



International Institute for Applied Systems Analysis
Office of Information
Schlossplatz 1, A-2361 Laxenburg, Austria
Tel. +43-2236-807477/Fax: +43-2236-807201
Email: drinkov@iiasa.ac.at



ÖSTERREICHISCHE AKADEMIE DER WISSENSCHAFTEN
Dr. Ignaz Seipel Platz 2, A-1010 Wien
Tel: +43 1 515811219
Email: Marianne.Baumgart@oeaw.ac.at

**Embargoed for release
2:00 p.m., U.S. Eastern Times
Thursday, 27 March 2003**

Europe's Population at a Turning Point

Europe has just Entered a Critical New Phase of its Demographic Evolution

Delays in childbearing make a big difference for the birth rate

Vienna – Laxenburg, 28 March 2003 – The age composition of Europe's population has been modified by past low birth rates to such a degree that there are fewer children today than adults of reproductive age. This phenomenon – called “negative momentum” by demographers – implies that even if women in the future should have an unexpected fertility increase to two children on average the population would (in the absence of migration and mortality changes) be destined to shrink. This new force toward population shrinking appeared in Europe around the year 2000 and will become more and more powerful the longer fertility stays at its current low levels. And these current low fertility rates are partly a result of continued delays in childbearing.

These are some of the key findings of research appearing in the journal *Science*, which resulted from collaboration between the Vienna Institute of Demography of the Austrian Academy of Science and the International Institute for Applied Systems Analysis (IIASA), in Laxenburg, Austria. The research team, led by Wolfgang Lutz, included Brian O'Neill and Sergei Scherbov.

“Negative momentum has not been experienced on a large scale in world history so far. It is now like sailing against a current running toward population shrinkage and aging,” Lutz said. Two factors are responsible for Europe's negative population momentum. The first is well known: that women are having fewer than two children, on average.

The second factor, whose future impact hasn't been addressed directly until now, the authors say, is that women's average age at childbirth has been increasing over time. This so-called “tempo effect” matters because it reduces the number of children born in a given year, boosting the average age at which women have children.

The researchers estimated how these two factors might affect Europe's population in future decades. They found that approximately 40 percent of potential future population declines caused by low fertility were related to the postponing of births.

“We've found that the timing of childbearing can actually have a major impact on future demographic trends,” said co-author Sergei Scherbov of Austrian Academy of Science and IIASA.

The current birthrate rate in Europe is 1.5 children per woman. According to the *Science* authors, after adjusting for the tempo effect (estimating how many babies would be born in a given period of time if no births were postponed), the rate increases to 1.8.

To pinpoint the future effects of changes in fertility rates and the timing of childbirth, the researchers assumed that other possible influences would promote stability--that is, mortality rates wouldn't change, and there would be no immigration.

"In reality we expect continued immigration into Europe, but here we wanted to identify these two mechanisms which we think are new and important insights into the nature of population dynamics. To sharpen the focus on them, we had to eliminate other effects like migration in the calculations," Lutz said.

According to the researchers' calculations, if women's average age at childbirth continues to increase for another 10 to 40 years:

- There will be a built-in tendency for population size to decline by 55 million to 144 million by 2100;
- an additional 500 to 1500 million person-years of workers will be needed to maintain the support ratio for the elderly population over the rest of the century.

Lutz and his co-authors suggest that governments concerned about population aging and the potential for population decline could consider policies that give women more options in planning when to have children.

"The choices young couples make depend on the conditions around them," Lutz said.

Possible starting points for consideration might address childcare, labor laws, part-time work options, or subsidized housing for young parents, according to Lutz.

"Giving women more choices is easier said than done," Lutz said. "It would involve revamping the career pattern that's structured around the male life course with no room for a baby break. This male-oriented career pattern needs to be changed."

"In thinking about what different policy options are out there for addressing aging and the possibility of population decline, one that has not been considered before is that there may be a demographic as well as a health benefit to providing more options to women in how to arrange their life-course, and when to have children," said O'Neill.

The new force toward decline in Europe's population size, and the shift to an older population, will likely pose challenges for social security and health systems, according to Lutz and his co-authors. These trends may also lead to reduced productivity gains and lower economic growth in the future and affect Europe's position in the world.

Lutz's co-authors are Brian C. O'Neill at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria, and Brown University, in Providence, RI; and Sergei Scherbov at the Austrian Academy of Science, in Vienna, Austria, and the International Institute for Applied Systems Analysis (IIASA), in Laxenburg, Austria (there was no additional, external funding for this study).