THE INFORMAL BORROWING RATIO IN TURKEY

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DECLARATION OF ORIGINALITY

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The Informal Borrowing Ratio in Turkey

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ABSTRACT

The Informal Borrowing Ratio in Turkey

This study aims to analyze empirically the behavior of individuals with respect to the choice between formal and informal borrowing. Informal borrowing stands for the borrowing practiced through informal institutions such as friends, relatives, moneylenders, other informal financial institutions whereas formal borrowing is defined as borrowing from banks and other formal credit institutions. The examination of the reasons behind the preference of informal versus formal type of borrowing is expected to contribute to the understanding of the structure of credit markets with a demand side analysis. Data from the Credit Card Consumer Survey conducted in 2009 in Turkey is used, in which 1014 participants have positive debt. The zero/one inflated beta regression model is utilized to estimate the proportion of informal borrowing in total debt, allowing the possibility that the boundary values of zero and one are generated through different decision processes. The results indicate that while informal borrowing cannot be completely eliminated since it is an option especially for people who borrow in higher amounts or people who are credit constrained, it can be reduced by policy makers and pioneers of the financial sector through enhancing integration to formal financial services and finding solutions to credit constraints.

ÖZET

Türkiye’de Resmi Olmayan Borçlanma Oranı

Bu çalışma, bireylerin borç alma davranışlarını resmi ve kayıt dışı borçlanma arasındaki tercih açısından empirik olarak analiz etmeyi amaçlamaktadır. Kayıt dışı borçlanma arkadaş, akraba, tefeci ve diğer gayri resmi kurumlar aracılığıyla uygulanan borçlanma olarak tanımlanırken, resmi borçlanma bankalar ve diğer resmi kredi kuruluşlar aracılığıyla uygulanan borçlanma olarak tanımlanmıştır. Resmi borçlanma tercihinin arkasındaki nedenlerin incelenmesinin, kredi piyasası talep analiziyle kredi piyasalarının yapısının anlaşılmasına katkıda bulunması beklenmektedir. 2009 yılında Türkiye'de gerçekleştirilen ve pozitif borç toplamına sahip toplam1014 katılımcıyı içeren kredi kartı tüketici anketi verileri kullanılmış ve sınırların farklı karar süreçleri ile belirlenmesi prensibini esas alan sıfır birde şişirilmiş beta regresyon modeli kullanılmıştır. Kayıt dışı borçlanmanın özellikle yüksek miktarlarda borç alan insanlar için veya kredi kısıtlaması olan insanlar için bir seçenek olduğu için tamamen ortadan kalkmayacağı, ancak politika yapıcılar ve finansal sektörün öncüleri tarafından finansal hizmetlere entegrasyonun arttırılması ve kredi kısıtlamalarına çözümler için çaba sarf edilerek azaltılabileceği gösterilmiştir.

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ABBREVIATIONS

CFPA…….China Foundation of Poverty Alleviation

MFI……Microfinance Institution

NGO……..Non-Governmental Organization

NUTS……The Nomenclature of Territorial Units for Statistics

POS……Point of Sale

SPO……State Planning Organization

TURKSTAT…..Turkish Statistical Institute

ZOIB……..Zero-One Inflated Beta Regression

CHAPTER 1

INTRODUCTION

Credit is an important component of an economy. For a consumer, borrowing can be a means of improving financial well-being via the intertemporal transfer of resources. The source of the loan depends on both the availability of the types of loan and the preferences of the borrowers. This study tries to depict the reasons of the choice between two types of loans: formal and informal.

In this study, formal borrowing refers to loans from banks, whereas informal borrowing encompasses a wider scope, including borrowing from friends and relatives as well as from usurers or other individuals. In some studies, the term "informal financing" is used in a more limited sense, as described by Ayyagari, Demirguc-Kunt and Maksimovic (2008): *"*small, unsecured, short term loans restricted to rural areas, agricultural contracts, households, individuals or small entrepreneurial ventures." Informal financial institutions through which informal borrowing is practiced are defined as non-market institutions like moneylenders and credit cooperatives which are not enforced through a contract which is codified in the legislation in the same study by Ayyagari, Demirguc-Kunt and Maksimovic (2008). Such loans usually come at high rates and do not necessitate collateral or a good credit history like bank loans do. There are also studies which use the concept of informal borrowing to refer to borrowing between friends and relatives (Turvey and Kong, 2004). Borrowing from friends and relatives may entail as low as zero interest rates and are usually enforced via social sanctions (Karaivanov and Kessler, 2018).

Credit markets serve the important function of turning savings into productive activities. A perfectly competitive credit market is expected to lead to a pattern of lending and borrowing which would lead to an efficient allocation of resources and efficient consumption outcomes. Since the information possessed by agents is neither perfect nor complete, the credit rationing mechanisms employed in these markets can in reality leave out some segments of the population with little or no access to loans, even though this may not be the social optimum. The informal credit market is a means of alleviating this problem, with different types of informal credit coming at differing interest rates and enforcement costs.

In several studies it has been found that the objective of replacing informal borrowing with formal could be a wrong strategy in the sense that informal and formal borrowing are serving different needs i.e. informal borrowing in small amounts serves consumption smoothing while formal borrowing in greater amounts is used in rural areas to increase productivity or investing outside of agricultural activities. These studies mainly concluded that informal and formal borrowing are *imperfect substitutes* (Diagne 1999, Tsai 2004). Karaivanov and Kessler (2018) show that formal and informal loans can co-exist because the risk of losing the social collateral for informal loans is higher compared to the risk of losing the physical collateral used for formal borrowing and hence while informal borrowing is advantaged for smaller loans, formal borrowing is used for higher loans. Barslund and Tarp (2008) show that people borrow formally for higher assets owned and informally for lower assets and informal credit is demanded more by people who have a bad credit history.

Governments have often attempted or helped to establish agricultural banks, microcredit institutions, rural credit cooperatives etc. for the development of low-income

rural districts (Diange 1999, Turvey, Kong 2010, Tsai 2004). In countries where a significant proportion of the population lives in rural areas, access to credit is considered to be the main factor leading to economic development. Hence, in order to increase productivity with investments in the rural regions, government-led programs which give credit in favorable terms were used (Barslund, Tarp 2008).Yet, these institutions failed to achieve their objectives in many of the cases. It was emphasized by Diagne et al. (2000) that for policy design it is necessary to analyze informal credit institutions which supply loans for the people to design more formal institutions to replace informal borrowing. One reason for the failure of these government-led programs to increase access to formal credit and replace informal credit was institutional weaknesses which resulted in not favoring the poor as they were built to do so. The misuse of the loans obtained through microfinance institutions led to the enrichment of the wealthier individuals (Tsai 2004, Luan et al., 2014).

Hoff and Stiglitz (1993) state that there is a fractioned structure in the rural credit market and even with government subsidies and lower interest rates, formal credit cannot prevent informal borrowing from existing.

One of the other reasons for the failure of formal borrowing in replacing informal borrowing especially in rural areas is that they have not attracted the attention of most of the poor due to the role of informal borrowing which preceeds formal borrowing among poor households. Relationships built on trust, social network or other informal institutions which are often easier to access than the formal institutions have led to the crowding out of the formal institutions in some cases and in others formal borrowing succeeded in replacing informal borrowing. Formal borrowing is carried out by the involvement of collateral which makes formal institutions more risky in

competing with informal institutions (including also borrowing among friends, relatives or other people). However, trust, which can serve as a complementary for formal contract and informal borrowing, indirectly uses the importance of close relationships as a *social collateral* (Karlan et al., 2009). In this way, informal borrowing and formal borrowing both can alleviate moral hazard and asymmetric information.

This thesis aims to analyze the reasons behind the informal-formal borrowing choice using the Credit Card Consumer Survey which was carried out in 2009 by Akin, Aysan and Yildiran in Turkey. Informal debt constitutes 21% of the total debt amount in our survey data which is not negligible. We find that credit constrained people tend to borrow from both informal and formal sources. We find the same effect for the debt amount. As the amount of total debt of an individual grows, probability of using both informal and formal debt increases. On the other hand, as the variety and sophistication level of the financial services used by a consumer increases, the proportion of informal borrowing and the probability of borrowing only from informal sources decrease.

The rest of the thesis is organized as follows: Chapter 2 reviews the literature regarding informal borrowing, Chapter 3 describes the data and the variables, Chapter 4 presents the econometric model, and Chapter 5 discusses the estimation results. Lastly, Chapter 6 provides the conclusion to this thesis.

CHAPTER 2

LITERATURE REVIEW

Most of the literature on informal borrowing concentrates on rural areas or developing countries with large rural populations. Informal borrowing consists of borrowing from friends, relatives or other informal institutions. While borrowing from friends and relatives is found to be advantageous compared to formal borrowing, preventing overpriced informal borrowing from moneylenders is seen as an important part of development due to its exploitative nature (Sarma, 2010).

Karaivanov and Kessler (2018) draw a distinction between informal and formal borrowing by using social network requirement as collateral as the basis for the distinction. Informal credit includes loans from friends and relatives in Turvey and Kong's (2010) study whereas formal borrowing includes moneylenders. Since moneylenders do not use social ties in giving loans they are evaluated in the same category as formal borrowing. They find that informal borrowing decreases with the debt to asset ratio and conclude that while informal borrowing is advantageous with subsidized interest rates and easier payment enforcement, formal borrowing (borrowing based on collateral) is preferred to informal borrowing for larger loans since it is more risky to lose social capital for all than the risk of losing a part of physical collateral.

In the literature there are attempts to analyze informal and formal borrowing activities as separate financial behaviors whereas a comparative analysis between informal borrowing and other borrowing types is not common. Informal borrowing, which is carried out without formal records, is difficult to work with due to the lack of sufficient relevant data. Hence, it would not be inaccurate to say that there are not many

studies emphasizing informal borrowing behavior by itself. The literature mainly consists of the studies of access to or demand for informal credit and formal credit in relation with development in rural areas with indirect or no comparisons between informal borrowing and formal borrowing types.

Barslund and Tarp, 2008 analyze the determinants of demand for credit by taking into account informal and formal markets in rural regions using data of surveys conducted with 932 households living in rural provinces of Vietnam. They study demand for formal and informal credit separately and find that education decreases informal credit demand, while it has a positive effect on the size of the formal credit demanded. Age is found to be negatively related to informal borrowing demand. Their study also reveal that assets owned by people increases formal loan demand, whereas it is negatively related to informal loan demand. Informal credit is demanded more by people who have a bad credit history while the relationship between formal borrowing and bad credit history is insignificant.

Nguyen (2007) presents an empirical analysis of the credit behavior of the households situated in rural areas in Vietnam. The rural credit market contains both formal and informal credit practices and it was dominated by informal finance with a share of more than 70% in total amount of credit until 1993. However, with economic growth, the positions of the two sectors were reversed by the share of formal credit reaching 70% in 2001. The determinants of credit participation are analyzed using the univariate probit model estimation technique and credit amount using the Tobit model for both informal and formal borrowing. Dummy variables of demand and supply of credit are defined and it is assumed that supply equals demand for the formal markets. Since demand and supply are not observable in the survey data, the demand and supply

equations are simplified and defined in terms of participation in credit. Findings suggest that household size and ratio of working people over total number of household members have positive effects on formal credit participation. Besides, the distance of a bank branch to a region is not associated with the participation in formal borrowing, meaning distance is not a factor leading to exclusion from formal credit. The "commune credit per capita" variable is found to have a negative effect on informal borrowing participation. Land size also increases the demand for formal borrowing. Finally, having a troubled health condition is found to have a positive effect on both informal credit participation and informal credit demand which supports the claim that informal borrowing is generally used for quick consumption purposes considering the urgency of coping with health troubles. They conclude by advising that a system of credit rating must be used to decrease the amount of collateral use in formal borrowing.

Diagne (1999) seeks answers to the questions regarding the effect of informal borrowing among rural households on the formal financial institutions which are established by the government to enhance the financial well-being of the poor households. In doing so, Diagne analyzes the determinants of households' access to informal and formal credit sources and also households' demand for informal and formal credit separately by using survey data obtained from 404 households living in 45 villages and five territories of Malawi. Access to credit is captured by the maximum amount of loan a household can obtain using credit limit as the measure. In order to estimate maximum credit limit (access to credit) for formal and informal borrowing, four equations were set. Findings suggest that composition of household wealth rather than the total value of household wealth has a significant effect on access to formal borrowing. The land and livestock share in total wealth decreases access to formal

borrowing whereas total value of land increases the access to informal borrowing. This result shows that the people who live on agriculture are credit constrained and hence cannot transfer to a source of income different than agriculture although it is a risky way of earning income considering the droughts of Malawi. Finally, informal credit availability does not have a significant effect on formal borrowing amount and similarly formal credit availability has no significant effect on informal borrowing. This result is interpreted as a sign of the imperfect substitutability between informal and formal borrowing, suggesting that they have different functions in households' intertemporal optimization. Additionally, they find that high interest rates do not lead to a significant decrease on the amount of credit demanded which can be interpreted as access to credit being vital for poor households regardless of the cost of the credit.

Turvey and Kong (2010) analyze a specific kind of informal borrowing which is conducted only between friends and relatives by using a survey data set of farm households in the rural provinces of China with a simple household production model. They consider the role of informal borrowing amongst friends and relatives with respect to borrowing from microfinance institutions (MFIs) which provide a variety of services such as loans, insurance, and pensions to rural communities competing with the preexisting rural credit cooperatives (RCCs) and agricultural banks. They claim that there are several problems that these types of institutions will face in establishing in agricultural areas, such as moral hazard which is not as a strong problem for RCCs as it is for MFIs. In their view, MFIs' preference for lending with collateral decreases the demand for MFI loans. They focus on the relationship between informal and formal (borrowing from MFIs) borrowing and try to answer the question of whether informal borrowing amongst friends and relatives will have a substantial negative effect on these

newly established formal credit institutions. They focus on the notion of trust which is the key property of informal borrowing amongst friends and relatives. They also point out that with interest rates equal to or near zero and with no collateral requirement, informal borrowing seems to crowd out borrowing from MFIs. They use data from a survey which was conducted in four different areas: Yangling (Shaanxi Province, 2007), Henan (2008), Gansu (2008) and Qianyang (Shaanxi Province, 2008) with 1565 participants who are farm households. They find a notable result regarding the ratio of informal over formal borrowing*;* "As the number of years of farming increases, the proportion of informal credit also increases, but the use of informal credit as a percentage of the total decreases as asset values, household income and debt to asset ratio ($p=0.035$) increase" (p.552). Their results indicate that households with lower asset values are more inclined to borrow informally from friends and relatives whereas wealthier households with higher income and lower debt compared to their assets tend to borrow less from family, friends or relatives. As opposed to the findings which support the idea that credit rationing of the formal sector leads to informal borrowing (Hoff and Stiglitz, 1993) they find that farmers are not compelled to borrow from informal sources, and yet they actually prefer informal borrowing to formal borrowing. They find that the more trusting farmers are, the more possible that they would prefer using informal credit amongst friends. The networks built on strong trust make informal borrowing easier and preferable to formal borrowing.

Tsai (2004) argues that the attempts of governments and banking authorities of China and India to replace informal credit with formal credit in rural areas failed and this failure can be attributed to the fact that formal credit is an imperfect substitute of informal credit. Informal finance practices are seen as the result of the weakness of the

formal finance sector, and hence enhancing access to formal finance was targeted to cope with usurious informal borrowing. Yet, these attempts were not effective enough. Although formal finance gained a higher share than informal finance, the volume of informal credit increased. In some cases, there were increases in informal finance with the introduction of formal credit programs. Tsai identifies supply-demand related reasons, state-society related reasons, segmentation of markets and institutional weakness of microcredit programs as the effective factors behind the persistence and expansion of informal credit in spite of the attempts to reduce and replace it.

Zhang (2008) emphasizes that the enhancement of private sector is an important process and the role of informal funding in the acquisition of private capital required for the growth of the sector is very important. In this context, the socioeconomic factors behind private entrepreneurs' choice between informal and formal funding are analyzed employing logit and ordered logit models using a survey data conducted in Chengdu. The results show that having better political connections, being native to Chengdu, and being educated make an entrepreneur more likely to engage in formal financing. These factors can be seen as indicators of "social relations" and "reputation".

Luan, Jia and Huang (2014) inspect access to microfinance, formal credit and informal credit in rural China. They divide borrowing into three categories where they distinguish formal credit from microfinance and informal finance. They use the China Foundation of Poverty Alleviation Microfinance (CFPA microfinance) which is the NGO (Non-Governmental Organization) with the largest portfolio among all the NGO microfinance institutions in China, to represent the microfinance industry in China. They analyze the effects of wealth and other demographic characteristics on the access to credit for the three categories mentioned. They perform two different regressions by

selecting villages where microfinance is present and villages where the CFPA microfinance does not operate and they find that formal institutions (excluding microfinance) mainly target the rich people, whereas poor people with lower assets per person tend to borrow from informal sources for both estimations. Besides, microfinance is neutral to the asset level of the individuals meaning both poor and rich have easier access to microfinance compared to formal and informal borrowing. They also find that in villages where microfinance does not exist formal and informal borrowing is mostly carried out by younger and less educated people. They also find that microfinance increased steadily between the years 2006-2009 and formal borrowing decreased in the non-microfinance villages with no microfinance. They conclude that NGOs with subsidized loans are necessary for alleviating the credit constraints of both formal and informal financial sectors on the poor.

CHAPTER 3

DATA AND VARIABLES

This thesis uses the data obtained from the Credit Card Consumer Survey carried out in 2009, by Akin, Aysan and Yildiran in which 2576 randomly selected credit card users across Turkey participated. The aim of the survey is to capture different characteristics of credit card users, and to understand the reasons behind credit card choice and usage behavior. The survey (see Appendix A) consists of 5 main sections, regarding first the determination of the credit card usage, second the choice of bank, third the choice of the credit card, fourth the financial situation and lastly demographic characteristics.

Since credit card usage is more common in urban areas where businesses accept payment with credit card, and because Point of Sale (POS) machines were not widespread among the rural provinces at the time that the survey was conducted, one restriction here is that the target population is mainly urban dwellers. Also, as all subjects in the survey own a credit card, this restricts our capability to capture the behavior of those without a credit card. Hence, we examine the informal versus formal borrowing behavior of credit card holders. Yet, since credit card ownership was widespread and was not conditional on income at the time, we can probably generalize our results to most of the urban population living in Turkey.

To determine the distribution of the surveys to Turkey which is a wide country, the regional classification created using the statistical technique called Nomenclature of Territorial Units for Statistics (NUTS) developed by European Union was used. Nomenclature of Territorial Units for Statistics (NUTS) has been applied to Turkey by taking into account social and economic characteristics of provinces with the guide of

the State Planning Organization (SPO) and Turkish Statistical Institute (TurkStat) in 2002. NUTS1, NUTS2 and NUTS3 divisions were created thus. NUTS1 uses more comprehensive criteria and divides Turkey into 12 regions with similar characteristics, while NUTS2 uses more specific criteria to define 26 regions and NUTS3 division is in line with the current 81 cities of Turkey. NUTS2 regions were used to distribute the surveys.

A proxy was created to reflect the extent of credit card use in each region for the distribution of the survey across regions. The data for the number of credit cards used in regions was not available. The number of POS machines was expected to be correlated with the number of credit cards in a region, yet since tourism is a notable sector of Turkey, this measure was not suitable by itself in the touristic areas which had more POS machines than required by the local people. The number of bank branches was also expected to be correlated with the number of credit cards in a region, yet it was not a perfect measure since in many provinces the number of banks are boosted because the government banks are required by law to have branches present in some areas. In order to mitigate these biases, the combination of these two proxies were used. The arithmetic mean of the ratio of total number of POS machines in a region over total POS machines in Turkey and the number of bank branches in a region over total bank branches in Turkey was used as a weight for the measurement of the number of surveys to be assigned to the 26 different NUTS2 regions.

After excluding provinces with less than 35% weight in each region, a province was randomly selected in each NUTS2 region. Four of the selected provinces were assigned less than 30 surveys with their weights, and to avoid inefficient use of resources, the surveys assigned to these four provinces (Kastamonu, Mardin, Van, and

Ağrı regions) were reassigned to the selected provinces included in the same NUTS1 regions. The selected 22 provinces are shown in Table 1.

Table 1. Selected Provinces

Selected Provinces at the NUTS2 level	Sample Size
Istanbul	689
Ankara	236
Izmir*	194
Bursa*	128
Antalya*	127
Denizli	121
Icel*	121
Kocaeli*	108
Samsun*	98
Manisa*	87
Trabzon	82
Balikesir	73
Konya	65
Kayseri	64
Gaziantep	63
Hatay*	60
Edirne	54
Malatya	49
Diyarbakir	44
Zonguldak	40
Nevsehir	39
Erzurum	37
TOTAL	2579

* Survey applied to some towns in these provinces.

After the selection of the provinces, cities were selected for each province. The central cities of the provinces were chosen for conducting the survey, and in some provinces that had considerably high numbers of surveys, sizable towns were included in the sample as well. Determination of which towns to include was carried out by taking into account whether the population was large enough to assign at least 30 surveys and if the adult population was higher than 45,000. If these conditions were met, then one or two towns were chosen with the order of size and 30 surveys were allocated to each of

the selected towns in order not to increase the representation of towns (in which credit card usage is expected to be less popular than province centers). Table 2 lists the towns included in the survey

Table 2. Towns Included in the Survey

Selected town	Province	Sample Size
Alanya	Antalya	30
İnegöl	Bursa	30
İskenderun	Hatay	30
Tarsus	Içel	30
Ödemiş	Izmir	30
Gebze	Kocaeli	
Derince	Kocaeli	30
Turgutlu	Manisa	30
Bafra	Samsun	30

Households were selected next. Cluster random sample selection was used in selecting the households, neighborhoods being the cluster points with a size of 10, meaning 10 surveys being assigned to each cluster. 250 neighborhoods were selected with the aim of conducting 2500 surveys. Streets located in the selected neighborhoods were randomly selected from the data of the Ministry of Finance. Seven streets were selected to conduct two surveys in each, two being back-up streets.

The first dwelling to conduct the survey was chosen randomly by the interviewer. And, if there was no suitable participant or there was denial to participate in the interview or no response, then the interviewer skipped three dwellings and continued on the same route to find the interviewee.

The condition for participation was answering both of the following questions affirmatively:

- Do you have a credit card?

- Do you make the decisions concerning the choice of credit cards and the payment of credit card bills yourself?

If a household included more than one person satisfying these criteria, then the interviewee was chosen by the alphabetical order of names.

3.1 Dependent variable

The dependent variable is the proportion of informal borrowing *(propInfBor)*, which equals the share of informal debt amount in total debt. The informal debt amount is generated using the answer to the following question:

- If any, what is your total debt to your family, friends, firms and other people?

Total debt amount is obtained with the summation of the informal debt amount captured above with the amounts stated in the answers to the following two questions:

- Did you pay all of your last credit card bills completely? If not, how much do you owe on them?
- If any, what is your total bank debt excluding any credit card debts?

When a participant's total debt equals zero as in many of the cases, this proportion is not defined. Hence our sample is restricted to the 1014 participants with debt out of the 2576 credit card users in the survey. Table 3 presents the summary statistics for the debt variables. *CCard Debt* shows credit card debt and *T. Formal Debt* is total formal debt amount excluding credit card debt.

Table 3. Summary Statistics of Debt Variables (in Turkish Liras except for the third column)

Variable	Total	Number of Obs.	Mean	Std. Dev.	Min	Max
Total Debt	8,284,918	2,521	3,286.36	10,826.79	0	175,600
T. Formal Debt	6,276,369	2,526	2,638.77	9,609.14	0	150,600
Informal Debt	1,737,575	2,537	684.89	4,392.02	0	100,000
CCard Debt	426,974	2,564	167.38	736.65	0	20,000
PropInfBor	-	1,014	0,20	0,36	0	1

As can be seen from the summary statistics, informal borrowing, whose ratio to total borrowing is 0.20 on average, is not the most popular borrowing type in terms of volume among the indebted in our sample. Nevertheless, informal debt constitutes nearly 21% of total debt which is a considerable amount especially given that the dataset consists only of credit card holders. In spite of all the financial innovations, informal debt still exists. The average informal debt amount is higher than the average credit card debt. The frequency distribution of the informal borrowing ratio variable can be seen in Figure 1.

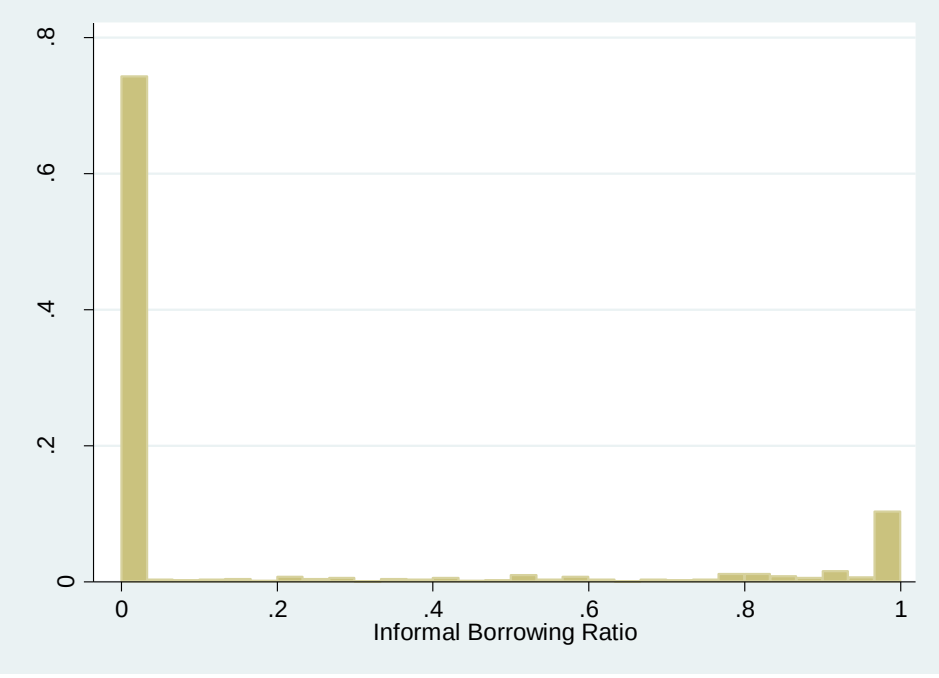


Figure 1. Frequency distribution of the informal borrowing ratio

Since our sample is composed of people with a positive amount of total debt due to the definition of our dependent variable, it is informative to present the summary statistics of the debt variables for only those participants with some type of debt. The summary statistics of the variables for the regression sample is presented in Table 4.

Table 4. Summary Statistics of Variables for Positive Total Debt Values (in Turkish Liras)

Variable	Total	Number of Obs.	Mean	Std. Dev.	Min	Max
Total Debt	8,284,918	1,014	7,849.89	15,514.29	30	175,600
T. Formal Debt	6,276,369	1,014	14,060.29	14,060.29	0	150,600
Informal Debt	1,737,575	1,014	1,513.88	5,556.34	0	55,000
CCard Debt	426,974	1,014	410.00	1,124.01	0	20,000
PropInfBor	-	1,014	0,20	0,36	0	1

3.2 Independent Variables

3.2.1. Financial Sophistication

Financial sophistication is the term we use to explain the use of various financial instruments in order to ensure effective money management. In this thesis, by using the financial sophistication variable we aim to estimate how an individual with varying degrees of integration to the formal financial system behaves in terms of borrowing practices. The financial sophistication variable (*fin_soph*) aims to capture how diversified a participant's use of financial services is . The higher the variety, the more financially sophisticated the consumer is expected to be.

The financial sophistication variable increases by 1 for each of the following statements which holds for the interviewee: has a term deposit account (c3), has a liquid deposit account (c4), has an investment account (c5), invested in a pension fund (c6),

uses automatic payment by the bank (c7), makes tax or insurance payments through their bank (c9), has taken a housing loan (c11), has taken a consumer loan (c12), has taken a commercial loan (c13). There are also five questions which ask the interviewees to rate their frequency of usage of the following services on a scale of 1 to 5: internet banking (c14), telephone banking (c15), ATMs (c16), money transfer (c17), and commercial banking (c18). The answers are rescaled to take a value within the interval [0,1]. The answers to all of the questions stated above are added to generate the financial sophistication variable.

Financial sophistication was used in order to capture the effect of being integrated to the formal financial system thorough different financial tools of borrowing, investing and money management on the informal debt share in total debt. It is expected that financially sophisticated people, being more integrated to the financial system, have lower shares of informal debt**.** The frequency distribution of the financial sophistication variable can be seen in Figure 2.

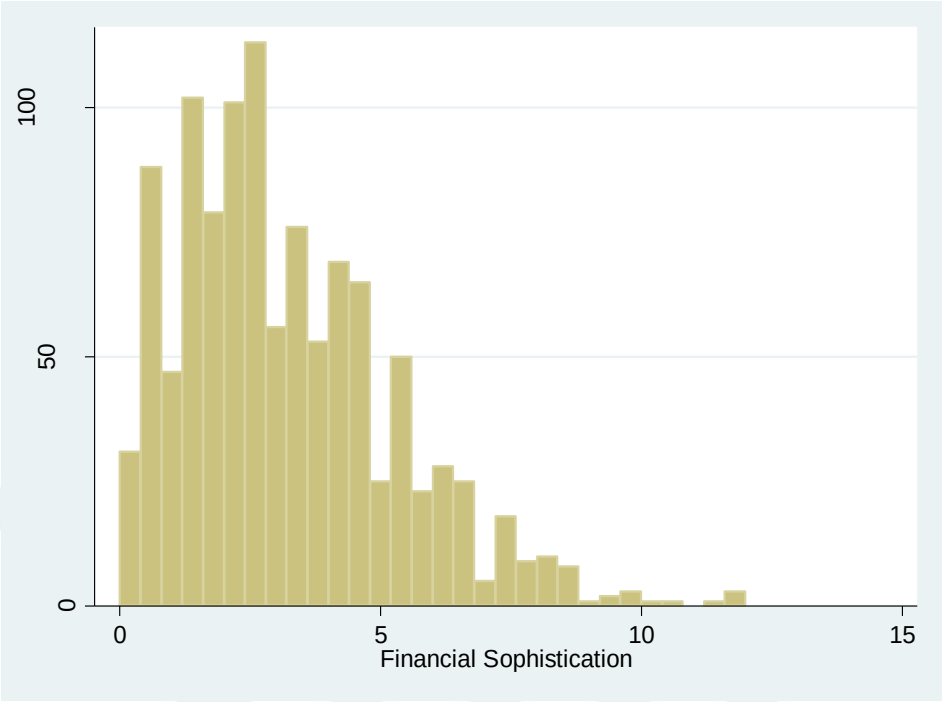


Figure 2. Frequency distribution of the financial sophistication variable

3.2.2. Credit Constraint Index

The variable capturing whether an interviewee is credit constrained (*cconstrained*) or not takes the value 1 if the person applied to a credit card and was rejected in the last five years (C206), and/or they made less than minimum payment on their credit card bill more than twice in the last twelve months (C152), and/or were turned over to collections due to delinquency on credit card payments at some point (C226). All of these situations are associated with a bad credit history, and a consumer with a bad credit history is likely to be credit constrained. We predict that credit constrained people would be more likely to substitute informal debt for formal debt as a result of not being able fulfill their credit needs in the formal financial market.

3.2.3. Total Debt Amount

The logarithmic transformation of the Total debt variable which was defined in section 3.1 was also included in the model as *lnTotalDebt* to estimate whether the aggregate debt level of the individual affects the decision on informal borrowing share.

3.2.4. Variables Regarding Economic Well-being

Data regarding personal income was obtained by asking the following question to the participants:

- What is your personal monthly income from your main job and your other income sources? (C246)

The mean monthly personal income within our sample approximately equals 1525 TL. The logarithmic transformation of income (*lnpersonalinc*) was used in the regression.

Wealth is captured by using the assessment of the interviewer about the house in which the participant lives (c273). The interviewer assessed the state of the home as poor or good on a scale of 1 to 5. State of home variable *(state_home)* was added to the estimation to reveal the wealth effect on the informal borrowing decisions of individuals. Since the assessments of the interviewers are subjective, this may be a relatively insufficient proxy for measuring wealth of individuals, yet it is added to the model since it captures the wealth to some extent.

On the other hand, other variables capturing wealth by using the survey answers regarding having a house or a car, and their estimated values, could be used to capture the wealth effect in our study. However, due to possible endogeneity problems

stemming from the house/car loans obtained by the participants to purchase these assets, the *state_home* variable was used to capture the wealth effect instead.

3.2.5. Participation Banks

The survey asked the participants the bank that they work with the most frequently (c26) and if the variable *part_bank* is generated by using these answers. If the answer revealed that the interviewee works with a participation bank, then the variable *part_bank* takes the value 1. The participation bank variable was added to the model since the avoidance of interest payments/gains due to religious reasons is one of the most popular reasons why people work with the participation banks, and we aim to analyze the effect of avoidance of interest in explaining a tendency to prefer informal borrowing to formal borrowing. %2,2 of the participants in our sample declare that their main bank is a participation bank.

3.2.6. Household Size

Household size is captured by the variable *hhsize* and it is the number of people per household. It is conjectures that the number of individuals in a house could be associated with a larger family network and a greater access to loans from friends and relatives. The average size of a household in our sample is 3.7.

3.2.7. Demographic Characteristics

Female is the dummy variable showing gender. Male was the base category, constituting 73% of our sample. Age and age square *(agesq)* variables are also included to estimate the possible non-linear impact of age on the informal borrowing ratio.

Marital status was another demographic feature which was added with the dummy variable *married* to the estimation. Married people constituted %72 of our sample. A dummy variable named *div_sep_wid* was added to the model to capture the effect being divorced, separated or widowed. Being divorced, separated or widowed can decrease the economic well-being of an individual while it can also increase the borrowing need and the proportion of informal borrowing. Nearly 4% of our sample is divorced, separated or widowed.

3.2.8. Education Variables

In order to test the effects of education on the preference for informal borrowing, we used the following three dummy variables: *drop_primary*, *high_school* and *university*. The first variable takes the value 1 if the respondent dropped off primary school or graduated from a primary or a secondary school and zero otherwise. The second variable takes the value 1 if the respondent is a high school graduate and zero if not. Finally, *university* takes the value 1 if the participant is a university graduate or holds a higher degree. The percentages of these three types of individuals in our sample are about 35%, 37% and 27%, respectively and *university* is chosen as the base category while performing the regression.

3.2.9. Employment Variables

The following dummy variables are generated to estimate the effect of the current employment types of the participants on their informal borrowing rate: *private*, *cservant*, *self_emp*, *farm_season*, *unemployed* and *out_lab*. These variables take the value 1 if the respondent works at the private sector, works at the public sector, is self-employed, is a

farmer or a seasonal worker, is out of work and searching for one, is out of the labor force, respectively, and zero if not. 18% our sample is composed of civil servants, 18% are self-employed, 4% are farmers or seasonal workers, 4% are unemployed, 17% are out of the labor force and the remaining 38% work in the private sector and *private* is the base category. Diagne (1999) finds that informal borrowing is positively related to the share of income coming from agriculture.

3.2.10. Region of residence

In order to comprehend the effects of regions on the choice of the share of informal borrowing, NUTS1 division which divides Turkey into 12 regions with similar characteristics was used. You may see the cities which represent the 12 NUTS1 regions of Turkey in Table 5 below. 12 dummy variables of NUTS1 region are generated in order to analyze the informal/formal borrowing preferences by region.

Table 5. Towns included in the survey

City	Corresponding NUTS1 Region
Istanbul	nuts1
Denizli	nuts2
Izmir	nuts2
Manisa	nuts2
Antalya	nuts3
Hatay	nuts3
Icel	nuts3
Diyarbakir	nuts4
Gaziantep	nuts4
Ankara	nuts5
Konya	nuts5
Bursa	nuts6
Kocaeli	nuts6
Samsun	nuts7
Zonguldak	nuts7

Kayseri	nuts8
Nevsehir	nuts8
Malatya	nuts9
Trabzon	nuts10
Balikesir	nuts11
Edirne	nuts11
Erzurum	nuts12

3.2.11. Financial Inclusion Variable

This variable is used to test the robustness of the estimation results. “The Financial Inclusion Index of Turkey” created by Yorulmaz (2013) for 2009 (the year of the credit card survey) was used for this purpose. The financial inclusion variable, *finc_inc*, is an index for the financial inclusion level of a province. The index is constructed using the volume of bank accounts over population, number of bank branches for 1000 people and volume of credits and deposits over regional GDP for measuring penetration, availability and usage of financial services respectively. The benchmark regression includes the region dummies, and they are replaced with this provincial financial inclusion index for the robustness check. It is expected that a higher provincial financial inclusion level reduces the informal debt ratio by making formal credit more widely available in the region.

The summary statistics of the dependent variables mentioned in this chapter can be found in Table 6 shown in Appendix B.

CHAPTER 4

ECONOMETRIC METHOD

In this thesis we estimate a proportion which lies on the [0,1] interval and has an asymmetric distribution, where most observations are on the two boundaries of 0 and 1. The most commonly used approaches such as linear regression models are not suitable for estimating a fraction since they can result in fitted values outside of the boundaries of the dependent variable (Woolridge, 2012).

In order to estimate limited variables with linear regression models, the method of logit transformation of the response variable *y* can be used to handle the problem of generating values outside the interval for extreme values:

$$y' = \ln \frac{y}{1-y}$$

The logit transformation of the dependent variable is then regressed on a set of independent variables X. With β indicating the regression coefficient vector and ϵ the disturbance term, the estimation becomes:

$$y' = \ln\left(\frac{\mathrm{y}}{1-\mathrm{y}}\right) = \mathrm{X}\beta + \epsilon$$

Yet, employing a transposed response variable has drawbacks. The results are not easy to interpret because a transposition was carried out. The more serious drawback is that proportion data is generally asymmetric as in our sample in which the values have accumulated mostly on the boundary values, and when y takes on the boundary values of 0 or 1, this model cannot be used as y' approaches -∞ and ∞, respectively (Wooldridge, 2002).

Another model suitable for estimating fractions was introduced by Papke & Wooldridge (1996). They use the logit transformation of the response variable and the binomial distribution, and criticize using the beta distribution for modelling proportions for not being appropriate since the values are on the boundaries with zero probability (Baum, 2008).

Another way to deal with proportions is introduced by Ferrari and Cribari-Neto (2004). This method performs maximum likelihood estimation using the beta distribution which is suitable for many different distribution shapes, yet 0 and 1 boundaries are not included in this model (Ferrari and Cribari-Neto 2004).

The estimation approaches mentioned above do not allow for a special explanation for the 0 and 1 variables, but in some data, the boundary values can be generated through different processes. Borrowing only informally, or alternatively borrowing only from formal sources may be decisions which differ from borrowing from both sources, since these limits may imply avoidance of borrowing from a specific source. A person's only borrowing choice maybe informal due to credit constraints, for example, or similarly borrowing only from formal sources can be due to a psychological aversion of informal borrowing.

Due to the reasons explained above, we used the zero/one inflated beta distribution (ZOIB) for which the model specification is shown below, as introduced by Ospina and Ferrari (2010). This model can handle the unbounded and nonlinear aspects of our response variable, as well as allowing different processes to shape the boundary values.

A combination of the beta and Bernoulli distributions is used to model our dependent variable. Let y be the proportion of the informal borrowing in total borrowing. The cumulative distribution function of the random variable y is given by:

$$\text{BEINF}(y;\ \alpha, \gamma, \mu, \phi) = \alpha\text{Ber}(y; \gamma) + (1-\alpha)\text{F}(y; \mu, \phi)$$

Ber (. ; γ) and F(y; μ, ϕ) are cumulative Bernolli and beta distributions, respectively, with $0 < \mu, \gamma, \alpha < 1$ and $\phi > 0$. The probability density function for the zero/one inflated beta distribution (beinf) is given by:

$$\text{beinf}(\ y;\ \alpha, \gamma, \mu, \phi) = \begin{cases} \alpha(1-\gamma) & \text{if } y = 0 \\ \alpha\gamma & \text{if } y = 1 \\ (1-\alpha)\text{f}(y\ ;\ \mu\ , \phi) & \text{if } y \in (0,1) \end{cases}$$

where f(y; μ, ϕ) is the beta distribution function defined below:

$$\text{f}(\ y\ ;\mu\ , \phi) = \frac{\Gamma(\phi)}{\Gamma(\mu\phi)\Gamma((1-\mu)\phi)}\ y^{\mu\phi-1}(1-y)^{(1-\mu)\phi-1},\ y \in (0,1)$$

The likelihood function for θ = (α, γ, μ, ϕ) given the sample ($y_1, \ldots, y_n$) is then:

$$\text{L}(\theta) = \prod_{t=1}^{n} \text{beinf}(y;\ \alpha, \gamma, \mu, \phi) = \text{L}_1(\alpha)\text{L}_2(\gamma)\text{L}_3(\mu, \varphi),$$

whereas the log-likelihood function is

$$\ell(\theta) = \log(\text{L}(\theta)) = \ell_1(\alpha)\ell_2(\gamma)\ell_3(\mu, \varphi)$$

The maximum likelihood estimators of the parameters $\alpha, \gamma, \mu, \phi$ are found by differentiating $\ell_1(\alpha)$ with respect to α, $\ell_2(\gamma)$ with respect to γ and $\ell_3(\mu, \varphi)$ with μ and φ.

Logit link function is used to link the above estimators to the model coefficients (Maarten L, 2019).

$$p_0\ model:\ z_2(p_0) = X_i\ \delta + \mathrm{e}_i$$
$$p_1\ model:\ z_1(\ p_1) =\ X_i\ \beta + \varepsilon_i$$
$$\mu\ model:\quad z_3(\mu) = X_i\alpha + u_i$$

where p_1 equals $\alpha\gamma$, p_0 equals $\alpha(1-\gamma)$ and

$$z(a) = \ln\frac{a}{1-a}$$

For the estimation of parameters of interest, the package "zoib" in Stata is used in this thesis. The estimation results will be discussed in the following section.

CHAPTER 5

ESTIMATION RESULTS

As explained in the previous chapter, since our dependent variable ranges between 0 and 1 with a lot of the values lying at the two extreme values, we use the ZOIB method. With this model, the three cases where the consumer borrows only formally (*PropInfBor* equals 0), the consumer borrows from informal sources (*PropInfBor* equals 1), and where the dependent variable equals a positive value in the interval 0 and 1 are analyzed separately.

The estimation results for the benchmark model are given in Appendix C. The independent variables which were identified until section 3.2.9 are used in our first regression (see Table 7) whereas the financial inclusion variable is used in an alternative specification for robustness check (see Table 8). The results are interpreted in detail by considering the effects of the independent variables one by one in the sections below.

5.1. Financial Sophistication

The regression coefficient for financial sophistication was found to be significant and negative for the interval 0 to 1, whereas it was positive and for the values on the zero boundary. Yet it did not turn out to have any significant effect for the values on the boundary 1.

According to our results, being more sophisticated in financial terms decreases the probability of borrowing only informally, and it decreases the informal borrowing ratio when both the formal and informal borrowing is practiced. This is in accordance with our expectations. There seems to be a financially exclusionary effect of financial

non-sophistication pushing consumers to informal credit sources. This result has policy implications in terms of financial deepening and the working of the credit markets. If financial sophistication can be increased through financial education, this would be a tool to channel household borrowing from the informal to the formal sector.

5.2. Credit-constrained

We expected credit-constrained individuals to tend to replace informal borrowing with formal borrowing, and hence predicted a negative coefficient for the credit-constrained variable for the 0 boundary and the interval between 0 and 1. The results show that credit constrained coefficient is indeed statistically significant in boundaries but with a negative coefficient for both cases, whereas it is statistically insignificant for the interval. The results suggest that individuals with credit constraints almost never borrow only informally or only formally. With credit constraints they tend to diversify their sources of credit by borrowing from both formal and informal sources.

5.3 Total Debt Amount

The *LnTotalDebt* variable is found to be significant for both boundaries with a negative coefficient. This result that when a person's debt increases, the probability of borrowing only from informal sources or only from formal sources decreases, suggesting that as people borrow more, they feel the need to diversify the sources of borrowing.

5.4. Economic Well-being

Personal income, the state of the home and total debt variables are used to capture the effects of economic situation on the decision of the ratio of informal borrowing to total

borrowing. The results show that income does not have a significant effect on the informal borrowing ratio whereas the coefficient for the state of the home variable is positive and significant in the (0,1) interval. This indicates a positive relationship between wealth and the ratio of informal borrowing. It is possible that the wealth of individuals acts as an implicit collateral for informal borrowing.

Contrary to the findings of Turvey and Kong (2010) which state that "… the use of informal credit as a percentage of the total decreases as asset values […] increase" (p.552) our study shows that higher wealth results in higher informal borrowing proportion. It has been found that informal loan demand decreases with the asset value while formal demand increases for higher values of asset (Barslund and Tarp, 2008) yet since we consider the proportion within the total debt, this result does not necessarily contradict with our finding. Wealthier people's tendency to borrow informally may be explained by the trust on the wealthier people to pay back and hence informal borrowing is carried out at lower costs as a result of lower risk about repayment. Yet one must always take into account that this variable depends on the assessment of the interviewee and hence its power of indication is limited.

5.5. Participation Banks

This variable tries to capture a possible religion-based avoidance of interest on among the interviewees. Those who avoid interest categorically may be more likely to borrow only informally. Such an effect is not seen in the benchmark regression. In the robustness checks, however, the expected negative relationship is found between borrowing only formally and *part_bank* variable.

5.6. Household Size

A larger household size increases the probability of being an only informal credit borrower. It is possible that larger households are associated with larger family and friend networks, enabling higher access to informal credit from such sources. Among those who take both types of credit, though, the proportion of informal credit decreases in household size. This result is somewhat contradictory to the previous one.

5.7. Demographic Characteristics

Variables regarding age, gender and marital status are included in the model to understand if demographic characteristics of individuals affect their decision to borrow informally rather than borrowing from formal sources.

Gender does not seem to have an effect on this decision. Being married is also not significantly different from being single in terms of informal borrowing ratio. Being divorced, separated or widowed, however, is found to be negatively related with borrowing only informally, at a low level of significance.

Age and age square variables, on the other hand, are significant for the (0,1) interval. Age has a positive coefficient while the coefficient for age square is negative, implying that age increases informal borrowing ratio at a decreasing rate. Older people may have less credit access due to lower income, or have lower financial literacy which prevents seeking out formal credit, or they may simply have a larger network of friends and family from whom they can borrow. Since the ratio is bounded above at one, the converging rate is not surprising.

5.8. Education Variables

As explained in Chapter 3, our model has three variables regarding education, with the *university* variable used as the base variable. We find a statistically significant and positive coefficient for the *drop_primary* variable, which is a dummy variable denoting those who have graduated from primary or secondary school or dropped out of school in these stages. The coefficient of *drop_primary* is found to be significant and positive for the interval (0,1). Those with a maximum of middle school diploma have higher informal debt to total debt ratios. This can be because they have lower incomes and hence less access to formal credit, or it can also be because of financial illiteracy.

Being a high school graduate decreases the probability of borrowing only informally compared to university graduates. It is possible that high school graduates need to borrow higher amounts and have to diversify more because of this.

5.9. Employment Variables

Six dummy variables are used to capture main employment types, denoting working for the private sector, being self-employed, being a farmer or a seasonal worker, being a civil servant, being unemployed, and being out of the labor force. Private sector is used as the base category.

The coefficients of these variables turned out to be insignificant for both the boundaries and the interval except for the civil servant variable. We find a positive and significant coefficient for the civil servant variable for the 0-boundary, indicating that civil servants have a higher probability of borrowing only formally than private sector workers do. This can be due to the fact that civil servant is in general the most risk-free job type and banks are more likely to give loans to civil servants than to private sector

workers. When the informational asymmetry in the credit market is remedied with job status, low-risk individuals are more likely to participate only in the formal credit market.

5.10. Region of Residence

Variables regarding residence were included in our model in order to understand whether there is regional variation in the informal borrowing ratio. Some of the results turned out to be significant.

The interviewees living in the NUTS2 regions 2 (Denizli, İzmir, Manisa), 3 (Antalya, Hatay, İçel), 4 (Diyarbakır, Gaziantep), 10 (Trabzon) and 12 (Erzurum) are less likely to be only formal credit borrowers compared to İstanbul residents (NUTS2 region 1). Similarly, borrowers of both types of credit (not just one) in regions 2, 3, 7 (Samsun, Zonguldak) and 11 (Balıkesir, Edirne) have higher informal credit ratios compared to İstanbul. These results suggest that İstanbul residents may have more access to formal credit, or that interpersonal relationships in the smaller cities enable more borrowing among friends and relatives.

“

5.11. Robustness Checks

In order to see the sensitivity of the results to specification, the regional dummies were replaced with the provincial financial inclusion index in a new regression. The results can be seen in Table 8. Almost all of the significant results (except for the participation bank variable mentioned above) keep the same sign. The provincial financial inclusion variable, on the other hand, does not turn out to have an effect on the ratio of informal to total debt. This index does not capture the regional differences in borrowing preferences.

It is possible that since our sample consists of urban credit card owners, the index is not representative of our universe.

We also replaced personal income with household income under alternative specifications. These results are not reported. For the benchmark regression, this result caused the significance of the *high_school* variable to lose its significance, and the *participation bank* variable to become significant and positive for those who borrow only informally. Also, some regional dummies changed their significance status, although the general result about İstanbul versus the other provinces still holds.

For the second specification, replacing personas income with household income did not change the general results, either. The household size variable loses its significance in the proportion estimation. The *high_school* and participation bank variables become insignificant.

CHAPTER 6

CONCLUSION

This thesis focused on understanding the reasons behind the preference of informal borrowing to formal borrowing among individuals. Despite of the availability of formal borrowing, informal borrowing still exists and constitutes an important part of the total debt amount. The role of informal borrowing has not received much attention in the literature both worldwide and for Turkey; yet, informal borrowing is a vital part of consumer borrowing and hence it is a crucial economic activity. This thesis aims to contribute towards filling this gap using empirical analysis. The reasons behind *the imperfect substitution* between the two credit types, as it has been referred in the literature, are sought using a demand-side analysis by applying the ZOIB model to a 2009 credit card survey data set from Turkey.

Our findings suggest that informal borrowing decreases with higher financial sophistication, suggesting that with more integration to the financial system people borrow less from friends, relatives, moneylenders and other sources as opposed to banks. The policy implication is that by encouraging the usage of formal financial tools through financial education, it seems to be possible to also increase the share of formal credit in total consumer debt.

Being credit constrained decreases the probabilities of borrowing only informally and or borrowing only formally. This result suggests that credit constrained people try to exceed their restrictions by borrowing from all sources. This can also be a consequence of borrowing more to be able to fulfill the payment requirements of the formal loans they obtained before. A similar result is obtained in the amount of total debt, the

coefficient for which is consistently negative for borrowing only one kind of loan. As total debt amount increases, people seem to borrow all sources.

If one's main bank is a participation bank, one's probability of taking zero formal credit increases under some specifications. This result is not very strong as the level of significance is not high, either. Still, there is evidence to suspect that people with religious concerns may avoid formal debt because of the interest.

Neither personal nor household income seem to have an effect on one's informal versus formal debt choice. The state of one's home as assessed by the interviewer, however, used as a proxy for wealth, consistently has a positive effect on the proportion of informal debt in total debt. Wealth may be used as an implicit kind of collateral under informal debt arrangements, too.

In addition, our findings also prove a relationship which was predicted between informal borrowing ratio and education. While having only basic education has no effect on choosing to borrow only formally or only informally, it increases the proportion of informal borrowing in total borrowing. Being a civil servant also increases the probability of borrowing only formally. This relatively risk-free type of borrower probably has more access to formal credit.

The credit market for consumers is an integral part of the economy. The co-existence of formal and informal options and their relative efficiencies are a topic of debate. Since the market's formal component is not perfectly competitive, the informal section also serves to increase the welfare of some consumers. Any policy decisions regarding credit for consumers is likely to have a substantial impact on welfare. This thesis tries to shed light on the choice between the two types of credit, and makes some conclusions which may be relevant for policy decisions.

APPENDIX A

CREDIT CARD CONSUMER SURVEY

frekans RESEARCH	Boğaziçi University	TÜBİTAK	**Survey No**	
			Province	
			Town	

The Survey of Credit Card Usage - April 2009

Have a good day. My name is ..... We are conducting a survey on credit card usage on behalf of Boğaziçi University supported by the Scientific and Technological Research Council of Turkey (TÜBİTAK) for scientific purposes only. The interviews are conducted on households which were selected by random methods covering 2,500 people across Turkey. This study will be evaluated only for general results and your personal information will not be used in any way. Our survey will take approximately 30 minutes. Thank you in advance for your help.

A-INTRODUCTION

A-1	**Do you have a credit card?**	1> Yes **2> No (Finish the interview)**	c 1.
A-2	**Are the decisions concerning the selection and monthly payments of this credit card made by you?**	1> Yes **2> No (Finish the interview)**	c 2.

C-BANK CHOICE

C-1	**Now, I will ask you some questions about banking services.**	No	Yes	
	Do you have a time deposit account?	0	1	c3.
	Do you have a liquid deposit account?	0	1	c4.
	Do you make investment transactions from your bank? (foreign exchange, fund, debenture, bond, Eurobond, stock, gold, repos, derivatives exchange)?	0	1	c5.
	Do you have a private pension fund account?	0	1	c6.
	Do you use automatic payment orders in your bank?	0	1	c7.
	If you are working, are your wages deposited at the bank?	0	1	c8.
	Do you make tax or insurance payments from your bank?	0	1	c9.
	Have you ever used automotive credit?	0	1	c 10.
	Have you ever used housing/mortgage credit?	0	1	c 11.
	Have you ever used consumer credit?	0	1	c 12.

	Have you ever used commercial credit?	0		1			c 13.
C-2	**How often do you use the following banking services?** **Please assign 5 to the very frequently used services and 1 to services you never use.**	Never	Seldom	Sometimes	Frequently	Very Frequently	
	Internet banking	1	2	3	4	5	c14.
	Telephone banking	1	2	3	4	5	c15.
	ATM	1	2	3	4	5	c16.
	Transfer Operations like EFT	1	2	3	4	5	c17.
	Commercial banking services (check, script, leasing)	1	2	3	4	5	c18.
C-3	**At which banks do you have an account?** **(You can select more than one bank name)** **(If the subject is not able to remember, read the bank names.)** **NOTE: All banks at which the subject has a credit card should be selected.**	1.Akbank 2.Al Baraka Türk 3.Anadolubank 4.BankAsya 5.Citibank 6.Denizbank 7.Eurobank Tekfen 8.Finansbank 9.Fortisbank 10.Garanti Bankası 11.Halk Bankası 12.HSBC Bank 13.ING Bank 14.İş Bankası		15.Kuveyt Türk 16.Millennium Bank 17.Şekerbank 18.Tekstilbank 19.Turkish Bank 20.Turkland Bank 21. Türk Ekonomi Bankası 22.Türkiye Finans 23.Vakıfbank 24.Yapı ve Kredi Bankası 25. Ziraat Bankası		c19. c20. c21. c22. c23. c24. c25.
C-4	**Which of these banks is the one you use most frequently?**	.....					c 26.
C-5	**For about how many years have you been working with this bank?**	..... years 96> Less than a year					c 27.
C-6	**Please rate the effectiveness of the listed factors in your decision to choose this bank.** **Please assign 5 to the most important reasons and 1 the least important reasons.** **(Note to surveyor: SHOW CARD)**	Not effective at all	Effective to a small degree	Somewhat effective	Effective	Very effective	
	01. Higher interest rates on deposits	1	2	3	4	5	c28.
	02. Low account fees (or zero)	1	2	3	4	5	c29.
	03. Low fees on transactions like money transfers, checks	1	2	3	4	5	c30.
	04. Lower interest rates and costs for credit	1	2	3	4	5	c31.
	05. Ease of using credit	1	2	3	4	5	c32.
	06. Some household income is deposited at this bank	1	2	3	4	5	c33.
	07. Special services for tradesmen and farmers	1	2	3	4	5	c34.
	08. People I am in touch with are working with this bank	1	2	3	4	5	c35.
	09. Closeness of bank branch	1	2	3	4	5	c36.
	10. Branch density	1	2	3	4	5	c37.

	11. Service quality (like speed of services, courtesy of workers, and ambiance of bank branch)	1	2	3	4	5	c38.
	12. ATM density	1	2	3	4	5	c39.
	13. Good internet banking	1	2	3	4	5	c40.
	14. Good telephone banking	1	2	3	4	5	c41.
	15. Ease of foreign transactions	1	2	3	4	5	c42.
	16. High security in transactions	1	2	3	4	5	c43.
	17. The availability of customized services	1	2	3	4	5	c44.
	18. The availability of a wide range of services	1	2	3	4	5	c45.
	19. Having a prestigious and good name?	1	2	3	4	5	c46.
	20. Its being a trustworthy and sound bank	1	2	3	4	5	c47.
	21. Its being a state bank	1	2	3	4	5	c48.
	22. Its being a Turkish bank	1	2	3	4	5	c49.
	23. Its being an international bank	1	2	3	4	5	c50.
	24. Its being a participation bank (interest free banking)	1	2	3	4	5	c51.
	25. Recommendations of acquaintances	1	2	3	4	5	c52.
	27. Its being my first bank	1	2	3	4	5	c53.
	Other:		2	3	4	5	c54.

C-7	**How would you rate your level of satisfaction with this bank?**	1> Not all satisfied 2> Dissatisfied 3> Neutral 4> Satisfied 5> Very satisfied	c 55.
C-8	**Have you ever changed your most frequently used bank?**	1>Yes 2>No (Skip C-10)	c 56.
C-9	**If yes, what was the reason?**	1>The interest rates and prices of the new bank are better 2>The availability of more diverse and better services at the new bank 3> The bank where some household income is deposited changed 4> People I am in touch with are working with the new bank 5>The branch of the new bank is closer Other…	c 57.
C-10	**Do you remember how much of the bank deposits are under the guarantee of the state for every single depositor?**	1> All of the deposits 2> up to 100,000 TL of the deposited amount 3> up to 50,000 TL of the deposited amount 4> up to 25,000 TL of the deposited amount 5> There is no state guarantee for deposits 99> I don't remember/ I don't know	c 58.

D- CREDİT CARD SELECTION

Now, I will ask you some questions about your credit cards. Please think of the credit cards that you selected and about which you make the payment decisions.

D-1	**Please rate the effectiveness of the listed factors in your decision to use a credit card.** **Please assign 5 to the most important reasons and 1 the least important reasons. (Note to surveyor: SHOW CARD)**	Not effective at all	Effective to a small degree	Somewhat effective	Effective	Very effective	
	Not wanting to carry cash	1	2	3	4	5	c59.
	Borrowing	1	2	3	4	5	c60.

	Being able to make purchases when short of cash	1	2	3	4	5	c61.
	Being able to take cash advances when short of cash	1	2	3	4	5	c62.
	Wanting to take advantage of installments	1	2	3	4	5	c63.
	Wanting to take advantage of discounts and fuel campaigns	1	2	3	4	5	c64.
	Internet shopping	1	2	3	4	5	c65.
	Convenience in shopping abroad	1	2	3	4	5	c66.
	Convenience in making reservations (tickets, hotel, etc.)	1	2	3	4	5	c67.
	Being able to keep track of my expenditures	1	2	3	4	5	c68.
	Other …..	1	2	3	4	5	c69.

D-2	**Which cards of which banks do you own, and how often do you use them? What brand is/ are your card/s? How often do you use these cards?** **NOTE: If the subject does not remember the type of the card, write both bank and card information under "other".**	**Tick if have**	Never	Seldom	Sometimes	Frequently	Very Frequently	
	Akbank –Axess	**1**	1	2	3	4	5	c70.
	Akbank –Wings	**2**	1	2	3	4	5	c71.
	Akbank- Fish	**3**	1	2	3	4	5	c72.
	Al Baraka Türk	**4**	1	2	3	4	5	c73.
	Anadolubank	**5**	1	2	3	4	5	c74.
	Bank Asya	**6**	1	2	3	4	5	c75.
	Citibank	**7**	1	2	3	4	5	c76.
	Citibank –Citiaxess	**8**	1	2	3	4	5	c77.
	Denizbank	**9**	1	2	3	4	5	c78.
	Denizbank-Bonus	**10**	1	2	3	4	5	c79.
	Eurobank Tekfen	**11**	1	2	3	4	5	c80.
	Finansbank (CardFinans)	**12**	1	2	3	4	5	c81.
	Fortisbank	**13**	1	2	3	4	5	c82.
	Fortisbank -World	**14**	1	2	3	4	5	c83.
	Garanti Bankası –Bonus	**15**	1	2	3	4	5	c84.
	Garanti Bankası –Flexi	**16**	1	2	3	4	5	c85.
	Garanti Bankası -Shop&Miles	**17**	1	2	3	4	5	c86.
	Garanti Bankası -American Express	**18**	1	2	3	4	5	c87.
	Halk Bankası – Advantage	**19**	1	2	3	4	5	c88.
	Halk Bankası – Halkcard	**20**	1	2	3	4	5	c89.
	HSBC Bank- Advantage	**21**	1	2	3	4	5	c90.
	ING Bank - Maximum	**23**	1	2	3	4	5	c91.
	ING Bank – Bonus	**24**	1	2	3	4	5	c92.
	İş Bankası (Maximum)	**25**	1	2	3	4	5	c93.
	Kuveyt Türk	**26**	1	2	3	4	5	c94.
	Millenium Bank	**27**	1	2	3	4	5	c95.
	Şekerbank	**28**	1	2	3	4	5	c96.
	Şekerbank –Bonus	**29**	1	2	3	4	5	c97.
	Tekstilbank	**30**	1	2	3	4	5	c98.
	Tekstilbank –Advantage	**31**	1	2	3	4	5	c99.
	Turkish Bank	**32**	1	2	3	4	5	c100.
	Turkland Bank	**33**	1	2	3	4	5	c101.
	Türk Ekonomi Bankası (TEB)	**34**	1	2	3	4	5	c102.
	Türk Ekonomi Bankası (TEB)-Bonus	**35**	1	2	3	4	5	c103.
	Türkiye Finans	**36**	1	2	3	4	5	c104.
	Vakıfbank – Vakıf	**37**	1	2	3	4	5	c105.
	Vakıfbank – World	**38**	1	2	3	4	5	c106.
	Vakıfbank - Rail&Miles	**39**	1	2	3	4	5	c107.
	Yapı ve Kredi (World)	**40**	1	2	3	4	5	c108.
	Ziraat Bankası –Ziraat	**41**	1	2	3	4	5	c109.
	Ziraat Bankası –Maximum	**42**	1	2	3	4	5	c110.

	Other ……	**43**	1	2	3		4	5		c111.
D-3a	**[IF THE SUBJECT HAS <u>ONLY ONE</u> CARD]** **[Skip D-6 after D-3a]** **Please rate the effectiveness of the listed factors in your decision to have only one credit card.** **Please assign 5 to the most important reasons and 1 the least important reasons.** **(Note to surveyor: SHOW CARD)**		Not effective at all		Effecti ve to a small degree		Somewhat effective	Effe ctive	Very effec tive	
	Not wanting to pay more than one annual fee.		1		2		3	4	5	c112.
	The difficulty of making an application for a new card		1		2		3	4	5	c113.
	Not wanting to deal with more than one card's transactions		1		2		3	4	5	c114.
	Concern of spending more with more than one card		1		2		3	4	5	c115.
	Belief that new card applications will be turned down		1		2		3	4	5	c116.
D-3b	**[IF MORE THAN ONE CARD]** **Please rate the effectiveness of the listed factors in your decision to have more than one credit card.** **Please assign 5 to the most important reasons and 1 to the least important reasons.** **(Note to surveyor: SHOW CARD)**		Not effective at all		Effecti ve to a small degree		Somewhat effective	Effe ctive	Very effec tive	
	Benefiting from different installment opportunities		1		2		3	4	5	c117.
	Benefiting from different features like bonus points, money points, traveler miles, etc.		1		2		3	4	5	c118.
	Benefiting from different discounts and fuel campaigns		1		2		3	4	5	c119.
	Benefiting from different billing dates		1		2		3	4	5	c120.
	Prestige		1		2		3	4	5	c121.
	One card's limit is not sufficient		1		2		3	4	5	c122.
	Some of my cards have lower interest rates		1		2		3	4	5	c123.
	Precaution in case of problems with other cards		1		2		3	4	5	c124.
D-4	**[IF MORE THAN ONE CARD]** **If we call the credit card you use most often your "main" card, which one would that be?** **(One of the ones chosen in D-2)** **(If the subject has only one card, call it the main card.)**		Name of bank ..... Name of credit card							c 125.
D-5	**[IF MORE THAN ONE CARD]** **What percentage of your total credit card spending do you do with your main card?**		% _ _ _							c 126.
D-6	**ASK ALL** **How did obtain your main card?**		1> by making a credit card application to my bank 2> by making a credit card application to other banks 3> offered to me from my bank 4> offered to me from other banks							c 127.
D-7	**Approximately for how many years have you been using the credit card of same bank <u>as your main card</u>?**		..... year(s) 96> Less than one year							c 128.

D-8	**Before you made the decision to get this (main) card, how thoroughly did you investigate the credit cards in the market?** **Please assign 5 if your investigation was very detailed and 1 if you did not do any research.**	I did not do any research (1) (2) (3) (4) (5) I did a very detailed research					c 129.
D-9	**How effective are the following reasons in your decision to use this credit card as your main card?** **Please assign 5 to the most important reasons and 1 the least important reasons.** **(Note to surveyor: SHOW CARD)**	Not effective at all	Effective to a small degree	Somewhat effective	Effective	Very effective	
	The issuer being the bank the subject already works with	1	2	3	4	5	c130.
	Low interest rates	1	2	3	4	5	c131.
	Low (or nil) annual fees	1	2	3	4	5	c132.
	High credit limit	1	2	3	4	5	c133.
	More bonus points/money points/traveler miles etc.	1	2	3	4	5	c134.
	More installments opportunities	1	2	3	4	5	c135.
	Promotions in fuel purchases	1	2	3	4	5	c136.
	Extra opportunities like insurance, promotions, valet parking etc.	1	2	3	4	5	c137.
	Virtual card service	1	2	3	4	5	c138.
	More extensive discount campaigns	1	2	3	4	5	c139.
	Widespread branch and ATM network	1	2	3	4	5	c140.
	Good credit card services via internet and phone	1	2	3	4	5	c141.
	Informative and effective credit card advertising	1	2	3	4	5	c142.
	Its being a prestigious card	1	2	3	4	5	c143.
	Its being an affinity card for a sports team, school etc.	1	2	3	4	5	c144.
	Its being the first card that the subject owned	1	2	3	4	5	c145.
	Recommendation of my acquaintances	1	2	3	4	5	c146.
	Its being the card used by family members	1	2	3	4	5	c147.
	Other.....		2	3	4	5	c148.
D-9a	**How would you rate your degree of satisfaction with your main card? (as mentioned D-4)**	1 Very Dissatisfied 2 Dissatisfied 3 Neither satisfied nor dissatisfied 4 Satisfied 5 Very satisfied					c 149.
D-10	**What percentage of your expenditures do you make (within one month) by credit card in general?**	%.....					c 150.
D-10a	**How much do you spend per month with all your credit cards?**	..... TL					c 151.
D-11	**Thinking of all your credit cards , in how many months out of the last 12 did you make a less-than –minimum payment?**	0> Never, I always pay at least the minimum amount (Skip D-13) .....month(s)					c 152.
D-12	**What were the reasons?** **MULTICODING ALLOWED**		Yes	No			
		I forgot the date of payment	1	2	c153.		
		I did not have the opportunity to make payment	1	2	c154.		

		An unexpected situation that negatively affected my income occurred, such as job loss,late salary payment, etc.	1	2	c155.
		An unexpected necessary spending came up, such as for an illness or an accident	1	2	c156.
		I spent more than I intended	1	2	c157.
		I decided to spread some credit card spendings over time	1	2	c158.
		My income is not enough to cover my expenses in general	1	2	c159.
		Other			c 160.
D-13	**In how many months out of the last 12 did you pay less than the total amount of your credit card bills but above the minimum amount?**	0>Never, I always pay the total amount (Skip to D-15) ..... month(s)			c 161.
D-14	**What were the reasons?** **MULTICODING ALLOWED**		Yes	No	
		An unexpected situation that negatively affected my income occurred, such as job loss, late salary payment, etc.	1	2	c162.
		An unexpected necessary spending came up, such as for an illness or an accident	1	2	c163.
		I spent more than I intended	1	2	c164.
		I decided to spread some credit card spendings over time	1	2	c165.
		My income is not enough to cover my expenses in general	1	2	c166.
		Other	1	2	c167.
D-15	**Retail interest rate applies to the portion of one's credit card bill which is not paid when the minimum amount paid** **Do you know your mostly used card's retail interest rate?**	Yes Retail interest rate % _ _ , _ 99>No, I don't know			c168.
D-16	**Late interest rate applies to the minimum payment portion of one's credit card bill which is not paid when the minimum amount is paid** **Do you know your most frequently used card's late interest rate?**	Yes Late interest rate % _ _ , _ _ 99> No, I don't know			c169.
D-17	**As far as you know, is there any credit card that has a lower retail interest rate than your credit card in the market?**	1>Yes, there is 2>No, there is not 99>No idea			c170.
D-18	**Credit cards' monthly retail interest rates are currently around 4%.** **If you find out a credit card applying lower interest rates than yours, would you switch to this card?**	1>Yes (Continue) 2>No (Skip D-19)			c171.
D-18a	**For example, if there is a credit card applying 3% retail interest rate, would you switch to this card?**	1>Yes (Skip D-19) 2>No (Continue)			c172.
D-18b	**If there is a credit card applying 2% retail interest rate, would you switch to this card?**	1>Yes (Skip D-19) 2>No (Skip D-19)			c173.

D-19	**Now, I will list some reasons to <u>make switching to</u> another card with lower interest rates difficult.** **Please rate the effectiveness of the listed factors.** **Please assign 5 to the most important reasons and 1 to the least important reasons.** **(Note to surveyor: SHOW CARD)**	Not effective at all	Effective to a small degree	Somewhat effective	Effecti ve	Very effectiv e	
	Not wanting to research	1	2	3	4	5	c174.
	Not wanting to deal with application and cancelling procedures	1	2	3	4	5	c175.
	Not wanting to change my bank	1	2	3	4	5	c176.
	Lower interest rate credit cards have higher annual fees.	1	2	3	4	5	c177.
	My belief that my application to other banks will be turned down due to my current high debt	1	2	3	4	5	c178.
	My belief that my application to other banks will be turned down due to other reasons	1	2	3	4	5	c179.
	My belief that a new card would have a lower limit	1	2	3	4	5	c180.
	I do not care about a lower interest rate because I do not borrow or I borrow in small amounts and for short duration	1	2	3	4	5	c181.
	My belief that there is no much difference between credit cards' interest rates	1	2	3	4	5	c182.
	Not wanting to give up my credit card's other features such as installment, bonus point / money point or travel miles	1	2	3	4	5	c183.
	Other:.....		2	3	4	5	c184.
D-20	**Please rate the effectiveness of the listed methods in finding out about the features of credit cards on the market** **Please assign 5 to the most important methods and 1 to the least important methods.** **(Note to surveyor: SHOW CARD)**	Not effective at all	Effective to a small degree	Somewhat effective	Effecti ve	Very effectiv e	
	I get information from my acquaintance	1	2	3	4	5	c185.
	I get information by telephone or by going to a bank branch	1	2	3	4	5	c186.
	I research on the internet	1	2	3	4	5	c187.
	I get information from ads	1	2	3	4	5	c188.
	Other:.....		2	3	4	5	c189.
D-21	**Now, I will list some reasons to <u>make researching</u> about credit card features difficult.** **Please rate the effectiveness of the listed factors.** **Please assign 5 to the most important reasons and 1 the least important reasons.** **(Note to surveyor: SHOW CARD)**	Not effective at all	Effective to a small degree	Somewhat effective	Effecti ve	Very effectiv e	
	Not wanting to deal with research	1	2	3	4	5	c190.
	Not knowing how to research	1	2	3	4	5	c191.
	My belief that there is no difference between credit cards	1	2	3	4	5	c192.

D-22	**Suppose you do not have any credit cards. How much would you investigate the features of the credit cards in the market before you obtain a new credit card?** **Please rate between1 and 5, with 5 meaning you would research very deeply and 1 that you would not do any research.**	I do not do any research (1) (2) (3) (4) (5) I research very deeply	c193.
D-23	**Suppose you want to switch to another credit card.** **Please sort the listed factors in order od importance (<u>only the important ones according to you</u>) while switching to another credit card** **(writing the most important factor is in the first place)** **(Note to surveyor: SHOW CARD)**	1>Interest rates 2>Annual fee 3>Limit 4>Other features such as bonus point, installments, discounts or travel miles. 5>The issuer of the card	c194. 1.important c195. 2.important c196. 3.important c197. 4.important c198. 5.important
D-24	**Do you think you sometimes do unnecessary shopping because you have a credit card?**	1> Yes 2> No (Skip D-26)	c199.

D-25	**If yes, please rate the effectiveness of the listed factors herein** **Please assign 5 to the most important reasons and 1 the least important reasons.** **(Note to surveyor: SHOW CARD)**	Not effective at all	Effective to a small degree	Somewhat effective	Effective	Very effective	
	The low monthly payments due to installments	1	2	3	4	5	c200.
	Inability to track spending since not paying with cash	1	2	3	4	5	c201.
	Psychological comfort of paying later rather than at that moment	1	2	3	4	5	c202.
	Effect of discounts and promotions of credit cards	1	2	3	4	5	c203.
	I benefit from some advantages when I spend over a certain amount	1	2	3	4	5	c204.
	Other…	1	2	3	4	5	c205.

D-26	**Have a credit card application you made been rejected in the past five years?**	1>Yes 2>No	c 206.
D-27	**Have you changed your main card before?**	1>Yes 2>No (Skip D-29)	c 207.
D-28	**If yes, what is the main reason?**	1>The lower interest rates (of the new card) 2>The lower annual fee 3>The higher limit 4>The better features such as bonus points, installments and discounts 5>I changed my bank Other…	c 208.
D-29	**Suppose you are going to start a new job. Which one do you choose (if you were forced to choose): a job with social security benefits or a job without them but the insurance payments given in cash to you?**	1>Insured job 2>Uninsured job	c 209.
D-30	**Did you pay all of your last credit card bills completely?** **(If using one card, did you pay your last credit card bill completely?)**	1>Yes (Skip D-31) 2>No (Continue)	c 210.

D-30a	**If no, what is the amount you did not pay?**	.....TL			c 211.
D-31	**Did you make any purchases with installments in the last twelve months despite a lower cash price?**	1>Yes 2>No			c 212.
D-32	**Would the decline of credit card interest rates lead to an increase in your debt by increasing the amount of your statement that you do not pay?**	1>Yes 2>No			c 213.
D-33	**If there were any credit card bills you did not fully pay in the last twelve months, what was the maximum amount you did not pay?**	.....TL 0> I paid my all credit card bills completely in last twelve months.			c 214.
D-35	**Do you pay your main card's bill by direct debit?**	1>Yes, I pay the full amount of my main card's bill by direct debit 2>Yes, I pay the minimum amount of my main card's bill by direct debit 3>No			c 215.
D-36	**It is possible to borrow on credit cards by drawing a cash advance, with the cost of cash advance interest rates and commissions.** **Did you draw a cash advance in this way using your credit card in the last year?**	1>Yes 2>No (Skip D-38)			c 216.
D-37	**If yes, what were the reasons to draw a cash advance?** **MULTICODING ALLOWED**		Yes	No	
		An unexpected situation that negatively affected my income occurred, such as job loss, late salary payment, etc.	1	2	c 217.
		An unexpected necessary spending came up, such as for an illness or an accident	1	2	c 218.
		My income is not enough to cover my expenses in general	1	2	c 219.
		To pay off other credit card bills.	1	2	c 220.
		Lack of cash in my hand to cover daily needs	1	2	c 221.
		Occurring cash needs while abroad	1	2	c 222.
		Other….....			c 223.
D-38	**ASK ALL** **If you draw a 100 TL cash advance with your main card, do you know approximately how much you need to pay back after a month?**	I pay back ..... TL 99> I don't know			c 224.
D-39	**Have you used installment credits to close your credit card debt in the last two years? How much did you use?**	Yes, _ _ _ _ _ TL 0>No, I haven't			c 225.
D-40	**Were you ever delinquent in your credit card payments?**	1>Yes 2>No (Skip D-42)			c 226.
D-41	**If yes, what year did it happen? (The last time if more than once)**	_ _ _ _ (Example: 1998, 2006)			c 227.
D-42	**How much total credit card annual fees did you pay in the last year?**	0>I paid nothing I paid..... TL 999> I don't know			c 228.
D-43	**Did you attempt to reduce these annual fees or avoid paying them?**	1>Yes 2>No			c 229.
D-44	**What is your main credit card's limit?**	..... TL			c 230.
D-45	**What is the total of all your credit cards' limits?** **(Same answer as D-44 if using only one card)**	..... TL			c 231.

D-46	**How effective were the incidents that you heard about or went through concerning credit cards in making you showing to be more careful in your credit card spending?** **Please rate between 1 and 5, 5 showing it was very effective and 1 not effective at all**	Not effective at all (1) (2) (3) (4) (5) Very effective	c 232.
D-47	**Have you cancelled any credit cards in the last two years?**	1>Yes 2>No (Skip E1)	c 233.
D-48	**Which banks' credit cards did you cancel?**	....	c 234. c 235. c 236.
D-49	**How many minutes did you spend to cancel these cards on the phone or in a bank branch?**	.....	c 237.

E-FİNANCIAL CONDITION

	Please think of those with whom you share your income and expenditures as members of your household. I will now ask you questions about how you spend your household income.		
E-1	**What is your average monthly food expenditure?**	....TL	c 238.
E-2	**How much do you spend on fixed expenditures including rent, heating, water, electricity and telephone bills?**	....TL	c 239.
E-3	**Apart from the expenses above, how much do you regularly spend on fixed payments, like for insurance, health and education expenses?**	....TL	c 240.
E-4	**If any, how much is your monthly bank debt payment, excluding your credit card debt?**	....TL	c 241.
E-5	**What is your average total monthly expense, including the items above?**	....TL	c 242.
E-6	**If any, what is your total bank debt, excluding any credit card debts?**	....TL	c 243.
E-7	**If any, what is your total debt to your family, friends, firms and other people?**	....TL	c 244.
	Now, I will ask you questions about your income		
E-8	**When you consider all income sources like wages, pension, rent income and allowance, what is your total household income?**	....TL	c 245.
E-9	**What is your personal monthly income from your main job and your other income sources?**	....TL	c 246.
E-11	**Do you have any motor vehicles like automobiles, trucks or tractors? If yes, what is the total value of these motor vehicles?**	Yes, ...TL 0> No	c 247.
E-12	**Do you have any property like houses, summerhouses and land? If yes, what is their total value?**	Yes, ...TL 0> No	c 248.

F-DEMOGRAPHY

F-1	**Gender**	1> Female 2> Male	c 249.
F-2	**Birth year**	.....	c 250.
F-3	**Marital status**	1>Bachelor 2>Married 3>Widowed 4>Divorced 5> Living separately	c 251.
F-4	**How many people are there in your household? (including you)**	.....	c 252.
F-5	**How many of them are older than 15?**	.....	c 253.
F-6	**How many of the people in your household have income? (including you)**	.....	c 254.
F-7	**What level of school did you finish?**	0> No schooling / quit primary school 1> Primary school 2> Secondary school 3> High school 4> University 5> Graduate degree	c 255.
F-8	**What is your current job status?**	**Employed**, 1>Manager or specialist in the public sector 2>Civil servant 3>Worker in the public sector 4>Manager or specialist in the private sector 5>Worker or office worker in the private sector 6>Big trader, industrialist 7>Small trader, craftsman 8>Highly educated self employed (lawyer, doctor…) 9>Farmer 10>Seasonal or irregular worker **Unemployed**, 11>Left a job recently (less than six months ago) 12>Been looking for a job for more than six months 13>Not employed and not looking for a job	c 256.
F-9	**Are you retired?**	1> Yes 2> No	c 257.
F-10	**Are you a student?**	1> Yes 2> No	c 258.

F-11	**How often do you do the activities below?**	Never	Seldom	Sometimes	Frequently	Very frequently	
	Reading the newspaper	1	2	3	4	5	c259.
	Traveling	1	2	3	4	5	c260.
	Going out for dinner	1	2	3	4	5	c261.
	Using the internet	1	2	3	4	5	c262.

Thank you for answering the questions.

NAME/ SURNAME		c 263.
DISTRICT		c 264.
STREET		c 265.
GATE NO		c 266.

TOWN		c 267.
TELEPHONE NO -1		c 268.
TELEPHONE NO -2		c 269.

[Attention to surveyor! The following questions MUST be answered after leaving the subjects]

Building type	1> Squat housing 2> Legal housing (Medium condition) 3> Legal housing (Luxury)	c 270.
Location type	1> Province center 2> Town	c 271.
General observations about the conditions of the quarter	1> Very poor 2> Poor 3> Medium condition 4> Good 5> Very good	c 272.
General observations about the conditions of the house	1> Very poor 2> Poor 3> Medium condition 4> Good 5> Very good	c 273.
How sincere were the responses of subject during the interview?	1> Not sincere at all 2>Sincere to a small degree 3>Somewhat sincere 4> Sincere 5> Very sincere	c 274.
Survey date:		c 275.
Surveyor name:		c 276.

APPENDIX B

SUMMARY STATISTICS OF INDEPENDENT VARIABLES

Table 6. Summary Statistics of Independent Variables

Variable	Mean	Std. Dev.	Min	Max
fin_soph	3,222633	2,067483	0	12
cconstrained	0,3639053	0,4813593	0	1
drop_primary	0,3668639	0,4821868	0	1
high_school	0,3678501	0,4824582	0	1
cservant	0,1844181	0,3880162	0	1
self_emp	0,1844181	0,3880162	0	1
farm_season	0,0424063	0,2016137	0	1
unemployed	0,0443787	0,2060366	0	1
out_lab	0,1637081	0,3701931	0	1
personalinc	1523,11	1562,6	0	33.000
state_home	3,419132	0,6430345	1	5
TotalDebt	7849,89	15514,29	30	175,600
nuts2	0,1706114	0,3763547	0	1
nuts3	0,1341223	0,3409518	0	1
nuts4	0,0315582	0,1749069	0	1
nuts5	0,0877712	0,2831015	0	1
nuts6	0,1074951	0,3098945	0	1
nuts7	0,0512821	0,2206813	0	1
nuts8	0,0384615	0,1924026	0	1
nuts9	0,0207101	0,1424822	0	1
nuts10	0,0335306	0,1801063	0	1
nuts11	0,0473373	0,2124641	0	1
nuts12	0,0118343	0,1081934	0	1
female	0,2564103	0,4368664	0	1
married	0,729783	0,4442909	0	1
div_sep_wid	0,0384615	0,1924026	0	1
hhsize	3,72	1,41	1	13
age	38,13	11,2	19	80
part_bank	0,0216963	0,1457617	0	1
finc_inc	0,7772219	0,1780474	0,396	0,998

Note: Number of observations:1014

APPENDIX C

ESTIMATION RESULTS

Table 7. Estimation Results for the Benchmark Model

	Proportion	Oneinflate	Zeroinflate
fin_soph	-0,1235564**	0,0042756	0,1980321***
	[0,02]	[0.96]	[0,00]
cconstrained	0,0623835	-1,3532***	-0,4725359**
	[0,72]	[0.00]	[0,02]
lnTotalDebt	-0,1153902	-0,7224***	-0,5927935***
	[0,16]	[0,00]	[0,00]
lnpersonalinc	-0,0390474	-0,1555077	0,0048326
	[0,72]	[0,56]	[0,96]
state_home	0,4302834***	0,1309532	0,0212808
	[0,00]	[0,55]	[0,90]
part_bank	-0,5919614	0,7649522	-0,9402616
	[0,20]	[0,30]	[0,15]
hhsize	-0,1254644**	0,2034898*	-0,0437821
	[0,05]	[0,05]	[0,51]
female	-0,1374556	0,1717971	-0,1448794
	[0,56]	[0,66]	[0,54]
age	0,0873219**	0,0691158	0,0591533
	[0,05]	[0,48]	[0,41]
agesq	-0,0011259**	-0,0006919	-0,0004427
	[0,04]	[0,56]	[0,60]
married	-0,2058244	0,0377999	-0,4349628
	[0,43]	[0,94]	[0,14]
div_sep_wid	0,1483783	-2,443269*	-0,3823444
	[0,79]	[0,02]	[0,48]
drop_primary	0,7049013***	0,.0926258	0,3121258
	[0,00]	[0.85]	[0,31]
high_school	-0,0225545	-0,780358**	-0,1432174
	[0,93]	[0,01]	[0,55]
cservant	-0,3723099	-0,1196748	0,8269816**
	[0,16]	[0.83]	[0,01]
self_emp	0,1394935	0,1038356	-0,0454464
	[0,60]	[0,82]	[0,87]
farm_season	-0,2129701	-0,9221392	-0,7398914
	[0,57]	[0,18]	[0,11]
unemployed	-0,4009232	-0,0791736	0,0950606

	[0,13]	[0,90]	[0,87]
out_lab	-0,3398968	-0,1245876	0,1122599
	[0,35]	[0,86]	[0,77]
nuts2	-0,5388179**	0,1349571	-0,5368942*
	[0,03]	[0,77]	[0,07]
nuts3	-0,4605223*	0,3057026	-0,6553086**
	[0,09]	[0,51]	[0,04]
nuts4	-0,4224571	0,036779	-0,856143*
	[0,33]	[0,97]	[0,1]
nuts5	-0,4885743	-0,1247216	-0,2251702
	[0,11]	[0,86]	[0,58]
nuts6	-0,3813067	0,676139	-0,3715106
	[0,23]	[0,20]	[0,27]
nuts7	-0,805707***	0,3700366	0,5483063
	[0,01]	[0,62]	[0,33]
nuts8	-0,0762039	-1,346583	-0,3477938
	[0,85]	[0,50]	[0,48]
nuts9	-0,6175822	1,40087	0,2282346
	[0,24]	[0,32]	[0,79]
nuts10	-0,5914172	0,1960048	-1,043187*
	[0,13]	[0,81]	[0,03]
nuts11	-1,035326***	0,1450977	0,2764778
	[0,00]	[0,91]	[0,66]
nuts12	0,0258462	0,8352133	-1,393431*
	[0,97]	[0,52]	[0,01]
cons	-0,0920211	4,076143	4,929,287
	[0,935]	[0,14]	[0,00]

Note: Dependent variable: Proportion of informal debt to total debt, Estimation method: Zero/one inflated beta regression Number of Obs: 1014, Log pseudolikelihood:-457,6647, Wald Chi2= 102,61, Prob>chi2=0.0000
* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table 8. Estimation Results for the Robustness Check

	Proportion	Oneinflate	Zeroinflate
fin_soph	-0,1297025*	0,0090789	0,1964271***
	[0,02]	[0,92]	[0,00]
cconstrained	0,1205402	-1,31977***	-0,4416425**
	[0,48]	[0,00]	[0,03]
lnTotalDebt	-0,1078595	-0,71056**	-0,5756252***
	[0,18]	[0,00]	[0,00]
lnpersonalinc	-0,0590006	-0,1720906	0,0427004
	[0,57]	[0,51]	[0,68]
state_home	0,4085904***	0,1143547	-0,0702762
	[0,00]	[0,59]	[0,67]
part_bank	-0,4387815	0,6133408	-1,043628*
	[0,38]	[0,40]	[0,08]
hhsize	-0,1334306**	0,1924122**	-0,052205
	[0,03]	[0,05]	[0,43]
female	-0,0683933	0,1192559	-0,1207774
	[0,78]	[0,75]	[0,59]
age	0,0860752**	0,08156	0,0523776
	[0,03]	[0,37]	[0,47]
agesq	-0,0010549**	-0,0008686	-0,0003375
	[0,03]	[0,44]	[0,70]
married	-0,1204648	-0,0299514	-0,3836694
	[0,65]	[0,95]	[0,12]
div_sep_wid	0,0471693	-2,422418**	-0,4896235
	[0,93]	[0,01]	[0,35]
drop_primary	0,6649694**	0,1130722	0,2573444
	[0,01]	[0,81]	[0,39]
high_school	-0,0513719	-0,7413*	-0,1132229
	[0,83]	[0,09]	[0,66]
cservant	-0,4628103	-0,1172366	0,8411994**
	[0,10]	[0,82]	[0,01]
self_emp	0,0109588	0,125919	-0,0838152
	[0,96]	[0,78]	[0,75]
farm_season	-0,1673039	-0,9264983	-0,5080531
	[0,65]	[0,14]	[0,24]
unemployed	-0,4496673	-0,0376036	0,3751086
	[0,14]	[0,95]	[0,54]
out_lab	-0,5361041	-0,0724747	0,1708762
	[0,13]	[0,91]	[0,64]
fin_inc	0,2891771	-0,5445306	0,2532351
	[0,53]	[0,58]	[0,64]
cons	-0,5834915	4,637994	438501
	[0,60]	[0,07]	[0,00]

Note: Dependent variable: Proportion of informal debt to total debt, Estimation method: Zero/one inflated beta regression Number of Obs: 1014, Log pseudolikelihood:-472,47144, Wald Chi2= 63,30, Prob>chi2=0.0000 * $p<0.1$; ** $p<0.05$; *** $p<0.01$

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