DEMOGRAPHIC AGING

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Over the last 50 years birthrates in developing countries have declined to a greater extent than in industrialized countries, by 50% compared with 44%. The old-age dependency ratio —the number of those over 65 years old as a percentage of the 15- to 64-year-olds—and the average age of the population in developing countries are still much lower than in industrialized countries, but they are increasing at a greater rate because the birthrate is declining more rapidly and life expectancy is increasing substantially. In industrialized countries the old-age dependency ratio will double by the middle of the century, whereas in developing countries it will almost treble. Demographic aging is therefore not restricted to industrialized countries—it affects the world population as a whole.

The United Nations Population Division has calculated that the world birthrate has been sinking for decades and that as of 2030/2035 it will fall below the replacement level (2.1 births per woman). Forty years later, from around 2070, a new phase of world population decline will begin. But before then the world's population will grow from around 6.4 billion to around 9 billion. The predicted figures for round years in between, such as 2050 or 2070, suggest that we are looking at a transition from one equilibrium to another. But this idea is deceptive. Precisely when the low birthrate remains constant, for example in Germany, the demographic process does not lead to a new equilibrium at a lower level, but rather—if there is no balancing through immigration—to ongoing shrinkage, which lasts as long as the population maintains its demographically relevant behavioral patterns.

Comparative international studies show that the greater the decline in the birthrate and the more intensive the aging of the society, the greater the country's level of economic development ("demographic-economic paradox"). In industrialized countries economic prosperity was bought with demographic instability, which is now reducing the growth rate of the national product by at least one percentage point. In Germany, where demographic aging is very pronounced (only Japan and Italy are slightly ahead), the realization is gaining ground that the demographically induced increase in the welfare burden for every 15- to 65-year-old, which is set to double, cannot be reformed away but only distributed differently.

Since 1972 the annual number of deaths in Germany has exceeded the number of births. Those not born in the last three decades are now absent as potential parents. The decline in the number of births is therefore followed 25 to 30 years later—that is now, around the beginning of the twenty-first century—by a decline in the number of potential parents, a kind of demographic echo. This decline in the number of parents inevitably leads to a further decline in the number of births, which, in turn, 25 to 30 years later—from 2020/2030—will result in another decimation of the number of parents, and so on. In the last three decades the shortfall in births was (over)compensated by immigration surpluses. This not only saved

the population from decreasing but also helped it increase slightly: in 2001, for example, the increase was 0.2%, and in 2002 it was 0.1%. The long-term average intake of new immigrants is around 800,000 per annum; the annual birthrate in the 1980s was also around 800,000. Since the 1990s the annual birthrate has fallen to between 700,000 and 800,000 and has been below the annual intake of immigrants (800,000 to 1,000,000). The annual birthrate will decline steadily in the decades to come: to 588,000 in 2020 and 438,000 in 2050.

As a consequence, in Germany the generations that are dying out are increasingly being replaced by immigrants rather than by births in the country. This policy of compensatory immigration from the third world, in particular from Turkey, which has been practiced for around thirty years, can easily be continued, but this would require ever greater immigration surpluses because the current birth shortfall of just under 100,000 will increase to around 750,000 in 2050. Even if the fertility rate, which for decades has remained practically unchanged at between 1.3 and 1.4 children per woman, gradually rose by 2030 to the level of 2.1 required to maintain demographic stability, population decline would continue far beyond 2030 and only end in 2060 (if there were an annual immigration surplus of 150,000) or 2080 (without compensatory immigration).

The demographic forecasts presented here have nothing to do with prophecy—they are mathematically verifiable statements in the form of if/then statements. If the assumptions are correct or fairly accurate, the forecasts will come true almost (or exactly) as predicted. A peculiarity of demographic forecasts is that long-term statements are possibly more exact than short-term ones. The difference between short- and long-term forecasts is similar in some ways to the difference between short-term weather forecasts (of just a few days ahead) and longer-term predictions, for example those concerning the average temperatures in several months' time, when the summer has passed and been followed by fall and winter. The demographic winter is predetermined by the decline in the number of births in the 1970s, which is now causing a decline in the number of potential parents, just as the succession of the seasons is determined by the rotation of the earth around the sun. As complex and detailed as these predetermined developments are, they can be analyzed and forecast with considerable precision using modern computers. For example, the degree of error in the population forecast for the year 2000 made on the basis of 1991 figures was 1% for Baden-Württemberg, 0.3% for Lower Saxony, and only 0.1% for all 16 German states together—where the errors partly balance each other out.[1] Over the last ten years the population forecasts of the various research institutes and the German Census Bureau have become increasingly similar or, in other words, more realistic.

The middle version of my own population forecast, the results of which are summarized in the following, shows most similarities with the first and fourth (or seventh) version of the Census Bureau's tenth coordinated population forecast.[2] My calculations are based on the following assumptions: (a) a birthrate for the German population of 1.25 births per woman and for the immigrant population of 1.64 births per woman; (b) an increase in male life

expectancy from 75 to 81, and in female life expectancy from 81 to 87; (c) an annual immigration surplus of 170,000 persons, these being predominantly young people. These assumptions give rise to the following results:

1. Demographic developments in Germany between 1998 (the base year of calculations) and 2050 will be marked by two parallel developments: a population explosion of the older age groups and a population implosion of the younger ones. The number of those 60 years old and older will increase by around 10 million from 1998 to 2050; at the same time, the number of 20- to 59-year-olds will decline by around 16 million and the number of those 19 years old and younger by 8 million. That means the population will decline from 82 million to 68 million, or about 14 million total.

2. Population decline will be greater in the new, eastern states of Germany than in the old (28% as opposed to 15%). The more substantial decline in the eastern states is caused, on the one hand, by the lower fertility rate (currently 1.1 to 1.2 children per woman in the East compared with 1.3 to 1.4 in the West) and, on the other hand, by internal migration from East to West. The economically most significant age group, the 20- to 59-year-olds, will shrink between 1998 and 2050 by 40% in the old German states and 50% in the new states.

3. The population explosion of the elderly will be particularly pronounced in the 80-and-older age group. The number of those 80 years old and over will increase between 1998 and 2050 from around 3 million to 10 million.

4. The immigrant population—defined as the number of inhabitants who in the base year of the calculations (1998) were not German citizens—will grow as the result of a birth surplus and an expected immigration surplus (annually 170,000). It is thus expected to increase from 7.4 million to 19.0 million between 1998 and 2050. The proportion of immigrants in the total population will rise from 9.0% (1998) to 27.9% (2050).

Consequences of Demographic Aging and Declining Population

Demographic change has profound consequences for the social security system, economic growth, and society.

1. The social security system is based largely on what is known as the adjustable contribution procedure (pay-as-you-go system). This means that contributions paid into the statutory pension, health, and long-term care insurance schemes in any one year are paid out that same year to pensioners, the ill, and those in care, without any reserves being built. Because there are no reserves, when today's contributors retire they will be cared for through the use of funds paid in by future contributors. The number of people in the relevant age group of 20- to 59-year-olds will decline by 16 million, whereas the number of people in the age group of 60 years and older will increase by 10 million. Given this contrasting development, the number of those 60 years old and over expressed as a percentage of the 20- to 59-year-olds (the old-age dependency ratio) will increase between 1998 and

2050 from 38.6% to 91.4%. In other words, the demographic developments will increase the per capita welfare burden on the 20- to 59-year-olds by a factor of 2.4.

If the average pension level as a percentage of the average wage—today around 70%—were to be retained, the contribution rate would have to rise to the same extent as the old-age pension, meaning that it would have to more than double. The repercussions of demographic aging are similarly grave for the statutory health and care insurance schemes. Raising the contribution rates for all three schemes in line with the increasing old-age dependency ratio would entail an intolerable burden on the economically active population and significantly diminish the competitiveness of the German economy on the world market. To guarantee that contribution rates rise only moderately, a reform of the social security system is essential: additional private insurance must be introduced in the pension, health, and care insurance schemes in order to augment the existing contribution system.

2. Economic growth and the growth rate of per capita income are both restrained by the declining number of producers and consumers. The demographically induced decline in the growth rate of total consumer spending is worsened by the increasing share of disposable income needed for building up privately financed entitlements to complement the statutory pension, health, and care insurance schemes—money no longer available for consumer spending.

As a consequence of this development, economic research institutes have revised downward their forecasts for the long-term growth rates of national income. An average annual growth rate of 1.5% in the long term is now considered probable. The decelerating growth of national income and per capita income creates a dilemma: the social security system actually requires ever-increasing tax-funded subsidies, but weak economic growth is beginning to reduce internal revenue. The demographic developments are thus preventing a resolution of the problems they cause.

Per capita income will probably also increase in future due to increased economic productivity—even with a growth rate of per capita incomes of just 1.5% per year, per capita income will double by 2050. The conclusion is therefore often drawn that the increasing demographic burdens on social security could easily be offset by using this considerably higher per capita income. This conclusion is misleading, because if in future the current indexing principle applies, whereby a person's pension corresponds to a particular percentage of his or her former income, then a doubling of per capita income would result in a doubling of pensions. This means that the demographic burdens would increase independent of increases in productivity or income, even if per capita income were to quadruple.

3. The greatest challenge in demographic development is at the level of social relations because the changes exacerbate conflicts of interest between different sections of the population.

(a) The conflicts of interest between older generations and the younger, economically active ones—the term "intergenerational justice" is often used to designate this debate

—are becoming ever more acrimonious as the number of pensioners rises relative to the number of younger contributors to the welfare system.

(b) The main cause of the crisis of the social security system is the low birthrate, which in turn is caused by an increasing number of people deciding not to have children, whereas those who decide to become parents often have two children rather than just one. For parents, the average number of children is thus two, and this figure has been relatively constant for decades. These developments lead to a polarization of society into two groups—those with children and those without—which seriously undermines social cohesion. In its decision regarding care insurance on April 3, 2001, the Federal Constitutional Court set out the concept of "generative contribution" through bringing up children as the decisive prerequisite for the functioning of all pay-as-you-go-financed branches of the social security system. It judged the existing care insurance scheme to be unconstitutional—lacking in terms of contributory justice—because it guarantees those without children equal entitlement to benefits despite their unequal generative contribution. This criticism—equal entitlement to benefits despite unequal generative contribution—concerns all contribution-financed branches of the social security system. Therefore, according to the decision of April 3, 2001, the pension and health insurance schemes also must be reviewed and reformed. The court set a deadline of December 31, 2004, for the reform of the care insurance scheme.

(c) Conflicts of interest also increase between the immigrant population and the autochthonous population. This conflict potential derives above all from immigrants' lack of vocational qualifications and the integration barriers due to educational and culturally specific factors. The lack of vocational qualifications results in lifelong differences in income and wealth. Even among immigrant children born in Germany, 60% leave the education system with only the lowest secondary school certificate—or none at all. The integration problem is a long-term issue.

(d) Demographic change also has long-term effects on the relationship between the old and the new German states. The increasing, demographically induced shortage of young, well-educated workers leads to East-West migration, which, together with the North-South migration that has existed since the Second World War, forms part of an inner-German brain drain. This strengthens the lead of the southern and western German states in terms of their future development potential.

Regional Differences

All German states, regions, and municipalities have been affected by the declining birthrate since the beginning of the 1970s, but there are striking regional differences.

1. In the new states the decline has been occurring since German reunification, whereas the western states, in particular Hesse, Baden-Württemberg, and Bavaria, will record population increases for another ten to twenty years thanks to migration surpluses both from abroad and from the other German states.

2. These population changes do not take place evenly across the board. Shrinking does not mean that the affected municipalities, regions, and states experience a linear reduction in scale; rather, demographic change always has winners and losers.

3. Birthrates and the migration situation contribute to the extreme regional differences in population and age structure. For example, in 1999 the old-age dependency ratio (the number of those 65 years and older relative to the 15–64 age group) was 23.9% for Germany as a whole, whereas in Baden-Baden it was a staggering 35.5% (compared to 22.9% in Baden-Württemberg and 24.8% in Lower Saxony).

4. Social welfare spending constitutes a significant part of local government expenditure. The amount depends to a large extent on the number of foreigners (or rather, independent of their actual citizenship, the number of people with an immigrant background), and thus on the migration situation in each state and municipality. The percentage of foreigners in the population in 1999 amounted to 12.5% in Baden-Württemberg, for example, and 6.7% in Lower Saxony, but their percentage among social welfare recipients is far higher than their percentage in the population at large: 26.3% in Baden-Württemberg and 22.8% in Lower Saxony. At municipal level the discrepancy between the percentage of foreigners in the population and their percentage among social welfare recipients can be much higher than the discrepancy at state or national level. The percentage of foreigners in the population in 1999 was 24.5% in Stuttgart, for example, and 15.1% in Hanover, but the proportion of foreign social welfare recipients was 40.1% in Stuttgart and 40.7% in Hanover.

Demographic change in the German states does not lead to linear reductions in scale —its effects at regional level can be highly divergent in type, direction, and intensity. Differentiation between the factors "trend" and "business cycle," which is important for economic development, must be extended in future by adding a third factor—"demography"—which is of great significance at regional level in particular.

Generally speaking, population decline at municipal level has the following effects:

1. The demographic conditions for development are of increasing importance for economic development. A high birthrate and favorable age structure will prove to be crucial location factors for municipalities in future.

2. Unfavorable demographic structures have negative repercussions for internal revenue. A fundamental reform of local government finances is essential. The introduction of incremental income tax increases would be a conceivable means of influencing population figures at municipal level by helping to tailor both foreign immigration and inner-German migration.

3. The ongoing reduction in average household size nationwide leads to an increase in the number of households, and this trend will continue in the medium term. But in the long term there will be vacant houses and apartments, depreciation, cost increases due to vacancies, demolitions, and capital loss. Some regions are being affected by this already. This development increases the regional inhomogeneity of the housing market: islands of

wealth and growth stand out against regional markets with high vacancy levels and self-proliferating processes of shrinkage.

4. Population decline means fewer users of public institutions and less revenue from user charges and fees. But fixed costs remain high, as does the burden of repaying debts incurred in order to invest.

5. The demographic developments lead to closure of administrative institutions, kindergartens, schools providing general education, and—albeit slightly later—secondary schools. Budget-financed institutions and infrastructure, especially social amenities, are also affected.

6. The segregation of the population at regional and municipal level into an autochthonous group with above-average education, income, and wealth, on the one hand, and various sections of the immigrant population, on the other, will increase as the ethnic German population moves away and declines and the immigrant population grows. Social welfare expenditure is commensurately greater the more the proportionate immigrant population increases.

This essay is an abbreviated version of a contribution by Herwig Birg to the 22nd Sinclair House Debate in 2004, organized by the Herbert-Quandt-Stiftung. Documentation of the discussion round is available free of charge and in English translation: Herbert-Quandt-Stiftung (ed.), *Society Without a Future? – Population Decline and Ageing as a Political Challenge,* Bad Homburg, Germany: 2005.

This abbreviated version translated from the German by Will Firth

Notes

1 Herwig Birg et. al., *Zur Eigendynamik der Bevölkerungsentwicklung der 16 Bundesländer im 21. Jahrhundert,* Materialien des Instituts für Bevölkerungsforschung und Sozialpolitik 42 (Bielefeld, Germany: University of Bielefeld, 1997): 113, Variant 1. For further information, see Herwig Birg, *Die demographische Zeitenwende: Der Bevölkerungsrückgang in Deutschland und Europa,* 3rd ed. (Munich: C. H. Beck, 2003).

2 Statistisches Bundesamt, 10. *koordinierte Bevölkerungsvorausberechnung* (Wiesbaden, Germany: Statistisches Bundesamt, 2003).