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Trusting Financial Institutions: Out of Reach, out of Trust?

Ute Filipiak

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For editorial correspondence please contact SSBEEditor@wiwi.uni-wuppertal.de

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Trusting Financial Institutions: Out of Reach, out of Trust?

Ute Filipiak*

Schumpeter School of Business and Economics

University of Wuppertal

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Abstract

This paper empirically investigates the relationship between individual trust in financial institutions and individual access to these institutions. Based on a large-scale survey of savings patterns of Indians, we find that individuals reporting that they do not have access to certain financial institutions within a commutable distance of one day are less likely to trust these institutions with their money. Moreover, we find that this relationship holds for different banks and financial institutions offering services in low-income areas and that differences in trust can be explained to some extent by differences in individual access.

JEL-Codes: D1, G11, G21, R2

Keywords: Trust, Financial Institutions, Access, India

*Corresponding author. Tel.:+49 202 439 2548; fax:+49 202 439 3852, Email: filipiak@wiwi.uni-wuppertal.de

1 Introduction

Household savings are safer in banks and promise a higher return in the future, compared to other mechanisms frequently used in developing economies. Although financial institutions have expanded intensively in emerging economies in the past years, household demand for formal financial services is still low (Honohan, 2008; Gine, 2010). Financial development in these countries often relies on trust and personal relationships among investors and financial intermediaries rather than on the legal system (Allen et al., 2012). Therefore individuals prefer other investments and financial activities over the formal ones offered by banks and other financial institutions. For instance, merely 40 percent of Indian households report having a savings account while the number of bank branches in India increased remarkably (Basu, 2006). Burgess and Pande (2005) show that over the period from 1961 to 2000 the number of branches opened in rural and unbanked locations increased from 105 to 29,109.[1] Thus, only few people in India are participating in the formal financial market although investment opportunities are more and more prevalent. However, regions in many developing economies are vast, public transportation mostly underdeveloped, and it is often dangerous to walk with money on the street particularly for women. Hence, financial access also depends on the personal characteristics of the individual. Differences in health, knowledge, social surroundings, or mobility might create obstacles to overcome physical distances to a financial institution.

Two neighbors, for example, might live in the same distance to the next bank branch but differ in their possibility to reach this institution, e.g. if one has a bike while the other one has to travel by foot. As a result, both individuals might differ in their overall attitude towards this financial institution. Individuals, who are able to reach a financial institution can observe it and thereby they can get a better idea about the distribution of the expected investment payoffs, which in turn increases the likelihood to trust this institution.

Moreover, the decision to open a savings account or to make an investment at a

[1] Burgess and Pande (2005) construct a state level panel for 16 Indian states to investigate financial expansion. Branch expansion is measured by the number of branches per capita per state.

bank requires a certain level of trust in the financial institution (Guiso et al., 2008). Trusting a particular financial institution for instance, can be considered as a pre-stage of investment. Guiso et al. (2008) provide empirical evidence that trusting individuals are more likely to participate in the financial market, tend to buy stocks or risky assets and invest a larger share of their wealth in them. Trust in this context is defined as the subjective probability individuals attribute to the possibility of being cheated. This subjective probability is partly based on objective characteristics of the financial system such as the institutional quality or the legal system, that determine the likelihood of frauds but also on the subjective characteristics of the person trusting (Guiso et al., 2008).

This paper extends the theory of trust and financial market participation by studying trust of potential investors in an emerging economy. In doing so, we investigate the individual and subjective trust a potential investor has in different financial institutions in India. With a population over one billion and a large pool of potential investors, India's financial market offers a strong development potential.

We analyze empirically the effect of the *"individual possibility of access"* to a financial institution on *"trusting"* this institution with money, where we distinguish between common banks like Indian national banks and cooperative banks, and financial institutions that are targeted to offer micro finance services in rural and low-income areas. Thereby we distinguish between cooperative societies and group savings.[2] In order to test our hypotheses, we use the National Data Survey on Saving Patterns of Indians (NDSSP) conducted at the request of the Ministry of Finance of India in 2004/2005. This data contains detailed information about the households' location, income, information sources used, knowledge and its subjective perception of trust in different financial institutions in India. We measure access by the question *"Do you have access within a commutable distance of one day to the following financial institutions?"*

Our results show, that respondents who state having access to a financial institution, are more likely to trust the corresponding financial institution with their money, than

[2]As cooperative societies and group savings are targeted to low-income households and people living in rural areas and are further, mainly focused on offering micro financial services, we label them as MFI's.

those who don't. This effect is strong and significant although we control for the number of banks per state where the respondent lives. The results point further to the evidence that there is a difference between the *number of banks* and an *individuals' financial access* which may explain the individual level of trust in a financial institution to some extend. Having access within a commutable distance of one day to a cooperative bank, for instance, is related to a 15 percentage points higher probability to trust this financial institution with money (measured on its sample mean).

Moreover, our results support the evidence of trust as a subjective perception of the investor and add thereby new insights to the existing literature on trust and financial market participation (Guiso et al., 2008). In particular, we show that the positive effect of access on trust holds for different financial institutions, such as national banks and cooperative banks which are very common and those institutions that are less wide spread like cooperative societies and group savings.

These results are robust even if we control for differences in income, knowledge, risk aversion and other determinants that might influence trust. Moreover, we control for the average trust level in other financial institutions. To avoid potential endogeneity issues, we use a sample of *non-investors*, which are households who possess positive savings to invest but do not have a bank account. Furthermore, by investigating trust in financial institutions of *non-investors* who possess a positive savings potential, we ascertain that the subjective perception of access to a financial institution is not a proxy for income or other determinants related to wealth. Our results show that households in India which possess positive savings to invest, do not necessarily live close to financial institutions. This indicates, that our measure of access employed, is not just reflecting the information advantage the investor has because he or she lives close to the investment (Van Nieuwerburgh and Veldkamp, 2009).

In our econometric analysis, we consider respondents who are able to give a clear statement whether they would trust a particular financial institution or not. Second, we investigate the effect of access on trust in different financial institutions. In addition, we control for the respondents financial knowledge by asking whether the respondent knows

about the current rate of inflation as well as risk behavior. We also account for the fact that information about financial matters might be provided via social interaction (Hong et al., 2004; Bönte and Filipiak, 2012) by considering who talks to whom before making an investment. Further, we take into account the frequency of mass media sources in use, since both might bridge geographical distances (Bogan, 2008).

Moreover, one might argue that financial institutions choose their location where financial literacy and the investment potential of households are high. We consider this by controlling for the number of banks per state, obtained from official data from the Reserve Bank of India (RBI). However, 33 percent of our sample respondents (who possess savings to invest) state that they do not have access e.g. to a national bank although, the total number of national banks is the highest compared to other banks. Households who live close to financial institutions might benefit from lower transaction costs compared to those who live further away, which is widely acknowledged in the literature analyzing investment behavior and participation costs. If fixed participation costs are high, the investor might seek for an alternative investment at lower costs (Vissing-Jorgensen, 2003; Haliassos and Bertaut, 1995; Armendariz and Morduch, 2005). However, empirical studies show that also wealthy households do often not participate in the financial market which would indicate that entry costs are that high that even potential investors are not willing to invest. Since, this explanation is rather unlikely, low levels of participation can be explained by low levels of trust the potential investor has in financial institutions (Guiso et al., 2008).

Therefore, our approach is related to the recent trust-based explanation of limited stock market participation by Guiso et al. (2008). They show, by introducing trust in a fixed cost of participation model, that investing in stocks becomes less attractive as fixed costs are increasing and that the level of trust required to participate is higher in this case.

However, by using a subjective measure of trust, we add new insights to the empirical findings of Guiso et al. (2008) who employ a general measure of trust. Furthermore, our study contributes to the existing literature by providing new insights on the topic of fi-

nancial market participation in an emerging economy whereas most studies are analyzing investors trust and financial market participation in developed countries (Guiso et al., 2008, 2004). In doing so, we show that access has via trust an indirect effect and that access is particularly important for poorer individuals in order to establish trust. Employing a very precise measure of access we are able to investigate the impact of the *individual possibility of access*, whereas most studies use the geographical distance of households in meters or miles in order to measure access (Honohan, 2008; Beck and Demirgüc-Kunt, 2008; Burgess and Pande, 2005). These studies do not consider the impact of individual financial access of households on indicators that might determine financial market participation. Moreover studies investigating financial access in low-income countries are rather focused on credit access for poor individuals (Honohan, 2008; Demirgüc-Kunt et al., 2007; Banerjee and Duflo, 2011), whereas access to financial institutions rather remained unconsidered for households with positive incomes and those with investment potential. Though, it is also important to know about the reasons of non-participation of potential investors.

Adding knowledge about the effects of financial access at the individual household level helps to answer the relevant question how policy may enhance trust in financial institutions among the general population in developing countries in order to increase financial market participation.

This paper proceeds as follows. The next section discusses the conceptual framework and derives hypotheses. Section 3 describes the data source and the measurement of variables. Descriptive statistics and the results of the econometric analyses are presented in Section 4. Section 5 provides a discussion and concludes.

2 Financial Access and Trust: Conceptual Framework

The economic decision to make an investment requires a certain level of trust in the financial institution and each individuals' perception of trust might be different. This section starts to explain the relevance of trust on financial market participation, how

trust in a financial institution is rather subjective and discusses to which extend the possibility of access to a financial institution is relevant for trust, in the context of the Indian financial market. It concludes with hypotheses about the effects of financial access on trust in different types of financial institutions in India.

2.1 *Household Trust and Financial Market Participation*

A households' decision to invest money at a bank or at an other financial institution is a faithful decision under the risk that the customer might be limited in the further disposal of his money or that the money vanishes. Hence, such an action needs a certain level of trust that this financial institution is reliable and fair. In particular, it is found that a higher level of trust has a positive impact on transactions between consumers and banks (Guiso et al., 2008; Zak and Knack, 2001; Dearmon and Grier, 2009). Gambetta (1988, p. 216), defines trust as *"[...] the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action that is beneficial or at least not detrimental to consider engaging in some form of cooperation with him."*

Thus, in determining whether to make an investment, the individual has to assess the true distribution of returns and the possibility of loosing the invested amount when the bank cheats (Guiso et al., 2008). To portray the effects of trust on stock market participation Guiso et al. (2008) show in their theoretical model why a large fraction of individuals does not invest in the stock market and that a lack of trust amplifies the effect of costly participation. They define trust as the subjective probability individuals attribute to the possibility of being cheated and state, that trust is partly based on objective characteristics of the financial system but also reflects the subjective characteristics of the person trusting (Guiso et al., 2008).

Hence, the investor tries to assess the subjective probability that a negative event might occur and its complementary probability which is the level of trust the investor has in a risky investment. Moreover, there is a threshold of this probability of loss occurring, above which an individual decides not to invest because, the costs of losing the whole investment exceed the benefits of investing. If the investor has to allocate

his wealth among a safe asset with a certain return and a risky asset with an uncertain return, the investor will decide to invest in the riskier one only if his trust is high enough. Then, the expected marginal utility of investing an extra dollar in the risky asset and getting an excess return under the probability that cheating occurs, outweighs the costs of loosing all the investment. However, banks as well as other financial institutions can be considered as intermediaries whom to trust that the money is safely invested. The better the investor is able to assess the true distribution of returns of the investment at a bank or any other financial institution by observing the bank or the bank advisor, the more he will be willing to trust (the subjective probability that the investor gets cheated decreases and thereby the threshold level above which no investment occurs goes down as well).

On the other hand, the threshold value of investing rises with higher fixed costs because the level of trust required to participate increases as it corresponds to the higher participation costs. Therefore, an individual needs a higher level of trust for an investment that is associated with fixed costs (Guiso et al., 2008).

Using data from the Dutch National Bank (DNB) household survey, Guiso et al. (2008) find that trusting individuals are more likely to buy risky assets, and conditional on investing they invest a larger share in them. The measure of trust employed in their empirical analyses is a general measure of trust, where the potential investor was asked whether he or she would say that most people can be trusted, or that one has to be very careful in dealing with people. To account for the subjective level of trust, which is indeed hard to measure, Guiso et al. (2008) additionally employ a customer survey of a large Italian bank, where people were asked about their confidence in their bank advisor. Again their results suggest that trust has a large and strong effect on stock market participation and hold when using a large number of controls, e.g. legal protection and law enforcement.

However, by using a general measure of trust, Guiso et al. (2008) do not account for their theoretical explanation that trust is rather subjective. Although, an individual states that most people can be trusted, his or her subjective trust in a financial institution

might be different. Moreover, the objective characteristics of the financial system might lead to a variation in trust among different investments or financial institutions. In addition, their measure of subjective trust hast to be considered with caution, since the *customers* of a bank where interviewed. Results might be biased because of potential endogeneity issues that trust results from prior experiences with this bank and might differ if asking non-customers.

After all, their results do not allow them to discriminate between effects resulting from previous investment experiences and effects of individuals who never invested in this bank. Hence, it remains unclear whether trust results from past experiences or whether it is driven by other factors.

2.2 *On the Link Between Access and Trust*

In order to get an estimate of the true distribution of the payoffs of a planned investment, the investor has to observe the counterpart, e.g. the bank or the bank advisor. Following the practices of a bank a potential investor gets an idea about the reliability and fairness of the institution (Guiso et al., 2008; Huberman, 2001).

Hence, if the financial institution is not observable, the investor might stay away from the investment because his mistrust will be high (Guiso et al., 2008). Existing studies show that investors who are located close to their investment, tend to buy and hold the shares of companies, instead of taking advantage of their superior information and selling them when it seems appropriate and point thereby, to the relevance of geographic proximity for establishing trust (Huberman, 2001). Although, larger distances can be bridged by modern communication technologies like the Internet, direct contact via face to face or word-of-mouth communication still positively affects the level of trust in the counterpart with whom we make any sort of cooperation (Chhaochharia et al., 2012; Ivkovic and Weisbenner, 2005). One might therefore suggest that trust is more easily developed between geographically proximate agents (Bachman and Lane, 1996; Zaheer et al., 1998; Bönte, 2008).

There may be two effects on trust when a financial institution is not accessible. First, the investors' subjective probability that a bad outcome might occur is increased, be-

cause the true distribution of payoffs is not observable. In addition to that, overcoming large distances to reach the financial institution is related to additional costs of participation and thus, more trust is required to motivate the investment decision. Both effects can be seen as being interrelated and decrease the expected utility of financial market participation (Guiso et al., 2008).

In an emerging economy like India, households frequently do not have access to financial services and mistrust in the financial system is often deeply rooted. Therefore, household access to a financial institution might be an important determinant in order to establishing trust and participating in the financial market.

2.3 *Access to Financial Institutions in India*

A first factor, that has to be considered in investigating access to financial institutions is the development of the home market. Over the last years, many governments in developing economies promoted the expansion of financial branches to the so called priority sectors as a target of financial inclusion. In India, for example, between the years 1970 and 1990, a new bank branch was allowed to open in a location that already had a bank branch only if it opened four in locations with no branches. This was the first attempt to improve the access of households living in rural areas to cheap formal credits and financial services (Demirgüc-Kunt et al., 2007; Burgess and Pande, 2005).

Moreover, due to the liberalization of the Indian financial market at the beginning of the 1990s, investment opportunities for people in India have increased remarkably. Many banks and financial institutions provide various financial services for people in India. In addition to financial institutions that exist over a long time like the Indian national bank or the Indian cooperative bank, also many private banks and micro finance institutions (MFI's) came up to cover financial needs of Indian households. However, although the number of financial branches has increased the demand for financial services in India is still low (Basu, 2006). This might point to other determinants that hinder an individual form participating in the financial market. One might argue for instance, that the increased number of bank branches does not simultaneously indicate the availability of individual access to banks and other financial institutions. In emerging economies,

however, regions are vast and public transportation often underdeveloped what might hamper the possibility of access to a financial institution (Honohan, 2008). Nevertheless, access is not automatically given because of a large number of existing bank branches but also arises from individual characteristics e.g. mobility or health. Two individuals who live in the same geographical distance to a financial institution, might differ in their initial situation and thus, in their possibility to reach the bank.

Further, individuals might face different costs when they differ in their objective characteristics. Participation costs are increasing the more difficult it is to reach the bank branch or an other financial institution depending on the individual situation of the investor. Thus, such costs are negatively related to the investment decision and might reduce the incentive to invest when they are too high (Vissing-Jorgensen, 2003; Haliassos and Bertaut, 1995; Hong et al., 2004).

Moreover, studies dealing with financial market development and the expansion of banks and financial institutions, point to the relevance of reliability of the formal financial system in order to increase financial market participation (Demirgüc-Kunt et al., 2007). Most of them mention the importance of a stable macro-economic framework in which potential consumers of financial services are motivated to open savings accounts, make investments or take loans (Honohan, 2008; Levine and Zervos, 1998). Financial access enables the investor to observe the institution and to get an idea about the distribution of payoffs before he decides to invest. Thus, an investor can assess whether the financial institution is reliable and fair. If non-participation can be explained by mistrust in the institution the investor will participate if the subjective level of trust outweighs the cost the investor is faced with (Guiso et al., 2008). Therefore, access to a financial institution might influence the investment decision rather indirectly via other determinants like trust.

The existing cross-country literature turns out the impact of financial expansion on macro-indicators like poverty reduction and economic growth (Honohan, 2008; Demirgüc-Kunt et al., 2007; Banerjee and Duflo, 2011). In doing so, they employ data about the number of banks per person (Burgess and Pande, 2005), or use the geographical distance of households in meters or miles in order to measure access (Honohan, 2008). However,

in addition to the existing literature, knowing about the individual situation of financial access seems to be relevant as well. In particular, because insights into the individuals' subjective situation to reach financial institutions is scarce.

All in all, an individuals trust can be seen as a being subjective, depending on the individual situation and on objective characteristics of the financial system. Although, the number of bank branches has increased a potential investor might not have access to a financial institution. The possibility of access varies among individuals and for different types of financial institutions. Someone who has access to a financial institution can observe and evaluate its fairness and reliability. Therefore, access might shape the individual trust level in different types of financial institutions. Since individual trust can be considered as a pre-stage of investment, increasing the trust level to motivate financial market participation among individuals in emerging economies is important. This discussion leads to the following hypotheses.

First, we argue that the likelihood to trust a financial institution is lower when an individual has no available access to this financial institution. Second, the positive relationship between reaching a financial institution and trusting it holds for different types of financial institutions. Third, access is more relevant for poorer individuals in order to establish trust. Fourth, we expect that an investors' trust varies for different financial institutions because of differences in financial access.

3 Data and Descriptive Statistics

3.1 The Sample

The dataset used in this paper is the National Data Survey on Saving Patterns of Indians (NDSSP), which was conducted by AC Nielsen/Org-Marg on behalf of the Indian Ministry of Finance in 2004/2005 in India. The NDSSP was conducted in order to investigate the determinants of household savings behavior in India. The sample contains detailed information about economic, social and sociocultural indicators of the respondent, that might be particularly important investigating savings and investment behavior of house-

holds in a developing economy like India. Moreover, the survey provides rich information about the individuals' financial attitude and knowledge and allows us to capture the differences in risk aversion using a lottery question (see also Bönte and Filipiak (2012)).

In addition to information about the location of the respondent (urban or rural) the data provides information about the respondents possibility of access to different financial institutions. However, individuals who live in states which are characterized by a high number of banks might have better access compared to individuals living in states with a low bank penetration. In order to consider this, we use official data from the Reserve Bank of India (RBI) about the number of bank branches at the state level. Information about the GDP per state is also obtained from the RBI data base. The NDSSP dataset allows moreover, for analyzing household trust in different financial institutions very precisely.

The dataset covers 40,862 families and about 211,000 individuals in India. In order to avoid potential endogeneity issues resulting from prior investment experiences and to investigate the determinants of trust of *potential investors*, the empirical analyses are based on a sample of respondents who do not have a savings account at present as well as within the past twelve months. Finally, we consider only those individuals who possess a positive savings balance, which means that annual income exceeds their personal annual expenses. The final sample consist therefore, of 7.310 observations.[3]

3.2 Measurement of Variables

3.2.1 Dependent Variables

An investor has a certain average trust level, let us say he or she is trustful in general but beyond that, the investors trust in different financial institutions might vary. This variation, or subjective trust in one particular financial institution is measured in the questionnaire as follows. The respondent was asked: *"What is your overall degree of confidence with the following financial institution?"* In order to investigate the drivers of trust in financial institutions, we choose institutions that differ from each other. On the one hand, banks are considered that are common and wide spread, such as national

[3]The head of household in India is the one who maintains the family, in our final sample 5,396 men and 1,914 women between 17 and 92 years are head of household.

and cooperative banks. On the other hand, we analyze household trust in cooperative societies and group savings which promote micro financial services.[4]

The respondent could choose between five possible answers ranking from one to five, being: *1. Yes, I would definitely trust them with my money, 2. I might trust them with my money, 3. I would not like to trust them with my money, 4. I would definitely not trust them with my money, and 5. Don't know about this type of institution.* Each dummy takes on the value one if the respondent opts for the first and second answer, and becomes zero otherwise. Respondents who state that they do not know about the respective financial institution are excluded. Moreover, trust might be influenced by a variety of determinants. Therefore, we make use of a substantial number of controls.

3.2.2 Explanatory Variables

In developing economies like India, regions are vast and it is often difficult for individuals to overcome larger distances. Although, the number of bank branches has increased, physical access to financial institutions is not possible for everyone.

The respondent was asked for the four different financial institutions being national banks, cooperative banks, cooperative societies and group savings: *"Do you have access within a commutable distance of one day to this institution?"* Our access variable takes on the value one if the respondent answers with *yes* and is zero otherwise. We use this question considering four aforementioned financial institutions, which are also employed for our trust variables.

Furthermore, we know if the respondent lives in a rural or urban area. To make sure, that the *"individual possibility of access"* is captured, we use as an additional variable the *number of banks at the state-level* in 2004 - 2005[5] and in order to control for further regional characteristics we take into account the *Gross Domestic Product* per capita at the state level *"GDP"*. [6]

We try to ascertain as good as possible that trust as it is used as dependent variable

[4]Group savings are mostly used by the so called Self Help Groups (SHGs) and promoted by government agencies, NGO's and banks

[5]The number of banks per Indian state level takes all bank types into account. Thus, there might be an over representation of national as well as cooperative banks.

[6]The official data is obtained from the Reserve Bank of India in the year 2004 - 2005.

in our econometric model, reflects the investors subjective trust in the corresponding financial institution. In doing so, we control for the *average trust* a potential investor has. We compute the mean value of trust which the respondent has in different financial institutions, leaving out the financial institution considered as dependent variable and use it as additional regressor in our analysis.[7]

Many studies provide empirical evidence that the availability of information might affect trust positively (Guiso et al., 2008; James, 2002; Dearmon and Grier, 2009). It is true, that geographical distances can be bridged by information provided and thereby, reduce information and transaction costs (Bogan, 2008). Further, information can diffuse via word-of-mouth communication and through social interaction or the use of modern communication technologies. Hence, it is important to control for channels through which financial knowledge can be provided e.g. TV, radio, newspaper or the Internet. The NDSSP dataset comprises information about individuals' use of *information channels* and its frequency of use. The respondent was asked whether he or she uses these information sources during the last month *not at all*, *irregular*, which means a usage of once a week or less, or *regularly* which means that the respondent uses these information channels every day. The reference category are those respondents who state that they do not use these channels at all. Moreover, we take into account information flows via *social interaction* and face to face contact with the *family*, *friends* or *professionals* before making a savings decision.

The NDSSP dataset comprises information about the individuals' level of education where the respondent can choose between twelve possible *education levels* from *illiterate* to *postgraduate and above*. For eleven education levels dummy variables are generated with the reference category *illiterate*. In India, information are not only provided in the local language but often also in English. Therefore, we use the dummy variable *English* that takes on the value one if the respondent declares that he is able to speak, read and write English, and is zero otherwise. Furthermore, the respondents general economic interest is considered by the variable *knowledge of inflation*. This dummy takes on the

[7]The variable "average trust" is the mean of the respondents trust in: national bank, rural bank, foreign bank, private bank, cooperative bank, cooperative society, group savings

value one if the interviewee states that he knows what the current value of inflation is. Unfortunately, it is not possible to check for the validity of this statement, therefore this dummy has to be considered with caution.

One might expect, for instance, that trust in financial institutions and the individuals' *attitude towards risk* are somehow interrelated. Guiso et al. (2008) find that there is no direct link and that trust is not a proxy for low risk aversion. Nevertheless, an individual with a high risk aversion might have higher costs of participating in the financial market than someone who is risk seeking and this in turn is related to a higher level of trust needed for making an investment. Therefore we control for the respondents attitude towards risk using a risk-lottery-question. The interviewee has to make a hypothetical investment of 1000 Rupees (RS) and can choose between three alternatives. In the first choice RS 1000 may grow up to RS 2000 after one year or the investor may get only 500 back. In the second choice the money may grow up to (RS) 1200 or the investor may lose some of the money and get RS 800 back. In the third choice money will only grow up to RS 1050 but without any loss. The dummy variable *risk attitude* takes on the value one if the respondent opts for the third choice, and is zero otherwise. Finally, personal characteristics like age, gender and marital status are used as further control variables.

3.3 Descriptive Statistics

Individuals might have access to only one financial institution, to more than one financial institution or no access at all. In order to show that some financial institutions are more often accessible than others, the percentaged shares of households who state having access to the corresponding financial institution are presented in Figure 1. The figure shows that national banks are among the financial institutions considered the most frequently available, followed by cooperative banks. However, merely 30 percent of the respondents state having access to cooperative societies and only 20 percent to group savings. Whereas the latter are rather targeted to people with no or very low incomes. Cooperative societies are also offering financial services to farmers and people living in rural areas.

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insert Figure 1 about here

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Furthermore, individuals might trust one financial institution more than an other one with their money. Table 1 shows that individuals who have access to a financial institution say more often that they would trust this institution with their money than individuals without available access. However, almost all respondents state that they would trust a national bank with their money, and the differences among those who have access to this financial institution and those who don't are very low. 86 percent of the respondents who have access to a cooperative bank would trust this bank whereas only 50 percent of the respondents without access to this bank state that they would trust it with their money. Differences in trust are increasing for cooperative societies and group savings among those who have access and those who don't.

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insert Table 1 about here

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This moreover points to a possible variation in trust the investor has for different financial institutions that might be partly explained by access. However, although not reported here, we make use of a χ^2-test of proportions to test for differences in trust among the considered financial institutions. In doing so, we find that the variation in trust among banks is low compared to cooperative societies and group savings but significant. The largest differences in trust arises when comparing banks to financial institutions offering micro finace services. Individuals tend to trust banks more often than cooperative societies or group savings.

Further, one might argue that people with higher incomes might live closer to a bank branch or have better possibilities of access to a financial institution and that access is therefore somehow related to wealth. Although we consider respondents who have a positive savings potential to invest individuals differ in their wealth. Some individuals might have only a small amount of savings left or in contrast may be very wealthy. In order to investigate these differences we divide our sample of non-investors into wealth

quartiles. Table 2 reports means and standard deviations for group differences in trust between individuals who have access to a national bank, cooperative bank, cooperative society and group savings, and those who do not.

Instead of income, we consider the amount the respondent is able to save after computing annual income minus expenditures. Thus, we take into account the investment potential of the respondent. First, those respondents are considered, who belong to the first quartile with less than RS 500 (Quartile (I)). Then, respondents in the second quartile who possess between RS 500 and RS 1500 (Quartile (II)). The third subsample shows means and standard deviations for respondents whose investment potential lies in the third quartile (RS 1500 and RS 5000), (Quartile (III)). The last quartile considers respondents who belong to the top 25 percent in wealth with more than RS 5000 left as savings potential (Quartile (IV)). A χ^2 test of proportions is employed, testing for group differences in trust for different financial institutions. As can be seen from the table, differences between individuals who have access to a financial institution and those who don't remain significant for all four wealth quartiles considered but are decreasing with higher wealth. In the first sample for instance (Quartile (I)), the fraction of individuals saying that they would trust a national bank is 99.4 percent for those who have access to this bank and 92 percent for those without access within a commutable distance of one day. The fraction of individuals trusting a cooperative bank is 86 percent for those who have access to this financial institution and 44 percent for those who don't. With respect to cooperative societies and group savings, the fraction of individuals who state that they would trust these institutions when having access is remarkably lower compared to banks. However, remarkable differences appear when considering individuals with different income levels. People who possess higher wealth tend to trust a financial institution more often even if access is not available. Furthermore, access seems to be particularly relevant for poorer individuals in order to establish trust. For instance, the fraction of individuals who state that they trust a cooperative society is 61.5 percent for those who have access to this financial institution and 40 percent for those who don't. With respect to group savings the fraction of individuals who state that they would trust

this institution is 74 percent, for those who have access and merely 6 percent for those who don't (Quartile (I)).

Nevertheless, with respect to all four financial institutions considered, the share of individuals who state that they would trust the financial institution with their money is higher when access is available.

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insert Table 2 about here

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In our empirical analysis we make use of a substantial number of explanatory variables. Summary statistics for all explanatory variables are reported in Table 3. Continuous variables are denoted with an asterisk and income as well as GDP are given in thousand RS. As can be seen from the table, most respondents have access to national banks and cooperative banks. Among the information sources used, the regular use of radio and TV is the most frequent. About 56 percent of the respondents state that they use these information sources daily. Only about 26 percent are using the Internet and newspaper in a daily frequency. Furthermore, almost 80 percent of both groups consult their family before making a savings decision. Only a very small fraction of the respondents state that they consult professionals.

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insert Table 3 about here

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Moreover, we control for a variety of further personal characteristics like age, gender, marital status, risk aversion and employment status.

Since we make use of a number of explanatory variables, multicollinearity might be an issue. Although not reported here, we calculate pairwise correlation coefficients for all explanatory variables. The strongest correlation arises among variables indicating the use of mass media sources. The correlation coefficient of the regular use of radio and TV and the regular use of newspaper and the Internet is 0.379. Further variables with a modest correlation are education variables and the knowledge of the English language

varying from -0.046 to 0.339. Furthermore, we check for multicollinearity among the explanatory variables by calculating variation inflation factors (VIF). These are reported in Table 4. The variation inflation factors range from 1.02 to 2.50, which indicates that multicollinearity is not a severe problem (O'Brian, 2007).

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insert Table 4 about here

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Taken together, descriptive statistics indicate that access to different types of financial institutions differs in India. Whereas banks, particularly national banks are accessible for most people, cooperative societies and group savings are not available for many individuals. Moreover, individuals tend to differ in their trust when considering different types of financial institutions and this variation in trust might be partly ascribed to differences in access. However, in a developing country like India differences in income and wealth are still very strong. Our descriptive statistics show that people who possess higher wealth tend to trust a financial institution more often even if access is not available whereas access to a financial institution seems to be particularly important for poorer individuals in order to establish trust.

4 Determinants of Individual Trust in Financial Institutions

In order to investigate the determinants of household trust in different financial institutions, in particular the effect of access, we conduct separate probit regressions for trust in each financial institution: national bank, cooperative bank, cooperative society and group savings where we distinguish between banks and financial institutions offering micro financial services for comparison. To consider possible endogeneity issues resulting from recent investment experience, the sample consist of individuals who do not have a savings account. Further, we take into account that trust in a financial institution, might

be a subject for those households who possess savings to invest.

Information about the determinants influencing household trust in a financial institution are important to motivate investment activities of private households and potential investors particularly in emerging economies where household demand for financial services is still low.

Our dependent variables are restricted to those households who clearly state whether they would trust a financial institution with their money or not. Thus those respondents who state that they *"don't know"* whether they would trust a financial institution are excluded from the further analysis. However, *"don't know"* responses are common in many surveys to capture ambivalences of the respondent, to clear cut decisions between *"yes"* and *"no"* and to capture respondents who possibly would not answer at all (Liao, 1995). Furthermore, *"don't know"* answers can be non-randomly selected according to certain geographic and socioeconomic characteristics of the respondent (Liao, 1995). In order to analyze the effect of financial access on household trust in different financial institutions, the two-step Heckman-type selection correction method is used and the marginal effects at means are reported. This allows further, for considering ambivalences in trust, which might be important as well when investigating the determinants of trusting a financial institution.

4.1 Econometric Specification

To trust a financial institution with money can be considered as a pre-stage of investment. In the same way, there might be households who are ambivalent about whether to trust a financial institution or not. Treating "don't know" answers as missing data or exclude them from the analysis would lead to a loss of important information. One might further expect, that those households who are not able to give a clear statement towards trust are also those without available access to the financial institution, and therefore the sample would be nonrandom. Moreover, respondents might give a closed answer with respect to trust with "yes" or "no", even if they are rather ambivalent, because they feel bound to some unobserved reasons to give a clear statement and thus, they appear in the

outcome sample.

In order to take this sample selection problem into account, and to correct for its bias, the two-step Heckman-type selection model is employed and the effect of *financial access* on the *individuals trust* in different financial institution is analyzed. Since a households' possibility to reach different financial institutions might vary we run four different probit regressions where we distinguish between two bank types and two types of financial institutions that offer micro financial services. For instance, in the first regression the effect of *access* to a national bank on trusting a national bank is analyzed. We proceed in the same manner to investigate the determinants of trust in *cooperative banks*, *cooperative societies* and trust in *group savings*. The two-step Heckman procedure is preferred over the more direct Maximum Likelihood (ML) method, because the former is less sensitive to inconsistency (Greene, 2008). In the first step the following selection equation is estimated:[8]

$$KnowledgeTrust_i = \Phi\left(\alpha_1 + \beta_1 I_i + \gamma_1 Bankaccess_i + \gamma_2 x_{i2} + \gamma_3 x_{i3} + ... + \gamma_p x_{ip}\right) \quad (1)$$

$KnowledgeTrust_i$ takes on the value one, if the respondents answers either "yes" or "no" to the question: *Would you trust this financial institution with your money?* and is zero for *"don't know"* responses. I is an additional variable in the selection equation to enhance identification of the model. The variable $Bankaccess$ is among the explanatory variables $x_1 - x_p$ our variable of interest. This selection equation is estimated for each corresponding outcome equation separately, as we consider trust in four different financial institutions.

In the second step, we estimate the probability to trust a financial institution with money where we investigate trust in national banks, trust in cooperative banks, trust in cooperative societies and trust in group savings. In each regression the financial access variable is so chosen that it fits the corresponding financial institution analyzed.

[8]The first stage Heckman-type regression, is repeated for each financial institution, with the financial institution corresponding financial access dummy. The inverse mills ratio (IMR) is then included as a regressor in the corresponding second stage Heckman-type equation. In the first and in the second stage the econometric model employed is the probit model.

$$TrustFI_i = \Phi\left(a_1 + c_1 Bankaccess_i + c_2 x_{i2} + c_3 x_{i3} + ... + c_p x_{ip} + d_1 IMR_i\right) \qquad (2)$$

Bankaccess is a dummy variable that denotes whether a household has access within a commutable distance of one day to the corresponding financial institution or not. Our control variables are $x_1 - x_p$ and IMR denotes the Inverse Mills Ratio. Under normality, the IMR is proportional to the hazard rates and depends only on the known parameters of equation (1) with $IMR\left(\eta\right) = \phi\left(\eta\right)/1 - \Phi\left(\eta\right)$ an (η) reflecting all explanatory variables considered in our selection equation.[9] As long as the model is correctly specified, this allows us to analyze the consistent and asymptotically efficient estimates for the probability to trust a particular financial institution with money (Greene, 2008; Hussinger, 2008).

The variable that defines the exclusion restriction denotes whether a respondent belongs to a scheduled caste or scheduled tribe the so called *backward castes*. This variable can be considered as exogenous, since caste affiliation is given at birth and cannot be changed over lifetime. In India strong intra-caste externalities still persist and seem to influence the investment decision rather indirectly. Empirical studies show that backward castes are less aware of different financial products in India. Moreover, individuals belonging to a backward caste mainly interact with family members or friends who belong to the same caste and because of these intra-caste interactions it is less likely that they improve their financial literacy. However, differences in investment behavior among backward castes and other individuals seem to disappear once backward castes have achieved a certain level of financial knowledge about financial instruments (Bönte and Filipiak, 2012).

However, similar can be expected with respect to trust financial institutions. Individuals who are affiliated to a backward caste are more likely to give a don't know response because of their low level of financial literacy. These individuals might not know whether a financial institution is located in a reachable distance or do not even know about a

[9] $\phi(.)$ denotes the density function and$\Phi(.)$ the cumulative distribution function of the standard normal distribution $N(0,1)$ see (Greene, 2008).

particular financial institution at all. Once backward castes have knowledge and are able to give a non ambivalent answer they do not significantly differ from other individuals belonging to other castes in their level of trust. Therefore, being affiliated to backward castes might affect the selection, whether an observation makes it into the sample or not, but not the outcome.

In addition to backward caste individuals, also females in India are relatively uninformed about investment opportunities (Field et al., 2010). Therefore we assume that similarities between backward castes and female household heads exist, particularly because females in India also tend to visit other females than men. Moreover, recent studies show that females behave more honestly and obey the social norms more than men. One might therefore suggest that females answer more often honestly with *don't know* than men (Pruckner and Rupert, 2008). Although a man is rather ambivalent, he favors to give a clear answer with "yes" or "no" over a "don't know response". Whereas in the second stage when responses are clear cut, these differences disappear. That is why we employ female as a second additional regressor in the Heckman-type selection equation.

One might suggest for instance, that females or individuals who belong to a backward caste differ in their overall level of trust. Controlling for the average trust level in other financial institutions, risk behavior, social interaction, regional characteristics of the state where the respondent lives and a variety of other factors, both variables are not significantly affecting trust in our empirical analysis but do determine whether a respondent makes it into the sample or not.

4.2 Results

Table 5 and Table 6 report the selection equations. The variable that defines the exclusion restriction is *backward caste*.[10] Being affiliated to a backward caste is negatively related to give a clear answer with "yes" or "no" in whether to trust or not, in three of four considered financial institutions. Thus, individuals belonging to backward castes are more likely to give a don't know response. For instance, being affiliated to a backward caste

[10]Female is included as additional regressor in the selection equations for "national bank", "cooperative bank" and "cooperative society", in the selection equation "group savings" only the dummy variable backward caste is employed, because female shows a significant effect on trust in group savings

in India is associated with a 3.8 percentage points lower probability to answer with don't know whether to trust in group savings or not. This is of particular interest, because other empirical studies show that individuals who are affiliated to backward caste are more likely to invest in group savings than other individuals (Bönte and Filipiak, 2012).

Females have a 3.7 percentage points higher probability to give a don't know response for trusting national banks compared to men. Similar can be seen for cooperative banks and cooperative societies.

Furthermore, it is an interesting result, that the effects of *access* are rather small. In contrast the effects of *knowledge of access*, meaning that a household is aware of the location of the corresponding financial institution are large and significant for all four dependent variables. Households who state having access to a cooperative bank for instance, have a 6 percentage points higher probability to answer clearly with "yes" or "no" in terms of trusting this bank. In contrast, knowing about the availability of a cooperative bank is associated with a 36 percentage points lower probability to give a don't know response. Similar can be seen for all four probit regressions. This indicates that a respondent has to be aware of the location of a financial institution before he or she decides whether to trust it or not.

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insert Table 5 about here

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insert Table 6 about here

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4.2.1 Determinants of Trust in Banks

Table 7 reports the estimation results on the determinants that an individual would trust a national bank and a cooperative bank with his money. The first row shows the results corrected for possible sample selection, the second row shows probit results without correction and the third row reports the marginal effects at means computed after probit regression. As can be seen from Table 7 results from the two-step Heckman

procedure and probit estimations hardly differ.

The table shows that respondents who state having access to national banks and cooperative banks are more likely to trust these financial institutions with their money. Having access to a national bank is associated with a 1 percentage point higher probability to trust this financial institution. Respondents who have access to cooperative banks have a 15 percentage points higher probability to trust this bank with their money. Although, controlling for the average trust level of the respondent in other financial institutions, access has a positive and significant effect on trusting a national and a cooperative bank.

The variable *average trust* is also positive and significant, which indicates that those respondents who have a higher level of average trust in other financial institutions have a 0.3 percentage points higher probability to trust in national banks and a 13 percentage points higher probability to trust in cooperative societies. Whereas living in a region with a high GDP per state or in a region where the number of financial institutions is high, is associated with a lower probability to trust a national bank. However, these two explanatory variables are not significant for trusting a cooperative bank.

The use of *information sources* like the Internet or TV does not show a significant effect on trust in national banks. Merely the irregular use of newspaper and Internet is associated with a 3 percentage points lower probability to trust in a cooperative bank. However, national banks and cooperative banks are wide spread and common in India so that the additional effect of information diffusion via information sources might rather be subtle.

Furthermore, individuals who *consult professionals* like the bank advisor, are more likely to trust a national bank as well as a cooperative bank with their money.

Among the personal characteristics, results differ slightly between the two financial institutions. Income is negatively related to trust a national bank, whereas it does not show a significant effect on trusting a cooperative bank. Further, respondents who work as employees have a lower probability of 0.2 percentage points to trust a national bank, but a 2.2 percentage points higher probability to trust a cooperative banks.

Moreover, respondents who tend to be risk averse have a 0.5 percentage points higher

probability to trust a national bank and a 3 percentage points higher probability to trust cooperative banks, whereas the latter is only significant at the 10 percent level. The coefficients of the inverse mills ratios (IMRs) in Table 7 are insignificant for both regressions, indicating the absence of a selection problem.

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insert Table 7 about here

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4.2.2 Determinants of Trust in FI's

Table 8 reports the estimation results on the determinants that a household would trust a cooperative society and group savings with his money. Both financial institutions offer micro financial services and are primarily targeted to households with low incomes and individuals living in rural areas. This allows us to investigate the relevance of access on trust in other types of financial institutions.

The table shows that individuals who have access to a cooperative society or to group savings within a commutable distance of one day, are more likely to trust these financial institutions with their money. Respondents with access to a cooperative society have a 20 percentage points higher probability to trust this financial institution and those who state having access to group savings have even a 43 percentage points higher probability to trust group savings.

A higher level of *average trust* is associated with a 20 percentage points higher probability to trust in a cooperative society but with a 0.5 percentage points lower probability to trust in group savings.

Since cooperative societies and group savings are targeted to households living in rural areas in India, it is a plausible result that the variable *rural* shows a positive and significant effect on trust, whereas living in a state with a high GDP per state is negatively related to trust group savings.

Among the *information sources* used, only the irregular use of TV and radio shows a positive and significant effect, indicating that respondents who use the radio and TV less than every day have a 9 percentage points higher probability to trust in group savings. In

contrast the knowledge of English seems to be relevant for trust in cooperative societies too, whereas it does not show a significant effect for group savings. Moreover, *consulting professionals* before making a savings decision is associated with a 12 percentage points higher probability to trust in cooperative societies as well as in group savings.

Also the effects of the personal characteristics vary. For instance, income is negatively related to trust in group savings whereas respondents who tend to be risk averse have a higher probability to trust in cooperative societies. Moreover, females are more likely to trust in group savings than men.

The inverse mills ratio is positively significant for trust in a cooperative society. This indicates that sample selection might be a problem. Thus, respondents who are more likely to give a "yes" or "no" answer in the selection equation, are more likely to answer with "yes" in the outcome equation. The IMR for trust in group savings, is not statistically significant.

All in all, it is a striking result that the estimated effect of access to the financial institutions considered, is positive and significant in all four regressions.

However, trust in a financial institution might not only be influenced by the availability of access, but also by other characteristics. In order to avoid omitted variable bias, we use a substantial number of control variables. Most important, we control for risk aversion and average trust a respondent has in other financial institutions. Moreover, we use the number of banks per state as control variable and show that the effect of having access to a financial institution is strong and significant for all four financial institutions considered. In order to control for town-fixed effects we make use of 77 town dummy variables that are included in our empirical analysis. Further, we control for the use of mass media sources, education, consultancy before making a savings decision, regional characteristics and a variety of personal characteristics. The estimated effect of financial access is still statistically significant and strong considering four different financial institutions. This might indicate that access matters in order to establish trust, particularly on the individual level and that differences among financial institutions do exist that shape the individual trust level and thus, the decision to make an investment.

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insert Table 8 about here

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4.3 Robustness Checks

In order to check the robustness of our results additional regressions were conducted. Firstly, we check the robustness of our results by estimating linear probability models. The marginal effects obtained from OLS estimates are very similar to the effects obtained from probit estimates. Secondly, we run the same regressions by using the more direct simultaneous Maximum-Likelihood estimation. The results, are in line with our Heckman-type two-step strategy. Thirdly, we check the robustness of the results by estimating probit models with a homogeneous sample of those households who know each of the four financial institutions to control for variations in knowledge or custom with financial matters. The effects of the financial access variable are very similar to the effects in the outcome equation of the Heckman model. Moreover, we run separate regressions for those respondents who do have a savings account and allow for current or prior banking experiences. The estimation results confirm our findings. However, the error term may contain an unobserved town-level effect and consequently the standard errors of the effects of the aggregate explanatory variables on individual specific response variables might be biased. We take this into account by estimating standard errors for intra-cluster correlation within Indian towns (Wooldridge, 2003). Finally, we estimate a multinomial logit model, to test the robustness of our results. The coefficients obtained form the multinomial logit model are in line with our results obtained form the Heckman two stage procedure. However, even if we exclude all don't know responses from our analysis, results do not differ very much (see Appendix).

Although we have taken attempts to address potential endogeneity issues and unique information about trust and financial access of households in India, we cannot completely rule out biases. Since, our dataset does not contain exogenous variables that could serve as valid and sufficiently strong instrument for identification in the first stage of the Heckman-

selection regressions, we attempt to minimize biases due to potential endogeneity issues. However, there might be correlations with the error terms because of reverse causality or omitted variables. To avoid biases resulting from reverse causality, we focus on the group of households without a savings account when analyzing the factors influencing trust in financial institutions, i.e. we exclude all individuals who report that they have a bank account at present as well as in the past 12 months. Unfortunately, our dataset does not provide information about respondents who never possessed a bank account during their life time.

5 Discussion and Conclusion

Alliances between consumer and financial institutions are influenced by a variety of factors but little is examined about the determinants of trust in financial institutions in the context of emerging markets. This paper empirically investigates the relationship between the individual trust in financial institutions and the individual access to these institutions using a large scale-survey of Indian households.

In contrast to existing empirical studies analyzing consumer trust and financial market participation we use an *individual measure of trust*, and employ concrete information about the *individual access* to certain financial institutions. Our trust measure is self-reported and by asking the respondent *"Would you trust this financial institution with your money ?"*, very precisely. It thereby captures the subjectiveness of trust described in the theoretical model of stock market participation by Guiso et al. (2008). However, our results support the theoretical consideration of the authors and add new empirical insights on the trust based explanation of limited stock market participation.

Moreover, we are able to avoid potential edogeneity issues resulting from current or previous investment experiences by using a sample of non-investors. Thereby we are able to examine trust of individuals who do not have a savings account at present but posses positive savings to invest, which is particular important in order to learn about the drivers of non-participation of potential investors in emerging economies. Many studies

point to the relevance of trust for stock market participation and show that a higher level of trust increases the likelihood to invest (Guiso et al., 2008). Therefore, trust in financial institutions can be seen as a pre-stage of investment.

However, reaching the financial institution is particularly relevant in order to establish trust. Most studies investigate access to credits whereas little is known about financial access to savings and investment possibilities, particularly in emerging economies. Our empirical results suggest that individuals who do not have access within a commutable distance of one day to a financial institution are less likely to trust this financial institution with their money. This effect even holds for national banks and cooperative banks that are very common in India. However, we have to consider that individuals might be more familiar with national banks than with cooperative societies or group savings.

Other existing studies, in contrast, measure financial access in km or miles, whereas our measure takes the individual situation of the respondent into account. Since we do also employ a very precise measure of an individuals possibility to reach a financial institution we are able to analyze the direct link of access to financial institutions and trust in these institutions. We show that national banks and cooperative banks are more frequently accessible than other financial institutions like cooperative societies and group savings and that a variation in trust can be explained to some extend by differences in individual access. Moreover, we take into account that the number of bank branches per Indian state might affect the individual trust level and use this variable as an additional regressor in our analyses. Our results show that the effect of access to a financial institution is still strong and significant even if we control for the number of bank branches per state. Moreover, access to different types of financial institutions seems to vary in India. Whereas most individuals have access to national banks merely few are able to reach cooperative societies or group savings.

All in all, our results suggest that those households who cannot reach a financial institutions within a commutable distance of one day seem to be disadvantaged in making the best use of existing financial opportunities because they trust less and therefore might be kept away from making an investment. This is particularly true for individuals with

low incomes. Thus, financial access is an important obstacle for participating in financial markets as it acts as a driver of trust and therefore it has rather an indirect effect on the decision to invest. Of course we cannot fully rule out the possibility that trust in financial institutions is influenced by other unobserved factors. However, even after controlling for a variety of determinants the effects of financial access are still strong and significant. One might argue for instance, that the existence of informal financial investment options, e.g. lending to other family members is still prevailing. Informal financial instruments are characterized by lower transaction costs and flexible arrangements although they cannot fully substitute for formal financial institutions since they are unsecured and often rely on relationship and reputation (Ayyagari et al., 2010). Therefore increasing the individual trust level in formal financial institutions may shift individuals from informal to formal financial transactions.

Policy programs aiming at improving financial access to financial institutions to the poor and households without access, have been applied by implementing new tools such as mobile or satellite banking. Nevertheless, to fulfill the needs of private households in emerging economies for financial services, policy activities should focus to expand financial networks, to reach individuals with different income levels without access to financial institutions.

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Figure 1:

Access to Financial Institutions

Figure 1 shows the percentaged shares of access to financial institutions. The respondent was asked whether he or she has access within a commutable distance of one day to the corresponding financial institution or not. Further, it is possible to give a don't know response. Figure 1 shows those households who do not possess a savings account at present but do have positive savings to invest. Therefore the sample consist of 7.310 respondents.

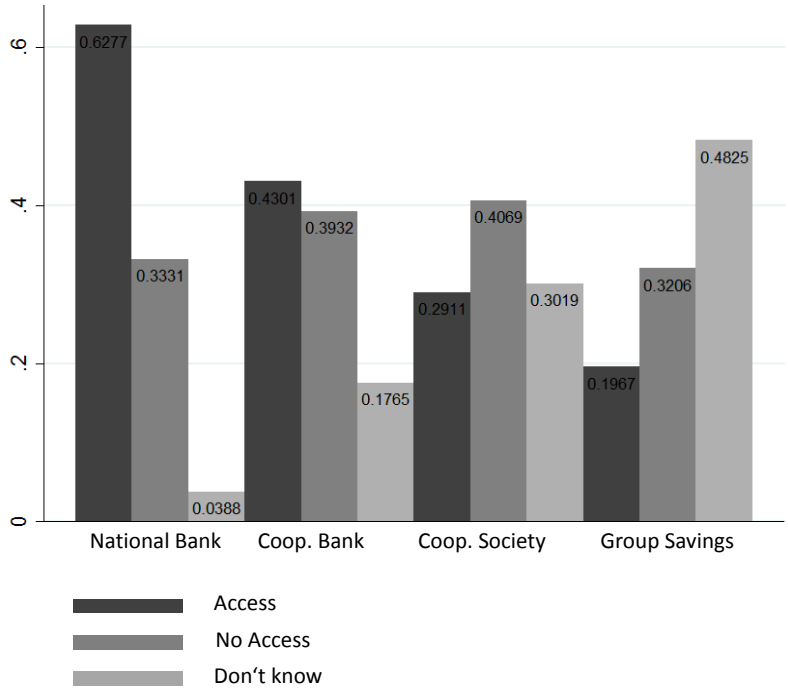

Table 1:

Financial Access and Trust: Means and Standard Deviations

	Financial Access			No Financial Access			Differences	
	Mean	St. Dev.	Obs.	Mean	St. Dev.	Obs.	Difference	test statistic
Trust:								
National Bank	0.993	0.083	4585	0.925	0.262	2725	-0.0675	-16.1002
Cooperative Bank	0.859	0.347	3148	0.472	0.499	4162	-0.387	-37.226
Cooperative Society	0.600	0.489	2132	0.217	0.413	5178	-0.382	-34.063
Group Savings	0.672	0.469	1445	0.082	0.240	5865	-0.5903	-62.393

Table 1 reports means and standard deviations for group differences between individuals having access to financial institutions and those who do not. A chi-squared tests of proportions is employed testing for group differences in trust of those respondents who have access to the corresponding financial institutions and those who do not. Considered are national banks, cooperative banks, cooperative societies and group savings. Trust is measured as dummy variable that takes on the value one if the respondent states that he or she would trust this financial institution with the own money and is zero if not. Those respondents are considered who possess savings to invest but no current savings account.

Table 2:

Financial Access and Trust by Wealth: Means and Standard Deviations

	Financial Access			No Financial Access			Differences	
	Mean	St. Dev.	Obs.	Mean	St. Dev.	Obs.	Difference	test statistic
Wealth - Quartile I								
Trust:								
National Bank	0.994	0.075	710	0.920	0.271	500	-0.074	-6.8047
Cooperative Bank	0.862	0.344	495	0.434	0.496	715	-0.427	-16.604
Cooperative Society	0.615	0.486	329	0.202	0.401	881	-0.408	-14.821
Group Savings	0.740	0.439	235	0.061	0.240	975	-0.678	-32.232
Wealth - Quartile II								
Trust:								
National Bank	0.995	0.069	1424	0.937	0.242	811	-0.057	-8.414
Cooperative Bank	0.860	0.346	894	0.460	0.498	1341	-0.400	-20.858
Cooperative Society	0.561	0.496	547	0.190	0.392	1688	-0.371	-17.940
Group Savings	0.693	0.461	405	0.069	0.254	1830	-0.624	-37.600
Wealth - Quartile III								
Trust:								
National Bank	0.993	0.082	869	0.944	0.229	520	-0.048	-5.684
Cooperative Bank	0.868	0.338	591	0.497	0.500	798	-0.370	-15.555
Cooperative Society	0.602	0.489	425	0.244	0.430	964	-0.357	-13.666
Group Savings	0.653	0.476	274	0.104	0.305	1115	-0.549	-23.546
Wealth - Quartile IV								
Trust:								
National Bank	0.990	0.099	501	0.918	0.273	258	-0.071	-5.208
Cooperative Bank	0.854	0.353	426	0.579	0.494	333	-0.275	-8.928
Cooperative Society	0.622	0.485	315	0.281	0.450	444	-0.341	-9.941
Group Savings	0.546	0.498	214	0.117	0.322	545	-0.429	-13.991

Table 2 reports means and standard deviations for group differences between individuals having access to financial institutions and those who do not. A chi-squared tests of proportions is employed testing for group differences in trust of those respondents who have access to the corresponding financial institutions and those who do not. Considered are national banks, cooperative banks, cooperative societies and group savings. Trust is measured as dummy variable that takes on the value one if the respondent states that he or she would trust this financial institution with the own money and is zero if not. Those respondents are considered who possess savings to invest but no current savings account. Moreover, respondents are grouped into four wealth quartiles, to investigate whether differences in trust and access might differ with differences in wealth. Instead of earnings, we consider the amount the respondent dispose after computing annual income minus expenditures. Thus, we consider the amount of investment potential the respondent has and label it wealth. First, those respondents are considered who belong the first quartile with less than RS 500 (Quartile (I)). Then, respondents in the second quartile (RS 500 and RS 1500) are taken into account (Quartile (II)). The third subsample respondents whose investment potential lies in the third quartile (RS 1500 and RS 5000) are taken into account (Quartile (III)). The last quartile considers respondents who belong to the top 25 percent in wealth (RS 5000 and more) (Quartile (IV)).

Table 3:

Summary Statistics for Explanatory Variables

	Mean	SD	Min	Max
Financial Access				
Nationalized Bank	0.629	0.483	0	1
Cooperative Bank	0.430	0.496	0	1
Cooperative Society	0.300	0.462	0	1
Group Savings	0.200	0.413	0	1
Regional Characteristics				
Rural	0.534	0.498	0	1
GDP p.c. (state level)* ('000 of RS)	20.273	8.959	6913	49825
Numbers of banks per State*	3.893	2613	58	8657
Information Sources				
Daily Use Newspaper and Internet	0.268	0.443	0	1
Irregular Use Newspaper and Internet	0.235	0.424	0	1
Daily Use Radio and TV	0.562	0.496	0	1
Irregular Use Radio and TV	0.287	0.453	0	1
Savings Decisions - Consultancy				
Great Family	0.808	0.393	0	1
Friends and Peer Group	0.121	0.326	0	1
Professionals	0.049	0.216	0	1
Others	0.020	0.141	0	1
Personal Characteristics				
Age*	37.900	1.17	17	80
Married	0.827	0.377	0	1
Income* ('000 of RS)	5.346	2.139	-164.9	1.177.6
Female	0.134	0.341	0	1
Backward Caste	0.266	0.442	0	1
Risk Attitude	0.782	0.413	0	1
Average Trust	2.422	0.543	4	1
Self Employed	0.006	0.078	0	1
Employee	0.548	0.497	0	1
Other Worker	0.445	0.497	0	1
Education				
Education	4.157	2.465	1	11
Knowledge English	0.272	0.445	0	1
Knowledge Inflation	0.108	0.311	0	1

Table 3 reports summary statistics for explanatory variables used. Those respondents are considered who do not possess a savings account at present and within the past twelve months. Official data for Indian states are used to control for regional characteristics such as the number of financial institutions, the Gross Domestic Product (GDP) per capita at the state level and the number of banks per state are given in Rupees (RS). Income is computed by earnings minus expenditures and can therefore be negative. The sample consist of 7.310 respondents.

Table 4:

Variation Inflation Factors for Explanatory Variables

Explanatory Variables	VIF
Financial Access	
Access Private Bank	1.23
Rural	1.42
Banks per State	1.28
GDP per state	1.17
Personal Characteristics	
Married	1.14
Female	1.10
Backward Caste	1.09
Age	1.16
Risk Attitude	1.02
Self employed	1.11
Employee	1.10
Education	
Knowledge English	2.17
Knowledge Inflation	1.19
Consultancy	
Friends and Peer Group	1.05
Others	1.02
Professionals	1.04
Information Sources	
Daily Use Newspaper and Internet	2.50
Irregular Use Newspaper and Internet	1.59
Daily Use Radio and TV	1.34
Irregular Use Radio and TV	1.05
Mean VIF	1.36

Table 4 reports the variation inflation factors (VIF) for explanatory variables used in our empirical analysis. In order to compute VIF's, we conduct a linear probability model where the dependent variable is trust in cooperative banks. Although not reported education and town dummies had been included and their VIF's computed. The maximum value is 2.20. The values of the variation inflation factors are below the critical levels suggested in the literature which means that multicollinearity is not a severe problem.

Table 5:

First Stage Heckman Selection Correction Model: Trust in Banks

	National Bank		Cooperative Bank	
	SE	Marginal Effects	SE	Marginal Effects
Access	0.0830*	0.0136*	0.358***	0.0603***
	(0.0455)	(0.00755)	(0.0662)	(0.0106)
Knowledge of Bank location	1.255***	0.363***	2.401***	0.715***
	(0.126)	(0.0469)	(0.0925)	(0.0261)
Average Trust	-0.104***	-0.0168***	0.803***	0.140***
	(0.0307)	(0.00496)	(0.0543)	(0.00904)
Rural	-0.0467	-0.00752	-0.0119	-0.00207
	(0.0484)	(0.00777)	(0.0642)	(0.0112)
GDP per State	-0.484***	-0.0782***	-0.00699	-0.00122
	(0.0524)	(0.00831)	(0.0596)	(0.0104)
Numbers of banks per State	0.0408*	0.00658*	-0.0303	-0.00527
	(0.0223)	(0.00359)	(0.0308)	(0.00536)
Information Sources				
Daily use newspaper and Internet	-0.129*	-0.0217*	0.0438	0.00751
	(0.0671)	(0.0117)	(0.0910)	(0.0154)
Irregular use newspaper and Internet	-0.0242	-0.00394	0.000476	8.27e-05
	(0.0601)	(0.00988)	(0.0767)	(0.0133)
Daily use radio and TV	-0.0556	-0.00894	0.0608	0.0106
	(0.0474)	(0.00760)	(0.0579)	(0.0101)
Irregular use radio and TV	0.113**	0.0177**	0.0915	0.0155
	(0.0478)	(0.00723)	(0.0593)	(0.00983)
Education				
Knowledge of English	-0.152**	-0.0258**	-0.0416	-0.00733
	(0.0620)	(0.0110)	(0.0843)	(0.0150)
Knowledge of Inflation	0.107	0.0164*	0.0834	0.0139
	(0.0692)	(0.00995)	(0.114)	(0.0181)
Consultancy				
Friends and Peer Group	-0.0513	-0.00850	-0.0599	-0.0107
	(0.0644)	(0.0110)	(0.0815)	(0.0150)
Professionals	-0.614***	-0.139***	0.259	0.0384*
	(0.0802)	(0.0233)	(0.170)	(0.0211)
Others	-0.465***	-0.0991***	-0.154	-0.0294
	(0.123)	(0.0328)	(0.201)	(0.0419)
Personal Characteristics				
Income	0.315***	0.0509***	0.00724	0.00126
	(0.0175)	(0.00285)	(0.0241)	(0.00419)
Married	-0.0464	-0.00734	0.0916	0.0166
	(0.0575)	(0.00890)	(0.0707)	(0.0133)
Age	-0.00295	-0.000476	0.00503**	0.000875**
	(0.00191)	(0.000309)	(0.00234)	(0.000405)
Employee	-0.0447	-0.00719	-0.0536	-0.00929
	(0.0430)	(0.00691)	(0.0542)	(0.00938)
Self Employed	-0.150	-0.0268	0.0472	0.00796
	(0.246)	(0.0480)	(0.457)	(0.0747)
Risk Attitude	-0.0179	-0.00287	0.109*	0.0196
	(0.0506)	(0.00807)	(0.0649)	(0.0122)
Female	-0.211***	-0.0378***	-0.172**	-0.0325**
	(0.0606)	(0.0120)	(0.0803)	(0.0164)
Backward caste	-0.0437	-0.00716	-0.0275	-0.00482
	(0.0467)	(0.00774)	(0.0590)	(0.0104)
Constant	2.198***		1.648**	
	(0.633)		(0.781)	
Chi^2 Town Fixed Effects	YES	YES	YES	YES
Chi^2 Education Fixed Effects	YES	YES	YES	YES
Pseudo R^2	0.179	0.179	0.591	0.591
Observations	6,925	6,925	6,912	6,912

Table 5 reports the regression results for the first stage Heckman-type model with sample selection. The table shows the coefficients of the explanatory variables and the marginal effects calculated at their mean on the probability to give a closed answer with *"yes"* or *"no"*. The dependent variable of the first regression takes on the value one if the respondents states that he or she would either trust a national bank with his money or not, and is zero if the respondent answers with *"don't know"* whether to trust the corresponding bank. The dependent variable for knowledge-trust in cooperative bank takes on the value one if the respondents gives a closed answer with yes or no, and is zero if he or she answers with "don't know" whether to trust a cooperative bank with his money or not. The two dummy variables *"female"* and *"backward caste"* define the exclusion restriction. Town and education dummies are included. Censored and uncensored observation vary with the corresponding financial institution. Moreover, some town dummy variables are dropped because of a perfect failure prediction. Therefore the number of observation is reduced. Clustered and robust standard errors are given in parentheses. ***, **, * denote significant at the 1, 5, 10 percent level.

Table 6:

First Stage Heckman Selection Correction Model: Trust in FI's

	Cooperative Society		Group Savings	
	SE	Marginal Effects	SE	Marginal Effects
Access	0.234***	0.0864***	0.887***	0.331***
	(0.0696)	(0.0250)	(0.0779)	(0.0297)
Knowledge of bank location	1.819***	0.637***	1.826***	0.565***
	(0.0669)	(0.0176)	(0.0729)	(0.0151)
Average Trust	0.661***	0.249***	0.520***	0.179***
	(0.0481)	(0.0180)	(0.0388)	(0.0130)
Rural	-0.147**	-0.0554**	-0.0786	-0.0270
	(0.0611)	(0.0229)	(0.0650)	(0.0224)
GDP per State	0.123**	0.0462**	0.105	0.0360
	(0.0526)	(0.0198)	(0.0724)	(0.0248)
Numbers of banks per State	0.0314	0.0118	0.0537*	0.0184*
	(0.0277)	(0.0104)	(0.0322)	(0.0110)
Information Sources				
Daily use Internet	0.0293	0.0110	0.110	0.0385
	(0.0537)	(0.0201)	(0.0746)	(0.0264)
Irregular use Internet	0.0569	0.0213	-0.0139	-0.00478
	(0.0543)	(0.0202)	(0.0618)	(0.0212)
Regular use TV and Radio	-0.141***	-0.0531***	0.190***	0.0649***
	(0.0456)	(0.0171)	(0.0506)	(0.0172)
Irregular use TV and Radio	-0.156***	-0.0595***	0.0960*	0.0333*
	(0.0493)	(0.0189)	(0.0536)	(0.0188)
Education				
Knowledge of English	0.149**	0.0554**	0.111*	0.0387*
	(0.0616)	(0.0225)	(0.0616)	(0.0217)
Knowledge of Inflation	-0.0736	-0.0280	-0.0525	-0.0178
	(0.0778)	(0.0298)	(0.0778)	(0.0261)
Consultancy				
Friends and Peers	0.0431	0.0161	0.252***	0.0908***
	(0.0711)	(0.0265)	(0.0740)	(0.0276)
Professionals	0.00168	0.000632	0.354***	0.131***
	(0.111)	(0.0417)	(0.127)	(0.0496)
Others	-0.161	-0.0621	0.0941	0.0331
	(0.145)	(0.0567)	(0.150)	(0.0539)
Personal Characteristics				
Income	0.0707***	0.0266***	-0.00930	-0.00320
	(0.0189)	(0.00713)	(0.0208)	(0.00716)
Married	0.0794	0.0302	0.129**	0.0433**
	(0.0510)	(0.0195)	(0.0561)	(0.0183)
Age	0.00130	0.000489	0.000806	0.000277
	(0.00157)	(0.000591)	(0.00216)	(0.000743)
Employee	-0.0752	-0.0283	0.0467	0.0160
	(0.0471)	(0.0177)	(0.0422)	(0.0145)
Self Employed	0.0510	0.0190	-0.0137	-0.00469
	(0.205)	(0.0757)	(0.252)	(0.0861)
Risk Attitude	-0.0890	-0.0332	0.0895	0.0304
	(0.0578)	(0.0214)	(0.0565)	(0.0189)
Female	-0.225***	-0.0866***	0.254***	0.0915***
	(0.0788)	(0.0309)	(0.0718)	(0.0267)
Backward caste	-0.0373	-0.0141	0.109**	0.0381**
	(0.0531)	(0.0201)	(0.0544)	(0.0193)
Constant	-0.573		-1.604*	
	(0.612)		(0.886)	
Chi^2 Town Fixed Effects	YES	YES	YES	YES
Chi^2 Education Fixed Effects	YES	YES	YES	YES
Pseudo R^2	0.447	0.447	0.503	0.503
Observations	6,925	6,925	6,925	6,925

Table 6 reports the regression results for the first stage Heckman-type model with sample selection. The table shows the coefficients of the explanatory variables and the marginal effects calculated at their mean on the probability to give a closed answer with *"yes"* or *"no"* towards trust in MFI's. The dependent variable of the first regression takes on the value one if the respondents states that he or she would either trust a cooperative society with his money or not, and is zero if the respondent gives a *"don't know"* answer. The dependent variable for trust in group savings takes on the value one if the respondents gives a closed answer with *"yes"* or *"no"*, and is zero if he or she answers with *"don't know"* whether to trust group savings with his money or not. The two dummy variables *"female"* and *"backward caste"* denote the exclusion restriction in the first regression. Only the dummy variable "backward caste" defines the exclusion restriction in the second regression. Town and education dummies are included. However, some town dummy variables are dropped because of a perfect failure prediction. Therefore the number of observation is reduced. Clustered and robust standard errors are given in parentheses. ***, **, * denote significant at the 1, 5, 10 percent level.

Table 7:

Trust in Banks and Financial Access

	National Bank			Cooperative Bank		
	Heckman	Probit	Marginal Effects	Heckman	Probit	Marginal Effects
Access	0.776***	0.775***	0.0102***	0.590***	0.582***	0.146***
	(0.138)	(0.137)	(0.00220)	(0.0419)	(0.0469)	(0.0112)
Average Trust	0.346***	0.349***	0.00303***	0.522***	0.510***	0.127***
	(0.0994)	(0.101)	(0.000991)	(0.0520)	(0.0428)	(0.0100)
Rural	-0.0853	-0.0932	-0.000802	0.184***	0.187***	0.0467***
	(0.189)	(0.190)	(0.00161)	(0.0608)	(0.0600)	(0.0148)
GDP per State	-0.535***	-0.525***	-0.00455***	-0.110	-0.112	-0.0278
	(0.141)	(0.115)	(0.00168)	(0.0698)	(0.0689)	(0.0171)
Numbers of banks per State	-0.240**	-0.236**	-0.00205*	-0.0139	-0.0126	-0.00314
	(0.114)	(0.113)	(0.00120)	(0.0319)	(0.0319)	(0.00794)
Information Sources						
Daily use newspaper and Internet	-0.0878	-0.0996	-0.000932	-0.0158	-0.0178	-0.00445
	(0.196)	(0.192)	(0.00186)	(0.0654)	(0.0659)	(0.0165)
Irregular use newspaper and Internet	-0.113	-0.109	-0.00102	-0.110*	-0.108*	-0.0277*
	(0.182)	(0.179)	(0.00171)	(0.0621)	(0.0618)	(0.0162)
Daily use radio and TV	0.215	0.220	0.00199	-0.0347	-0.0377	-0.00936
	(0.134)	(0.137)	(0.00127)	(0.0478)	(0.0480)	(0.0119)
Irregular use radio and TV	0.0681	0.0844	0.000701	0.108**	0.107**	0.0262**
	(0.141)	(0.139)	(0.00110)	(0.0483)	(0.0479)	(0.0114)
Education						
English	-0.139	-0.143	-0.00138	-0.00699	-0.00507	-0.00126
	(0.158)	(0.156)	(0.00172)	(0.0620)	(0.0620)	(0.0154)
Knowledge of Inflation	0.0878	0.0707	0.000566	-0.0529	-0.0536	-0.0136
	(0.223)	(0.222)	(0.00161)	(0.0903)	(0.0909)	(0.0235)
Consultancy						
Friends and peer group	-0.115	-0.104	-0.00101	-0.113	-0.108	-0.0279
	(0.212)	(0.210)	(0.00231)	(0.0765)	(0.0749)	(0.0201)
Professionals	0.463	0.471	0.00234***	0.176**	0.172**	0.0396**
	(0.305)	(0.302)	(0.000893)	(0.0824)	(0.0829)	(0.0174)
Others	-0.483	-0.514	-0.00904	-0.112	-0.110	-0.0288
	(0.421)	(0.413)	(0.0121)	(0.154)	(0.156)	(0.0428)
Personal Characteristics						
Income	-0.148*	-0.140**	-0.00121**	-0.00536	-0.00391	-0.000971
	(0.0796)	(0.0642)	(0.000610)	(0.0224)	(0.0223)	(0.00554)
Married	-0.134	-0.104	-0.000822	0.0248	0.0288	0.00723
	(0.176)	(0.181)	(0.00131)	(0.0471)	(0.0493)	(0.0125)
Age	0.00118	0.000782	6.78e-06	0.00215	0.00205	0.000509
	(0.00431)	(0.00435)	(3.75e-05)	(0.00174)	(0.00173)	(0.000429)
Employee	-0.240**	-0.210**	-0.00181**	0.0875*	0.0891*	0.0222*
	(0.0944)	(0.0933)	(0.000813)	(0.0520)	(0.0513)	(0.0128)
Self Employed	n.a	n.a	n.a	0.216	0.220	0.0490
	n.a	n.a	n.a	(0.265)	(0.264)	(0.0519)
Risk Attitude	0.383***	0.404***	0.00494**	0.117*	0.112*	0.0286*
	(0.126)	(0.128)	(0.00218)	(0.0630)	(0.0635)	(0.0167)
Female		0.233	0.00159		0.0724	0.0175
		(0.201)	(0.00114)		(0.0770)	(0.0181)
Backward caste		-0.226**	-0.00226*		0.0217	0.00536
		(0.112)	(0.00134)		(0.0512)	(0.0126)
MILLS	-0.0588			0.0856		
	(0.500)			(0.109)		
Constant	15.44***	15.20***		3.015***	2.966***	
	(1.756)	(1.695)		(0.910)	(0.885)	
Chi^2 Town Fixed Effects	YES	YES	YES	YES	YES	YES
Chi^2 Education Fixed Effects	YES	YES	YES	YES	YES	YES
Pseudo R^2	0.209	0.226	0.226	0.121	0.124	0.124
Observations	6,885	6,885	6,885	5,457	5,498	5,498

Table 7 reports the regression results for the second stage Heckman-type model with sample selection. The table shows the coefficients of the explanatory variables, the results of the probit estimations without correcting for sample selection and the marginal effects after probit regressions, calculated at their mean. The dependent variable of the first regression takes on the value one if the respondents states that he or she would trust a national bank with his money, and is zero if not. The dependent variable for trust in cooperative banks takes on the value one if the respondent answers that he would trust this bank-type with his money, and is zero if he or she answers with no. The don't know responses in trust are excluded and in the Heckman equation considered by including the inverse mills ratio from the selection equation. Town and education dummies are included. The two dummy variables *"female"* and *"backward caste"* define the exclusion restriction. Town and education dummies are included. Censored and uncensored observation vary with the corresponding financial institution. Moreover, some town dummy variables are dropped because of a perfect failure prediction. Therefore the number of observation is reduced. ***, **, * denote significant at the 1, 5, 10 percent level. Censored and uncensored observation vary with the corresponding financial institution. Clustered and robust standard errors are given in parentheses. ***, **, * denote significant at the 1, 5, 10 percent level.

Table 8:

Trust in FI's and Financial Access

	Cooperative Society			Group Savings		
	Heckman	Probit	Marginal Effects	Heckman	Probit	Marginal Effects
Access	0.574***	0.508***	0.199***	1.195***	1.136***	0.428***
	(0.0638)	(0.0607)	(0.0231)	(0.0982)	(0.0827)	(0.0277)
Average Trust	0.596***	0.502***	0.199***	0.126*	-0.0136*	-0.00543*
	(0.0576)	(0.0514)	(0.0204)	(0.0668)	(0.00740)	(0.00295)
Rural	0.118*	0.138**	0.0548**	0.196*	0.201*	0.0800*
	(0.0610)	(0.0601)	(0.0238)	(0.119)	(0.118)	(0.0466)
GDP per State	-0.0467	-0.0687	-0.0273	-0.178	-0.211*	-0.0840*
	(0.0853)	(0.0846)	(0.0336)	(0.118)	(0.119)	(0.0475)
Numbers of banks per State	-0.0136	-0.0183	-0.00725	-0.00472	-0.00776	-0.00309
	(0.0305)	(0.0305)	(0.0121)	(0.0399)	(0.0405)	(0.0161)
Information Sources						
Daily use newspaper and Internet	0.0210	0.00962	0.00382	-0.0432	-0.0291	-0.0116
	(0.0608)	(0.0604)	(0.0240)	(0.0937)	(0.0933)	(0.0372)
Daily use radio and TV	0.0206	-0.00600	-0.00238	-0.0207	-0.0126	-0.00500
	(0.0629)	(0.0615)	(0.0244)	(0.0794)	(0.0794)	(0.0316)
Daily use radio and TV	-0.0108	0.0160	0.00635	0.138**	0.127**	0.0505**
	(0.0521)	(0.0531)	(0.0211)	(0.0665)	(0.0645)	(0.0257)
Irregular use radio and TV	-0.0342	-0.00651	-0.00258	0.233***	0.226***	0.0895***
	(0.0558)	(0.0565)	(0.0224)	(0.0701)	(0.0689)	(0.0271)
Education						
English	0.197***	0.172***	0.0681***	-0.0214	-0.0238	-0.00950
	(0.0665)	(0.0666)	(0.0261)	(0.0917)	(0.0941)	(0.0375)
Knowledge of Inflation	-0.0397	-0.0304	-0.0121	0.0862	0.0800	0.0318
	(0.0800)	(0.0802)	(0.0319)	(0.0995)	(0.0998)	(0.0396)
Consultancy						
Friends and peer group	0.0904	0.0950*	0.0376*	-0.0935	-0.105	-0.0420
	(0.0594)	(0.0577)	(0.0227)	(0.0868)	(0.0857)	(0.0341)
Professionals	0.286**	0.303***	0.117***	0.299**	0.295**	0.115**
	(0.118)	(0.116)	(0.0429)	(0.135)	(0.139)	(0.0526)
Others	-0.176	-0.151	-0.0603	-0.00630	-0.0195	-0.00776
	(0.152)	(0.151)	(0.0601)	(0.157)	(0.158)	(0.0630)
Personal Characteristics						
Income	-0.00662	-0.0144	-0.00572	-0.0934***	-0.0908***	-0.0362***
	(0.0245)	(0.0239)	(0.00948)	(0.0286)	(0.0285)	(0.0114)
Married	-0.0205	-0.0281	-0.0111	-0.0249	-0.00728	-0.00290
	(0.0661)	(0.0652)	(0.0258)	(0.0739)	(0.0767)	(0.0305)
Age	2.50e-06	-0.000315	-0.000125	-0.00328	-0.00334	-0.00133
	(0.00182)	(0.00180)	(0.000717)	(0.00256)	(0.00252)	(0.00100)
Employee	-0.0528	-0.0379	-0.0150	0.0815	0.0800	0.0319
	(0.0474)	(0.0466)	(0.0185)	(0.0674)	(0.0671)	(0.0267)
Self employed	0.263	0.244	0.0947	-0.520	-0.494	-0.192
	(0.290)	(0.289)	(0.109)	(0.370)	(0.369)	(0.134)
Risk Attitude	0.169***	0.181***	0.0722***	0.0250	0.0184	0.00733
	(0.0605)	(0.0607)	(0.0241)	(0.0615)	(0.0620)	(0.0247)
Female		0.0261	0.0103		0.217**	0.0856**
		(0.0755)	(0.0299)		(0.0891)	(0.0347)
Backward caste		-0.0401	-0.0159		-0.0240	-0.00959
		(0.0570)	(0.0227)		(0.0821)	(0.0327)
MILLS	0.347***			0.0915		
	(0.0934)			(0.0996)		
Constant	1.938*	2.095**		2.200*	2.478*	
	(1.055)	(1.047)		(1.336)	(1.354)	
Chi^2 Town Fixed Effects	YES	YES	YES	YES	YES	YES
Chi^2 Education Fixed Effects	YES	YES	YES	YES	YES	YES
Pseudo R^2	0.128	0.101	0.101	0.214	0.216	0.216
Observations	4,233	4,233	4,233	2,648	2,648	2,648

Table 8 reports the regression results for the second stage Heckman-type model with sample selection. The table shows the coefficients of the explanatory variables, the results of the probit estimations without correcting for sample selection and the marginal effects after probit regressions, calculated at their mean. The dependent variable of the first regression takes on the value one if the respondents states that he or she would trust a cooperative society with his money, and is zero if not. The dependent variable for trust in group savings takes on the value one if the respondent states that he or she would trust this micro finance institution with his money, and is zero if he or she answers with no. The don't know responses in trust are excluded and in the Heckman equation considered by including the inverse mills ratio from the selection equation. Town and education dummies are included. The two dummy variables *"female"* and *"backward caste"* define the exclusion restriction. Town and education dummies are included. Censored and uncensored observation vary with the corresponding financial institution. Moreover, some town dummy variables are dropped because of a perfect failure prediction. Therefore the number of observation is reduced. ***, **, * denote significant at the 1, 5, 10 percent level. Censored and uncensored observation vary with the corresponding financial institution. Clustered and robust standard errors are given in parentheses. ***, **, * denote significant at the 1, 5, 10 percent level.

Appendix

I. Probit Regressions for Knowledge of Access to Financial Institutions

Table 9: Knowledge of Access

	National Bank (1)	Cooperative Bank (2)	Cooperative Societey (3)	Goup Savings (4)
Rural	0.00140	0.00706**	0.0146**	0.0274***
	(0.00338)	(0.00306)	(0.00673)	(0.00957)
GDP State	0.00772**	0.000645	0.0424***	0.0507***
	(0.00302)	(0.00299)	(0.00806)	(0.0127)
State Bank number	-0.000837	0.000946	0.00954***	0.0121***
	(0.00211)	(0.00144)	(0.00286)	(0.00378)
Income	-0.000242	0.000760	0.000789	-0.00326
	(0.00120)	(0.00110)	(0.00241)	(0.00323)
Married	0.00638	0.00242	0.000852	0.00618
	(0.00422)	(0.00357)	(0.00802)	(0.0114)
Age	0.000167	0.000258**	0.000530**	0.000103
	(0.000125)	(0.000113)	(0.000257)	(0.000360)
Employee	0.00314	-0.00382	0.00137	0.00406
	(0.00296)	(0.00260)	(0.00613)	(0.00810)
Selfemployed	X	X	X	-0.0183
	X	X	X	(0.0681)
Risk attitude	-0.00252	-0.00489*	-0.00795	-0.0186**
	(0.00326)	(0.00274)	(0.00633)	(0.00801)
English	0.00750*	0.00178	0.00836	0.0107
	(0.00413)	(0.00425)	(0.00863)	(0.0109)
Knowledge Inflation	0.00739*	0.00934***	0.0153*	0.00773
	(0.00413)	(0.00305)	(0.00851)	(0.0110)
Friends Peers	-0.00419	-0.00451	-0.000673	0.0142
	(0.00479)	(0.00457)	(0.00888)	(0.00941)
Professionals	0.0156***	0.00108	-0.00855	-0.0153
	(0.00300)	(0.00623)	(0.0166)	(0.0168)
Others	-0.00129	0.00629	0.0205	0.0465***
	(0.0109)	(0.00654)	(0.0150)	(0.00728)
Newspaper Internet ed	0.0149***	0.00221	0.0243***	-0.000729
	(0.00354)	(0.00390)	(0.00821)	(0.0127)
Newspaper Internet st	0.0115***	0.00827***	0.0220***	-0.00189
	(0.00318)	(0.00320)	(0.00694)	(0.0118)
Radio TV ed	0.00476	0.00453	0.0161**	0.0197*
	(0.00315)	(0.00310)	(0.00703)	(0.0104)
Radio TV st	0.0113***	0.00194	0.0133**	0.0170**
	(0.00277)	(0.00272)	(0.00592)	(0.00781)
Female	-0.0166***	-0.00819	-0.0119	0.0126
	(0.00593)	(0.00510)	(0.0107)	(0.00983)
Backward Caste	-0.000625	0.00250	0.0113*	-0.0306***
	(0.00309)	(0.00267)	(0.00645)	(0.0107)
Observations	6,401	5,360	4,421	2,817
Pseudo R^2	0.1244	0.1169	0.1046	0.1132

The table reports marginal effects at means for the dependent variable "knowledge Access". The respondent was asked: "Do you have access within a commutable distance of one day to this financial institution?" The dummy variable takes on the value one, if the respondent answer is "yes" or "no" and is zero when the answer is "don't know". This shows whether the respondent *knows* if the respective financial institution is reachable or not. The sample consist of those individuals who report that they did not invest in the respective financial instrument in the past 12 months. Moreover, only those are considered who possess a positive savings potential to invest. Each regression is based on 7.310 observations. This number is reduced because we exclude the respective *don't know* responses in trust and moreover, many town dummies are dropped because they predict the outcome variable perfectly. We control for town as well as for education fixed effects. Robust standard errors are given in parentheses. ***, **, * denote significant at the 1, 5, 10 percent level.

II. Probit Regressions for Trust in Financial Institutions

Table 10: Trust in Financial Institutions

	National Bank (1)	Cooperative Bank (1)	Cooperative Societey (1)	Goup Savings (1)
Access	0.0128***	0.151***	0.208***	0.426***
	(0.00231)	(0.0110)	(0.0181)	(0.0215)
Average Trust	0.00387***	0.124***	0.284***	0.0626**
	(0.00106)	(0.0112)	(0.0197)	(0.0243)
Rural	-0.00131	0.0454***	0.0622***	0.102***
	(0.00135)	(0.0123)	(0.0200)	(0.0275)
GDP per State	-0.00817***	-0.0204*	0.00449	-0.0509
	(0.00162)	(0.0119)	(0.0227)	(0.0381)
State Bank No	-0.00235**	-0.00220	0.00105	0.00618
	(0.00105)	(0.00610)	(0.00977)	(0.0138)
Income	-0.00107*	-0.00136	-0.00984	-0.0398***
	(0.000599)	(0.00479)	(0.00758)	(0.0104)
Married	-0.000396	0.00352	-0.0161	-0.00224
	(0.00185)	(0.0149)	(0.0238)	(0.0324)
Age	1.23e-06	0.000484	-8.71e-06	-0.00134
	(6.35e-05)	(0.000476)	(0.000777)	(0.00108)
Employee	-0.00348**	0.0237**	-0.0250	0.0389
	(0.00151)	(0.0108)	(0.0176)	(0.0239)
Selfemployed	X	0.0548	0.101	-0.198*
	X	(0.0519)	(0.0916)	(0.114)
Risk Attitude	0.00555**	0.0286**	0.0731***	-0.00483
	(0.00231)	(0.0129)	(0.0195)	(0.0259)
Knowledge English	-0.00367	0.000678	0.0664***	-0.0107
	(0.00257)	(0.0156)	(0.0243)	(0.0333)
Knowledge Inflation	0.00167	-0.0105	-0.0139	0.0510
	(0.00212)	(0.0178)	(0.0264)	(0.0330)
Friends and Peers	-0.00113	-0.0226	0.0406	-0.0239
	(0.00241)	(0.0168)	(0.0254)	(0.0306)
Professionals	-0.00205	0.0383	0.128***	0.0904*
	(0.00416)	(0.0246)	(0.0416)	(0.0527)
Others	-0.0131	-0.0361	-0.0416	-0.0193
	(0.0120)	(0.0429)	(0.0614)	(0.0716)
Newspaper Internet ed	-0.00419	-0.00347	-0.00447	-0.0118
	(0.00298)	(0.0171)	(0.0268)	(0.0368)
Newspaper Internet st	-0.00163	-0.0234	-0.00216	0.0135
	(0.00219)	(0.0157)	(0.0245)	(0.0339)
Radio TV ed	0.00409**	-0.00402	0.0177	0.0489*
	(0.00160)	(0.0120)	(0.0199)	(0.0287)
Radio TV st	0.000474	0.0286**	0.00245	0.0783***
	(0.00147)	(0.0113)	(0.0191)	(0.0254)
Female	0.00126	0.0130	0.0288	0.0773**
	(0.00178)	(0.0176)	(0.0299)	(0.0339)
Backward Caste	-0.00405**	0.00411	-0.00261	0.000672
	(0.00171)	(0.0121)	(0.0203)	(0.0272)
Observations	6,829	5,350	3,992	2,484
Pseudo R^2	0.1629	0.1092	0.1194	0.2279

The table reports the marginal effects at means of the explanatory variables on the probabilities of trusting the corresponding financial institution with money. The dependent variable takes on the value one if the respondent answers with "yes" and is zero if the answer is "no". Don't know responses are excluded from the analyses. Therefore and because of dropped explanatory variables the number of observation varies among regressions. The sample consist of those individuals who report that they did not invest in the respective financial instrument in the past 12 months. Moreover, only those are considered who possess a positive savings potential to invest. We control for town as well as for education fixed effects. Robust standard errors are given in parentheses. ***, **, * denote significant at the 1, 5, 10 percent level.

Figure 2:

III. Contingency Tables: Access to Financial Institutions and Trust

The Figure shows the conditional relative frequencies of individuals who state having access to the corresponding financial institutions within a commutable distance of one day and whether they would trust these financial institutions with their money. Results of a χ^2 test of independence between access and trust provide evidence that both variables are strongly interrelated. The respondent could answer for both with "yes", "no" and "don't know". The considered financial institutions are: national banks, cooperative banks, cooperative societies and group savings. As can be seen from the figure, the variables access and trust are not independent from each other. This holds for all four financial institutions considered. With respect to corporative banks, for instance, 86 percent of those with access state that they would trust this financial institution, 11 percent answer with no and 3 percent give a don't know response. In contrast, 64 percent of respondents without access state that they would trust a cooperative bank, 26 percent answer with no and 9.4 percent give a don't know response. However, 87 percent of respondents who give a don't know response in access also give a don't know response in trust. The amplitude of the corresponding bar is proportional to the number of observations in the respective category. Numbers refer to the aforementioned contingency tables.