Consumer Bankruptcy: A Fresh Start

- Livshits, MacGee, and Tertilt (2007)

Discussant: Tao Wang (BoC)

Labor, Firms, and Macro Reading Group

February 10, 2024

Fresh start or not for bankrupt consumers?

- FS: debt charged off
- NFS: debt restructuring with limited garnishment

Fresh start or not for bankrupt consumers?

- FS: debt charged off
- NFS: debt restructuring with limited garnishment

A trade-off between smoothing across states or across time

- FS: bankruptcy is good insurance for bad luck – insurance across states, at the cost of smoothing across time

Fresh start or not for bankrupt consumers?

- FS: debt charged off
- NFS: debt restructuring with limited garnishment

A trade-off between smoothing across states or across time

- FS: bankruptcy is good insurance for bad luck – insurance across states, at the cost of smoothing across time

Therefore, which one yields better welfare gain is ambiguous

Preview of the findings

- FS approach potentially increases welfare in the U.S.
- But, it depends on uncertainty levels and life-cycle earnings
- ”No Fresh Start” might be preferable in cases of large temporary income shocks or the absence of expense shocks

Model

A life-cycle heterogeneous-agent model with bankruptcy choices

$$\sum_{j=1}^{J} \beta^{j-1} u\left(\frac{c_j}{n_j}\right)$$

$$y_j^i = a_j^i \bar{e}_j$$

$$a_j^i = z_j^i \eta_j^i$$

- $\Pi\left(z' \mid z\right)$: transition probs of persistent inc shks
- $\kappa \geq 0$, i.i.d. expenditure shocks

Consumer's problem

Repaying debt

$$V_j(d,z,\eta,\kappa) = \max_{c,d'} \left[u\left(\frac{c}{n_j}\right) + \beta E \max\left\{ V_{j+1}\left(d',z',\eta',\kappa'\right), \bar{V}_{j+1}\left(z',\eta'\right)\right\}\right]$$

$$\text{s.t. } c + d + \kappa \leq \bar{e}_j z\eta + q^b\left(d',z,j\right)d'$$

- debt price q is a function of debt amt d, income state z and age j
- It is to be determined in equilibrium by competitive lenders

With FS

File for bankruptcy...

$$\bar{V}_j(z,\eta) = u\left(\frac{c}{n_j}\right) + \beta E \max\left\{V_{j+1}\left(\overbrace{0}^{\text{“}FS\text{”}}, z', \eta', \boldsymbol{\kappa}'\right), \bar{W}_{j+1}\left(z', \eta', \boldsymbol{\kappa}'\right)\right\}$$

$$c = \bar{e}_j z\eta - \underbrace{\Gamma}_{\text{Garnishment}}, \quad \Gamma = \gamma \bar{e}_j z\eta$$

- $I_j(d+\kappa, z, \eta) = 1$ if $\bar{V}_j(z,\eta) > V_j(d, z, \eta, \kappa)$
- $d + \kappa$ charged off: dropped as a state variable
- No savings in the period of bankruptcy
- Cannot file bankruptcy for two periods in a row, so another value function W is needed

With FS

Cannot file bankruptcy twice in a row, but could miss paying the expenditure bill...

V func of not paying bill

$$\overbrace{\bar{W}_j(z,\eta,\kappa)}^{} = u\left(\frac{c}{n_j}\right) + \beta E \max\left\{V_{j+1}\left(d',z',\eta',\kappa'\right), \bar{V}_{j+1}\left(z',\eta'\right)\right\}$$

$$c = \bar{e}_j z\eta(1-\gamma), \quad d' = (\kappa - \gamma\bar{e}_j z\eta)(1+\bar{r})$$

- partial payments to the bill κ and the rest carries over to the next period
- with an interest rate $\bar{r}$

With NFS

$$V_j^{NFS}(d, z, \eta, \kappa)$$

$$= \max_{c, d', I} \left[u\left(\frac{c}{n_j}\right) + \beta E V_{j+1}^{NFS}\left(d', z', \eta', \kappa'\right) \right]$$

$$\text{s.t. } c + d + \kappa \leq \bar{e}_j z \eta + q^b\left(d', z, j\right) d' \quad \text{if } I = 0$$

$$c = (1 - \gamma)\bar{e}_j z \eta \quad \text{if } I = 1$$

$$\underbrace{d'}_{\text{rolled-over debt}} = \max\left\{\left(d + \kappa - \gamma \bar{e}_j z \eta\right), 0\right\}(1 + \bar{r}) \quad \text{if } I = 1$$

- No debt is charged off, simply rolled over with wage garnishment

Debt price

$$q^b\left(d',z,j\right)=\left(1-\overbrace{\theta\left(d',z,j\right)}^{\text{prob of file bankruptcy}}\right)\bar{q}^b$$

$$+\theta\left(d',z,j\right)E\left(\frac{\Gamma}{d'+\kappa'}\middle|\ I=1\right)\underbrace{\bar{q}^b}_{\text{price of safe debt}=(1+r^s+\tau)}$$

$$q^{NFS}\left(d',z,j\right)$$

$$=\left(1-\theta\left(d',z,j\right)\right)\bar{q}^b+\theta\left(d',z,j\right)$$

$$\times E\left(\frac{\Gamma+q\left(d'',z',j+1\right)d''}{d'+\kappa'}\middle|\ I=1\right)\bar{q}^b$$

$$\underbrace{d''}_{\text{rolled over debt}}=\max\left\{d'+\kappa'-\Gamma,0\right\}(1+\bar{r})$$

Equilibrium

Given risk-free rate q^s, $\bar{q}^b$,

consists of value funcs V, $\bar{V}$ W,

policies c,d',I,

default probs θ and

price funcs $\bar{q}^b$ such that

- value funcs satisfy as defined and policies are optimal given $\bar{q}^b$
- bond price func $\bar{q}^b()$ is determined by zero profit condition
- default probs are correct: $\theta\left(d', z, j\right) = E\left(I_{j+1}\left(d' + \kappa', z', \eta'\right)\right)$

Solution

- Threshold policies : $I(d, z, \eta, \kappa) = 1 \quad \text{if } d + \kappa > \bar{d}$
  - because V (V func of repaying) decreases with d and $\bar{V}$ (V func of bankruptcy) is independent of d
- Backward value func iteration from period J to 1
- maybe also can iterate over debt price func?

Calibration

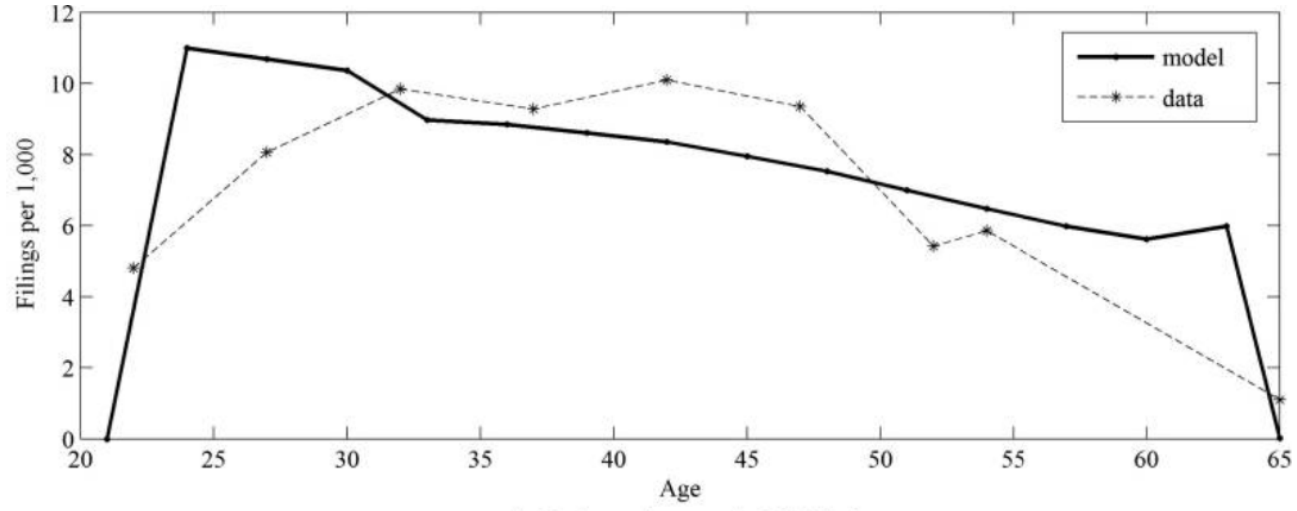
- Standard life cycle parameters
- Bankruptcy
  - $\bar{r}$ = 20%: penalty rate on rolled over debt
  - $\gamma = 35\%$: garnish ratio of income indirectly calibrated to match debt to income ratio
  - κ: out-of-pocket medical bills, and also "divorce shocks" (1.2% per year) and "child shocks" (0.5% per year)

Shock	Magnitude ($)	Fraction of avg. income	Probability
κ_1	$\$32,918$	0.264	7.104% (π_1)
κ_2	$\$102,462$	0.8218	0.46% (π_2)

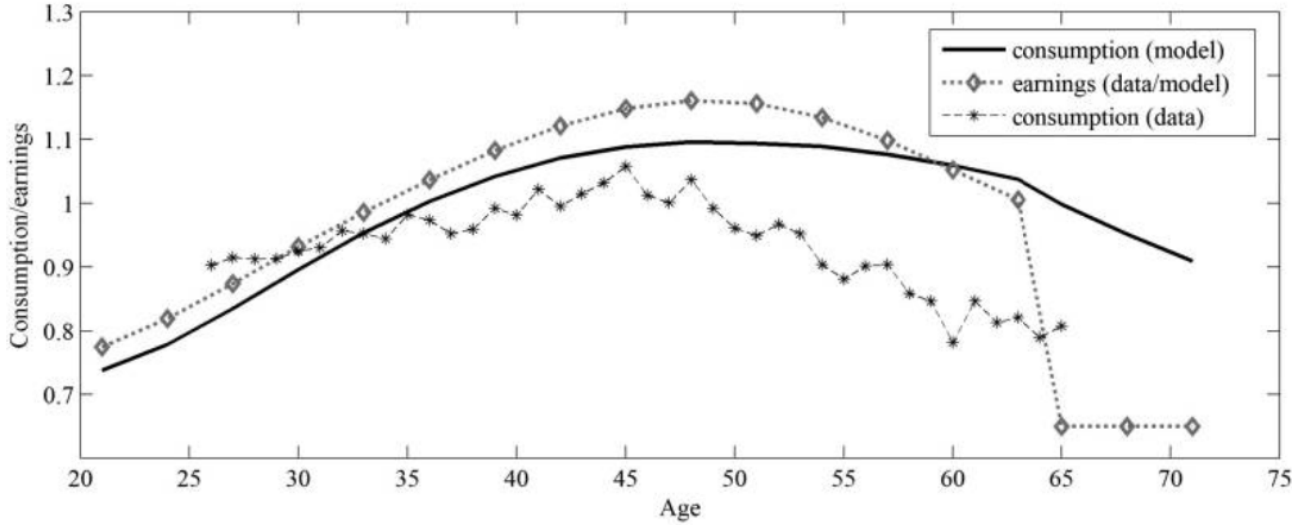
Model versus Data

Results	Rule	$\frac{\text{Debt}}{\text{Earnings}}$	Defaults	$\text{Avg}\, r^b$
Benchmark	FS	8.4%	0.71%	11.6%
US data, Avg. 1995-1999	FS	8.4%	0.84%	$11.2 - 12.8$

Life cycle profile



A. Bankruptcies over the Life Cycle



B. Life-Cycle Consumption and Earnings Profiles

Defaults by reason

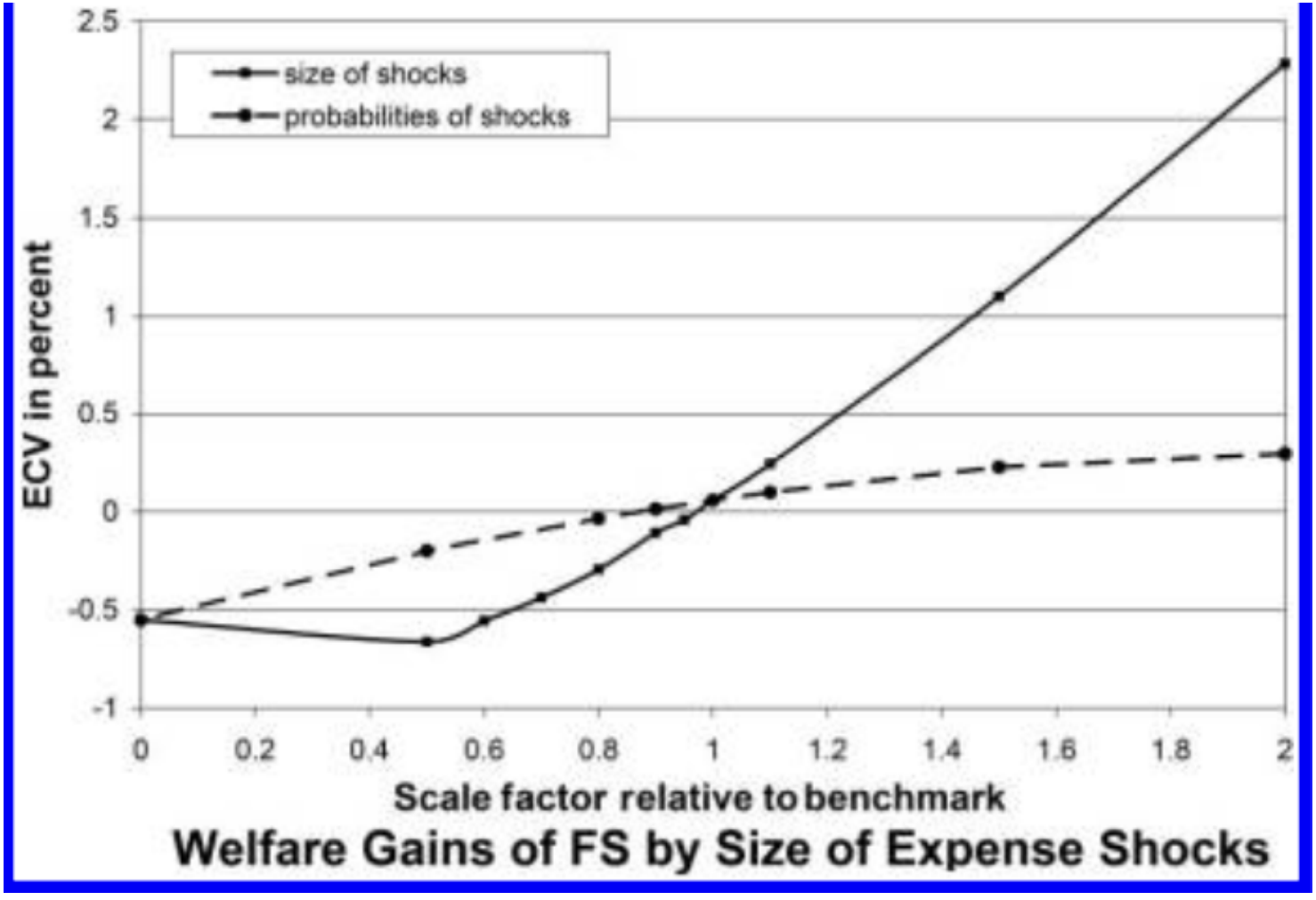
	Expense shock			
	Low	High	None	Total
No decrease in income	63.7%	9.9%	1.6%	75.2%
Fall in persistent income only*	8.1%	1.5%	5.3%	14.9%
Negative transitory shock only**	7.0%	1.1%	0.1%	8.3%
Fall in persistent income and negative transitory shock	0.9%	0.2%	0.6%	1.7%
Total	79.7%	12.7%	7.6%	100.0%

Endogeneous borrowing constraints

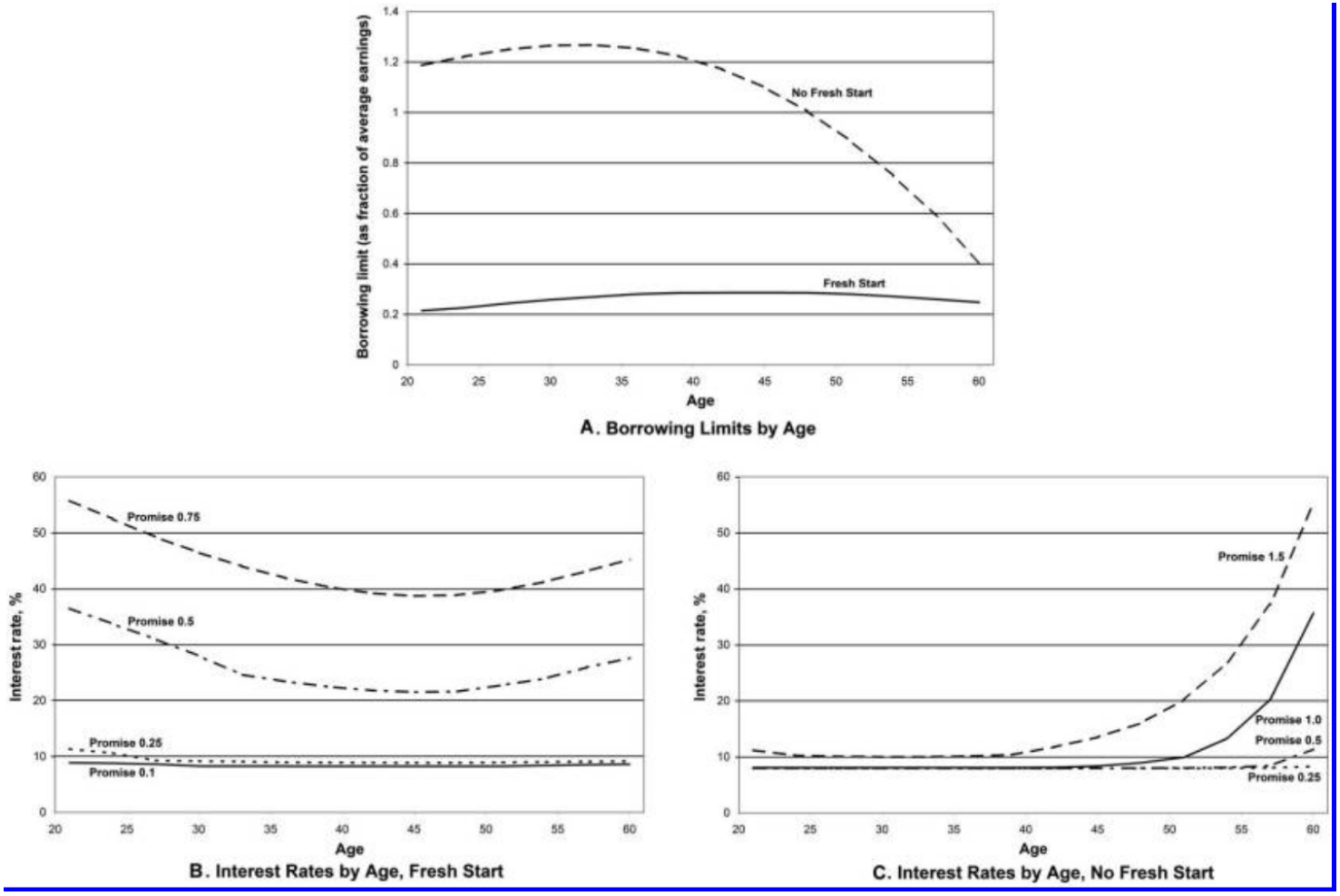
Welfare comparison

Results	Rule	Debt to Earnings	Defaults	Better rule	ECV
Benchmark	FS	8.4%	0.71%		
	NFS	14.8%	0.53%	FS	0.06%

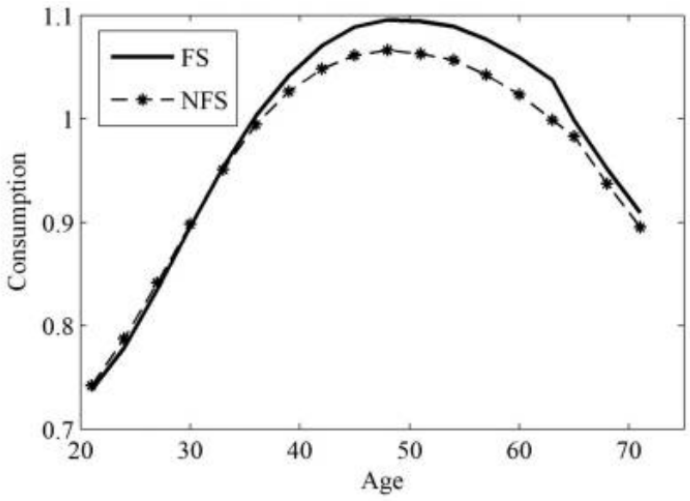
Expenditure shocks matter



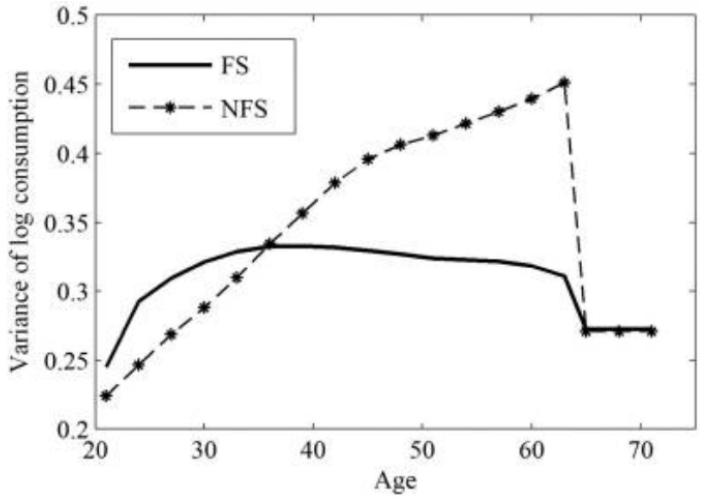
Different life-cycle shapes: FS versus NFS



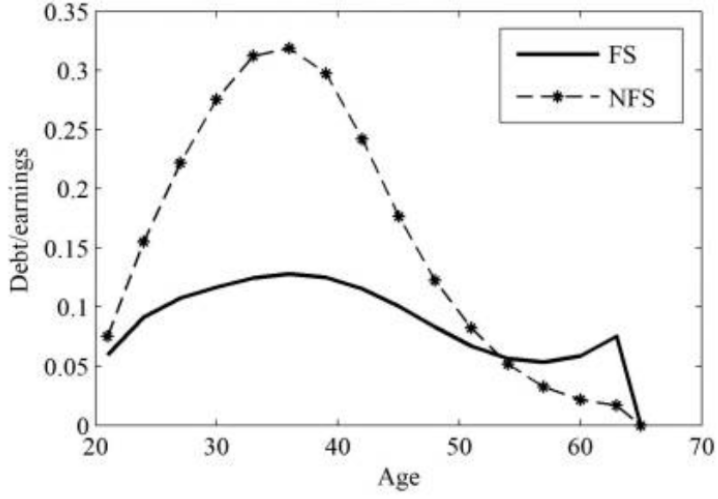
Smoothing across states versus across time



A. Smoothing over Time (FS vs. NFS)



B. Smoothing across States (FS vs. NFS)



C. Debt/Earnings over the Life Cycle (FS vs. NFS)

Other findings

- Under benchmark: FS is welfare improving

Other findings

- Under benchmark: FS is welfare improving
- But NFS is more appealing if transitory income shocks matter more

Other findings

- Under benchmark: FS is welfare improving
- But NFS is more appealing if transitory income shocks matter more
- FS benefits high-income people and hurts low-income people with a bigger variance of the persistent income shocks

Other findings

- Under benchmark: FS is welfare improving
- But NFS is more appealing if transitory income shocks matter more
- FS benefits high-income people and hurts low-income people with a bigger variance of the persistent income shocks
- A flatter life-cycle income profile makes smoothing over time less important, hence favors FS

References I

Livshits, Igor, James MacGee, and Michele Tertilt (2007). "Consumer bankruptcy: A fresh start". ***American Economic Review*** **97.1, pp. 402–418.**