

RETIREMENT IN A LIFE CYCLE MODEL OF LABOR SUPPLY WITH HOME PRODUCTION

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Given the looming deficits that the US Social Security system will face in coming years, it is almost certain that changes will be made to the structure of the Social Security system in order to reduce the expected shortfall. These changes may involve changes in the full retirement age, changes in benefits, increases in contributions or some combination of the three. Predicting the labor supply responses to changes in the design of the Social Security system is critical to evaluating not only the budgetary impacts of design changes but also their effect on individual welfare. Predicting these labor supply responses in turn requires an understanding of the key forces that shape retirement decisions.

The most standard economic model of individual choice over the life cycle assumes that individuals would like to smooth both consumption and leisure over the life cycle. While one can use this model to understand the consequences of imposing an exogenous retirement choice on individuals, this model cannot help us understand why individuals choose to retire. The reason for this is that retirement represents a concentration of leisure over time as opposed to a smoothing.

The most popular theory of retirement is based on the notion that the economic incentives that favor full-time work over part-time work create a force that offsets the desire for smoothing. A striking implication of these models is that they generate large changes in labor supply in response to changes in Social Security. It is therefore important to assess the extent to which these theories are supported by other observations. The objective of this paper is to present an initial assessment of these models of retirement.

We begin by considering a simple life-cycle model augmented to include the feature that the return to working increases with the length of the work week. As just noted, this feature creates an incentive for individuals to concentrate their work during a particular period of life rather than smoothing it evenly throughout life. There is some empirical work that has documented the extent of the reward for working longer hours. Our model allows us to assess the extent to which these rewards are sufficient to generate retirement. Not surprisingly, the answer depends very much on how strongly individuals desire smooth profiles for leisure over their life. This desire is completely summarized by an individual's willingness to intertemporally substitute leisure, which is the subject of a very large empirical literature. While there is some controversy surrounding the estimates in this literature, most estimates suggest, at most, very moderate willingness of individuals to substitute leisure

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over time, therefore implying quite strong incentives for smoothing. Our calculations show that this theory of retirement is empirically plausible only if individuals are more willing to substitute leisure intertemporally than suggested by most estimates, or alternatively, if the penalty for part-time work is much larger than suggested by existing estimates.

This finding leads us to consider the same analysis in a somewhat more general model that includes another key choice variable: time devoted to home production. Recent work has emphasized home production as an empirically important decision in the retirement context. For example, retired people are found to devote more time to shopping, allowing them to pay lower prices relative to other households. This margin of choice is likely to be of first order importance in the context of the previous calculations for the simple reason that if individuals engage in more home production when retired, it implies that leisure is not as concentrated as one would conclude based only on looking at time devoted to market work.

We proceed to redo our earlier calculations about the forces that generate retirement, but now in the model with home production. These calculations lead to a striking implication. If the key force behind retirement is the incentive associated with working longer hours, then home production time should increase quite dramatically upon retirement. That is, although we can now generate retirement with parameter values that are consistent with the existing literature, the implication that comes along with this result is a dramatic increase in time devoted to home production at the time of retirement.

We next examine data from the American Time Use Survey in order to assess the extent to which this pattern is found in the data. Our empirical findings are not consistent with this prediction. While there is some evidence for an increase in time devoted to home production at the time of retirement, the increase is far too small relative to what the model implies. We conclude that looking at the combination of market work and home production time over the life cycle is an important element in evaluating theories of retirement.

The nature of our findings leads us to conjecture that the desire of individuals for smooth leisure may not be appropriate in the context of retirement decisions. In particular, it may be plausible to assume that from the perspective of the enjoyment of leisure, having no work responsibilities at all might be quite different than having just a few work responsibilities. For example, if one wants to travel, or perhaps escape the winter months, then what matters is that the individual has no work obligations. In future work, we plan to explore this type of feature as an important element in the theory of retirement, and assess its consequences for the labor supply effects of changes in Social Security.

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