

Comments on
"Health and (other) asset holdings"
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Outline

1. Summary.
2. Focus of paper.
3. Other comments.
4. Structural estimation.

Summary - contribution

Theory: This paper develops a model which brings together models of portfolio choice (e.g. Merton) and models of investment in health (e.g. Grossman).

In the model health human capital H matters for two reasons:

- a) Labor income increases with health human capital [$y + \beta H$];
- b) The hazard of death depends on health [$\lambda(H) = \lambda_0 + \lambda_1 \frac{1}{H^\xi}$]. Therefore, the decision horizon of the portfolio choice model is endogenous and stochastic. In this setting the assumption implicit in standard models with time-separable preferences [that the utility of death is zero] is not innocuous. The authors deal with this in a novel way by using recursive preferences as in Duffie and Epstein. [utility is measured in consumption units, and death is associated with zero consumption.]

Empirics [HRS data - cross section, year 2000]: a) Review raw relationships between: (LHS) net financial wealth, share of risky assets, medical expenditures; and (RHS) financial wealth, health, age; b) Structural estimation of the model.

Summary - model features

Continuous time model of portfolio choice. Two assets, safe and risky. Recursive preferences over consumption streams, with subsistence consumption level.

Health human capital is deterministic conditional on investments:

$$dH = (I^\alpha H^{1-\alpha} - \delta H)dt.$$

Health-income gradient changes after retirement, exogenous retirement age.

Only two sources of uncertainty: price of risky asset (innovation is Brownian motion) and agent's survival (Poisson).

The state is (t, W, H) . The agent's choices are:

- Consumption/savings $C(t, W, H)$
- Investment in health $I(t, W, H)$
- Share of risky asset in financial wealth $\pi(t, W, H)$.

Summary - predictions

In spite of its relative simplicity, solving the model is not a simple task.
[Perturbation method is used.]

The paper includes extensive 'comparative statics' analysis - the authors show that the model can potentially deliver key regularities in the HRS data:

- The share of risky assets in portfolio increases with both W and H
- The 'share' of health investments decreases with both W and H .

Comments - focus of paper

1. Is it best to focus on *endogenous* health expenditures?
[Alternative? stochastic health and exogenous health-dependent health expenditures. Relevant for portfolio choice, easier to map into data.]

2. Some issues in taking this model to data:
 - a Health insurance status
[check: redefine expenditures as co-payments only?]

 - b Most medical expenditures are not 'long term investments

 - c Large part of long-term health investments are non-pecuniary behaviors.

3. Why focus on the 'share' of health investment in financial wealth?,

i.e. $I^s(t, W, H) = I(t, W, H)/W$

- not a share (flow over stock)

- elasticity of 'share' with respect to W has built-in, 'mechanic' negative component of -1 , ability of the model to correctly predict a negative sign is not so informative?

Other comments

1. Lumping together singles and couples in empirical work seems questionable. How is health status defined for couples?
2. Age-profiles of the share of risky asset post-retirement: fairly constant. [but doesn't the model predict this if the death hazard is constant so the planning horizon does not change? but isn't this partly counterfactual? selection issues in empirical pattern?]
3. Might look at the model's predictions on: a) change in financial wealth (as opposed to consumption); b) correlation between health and wealth.

Structural estimation

1. Structural model does not provide support for tobit specification.
2. The current model does not allow for variation in behavior given the state variables. Thinking about sources of heterogeneity in structural model: survival ['endowment' of incompressible component?]; health endowment; health dynamics [productivity of health investments?]; preferences [rate of time preference, risk aversion ?]
3. Using the panel dimension of HRS
[& credibility of estimates of the parameters of health dynamics]