Happy Together: A Structural Model of Couples' Joint Retirement Choices

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Introduction

This paper estimates a life cycle model of labor supply and savings of older couples.

Large literature aiming to understand why individuals retire when they do so as to predict effects of policy changes.

- Increase in full retirement age.
- Change in indexation of Social Security benefit formula and cost-of-living adjustments.
- Elimination of spousal benefit.

Main contribution of the paper is analysis of retirement at the couple level.

Introduction

Structural models of individual retirement

- Gustman and Steinmeier (1986), Stock and Wise (1990), Blau (1994, 2008), Rust and Phelan (1997), French (2005), French and Jones (2010)

- Individuals respond to incentives from
  - Wealth
  - Income
  - Health Status
  - Health Insurance
  - Private Pensions
  - Social Security

▸ graph

Introduction

Structural models of couples' retirement.

- Husband and wife are separate decision-making agents within the household.
- Each spouse's preferences represented by a separate utility function.

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2. Studies focused on modeling leisure complementarities. def.
   Gustmand and Steinmeier (2000, 2004), Maestas (2001)

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This paper aims to bridge the gap between the two strands

Model

- Dynamic, stochastic model of labor supply and saving choices
- Agents maximize expected discounted utility
- At each period t, given i) initial assets ii) wages and ii)lifetime earnings, households make decisions in two steps:
  1. choose participation status
  2. conditional on participation status, choose optimal consumption/savings
- Agents face uncertainty on a) wages, b) survival and c) medical expenditures
- Retirement is not an absorbing state
- Benefit receipt is an absorbing state

Model

PREFERENCES

Household utility

$$U(d_t, s_t; z_t, \varepsilon_t, \theta_1) = \phi U^m(c_t, l_t^m) + (1-\phi) U^f(c_t, l_t^f) + \varepsilon_t(d_t)$$

Individual utility

$$U^j = \frac{1}{1-\rho}\left(c_t^{\alpha_1^j}(l_t^j)^{1-\alpha_1^j}\right)^{1-\rho}$$

$$l_t^j = L - h_t^j(d_t^j) + \alpha_2 I(d_t^m = R, d_t^f = R)$$

Model

Social Security Function:

- Entitlement is a function of accumulated earnings (E_t)
- Step formula applied to E_t to obtain PIA
- Workers retiring at 65 receive full PIA
- Workers retiring at 62 receive 80% of PIA
- Workers retiring after 65 receive 4% increase per year
- Benefits are indexed to CPI
- Earnings test
- Dependent spouse benefit
- Surviving spouse benefit

Model

Other components of the model:

- Agents cannot borrow against future labor/Social Security income, but may bring forward negative assets if they have a sufficiently negative health cost draw.
- Shocks to wages are persistent.
- Wages depreciate following periods of part-time work or retirement.
- The distribution of health costs varies with age.
- Survival probabilities are age- and gender-specific.

Model Solution

- Framework introduced by Rust (1987, 1988) for the solution and estimation of stochastic Markov discrete processes.
- Extend framework in order to account for continuous decisions.
- Under the standard assumptions model delivers conditional choice probabilities of the 9 possible household participation statuses:

$$P(k|z_t,\theta) = \frac{\exp\{r(z_t,k,\theta)\}}{\sum_{k\in D}\exp\{r(z_t,k,\theta)\}}$$

graph

Estimation

Estimation takes place in two stages:

- First stage:

  Estimate parameters which can be identified without specific reference to dynamic model.

- Second stage:

  Estimate θ_0 using method of simulated moments.

Data

- Health and Retirement Study (HRS)
- Panel data on households where at least one member is aged 51 to 61 in initial wave.
- Extensive information on:
  - Wealth and Income
  - Health
  - Retirement
  - Demographics
- HRS data can be linked to Social Security Administration records which provide information on covered earnings and benefits.

Data

Estimation sample:

- The model is estimated using the sample of HRS couples who do not have a defined benefit pension.
- For individuals with no private pension, Social Security provides main age-specific incentives for retirement.
- The same is true for individuals with defined contribution pensions.
- Defined benefit pensions give very strong incentives for retirement at particular ages, usually different from the Social Security ages.

Estimation: Second Stage

Table: Preference and Wage Process Parameter Estimates

Parameter and definition		(1)	(2)
α_1^m	Consumption share, male U function	0.5102	
α_1^f	Consumption share, female U function	0.4295	
α_2	Value of shared retirement		
	Male's wage depreciation per year PT	0.9051	
	Female's wage depreciation per year PT	0.8933	
	Male's wage depreciation per year R	0.8092	
	Female's wage depreciation per year R	0.7795	
GMM criterion		0.2058	0.1404

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	Male's wage depreciation per year PT	0.9051	0.9258
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	Female's wage depreciation per year PT	0.8933	0.9219
			(0.0334)
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	Female's wage depreciation per year PT	0.8933	0.9219
			(0.0334)
	Male's wage depreciation per year R	0.8092	0.8609
			(0.0436)
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			(0.0334)
	Male's wage depreciation per year R	0.8092	0.8609
			(0.0436)
	Female's wage depreciation per year R	0.7795	0.7841
			(0.0336)
GMM criterion		0.2058	0.1404

Figure: Simulated vs. actual age profiles for total participation, men.

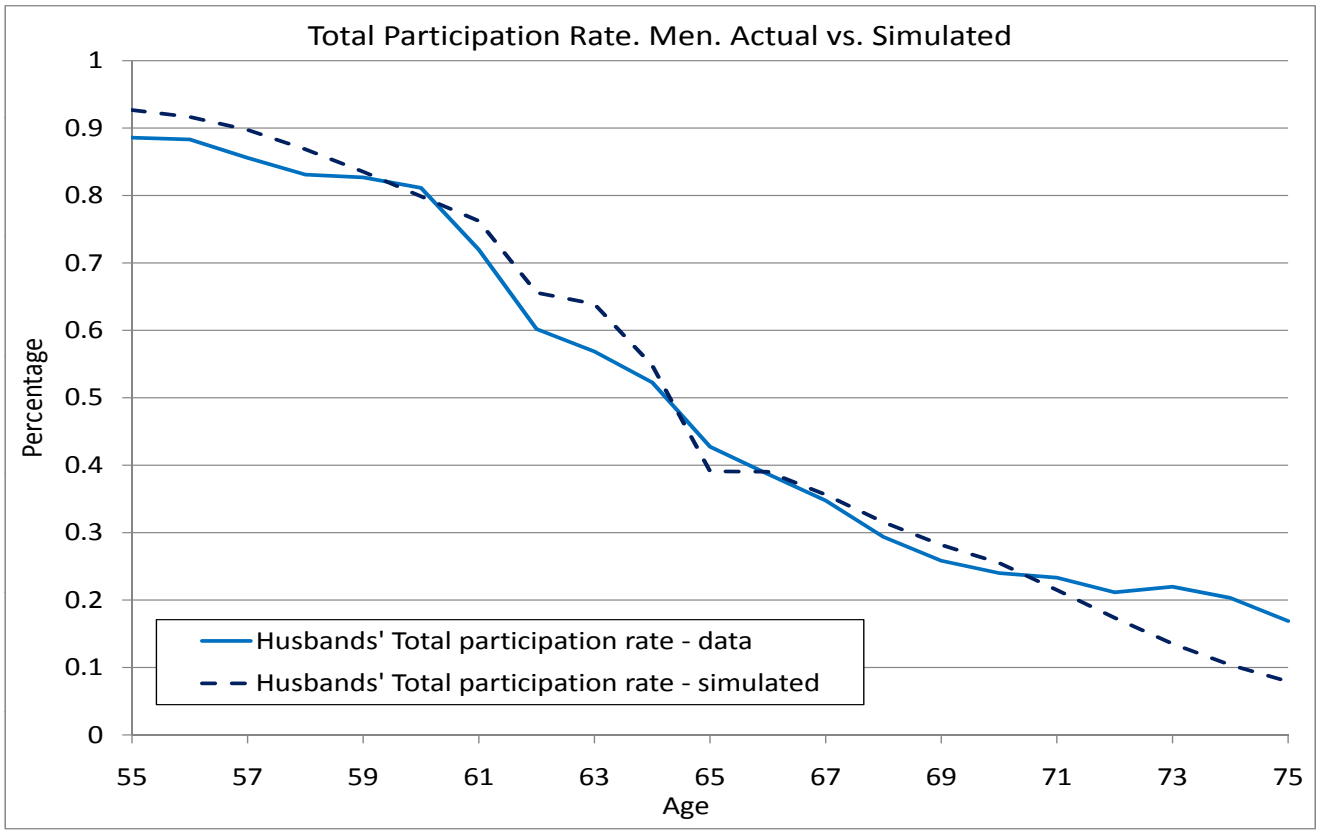


Figure: Simulated vs. actual age profiles for total participation, women.

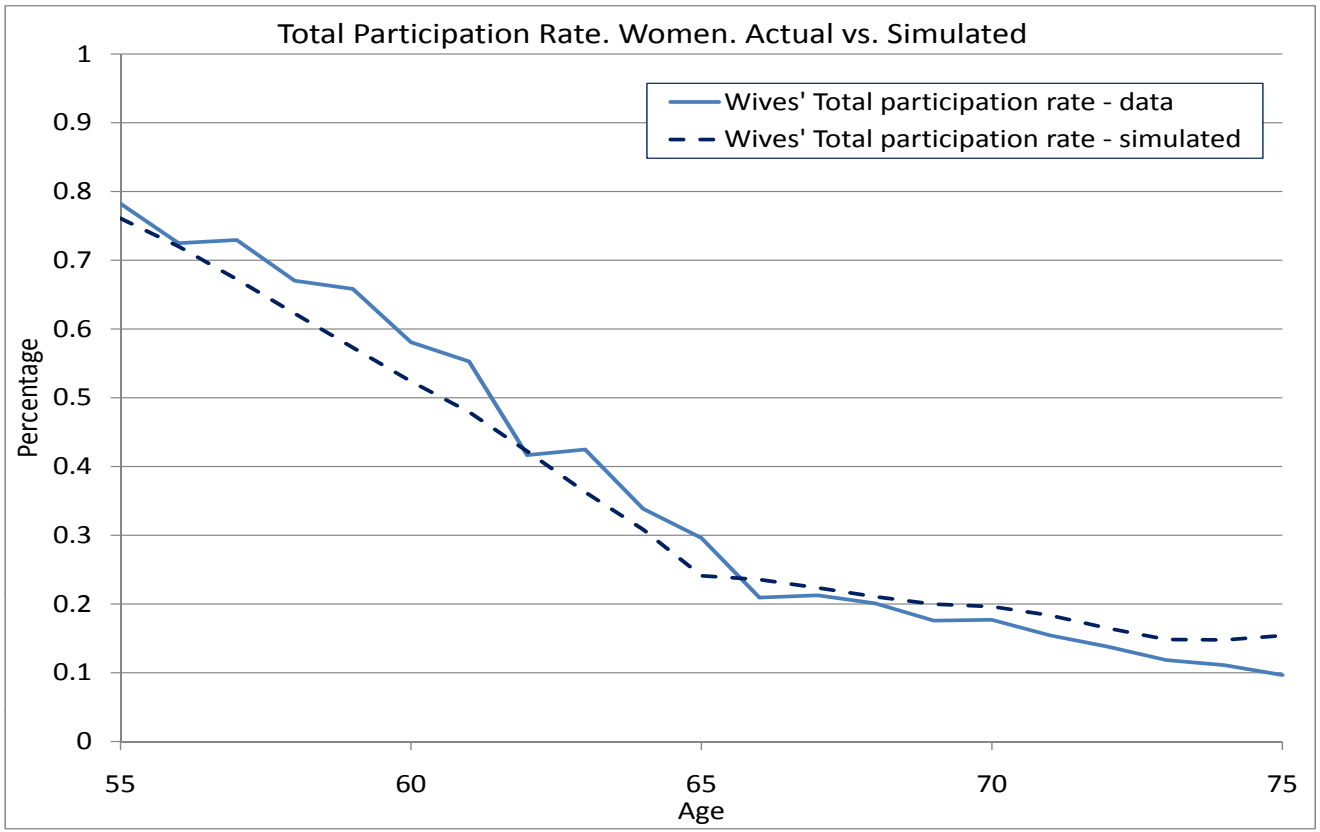
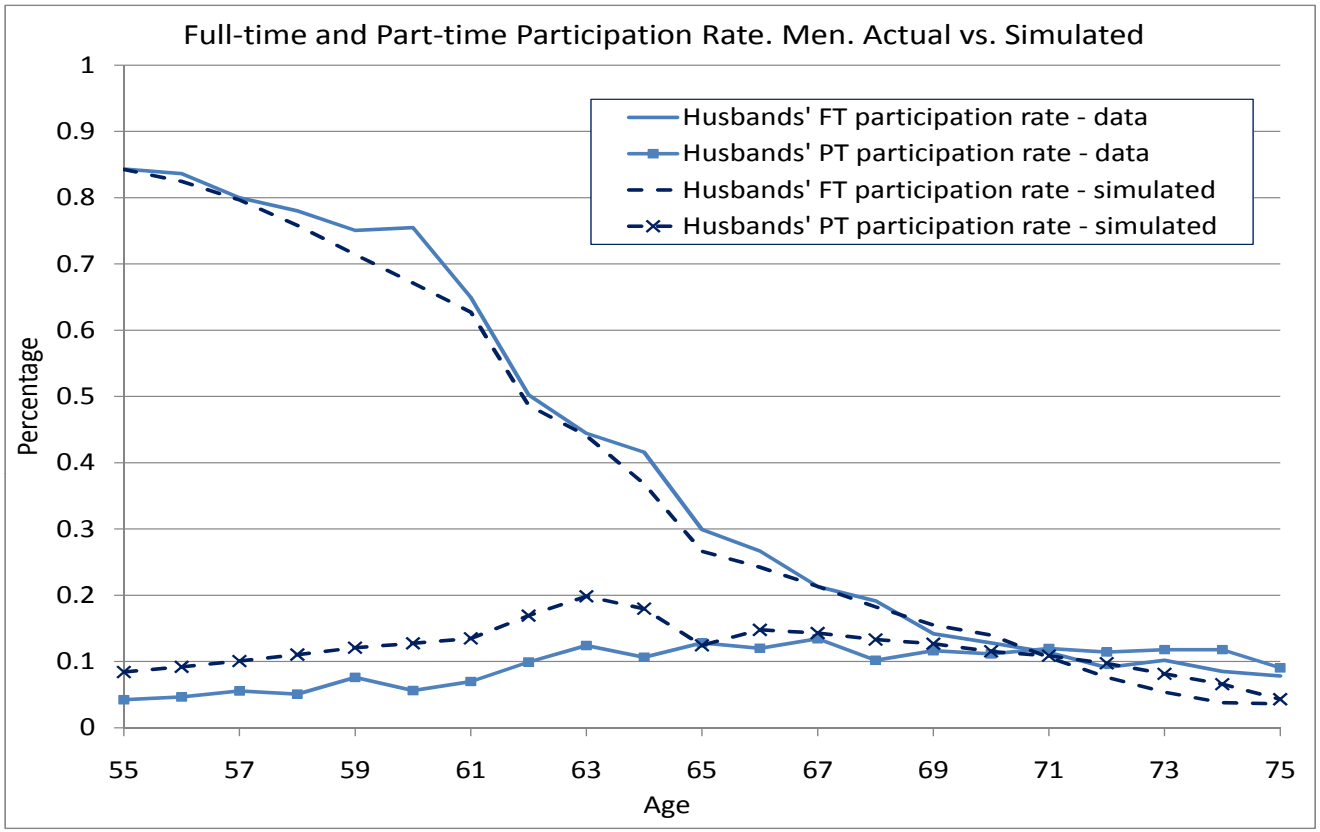


Figure: Simulated vs. actual age profiles for FT/PT participation, men.



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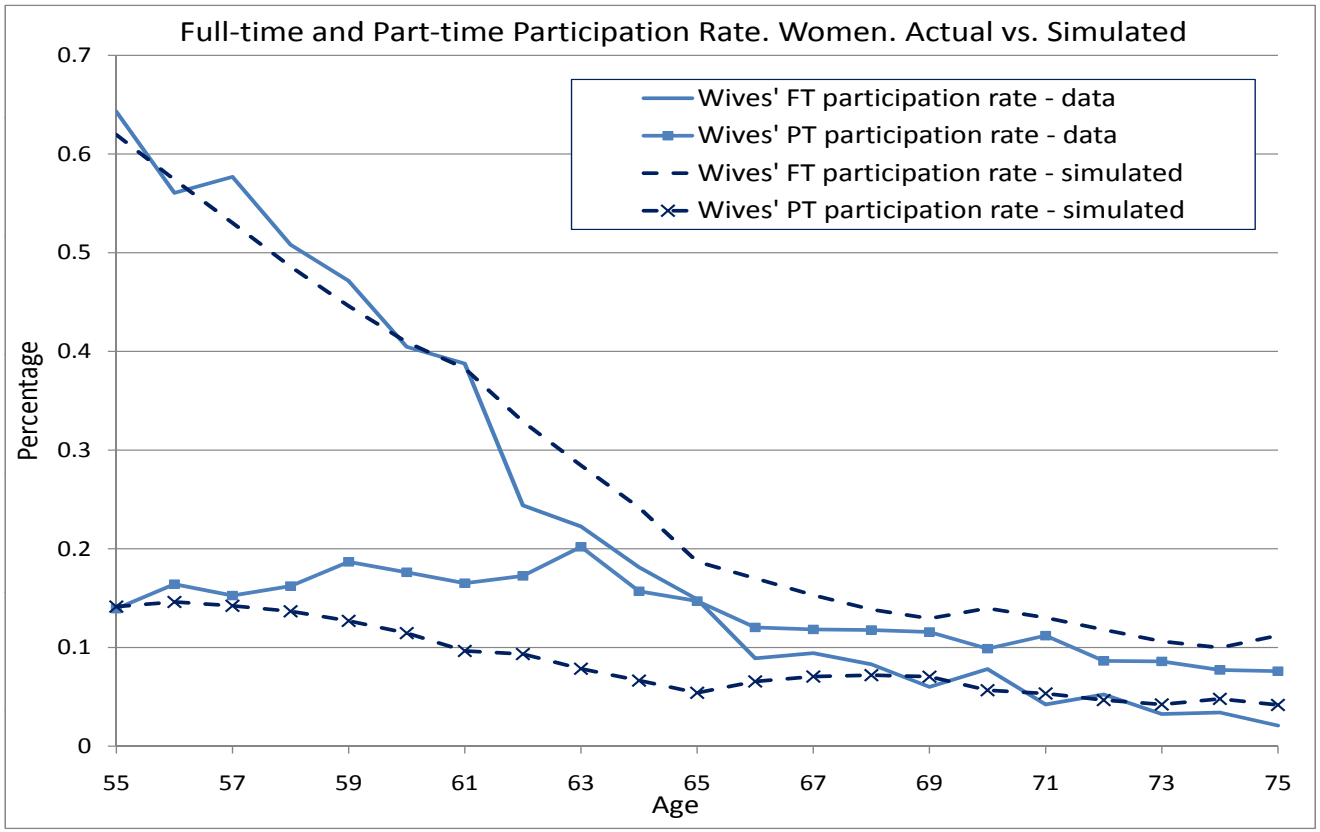


Figure: Simulated vs. actual retirement frequencies, men.

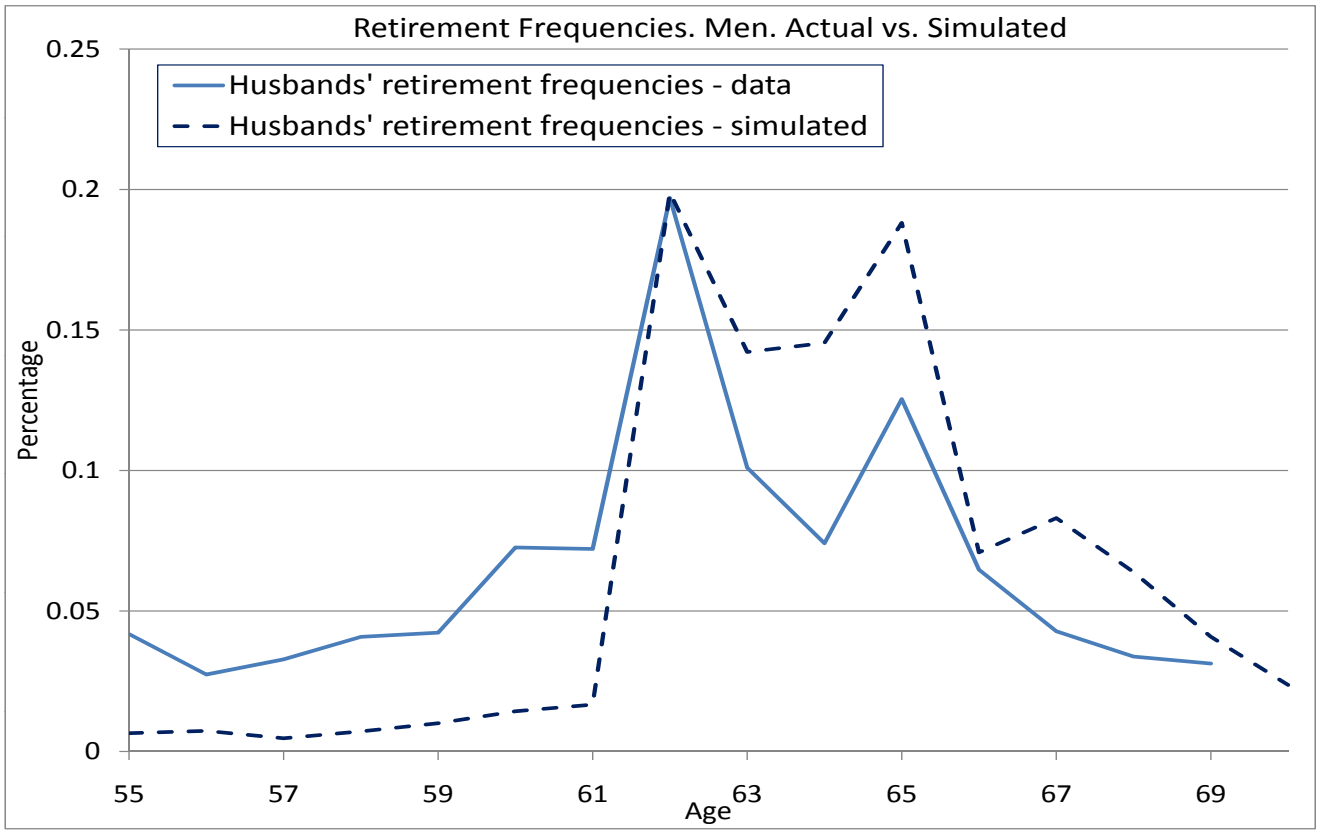


Figure: Simulated vs. actual retirement frequencies, women.

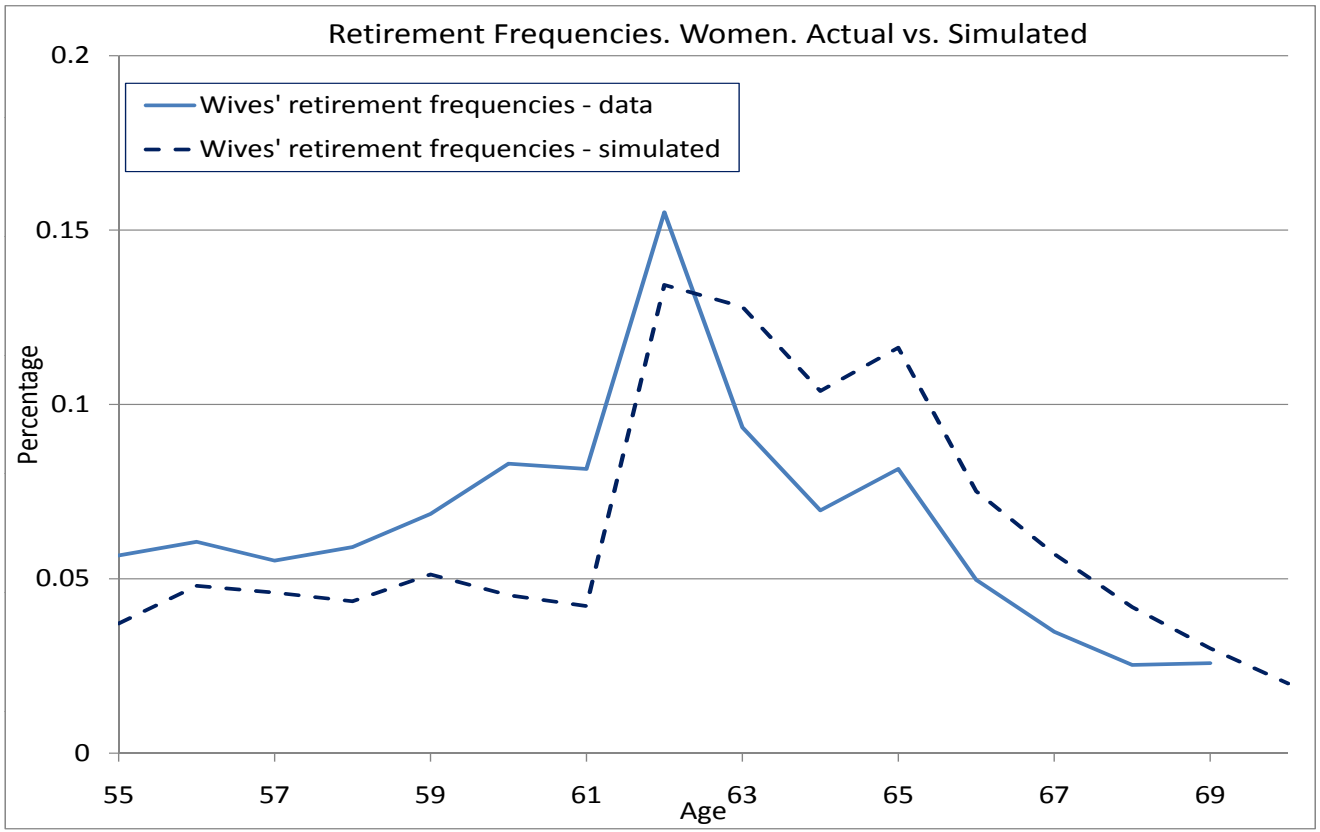
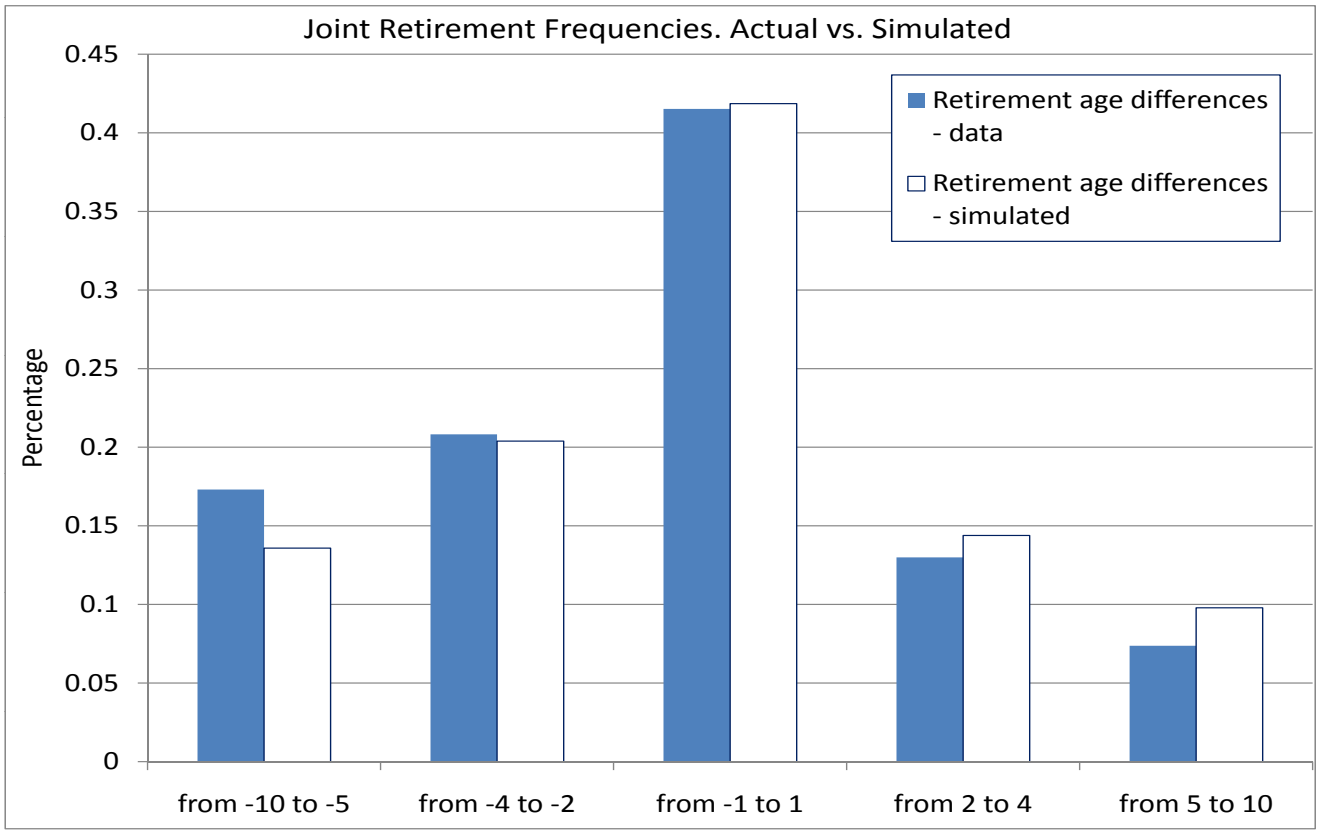
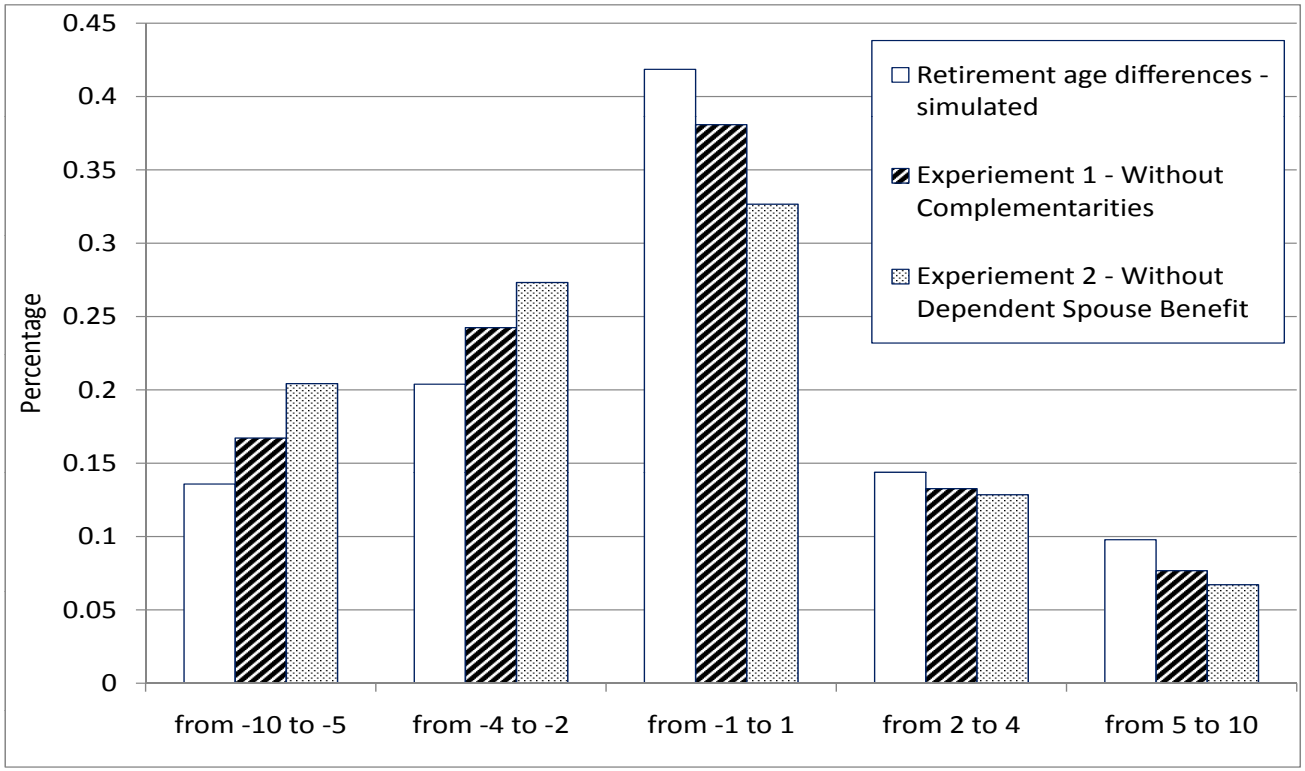


Figure: Simulated vs. actual joint retirement frequencies.



Experiments

Figure: Simulated vs. actual joint retirement frequencies.



Conclusions

- I develop a life-cycle model of couples' choices which carefully models shared budget constraint and allows for leisure complementarities.
- Results show that positive complementarity parameters explain 8% of joint retirements...
- ...while social security's spousal benefit accounts for another 13%.

Figure: Retirement frequencies for married men and women

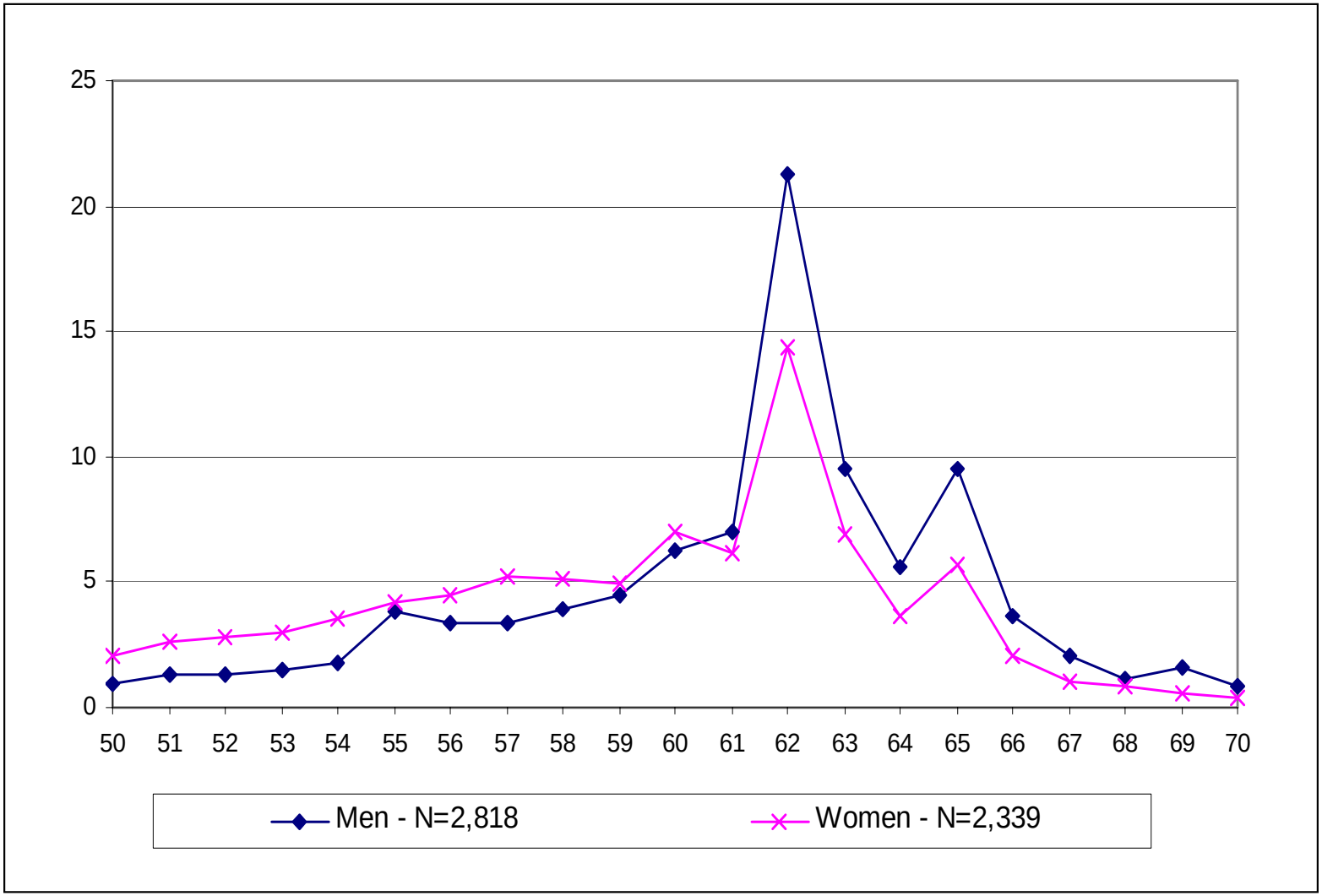


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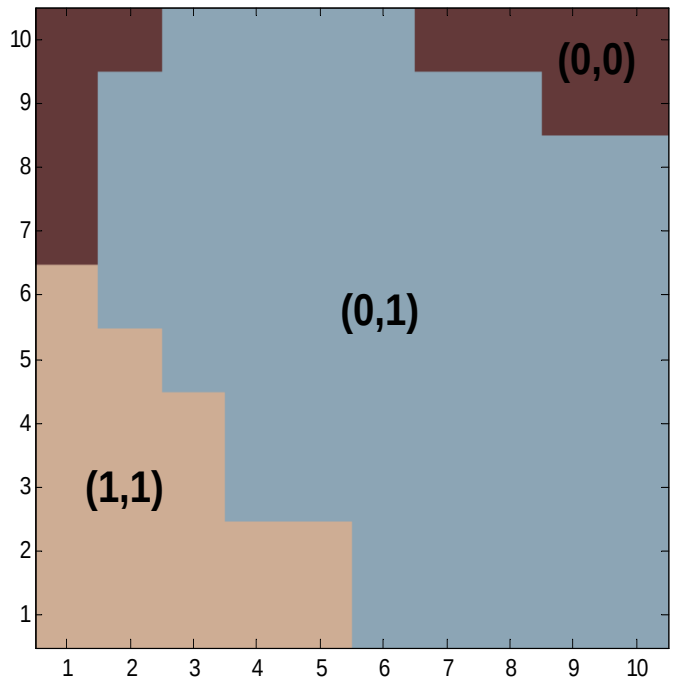
Figure: Optimal participation choices as a function of E^m, E^f



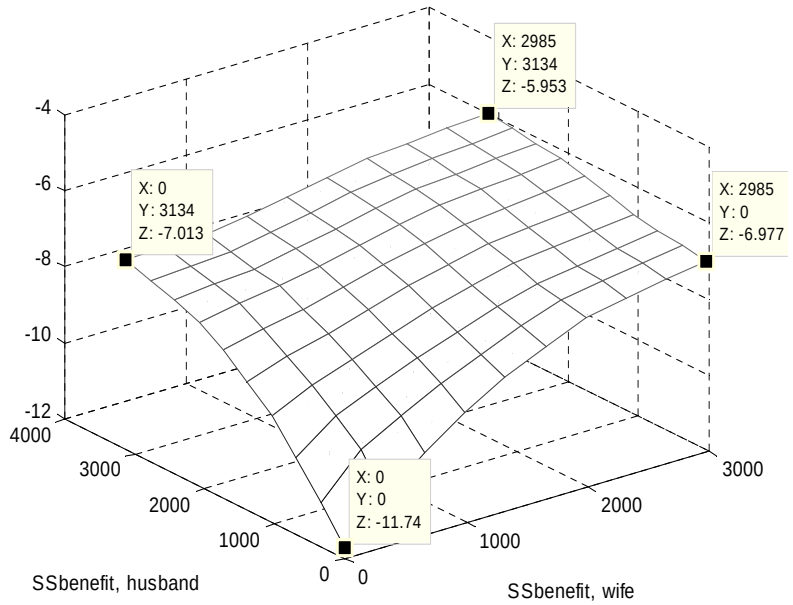


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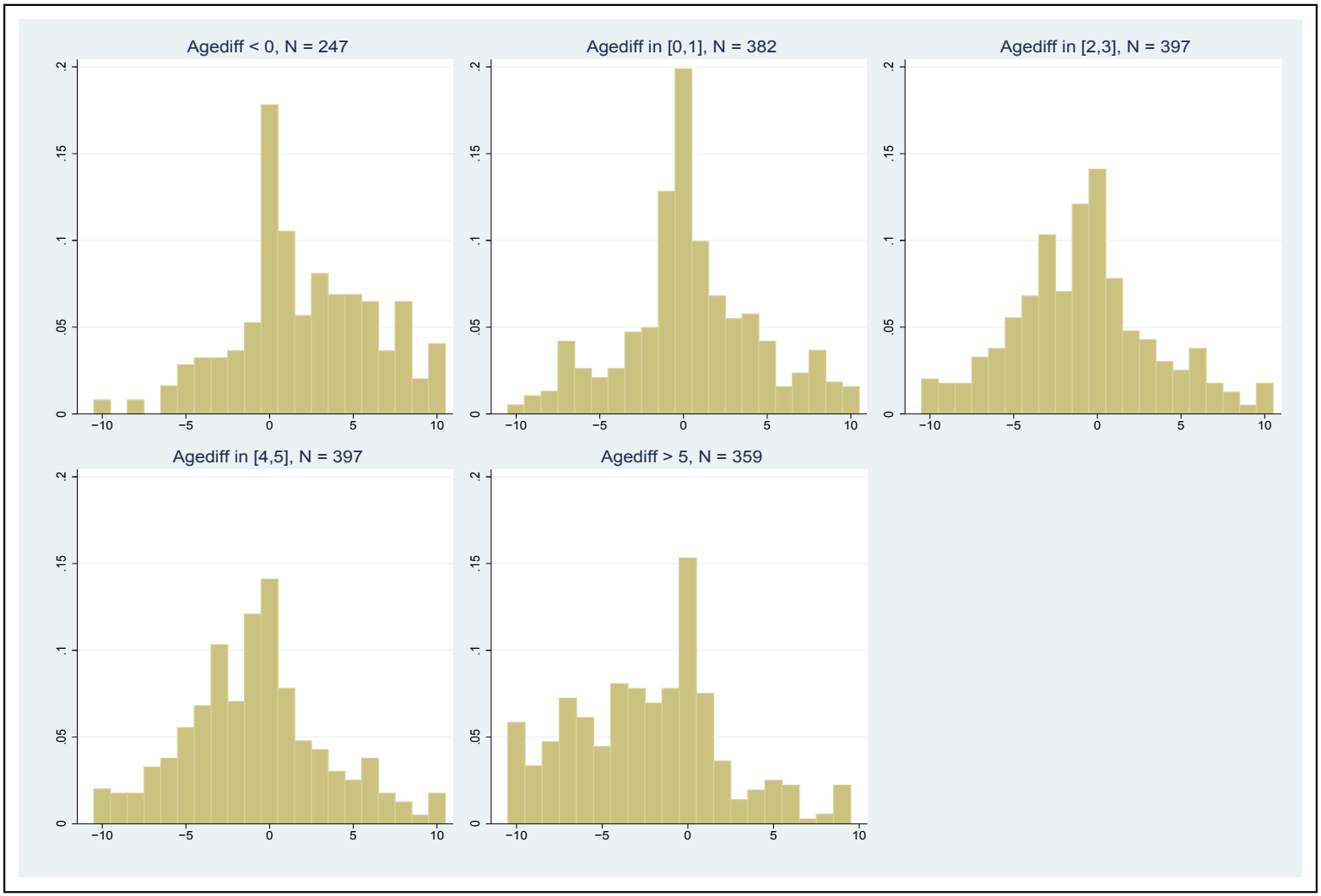
Figure: Differences in retirement dates by age difference between spouses



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Introduction

Leisure Complementarities

A significant fraction of spouses retires together graph
Hurd (1990), Blau (1998), Gustman and Steinmeier (2000)

Joint retirements of spouses with different ages may be partly explained by interactions in spouses' preferences.

Complementarity of spouse's leisure: one (or both) spouses enjoy their leisure more if this is shared with their partner.

Reduced-form studies provide evidence that spouses enjoy their retirement more if their partner is retired too.

- Coile (2004)
- Banks, Blundell and Casanova (2010)

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