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ACCESS to CREDIT: Microenterprises in Turkey

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Access to Credit: Microenterprises in Turkey

Abstract

Access to external finance for small and medium enterprises is vital for survival and growth of such firms. In this paper we have analyzed the determinants of access to credit in microenterprises of Turkey. We use a unique dataset covering a large sample of microenterprises. We find that size and signals of wealth positively affect the likelihood of getting a formal credit.

Keywords: Credit Markets, Informal Firms
JEL Classifications: D21, O17

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1 Introduction

Small firms present unique challenges for capital markets. They have high birth and mortality rates. Determining which firms could have the potential for growth and hence the ability to repay loans is difficult. Enterprise owners often have few assets that can be used for collateral (De Soto, 1989) [9].

In spite of these difficulties, the small and medium enterprises (SME) in developed market economies frequently have access to bank credit. For example, among a sample of firms with fewer than five workers operating in United States, half reported having a current bank loan (Woodruff, 2001) [11]. As a percentage of total bank loans, SME have enjoyed 47 percent in United States, 50 percent in Japan, 47 percent in South Korea, 39 percent in France, 27 percent in Germany, and 15 percent in India. Formal credit is much less common among the SME in developing countries. In Turkey, the corresponding figure has been less than 10 percent of all bank lending (OECD 2002) [8]. The picture for the microenterprises is even bleaker. Fewer than 3 percent of the small firms surveyed in 2000 say that they have ever had a bank loan.

Economists have examined the link between access to capital and the foundation and performance of firms from many angles. As we will see, much of the literature focuses on the role of the formal financial system in channeling capital to firms which have generally greater size and stability than microenterprises. Although a more important source of finance for microenterprises, informal lending has seldom been examined by researchers. On the other hand loans obtained from specific microenterprise loan programs have been the subject of much research (see Morduch, 1999, for a review) [7].

The latter can be considered as semi-formal. Even if the up-to-date evidence does not uniformly point out that microfinance can provide Pareto efficient outcomes, there is considerable consensus that it can expand the opportunity set of the self-employed and asset-poor people and somewhat improve their earnings.

Related studies of microenterprises have focused on the labor market segmentation hypothesis on the source of external credit for start-up or ongoing business purposes (Heikko and Pagan, 2001; Woodruff, 2001) [4], [11], and on the link between non-convex returns to capital and poverty traps (McKenzie and Woodruff). One of the most relevant studies is by McKernan (2002) [6], who estimates the effect of the microcredit participation on earnings in rural Bangladesh. McKernan finds significant participation effects after carefully controlling for unobserved characteristics thanks to a control group from those villages that were not targeted by the microcredit programs. Another study by Trillo et. al. (2002) shows that various credit sources have different effects on the technical efficiency among microenterprises in Mexico. Trillo et. al (2002) observes that the microenterprises that had used bank loans to start up would be the most efficient in technical terms. Brown et. al. (2004) [2] finds that access to external formal credit in a sample of 297 small firms in Romania increases the growth of both employment and sales.

This paper differs from these studies in several respects. First, this is the first paper

on the Turkish micro-enterprise sector. We use a unique dataset covering most of the microenterprise sector in Turkey. We find that signals reflecting the wealth levels are very important in terms of influencing the likelihood of formal credit in contrast to informal credit.

2 Literature Review

In the absence of wealth and credit constraints, all agents and firms would invest so as to equate marginal cost of capital, which should be equal for all the agents, to marginal benefit. If there were no credit constraints, greater access to a substitute for credit such as current cash flow, parental wealth or community wealth would be irrelevant for investment decisions. However, empirical findings do not confirm this expectation.

James J. Tybout (1983) [10], in an early attempt to document the evidence on credit constraints in a developing country framework, finds significant binding credit constraints for small Colombian firms. Small firms generally have to wait for positive income shocks to accumulate sufficiently to be able to finance investment. Although the effect of credit constraints on larger firms is smaller, they exist nevertheless.

Banerjee and Duflo (2004) [1] analyzes whether Indian firms are credit constrained by looking at the way they react to changes in directed lending programs. Their argument is that credit constrained firms will use the extended credit availability to expand production whereas the unconstrained firms may use it as a substitute for other borrowing (because the directed credit may be cheaper than other sources of credit and unconstrained firms should already be at their optimal investment demand curve). They find that the new credit was used extensively to finance more production. They infer this from the significant acceleration in the growth rate of sales and profits. Therefore, they conclude that many of the firms must have been severely credit constrained. From their econometric analysis, they estimate that an increase of Rs. 1000 in lending causes 3.09 percent increase in profit. At the mean profit (which was Rs. 43,000), this would correspond to an increase of Rs. 1,360. The impact on profit of a Rs. 1,000 increase in loans is much higher than the cost of capital, which confirms that the firms were credit constrained. Moreover, they argue that the impact is too big to be explained as the subsidy impact of loans.

Hernandez-Trillo, Pagan and Paxton (2002) show that microenterprises in Mexico utilizing bank loans, carryover business capital, and credit from clients and suppliers, are more technically efficient than those relying on family, friends and own financial sources. They find that bank loans lead to the highest degree of technical efficiency. Banks tend to offer the largest average loan size with the longest terms, which are significant factors in allowing microentrepreneurs to overcome capital constraints.

Japelli (1990) [5] reports that 19 percent of US families had their request for credit rejected by a financial institution; the assets of these constrained families were 63 percent lower than the unconstrained families. “Discouraged borrowers” (those who did not apply for a loan because they expected to be rejected) had even lower wealth than the

rejected applicants. A study for the National Federation of Independent Businessmen reports that firms that had been in existence for less than four years complained that on average only 50 percent of their loan request was met. The findings suggest that new businesses are more likely to be credit constrained and the personal assets of the business owners limit the capital available for investment. Indeed, Ando (1985) argues that as high as 80 percent of the loans had required either personal or business collateral.

Zeller (1994) [12] shows that in Madagascar, both the informal moneylenders and community-based group lenders ration loan demands according to the total household wealth and the leverage of the household, which is the ratio of outstanding debt over income. Formal credit, on the other hand, is rationed extensively based on a collaterable asset, most often the land possessed by the household.

Average interest rates to be paid by the poorest one-third of the households to the informal lenders is 103.6 percent but to the formal lenders only 17.2 percent. However, the access of the poorer households to the formal credit is limited. The wealthy households could obtain 72.9 percent of the credit from formal lenders, but only 41.6 percent of the credit borrowed by the poorest one-third of the households could be obtained from formal sources. McMillan and Woodruff (1999) find that out of 259 firms they have surveyed in Mexico, only 10 percent reported that the start-up capital was obtained by a bank loan. Moreover, for ongoing business, trade credit (a type of informal credit) is much more common. The firms report that 57 percent of ongoing customer relationships and 53 percent of ongoing supplier relationships involve trade credit, whereas the only 22 percent of the firms have received a bank credit.

3 Credit Markets in Turkey

In Turkey, the likelihood of experiencing wealth and credit constraints for the self-employed and employer in the informal sector is plausibly high. The share of small and medium enterprises (formal and informal SMEs) in formal banking sector credit has never exceeded 4 percent. In contrast, the SMEs in industry share around 61.1 percent of total employment in manufacturing. Moreover the small firms employing less than 10 workers constitute 95 percent of all establishments in the economy in number (OECD, 2002).

An additional factor that might aggravate the capitals constraints of the informal sector participants is that they scarcely have collateral to post up in order to access credit. The major sources of formal credit for the 'informal firms' are Halkbank (literally People's Bank established to extend credit to small businesses but apparently loans most of its funds to the large companies), credit guarantee cooperatives and business associations. All of these sources consistently ask for collateral and sound business plans. The nominal interest rate is predetermined and applies to everybody qualified to take a credit. The loans are usually long-term, to be paid back in one or more years. The loan rate in 2000 was on average 85 percent a year, with an inflation of 78 percent. As of now, December 2005 the average annual rate of interest was down to 15 percent and the inflation is down

to 11 percent.

In 2000, the most favorable loan was for the purpose of "building new capacity" for a term of 2-5 years with an annual rate of 90 percent. The least favorable loan was short-term loan for "working capital purposes" at a rate of 85 percent for a 1-3 months term. The limit for both types of loans was 5 billion TL, approximately 8000 US dollars at 2000 prices. As of December 2005 the maximum limit is 20,000 US dollars and the average annual rate of interest for all types of loans is just 15 percent. The term structure has also improved; it ranges from 1 year at minimum to 5 years.

There is no particular financial institution established for the purpose of giving financial support to SMEs. However Halkbank bears this function at the present time. Loans are made available at somewhat lower interest rates than the market rate by the bank to small traders and craftsmen mainly through Small Traders' and Craftsmen's Security Cooperatives. Craftsmen are eligible for working capital and investment credit from this program. Depending on the size of the firm, the limits and terms of the credit vary.

A guarantee liability fund with the Halkbank constitutes the provision of guarantees issued by the Credit Guarantee Fund. The Credit Guarantee Fund Company (KGF A.S.) is a non-profit organization and it adds its income to the guarantee liability fund. The Credit Guarantee Fund provides a guarantee for 70 or 80 percent of the loan, depending on the size of the loan made by Halkbank to craftsmen, tradesmen and SMEs. These loans include cash loans such as working capital credits, investment and export credits and non-cash loans in the form of bank guarantee letters or letters of credit. However, the scope of the Fund is severely limited. Between 1994 and 2001, the Fund provided guarantees and loans in only 988 cases involving 606 enterprises (OECD, 2002: 204) [8].

Usually the credit constrained and rationed borrower asks for a loan from 'relatives and friends'. The lending would be short-term and in either dollar or euro currencies. The remaining desperate credit seekers then have to find the moneylender. The cost of the loan taken from the moneylender is expectedly the highest: interest charged on foreign exchange denominated principal (Ozar 1998).

3.1 Credit Sources for Microenterprises

The data for the empirical investigation are from the 2000 "Urban Areas Small and Unincorporated Enterprise Survey" that was collected by the State Institute of Statistics in Turkey in the first three quarters of 2000. The survey covers 20,000 microenterprises, defined as firms of less than ten individuals, and was carried out in four major metropolitan cities. Out of those 20,000, 6371 have been specified as informal units, defined as unincorporated microenterprises (individual ownership or ordinary partnership) engaged in urban non-agricultural economic activities and paying lump sum tax or not paying any tax at all. The survey examines reasons for becoming self-employed in the sector, sub sectors, incomes, capital structures, costs, enterprise problems, credit need, migrant status, social security coverage and employment patterns, inter alias.

Table 1: Problems Reported for Not Demanding Bank Credit

Banks Want collateral	44.5
Official Procedures are intensive	29
Interest rates are too high	25

Table 2: Main Use of Credit

Use	Formal Credit Users	Informal Credit Users
Purchasing raw materials and Supplies	60	44
Maintaining and Purchasing Business equipment	29.9	34.1
Reapayment of Debt	14.81	21.3

The main variables of the dataset and the descriptive statistics are shown in the Appendix. The basic unit of analysis as mentioned above is an informal firm defined as "a firm engaging [in] urban non-agricultural economic activities, legally specified as a simple partnership or sole proprietorship, employing less than ten workers (waged or unwaged) and either paying its taxes on a voluntary basis through simple taxation method or does not pay any taxes at all". This definition is consistent with the commonly accepted ILO definition of informal sector enterprises.

The Table 1 below, gives some information on why borrowing has been a rare rather than a common activity. Almost half of the microenterprises claim that the collateral asked by the formal credit institutions is the main obstacle to borrowing. Interestingly the cost of formal credit is prohibitive for only 25 percent, implying that compared to other credit sources formal credit might be cheaper.

Table 2 below, illustrates the uses to which loans are put: the loans are generally used for productive purposes. Only 15 percent of the informal credit users and 21 percent of the formal credit users have directed the loans obtained to repayment of previous debts. On the other hand, a high percentage of the loans is used for working capital purposes.

Table 3 below, summarizes the subjective evaluations of the existing problems related to the economic activity. As is apparent, the major obstacle is the lack of capital, be it for investment or for working capital requirements. Two thirds of the microenterprises in Turkey suffer from the lack of and the cost of capital to finance investment.

In any case, these tables are sufficiently clear to motivate our focus on the importance and the extent of the credit constraints in our sample.

Table 3: Problems Affecting the Economic Activity

Problems	Always	Sometimes	Never
Lack of Investment Capital	41	27	32
Lack of Working Capital	43	29	28
Lack or high cost of financial services	34	27	39
High Taxes	38	25	37

Table 4: Sources of Finance for Microenterprises (%)

Start-Up Capital	All Firms	Firms Employing Workers
Formal Loan	1.43	2.07
Informal Loan	25.71	30.08
Credit within last year		
Formal loan	6.32	9.72
Informal loan	10.07	23.37

4 Econometric Analysis

4.1 Determinants of External Credit

Table 4 shows the sources of external finance provided at startup and within the 12 months of economic activity previous to the survey. Access to formal bank loans at the start up is very rare. Only 1.43 percent of all firms and 2.07 percent of the firms employing workers received a bank loan at start-up. Given the significance of lack of capital as a major problem cited by the entrepreneurs we can comfortably consider that either borrowing is very costly or most of the potential borrowers are rationed out.

The explanatory variables that are included in both multinomial logit and the earnings equations are as follows: Years of Education of the Owner, Age of the Owner, Age Square of the Owner, Firm Life, and sector dummy variables1. Years of Education of the Owner is a coded variable derived from the question that asks the educational status of the respondent. We use the conventional coding system used in various studies (Heckman, 2000) [3]. We expect a positive and significant effect of a higher education on the likelihood of obtaining formal credit in comparison to not getting any credit or getting informal credit. One obvious reason is that the more able and educated entrepreneurs can utilize the borrowed funds better. Secondly, bank officials may find it easier to deal with the highly educated borrowers.

Age of the Owner is a variable indicating the age of the entrepreneur at the time of the survey completion. This variable is used as a proxy for experience which may enhance the productivity of the entrepreneurial activity through 'learning by doing' or 'network connections' built through time. The Age Square variable is used to check whether there exists a nonlinearity with respect to age. A priori we expect a positive and significant

coefficient in terms of the effect of age variable on the likelihood of obtaining informal credit due to the 'dense' networks the entrepreneurs may have developed through time. On the other hand, age with the life of the firm may signal 'stability' and 'visibility' in the eyes of formal creditors. If this later effect dominates, we expect a higher probability of obtaining formal credit as the age of the entrepreneur increases.

The additional explanatory variables used only in the multinomial logit equation are Social Security Coverage, Bank Capital, and Size of the Household of the Owner. *Social Security Coverage* is a dummy variable derived from the answers to the question: "Are you covered by any social security institution?" We assign zero to the answer 'not registered' and 1 to the other options2. We motivate the usage of the first as follows. In order to be covered by Social Security, entrepreneurs at least have to report their regular incomes and register with the relevant social security institution. Regular contributions can be observed and reported to the financial intermediary if needed. That aspect is rather in lieu of our model's requirement of observance of the income generated.

Social Security Coverage is expected to have a positive and significant effect on the likelihood of securing formal credit. However, as our model indicated, being formal, or in our case having incurred the fixed costs to be covered by a social security institution, does not mean that every 'formal' firm will borrow from formal credit sources. Some may still voluntarily opt not to borrow.

Having obtained a start-up loan from a bank is an important signal in terms of both availability of collateral and being formal in the past. This is a dummy variable constructed by assigning 1 if the answer to the question "How did you get the money to start/join the business?" is 'Bank Credit'. We obviously expect a positive and a significant coefficient for this variable in terms of its effect on the access to the formal credit.

Size of the Household is derived from the answer to the question "How many people are there in the house except you?" Size of the household, is expected to be correlated with the social links to the relatives and friends who could be used as informal lenders. Thus, expected result from the mlogit regression will be a positive and significant coefficient for the informal credit choice.

Space is a dummy variable indicating whether the location of the work place is a 'regular establishment' (i.e. shop, workshop or office). We argue that a standard and visible work place will enhance the probability of obtaining formal and informal credit as well as contributing positively to the monthly net earnings.

Firm Life is a variable constructed by subtracting the year in which the establishment was initiated from the year 2000, in which the survey was carried out. A priori a longer firm life implies 'stability' and hence a higher chance of obtaining formal or informal credit. However, it may also mean more accumulated savings and considering that self-financing is preferable, higher savings may imply less demand for credit.

Number of Workers has a very one-sided frequency distribution since almost 60 per-

Table 5: Mlogit Regression

	Whole Sample		Sample With Cut-off	
	Informal	Formal	Informal	Formal
Age of the Owner	0.03	0.06	0.16	0.64
Age of the Owner Square	-0.0006	-0.0009	-0.0005	-0.0009
Years of Education	-0.03	0.046**	-0.049**	0.025
Social Security Coverage	-0.29*	0.96***	-0.29*	0.91***
Firm Life	-0.01	0.026***	-0.16	0.023**
Space	-1.03***	-0.87***	0.71*	0.27
Number of Workers	1.24***	1.15***	1.13***	1.02***
Daily Working Hours	0.03	-0.002	0.065***	0.038
Bank Capital	0.65	2.33***	0.44	2.64***
Female	-0.16	0.14	0.47	0.21
Size of the Household	-0.13***	-0.06*	-0.17***	-0.010***
Constant	-1.42**	-4.36***	-3.49***	-6.25***

For column (1) N: 5844, LR $chi^2 = 358.73$, $Prob > chi^2 > 0.00$; for column (2) N:4318, LR $chi^2 = 1851.51, Prob > chi^2 = 0.000$ * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level, Robust standard errors are in parentheses. Note: The dependent variable is firm's choice of credit: Sectoral dummies included but the coefficients are not reported.

cent of the establishments are self-employment businesses. We argue that 'employment relation' will be a major factor for both the earnings and the credit estimations.

Daily Working Hours is a variable corresponding to the answer to the question "What are your average working hours per day in your activity?" Working hours may signal the demand conditions. Higher working hours indicate more demand and higher sales, which may signal an opportunity to post collateral. On the other, higher working hours may also mean a substitution for labor-intensive techniques given the lack of adequate capital. Then the expected signs on the effect of working hours on credit access may be the opposite.

Female is the gender variable. Since the most of the entrepreneurs (more than 80 percent) are men we have preferred not to split the sample into two gender groups, but instead used a female dummy variable to estimate the effect of gender in the whole sample. Given the cultural background of informal participants we expect a priori a negative correlation between being female and obtaining any form of credit.

4.2 Regression

4.2.1 Specification for the Whole Sample

The identification variables (Social Security Coverage, Size of the Household and Bank Capital) all have significant effects on the probability of borrowing from informal and formal credit markets (Table 5, Column I). As expected social security coverage (a signal of formality) increases the likelihood of having a formal credit and decreases the likelihood of having an informal credit as compared to not to have any loans from any sources. Size of the Household decreases the probability of borrowing from either source, formal and informal. Our interpretation is that this variable implicitly counts for the availability of 'unpaid family labor' hence a cheap substitute for capital and/or the potential availability of 'self-finance' through family sources. Bank Capital has no statistically significant effect on the likelihood of borrowing from informal lenders but increases the probability of obtaining a formal credit.

4.2.2 Specification for the Sample with Cut-off Point

The group that contains the entrepreneurs is the largest one. It is very heterogeneous; some have high human and physical capital and earn substantial profits whereas others barely survive with minimal human and physical capital. In order to exclude the asset-poor with a very low likelihood of ability to choose to borrow or to self-finance we divide the sample in two: the firms with higher investment than median capital stock (greater than $258) and the firms with lower. That is, 2390 firms are dropped. Then we use same econometric technique first to obtain the inverse Mills ratios for each group and estimate the coefficients of the explanatory variables on log monthly profit controlling for endogenous selection.

The column (II) of Table 5 shows the results of the m-logit regression with the median capital stock as the cut-off point to split off the group of firms with no credit at all. Some of the results differ from the regression results of the whole sample. Space seems to be positively and significantly associated with the probability of obtaining informal credit. However, this variable loses its significance for the likelihood of having formal credit. This may suggest that informal moneylenders still assess a durable working space as credible ex-post collateral to be appropriated. The coefficients on Daily Working Hours turn out to be positive and significant. This is in line with the conventional assumption that higher output and profit expectations may imply higher working hours, and the creditors, formal and informal, simply pick the potentially profitable firms.

5 Conclusion

Although the importance of micro enterprises for economic growth, employment growth and poverty reduction is widely recognized for the developing countries, there has been little empirical, policy-relevant research into the determinants of choice of organizational form and of access to external credit in the micro enterprise sector. Access to external

finance, either in terms of start-up capital or in terms of a loan, is very limited for the micro-enterprises in Turkey. The firms are heterogeneous; some show signs of dynamic growth and others seem to be doomed for bare survival.

Controlling for firm, entrepreneur and sector characteristics we find that being formal implies higher access to the formal credit market. In turn, formal credit enhances higher average capital productivity in terms of higher monetary returns in comparison to the informal credit borrowers. In short we find that informal and formal small firms are structurally different. Although the small firm segment is dominated by informal enterprises, formal firms of very small size exist and their characteristics and the environment they operate in are not the same .

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APPENDIX

Definitions of Main Variables

Variable	**Description**
Profit	Net revenue after deducting all business expenses in the latest month of activity
Investment Capital	Total amount of purchases for investment purposes within last 12 months
Size	Number of workers including the owner of the enterprise
Firm Life	The years in which the business has been active
Household Income	Average net income of the household from all sources per month
Age	Owner's age at the time of the survey
Years of Education	Assigned years for graduation of primary, secondary, high school, and college (0, if illiterate)
Marital Status	1, if married
Gender	1, if male
Daily Hours	Average hours worked within last month
Days of Activity	Average number of days actively engaged in the business
Migration	1, if the owner has migrated to the city
Space	1, if the business has a regular establishment (shop, office or a workshop)
Size of Household	The number of household members who share the household income
Stay	1, if the owner plans to continue the business for the coming five years
Inheritance	1, if the business was inherited
Involuntary	1, if the owner could not find other work or family needed additional income
Bank Start-up Loan	1, if the start-up was financed by a bank loan
Social Security Coverage	1, if the owner is covered by any of the current social security institutions
Industry	1, if the business is in textiles, other manufacturing, transportation, communication or storage, construction
Trade	1, if engaged in trading activities
Services	1, if engaged in various services

Summary Statistics of Main Variables (Total Sample)

	Formal Credit Users Number of Obs.=385	Informal Credit Users Number of Obs.=608	Not Used any Credit Number of Obs.=5070
Profit	234 (427)	165 (162)	192 (222)
Age	39.42 (10.53)	37.41 (10.50)	40.90 (12.22)
Years of Education	6.59 (2.65)	6.02 (2.39)	5.97 (2.76)
Number of Workers	1.21 (0.78)	1.19 (0.73)	1.23 (0.81)
Days of Activity per Month	26.46 (3.99)	25.78 (4.67)	25.84 (4.64)
Daily Working Hours	10.77 (2.51)	10.95 (2.57)	10.42 (2.57)
Capital Stock* (in 2000 million TL)	473 (1250)	265 (510)	318 (667)
Firm Life	9.15 (7.76)	6.48 (7.01)	8.41 (8.25)
Household Income (in 2000 million TL)	291 (269)	213 (163)	262 (234)
Male (%)	93.25 %	94.41%	93.47 %
Social Security (%)	91.43	69.74	72.62
Involuntarily in the Informal Sector (%)	34.03	39.97	41.10
Planning to Exit (%)	14.55	19.08	11.03
Industry (%)	17.92	19.90	16.77
Living in the City Since Birth (%)	78.44	70.23	74.22
Initially Used Bank Loans to Start-up (%)	10.13	1.15	0.81