Redistributive Taxation and Personal Bankruptcy in US States

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Introduction:

Q: How do households pool their income risk

if markets are incomplete?

(i) Taxes as Insurance:

Ex post taxes increase with income

redistributes income from rich to poor

If people ex ante identical

$\Rightarrow$ this is insurance

e.g. Varian (1980), Grant et. al. (2003)

(ii) Bankruptcy:

If ex post

repay when income high

default when income is low

and all households borrow

$\Rightarrow$ this is insurance

e.g. Zame (1993), Athreya (1999), Grant (2003)

Households can use both mechanisms
to insure income risks

May use different mechanisms
in different places

For Example:

- Texas has no income tax

  but keep house and $60,000 when default

- New York has high taxes

  but low bankruptcy exemptions

Question:

Are the two policies substitutes?

We develop a simple analytic model

And then provide some empirical evidence

Approach of this paper:

- income exogenous
- household wish to smooth their consumption

across time (borrowing/saving)

across agents (insurance)

We show how taxes and bankruptcy

affects borrowing incentives

and interest rates

similar to Bertola and Koeniger (2004)

Then empirically test some features of the model

States set value of exempt assets in bankruptcy

and set their own local taxes

We use household data from different US states

for the years 1980-2003

Stylized Model: (Basic Idea)

(More formally dealt with in the paper/appendix
and similar to White, 2004)

Suppose Risk-Averse agents live for two periods

receive endowment $\omega_1 = 1$ in period 1

and receive endowment ω_2 in period 2

where ω_2 is uncertain

They either lend at risk-free interest rate r_f

or borrow at interest rate $r_2 \geq r_f$

where r_2 depends on default probability

(zero profit condition for banks)

The government chooses the level of assets E

the agent keeps should he default on his debts

The agent chooses consumption c_1 in the first period

which may involve borrowing B in first period

To make it interesting - suppose there is borrowing

In period 2 the household receives ω_2

and decides whether to repay his debts

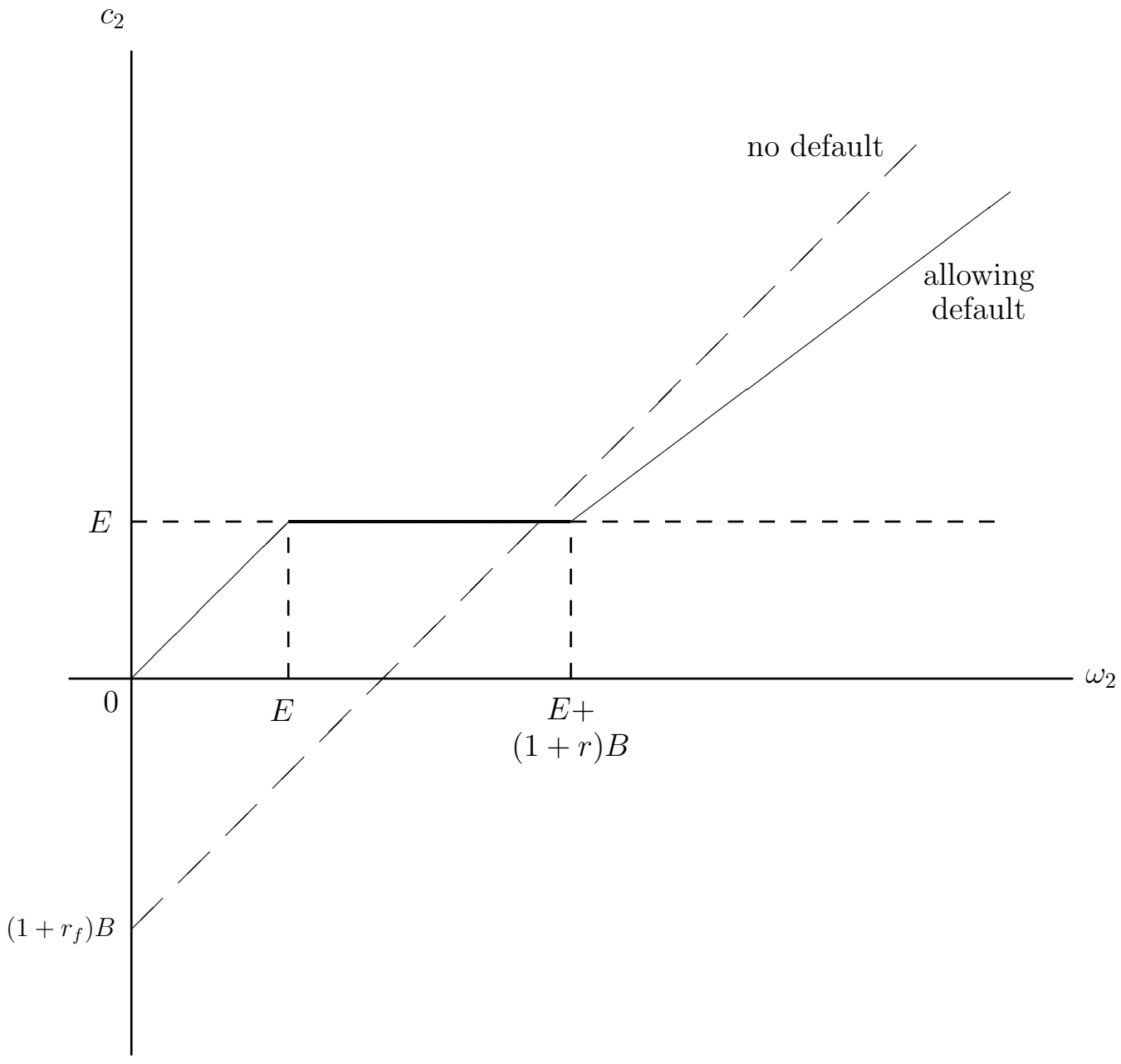
Default means agent keeps up to an amount E

which we call the bankruptcy exemption

Hence default whenever

$$\omega_2 < E + (1 + r)B$$

e.g. period 2 endowment is sufficiently low



The Effect of the Bankruptcy Exemption

There are clearly three regions

- For low levels of the endowment the agent

  fully defaults and consumes his endowment

- For intermediate levels of the endowment the agent

  partially defaults and consumes E

- For high levels of the endowment the agent

  repays the debt and consumes $\omega_2 - B(1 + r_f)$

Low endowment agents are better off

since they do not repay their debts

High endowment agents are worse off

since they pay more interest

Bankruptcy provides insurance as it redistributes

consumption from high ω_2 to low ω_2 households

Raising the bankruptcy exemption means

more households fully default

fewer households fully repay

Comments:

Very poor do not benefit since they fully default anyway

intermediate households keep more in default

high endowment households pay more in interest

The level of insurance is higher

The Effect of Redistributive Taxes

Governments can also set taxes and transfers

Suppose there was a marginal income tax of τ

redistributed as a lump-sum amount

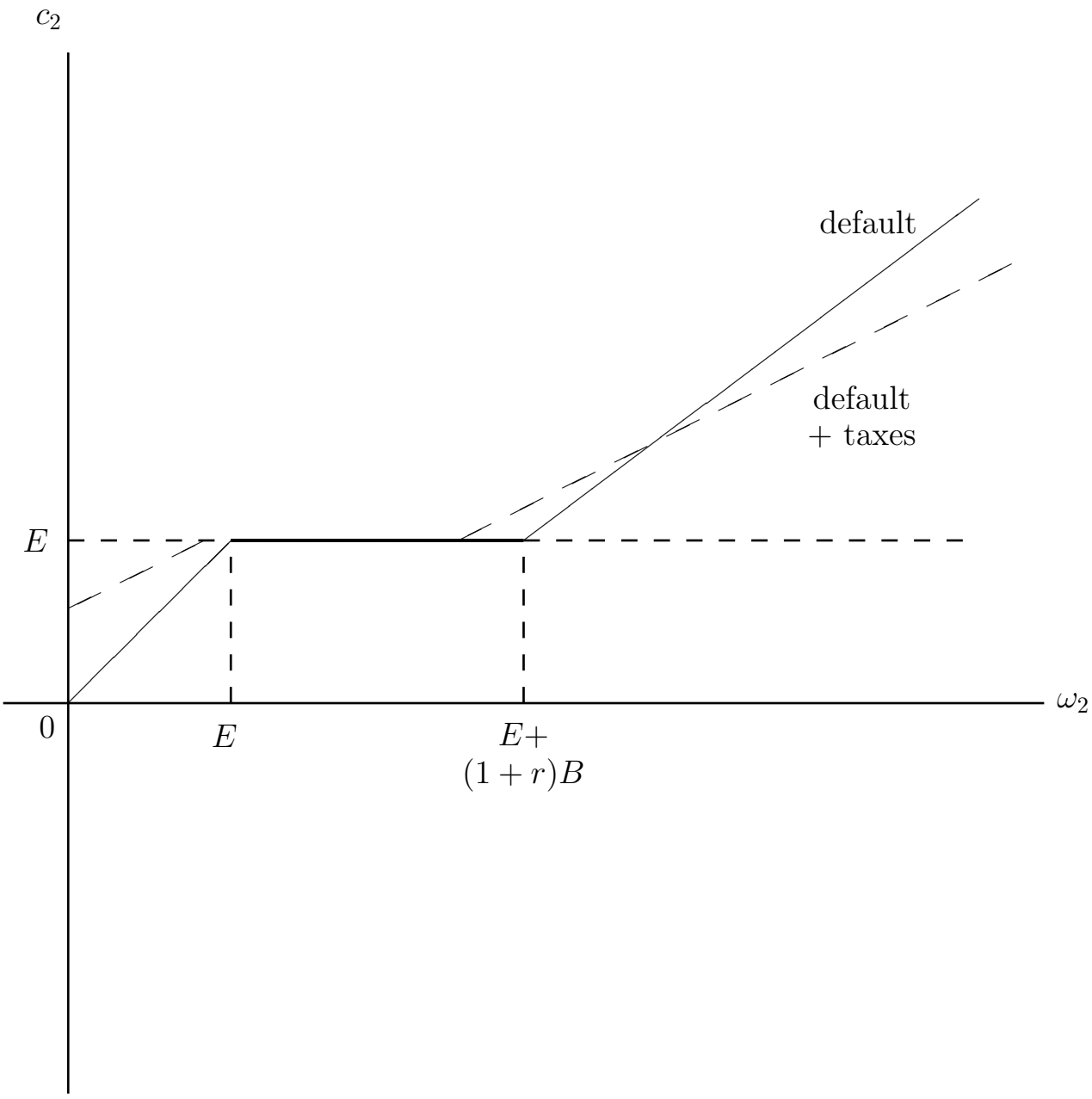
same to all households

Clearly this also redistributes from rich to poor

Hence there are two methods

to insure households against risk

And important interactions between the policies



The Effect of Taxes with Bankruptcy Exemptions

Interactions Between the Policies:

• For a given level of borrowing:

Raising the tax rate τ and raising transfers

increases the interest rate and

reduces welfare gain from bankruptcy exemptions

• For a given level of interest

Raising the bankruptcy exemption

increases the level of borrowing in period one

While raising the the tax rate

reduces the level of borrowing

• If both borrowing and the interest rate can change

the overall effect of each policy

is highly sensitive on the exact assumptions

of the model

(need to calibrate/simulate)

We have developed some interesting theory

but is the any evidence to support it

We exploit fact different US states have different taxes

and different bankruptcy laws

Constructed group averages:

- Working age households
- 18 largest states
- 1980-2003
- 420 cells

We measure tax and exemption to investigate:

(i) Average debts

(ii) Consumption Inequality

(iii) Growth in Consumption Inequality

(measures insurance, Deaton and Paxson 1994)

(iv) Whether the are policies substitutes

Data:

- Consumption (non-durable) from CEX
- Income/Transfers from CPS March supplement

    e.g. household data, state information,

    singles / single parents / couples,

    age 30-60

    exclude farmers / self-employed

Comment: - Better measured (?)

- larger sample

- error uncorrelated with CEX

- Taxes use TAXSIM from NBER

    - Greenburg and Coutts (1993)

    - input income, household characteristics, STATE

    - output total / marginal taxes

Thresholds for 1998 federal tax brackets:

Tax Rate	Tax Bracket			
(%)	single	married jointly	married separately	% paying
15	0	0	0	58.2
28	26,250	43,850	21,925	34.2
31	63,550	105,950	52,975	5.2
36	132,660	161,450	80,725	1.8
39.6	288,350	288,350	144,175	0.3

Taxes also vary substantially between states:

For example - in 1998

Texas had no state income taxes

Pennsylvania had a 2.8 percent flat rate tax with no exempt income

Californian taxes increase from 1 to 9.3 percent

New York did not tax first $2,900 of income

Wages and Transfers:

	average	average if received	% receive
wages	34,696	36,789	94.3
social security	261	6,601	3.9
supplementary security income	77	4,161	1.8
unemployment / workers compensation	353	2,688	13.1
public assistance / welfare	176	3,712	4.7
food stamps	128	1,571	8.1
total transfer	997	4,250	23.4

Transfers are also important for households

Problem: How to summarise tax-system

Want a single index number

Within a regime:

different
- tax rates
- thresholds
- tax exemptions

Could use mean marginal tax rate but:

- does not account for progressivity
- ignores various tax exemptions
- ignores transfers

Instead construct income compression measure:

$$1 - \frac{sd_{st}\left(\text{income}_{ist} \text{ - } \text{tax}_{ist} + \text{transfer}_{ist}\right)}{sd_{st}(\text{income}_{ist})}$$

Comment: measures how taxes re-distribute income

- but correlation 0.81

Personal Bankruptcy in the United States

Regulated by the Federal Bankruptcy Act of 1978

debtors choose Chapter 7 or Chapter 13

Chapter 7: debtor had his debts expunged

but surrenders non-exempt assets

Chapter 13: debtor agreed a repayment schedule

but retained his assets

Since the debtor could choose - could never be forced

to pay more than under Chapter 7

Chapter 7 Federal Bankruptcy Exemptions

Description	Amount	Comments
1978 Exemptions:		
1. House	7,500	
2. Car	1,200	
3. Household Goods		no limit on aggregate amount
4. Jewelry	500	personal use only
5. Other Property		Allowed all of unclaimed exemption from (1)
6. Tools of Trade	750	Items needed for job.
Revised Exemptions of 1984:		
3. Household Goods	4,000	$200 each item
5. Other Property	400	+ $3,750 of (1) that is unused.
Revised Exemptions of 1994:		All values doubled
Revised Exemptions of 1998:		All values increased with inflation
Revised Exemptions of 2001:		All values increased with inflation

The Act allowed states to set their own exemptions

Bankruptcy law otherwise uniform across states

Almost all states have exploited this legislation

causing large differences in state exemptions

Texas and Florida allow the home to be fully exempt

Texas allowed individuals $15,000 of other assets

Florida - personal property = $1,000; car = $1,000

Minnesota limited homestead to $200,000 in 1993

Pennsylvania allowed only $300 of personal property

but allowed the federal exemptions

Maryland homestead = $2,500; other assets = $3,500

and did not allow the federal exemptions

As debtors could re-arrange portfolio before default

I added exemptions have been added together

but excluding the 'tools of trade' exemption

to get total value the exemption in each state

based on age / disabled / depend. / couple

Given federal exemption if allowed and larger

$\approx$ 18 percent get federal exemption

Tax redistributiveness and bankruptcy exemptions by state:

State	Taxes				
	min. bracket	max. bracket	exempt	marginal rate	income compression
California	1.0	9.3	72	22.8	34.3
Florida		no state income tax		19.2	27.0
Maryland	2.0	4.75	1,850	25.1	32.6
Minnesota	5.35	7.85	2,900	24.6	34.3
New York	4.0	6.85	-	22.1	35.5
Pennsylvania	2.8	2.8	-	21.0	29.8
Texas		no state income tax		19.0	26.9

State	Bankruptcy Exemptions				
	house '84	other '84	house '98	other '98	fed
California	30,000	5,200	50,000	10,900	1984
Florida	no limit	1,000	no limit	2,000	1979
Maryland	2,500	3,500	2,500	3,500	1982
Minnesota	no limit	6,500	200,000	11,050	
New York	10,000	7,400	10,000	7,400	1982
Pennsylvania		300		300	
Texas	no limit	15,000	no limit	30,000	

Debt equations estimated by CLAD

Debt equations estimated using actual debt levels

for data from 1988 - 2003

Exemption significant, taxes insignificant

The effect on unsecured debt

	Income compression	Mean marginal tax rate
tax	0.381	0.442
	(0.903)	(2.523)
exemption × (1-house)	-0.028	-0.048
	(0.284)	(0.305)
exemption × house	0.213	0.214
	(0.054)	(0.061)
house fully exempt	0.576	0.559
	(0.190)	(0.178)

Main Regressions

Use panel of state-year cells to find effect of

policy measures on consumption insurance

and on each other

Can not test details of models

but can see if evidence consistent with theory

All regressions include state dummies

homestead dummy only identified from Minnesota

Also run IV regressions instrumenting the tax system

(aggregate shocks may affect taxes and inequality)

but bankruptcy exemptions can not change quickly

Instruments are:

(i) lagged variables

(ii) some political variables and measures of

tax efficiency taken from ACIR / Tannenwald

Consumption Insurance

	income compression			
	$sd(c_{it})$	$sd(\Delta c_{it})$	$sd(\Delta c_{it})$	$sd(\Delta c_{it})$
tax	-0.076	-0.254	-0.961	-0.743
	(0.050)	(0.083)	(0.495)	(0.229)
exemption	-0.047	-0.066	-0.093	-0.055
	(0.014)	(0.024)	(0.033)	(0.034)
house fully exempt	-0.148	-0.108	-0.118	-0.014
	(0.051)	(0.084)	(0.096)	(0.127)
constant	0.856	0.719	0.945	0.729
	(0.067)	(0.113)	(0.218)	(0.179)
IV			lag	pol
$Rank-test$			5.45	6.94
$(prob)$			(0.000)	(0.000)
$Sargan$				10.77
$(prob)$				(0.056)

Relationship Between Taxes and Bankruptcy Exemptions

	income compression			
	(1)	(2)	(3)	(4)
	OLS	IV	IV	IV
tax	-0.049	-0.316	-0.269	-0.234
	(0.016)	(0.119)	(0.071)	(0.034)
constant	0.069	0.161	0.139	0.128
	(0.007)	(0.040)	(0.024)	(0.012)
IV		lag	pol1	pol2
$Rank-test$			4.98	6.94
$(prob)$			(0.000)	(0.000)
$Sargan$			2.965	42.78
$(prob)$			(0.085)	(0.000)

Conclusion

Exemptions reduce level of debt

The exemptions also reduce consume inequality

rejection of market completeness

Both taxes and exemptions reduce $sd(\Delta c_{it})$

together they explain third

of differences across states

Two policies are negatively correlated

Fisher (2005) found increasing unemployment insurance

reduces bankruptcy filings

Effect is large BUT plausible since

(i) chose homogeneous groups

making the denominator smaller

(ii) although only 1.5% of households go bankrupt

substantially more households default

around 23% of households receive transfers

(iii) Legislation affects all households through

higher interest rates and higher taxes

(iv) If prudence matters than policies benefit all

Results suggest there is an interesting policy trade-off

- between bankruptcy and tax/benefit system

Different US states have made different choices

- Texas has generous bankruptcy and low taxes
- New York has higher taxes and lower exemptions

What about Europe?

- if welfare payments are more important
- then we need worry less about allowing bankruptcy