



Saving and investing for early retirement: A theoretical analysis [☆]

Emmanuel Farhi^a, Stavros Panageas^{b,*}

^a*Department of Economics, Massachusetts Institute of Technology, Cambridge, MA 02142, USA*

^b*Finance Department, The Wharton School, University of Pennsylvania, Philadelphia, PA 19104, USA*

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Abstract

We study optimal consumption and portfolio choice in a framework where investors adjust their labor supply through an irreversible choice of their retirement time. We show that investing for early retirement tends to increase savings and reduce an agent's effective relative risk aversion, thus increasing her stock market exposure. Contrary to common intuition, an investor might find it optimal to increase the proportion of financial wealth held in stocks as she ages and accumulates assets, even when her income and the investment opportunity set are constant. The model predicts a decrease in risk aversion following strong market gains like those observed in the nineties.

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*Corresponding author. Fax: +1 215 898 6200.

E-mail address: panageas@wharton.upenn.edu (S. Panageas).

0. Introduction

Two years ago, when the stock market was soaring, 401(k)'s were swelling and (...) early retirement seemed an attainable goal. All you had to do was invest that big job-hopping pay increase in a market that produced double-digit gains like clockwork, and you could start taking leisurely strolls down easy street at the ripe old age of, say, 55. (Business Week December 31, 2001)

The dramatic rise of the stock market between 1995 and 2000 significantly increased the proportion of workers opting for early retirement (Gustman and Steinmeier, 2002). The above quote from Business Week demonstrates the rationale behind the decision to retire early: a booming stock market raises the amount of funds available for retirement and allows a larger fraction of the population to exit the workforce prematurely.

Indeed, for most individuals, increasing one's retirement savings seems to be one of the primary motivations behind investing in the stock market. Accordingly, there is an increased need to understand the interactions among optimal retirement, portfolio choice, and savings, especially in light of the growing popularity of 401(k) retirement plans. These plans give individuals a great amount of freedom when determining how to save for retirement. However, such increased flexibility also raises concerns about the extent to which agents' portfolio and savings decisions are rational. Having a benchmark against which to determine the rationality of people's choices is crucial for both policy design and in order to form the basis of sound financial advice.

In this paper we develop a theoretical model with which we address some of the interactions among savings, portfolio choice, and retirement in a utility maximizing framework. We assume that agents face a constant investment opportunity set and a constant wage rate while still in the workforce. Their utility exhibits constant relative risk aversion and is nonseparable in leisure and consumption. The major point of departure from preexisting literature is that we model the labor supply choice as an optimal stopping problem: an individual can work for a fixed (nonadjustable) amount of time and earn a constant wage but is free to exit the workforce (forever) at any time she chooses. In other words, we assume that workers can work either full time or retire. As such, individuals face three decision problems: (1) how much to consume, (2) how to invest their savings, and (3) when to retire. The incentive to quit work comes from a discrete jump in their utility due to an increase in leisure once retired. When retired, individuals cannot return to the workforce.¹ We also consider two extensions of the basic framework. In the first extension we disallow the agent from choosing retirement past a pre-specified deadline. In a second extension we disallow her from borrowing against the net present value (NPV) of her human capital (i.e., we require that financial wealth be nonnegative).

The major results that we obtain can be summarized as follows:

First, we show that the agent will enter retirement when she reaches a certain wealth threshold, which we determine explicitly. In this sense, wealth plays a dual role in our model: not only does it determine the resources available for future consumption, but it also controls the "distance" to retirement.

Second, the option to retire early strengthens the incentives to save compared to the case in which early retirement is not allowed. The reason is that saving not only increases

¹This assumption can actually be easily relaxed. For instance, we could assume that retirees can return to the workforce (at a lower wage rate) without affecting any of the major predictions of the model.

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