

WHAT DO DATA ON MILLIONS OF U.S. WORKERS SAY ABOUT LIFE CYCLE INCOME RISK?

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October 2013

Introduction

The importance of idiosyncratic labor income risk for individuals' economic choices and, hence, their welfare is hard to overstate. The literature that relies on incomplete-markets (or heterogeneous-agent) models is continuing to expand at a rapid pace. A crucial ingredient in this research is the precise nature of income risk that researchers feed into their models. For example, predicting individuals' lifecycle consumption-savings behavior, which is at the heart of the discussions on retirement wealth and the role of the Social Security system, requires a sound understanding of how workers perceive their lifetime income risk.

Methodology

The goal of this paper is to shed new light on idiosyncratic income risk using a unique and confidential dataset from the Social Security Administration on individuals' earnings histories that has three key advantages: (i) a very large sample size (with 5+ million individuals) with a long time span (1978–2011), (ii) minimal measurement error, and (iii) no top-coding. These features of the dataset allow us to relax a number of restrictive assumptions that previous studies were forced to make. The substantial sample size allows us to cut the data in different and novel ways and document some interesting empirical facts.

Findings

First, earnings changes display extreme leptokurtosis, meaning that compared to a normal distribution (with the same standard deviation), most earnings changes are very close to zero but few changes are extremely large. The resulting distribution looks very different from Gaussian, which is the typical assumption made in the literature. Second, there is enormous dispersion in the variance of earnings shocks across individuals: the top 10% most volatile individuals have an average standard deviation of shocks that is 6 times larger than the least volatile 10%. Third, the lifecycle growth rate of earnings varies strongly with the level of lifetime earnings. For example, the individual with the median lifetime earnings experiences an earnings growth of 30% from

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age 30 to 60, whereas for the individual in the 95th percentile, this figure is 200%; and for the individual in the 99th percentile, this figure is 1000%. Fourth, income shocks become more left skewed with age, meaning that relative to the average change in income a large fall becomes more likely than a large rise as individuals get older.

These and other features of individual earnings turn out to be difficult to capture with standard specifications used in the existing literature. This paper estimates a set of stochastic processes with increasing generality to capture these salient features of earnings dynamics to provide a reliable “user’s guide” for applied economists. Our estimated processes provide a very good fit to the empirical facts described above, and should provide useful input into academic as well as policy research.

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Sponsor Information. The research reported herein was performed pursuant to a grant from the U.S. Social Security Administration (SSA) through the Michigan Retirement Research Center (MRRRC). 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 MRRRC.

Regents of the University of Michigan: Mark J. Bernstein, Ann Arbor; Julia Donovan Darlow, Ann Arbor; Laurence B. Deitch, Bloomfield Hills; Shauna Ryder Diggs, Grosse Pointe; Denise Ilitch, Bingham Farms; Andrea Fischer Newman, Ann Arbor; Andrew C. Richner, Grosse Pointe Park; Katherine E. White, Ann Arbor; Mary Sue Coleman, Ex Officio