Commentary: Cross-Border Macroeconomic Implications of Demographic Change

Axel Börsch-Supan

I enjoyed reading Ralph Bryant's paper, which is written very carefully and cautiously. I like how the author plays with all of these complex, interlocking mechanisms in global aging. In general, I agree with almost all of the qualitative results of what the directions are. But I think the real meat is in the numbers. Unfortunately, they are missing in the paper—maybe for good reason because it is quite risky to deliver these numbers because you will be proven wrong sooner or later. I will show some numbers, drawing from work that has been done at my institute using our global aging simulation model.

Being a European, of course, it is tempting to contrast Old Europe with the shiny New World. The numbers are striking. You were talking about the United States slowing in labor force growth. It is definitely shrinking in Europe. The size of the labor force will be substantially smaller than it is now. Also, the share of elderly in the United States is approaching 20 percent in 25 to 30 years. That is what we long have. We may have our problems, but we still live.

In my opinion, the role of public pensions in shaping macroeconomic events and in shaping growth is still underestimated in Bryant's analysis for two reasons. First, for a more macroeconomic reason: The extent of additional retirement savings can be large and

change growth (we alluded to that before in this meeting). Second, and in particular for microeconomic reasons: Many microeconomic adaptation mechanisms have first-order implications for economic development, and they are somewhat underplayed in the analysis that we have seen.

The first main message by Bryant—and I very much agree with it—is that the main effect of aging is on labor market and production. These effects dominate capital market effects. There are some "buts" to that. First, the shear quantity of labor is one thing. Labor productivity, however, (actually in tandem with capital productivity—something Chairman Greenspan alluded to previously) is also very important to consider. Productivity reserves are a big resource to be tapped in. The productivity of labor and capital makes a big difference for growth, and there are marked differences between countries. The second "but" is that we always look at GDP, but that is wrong. We should rather look at GNP. GNP is what makes us rich. The difference between GDP and GNP is big in many countries because of remittances (we talked about them earlier) and because of foreign direct investment (FDI). FDI is large for some countries and contributes significantly to income. It will become more important as the aging process continues. Cross-border effects are particularly important for those countries whose labor force shrinks in size, since they will produce on the other side of the border where labor is cheaper and more abundant, thereby increasing GNP relative to GDP.

How large is aging really? Is it the big monster that screws up macroeconomic developments for the next 25, 30, or 40 years? Population aging is a slow and steady process. The changes per annum are small. It is a little bit like if you look outside of the window at the movements of the glaciers. They are often superseded by short-run fluctuations, but their long-run effects on landscape and climate are inescapable.

What are developments superseding aging? One example is the huge differences across countries in terms of productivity. We see a decline of growth in Europe—particularly in Italy, Germany, and

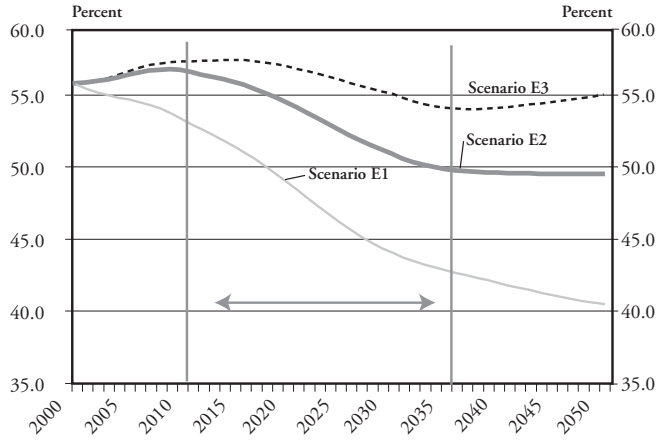
France—and in Japan relative to the United States. That is certainly not aging. Rather, it has to do with product market development and the abundance of regulations. Are these factors as important in the long run as aging? To give an answer, one must look at numbers. That is why numbers are so important—just to get a feeling of how large aging really is.

Let me give you examples from my aging home country, Germany. Chart 1 shows Germany's support ratio. This is the number of workers per consumer. This is the core input that makes the economy run. There are, of course, variants, but the consensus projection is that this support ratio will decline about 15 percentage points over the next 25 years. If you go through the math, this amounts to about one-half percentage point per year. That appears not very much. But if you compare this with the current growth rates, which in Europe are between 0.5 percent and 2.5 percent, you see that is a large chunk of growth, particularly for those ailing countries like Germany and our neighbors, Italy and France, who have a 1.5 percent growth rate. Aging *does* matter. It is large. It is of a similar order of magnitude as the productivity differences that we observed between the United States and continental Europe. In this respect, aging is not small, although it comes slowly. The comparison with a glacier is quite appropriate.

Some part of the decline in support ratios is moderated by micro-economic adaptation. As indicated in Bryant's paper, we already see that the labor force shrinks in some European countries. We already see that the labor force in the United States grows slower. But this is given retirement age. Of course, given retirement age is the wrong assumption. Retirement age and labor supply in general will respond to aging, just because relative wages will increase in relative terms and it will be more profitable to work, even for the Europeans who like their leisure.

Labor supply is endogenous in a more general sense. In a country like Germany, which did not have serious reforms for a while, we now see reform after reform after reform at an incredible speed. That is

Chart 1
Support Ratio in Germany
(Employment/Consumer)



definitely an endogenous response to the threats of population aging, which changes the rules of the pension system and even more so the rules of the unemployment system. This will induce big differences in the aggregate labor supply, moderating the pure aging effects that we have pointed out above. Endogenous labor market and pension reform is one microeconomic mechanism that changes the size of the labor force and therefore has macroeconomic consequences.

The second adaptation mechanism works through productivity. Productivity is not given. Neither is age-specific productivity given. We know very little about age-productivity profiles. We may know it in a given job or in a given profession, but that is of secondary relevance because we change occupations over the lifecycle. We know very little how much productivity changes over time and age, but we do know that age-specific productivity can be changed. It is a policy variable because education and retirement are policy variables. Through backward induction: If the retirement age is shifted to a later age, individuals will invest more in secondary, tertiary, and especially further education, which makes people more productive in old age.

Age-specific productivity is also endogenous and a policy variable because it depends on health and health-related policies. Health changes quite a bit. We always talk about longevity—a topic that came up earlier as well—and fertility and forget morbidity. But morbidity is changing even faster than mortality. The time span where people are sick and cannot do very much has shrunk faster than longevity increased. This should make older workers more productive than they used to be.

A third mechanism is capital intensity. Capital intensity will change because wages will go up relative to the price of capital due to aging. Higher capital intensity will make workers more productive, especially older workers because they will receive more help in terms of machines, computers, etc., so they can contribute longer to the productive process.

Summing up, there are many microeconomic issues that change the macroeconomic picture. That is an important message to keep in mind because policy can work on microeconomic mechanisms more targeted and more efficiently than on global macroeconomic development.

Another main message by Bryant was "openness helps." Yes it does. Allow me to see this from a slightly different point of view than an American. Being at one extreme of the aging population—Germany together with Italy and Japan—openness definitely helps to diversify economic risks. Wherever you go, people are not as old as in Germany, with the exception of Japan and Italy.

The question is again: How quantitatively important is this diversification effect? That is a very hard question to answer. Again, I use our global aging simulation model. Charts 2 and 3 show what is very often called the asset meltdown. They show the effect of population aging on the rate of return to productive capital in a closed economy. This effect is reducing the rate of return by approximately 20 to 25 percent. So, think about your estimate of a long-run equilibrium rate

of return: Then aging reduces that rate of return to 75 or 80 percent of what you are used to.

While this is large, one can diversify away a large chunk of this. The size of diversification effect depends on the size of the recipient economies and the competition between the aging economies, which all tend to invest into younger economies (like the United States). Based on our global aging simulation model, global diversification reduces the rate of return decline by about 5 percent. That is a fifth of the total effect. One may argue whether that is large or not. It is substantial, but the big effect is still there. Hence, diversification alone won't do. One definitely has to work on the labor market. One cannot undo aging by capital market diversification. The numbers do not work out like that.

If you look at the level of the returns, then these 5 percent diversification effects look even less impressive because the levels are so different. Chart 3 displays essentially a world made of an aging region—made up of France, Germany, and Italy—versus the rest of the OECD countries. The level effects are very large because France, Germany, and Italy have rather low total factor productivities vis-à-vis the United States. The level effects outweigh the changes due to international diversification by quite a large margin. Again, it tells you where policy has to focus. While it helps to foster international diversification, the first policy task is to take care of the level differences in total factor productivity. Europe needs to be more productive to regain a solid economic basis that can withstand aging.

The last point is the role of public pensions. Bryant stressed them at the end of the paper. It makes a huge difference in macroeconomic performance how public pensions are set up. It is not so much whether these are balanced systems or unbalanced systems or if they are paid through contributions or through taxes. The most important point is which generation pays. Is it concentrated on one generation—namely, the generation of my kids? Or is it smoothed over several generations, including my own and maybe the current elderly

Chart 2
Asset Meltdown?

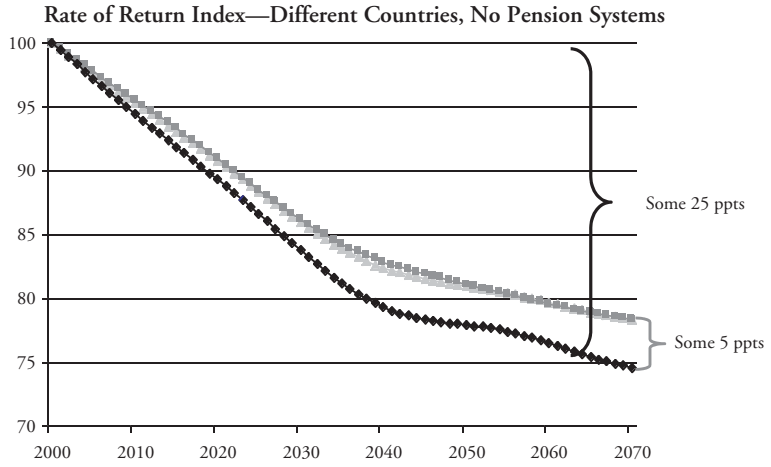
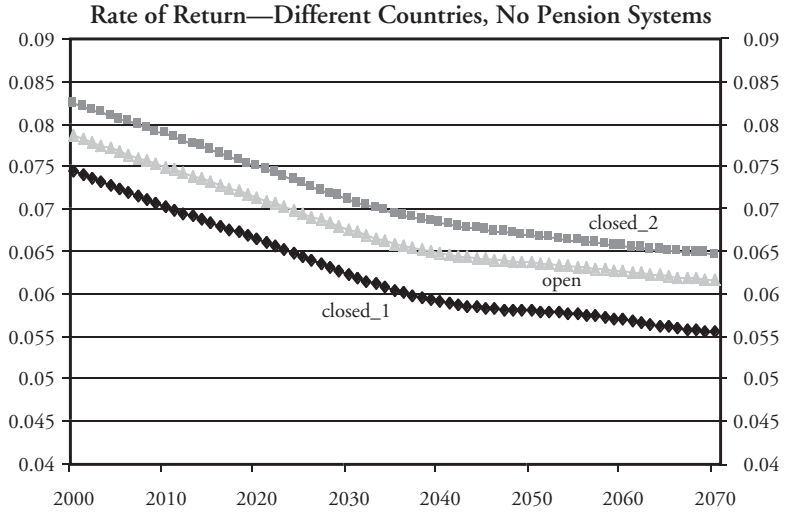


Chart 3
Diversification Effects



generation as well? That makes a huge difference. This is the old pay-as-you-go versus prefunding debate, but seen from a slightly different point of view: Is it sensible to concentrate via the pay-as-you-go mechanism all troubles on one generation which has to pay huge social security contributions because it is very small? This would increase the microeconomic disincentive effects on work and make macroeconomic performance worse.

Following this view, the significance of prefunding, to a large degree, is not so much in generating a higher capital stock—maybe that was the policy focus 20 years ago when there was a real chance to build up a substantial capital stock before the retirement of the baby boom generation. But now we are 20 years later, time is running fast, and the first-order task is to alleviate the burden of our children' generation so that they keep enough productive force to provide the labor supply we need.

There is yet another capital market aspect of prefunding worth noting. The difference early prefunding made for capital markets is astounding. If you compare those European countries that reformed pensions some 20 years ago with those European countries that did not reform, it is like day and night. The Netherlands, a reform country, quadrupled its stock market. That did not happen in France, not in Italy, and it did not happen in Germany—countries which are reforming their pension systems right now, 20 years later than the Netherlands. The stock market change was generated by the shift from pay-as-you-go to prefunded pensions about 20 years ago. It took a while, but it created a really large change—although not so much in the size of the capital stock, but its governance.

Prefunding has also induced capital flows that are enormous. Forty percent of the Dutch pension money is not invested in Holland. It is mainly invested very close to Holland—it does not go to the developing countries. It goes to the United States, it goes to Britain, it goes to countries that are reasonably developed and have a good capital market system in place. If you look at the numbers in Charts 4 and 5,

Chart 4
Current Account to Output Ratio

Capital Flows Seen from "FGI-Land" (France, Germany, and Italy) under Varying Degrees of Openness

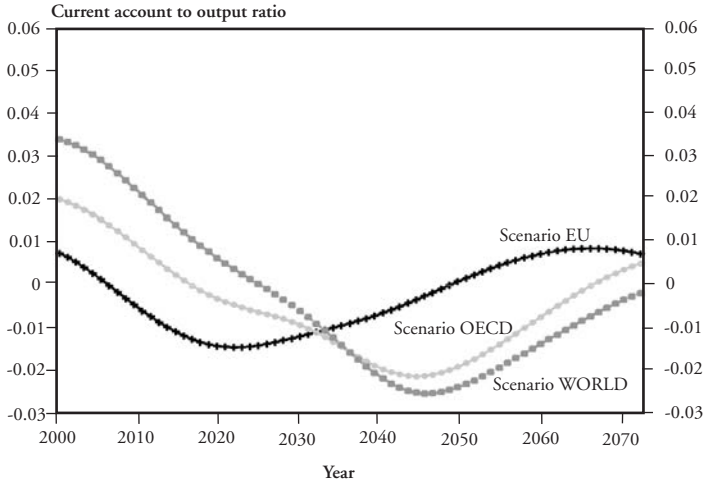
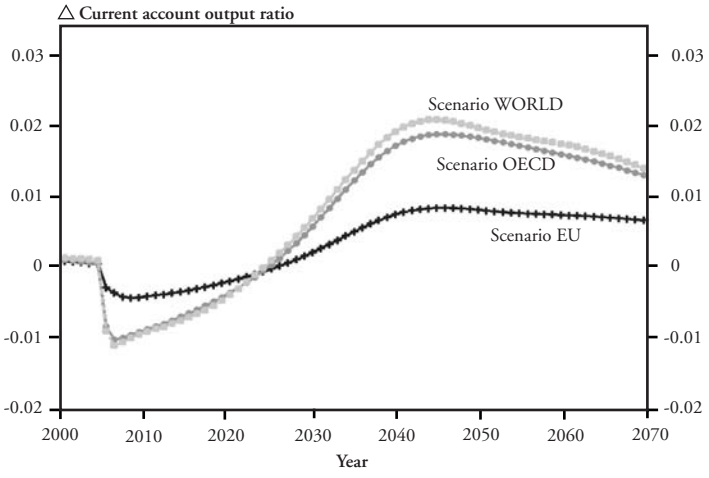


Chart 5
Current Account to Output Ratio

Additional Effect through Pension Reform



you see the pure aging-induced capital flows. They occur because for an aging economy, it is always advantageous to place some foreign direct investment in younger countries. Again, seen from the perspective of France, Germany, and Italy, they are on the order of 2 to 3 percent of output. That is considerable, but in a reasonable order of magnitude. The capital flows generated by a higher degree of prefunding (just sufficiently high to stabilize contribution rates) add about another 2 percentage points to these capital flows. Hence, in terms of international capital flows, the indirect effect of changing the pension system is almost as large as the direct effect of population aging. Here again, quantities matter to show where things will happen.

Let me conclude and sum up my main points. First, quantities are important. More work has to be done to get a consensus on these quantities. It is a risky business and I understand why Bryant did not want to come up with them. We need more research and more papers that will form, hopefully, a consensus of conclusions and quantitative estimates.

Second, the role of pensions is large. Changing the pension system has macroeconomic implications: It changes the growth path of the economy. Those implications come to a large extent through microeconomic mechanisms—the response of household saving to pension reform, the response of labor force supply to the pension system (both for the young and for the old), and the response of age-specific productivity to an increase of the retirement age.

Changing the macroeconomic growth path in a globally aging world by exploiting the many microeconomic transmissions mechanisms is an important task for you as crucial advisers to policy and business.