

Contractual Structure, Borrower Selection, and Hypothetical Loan Demand: Survey Evidence from Uganda

Selim Gulesci, Andreas Madestam and Miri Stryjan

Using survey data on micro and small enterprises in Uganda, this study investigates the phenomenon of 'adverse selection' in credit markets – i.e. the presence of high-risk, low-return borrowers in the client base of microfinance institutions. Hypothetical loan demand questions are used to test whether firms respond to changes in loans' contractual terms and whether take-up varies by firms' risk type. The results indicate that lower interest rates and less stringent collateral requirements are likely to attract safer borrowers, suggesting that the terms dictating standard financial contracts have scope for improvement.

Experimental studies on microfinance show that demand for loans remains low despite the large number of organizations offering credit. Moreover, borrowing firms and households fail to see substantial increases in growth rates or in consumption. One explanation can be found in the details of the credit contracts and recent research suggests that the effectiveness of microfinance may improve if contractual terms are altered. However, most work on this topic has focused on modifying the terms of the loan contracts of existing or previous microcredit clients and measuring the effect on their business growth and propensity to take out more loans. Meanwhile, little research has been undertaken to test whether potential clients with low-risk businesses that might benefit from microcredit are deterred from taking out loans because of unappealing contractual terms (e.g. high interest rates or stringent collateral requirements). We overcome this issue by examining hypothetical loan demand within a representative sample of firms in three neighbourhoods of Kampala, Uganda, where most of the firm owners had little or no experience of borrowing.

Setting and methodology

Uganda's micro and small firms (MSMEs) account for 90% of the country's private sector and according to the World Bank's Uganda Economic Update (2013) MSMEs are the biggest source of employment in urban sectors, employing around 30% of Uganda's workforce.

We collected survey data from a sample of 925 firms located in the Kampala metropolitan area in 2013. The firms were randomly sampled from a census of MSMEs operating in the region's main sectors. It includes both manufacturing and retail firms, with female and male owners. Importantly, most of the firms had no previous loan experience. As noted above, this sets our sample apart from the firms interviewed in most other studies on MSMEs' loan demand and allows us to shed light on selection into borrowing. The businesses in our data are also larger and more established than the typical microfinance clients, with the average firm established almost 7 years ago.



Fig. 1 - Two welding firms from our census
(Kampala area)

The survey targeted the business owners and gathered information about firms' employees, assets, costs and revenues, seasonality of sales, vulnerability to shocks, credit history and interactions with other



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businesses, as well as household demographics and owners' education, financial literacy and risk attitude. We measured loan demand by describing a series of hypothetical contracts to firm owners, asking them whether they would be interested in borrowing under a given set of contractual terms.

The use of hypothetical questions has an advantage as well as a potential drawback. To understand selection effects in relation to changing credit contract terms it is essential to study a representative sample of businesses (rather than current or past borrowers). Hypothetical questions about loans provide a first step in building knowledge about current non-borrowers and allow the researcher to investigate how changes in the contractual terms may affect the pool of potential clients. On the other hand, hypothetical queries run the risk of over- or understating real demand, where systematic misreporting can be related to unobservable individual factors. We alleviate some of these concerns by focusing on within-subject variation, as proposed by List and Shogren (2002). In practice this implies that we investigate the individual and business characteristics of the owners who report not being interested in the standard contract but agree to a contract that involves lower interest rates or lower collateral requirements. To confirm that the survey data capture information about *real* preferences, we focus on the 666 (out of 925) respondents who, *prior* to being asked the hypothetical loan contract questions, reported not planning to take a loan in the next 2 years and specified the reason for this choice – e.g. because they expected the market interest rates to be too high. Owners who did not plan to take a loan because of high interest rates were significantly more likely to switch to (hypothetical) borrowing when offered the low-interest contract. Meanwhile, owners with less collateral than average were less affected by the lower interest rate offer but more likely to switch to borrowing if the collateral requirement was lowered. Although this is only indicative evidence, it suggests that the hypothetical questions confirmed the previously expressed preferences.

Measuring risk attitude and business environment risk

Risk attitudes have been emphasized as an important factor in credit demand and firms' investment behaviour. Borrower and project risk also play a central role in the lender's decisions regarding loan approval, interest rate, and collateral. To measure risk attitudes we asked respondents to place themselves on a 0-10 scale between "Not at all willing to take risks" and "Very willing to take risks". This index has been shown to work well for less educated respondents (Dohmen et al., 2011) and was therefore appropriate for our setting. To derive the riskiness of the enterprises' business environment and practices, we constructed a measure based on responses to statements about why loan repayment may be difficult. This "risk index" is higher if the respondent agrees that fluctuations and uncertainty are important constraints for loan repayment.

Main findings

Figure 2 shows descriptive statistics. 28% of the firms in our census are female-owned while 31% are manufacturing businesses. It is important to note that the female-owned firms were in the retail sectors. 73% of the firms had at least one worker apart from the owner and the average firm had 1.8 workers in addition to the owner. Only 21% of the firm owners interviewed reported having ever taken a loan from a formal or semi-formal (e.g. microfinance institution) source and only 11% had taken loans within the last two years.

Variable	Mean	Std. Dev.	Min.	Max.	N
Age of business	6.671	5.277	0	38	891
Female owned business	0.282	0.45	0	1	925
Sector: manufacturing	0.312	0.464	0	1	925
Completed primary education or above	0.773	0.419	0	1	890
Completed tertiary education or above	0.222	0.416	0	1	890
Number of employees	1.762	1.771	0	14	925
Fraction of businesses with workers	0.734	0.442	0	1	925
Landowner	0.442	0.497	0	1	902
Ever borrowed from formal/semi formal	0.206	0.405	0	1	922
Took a loan in the last 2 years	0.11	0.313	0	1	921
Risk index	2.226	0.644	0.5	3	919
Risk attitude	4.437	2.704	0	10	910

Fig. 2 – Summary Statistics



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The interest rate and the collateral requirements are two central features of most conventional credit contracts. In our survey we find that lowering the interest rate from 25 to 20 percent or reducing the required collateral from 100 to 50 percent of the loan size significantly raises firm owners' willingness to accept a hypothetical credit offer, and that business and owner characteristics matter for how credit demand is affected. Our data shows that firms that express interest in borrowing under a lower interest rate or with less collateral at stake are less risky (as captured by their risk indices and risk aversion) and have higher education.

	Lower interest rate		Lower collateral	
	(1)	(2)	(3)	(4)
High risk index	-0.085*		-0.129**	
	(0.050)		(0.057)	
Medium risk index	-0.087*		-0.094*	
	(0.047)		(0.055)	
Risk averse		0.079**		0.052
		(0.032)		(0.039)
Bottom wealth quartile	0.014	0.007	0.091*	0.087*
	(0.041)	(0.041)	(0.051)	(0.051)
Second wealth quartile	0.033	0.027	0.021	0.020
	(0.043)	(0.043)	(0.047)	(0.047)
Third wealth quartile	0.034	0.030	0.116**	0.120**
	(0.043)	(0.044)	(0.052)	(0.054)
R-squared	0.84	0.84	0.80	0.80
Observations	1792	1765	1712	1688
Firm Fixed Effects	YES	YES	YES	YES

Fig. 3 - Firms Characteristics and Differential Loan Demand

respondents with a medium or a high risk index. Columns (3) and (4) further show that firm owners characterized by lower riskiness and less wealth are significantly more likely to be attracted by the lower collateral requirements.

The findings are consistent with the standard theoretical prediction that the population of risky firms increases in the interest rate (for a given collateral size) or in the collateral requirement (for a given interest rate) (Stiglitz and Weiss, 1981; Wette, 1983).

Conclusion

The typical loan product available to Ugandan MSMEs involves high interest rates and high collateral requirements. Using hypothetical loan demand questions, we find that firms respond to changes in the contractual terms, in line with the predictions of economic theory, with lower interest rates and less stringent collateral requirements attracting safer borrowers. The results suggest that lenders may be able to increase take-up while attracting less risky and poorer clients by lowering the cost of borrowing in terms of the price paid or collateral required as stipulated by the loan contracts.

Moving Forward...

We are partnering with BRAC Uganda to implement a randomized controlled experiment among firms that borrow from its Small Enterprise Lending Program. The aim is to understand how *actual* contract changes affect loan use, firm profit, and repayment behaviour. The experimental design is informed by the findings and the substantial descriptive data collected in the current project.