



Short-term planning and the life-cycle consumption puzzle

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Abstract

We develop a new life-cycle consumption model where the individual has a short planning horizon. Standard life-cycle consumers with perfect foresight and ‘hand-to-mouth’ consumers are both special (limiting) cases of our model, where the length of the planning horizon is set to the entire lifetime and zero, respectively. We derive an analytical solution to the (time inconsistent) short-term planning problem, which reveals the inner workings of the model and facilitates its use in other settings. We also show that the short-term planning mechanism is powerful enough to generate a consumption hump with the right size and location.

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1. Introduction

There is a large body of evidence from the Health and Retirement Study, the Retirement Confidence Survey, and the Survey of Consumer Finances, suggesting that many individuals do not *plan* for retirement when they are young. Instead, many

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people seem to wait until they are older, and some even wait until they are very close to retirement to begin planning. Our primary goal in this paper is to develop a new life-cycle consumption model that is consistent with some of the salient features of the survey evidence on poor planning, is mathematically rigorous, and is founded within the neoclassical paradigm wherein agents choose current consumption by solving some type of optimization problem.

The defining characteristic of our model is that the individual is forward looking, but only to a degree. In our baseline setup, we assume that the planning horizon is short enough so that initially the agent does not plan for retirement. Although the retirement phase is ignored when young, as time passes and retirement ‘comes into view’ the individual will actively begin to save for retirement. As time continues to pass and more of the retirement period falls within the planning horizon, the individual will continue to revise her saving plan and allocate additional income to retirement accounts.

We view short-term planning as a compromise between the standard life-cycle model with perfect foresight and Campbell and Mankiw’s (1989) rule-of-thumb consumers who live hand-to-mouth and set current consumption equal to disposable income in each period. By design, the standard model and the Campbell–Mankiw model are special (limiting) cases of our model, where the planning horizon is set to the entire lifetime and zero, respectively. Our framework is general enough to allow for both of these extreme possibilities, and all other planning horizons in between.

The short-term planning problem is time inconsistent since the planning endpoint advances continually with age. The consumption profile of such an agent will be the envelope of initial values from a continuum of control problems as the short planning horizon continually slides forward along the time scale. One of the key contributions of the paper is the derivation of an analytical solution to this time-inconsistent problem, which reveals the inner workings of the model and facilitates its use in other settings.

The second key contribution of the paper relates to the consumption hump. The textbook life-cycle model predicts that consumption will grow smoothly for patient individuals and decay smoothly for impatient individuals. Household data, however, indicate that life-cycle consumption is hump-shaped, with a peak around 50 years of age.¹ This inconsistency is a prominent ‘puzzle’ in consumption theory and has recently received considerable attention from macroeconomists.² In solving our short-term planning problem, we find that hump-shaped consumption is a prediction of the model, and the consumption peak has the right size and location for a reasonable range of parameter values.

¹See Attanasio and Browning (1995), Attanasio (1999), Attanasio et al. (1999), Browning and Crossley (2001), Carroll and Summers (1991), Gourinchas and Parker (2002), and Fernández-Villaverde and Krueger (2002).

²The puzzle dates back to Thurow (1969), who states that ‘individuals can easily redistribute consumption into the future by saving, but they cannot easily borrow for present consumption... . Consequently, the current flow of income rather than the total lifetime flow of income may dominate current consumption expenditures.’ See Deaton (1992), Browning and Crossley (2001), and Büttler (2001) for more recent overviews.

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