

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?

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- NFS: debt restructuring with limited garnishment

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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

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

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

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

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

Consumer's problem

Repaying debt

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

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

- 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...

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

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

- $I_j(d + \kappa, z, \eta) = 1$ 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

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

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

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

With NFS

$$\begin{aligned} V_j^{NFS}(d, z, \eta, \kappa) \\ &= \max_{c, d', I} \left[u \left(\frac{c}{n_j} \right) + \beta EV_{j+1}^{NFS}(d', z', \eta', \kappa') \right] \\ \text{s.t. } c + d + \kappa &\leq \bar{e}_j z \eta + q^b(d', z, j) d' \quad \text{if } I = 0 \\ c &= (1 - \gamma) \bar{e}_j z \eta \quad \text{if } I = 1 \\ d' &= \max \{ (d + \kappa - \gamma \bar{e}_j z \eta), 0 \} (1 + \bar{r}) \quad \text{if } I = 1 \end{aligned}$$

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

Debt price

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

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

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

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 $\bar{q}^b(\cdot)$ is determined by zero profit condition
- default probs are correct: $\theta(d', z, j) = E(I_{j+1}(d' + \kappa', z', \eta'))$

Solution

- Policies: threshold $I(d, z, \eta, \kappa) = 1$ 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

Calibration

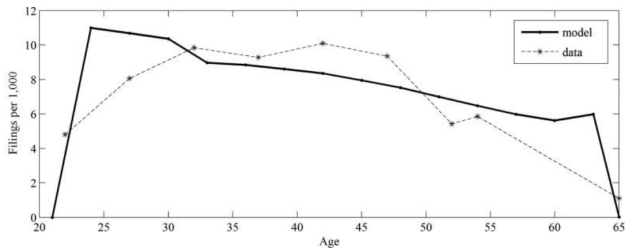
- Standard life cycle parameters
- Bankruptcy
 - $\bar{r} = 20\%$: penalty rate on rolled over debt
 - $\gamma = 35\%$: garnish ratio of income indirectly calibrated to match debt to income ratio
 - κ : out-of-pocket medical bills, and also “divorce shocks” (1.2% per year) and “child shocks” (0.5% per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

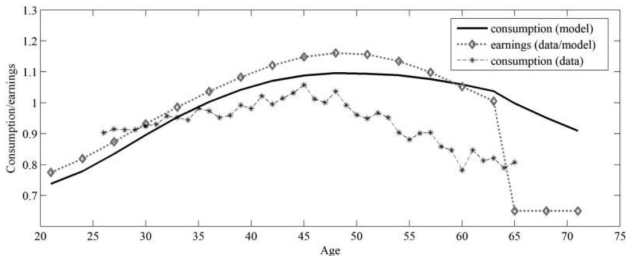
Model versus Data

Results	Rule	$\frac{\text{Debt}}{\text{Earnings}}$	Defaults	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

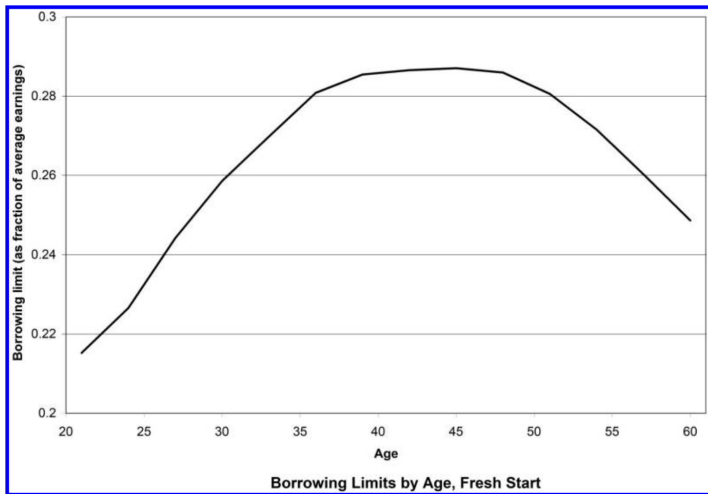


B. Life-Cycle Consumption and Earnings Profiles

Defaults by reason

	Expense shock			Total
	Low	High	None	
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%

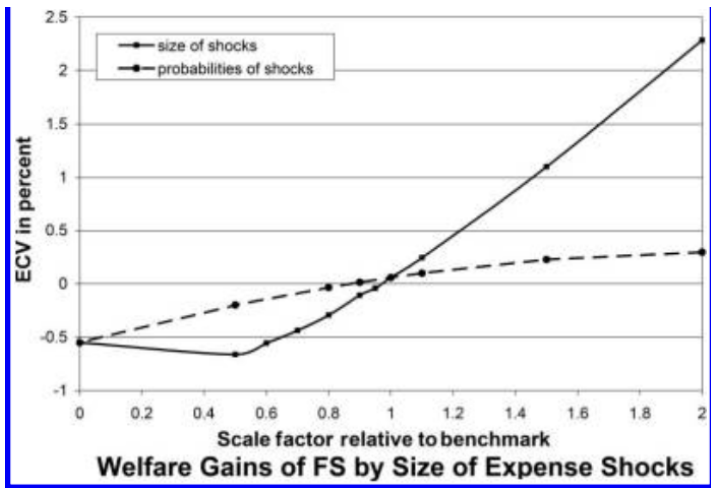
Endogeneous borrowing constraints



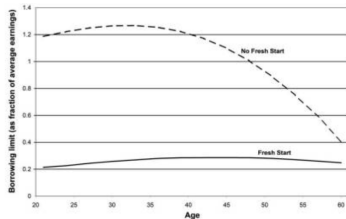
Welfare comparison

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

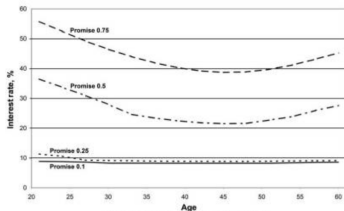
Expenditure shocks matter



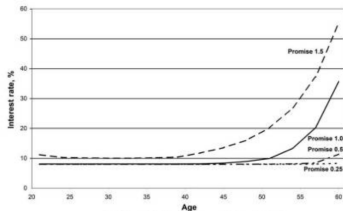
Different life-cycle shapes: FS versus NFS



A. Borrowing Limits by Age

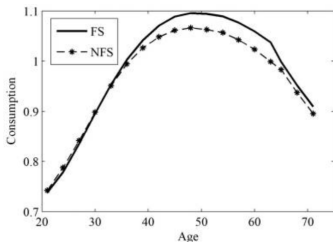


B. Interest Rates by Age, Fresh Start

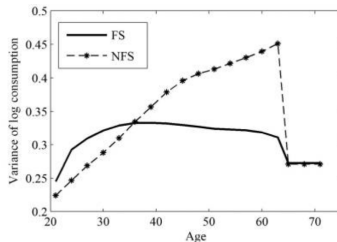


C. Interest Rates by Age, No Fresh Start

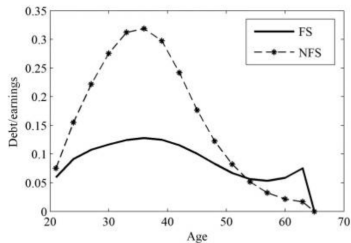
Smoothing across **states** versus across **time**



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

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- 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.