. The chosen approach accepts the inherent uncertainty about future migration levels and studies the implications of alternative hypothetical immigration patterns without passing judgement on their likelihood. A systematic comparison of such alternative scenarios, which are nothing but a number of alternative if-then calculations, can provide us with a better understanding of what aspects of the population structure are rather sensitive to alternative immigration patterns and which ones would be hardly affected. This concept is discussed at length in a recent book entitled Future Demographic Trends in Europe and North America: What Can We Assume Today? (Lutz 1991). In the present paper many of the choices for specific fertility, mortality and migration assumptions are based on the broader discussions in this book.

In addition to the level of annual immigration in this paper we also want to consider the degree of integration of the immigrants into society and define alternative scenarios on this important aspect. As a method we will use multi-state population projection models which are essentially cohort-component models of population projection which simultaneously project several sub-populations that are in exchange with each other, i.e. at each time and age men or women cannot only enter the country but also move from one sub-population to another. Chart 1 depicts the basic structure of the model with three sub-populations within Western Europe: natives, East European, and non-European. The assumed alternative levels of immigration determine the flow (by age and sex) of migrants into the East European and non-European categories. Assumed alternative levels of integration determine the flow of people already in Western Europe from the two non-native categories into the native category. Children born in Western Europe will belong to the category to which their mother belongs.

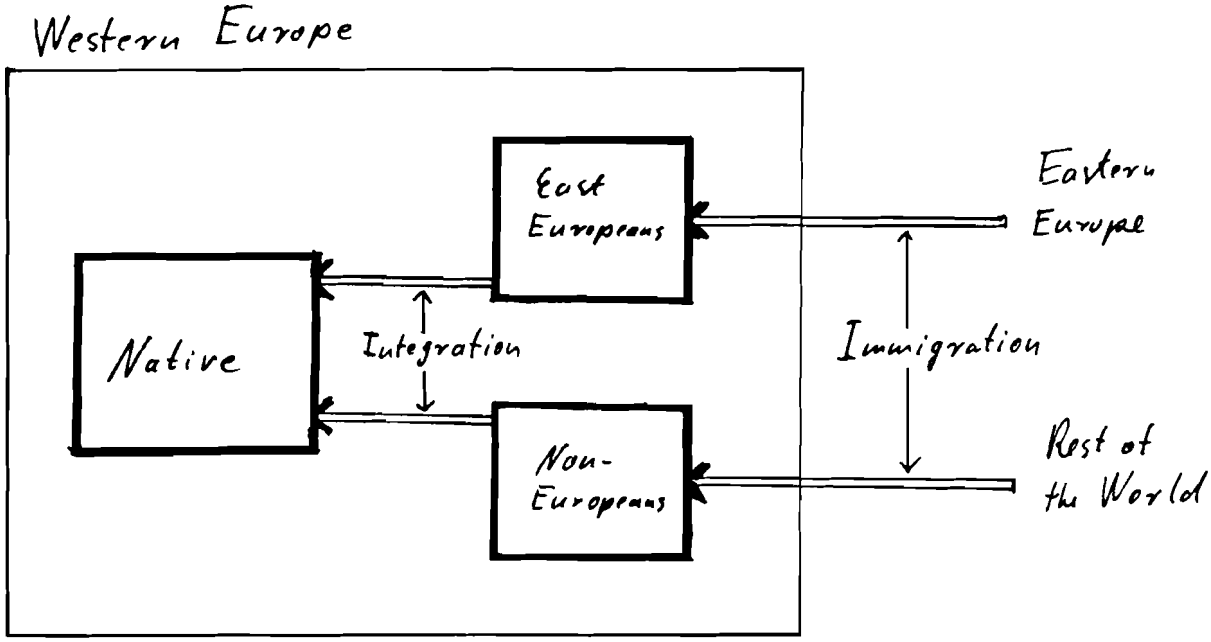

Chart 1. Structure of the multi-state population projection model used for the scenario calculation.

As expressed by the title of the paper we attempt to study the impact of alternative immigration and integration levels on relative sizes of the three subgroups of the population and on age-structural differences that are relevant for social security considerations. Since benefits for immigrants under the national social security scheme are an important and emotional point of controversy (which often leaves the important contribution of immigrants to that system unmentioned), our study will be able to shed more light on the actual quantitative side of this issue and on the question how social security aspects of aging would be affected by alternative immigration patterns.

2. Definition of Scenarios

For the purpose of this paper Western Europe has been defined as comprising all member countries of the Council of Europe (except Turkey which is a special case) that have more than 1 million inhabitants. It includes the following countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. Eastern Europe as a region of origin for migrants includes Albania, Bulgaria, Czechoslovakia, Hungary, Poland, Romania, Yugoslavia and the Republics of the former Soviet Union. The non-European region includes the rest of the world with Africa being quantitatively most significant.

For our alternative projections the starting population for the year 1985 has been divided into three subgroups: West European natives (97.5% in 1985), East Europeans living in Western Europe (0.4%) and non-Europeans living in Western Europe (2.1%). The composition of the foreign population by region of origin and sex was estimated using data from France (census 1982) and Germany (1987), the two countries which together host more than half of the total foreign population of Western Europe in 1989. The age structure of the foreign population was estimated using most recent census information for Belgium (1981), France (1982), Italy (1981) and Sweden (1985).

Since this particular study is mainly interested in the effects different migration patterns have on population size and structure, fertility and mortality rates are assumed to follow only one path for native Western and Eastern Europeans. The Total Fertility Rate (TFR) for these two groups is assumed to remain constant (1.63 children per woman in 1989). Constant fertility was assumed because it seems to be entirely open and unclear into which direction European fertility will move over the next decades. Some countries currently experience an increase in fertility (Scandinavia) while others still experience a strong decline (Southern Europe) or a stabilization at low fertility rates. For the non-European immigrant population alternative TFRs of 2.00 and 3.00 were assumed because many studies show that the fertility of immigrants is somewhere between the fertility level of the country of origin and that of the host country.

Life expectancy at birth is assumed to increase linearly from 71.9 years for men and 78.6 years for men in 1985 up to 90 and 95 years, respectively, in 2050 (see Table 1). The assumed increase in life expectancy reflects a continuation of the trend during the last two decades (see discussions in Manton 1991, Duchene and Wunsch 1991). This trend is assumed to be identical in all three population groups.

Concerning immigration flows we assumed three levels of immigration: (i) no immigration, (ii) continued present immigration, with 500,000 immigrants annually from Eastern Europe (only until the year 2000) and 500,000 annually from non-European countries (until 2050), and (iii) high immigration, with 500,000 immigrants annually from Eastern Europe (only until 2010) and 1500,000 annually from non-European countries (linear increase between 1985 and 2010).

The assumptions on immigration levels are complemented by several alternative assumptions concerning the integration of foreigners. We chose to define integration by annual integration rates, i.e. the proportions of members of the East European and non-European sub-populations that annually move to the native population. Unlike some other similar calculations (e.g. Steinmann 1991) this does not assume automatic integration of foreigners after a specific time period but assumes heterogeneity of the immigrant population with respect to integration probabilities. Because a constant rate implies the decrease over time in absolute numbers integrated out of given initial stock of foreigners, an integration rate of 10% annually results in the integration of approximately 90% after 25 years.

Table 1. Definition of the demographic assumptions for six scenarios.

	Total fertility rate	Life expectancy male/fem	Annual net migration	Annual integration rate
Observed	1.63	71.9/78.6	500,000	?
No mig./med.int. (Scenario 1)				
Natives	1.63	90/95	-	-
East Europeans	1.63	90/95	0	10 %
Non-Europeans	2.00	90/95	0	5 %
Med.mig./med.int. (Scenario 2)				
Natives	1.63	90/95	-	-
East Europeans	1.63	90/95	500,000[1]	10 %
Non-Europeans	2.00	90/95	500,000[2]	5 %
High mig./med.int./ TFR 2.0 (Scenario 3)				
Natives	1.63	90/95	-	-
East Europeans	1.63	90/95	500,000[3]	10 %
Non-Europeans	2.00	90/95	1500,000[4]	5 %
No int./high mig. (Scenario 4)				
Natives	1.63	90/95	-	-
East Europeans	1.63	90/95	500,000[3]	10 %
Non-Europeans	3.00	90/95	1500,000[4]	0 %
Med.int./high mig./ TFR 3.0 (Scenario 5)				
Natives	1.63	90/95	-	-
East Europeans	1.63	90/95	500,000[3]	10 %
Non-Europeans	3.00	90/95	1500,000[4]	5 %
High int./high mig. (Scenario 6)				
Natives	1.63	90/95	-	-
East Europeans	1.63	90/95	500,000[3]	10 %
Non-Europeans	3.00	90/95	1500,000[4]	10 %

Notes: [1]constant from 1985 to 2000, no immigration after 2000.
[2]constant from 1985 to 2050.
[3]constant from 1985 to 2010, no immigration after 2010.
[4]between 1985 and 2010 increase from 500,000 to 1500,000; then constant.

The integration rate of Eastern European immigrants was assumed to be constant at 10% per year under all scenarios. For non-European immigrants three levels of integration are compared: (i) no integration, (ii) a 5% integration rate annually, resulting in approximately 70% integration after 30 years, and (iii) a 10% integration rate annually, reflecting a situation in which non-Europeans are integrated to the same extent as Eastern Europeans.

Based on a cross-classification of the different immigration, integration and fertility assumptions we defined the following six scenarios that are also listed in Table 1. Scenarios 1 to 3 consider the lower fertility rate (TFR=2.0) and the medium annual integration rate (5%) for non-Europeans. They only differ with respect to immigration: no, continued and high immigration are compared. Scenarios 1, 2 and 3 are labeled "No immigration, medium integration", "Continued immigration, medium integration" and "High immigration, medium integration, TFR 2.0", respectively. Scenarios 4 to 6 consider the high immigration alternative together with higher fertility (TFR=3.0) among non-Europeans. They only differ with respect to integration of foreigners, comparing the 0%, 5% and 10% annual integration rates. Scenarios 4, 5 and 6 are labeled "No integration, high immigration", "Medium integration, high immigration, TFR 3.0" and "High integration, high immigration", respectively. If one would like to compare the low and high fertility assumptions, then scenarios 3 and 5, both using high immigration and medium integration, should be compared.

3. Selected Results

3.1. Total population size

Table 2 gives the total population size of the 16 Western European countries calculated up to the year 2050 under the alternative scenarios considered. These figures include all three subgroups of the population. Since mortality and fertility (except for the non-Europeans) are kept constant, one can expect that the differences in future population size directly result from alternative immigration levels. But also different integration rates should have an independent impact on population size because we have assumed higher fertility rates for the non-European population, and if their size increases less quickly due to greater integration they will have a smaller weight and hence reduce the average fertility of the total population.

As expected only the no-immigration scenario 1 will result in a decline in the total size of the Western European population. This is the consequence of sub-replacement fertility. Mostly due to the young age structure, the total population would continue to increase from presently 378 million to around 390 million in 2010 and decline thereafter. As we will see later the no-immigration case will be resulting in an extreme aging of the population.

Table 2. Total population size by scenario (in million people).

Year	No mig./ med. int. (Scen. 1)	Cont. mig./ med. int. (Scen. 2)	High mig./ med. int. TFR 2.0 (Scen. 3)	No int./ high mig. (Scen. 4)	Med. int./ high mig. TFR 3.0 (Scen. 5)	High int./ high mig. (Scen. 6)
1990	378	378	378	378	378	378
2000	387	398	401	403	402	402
2010	390	411	426	430	429	428
2020	389	419	450	459	456	454
2030	384	424	471	489	481	477
2040	374	423	488	519	503	497
2050	360	419	501	553	523	514

Scenarios 3, 4, 5, and 6 all assume high immigration into Western Europe and will result in a significant increase of the total population to between 500 and 553 million by the year 2050 depending on different average fertility levels which are the result of alternative integration assumptions. Scenario 2 which assumes immigration to continue around the present level has an intermediate position resulting in a more moderate increase of the Western European population to 419 million by 2050.

Figure 1 plots the annual growth rates that underlie the changes in population size given in Table 1. Due to the assumption that immigration would only gradually increase to its maximum level by 2010 and remain constant thereafter we see a slight discontinuity for all growth rates around that year. Under all scenarios, except the very extreme case of scenario 4 (high immigration-no integration), growth rates will show a long term decreasing trend that at some point will result in decreasing population sizes. As mentioned above, under the no-immigration scenario 1 this will already be the case before 2020; in the medium-immigration scenario 2 it will happen around 2030; and even under the high immigration scenario 3 the Western European population will start to shrink by the middle of the next century. This clearly demonstrates that in the very long run the effect of low fertility can outweigh even very strong immigration if the immigrants at some point adopt European sub-replacement fertility levels.

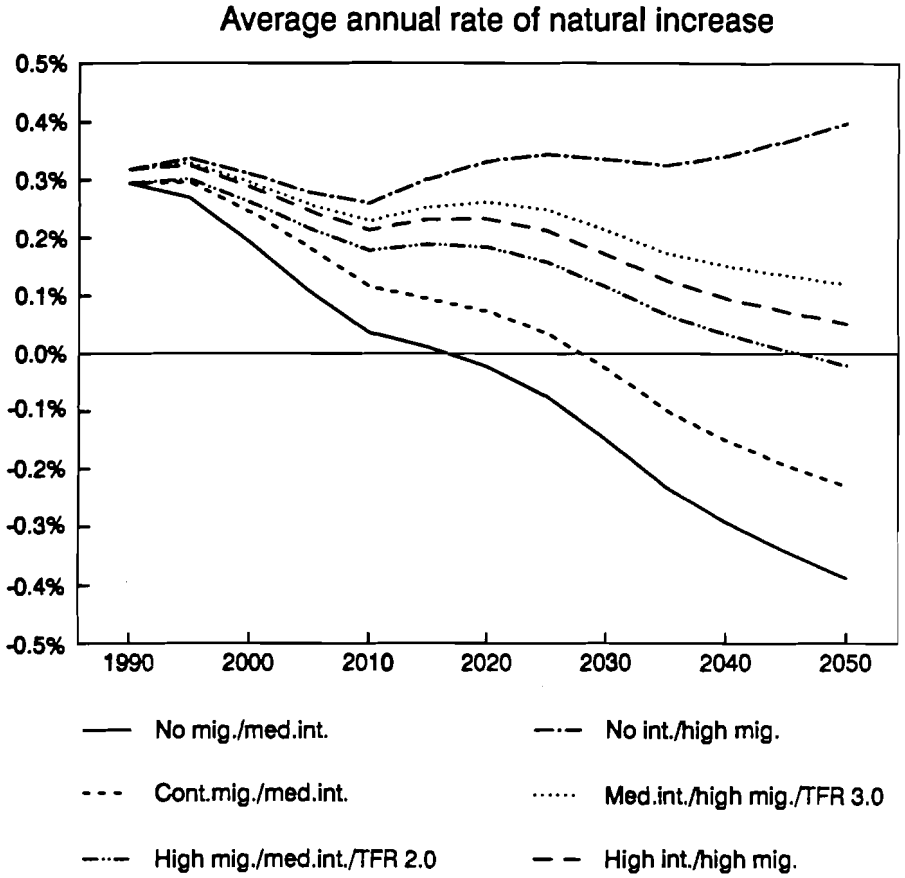

Figure 1. Annual rates of population increase under different scenarios.

3.2. Population composition by groups

In the year 1990 2.4% of the total population of Western Europe is assumed to belong to the group of non-European immigrants. According to scenario 1 which assumes no immigration at all in the future this proportion will greatly decline through integration and approach zero by the middle of the next century. Under all other scenarios the proportion of non-Europeans is expected to increase, although at quite different rates according to the immigration and integration scenarios.

In the case of very high immigration and no integration at all (together with a TFR of migrants of 3.00) the proportion of non-Europeans in Europe will increase strongly and rapidly to one-third of the total population in 2050. This in a way is the horror scenario frequently painted by certain politicians and media. It essentially describes a dual society of two groups with little to no interactions and a great probability for hostilities. As the comparison to scenarios 5 and 6 will show, however, this situation is only to a lesser extent caused by high migration levels but more importantly by the complete lack of integration into the native society, whether it be due to the complete failure of integration policies or the lack of will to integrate on either side. Scenario 6, for instance, which assumes a 10% annual integration rate for non-Europeans will only result in 4.9% of non-Europeans by

2050 under the same high immigration assumption. Hence integration makes a difference by a factor of 6. Even a low 5% annual integration rate (scenario 5) would result in a non-European proportion that is smaller by a factor of about 3.

Table 3. Proportion of non-Europeans in Western Europe (in %).

Year	No mig./ med. int. (Scen. 1)	Cont. mig./ med. int. (Scen. 2)	High mig./ med. int. TFR 2.0 (Scen. 3)	No int./ high mig. (Scen. 4)	Med. int./ high mig. TFR 3.0 (Scen. 5)	High int./ high mig. (Scen. 6)
1990	2.4	2.4	2.4	2.4	2.4	2.4
2000	1.7	2.9	3.6	5.2	3.8	2.9
2010	1.1	3.1	5.2	9.2	5.6	3.9
2020	0.7	3.3	6.7	14.5	7.4	4.7
2030	0.5	3.4	7.7	20.3	8.5	5.0
2040	0.3	3.5	8.2	26.6	9.2	5.0
2050	0.2	3.6	8.5	33.3	9.6	4.9

In the case of very high immigration and no integration at all (together with a TFR of migrants of 3.00) the proportion of non-Europeans in Europe will increase strongly and rapidly to one-third of the total population in 2050. This in a way is the horror scenario frequently painted by certain politicians and media. It essentially describes a dual society of two groups with little to no interactions and a great probability for hostilities. As the comparison to scenarios 5 and 6 will show, however, this situation is only to a lesser extent caused by high migration levels but more importantly by the complete lack of integration into the native society, whether it be due to the complete failure of integration policies or the lack of will to integrate on either side. Scenario 6, for instance, which assumes a 10% annual integration rate for non-Europeans will only result in 4.9% of non-Europeans by 2050 under the same high immigration assumption. Hence integration makes a difference by a factor of 6. Even a low 5% annual integration rate (scenario 5) would result in a non-European proportion that is smaller by a factor of about 3.

Scenario 2 which essentially assumes a continuation of present (medium level) immigration together with 5% annual integration (also medium level) would only result in a small increase in the proportions of non-Europeans to 3.6% of the total population by 2050. This is a scenario that should be relatively easily manageable by society and that would have many economic advantages stemming from age structural consideration (as discussed in the following section) when compared to the no-immigration scenario.

As to the Eastern European sub-population in Western Europe, Table 4 demonstrates the insignificant quantitative impact of this group. Due to lower cumulative numbers of immigrants and the undoubtedly higher integration rate

Eastern Europeans will at no point--even under high East-West migration assumptions--comprise more than 1.6% of the Western European population. This peak of 1.6% is reached in 2010 under scenario 3. Due to an assumed end to significant East-West migration by 2010 and high integration there will be virtually no East European sub-population left in Western Europe by 2050.

Table 4. East Europeans in Western Europe by scenario (in million people).

Year	No immigration (Scenario 1)	Immigration until 2000 (Scenario 2)	Immigration until 2010 (Scenarios 3 to 6)
1990	3.6	3.6	3.6
2000	1.5	5.8	5.8
2010	0.6	4.2	6.8
2020	0.2	1.7	4.5
2030	0.1	0.7	1.8
2040	0.0	0.3	0.7
2050	0.0	0.1	0.3

Figure 2 finally describes the annual balance between the number of new arrivals into Western Europe and the persons leaving the non-native sub-populations due to integration. It is interesting to see that in all scenarios (except for scenario 4 which assumes no integration at all) the balance is negative at least after 2020 which means that the annual number of persons integrated is larger than the number of persons arriving. The reason for this negative balance despite high immigration is that the stock of non-Europeans has increased to such a degree that the 10% annual integration results in higher absolute numbers per year. Still, this negative balance does not imply that the non-European population is decreasing because this population also grows through their own children. Again, this points at the important long term impact of fertility levels even within the non-native populations. A comparison of scenarios 3 and 5 shows that a TFR of 3.00 among the non-European population results in about a 20% larger size of that group as compared to a TFR of 2.00 under otherwise identical assumptions.

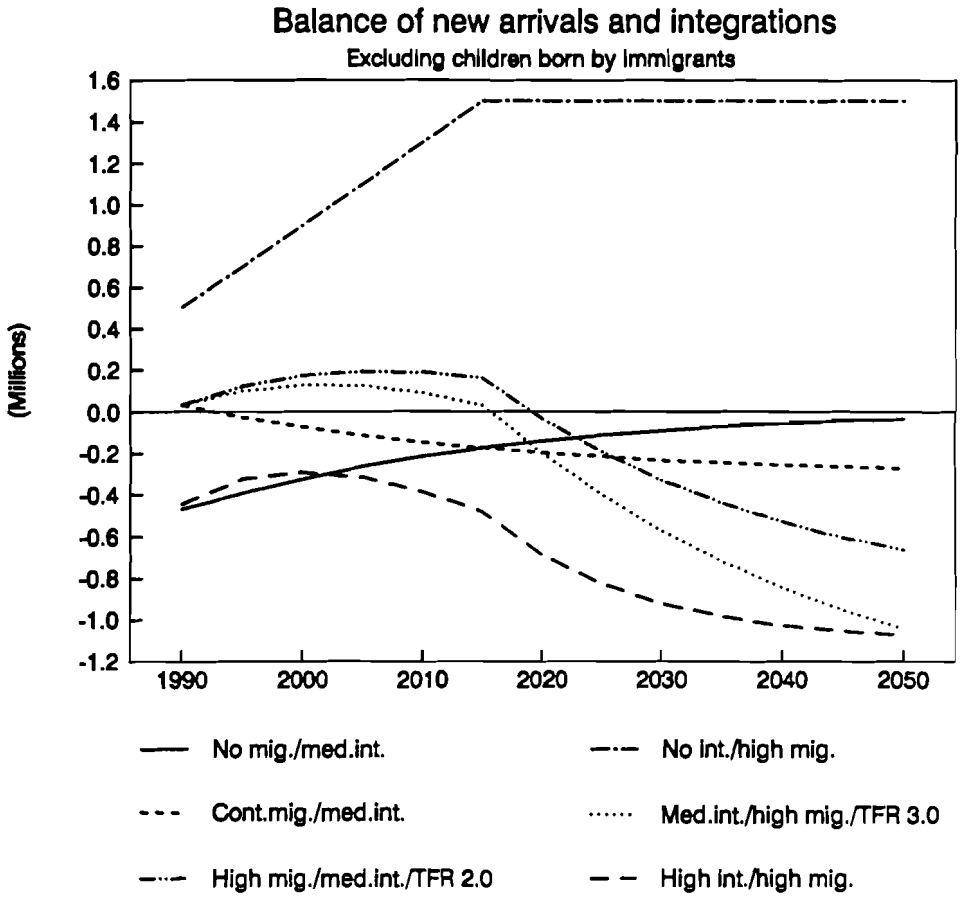

Figure 2. Balance of new arrivals and integrations.

3.3. Effects on the age structure and demographic dependency

Under an economic perspective age structural considerations are of great importance. The proportion of economically active people as compared to the pensioners has been changing in an adverse direction for some time mostly due to population aging and a decline in the mean age at retirement in some cases. For the next 30-50 years a dramatic worsening of this relationship is foreseen for purely demographic reasons. The large birth cohorts of the baby boom of the early 1960s will reach retirement age while the number of people in the economically active ages is significantly shrinking due to the generally very low fertility since the 1970s. Alternative population projections for Europe and North America (Lutz et al. 1991) have shown that the mean age of the population in Western Europe could even increase by 20 years from presently 37 years to 57 years by 2050 under a fertility and mortality decline scenario. All other scenarios also indicate strong increases in the mean age and even those assuming increasing fertility to replacement level foresee an increase well into the 40s. This implies that even in the most optimistic case (high fertility) the proportion above age 65 would increase from presently 14% to more than 22%. In most other scenarios it increases much stronger, even to levels of up to 44%. The very likely fact that the pension burden will at least double

over the coming decades will be one of the major economic and socio-political challenges of the near future.

It is evident that immigration may have a direct impact on the demographic dependency ratios if it is age selective, i.e. if the age distribution of immigrants is different from that of the resident population. And since immigrants tend to come in their young adulthood they increase--at least in the short run--the proportion of the population in the active age group 15-64. In the long run the positive effects of immigration on demographic dependence is less clearcut because, unless they return to their home country, migrants will also age and eventually draw on retirement benefits. What will happen in the long run to demographic dependency depends on the specific conditions assumed, whether migrants have higher fertility than the rest of the population, higher mortality, and whether the stream of new immigrants increases or decreases or remains constant. Generally, under homogeneous fertility and mortality conditions the stream of immigrants would have to be continuously increasing to have a long term positive effect on demographic old age dependency ratios.

In our paper which studies the specific effects of alternative immigration and integration levels we get the following results under the stated fertility and mortality conditions (see Table 5): The increase in the proportion elderly of the total population (natives plus immigrants) ranges from about 20 percentage points in the case of the no-immigration scenario 1 to 12 percentage points in the case of the high immigration/no integration scenario 4 that results in 33.3% non-Europeans as discussed earlier. Two conclusions can be drawn from these findings: (i) the proportion of the population older than 65 is going to increase significantly under all circumstances, and (ii) under a time horizon till 2050 immigration to Western Europe tends to lower the proportion of the population above age 65.

Table 5. Proportion of elderly aged 65 and over in Western Europe (in %).

Year	No mig./ med. int. (Scen. 1)	Cont. mig./ med. int. (Scen. 2)	High mig./ med. int. TFR 2.0 (Scen. 3)	No int./ high mig. (Scen. 4)	Med. int./ high mig. TFR 3.0 (Scen. 5)	High int./ high mig. (Scen. 6)
1990	14.4	14.4	14.4	14.4	14.4	14.4
2000	16.3	15.9	15.7	15.7	15.7	15.7
2010	18.8	17.9	17.3	17.2	17.2	17.3
2020	22.7	21.3	19.9	19.5	19.7	19.7
2030	28.0	26.0	23.8	22.9	23.3	23.5
2040	32.8	30.4	27.3	25.6	26.5	26.8
2050	34.9	32.5	29.0	26.3	27.8	28.3

A similar conclusion can be drawn from another indicator of aging, namely the mean age of the population which has a smoother trend than the proportion above age 65 because it is less affected by intercohort differences in size. Figure 3 plots the changes in the mean ages of the total population, the native population and the non-European population under various scenarios. In the starting year 1990 the difference between the total and the non-European mean age is more than 10 years (37.7 versus 27.2) and increases in most scenarios significantly until 2050 to between 12 years (scenario 4) and 21 years (scenario 6). Only the no-immigration scenario will bring about a significant aging of the already resident non-European population, which will be irrelevant in its size, however (0.18% of the population in 2050). The increasing difference in the mean age is due to the fact that the native population will age rapidly whereas the non-European population tends to have a constant or even slightly decreasing mean age. This stability and decrease is caused by three factors: new young immigrants, higher fertility, and the fact that a certain proportion is integrated into the native population where they will continue their aging process.

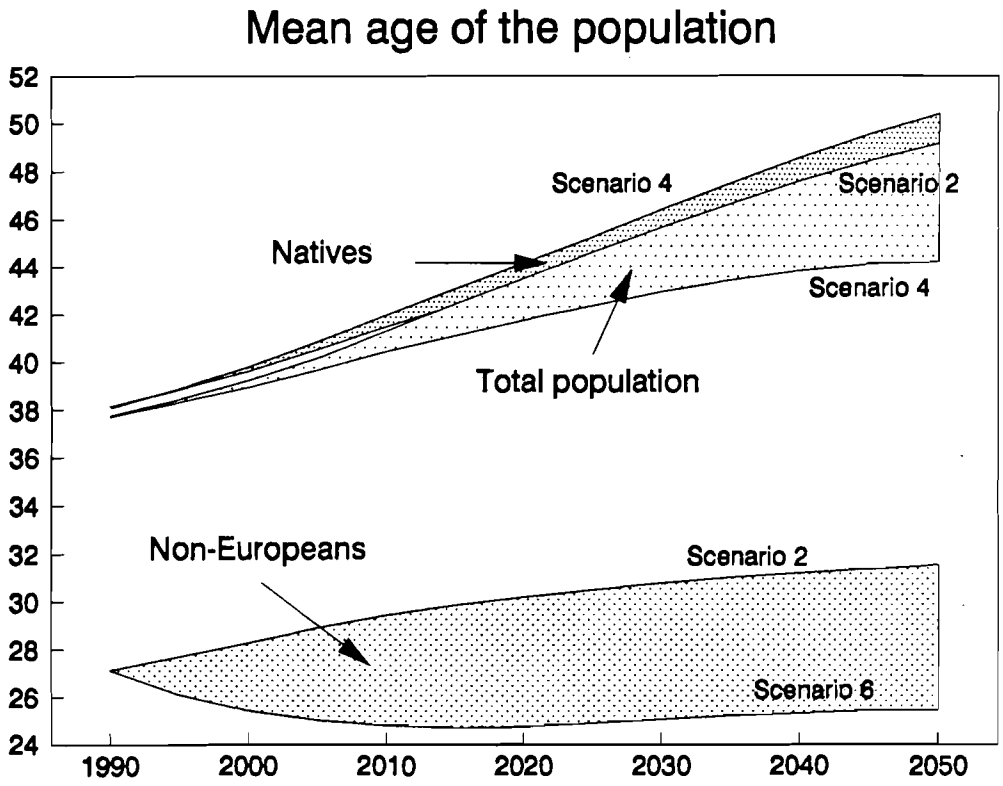

Figure 3. Mean ages of total, native and non-European population under six scenarios for 1990-2050.

Immigrants usually do not only contribute to the economic production in the host country and pay taxes from their incomes but, if legally employed, they also contribute directly to the pension funds. These contributions are presently used to pay for the pensions of native residents, because very few non-natives already have

entitlements to pensions. If pensions are not accumulated on the basis of personal savings policies but present contributions are being used to pay for present pensions --as is the case in most European countries--then the following comparison of the distribution of contributions and benefits by sub-populations may give interesting insights. The following table is purely based on demographic dependency ratios and does not consider actual monetary contributions and benefits which are much more complex to calculate. But the demographic figures should indicate the general tendency.

Table 6. How much does the pension fund benefit from non-natives under different scenarios?

Year/ scenario	Among 1000 people aged 15-64		Among 1000 people aged 65+		Index of benefit from Non-Natives	Index of burden on Non-Natives
	Natives	Non-Natives	Natives	Non-Natives		
1990	963	37	996	4	100	100
2050						
No mig./ med. int. (Scenario 1)	998	2	998	2	97	14
Cont. mig./ med. int. (Scenario 2)	954	46	992	8	101	62
High mig./ med. int./2.0 (Scenario 3)	896	104	983	17	106	67
No int./ high mig. (Scenario 4)	635	365	875	125	133	32
Med. int./ high mig./3.0 (Scenario 5)	892	108	983	17	107	70
High int./ high mig. (Scenario 6)	943	57	996	4	102	156

Table 6 has several parts. The first two columns show how many of 1000 people at working age (15-64) are natives or belong to one of the other sub-populations (East Europeans and non-Europeans together). Figures are given for the present situation and for 2050 under the various scenarios. We see that except for the no-immigration scenario 1 the proportions of non-natives in the active age will increase in all cases, in scenario 4 even tenfold. This can be compared to the middle section of the table which gives the number of natives and non-natives out of 1000 people of pensionable age (above age 65). At present the proportions of non-native elderly and non-native of active age are different by a factor of 9, i.e. nine times more non-natives contribute to the pension fund than benefit from it. In the year 2050 this difference will be reduced to a factor of 6 under scenarios 2, 3, and 5 and to a factor of 3 under scenario 4. Under scenario 6 it would increase to a factor of 14. In any case the non-native population as a group (which is different from individuals who might join the native group) contributes significantly more to the pension fund than they ever will benefit under any scenario. Under scenarios 3-5 this contribution accounts for more than 10% of the total pension fund.

Another way to summarize the possible future changes in the contributions-benefits relationship for non-native groups in the population is the calculation of two indexes given on the right side of Table 6: The "index of benefit from non-natives" gives the ratio between the proportions native among those 15-64 and 65+, which is set to equal 100 in 1990, and the "index of burden on non-natives" which gives the same ratios for the proportions non-native. The alternative forecasts to the year 2050 show that in all cases (except for the no-immigration case) the benefit from non-natives for the pension system is likely to increase mostly because of the youthful age of the non-natives; in the "horror" scenario 4 it would even increase very substantially by one-third. For the non-native population itself the situation is also likely to improve in all cases except for that of the high integration scenario 6. This improvement in the pension burden on the non-natives is determined by the fact that by the year 2050 a much higher number of non-natives will also consume pensions and therefore will lead to a more balanced relationship between contributions and benefits than in the presently very distorted case.

4. Summary

The above described scenario calculations tried to give some sensitivity analysis on what alternative levels of immigration and integration into the Western European population would mean to total population size, to the relative sizes of the three sub-populations considered (natives, East Europeans, and non-Europeans), and to the age structure of the population including the question of demographic dependency. In short the main findings--which are subject to the model specifications and assumptions described above--are:

- In the case of no further immigration the total population of Western Europe would start to decline (under the assumed fertility and mortality levels) after the year 2010. Under assumed high immigration it could increase by 50% or more over the next 60 years.

- The proportion of non-Europeans within Western Europe will increase from presently 2.4% under all scenarios except in the case of no-immigration. It turns out that the rate of integration into the native population (assumed to be 0%, 5%, or 10% alternatively) influences the future size of the non-European population much greater than the assumed alternative levels of immigration.

- In the long run the group of East Europeans in Western Europe will be quantitatively insignificant because of high assumed integration and a likely decrease of immigration flows after 2010.

- The population of Western Europe is bound to significant population aging no matter what happens with immigration. Even strong immigration (unless it is indefinitely growing from year to year) will in the long run hardly affect the aging trend.

- In the short to medium run, however, immigrants contribute to the alleviation of the pension burden because of their youthful age. Non-natives contribute significantly more to the pension fund than they benefit from it.

This paper could show that already rather simple calculations can give interesting and in some cases even surprising findings, as for instance the greater significance of integration as opposed to immigration levels. For a deeper understanding and more concrete policy recommendations, however, significantly more effort in studying the factors associated with immigration and integration would be needed. On the other hand, given the extreme unpredictability of immigration patterns, for longer term considerations simple calculations might be the best one can do at present.

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