



The trajectory of wealth in retirement [☆]

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ABSTRACT

In this paper, we develop a measure of household resources that converts total financial and non-financial assets, plus annuity-like assets (mainly, Social Security and defined-benefit pensions) into an expected annual amount of wealth per person in retirement. We use this measure, which we call “annualized comprehensive wealth,” to investigate spend-down behavior among a panel of older households in the Health and Retirement Study (HRS) from 1998 to 2006. Our analysis indicates that for most retired households, comprehensive wealth balances decline much more slowly than their remaining life expectancies, so that the predominate trend is for real annualized wealth to rise significantly with age over the course of retirement. Comparing the estimated age profiles for annualized wealth with profiles simulated from several different life-cycle models, we find that a model that takes into account uncertain longevity, random medical expenses, and intended bequests lines up best with the broad patterns of rising annualized wealth in the HRS.

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1. Introduction

The ability to finance consumption in old age depends not only on the total amount of resources at the onset of retirement, but also, crucially, on how quickly or slowly those resources are spent after retirement. To provide a new empirical perspective on spend-down patterns, we construct a measure of the total resources available per expected year of life for a panel of retired households in the Health and Retirement Study (HRS) from 1998 to 2006. We call our measure “annualized comprehensive wealth.” Our measure is *comprehensive* because in addition to net worth as it is usually defined—the sum of financial and non-financial assets net of debt—it also includes the value of Social Security benefits, defined-benefit pensions, and, for eligible recipients, transfer payments such as Food Stamps and Supplemental Security Income. For many retirees, these additional items constitute a sizable fraction of total resources. Our measure is an *annualized* concept in the sense that it measures the amount of wealth that is available for each expected year of remaining life and for each person in a retired household. In examining this measure of retirement wealth, we were motivated by the following reasoning. Annualized comprehensive wealth measures the constant amount that a retired household could afford to spend, in expectation, every year until they die. If the micro-data showed a strong tendency for annualized comprehensive wealth to either fall or rise substantially in retirement, we would probably want to know why.

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Our paper adds to a large and growing body of research on the evolution and adequacy of retirement wealth.¹ Most directly, our paper is related to two studies that highlight the importance of precautionary saving for explaining the wealth holdings of older Americans (Palumbo, 1999; De Nardi et al., 2008). These studies each find that wealth balances do not decline as quickly as standard life-cycle models would predict but that a slow decumulation pattern can be explained (at least partly) by the precautionary effects of uncertain out-of-pocket medical costs. The key contribution of our study is to look at a similar set of questions through the lens of annualized wealth, which we argue provides a more direct measure of the evolution of household resources. While an annualized concept of wealth is not itself an entirely new idea, as far as we know, we are the first to examine annualized wealth in the context of the life-cycle model.²

What are the advantages of looking at annualized wealth as opposed to wealth balances alone? First, it helps us identify the direction of change in a household's ability to finance future spending in retirement. Whereas a decline in wealth balances can be consistent with either an increase or a decrease in the amount of resources available per expected remaining year of life, a decline in annualized wealth implies an unambiguous contraction. Second, annualized comprehensive wealth is a measurement concept that could help distinguish between reductions in consumption due to insufficient resources (in which case we would expect both annualized wealth and consumption to be low) and the consequences of other motives, such as precautionary savings or intentional bequests (in which cases we would expect annualized wealth to exceed consumption). Whether annualized wealth rises or falls during retirement therefore can provide important clues that can help in sorting out the underlying causes of spending and saving behavior in retirement. Finally, because we generally lack household-level panel data on wealth and consumption changes over retirement, annualized wealth provides a bridge between wealth balances and what those balances imply for annual consumption possibilities.³ Developing that bridge is one of the principle motivations and contributions of the current study.

Our analysis of the HRS panel documents strongly rising patterns of annualized wealth in retirement. We find that the median value of annualized comprehensive wealth for the cohort of households aged 70 to 75 years in 1998 rises significantly in retirement, from about \$32,800 per person per year in 1998 to about \$42,200 per person per year in 2006—a net increase of nearly 30% in just eight years. That is, comprehensive wealth balances in the HRS tend to decrease much more slowly than life expectancy shortens in old age. Our regression-based estimates of the age profile through the full span of retirement indicate that the median surviving household tends to see its annualized comprehensive wealth climb from \$25,600 per person per expected year of life at age 65 to more than \$50,000 by age 90.⁴

As in other studies of household savings, we find considerable heterogeneity in the evolution of household wealth, with annualized wealth falling for some households and rising for others. The distribution, however, is heavily tilted toward increases in annualized wealth. Indeed, we estimate that nearly one-half of older households saw their annualized comprehensive wealth rise by more than 25% from 1998 through 2006, while about one in eight experienced a decrease of 25% or more over the same time period. Further, this distribution of outcomes is surprisingly similar when we look across retired households by marital status and even by household income. We also find (to varying degrees) patterns of increasing median annualized wealth across race, education, and health groups. Looking at wealth components, we find that both financial and non-financial wealth rose in annualized terms over the sample period.⁵ Although some of the increase in non-financial wealth in the HRS panel seems to have been accounted for by large capital gains accruing to housing between 1998 and 2006, the data indicate that we would have estimated a net increase in annualized wealth in retirement even if those unusual gains were absent.

Why might households draw down their wealth balances so slowly relative to life expectancy? To consider some possible explanations, we simulate several specifications of life-cycle models of retirement consumption, including several elements that have been emphasized in previous studies: uncertain longevity (Yaari, 1965; Davies, 1981; Hubbard, 1987; Hurd, 1989), random (and potentially large) out-of-pocket medical expenses (Palumbo, 1999; French and Jones, 2008; Anderson et al., 2004), and explicit bequest motives (Kotlikoff and Summers, 1981; Hurd, 1987, 1989; Bernheim, 1991; Laitner and Juster, 1996;

¹ The research on retirement wealth is too extensive to include more than a representative set of citations. A number of previous papers find that a substantial fraction of aging households are poorly positioned to finance retirement (Bernheim, 1992; Munnell and Soto, 2005; Mitchell and Moore, 1998) and that the situation may be even worse for younger age groups (Munnell et al., 2006). See Skinner (2007) for a recent perspective on the literature. However, other studies generally find that observed behavior is in line with the predictions generated by stochastic life-cycle models (Engen et al., 1999; Engen et al., 2005; Scholz et al., 2006). Another set of papers examines changes in consumption at the time of retirement (Hurd and Rohwedder, 2006; Aguiar and Hurst, 2005; Blau, 2008).

² Two recent empirical studies examine an annualized concept of wealth in the context of wealth adequacy. Haveman et al. (2006) report ratios of retirement wealth in annual terms to poverty lines using cross-sectional data. Haveman et al. (2007) use Social Security data to compare wealth for a particular older cohort at two points in time. In a separate paper, we report some statistics on annualized wealth in recent waves of the Health and Retirement Study (Love et al., in press). None of these papers consider the evolution of annualized wealth over the course of retirement in the context of the life-cycle model.

³ Note the distinction between consumption *possibilities* and optimal consumption. As we show later, in certain specifications of a life-cycle model, annualized wealth tracks optimal consumption fairly closely, particularly over the first half of retirement. In general, however, the two concepts are not the same, and interpreting annualized comprehensive wealth as a measure of welfare is complicated by the presence of precautionary saving motives and other factors.

⁴ Survivorship introduces complications into any study examining the evolution of wealth. As we discuss in more detail below, the panel nature of our data allows us to control, at least partly, for some sources of survivorship bias (e.g., the over-representation of longer-lived, wealthier households that can lead to bias in cross section studies). In addition, we also show how our empirical results change when we control for subjective survival expectations and for non-random attrition. Nevertheless, because survivors may always differ in important ways from non-survivors, it is not possible to eliminate all potential sources of bias.

⁵ Essentially by definition, the annualized values of Social Security and DB pension wealth are virtually constant over the retirement period. We convert expected Social Security and DB pension payments into a present value and then back into an annualized value in order to account for the non-indexation of some benefits as well as the effect of survivors' benefits on the expected resource stream of married couples. See Appendix A for more details.

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