Debt Protection and Firm Dynamics

Geraldo Cerqueiro, Maria Fabiana Penas and Rober Seamans

Discussed by Felipe Severino - Dartmouth College

Debt protection and firm entry and exit

Main Result: Increases in borrower protection:

1. Increase in firm entry, only for low "barrier to entry" firms
2. Increase in firm exit and job destruction for young firms

Main Comments

1. Narrative and interpretation of the results

- Firm Entry

- Firm Exit

2. Empirical strategy and identifying assumption

3. Data sources in use

4. Other comments

Comments 1: Narrative and interpretation of the results

How is debt protection affecting firm dynamics?

Role of protection and the demographics that it affects

Debtor protection in this case refers to "personal bankruptcy laws" associated with unsecured debt

Comment 1: Personal Bankruptcy Law

Bankruptcy regulation in the US (and many other countries):

- **Exempts certain assets** (home-equity, furniture, etc.) from being seized by **unsecured creditors.**
- If the household defaults on its **unsecured** debt, creditors can only seize assets over and above the **protection level determined by each state.**

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- **Specific variation,** Chapter 7 protection = **(homestead + personal property)**
  - Future earnings are exempt from obligation to pay – "fresh start" principle
- **How does it affect business?**
  - Unless you are a sole proprietor filing a personal bankruptcy, your business does not receive a discharge of its debts in Chapter 7.
  - Also, you cannot use exemptions to protect assets in a business bankruptcy.

Comments 1: Effects of increasing bankruptcy protection

Two potential effects on household debt:

Effect on Supply:

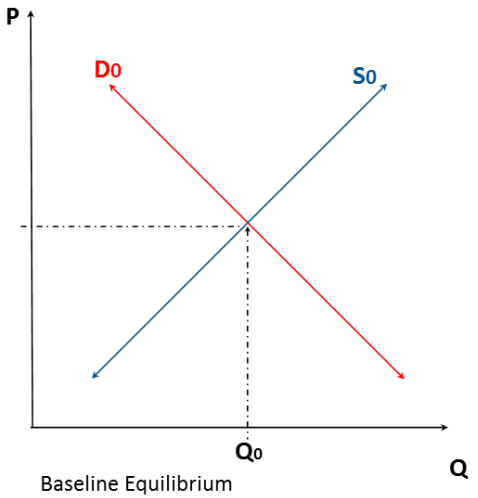
- Diminishes the collateral value of assets $\Rightarrow$**reduces** supply of credit

Effect on Demand:

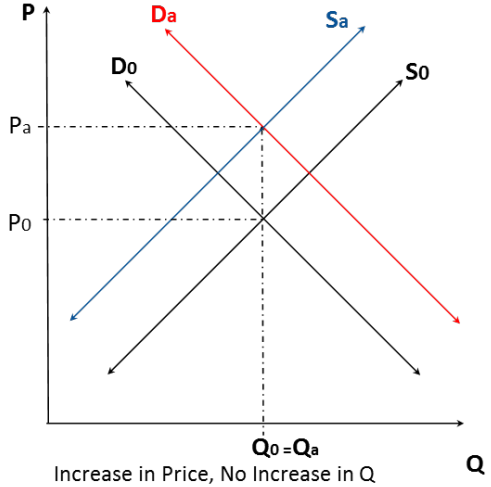
- Increases downside protection
  $\Rightarrow$**increases** credit demand from risk averse borrowers
  $\Rightarrow$**increases** credit demand from strategic defaulters

Interest rates should increase, but **net effect on quantity is unclear**

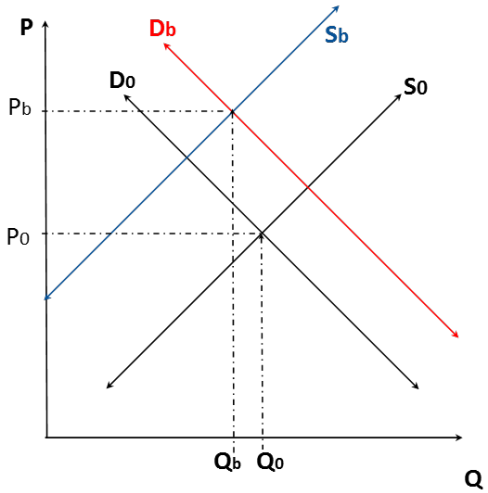
Comment 1: Effects of increasing bankruptcy protection



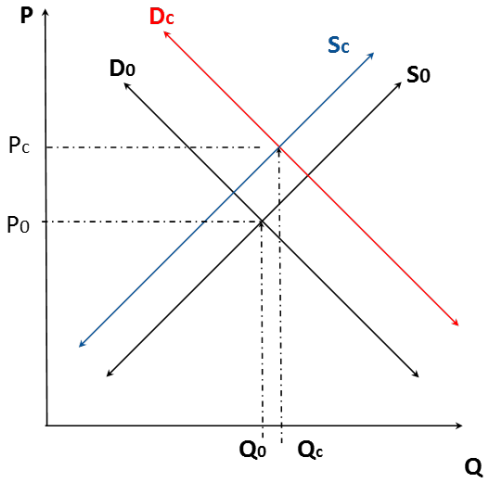
Baseline Equilibrium



Increase in Price, No Increase in Q



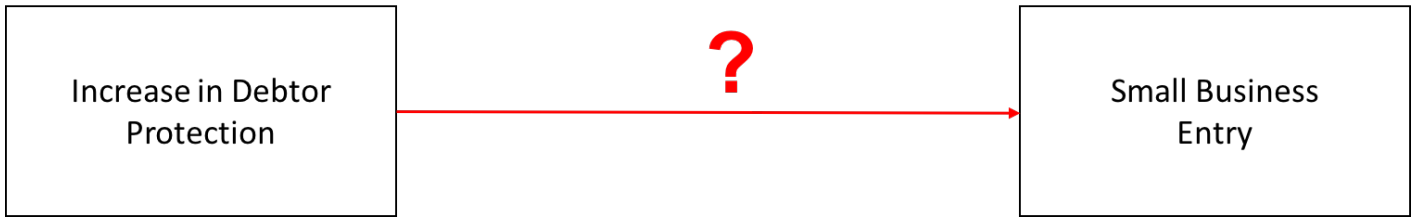
Increase in Price, Decrease in Q



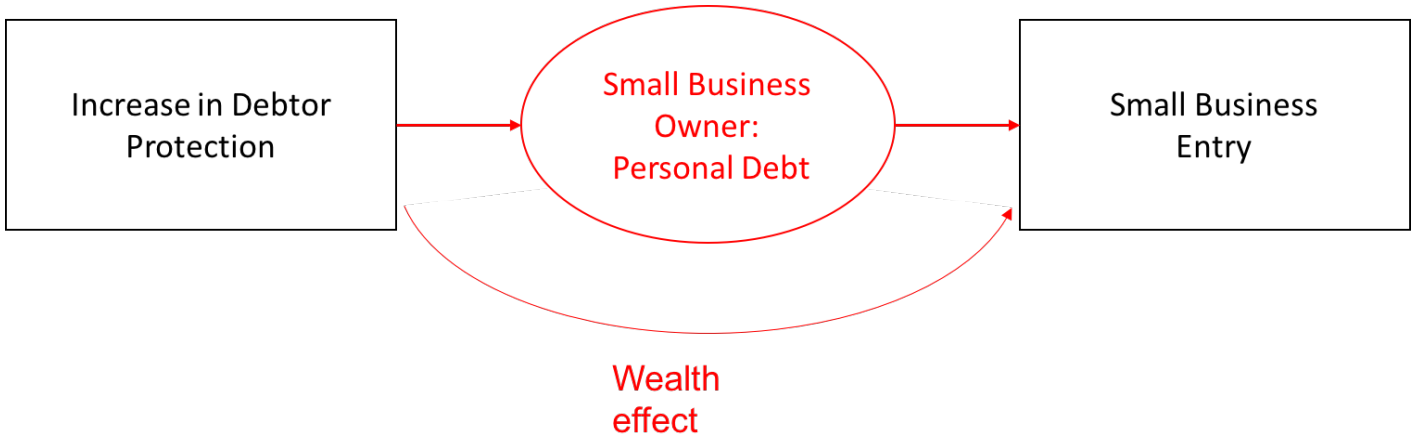
Increase in Price, Increase in Q

Comments 1: Effect of debtor protection on firm entry

What is the link with what personal bankruptcy laws do?



Comments 1: Firm entry



Firm Entry: Wealth Effect or Owner's Personal Debt (Owner Credit Channel)

- Low barriers to entry is a proxy for industries in which unsecured credit can be an important source of financing?

- Owner can borrow more and therefore is more likely to start a firm?

- Or, owner effective risk aversion decreases making them more prone to start a firm?

Suggestion: Provide empirical evidence that relates to this mechanism

Suggestion 1: Debt protection and household debt

Severino and Brown, 2017 shows that between 1999 and 2005:

$\uparrow$ in the **level of protection** $\Rightarrow$

$\uparrow$ in the **amount of unsecured debt** held by households

$\uparrow$ in **interest rates of unsecured debt**

No effect on secured debt (car loans and mortgages)

$\Longrightarrow$ **Demand effect is stronger than the inward supply shift**

Increase in debt consistent with "owner credit channel"

Suggestions 1: Firm entry and credit card use

Look at sole proprietorship entities and survey of business owners (Severino and Brown, 2017)

Explains 50% of self-employment growth within the sample (≈2%)

	Self Employment			Credit Card Startup > p50		Credit Card Startup < p50	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Protection Growth s,t	0.000	-0.003	-0.010**	-0.002	-0.014	-0.003	-0.007
	(0.002)	(0.003)	(0.004)	(0.007)	(0.009)	(0.002)	(0.003)
Protection Growth s,t x Low Income		0.006**	0.012***		0.024***		0.005
		(0.003)	(0.004)		(0.007)		(0.004)
Protection Growth s,t x Med Income		0.003	0.008***		0.012**		0.006
		(0.002)	(0.003)		(0.005)		(0.003)
Number of Observations	12,738	12,738	194,011	73,081	73,081	120,930	120,930
Number of Clusters	50	50	50	50	50	50	50
State & Year FE / Controls	Y	Y					
State x 2-digit industry & Year FE / Controls			Y	Y	Y	Y	Y
R-Squared	0.21	0.23	0.01	0.02	0.02	0.02	0.02

Source: FRBNY Consumer Credit Panel/Equifax, IRS, BLS, FHFA and Census

Demand channel? Industries with local demand more affected by the increase in consumption

Look at industries less affected (manufacturing)

Suggestions 1: Firm entry, Direct evidence of owner credit channel

- **Herkenhoff et al. 2017:**

Uses ILBD and LBD match to credit report, it shows that

After bankruptcy flag removal owners increase personal debt to transition from non-employee to employee firms

Increase in total balance about 40k (8k coming from unsecured debt)

- **Robb and Robinson 2014:**

New firms use credit card debt as a source of finance

Suggestion: Evidence more consistent with "owner credit channel"

Comment 1: Firm Exit

Firm Exit: Credit Constraints or Pool Effects?

1. **Credit Constraints:** more complicated than simple credit contraction story.

Assumptions: Owners of existing firms when requesting personal credit faced a stronger supply effect than future entrepreneurs.

2. **Pool Effects:** compare different cohorts before and after change in protection

Assumptions: Exit rates before and after changes in protection should be different

Suggestion 1: Firm Exit, Credit Constraints

Exploit industry heterogeneity:

Industries with more tangible assets and less asymmetric information, supply response should be smaller.

Less likely to see exit in those industries

Suggestion 1: Firm Exit, Pool Effects

Baseline empirical strategy

$$y_{st} = \alpha_s + \alpha_t + \beta Exemptions_{st} + \Gamma X_{st} + \varepsilon_{st}$$

Cohort effects, compare different cohorts before and after change in protection

$$y_{cst} = \alpha_{cs} + \alpha_t + \beta_1 Exemptions_{st} + \beta_2 \mathbf{Exemptions_{st}} \times \mathbf{PostLaw} + PostLaw + \Gamma X_{st} + \varepsilon_{st}$$

Results suggest than $\beta_2 = 0$ which will reject "worse pool effect"

Suggestion 1: Firm Exit, Pool Effects

Key variable: *PostLaw* $= 1$ if there is any change in protection

Not all changes are the same, many are inflation adjustments or small changes

From 1999-2005, a total of **37 state-year** changes in protection (within 26 states).

Average Change$\approx$40,000, Median Change$\approx$15,400, p75$\approx$50,000

Current specification equally weight all changes which generates a bias against finding a results.

Suggestion: Redo the analysis but defining *PostLaw* only for big changes

Suggestion Summary 1: Firm entry and exit

How debt protection affect firm entry and exit matters

- Needs to incorporate mechanism (i.e. owner personal debt) in the discussion

- Generate a consistent story for exit and entry based on different channels and empirical evidence

Comments 2: Empirical strategy and identifying assumption

Empirical strategy

$$y_{ist} = \alpha_s + \alpha_t + \beta Exemptions_{st} + \Gamma X_{st} + \varepsilon_{ist}$$

Identifying assumptions:

- Treated and control behave similar in the pre-period (parallel trend)

- Treatment definition is uncorrelated with variables that affect the outcome (exogenous treatment)

Comments 2: What is driving the changes?

Cross sectional correlation between levels of protection, and house prices, bankruptcy filings, and political climate.

	Protection Level s,t		Protection Growth s,t		Protection Dummy s,t	
	(1)	(2)	(3)	(4)	(5)	(6)
House Price/Growth s,t	-3.900	-1.837***	-0.809**	-0.537	-0.697	-0.858
	(4.616)	(0.671)	(0.354)	(0.572)	(0.701)	(0.789)
House Price/Growth s,t-1	5.287	2.983***	1.691***	0.970	2.700***	1.806*
	(4.503)	(0.770)	(0.619)	(0.762)	(0.776)	(0.994)
No. Filings/Growth s,t	-0.299*	0.125*	0.030	-0.123	0.060*	-0.114
	(0.250)	(0.039)	(0.045)	(0.098)	(0.069)	(0.098)
No. Filings/Growth s,t-1	-0.482	0.194***	0.053	-0.045	0.026	-0.080
	(0.245)	(0.072)	(0.047)	(0.071)	(0.064)	(0.090)
Political Climate s,t-1	0.045**	-0.289***	0.010	0.400	0.151	0.608
	(1.509)	(0.171)	(0.161)	(0.234)	(0.151)	(0.458)
Includes (Medical Exp, Personal Income, State Real GDP, Unemployment Rate)						
No. of Obs.	350	350	300	300	300	300
State FE		Y		Y		Y
Year FE	Y	Y	Y	Y	Y	Y
R2	0.13	0.12	0.07	0.22	0.13	0.25

Suggestion: Provide evidence, run robustness test to account for potential confounded

Comments 2: Correlated economic shocks

Small (1 to 4 emp) vs Large firms (more than 5 emp)

Claim: Differences control for unobservable time varying shocks (local economic shocks)

Assumption: Reaction to economic shocks is the same across firms

Suggestion:

- Use different size buckets, compare (1 to 4 employees) to (5 to 10)

- Use within state variation, I will expand on this later

Comments 2: County-border specification

County borders empirical specification

$$y_{ist} = \alpha_{is} + \alpha_t + \beta Exemptions_{st} + \Gamma X_{ist} + \varepsilon_{ist}$$

but $\varepsilon_{ist} = \nu_{ist} + \gamma_{pt}$

$$y_{ist} = \alpha_{is} + \alpha_t + \alpha_{pt} + \beta Exemptions_{st} + \Gamma X_{ist} + \varepsilon_{ist}$$

Variation comes from within county-pair-year, controlling for local shocks that affect both counties across state borders.

Suggestion 2: County-border specification

1. Clustering

- Need to double cluster by state and county-pair, if done properly duplicated counties in the sample

2. Sample of Neighboring Counties

- Need to condition on borders that are similar

	Δ Credit Card Debt					
	All County-Pairs		Equal Income County-Pairs		Low Income County-Pairs	
	State Linear Trend (1)	County Liner Trend (2)	State Linear Trend (3)	County Liner Trend (4)	State Linear Trend (5)	County Liner Trend (6)
Protection	-0.006	-0.005	0.015	0.015*	0.099**	0.098**
Growth s,t	(0.011)	(0.011)	(0.010)	(0.009)	(0.046)	(0.044)
No. of Obs	9,168	9,168	3,984	3,984	1,188	1,188
No. of States	48	48	46	46	33	33
County FE		Y		Y		Y
State FE	Y		Y		Y	
County-Pair-Year FE/Controls	Y	Y	Y	Y	Y	Y
R-Squared	0.70	0.70	0.67	0.67	0.63	0.62

Comment 3. Dataset and within state heterogeneity

- Currently only using LBD on firm entry by industry

- CBP is aggregate and therefore represents changes in the stock

Suggestions:

- Ideally all the analysis can be done using LBD to differentiate inflows and outflows

- Explore within state heterogeneity by industry or other characteristics

Other comments

1. Financial Crisis

- Are the firm exit results associated with the crisis period

Suggestion: Show regression excluding the boom and bust period

2. No linearity of protection effect

- In cases of extreme changes protection supply could be stronger than demand response

- For example DC went from low limit to unlimited, a huge reduction of credit for overall household credit

Suggestion: Remove DC from the analysis to perform sensitivity

3. Transition from non-employer to employer businesses (hiring the first employee)

- ILBD and LBD match allow focus on the transition from non-employer to employer businesses

Conclusion

Interesting paper that aims to answer an important question

Need to do more to sharpen the contribution

- Reshape the narrative based on how debtor protection works
- Provide evidence that is consistent with that narrative

Looking forward to reading the new version.