

Discussion “Moral Hazard in the Credit Market” by  
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*NBER SI HF 2016*

July 22, 2016

# Summary

- ▶ Setting
  - ▶ Exploits a great dataset that contains the universe of applicants to a credit card in Mexico, and
  - ▶ A credit score cutoff rule used by the issuing bank in an RD design: credit scores below the cutoff are denied approval (extensive margin)
- ▶ Findings
  - ▶ Credit card approval causes:
    - ▶ a persistent increase in credit limits and debt (MPB not clear, but my impression is that it is large)
    - ▶ an increase in default rates
  - ▶ Exploit changes in cutoff: results more pronounced (or only there) for low credit score applicants
- ▶ Interpretation
  - ▶ Evidence consistent with moral hazard

# Comments

- ▶ Great data and setting
  - ▶ Typically hard to observe and track credit history of all *applicants*
- ▶ Important question: why do people default?
  - ▶ Because they have an unobservably higher propensity to default (type/adverse selection)?
  - ▶ Because conditional on type, more debt leads to unobservably different choices (moral hazard)?

# Comments

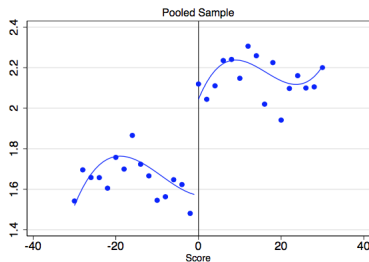
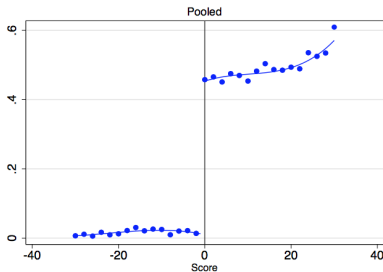
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  - ▶ Because conditional on type, more debt leads to unobservably different choices (moral hazard)?
  - ▶ Because conditional on type, more debt leads to higher exposure to liquidity shocks (burden of repayment)?
  - ▶ Biases/behavioral?
- ▶ Disentangling mechanism is important: policy implications are very different

# Comments

- ▶ Empirics
- ▶ Interpretation

# Comments: empirics

- ▶ Threshold provides exogenous variation in the probability of card approval
- ▶ Extensive margin: individuals above cutoff have more credit cards on average



## Default measures: potential problems

- ▶ Comparison of credit card default rates is not informative
  - ▶ If everyone has the same probability of defaulting on each credit card, more credit cards leads to higher default
  - ▶ Estimates tell us something about the default rate of marginal applicants, not about the causal effect of debt on default
- ▶ Authors are aware of this problem and suggest using the share of credit cards in default instead
- ▶ Problem: share is measured in a selected sample of applicants who have at least one credit card
  - ▶ Since cutoff induces differences in the number of credit cards, counterfactual at the left of cutoff is not defined for individuals who go from zero to one cards

# Suggestion

- ▶ Condition sample on at least one credit card at application (70% of sample)
  - ▶ Not Table 6: conditions on cards active after application
  - ▶ If assumptions for RD hold, this should be well identified (test? continuity of density and covariates for population with at least one credit card)
- ▶ Size of this effect? Table F.2 gives a hint:

	#CC Ever with 2 Month Delinquency	Probability of CC ever with 2 Month Delinquency	Share of CC everwith 2 Month Delinquency
Approved	0.469*** (0.113)	0.232*** (0.0432)	0.144*** (0.0333)
Approved $\times$ (#CC before)	-0.341*** (0.0468)	-0.140*** (0.0172)	-0.0913*** (0.0135)
Approved $\times$ (#CC before) <sup>2</sup>	0.0343*** (0.00593)	0.0132*** (0.00195)	0.00936*** (0.00161)
Mean Dep. Var.	0.29	0.18	0.14
Mean Indep. Var.	1.62	1.62	1.62



# What can you measure?

- ▶ Effect of card approval on the level of debt
  - ▶ Suggestive of credit constraints
  - ▶ Variation across cutoffs exploited by Agarwal et al (2015) to show differences in MPB
- ▶ Persistence of this effect
  - ▶ Unexplained: massive credit constraints? (what about results as of 2014?)
- ▶ Effect of additional debt on default in other debts
  - ▶ Interesting!

# Externality effect

- ▶ Externality effect seems small and concentrated on the lowest credit score cutoff
  - ▶ Suggests this effect is not very important?
- ▶ Measurement becomes crucial
  - ▶ Standard errors: clustering at the credit score level?
  - ▶ Sample: condition on cards before and after application?  
Endogenous selection ex post

# Interpretation

- ▶ Authors want to push a story of moral hazard
- ▶ Moral hazard refers to differences in actions taken by borrowers with different levels of debt (e.g., more debt  $\Rightarrow$  less effort or worse projects)
- ▶ Authors do not want to make this distinction:
  - ▶ Footnote 4: *“Another channel which may lead to larger default is purely mechanical –not strategic– as larger debts are less likely to be paid if income has an stochastic component. We will not separately identify these channels. ”*
- ▶ But: all results in paper survive if there is no information asymmetry

# Interpretation

- ▶ However, policy implications of a burden of repayment/liquidity constraints story are radically different
- ▶ Moral hazard: ex post punishment (e.g., Holmstrom 1979) or reputation (e.g., Bolton and Scharfstein 1991 or Diamond 1989) may induce sufficient effort
- ▶ Liquidity constraints: bad draw pushes borrower towards consumption lower bound
  - ▶ Perhaps driven by unobservable exposure to shocks: improve information or screening devices
  - ▶ Interest rates
  - ▶ Insurance
- ▶ For moral hazard effect, need to provide evidence that results driven by agents' actions: jobs? entrepreneurship? strategic default/cost of default?

# Externality effect

- ▶ Even though statistically weaker (present only in lowest cutoff), in my opinion, the most interesting result in the paper
- ▶ Bizer and De Marzo (1992): borrowers cannot commit to not borrow from future lenders, and more lending by other lenders leads to higher default rates
  - ▶ Thus contracts adjust ex ante
- ▶ This paper provides evidence that more lending by other lenders leads to higher default rates
- ▶ Do lenders internalize this? Probably yes...

# Commitment

- ▶ Main friction is that borrowers cannot commit to not borrow from other lenders
- ▶ Lenders would like borrowers to commit in a setting of limited enforceability
- ▶ Some open questions:
  - ▶ Do borrowers default on some particular types of debts? Which ones? Is this correlated with, e.g., the value of relationships?
  - ▶ What about within cutoff variation? A few bad guys could ruin it for everyone. What can we learn about the cost of default?
  - ▶ Do we see changes in existing contracts (rates, maturities, collateral) after new lending?

# Conclusion

- ▶ Great setting, clean identification
- ▶ Push authors towards outcomes that can be cleanly measured, beware of endogenous selection and mechanical results
- ▶ Interesting results, but interpretation is not unique so far and this is a problem re policy
- ▶ Most results already documented. Novelty re the literature potentially lies in the externality effect
- ▶ Unclear what is the correct interpretation: credit constraints/moral hazard/burden of repayment + strategic behavior with respect to other debts?

Thanks

Thank you!



## Other comments

- ▶ Clustering at the credit score level seems strange. How many clusters are there?
- ▶ Not necessarily a threat to ID, but the histogram suggests a mass to the right of the cutoff: is the lender targeting applicants, and if so, focusing on those above the cutoff?
- ▶ I'm worried that default in pre-existing credit cards is significantly higher above the cutoff for the lowest credit score cutoff: this is the only cutoff where we see effects on default. Can you do change in default relative to preperiod as an outcome variable?