

LIFECYCLE IMPACTS OF THE FINANCIAL AND ECONOMIC CRISIS ON HOUSEHOLD OPTIMAL CONSUMPTION, PORTFOLIO CHOICE, AND LABOR SUPPLY

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Motivation

Workers are increasingly required to invest in investment-based defined contribution accounts, and then during their golden years, draw down the pension assets in an orderly fashion. Such accounts can help augment and partially replace public pension benefits, as aging economies move toward a better-funded old-age system. Yet the recent financial crisis has raised fresh concerns regarding the risks to which workers are exposed to capital market shocks in these pension systems: for instance, in 2008, U.S. private pension fund assets declined by one-fourth or about US\$ 2.7 trillion (OECD 2009). Moreover, the subsequent economic crisis generated rising unemployment and falling labor earnings, with the unfortunate effect of reducing worker contributions to both Social Security and many private pension schemes. Indeed, the U.S. unemployment rate of 10 percent in 2009 was double that in 2007, with similar high jobless rates in most countries in Europe. These combined capital and labor market shocks have made it much more difficult for retirement systems to deliver anticipated old-age benefits.

This paper examines how households may be affected by a dual financial and economic crisis such as the one recently experienced. In particular, we explore how people might react to these shocks by adjusting their consumption/saving patterns, investment/annuitization paths, work hours, and retirement patterns. Because actual responses are both short- and long-term in nature, some of these will not be observable for several decades to come; furthermore, responses are likely to be heterogeneous. That is, some younger workers may not react much since they have several decades to adjust before they retire, whereas, workers on the verge of retirement have little time to adjust their saving, work, and portfolios to offset potential capital and labor market losses. Furthermore, Baby Boomers' reactions are likely to differ according to individuals' financial wealth and human capital levels.

Framework

To investigate possible outcomes, we develop a lifecycle model with optimal investment, work hours, retirement, and annuitization decisions, allowing for shifts in the investment opportunity set and labor income dynamics. Here, some of the time, asset returns are characterized by persistent regimes with an expansive capital market having low volatility/high expected return; in other periods, a contractionary market is characterized by high volatility/low expected returns. In addition, we model the countercyclical dynamics of risky labor income using time-varying shocks on wage rates dynamics and unemployment probabilities driven by the same regime-switching process. Such a setting allows us to explore the situation where a financial sector crisis may also produce an economic crisis, driving high unemployment and lower earnings. In this

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way, we show how these simultaneous shocks alter retirement, work hours, consumption trajectories, and asset allocation patterns of younger and elder households. In addition, we can clearly illustrate the long-term impact of the financial/economic crisis on behavior well into the future.

Results

Our results indicate that some will be able to hedge adverse capital market developments they face in the crisis, not only by altering their asset allocations and consumption patterns, but also by altering their work hours and retirement ages. For young households, the financial/economic crisis will have relative little impact on either work effort or retirement behavior, though they do suffer from a long-term decline in annual consumption accompanied by lower saving. Stock fractions are marginally lower at the onset of the crisis, but over the remaining life-cycle, asset allocation does not change much. Young households hit particularly badly by the financial/economic crisis do have more response, reducing their work effort during the crisis by up to 10 percent; later in life, they must boost work hours substantially — over 20 percent at age 60 compared to the non-crisis scenario, and must defer retirement by one year on average. Lifetime consumption is also lower: in their early 20s, it is about 15 percent less, and five percent less even after age 70. The other effect is that young households must save substantially more than non-crisis households later in life, to build up at least some financial wealth. Low savings early in life go hand in hand with low stock investment.

When older persons are hit by a combined financial and economic crisis, they are predicted to boost work effort slightly over the rest of their work lives. Moreover, their average retirement age rises slightly as well. The crisis is felt, instead, in more marked declines in annual consumption, both short- and long-term. Compared to a non-crisis scenario, consumption drops by 3.5 percent before retirement and by around 4.5 percent after age 80. Households reduce their asset withdrawals by about 2.5 percent over the short-run and by about nine percent later in life. During the immediate crisis, households reduce their equity exposure by more than 20 percent, on average, in favor of risk-free bonds. Over the longer run, however, investors have a marginally higher appetite for liquid assets, both stocks and bonds, than investors in a non-crisis scenario.

Those older households hit especially badly by unemployment and stock market shocks must substantially boost their work effort by over 20 percent in their early 60s. Moreover, they cannot afford to retire early and must postpone retirement by about one year, on average. Yet they still experience consumption losses of about 10 percent in the short-term and about 15 percent later in life. While they are able to dampen the immediate impacts of the crisis through an increase in withdrawal of financial assets, the corresponding drop in financial wealth results in substantial cuts in withdrawals later in life. These households reduce their equity exposure only by 10 percent early in the crisis.

Our predictions that older households must curtail their consumption, boost work effort, and defer retirement correspond to recent empirical evidence on short-term effects of the crisis on older individuals. For younger cohorts, on the other hand, there are no empirical studies on how they are responding to the crisis in the long term. And for obvious reasons, it will take years to trace out how the crisis will influence long-term work, saving, consumption, and investment behavior. Our research offers a valuable means for informing policymakers about how such crises can differentially influence household responses to economic shocks, as they deploy the adjustment mechanisms at their disposal.

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