Aging, Asset Markets, and Asset Returns

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This study looks at the complex interactions between demographic trends, public pension reform, labor markets, and capital markets in a global context. Population aging will be a major determinant of long run economic development in industrial and developing countries. The impact in any one place, however, depends on the policy response, the behavioral response in labor and capital markets, and the mobility of resources across countries with different demographic patterns. A particular focus of the paper is on the behavioral response to this changing environment, and the implications of that response. Indeed the behavioral reactions are shown to have important implications for predicting macroeconomic aggregates.

The investigation connects several strands of literature. First, it investigates how strong "asset meltdown" effects are in an aging economy that is embedded in global financial markets. Second, it focuses on the importance of labor supply behavior in particular, how policies affect labor market behavior, and how labor markets in return affect financial market performance. Third, it considers the impact of public pension reform on both capital and labor markets. And fourth, it looks ahead at the overall macroeconomic outcomes that result from these changes.

Aging has complex effects on the markets for real capital, including capital used in the production of goods and services, and housing capital. If elderly people save less than younger people, then an aging society saves less, thereby reducing investment in capital markets. This is the theoretical basis for those who suggest that an "asset meltdown" could occur. Other economic mechanisms have a counter-effect, however. For example, an aging society needs more capital for production, since capital must increasingly substitute for labor, which is scarce. This rising demand for real capital increases the return to capital, which is also a consequence of population aging. We quantify these offsetting effects using a sophisticated overlapping generations (OLG) model with international diversification reflecting the global nature of the markets for productive capital.

The results from this model indicate that there will be some decline in the value of productive capital, but it is small in any case and even smaller when capital is globally diversified. So aging is not as damaging to asset values as some suggest, but markets for productive capital are not immune to demography either. The mobility of capital across countries is important to this result. Specifically, the internationalization of capital markets allows financial resources to be provided for those production facilities in "younger" countries (notably the United States) from which, in the future, consumer goods will be imported to the "older" countries (most prominently Germany, Italy and Japan). Complete internationalization of capital markets dampens considerably the decline in asset returns that would otherwise be a result of population aging and pension reform.

The changes in labor markets are also of substantial economic importance looking forward. The main effect of demographic change is that the number of gainfully employed people will fall sharply from

2010 onwards, while the number of consumers remains largely constant. This will put pressure on production capability and thus on the overall growth of our economy. Can standards of living be maintained, and increased, if there are relatively fewer workers doing the production? Labor, at least in the highly skilled sector, will become increasingly scarce because it is not possible to compensate fully for this decline in employment by intensifying capital. The change in labor is too rapid and extreme to be offset by increased capital investment. Education and training will assume an increasingly important role in order to keep the returns to productive capital high. In future research, we plan to explore in greater depth the role of human capital in an environment of population aging.

The study concludes by reiterating the importance of capital markets in an aging society. One reason for this is the scarcity of labor, making capital increasingly more valuable. Capital investments are highlighted as the only way of distributing resources over time and between the generations. As applied to population aging, capital investments are the vehicle that allows part of the earning power of baby-boomers to be used to finance their own future needs instead of allowing their entire pension to be financed by those of the next generation, who will be completely overwhelmed by their reduced numbers. Capital is needed so that the earning power of the younger generation is not overwhelmed by the excessive demands of the older generation. Capital is also important, as already noted, through its ability to move around the global economy, and thereby moderate the effects of demographics in any once place.

The full working paper is available on our website www.nber.org/programs/ag/rrc/books&papers.html as paper NB08-14.

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This research was supported by the U.S. Social Security Administration through grant #10-P-98363-5 to the National Bureau of Economic Research as part of the SSA Retirement Research Consortium. The findings and conclusions expressed are solely those of the author(s) and do not represent the views of SSA, any agency of the Federal Government, or the NBER.