

PROF. DR. JAMES W. VAUPEL
MAX PLANCK INSTITUTE FOR DEMOGRAPHIC RESEARCH, ROSTOCK

In Search of Time Won – About the Future of Aging Societies

In the last decades the population structures of most European countries have changed fundamentally. Societies are aging – and this statement is the starting point of alarming future scenarios. But how dramatic is the situation in reality?

Taking an initial look at the development of fertility, we are facing a situation today in which the birthrate in most European countries is below the level of just above two children per woman, required to maintain the current population size. While a number of countries such as Iceland, the United Kingdom, Ireland, France and the Scandinavian countries have a birthrate that is only slightly lower, Germany, Austria and the majority of the South and East European countries show birthrates far below the levels required to maintain the current population level. By comparison with the post-war generations, people have fewer children today, and they have their children increasingly later in the course of their lives. Economic restrictions, poor care offerings for the children of working parents, inflexible labor markets and pessimistic outlooks on the future are only a few of the possible reasons for this development.

In the past years governments have taken targeted measures to improve the relevant situations of children and parents and thereby counter the low birth rate levels. But even a very substantial increase in birth rates would only have repercussions on the structure of the population over the longer term. This is the inevitable result of the current age distribution: today, it is already foreseeable that in around half of the European countries the majority of women born in the early sixties – of which a majority have already passed their reproductive life phase – will not have given birth to more than two children in the course of their life. Especially the above 40 age section accounts for a major share of the population in many European countries today.

This persistently low birth rate is contrasted by a remarkable increase in life expectancy. In Germany, for example, the average life expectancy rose by more than 30 years during the 20th century. The considerable setbacks caused by the catastrophes of the two world wars and the ensuing epidemics and famines were only short intermissions. After 1950, the development of the average life expectancy in Germany matched the general developments in Europe, and showed a linear upward trend, albeit on a lower level.

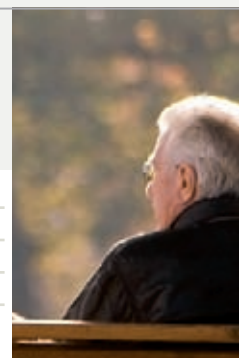
Low fertility and rising life expectancy influence the age structure of the population – a rising share of senior citizens and very old persons stands in contrast to ever fewer children in the rising generation. In 2030, the share of people older than 65 will have risen from today's 6.9 % to at least 12 %. Even the developing countries are experiencing population aging, and in many instances at an even more rapid pace than the

industrialized societies. Nevertheless, the Western industrial nations still remain the "trendsetters," as the example of Germany documents: while the share of 65-year-olds stood at 17% in the year 2000, their percentage will almost double by the year 2030, and will then account for around one third of the total population.

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A decline in population is another result of demographic change, and Germany will be especially impacted by this decrease in the total population. While the population of Germany stood at 82.2 million in the year 2002, according to the latest predictions by the United Nations this figure will drop to 79.3 million by the year 2030, which equals a decline by almost 3 million inhabitants. Or expressed in more graphic terms, the decline equals the current number of inhabitants of the cities Nuremberg, Frankfurt/Main, Dresden, Leipzig, Bremen and Rostock all together. In a forecast for the year 2050, the Federal Statistical Office even assumes a population totaling some 68.7 million inhabitants. This would add Berlin, Hamburg, Munich, Stuttgart and further cities to the listing above. Even if these scenarios may not occur down to the last details – the decline of the population in the next decades will be drastic in any case.

Hopes of compensating for demographic change by attracting more immigrants are likely to prove unrealistic. According to figures provided by the Federal Statistical Office, an average of around 720,000 persons immigrated to Germany annually in the years from 2003 to 2007. In the same period, some 645,000 persons left the Federal Republic every year. A migration balance of just fewer than 75,000 migrants per year, or 375,000 immigrants in a five year period, would not impose any appreciable effects on the population decline predicted for the next decades. On the one hand, the majority of forecasts are already based on these figures. Net immigration would have to rise considerably, and could not fall back to less than 50,000 immigrants per year, as was the case in 2006 and 2007. On the other hand, the age structures among immigrants and emigrants, and the domestic migration



patterns within Germany play a role with regard to the population aging. In many poorly developed regions especially the young people move away, with the result that these areas age more rapidly than the urban centers and regional suburbs that benefit from immigration.



THE PERSISTENTLY LOW BIRTH RATE IS CONTRASTED BY A REMARKABLE INCREASE IN LIFE EXPECTANCY. IN GERMANY, FOR EXAMPLE, THE AVERAGE LIFE EXPECTANCY ROSE BY MORE THAN 30 YEARS DURING THE 20TH CENTURY.

An exact look at the figures leaves no doubt as to the extent of demographic change that will actually occur in the majority of European countries. Moreover, we have presumably not even reached the “limits of aging.” In future, the average life expectancy might rise to levels that we can only guesstimate today. At present, the respective figures in Europe stand at around 82–84 years for women and 77–79 years for men, which yield an average life expectancy of around 80 years. In the last ten years alone, however, the field of medicine alone has made tremendous progress. Increasing sections of the population have an awareness of better health care, prophylactic measures and healthier ways of life. There are many individuals who do not want to continue to expose themselves to the detrimental effects of contaminants and are keenly aware of the need to safeguard our natural resources and the respective environmental issues. Viewed in this light, it can be expected that in the year 2059, individuals born today will benefit from five additional decades of progress in science and technology, health care, the education system as well as in environmental protection and advances at the workplace. Therefore, these individuals have every opportunity to enjoy considerably longer lives than under today’s conditions.

The increase in the number of very old persons that has been discernible over a number of decades and the long term development of record life expectancy are indicators of these developments. Between 1980 and 2000 the number of persons over 100 years of age showed a six fold increase, while this figure represents an almost fortyfold gain by comparison with the year 1960. The most remarkable finding in demographic research, however, is the linear trend in record life expectancy since 1840, as well as the fact that this constant upward trend has continued to date and does not show any

leveling out or even a decline. Around the middle of the 19th century Swedish women had a life expectancy of 46 years, which was the highest average figure worldwide. Today, Japanese women lead the record statistics with an age expectancy of around 86 years. This increase of around 2.5 years per decade is not only characteristic for Sweden and Japan, but is discernible in the majority of the world’s affluent nations. Consequently, there is much that would indicate that today’s newborn will have good chances of experiencing the 22nd century.

In this context there are two interesting exceptions among the world’s leading industrial nations: in Russia, following a short rise at the beginning of the eighties, the average life expectancy declined dramatically – by five years from 1987 to 1994 – and has not stabilized since then. In the case of men, the average life expectancy today is 16 years lower by comparison with Germany. We still know far too little about the exact causes of this development. It is apparent that diverging educational opportunities are a significant factor. The difference in life expectancy between individuals in the top levels of education and the lowest levels of education in Russia stands at 13 years. Are the deficits in the education system the cause of the lower average life expectancy? If so, why then do Germans with a high educational level have even a lower mortality than Russians of about the same educational level? Or does this have far more to do with the underlying social disparities following the fundamental system changes after the collapse of the communist regime? Upward social mobility and the benefits of more qualified professions create access to medical care, information on health risks, healthier lifestyles and usually a living environment entailing fewer risks and danger. In this light, the alcoholism, violent causes of death as well as cardiovascular disease which research has shown to underlie the lower life expectancy in Russian men may well be merely the symptoms of social inequality.

The United States represent the second significant exception. Since 1980, American citizens have experienced a much slower rise in the average life expectancy as Europeans. Today’s average life expectancy in the United States stands at 80.4 years for women, and 75.2 for men, figures that rank in the lower mid-field and are only slightly above life expectancy in the former Eastern Block nations. By contrast, Japan, France, Switzerland and Spain lead the field with an average life expectancy of 84 to 86 years for women, and 77 to 79 years for men. Moreover, it is especially notable that mortality in younger age brackets is disproportionately higher in the United States by comparison with Europe. The probability of death occurring before individuals reach the age of 65 stands

at 21 % for men and 13 % for women in the USA. By comparison, the figures in the majority of western industrial nations are stated as 11–18 % for men and 7–10 % for women.

Especially the last findings are of great interest for researchers. Those nations with populations attaining higher average life expectancies by comparison with other countries have reached these levels by reducing mortality in younger age groups, in particular in age brackets below 65 years.

Associated with its high level of mortality before age 65, the USA lags behind with regard to the so-called *life disparity*, which is calculated as follows: when an individual dies at a certain age he or she “loses” the remaining years of the average life expectancy. By determining the average value of these lost years in all cases of mortality of a given year the life disparity is obtained. This value indicates how many years of life a society “loses” in a given year on average. The figures of 11.3 for women and 12.7 for men place the United States in a poorer position by comparison with the majority of European countries that show average figures below 10 for women and below 11.5 for men.

The idea that average life expectancy primarily rises due to the fact that people are reaching high and very high age, and that mortality is declining in these age sections, is only part of the truth. In addition, we know from highly reliable Danish registers of twins, as well as research about the United States and Japan, that rising age is also associated with an increasing number of years in which individuals remain in good health. We are not only living longer, but also remaining healthy longer. Before this, however, we must survive the given risks before reaching retirement age.

What conclusions can be drawn from these findings? Western industrial nations can strive to reduce the mortality risks in younger years, especially through better diagnostics, therapy and health care in cardiovascular disease, strokes or cancer. The fact that the reduction of mortality rates in younger ages will have a positive effect on life disparity, as well as on the average life expectancy of societies is evident. It is also apparent that higher survival chances in younger age groups will have far more positive politico-economic repercussions than increases in life expectancy as such. Given the expectations and considerable likelihood of exceeding the age of 65, longer term care and social security, the creation of assets and investments in sound education and training attain a different significance. High average life expectancy, however, does not decide whether an individual will actually live to ripe old age. The prospects of longer life may also result in a restructuring of the “classic” courses of lives. If today’s newborns do in fact enjoy good chances of living to the age of one hundred years, they will, given today’s retirement age, have three or


four decades of retirement to look forward to. In the future, the time of our lives could be restructured. Instead of working little or not at all after age 60 or so, we could use our longer life spans to extend our vocational lives, perhaps not working as many hours per week as at younger ages but still in a productive manner. Demographic models show that extending life working time would enable us to have more time at our disposal in earlier phases of life. Taking sabbaticals or enjoying phases of part-time work could enable individuals to benefit from further periods of education and/or training or practical experience in other vocational areas. Above all, however, we could benefit from more time for our families, especially in the phases in which children are born and raised - in other words, in the third, fourth and fifth decades of our lives. From a statistical viewpoint, extended life working time in connection with a reduction of weekly working hours in younger years could equal the same number of per capita working hours throughout the population. More extensive research and interdisciplinary discussions would be required to define how such models could be implemented in concrete, practical terms. This could be accomplished, for example, by way of reducing barriers to part-time work and voluntary extension of working life, or by way of pensions adapted to these new courses of vocational life.

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As outlined above: today, we enjoy good opportunities to live considerably longer and also in better health than preceding generations. Naturally, there are no guarantees, as individual life spans still vary considerably despite leveling trends. We still know far too little about the factors determining aging and mortality. Genetic predispositions, individual lifestyles and health care all play a role, but how do these factors interrelate? What significance do events and experiences in the early phases of childhood, such as infectious disease or the family environment in the first decades of life, hold for individual life expectancy? Although today’s research supports the assumption that current life conditions, even in old age, strongly determine life expectancy, the role of early life condi-



tions and circumstances has not been adequately clarified. This question also gains new relevance in view of the risks of the high incidence of obesity among young people today. And how can the so-called “male-female paradox” be explained? On average, men enjoy better general health and show a lower prevalence of disability than women, while suffering considerably lower life expectancy at the same time.



SOCIETIES WILL BE BETTER EQUIPPED TO COPE WITH THE CHALLENGES OF DEMOGRAPHIC CHANGE TO THE EXTENT THAT THEY SUCCEED IN BENEFITING FROM THE “ADDITIONAL YEARS WON” BEING WON BY RISING LIFE EXPECTANCY.

Considering the above, a great deal of further research is still required in these areas. Decision and policy makers in politics, the business arena and society should step up their discussions on how the potential of rising life expectancy of ever broader sections of society could be put to better use by introducing greater flexibility to their vocational and private lives. Societies will be better equipped to cope with the challenges of demographic change to the extent that they succeed in benefiting from the “additional years won” being won by rising life expectancy.

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The fundamental data is based on the mortality charts in the Human Mortality Database (www.mortality.org). Information on demography is available on the information portal www.zdwa.de of the Rostocker Zentrum zur Erforschung des Demografischen Wandels, as well as in the infoletter Demografische Forschung aus Erster Hand and can also be downloaded from the website of the Max Planck Institute for Demographic Research (www.demogr.mpg.de).

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ÜBER DIE AUTOREN | ABOUT THE AUTHORS

STEFAN H. E. KAUFMANN

(*1948) ist Direktor am MPI für Infektionsbiologie in Berlin. Kaufmann studierte Biologie und promovierte 1977 an der Johannes-Gutenberg-Universität in Mainz. 1981 habilitierte er sich in den Fächern Immunologie und Mikrobiologie an der Freien Universität Berlin und wurde 1987 erst C3-, dann 1991 C4-Professor an der Universität Ulm, deren Abteilung für Immunologie er bis 1999 leitete. 1993 war er einer der beiden Gründungsdirektoren des Max-Planck-Instituts für Infektionsbiologie in Berlin. Für seine Arbeiten erhielt er zahlreiche Preise und Auszeichnungen; er ist Mitglied der Berlin-Brandenburgischen Akademie der Wissenschaften, der Leopoldina und der Amerikanischen Akademie für Mikrobiologie.

(*1948) is Director at the MPI for Infection Biology in Berlin. Kaufmann studied biology and completed his doctorate in 1977 at the Johannes Gutenberg University in Mainz. He completed his German post-doctoral lecturing qualification (Habilitation) in immunology and microbiology at the Free University Berlin in 1981 and was appointed Associate Professor (in 1987) and full Professor (in 1991) at the University of Ulm where he was Director of the Department of Immunology until 1999. He was one of the two founding directors of the MPI for Infection Biology which was established in Berlin in 1993. He has received numerous awards and honors for his work; he is a member of the Berlin-Brandenburg Academy of the Sciences and humanities, the German Academy of Sciences Leopoldina, and the American Academy of Microbiology.



JOCHEM MAROTZKE

(*1959) ist Direktor am MPI für Meteorologie in Hamburg. Nach dem Diplom in Physik im Jahr 1985 promovierte er 1990 in physikalischer Ozeanographie an der Universität Kiel. Nach einer Postdoc-Stelle am Massachusetts Institute of Technology (MIT) wurde er Assistant und danach Associate Professor am MIT. Von 1999 bis 2003 war Marotzke Professor für Physikalische Ozeanographie am Southampton Oceanography Centre in Großbritannien. Seit 2003 ist er Direktor am MPI für Meteorologie in Hamburg. Marotzke ist Mitglied in zahlreichen wissenschaftlichen Gremien, die sich mit Klimaforschung befassen, so ist er seit 2005 Mitglied des Gemeinsamen Wissenschaftlichen Komitees des Weltklimaforschungsprogramms.

(*1959) is Director at the MPI for Meteorology in Hamburg. Having completed his Diplom (German degree) in physics in 1985, he completed his doctoral studies in physical oceanography at the University of Kiel in 1990. Following a post-doc position at Massachusetts Institute of Technology (MIT), he was appointed Assistant Professor and then Associate Professor at MIT. From 1999 to 2003, Marotzke was Professor for Physical Oceanography at the Southampton Oceanography Centre in Great Britain. He has been Director of the MPI for Meteorology in Hamburg since 2003. Marotzke is a member of numerous scientific bodies which deal with climate research and has been a Member of the Joint Scientific Committee of the World Climate Research Program since 2005.



JAMES W. VAUPEL

(*1945) ist Direktor am MPI für demografische Forschung in Rostock. In New York geboren, studierte er mathematische Statistik an der Harvard University, wo er 1978 promovierte. 1985 bis 1991 war er Professor für Public Affairs and Planning an der Universität von Minnesota und von 1991 bis 2002 Professor für Demografie und Epidemiologie an der Odense University, Medical School, in Dänemark. Zugleich war er seit 1992 Senior Research Scientist an der Duke University in den USA. Vaupel erhielt mehrere Preise für seine Arbeiten und ist unter anderem Mitglied der National Academy of Sciences der USA.

(*1945) is Director of the MPI for Demographic Research in Rostock. Born in New York, he studied mathematical statistics at Harvard University where he completed his doctorate in 1978. He was Professor for Public Affairs and Planning at the University of Minnesota from 1985 to 1991 and Professor for Demography and Epidemiology at Odense University, Medical School in Denmark from 1991 to 2002. He was also Senior Research Scientist at Duke University in the USA from 1992. Vaupel has received several awards for his work and is a member of, inter alia, the National Academy of Sciences of the USA.

