

High-Cost Debt and Borrower Reputation: Evidence from the U.K.

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Motivation

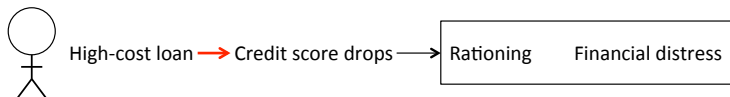
- ▶ High-cost unsecured consumer credit is a source of short-term borrowing for constrained households
- ▶ Use of high-cost credit may cause financial distress (e.g., Skiba, Tobacman 2015, Melzer 2011, Gatherhood et al. 2014)
- ▶ Active area for regulation: Colorado Payday Regulation 2010, UK high-cost repayment caps 2015, CFPB proposed rules
 - ▶ Typical argument: inability to calculate burden of repaying high interest

High-cost credit and reputation

- ▶ In this paper we investigate a different channel linking high-cost credit with financial outcomes: reputation
- ▶ If the average user of high-cost credit has a high probability of default, high-cost borrowers will be tagged as risky (independent of their repayment)
- ▶ If credit outcomes from high-cost lenders are public information, borrowers may become credit rationed and financially distressed (Manso 2013)
 - ▶ E.g., “*Some lenders might see the fact that you’ve taken out a payday loan as a sign that your finances are under pressure.*” (Experian UK, Head of Consumer Affairs)
- ▶ Thus, borrowers face a trade-off between alleviating financial constraints today and exacerbating them (because of a bad reputation) in the future

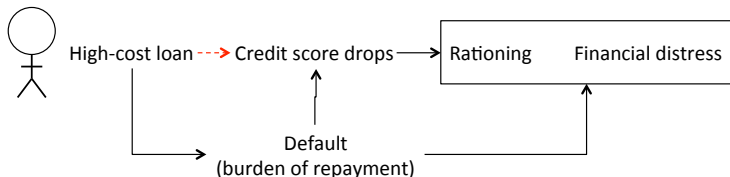
Empirical strategy

- ▶ We track the full repayment and credit history of all first-time applicants to a high-cost lender in the UK (2012-2014)
- ▶ **First contribution:** we measure the causal effect of high-cost loan take-up
 - ▶ Immediate, negative, and lasting (for at least 1 year) drop in credit scores; also future financial distress and credit rationing



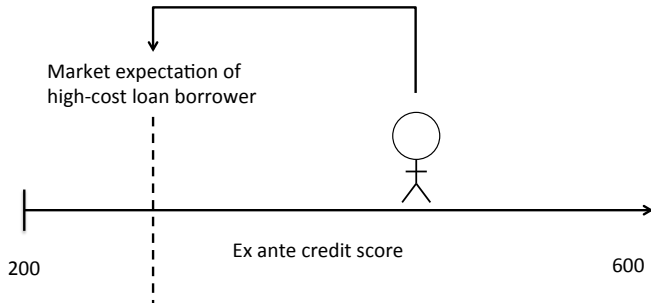
Two possible mechanisms

- ▶ Consistent with take-up of high-cost loan being viewed as a negative signal by lenders, who then restrict access to credit, which leads to distress
- ▶ Problem: also consistent with high-cost loan causing financial distress because borrowers cannot handle burden of repayment



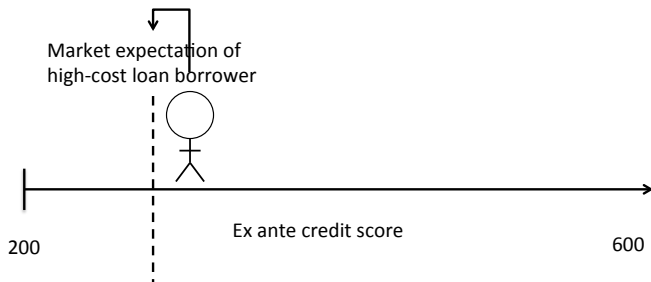
Heterogeneous reputational effect

- ▶ How to isolate the reputational effect?
- ▶ Average effect of take-up on credit score is large:



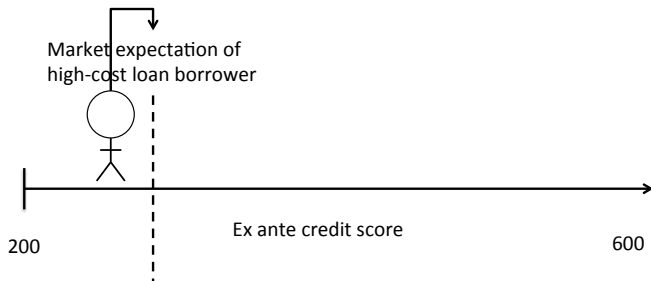
Heterogeneous reputational effect

- ▶ Expected effect for lowest score borrowers is negligible...



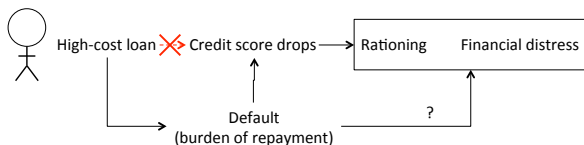
Heterogeneous reputational effect

- ▶ ...or even positive:



Isolating the reputational channel

- ▶ **Second contribution:** disentangle reputation channel from burden of repayment by measuring causal effect among lowest score applicants
 - ▶ No effect on credit scores; crucially: no credit rationing or distress



- ▶ **Conclusion:** when reputation channel is shut off, use of high-cost debt does not cause rationing or distress
 - ▶ Alternative: marginal applicants are different? Unlikely to explain results

The Lender

- ▶ For profit, operates in England (mostly London), 24 retail stores staffed by loan officers
- ▶ Branches staffed to match local cultural composition (language, country of origin)
- ▶ Loans: unsecured, short term, high-cost (600% median), fixed installment (weekly), top-up any time after one month
 - ▶ Repayment is reported to credit bureaus continuously
- ▶ Approval process for first-time applicants:
 - ▶ Loan officer observes snapshot of applicant's full credit history in real time
 - ▶ Interviews applicant and obtains additional information (e.g., employment status, wage, debt-to-income)
 - ▶ Decides to approve or reject application

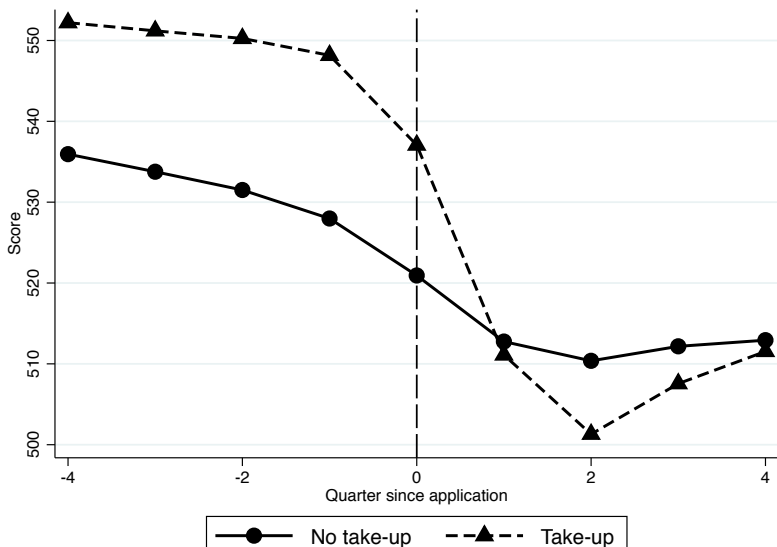
Summary stats for first time-applicants

Variable	Mean	SD	Median	N
Take up	0.67	0.47		51355
Age	33.98	10.74	32	51355
UK National?	0.57	0.49		51355
Salary (Pounds)*	553.44	622.31	398	51355
Credit score	539.24	56.40	548	50011
Annualized rate (%)	707.16	341.87	617.65	34094
Maturity (months)	5.65	2.56	6.00	34094
Amount (Pounds)	288.08	147.11	200.00	34094
Probability of default (%)	34.58			34094

- ▶ *Salary typically not collected for applications rejected early in the process (mean and median roughly 1,000 Pounds conditional on having a salary)

Time series of high-cost loan take-up

- ▶ Not identified: quarterly time series of group averages centered at application



Identification

- ▶ To estimate the linear cross-sectional model:

$$y_i(t) = \alpha + \beta \textit{Takeup}_i + \gamma X_i + \epsilon_{it}$$

- ▶ Lender policy: new applicants at a given branch and date and of a given nationality are randomly assigned to loan officers
- ▶ In turn, loan officers vary in their natural propensity to approve a loan (“leniency”)
- ▶ We construct a measure of loan officer “leniency” z_i as an instrument for loan take-up
 - ▶ We follow Dobbie and Song (2015) who define judge “leniency” to study effects of bankruptcy protection

Instrument: leniency

- ▶ For applicant i , z_i measures the fraction of all other applications approved by loan officer j in branch s and month t , relative to the fraction of all other applications approved by all loan officers in branch s and month t (leaves own application out):

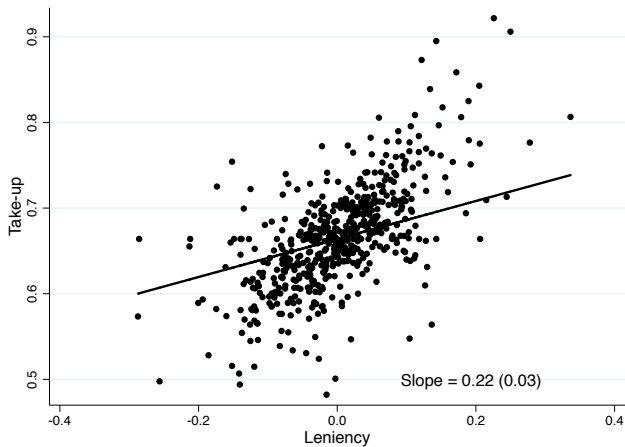
$$z_i = \frac{1}{N_{jst} - 1} \left[\sum_{k \in jst} \text{Approved}_k - \text{Approved}_i \right] - \frac{1}{N_{st} - 1} \left[\sum_{k \in st} \text{Approved}_k - \text{Approved}_i \right]$$

- ▶ Highly persistent Graph
- ▶ We condition all regressions on branch (s) by week of application (w) by nationality (c) of applicant FE's: α^{SWC}

Necessary for identification

- ▶ Valid instrument?
 - ▶ First stage
 - ▶ Exclusion
 - ▶ Monotonicity: no applicant less likely to take-up loan when assigned to a more lenient loan officer (discussion in paper)

First stage: leniency predicts take-up



$$Takeup_i = \alpha^{SWC} + \delta z_i + \epsilon_i$$

Exclusion restriction

- ▶ Leniency affects future financial outcomes only through loan take-up
- ▶ Observables at origination?

$$z_i = \alpha + \gamma X_i + \alpha^{SWC} + \epsilon_i,$$

	z_i		
<i>Credit score</i>	0.0000 (0.000)	<i>Salary</i>	0.0000 (0.000)
1 (<i>Single</i>)	-0.0024 (0.002)	1 (<i>Emergency</i>)	-0.0020 (0.005)
1 (<i>Male</i>)	0.0019* (0.001)	<i>Years of Residence</i>	0.0001 (0.000)
<i>Age</i>	-0.0001 (0.000)	<i>Amount Requested</i>	0.0000 (0.000)
Joint F-test	1.37 (0.23)		

Specification

$$\begin{aligned}\Delta \log(\text{score}_{it}) &= \alpha + \beta \text{Takeup}_i + \alpha^{\text{SWC}} + \epsilon_i \\ \text{Takeup}_i &= \alpha + \pi z_i + \alpha^{\text{SWC}} + \epsilon_i\end{aligned}$$

IV estimates: credit score

$$\begin{aligned}\Delta \log(\text{score}_{it}) &= \alpha + \beta \text{Takeup}_i + \alpha^{\text{SWC}} + \epsilon_i \\ \text{Takeup}_i &= \alpha + \pi z_i + \alpha^{\text{SWC}} + \epsilon_i\end{aligned}$$

quarter	0	1	2	3	4
			$\Delta \ln(\text{score}_{it})$		
Takeup_i	-0.0473**	-0.0685**	-0.1257***	-0.0979***	-0.0951***
	(0.022)	(0.032)	(0.030)	(0.027)	(0.033)

- ▶ Score reduced by 5% immediately, by 10% after 1 year

Summary of results: leniency IV

- ▶ Immediate and permanent drop in credit score
- ▶ Also:
 - ▶ Lower defaults initially but more default in the long run (some significance)
 - ▶ More search for outside credit, but no increase in level of outside credit
 - ▶ Borrowers are rationed by outside lenders and are in financial distress
- ▶ Interpretation: consistent with reputational channel and with burden of repayment

IV estimates: default

$$\Delta \text{Default}_i = \alpha + \beta \text{Takeup}_i + \alpha^{\text{swc}} + \epsilon_i$$

	(1)	(2)	(3)	(4)	(5)
quarter	0	1	2	3	4
<i>ΔAny default</i>					
<i>Takeup_i</i>	-0.1111	-0.0100	-0.0340	0.3743	0.3745
	(0.130)	(0.148)	(0.219)	(0.269)	(0.288)
<i>ΔNumber of CCJs</i>					
<i>Takeup_i</i>	0.0427	0.2267*	0.2812*	0.2916	0.4079*
	(0.085)	(0.129)	(0.162)	(0.178)	(0.236)
<i>ΔNumber of debt collection searches</i>					
<i>Takeup_i</i>	-0.1559*	0.0391	0.0259	0.0676	0.1899
	(0.090)	(0.128)	(0.182)	(0.195)	(0.234)

IV estimates: search

$$\Delta Search_i = \alpha + \beta Takeup_i + \alpha^{SWC} + \epsilon_i$$

	(1)	(2)	(3)	(4)	(5)
quarter	0	1	2	3	4
<i>ΔAll Credit Searches</i>					
<i>Takeup_i</i>	0.1717	1.4543	1.6877*	2.9434***	3.7228***
	(1.117)	(1.032)	(0.945)	(0.978)	(1.183)
<i>ΔShort Term Credit Searches</i>					
<i>Takeup_i</i>	0.2205	1.2181	1.3596*	2.1033***	2.6110***
	(0.888)	(0.787)	(0.716)	(0.774)	(0.830)
<i>ΔOther Credit Searches</i>					
<i>Takeup_i</i>	-0.0488	0.2362	0.3281	0.8402**	1.1118**
	(0.433)	(0.471)	(0.418)	(0.396)	(0.507)

IV estimates: credit

$$\Delta \log(\text{Credit}_i) = \alpha + \beta \text{Takeup}_i + \alpha^{\text{SWC}} + \epsilon_i$$

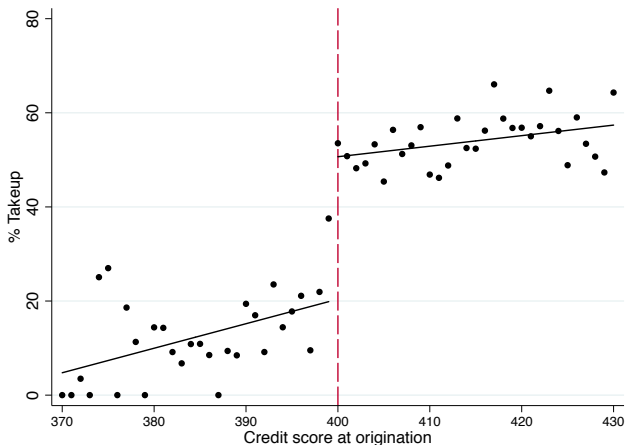
	(1)	(2)	(3)	(4)	(5)
quarter	0	1	2	3	4
$\Delta \log(\text{Total Credit}+1)$					
<i>Takeup_i</i>	2.1738***	2.1007***	2.4496***	2.6678***	3.1356***
	(0.599)	(0.718)	(0.892)	(0.833)	(1.116)
$\Delta \log(\text{Short Term Credit}+1)$					
<i>Takeup_i</i>	2.8328***	3.2762***	4.1386***	3.6986***	3.5535***
	(0.735)	(0.936)	(0.970)	(0.775)	(1.066)
$\Delta \log(\text{Other Credit}+1)$					
<i>Takeup_i</i>	0.0927	-0.3498	-0.3686	0.1932	0.0713
	(0.336)	(0.460)	(0.609)	(0.598)	(0.773)

Disentangling the reputational channel

- ▶ We are interested in the effect on the borrower with the worst prior (lowest credit score) that can still get a loan
 - ▶ Reputation is least likely to be affected by a bad signal
- ▶ Idea 1: run same specification on low score applicants?
 - ▶ Leniency IV has zero power when we reduce sample to low score borrowers (noise)
- ▶ Instead, exploit minimum credit score cutoff in a regression discontinuity (RD) design
 - ▶ Fuzzy RD (not sharp) because loan officers have some discretion

First stage

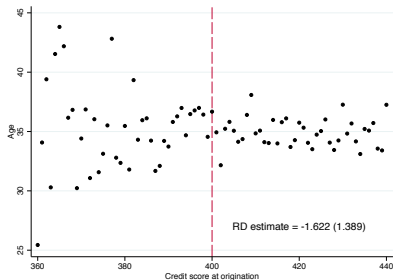
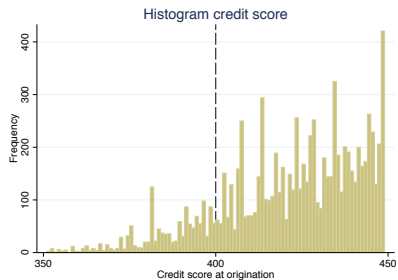
$$Takeup_i = \alpha + \pi 1(score_i \geq 400) + f(score) + \epsilon_i$$



- ▶ First stage approx. 25% (local linear using optimal bandwidth as per Imbens and Kalyanaraman, 2012 and Calonico et al,

Identification assumption: continuity at threshold

- ▶ Histogram and covariates (see paper)



RD: credit score

$$\Delta \log(\text{Score}_{it}) = \alpha + \beta \text{Takeup}_i + \epsilon_i$$

$$\text{Takeup}_i = \alpha + \pi 1(\text{Score}_i \geq 400) + f(\text{score}) + \eta_i$$

	(1)	(2)	(3)	(4)	(5)
quarter	0	1	2	3	4
	$\Delta \log(\text{Score}_i)$				
<i>Takeup_i</i>	0.0125 (0.0158)	-0.0187 (0.0216)	-0.0181 (0.0224)	-0.0222 (0.0292)	-0.0102 (0.0375)

Summary RD

- ▶ Zero effect on credit scores for lowest score group
 - ▶ Reputational cost of receiving a high cost has already been incurred by this group: additional bad signal does not move posterior once the prior is bad
- ▶ Also:
 - ▶ No change in default or search behavior: no evidence of rationing or distress

Summary RD

- ▶ Zero effect on credit scores for lowest score group
 - ▶ Reputational cost of receiving a high cost has already been incurred by this group: additional bad signal does not move posterior once the prior is bad
- ▶ Also:
 - ▶ No change in default or search behavior: no evidence of rationing or distress
- ▶ Conclusion: effect of high-cost loan is heterogeneous, depends on initial credit score; consistent with reputational channel

RD: Effect on default

	(1)	(2)	(3)	(4)	(5)
quarter	0	1	2	3	4
	<i>ΔAny Default</i>				
<i>Takeup_i</i>	-0.1012 (0.0712)	-0.1112 (0.0895)	-0.1516 (0.0977)	-0.1105 (0.1270)	-0.1265 (0.1629)
	<i>ΔNumber of CCJS</i>				
<i>Takeup_i</i>	0.0240 (0.0612)	-0.0105 (0.0880)	-0.0556 (0.1081)	0.1921 (0.2044)	0.1799 (0.2332)
<i>Takeup_i</i>	<i>ΔNumber of Debt Collection Searches</i>				
	-0.1517 (0.1169)	0.0115 (0.1523)	0.0102 (0.1386)	0.2403 (0.2219)	-0.3202 (0.2692)

RD: Effect on credit searches

	(1)	(2)	(3)	(4)	(5)
quarter	0	1	2	3	4
<i>ΔAll Credit Searches</i>					
<i>Takeup_i</i>	-0.2255 (1.5830)	0.6975 (1.5671)	0.1303 (1.8832)	-2.0200 (3.0649)	-5.1996 (4.0380)
<i>ΔShort Term Credit Searches</i>					
<i>Takeup_i</i>	-0.3772 (1.2242)	0.2137 (1.1559)	0.3370 (1.4891)	-0.9793 (2.0837)	-5.2144 (3.4633)
<i>ΔOther Credit Searches</i>					
<i>Takeup_i</i>	0.1031 (0.4869)	0.4705 (0.6522)	-0.2020 (0.6316)	-0.1849 (0.8331)	0.6419 (0.9722)

RD: Effect on credit

	(1)	(2)	(3)	(4)	(5)
quarter	0	1	2	3	4
$\Delta \log(\text{Total Credit}+1)$					
<i>Takeup_i</i>	1.2137*** (0.3947)	2.4276*** (0.4898)	2.0950*** (0.5593)	4.0640*** (1.4976)	5.9051*** (1.8508)
$\Delta \log(\text{Short Term Credit}+1)$					
<i>Takeup_i</i>	2.5037*** (0.4869)	4.1480*** (0.5460)	4.1018*** (0.6496)	5.4813*** (1.6859)	8.3895*** (2.3881)
$\Delta \log(\text{Other Credit}+1)$					
<i>Takeup_i</i>	0.1172 (0.2863)	0.7739 (0.5307)	0.3087 (0.5104)	1.5833 (1.2387)	0.6315 (1.4177)

Alternative interpretation?

- ▶ Marginal applicants are different: which characteristics might make bad reputation borrowers less vulnerable to high-cost loan take up?
 - ▶ Burden of repayment? Unlikely, low score borrowers are poorer, more constrained, default more, etc.
 - ▶ Experience handling high-cost debt? No: RD results are the same for borrowers with no prior short term debt
- ▶ Crucially, such alternative story needs to assume that “low-score borrowers would default less with a high-cost loan”
- ▶ Reputation mechanism explains heterogeneity parsimoniously

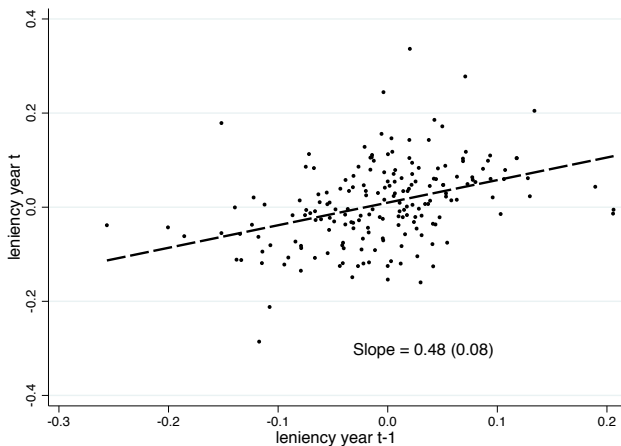
Conclusion

- ▶ Using high-cost credit affects future financial health
- ▶ Effect is heterogeneous: depends on the borrower's prior credit reputation
 - ▶ The financial health of borrowers with a poor prior reputation is unaffected
 - ▶ Consistent with effect mediated through reputation
- ▶ Regulation?
 - ▶ Rational borrowers will choose to be credit rationed tomorrow if today's marginal utility of consumption is sufficiently high
 - ▶ Consumers may be unaware of or unable to evaluate this trade off
 - ▶ Self-fulfilling and self-reinforcing nature of the effect may lead to poverty trap: careful with info disclosure (i.e., CFPB rule)

Thank you!

Persistence

- ▶ Suggestive of a trait:



Back