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WHICH HOUSEHOLDS USE BANKS?
EVIDENCE FROM THE TRANSITION ECONOMIES

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Abstract: This paper uses survey data for 29,000 households from 29 transition economies to explore how the use of banking services is related to household characteristics, bank ownership structure and the development of the financial infrastructure. At the household level we find that the holding of a bank account or bank card increases with income, wealth and education in most countries and also find evidence for an urban-rural gap, as well as for a role of religion and social integration. Our results show that foreign bank ownership is associated with more bank accounts among high-wealth, high-income, and educated households. State ownership, on the other hand, does not induce financial inclusion of rural and poorer households. We find that higher deposit insurance coverage, better payment systems and creditor protection encourage the holding of bank accounts in particular by high-income and high-wealth households. All in all, our findings shed doubt on the ability of policy levers to broaden the financial system to disadvantaged groups.

Non-technical summary

This paper examines survey data for 29,000 households from 29 transition economies to explore how the use of banking services is related to household characteristics and the structure of the banking sector. The analysis shows that the use of banking services increases with income, wealth and education in most countries. Urban households and households with stronger social integration are also more likely to have a bank account. A cross country comparison shows that banking sector structure strongly affects the composition of the banked population. In countries with stronger foreign bank presence, higher deposit insurance, better payment systems and stronger creditor protection, wealthy, well-educated households and those with formal employment are more likely to use banks. In contrast to what one would expect, state bank ownership does not induce financial inclusion of rural and poorer households. These findings shed doubt on the ability of policy levers to broaden the financial system to disadvantaged groups.

1. Introduction

Access to banking services is viewed as a key determinant of economic well-being for households, especially in low-income countries. Savings and credit products make it easier for households to align income and expenditure patterns across time, to insure themselves against income and expenditure shocks, as well as to undertake investments in human or physical capital. Given the importance attributed to financial service access it is striking that there is little cross-country evidence which documents how financial access differs across households and, in particular how cross-country variation in the structure of the financial sector affects the type of households which are banked.

This paper uses household survey data from 28 transition economies and Turkey from the EBRD's Life in Transition Survey (LITS) database to (i) document the use of formal banking services across these 29 counties, (ii) relate this use to an array of household and individual characteristics and (iii) assess whether specific ownership structures in the banking sector and cross-country variation in financial infrastructure can explain who uses banking services. The LITS database provides a rich set of information about a representative sample of individuals across countries in Eastern and Central Europe, including information on the use of bank accounts and bank cards. We relate variation in the use of formal banking products to an array of individual and household characteristics and assess whether the variation in the relationship between individual and household characteristics and the use of formal banking services is associated with variation in bank-ownership and the development of the financial infrastructure across countries.

The relationship between the ownership structure of the banking system and access to financial services has been intensively discussed, both in the theoretical and empirical literature. On the one hand, government-owned banks often have the mandate to increase access to financial services by firms and households. On the other hand, foreign-owned banks

are often conjectured to have too centralized organizational structures and to be too risk-averse to reach out towards the low-end of the market. While the recent literature has explored the relationship between the ownership structure of banking markets and access to credit by enterprises, little evidence exists on the relationship between ownership structure in the banking system and the use of formal banking services by households.

Upgrades in the financial infrastructure have often been advocated as instruments to not only deepen but also broaden financial systems. Deposit insurance has been mentioned as a tool to create trust in the financial system, especially for "small" savers. Similarly, improvements in payment systems and a broader physical outreach of the banking system, in the form of ATMs and POS (points of sale) terminals and branches, can reduce the geographic barrier that households might face when accessing banking services. Finally, creditor protection through credit information sharing and creditor rights might reduce costs and risks for banks to extend credit to larger segments of the population.

Transition economies are an almost ideal sample to study the relationship between bank ownership, the financial infrastructure and household use of banking services. After the fall of communism, all these countries had to transform their state-owned, mono-banking systems into two-tier market-based financial systems.[1] Countries, however, chose different financial sector reform paths.[2] Some countries opted for domestic privately-owned banking systems through privatization or the entry of new domestic players. Others opted for foreign bank entry early on, be it through privatization or by encouraging greenfield entry (Claeys and Hainz, 2008). Countries also moved at different speed in terms of upgrading payment systems (Cirasino and Garcia, 2008) and institutional solutions to protect depositors, e.g. deposit insurance (Demirguc-Kunt et al., 2005). Finally, the transition economies display

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[1] The state-bank systems before the transition had quite extensive networks with large shares of the population having savings accounts. However, besides the notable exceptions of the Czechoslovakia, Bulgaria and Hungary with high levels of financial intermediation there was little cross-country variation before the on-set of the transition process.

[2] See Bonin and Wachtel (2003) for a survey of financial sector reforms in the transition economies.

substantial variation in the legislation and institutions introduced to protect creditors (Pistor et al., 2000; Brown et al., 2009).

Our empirical analysis shows a large variation in the use of banking services. Specifically, we find that more than 90% of households in Estonia and Slovenia have a bank account, while less than 10% do so in Armenia, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan and Uzbekistan. We find that the use of banking services is more common among households located in urban areas, households with higher income and wealth, as well as for households in which an adult member has professional education and formal employment. By contrast, banking products are used less often by households which rely on transfer income and by Muslim households. We find evidence that foreign bank presence is positively associated with the use of banking products among high-income and well-educated households, while negatively associated with the use of banking products by households which rely on transfer income. By contrast, we find no evidence that state-bank ownership leads to a broader use of banking products among low-income or rural households. We also find that improvements in the financial infrastructure, i.e. higher deposit insurance coverage, better payment system development and stronger creditor protection , are associated mostly with higher use of banking services among high-income and high-wealth households and not necessarily members of marginal groups, such as the rural population or minorities.

This paper contributes to the nascent literature on household use of formal banking services. Beck and Martinez Peria (2010) find a negative impact of foreign bank entry in Mexico on branch penetration and the number of deposit and loan accounts. On a cross-country level, Beck et al. (2007) find that government (foreign) ownership is negatively associated with outreach as measured by branch penetration (number of accounts per capita) , while Beck et al. (2008) find that barriers for bank customers are higher where banking systems are predominantly government-owned and lower where there is more foreign bank

participation. Recent household survey collection efforts in Southern and Eastern Africa using FinScope surveys have allowed rigorous analysis of household's use of formal and informal services (see for example, Honohan and King, 2009; Beck et al., 2010; Atiero et al., 2010). [3] None of the previous literature, however, has used survey data for such a broad cross-section of countries as the LITS data.

We also contribute to the extensive literature on the relationship between bank ownership structure and the use of banking services. This literature makes ambiguous predictions, both for the effect of foreign bank and state bank ownership. Gerschenkron (1962) claims that state-owned banks can overcome market failures and help channeling funds to strategically important projects that are neglected by private financial institutions. [4] However, a large theoretical and empirical literature suggests mission drift by these banks (La Porta et al., 2002), especially where political interference in the financial system is rampant (Cole, 2009; Sapienza, 2004; and Khwaja and Mian, 2005).

Similarly ambiguous predictions have been made about the effect of foreign bank ownership. Studies of foreign bank entry in developing countries have indicated that local profit motives are an important driving force for entry.[5] This would suggest that foreign banks are interested in offering services to a broader clientele (see, for example, Focarelli and Pozzolo, 2001; Buch and DeLong, 2004; and Buch and Lipponer, 2004). However, the most recent theoretical and empirical studies suggest that foreign banks tend to "cherry pick" (see, for example, Detragiache et al. 2008; Gormley, 2010; and Mian, 2006), which would imply that foreign bank penetration would be negatively related to the broader use of financial

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[3] There have been a series of country-level studies on Brazil, Mexico, and Romania, among others, over the past ten years. Most of these, however, use a sample that is geographically limited, even within the respective country. For a broader overview and discussion, see World Bank (2007).

[4] Government-owned savings banks in Western Europe were often founded with the explicit goal of expanding access to formal banking services to low-income individuals and postal savings banks often achieve a large clientele (Baums, 1994; World Bank, 2006).

[5] Earlier U.S. based studies on foreign bank entry in the 1980s suggest that foreign banks are not interested in offering services to the population at large but that they primarily "follow their clients" (see Goldberg and Saunders, 1981a,b; Cho et al., 1987; Hultman and McGee, 1989; and Goldberg and Grosse, 1994, among others).

services. Using firm-level data from Eastern and Central Europe Giannetti and Ongena

(2009) find that firms of all sizes benefit from foreign bank presence. Rueda Maurer (2008)

finds that larger companies report lower financing obstacles in transition countries with

higher foreign bank penetration, while small firms' perceived financing obstacles do not vary

with ownership structure. De Haas and Naaborg (2005) find that while foreign banks in

Eastern and Central Europe initially focused on large corporates, they have increasingly gone

down-market in recent years. We add to this literature on the effect of bank ownership

structure by focusing on the use of banking services by individuals rather than enterprises.

Our paper is the first to our knowledge which examines how the quality of the

financial infrastructure and creditor protection affect the use of banking services at the

household-level. Evidence based on aggregate cross-country data suggests that generous

deposit insurance does not foster financial intermediation but increases the fragility of the

financial sector Cull et al. (2005). Concerning payment system development and physical

outreach of banks, Beck et al. (2007) show that firms'financing constraints are negatively

associated with larger physical bank networks, as measured by branches and ATMs. Cross-

country variation in information sharing and creditor rights have been related to aggregate

credit levels (Djankov et al. 2007) as well as to firms' access to credit (Beck et al., 2004;

Love and Mylenko, 2003). With respect to transition countries Brown et al. (2009) show that

countries that established credit registries at an earlier stage have already seen a positive

impact on firm financing, by increasing availability and lowering cost, especially to more

opaque firms. Haselman and Wachtel (2007) show that banks in better functioning legal

environment more willing to lend to SMEs and to provide mortgages.

While this is the first paper documenting the use of banking services at the household-

level across transition economies and linking this to bank ownership and the financial

infrastructure, some words of caution are due. Given the cross-sectional nature of our data,

and the potential endogeneity of bank ownership and financial infrastructure, we are not able to make causal inferences on the relationship between the structure of the banking system and the *level* of use of banking services. At the country-level our analysis therefore focuses on how bank ownership and financial infrastructure affects the composition of households which are banked. Interacting country-level characteristics with individual and household characteristics allows us to mitigate endogeneity concerns. Second, given the nature of the survey, we have limited information on the different financial services used by individuals and have to focus on bank accounts and bank cards. On the other hand, the survey does allow us to correlate the use of these two principal financial products with an array of individual and household characteristics.

The remainder of this paper is organized as follows. The next section introduces the data and methodology. Section 3 presents the empirical results and section 4 concludes.

2. Data and Methodology

Our household-level data are taken from the EBRD-World Bank *Life in Transition Survey* (LITS) implemented in 2006. The survey covers 29 countries including 28 transition countries in which the EBRD operates and Turkey.[6] In each country, 1,000 interviews were conducted with randomly selected households, yielding a total of 29,000 observations. The LITS dataset includes sampling weights to account for the differences in the ratio of sample size to population size across countries, as well as for sampling biases within countries. We use these weights when calculating summary statistics, as well as throughout our univariate and multivariate analysis.[7] The first part of the LITS questionnaire is conducted with the household head and elicits information on household composition, housing, and expenses.

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[6] The survey does not cover Turkmenistan.
[7] Details of the LITS methodology are available at http://www.ebrd.com/country/sector/econo/surveys/lits.htm.

The second part of the questionnaire is administered to one adult member of the household[8] and yields information on that person's attitudes and values, current economic activity, life history, as well as personal information. We use information from the first part of the survey to yield indicators of household use of banking services, location, income, and economic activity. From the second part of the survey we yield indicators of education, current and past employment status, nationality and religion Table 1 provides definitions, the sources and summary statistics for all variables which we employ from the LITS.

Table 1 here

We employ two indicators of household use of banking services. The dummy variable *Account* measures whether any member of the household has a bank account. The dummy variable *Card* measures whether any member of the household has a bank (debit or credit) card. Only 36 percent of surveyed households have a bank account while 31 percent have a bank card. The use of bank accounts and bank cards are naturally highly correlated: 68 percent of households with a bank account also have a debit or credit card, and 81 percent of households with a debit or credit card also have a bank account.

Table 2 shows that there is substantial variation in the use of banking services across countries, with banked households much more common in Central Europe than in the CIS countries. More than 75 percent of households in Croatia, the Czech Republic, Estonia, Slovakia and Slovenia have a bank account, while less than 5 percent of households in Armenia, Azerbaijan, Kyrgyzstan, Tajikistan and Uzbekistan do so. Table 2 also compares our indicators of banking service use to existing aggregate measures of financial access from the EBRD transition report (Credit / GDP), the World Bank- CGAP database on financial

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[8] The second part of the questionnaire was conducted with the adult household member with the most recent birthday. This implies that for 40% of the households two people (the household head and another adult member) were interviewed, while for 60% of the households one person was interviewed (the household head).

access (Savings accounts and Loan accounts in proportion to the population), and Honohan's

(2008) estimates of the share of population that uses formal banking services. The country

means reported in panel A of the table suggest that the aggregate number of savings and loan

accounts may substantially overestimate the use of banking services at household level. For

example, the total number of accounts as reported by CGAP suggests that every second adult

person in Albania has a savings account with a bank. Our household data, by contrast shows

that less than one-fifth of the households in Albania have a bank account. Rank correlations

reported in panel B of the table suggest that our household-level indicators of bank use are

highly correlated with Credit / GDP and the Honohan composite indicator, but somewhat less

correlated with the more recently gathered measures of financial access.

Table 2 here

In the first step of our empirical analysis we relate our indicators of banking service

use $B_{h,c}$ of household h in country c to characteristics of the household X_h controlling for

country level determinants with country-fixed effects α_c:

$$B_{h,c} = \alpha_c + \beta_1 X_h + \varepsilon_{h,c}$$
(1)

At the household-level we expect the use of banking services to be related to

household location, wealth, income and income sources. The dummy variable *Urban* captures

whether the household is located in an urban rather than a rural area. The dummy variable

Homeowner measures whether the household owns its dwelling and is our indicator of

household wealth. The variable *Expenses* is our measure of household income and measures

total household expenses in USD per year.[9] In addition to our measures of income level we

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[9] Household expenses are measured according to the OECD household equivalized scale

use four dummy variables to capture the main source of household income; *Self-employed income*, *Capital income*, and *Transfer income,* with *Wage income* as the reference category.[10]

We expect household use of banking service to be related to the respondent's level of education, current and past economic activity, religion and social integration. The dummy variable *Professional* captures whether the respondent to the survey has professional training or a tertiary-level degree. The variables *Formal employed* and *State employed* capture the respondent's most recent employment history, i.e. whether the respondent had a formal employment contract or was employed by the government during the past 12 months. The variable *Worked* indicates whether the respondent ever worked for wages after 1989. We use two indicators of social integration: *Minority* captures whether the respondent belongs to a national minority, while *Language* indicates whether (s)he speaks at least one official language. The variable *Muslim* is a dummy variable indicating followers of Islam.

We expect that urban households and households with higher income and wealth are more likely to use banking services. We expect that households, which had formal employment in the past year, or where a family member worked for wages in the past, are more likely to have a bank account, while we expect that households which rely on self-employment and transfer income to be less likely to use banking services. Minority households and households which do not speak an official language are hypothesized to be less likely to have a bank account. We expect that Muslim households may be less likely to use bank accounts for two reasons: First, these households may, for religious reasons choose not to deal with non-Islamic financial institutions which demand and offer interest payments. Second, in countries or regions where Muslims constitute a minority population they may face discrimination by banks or their employees.

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[10] Capital income includes income from renting out real estate and as well as income from other assets. Transfer income covers both state and private (charity) transfers. Using separate dummy variables for these two transfer categories yields qualitatively similar findings.

In the second step of our analysis we examine how the structure of bank-ownership in each country as well as the development of the financial infrastructure affect the use of banking services across household types. Specifically, we focus on the interaction of four indicators of bank-ownership as well as four indicators of the financial infrastructure with our vector of household-level explanatory variables, controlling for level effects across countries with country fixed effects.

$$B_{h,c} = \alpha_C + \beta_1 X_h + Z_c * X_h + \varepsilon_{h,c} \qquad (2)$$

where Z_c is one of eight country-level indicators.

We use four indicators of bank-ownership. *Foreign banks* and *State banks* measure the share of banking assets controlled by foreign-owned and state-owned banks respectively and are taken from the EBRD transition report. While in Turkey foreign banks had only 4 percent of total banking assets in 2003-2005, their market share was over 90 percent in Croatia, Estonia, Lithuania and Slovak Republic. While there were no state-owned banks in Armenia, Estonia, Georgia and Lithuania, their market share was 56% in Azerbaijan. Using data from de Haas et al. (2010) we consider two separate categories of foreign banks, the market share of *Foreign greenfield banks* and the share of *Foreign takeover banks*.[11] While the former are banks that were established anew by international banks, the latter are existing banks that changed ownership through sale to international banks. In Estonia, international banks only entered through takeovers, while 56 percent of foreign banks in Croatia are greenfield and 39 percent takeover banks.

We also employ four indicators of the financial infrastructure. First, we consider *Deposit insurance coverage* as indicator of the financial safety net to assess whether the

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[11] The sum of foreign greenfield and foreign takeover banks does necessarily add up to the share of all foreign banks, as the data come from two different data sources. The foreign bank variable is from the EBRD transition report and is based on the full sample of banks in each country. The foreign greenfield and foreign takeover variables are taken from the EBRD Banking Environment and Performance Survey (BEPS), which only covers a subsample of the banks in each country (de Haas et al, 2010)

degree to which depositors are insured is associated with differences in the composition of the depositor population. This variable indicates the deposit insurance coverage relative to GDP per capita and is from Demirguc-Kunt et al. (2005). Azerbaijan, Georgia, Moldova, and Mongolia do not have an explicit deposit insurance (and therefore a value of zero), while Macedonia has a value of 9.9. Turkey is the only country with unlimited deposit insurance and we therefore set its value to 10.   Second, we use an indicator of payment system development and the physical outreach of the banking system, as captured by the number of point of sales terminals (*POS terminals*) per one million inhabitants. This indicator is measured for 2006 and taken from the World Bank's Global Payment Survey (Cirasino and Garcia, 2008). In Kyrgyzstan, there are 100 POS terminals per one million inhabitants, while there are almost 18,000 in Turkey. [12] Third, we use an indicator of the information sharing framework between banks. The variable *Credit information* is scaled between zero and six and captures the extent to which borrower information is being collected and shared among financial institutions. It ranges from zero in eight countries without credit registry to five in Bosnia, Estonia, Hungary and Turkey. Finally, we use an indicator of the legal framework to protect creditors. *Creditor rights* is an index the legal rights of secured creditors in- and outside insolvency of a company and ranges from zero to ten. The index ranges from two in Tajikistan to nine in Albania, Latvia, Montenegro, and Slovak Republic. Both indicators of creditor protection are taken from the World Bank *Doing Business* database.

Based on the hypothesis that foreign banks cherry pick clients in host countries, we expect that foreign bank ownership may encourage the use of banking services particularly among urban, wealthy, formally employed, and professional households. This effect should be more pronounced for foreign banks that are greenfield investments than for foreign banks that were previously domestic, be it private or state-owned. By contrast, if state-owned banks

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[12] Given its skewed distribution, we use the log of this indicator in our empirical analysis.

contribute to a broader access of financial services we expect that rural households, lower-income households, and the self-employed benefit in particular from state-bank presence.

Our predictions concerning the relation between our indicators of financial infrastructure and the use of bank services are ambiguous. Low income and marginalized population segments, including minorities, might be more likely to open bank accounts in countries with a higher deposit insurance coverage. On the other hand, it might be richer, wealthier and better educated segments of the population who are informed about deposit insurance and are attracted to banks in countries with higher deposit insurance coverage. Finally, too generous but incredible deposit insurance might also undermine trust in banks (Cull et al., 2005). Better payment systems in the form of more *POS terminals* might entice especially rural population and less wealthy segments of the population to use banking services. On the other hand, it might be as well the richer, wealthier and more educated segments who are more attracted to banks in countries with better physical access possibilities.

We predict that in countries with better credit information sharing and creditor rights, the costs and risk for banks to reach out to more marginal segments of the population might be reduced. On the other hand, improved creditor protection may encourage those households to open bank accounts which are more likely to use credit, i.e. households with wage income and wealthier households which anticipate that they might require a consumer or mortgage loan.

3. Results

A. Household determinants of the use of bank services

Table 3 reports univariate results for household determinants of banking service use: We compare characteristics of those households with a bank account to those of households

without an account, as well as those with a bank card to those without a bank card. These sub-sample comparisons confirm our main predictions. Households with a bank account or a bank card are more often located in urban areas, have higher incomes, and more often have professional training. Also as expected, households that use banking services are less often self-employed, rely less on transfer income, belong less often to a minority, are more likely to speak an official language, and are less likely to be Muslim. Perhaps surprisingly, users of bank accounts and bank cards are less likely to be home owners. This may reflect the fact that urban households which have more bank accounts are less likely to own their own house than rural households.

Table 3 here

Many of the differences between households which use banking services and those that do not are not only statistically, but also economically significant. For example, households with a bank account have average household expenses of just over 3,400 USD per year compared to just 1,306 USD for households without a bank account. In 63 percent of the households with a bank account the responding adult has professional training, while 50 percent of these households have formal employment. The corresponding shares for households without a bank account are just 44 percent and 26 percent, respectively. Further, while only 8 percent of the households with a bank account are Muslim, this is the case for 30 percent of the households without a bank account.

While these univariate comparisons show a clear difference between the banked and the unbanked population, many of the household and individual characteristics are strongly correlated with each other. What then drives the use of banking services – income, education, geography, societal status or religion? To answer this question, we next turn to

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multivariate analysis. Table 4 displays marginal effects of probit estimates for the dependant variables *Account* (columns 1-2) and *Card* (columns 3-4). The standard errors in each model account for clustering at the country-level. For each dependent variable, we report first a regression with household characteristics and country-fixed effects only, before adding individual characteristics of the adult respondent in the household. The overall fit of our model is reasonably good, with Pseudo R^2 ranging from 0.37 to 0.44. While a large share of this is due to country-fixed effects, regressions without the country-fixed effects yield Pseudo R^2 of at least 0.24.

Table 4 here

The Table 4 results show that the use of banking services is significantly related to household location, income, wealth, economic activity and religion. The reported estimates in columns (2) and (4) suggest that urban households are 5 percent more likely to have a bank account and 8 percent more likely to have a bank card than rural households. Raising household expenses by one standard deviation (2,331 USD) from the sample mean (2,570 USD) increases the probability of having a bank account by roughly 12 percent and that of having a bank card by 10 percent. Homeowners are 3 percent more likely to have a bank account, although they are not more likely to have a bank card. Households that rely on transfer income are 11 percent (15 percent) less likely to have a bank account (card). After controlling for household location and income, self-employed households are not less likely to have a bank account than households with wage income. However, households which rely on self-employment are less likely to have a bank card, suggesting that such products are offered more to households with a formal income source.

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Controlling for household income and economic activity, households with a professional adult are 9 percent more likely to have a bank account and 5 percent more likely to have a bank card, suggesting that literacy (and thus maybe also financial literacy) does affect bank use. Households with an adult who has formal employment are 8 percent more likely to have a bank account and bank card. Finally, our multivariate results suggest that there is a significant impact of social status and religion on the use of banking services. Not speaking the official language reduces the likelihood of having a bank account by 8 percent, while being member of a national minority reduces the probability of having a bank card by 2 percent. Being a Muslim reduces the probability of having a bank account / card by 8 and 5 percent, respectively.

How robust are our household-level results across countries? To check the robustness of our results we replicate model 2 in Table 4 for each country separately. The results displayed in Table 5 suggest that the positive relation between the use of a bank account and household income, household education or reliance on transfer income are highly robust. While we find substantial variation in the economic magnitude of their effect, household *Expenses* yield a highly significant coefficient in each of our country-specific regressions except for Azerbaijan and Tajikistan.[13] Our indicators of education (*Professional*) and *Transfer income* are significant at the 10 percent level in 17 of the 29 regressions. By contrast, the effects of household location (*Urban*), economic activity (*Formal employed*), wealth (*Homeowner*) and religion (*Muslim*) are less robust across countries. [14]

Table 5 here

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[13] The estimates for some countries are imprecise, due to the fact that the prevalence of bank accounts is either very low (less than 10% in Armenia, Georgia, Kyrgyzstan, Moldova, Tajikistan, and Uzbekistan) or very high (more than 90% in Slovenia and Estonia)

[14] Several of the variables are dropped from the probit regressions as they perfectly predict the outcome. We therefore re-run the regressions with OLS. This affects especially the estimates for the Muslim dummy, which is also negative and significant for Belarus, Estonia, Hungary, Kyrgyzstan, and Romania.

Interestingly, the negative coefficient for Muslims in our full sample is confirmed mainly in the south-east European countries Bosnia, Macedonia and Montenegro which have significant Muslim populations.[15] We explore whether this negative effect of Muslim in south-east Europe is demand driven, i.e. the disapproval of interest-bearing accounts or conventional banks by practicing Muslims, or the result of supply constraints, such as discrimination. In order to distinguish between these two explanations, we focus on Bosnia and distinguish between the Serbian (Republika Srpska, RS) and the Croatian-Muslim part (Federation, FBH) of the country.[16] If the demand constraint is dominating, we should observe a significant difference between Muslim and non-Muslim households in both parts of Bosnia. If the supply constraint is dominating, we should observe a significant difference between Muslims and non-Muslims in RS, but not in FBH. Univariate comparisons show indeed no significant difference between Muslims and non-Muslims in FBH, while non-Muslims are almost three times as likely to have a bank account as Muslims in RS (50% vis-a-vis 17%). Multivariate regressions as in Tables 5 that control for our full set of individual and household characteristics including income show that Muslims are 11 percent less likely to have a bank account in FBH and 27 percent less likely to have a bank account in RS. While this points to some demand constraints (as there is still a difference even in FBH), supply constraints seem to feature prominently as can be seen by the much larger difference between Muslim and non- Muslims in the use of bank accounts in RS.

B. Bank-ownership, financial infrastructure, and the use of banking services

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[15] Table 5 also reports a negative effect of Muslim for Poland and a positive effect for Bulgaria, but less than 1% of the surveyed polish households and only 11% of the Bulgarian households are Muslim.

[16] Since the LITS survey data contains the primary sampling unit in which the households are located, we are able to assign households to different parts of Bosnia. Our sample contains 660 households in the Bosniak and 340 households in the Serbian part.

The results displayed in Table 5 show that the use of bank services across households displays strong country-specific patterns. These differences in the composition of banked households may be related to the large differences in economic development across our sample of countries. They may however also be driven by differences in the ownership structure of the banking sector as well as the financial infrastructure, which have been shown to affect the *level* of financial outreach across countries Beck et al.(2007, 2008).

Our data confirms that the level of financial outreach across the transition economies is also related to bank ownership and financial infrastructure. Figure 1 displays scatter-plots relating the share of households with bank accounts by country to our country-level indicators of bank ownership (*Foreign banks, State banks*) and the financial infrastructure (*Deposit insurance, POS terminals, Credit information, Creditor rights*).[17] The figure suggests that the use of bank accounts is higher in countries with a stronger presence of foreign-owned banks and lower in countries with a stronger presence of state-owned banks. We also find a positive relationship between deposit insurance coverage and the use of bank accounts, a relationship that is stronger if we exclude the two outliers Turkey and Macedonia. Similarly, we find a strong positive relationship between the development of the payment system (as measured by POS terminals per million inhabitants) and the share of households with bank accounts. Finally, the graphs suggest a positive, though weak, relationship between creditor rights and credit information sharing, on the one hand, and the share of households with bank accounts, on the other hand.

Figure 1 here

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[17] Using the share of households with bank cards rather than bank accounts yields similar findings.

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The objective of this study is to examine the composition of households which are banked, rather than the level of financial outreach. In the following we therefore present multivariate regressions in which we examine the interaction effects of our country-level indicators of bank ownership (Table 6) and financial infrastructure (Table 7) with our household-level explanatory variables. For each model reported in Table 6 and 7 we present the main effects of our household-level explanatory variables in the first column and the interaction terms of our country-level indicators with the household variables in the second column. All models are estimated with OLS due to the difficulty of interpreting the marginal effects of interaction terms in non-linear models (Ai and Norton, 2003). Our findings, however, are confirmed when considering the coefficient estimates of probit models.

Examining the differential effects of our country-level variables rather than their level effect mitigates the endogeneity issue inherent in our cross-sectional data. For example, it is just as likely that the presence of foreign banks is be driven by the number of banked households in a country, as that financial outreach is driven by the presence of foreign banks. By contrast, while it is likely that cherry-picking foreign banks will increase the share of wealthy, urban and professional households which have bank accounts, it is less plausible that foreign bank entry is driven in by the share of such households which already have accounts with a domestic bank. If anything, one would expect the opposite.

Table 6 here

Table 6 presents our analysis of how bank ownership is related to the use of bank services by different household types. The results presented for model (1, 3, and 4) of the table confirm our prediction that foreign banks may cherry-pick their clients among households in the transition economies. In model (1) we find that *Homeowners* and households with higher

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Expenses or a *Professional* adult are more likely to use bank accounts in countries with stronger foreign bank presence. In line with these results households which rely on transfer income are less likely to have a bank account in countries with stronger foreign bank presence. The composition effect of foreign bank entry seems to be stronger for greenfield foreign banks than for takeover foreign banks, as shown by models (3) and (4). We find that homeowners and households with wage earners with state employment are more likely to have a bank account in countries with a higher share of foreign greenfield banks, while households relying on transfer income are less likely to use banking services. By contrast foreign takeover banks only have a (weak) negative effect on households which rely on transfer income.

The results for model (2) in table 4 do not support the conjecture that state banks disproportionally benefit rural (rather than urban) or poorer households. In fact, our results suggest that state-bank ownership has no impact at all on the composition of banked households.

Table 7 here

The Table 7 regressions show a significant impact of financial infrastructure on the composition of the banked population across countries. Column (1) shows that a higher *Deposit insurance* coverage benefits mainly urban, high-wealth, high-income households and households with capital income. The interaction effect of *Deposit insurance* with household expenses is not only statistically, but also economically significant. Raising household expenses by one standard deviation (2,331 USD) from the sample mean (2,570 USD) increases the probability of having a bank account by 5.6 percent in a country with no deposit

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insurance (e.g. Azerbaijan). By comparison, in a country like Poland with a deposit insurance coverage of 5 times per capita GDP the same income increase would raise the probability of having a bank account by 9.4 percent. Households that do not belong to a minority and speak the official language are also more likely to have a bank account in countries with higher deposit insurance coverage. These results suggest that higher deposit insurance coverage does not help expand bank penetration to marginal or "small" savers, but rather benefits the better-off and socially-integrated households.

The column (2) results show that a better development of the payment system, as measured by the log of *POS terminals* per 1 million inhabitants, also encourages wealthier and high-income households to use bank accounts. Payment system development further has a stronger effect on bank use by households with a history of formal employment (*Worked*) and a weaker effect on households which rely on transfer income.[18]

The column (3) results of Table 7 show that high-income households are more likely to have a bank account in countries with more effective *Credit information* sharing. Also recipients of transfer income are less likely to do so than wage earners. None of the other interaction terms enter significantly. The column (4) results of Table 7, finally, show that homeowners are more likely to use banking services in countries with better *Creditor rights*. While households that belong to a minority are less likely to have a bank account, the results in column (4) suggest that better creditor rights mitigate this effect. Better creditor rights seem to encourage the use of banks more among households which speak the official national language, than households that do not.

One concern with our results is that some of the ownership and regulatory variables are highly correlated with GDP per capita and thus that the interaction terms with household characteristics might therefore reflect the effect of economic development on the composition

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[18] Using ATMs per capita as an alternative indicator of payment system development, we find that homeowners are more likely to have a bank account in countries with higher ATM penetration, while the other interactions are not significant. Results are available on request.

of the banked population. Spearman rank correlations show that our indicators *Foreign banks* (.45) and *State banks* (-.35), *Deposit insurance* (.42) and *Credit information* (.41) are only moderately correlated with per capita GDP, while the correlation is particularly strong for *POS terminals* (.75) and weak for *Creditor rights* (.00).

To disentangle the compositional effects of economic development from those of our bank ownership and the financial infrastructure we re-run the regressions of Tables 6 and 7 including interaction terms of all household and individual characteristics with log GDP per capita.[19] The results of these regressions confirm most of our findings, but do show a weaker relation between foreign bank ownership, financial infrastructure and the holding of bank accounts by high-income and wealthier households: We find that transfer recipients are less likely to have a bank account in countries with more *Foreign banks*, while the interaction term of Foreign banks with *Homeowner*, *Expenses* and *Professional* are no longer significant once we control for the interactions with GDP per capita. We continue to find that a higher *Deposit insurance* coverage encourages urban residents, and recipients of capital income to use bank accounts, while it discourages minority households. Again, the interaction term with *Homeowner* and *Expenses* are no longer significant once we control for the interactions with GDP per capita. A better developed payments system (*POS terminals*) and the sharing *Credit information* encourage richer households (as measured by *Expenses*) to use bank accounts, By contrast, the interaction term between *Creditor rights* and homeownership is no longer significant once we control for the interactions with GDP per capita.

Overall, the results in Table 6 and 7 suggest that bank ownership and the development of the financial infrastructure have substantial compositional effects on the banked population. Our results are consistent with hypotheses that see foreign banks catering more to high-income households rather than broadening access. They are not consistent with

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[19] We take the log of GDP per capita in US dollars averaged over 2003-2005 from the EBRD transition report. Results of these non-reported regressions are available on request.

hypotheses that see state bank ownership and financial infrastructure improvements benefitting mainly previously unbanked groups. Higher deposit insurance coverage and payment system development seem to mostly encourage higher-income segments of the population to hold bank accounts.

4. Conclusions

This paper explores the characteristics of households which hold bank accounts and bank cards in transition countries and relates the composition of the banked population across countries to variations in bank ownership, deposit insurance, payment systems and creditor protection. Using data across 28 transition economies and Turkey, we find a strong correlation of household location, income level, economic activity, education and religion and the use of bank accounts and bank cards. We find that households with higher wealth, income, and education are more likely to hold bank accounts in countries with stronger foreign bank presence. By contrast we find no evidence that state-bank ownership is associated with financial inclusion of rural and poorer households. We find a strong effect of deposit insurance coverage and payment system development on the composition of the banked population, with higher income and wealthier segments benefiting more.

Our result on the distributional effects of foreign bank ownership on the use of bank services, however, are also consistent with Beck and Martinez Peria (2010) who show for Mexico a reorientation of foreign entrants towards urban and richer areas of the country. The fact that foreign banks cater more towards households with higher incomes, higher education and less reliant on transfer income might indicate that foreign banks see higher profitability among these groups. Our finding that government ownership of banks is not associated with cross-country variation in the use of banking services and does not benefit any specific group is consistent with a large literature on the consequences of government ownership in banking.

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Our results shed doubt on the ability of policy levers to broaden the financial system to disadvantaged groups. Specifically, attempts to broaden the use of financial services through state-owned banks and deposit insurance do not increase the likelihood that poorer, less wealthy and socially less included segments of the population use formal financial services. Similarly, a better contractual and information framework seems to benefit mostly the higher-income and wealthy segments of the population, most likely by allowing the banks to differentiate more carefully among potential clients. Our results do not imply that these policies do not help broaden financial access rather that it is difficult to target them to certain groups.

We see this study as a first attempt at documenting and exploring intra- and cross-country variation in the use of financial services. As more household surveys become available, we will be able to exploit time-series variation and thus address to a larger extent concerns of endogeneity and omitted variable bias.

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Table 1. Variable definitions and sources

Variable name	Definition	Source	Period	Observations	Mean	Std. Dev.	Min	Max
Household-level data (n=29'002)								
	Access to finance							
Account	Dummy=1 if a household member has a bank account, =0 otherwise	LITS	2006	28980	0.36	0.48	0	1
Card	Dummy=1 if a household member has a debit or credit card, =0 otherwise	LITS	2006	28977	0.30	0.46	0	1
	Household characteristics							
Urban	Dummy =1 if household lives in an urban or metropolitan area, =0 otherwise	LITS	2006	29002	0.57	0.49	0	1
Homeowner	Dummy =1 if household owns its dwelling, =0 otherwise	LITS	2006	29002	0.89	0.32	0	1
Expenses	Household equivalized expenses using OECD scales in USD per year (Log)	LITS	2006	28933	7.48	0.91	1.0	10.3
Self employed income	Dummy =1 if main household income source is self-employment or farming, =0 otherwise	LITS	2006	29002	0.17	0.37	0	1
Capital income	Dummy =1 if main household income source is income from capital / rent, =0 otherwise	LITS	2006	29002	0.00	0.06	0	1
Transfer income	Dummy =1 if main household income source are state or private transfers , =0 otherwise	LITS	2006	29002	0.33	0.47	0	1
	Respondent characteristics							
Professional	Dummy=1 if respondent has professional training or degree, =0 otherwise	LITS	2006	28995	0.49	0.50	0	1
Formal employed	Dummy =1 if respondent had formal labor contract in past 12 months , =0 otherwise	LITS	2006	29002	0.32	0.47	0	1
State employed	Dummy =1 if respondent worked for a state company or institution in past 12 months , =0 otherwise	LITS	2006	29002	0.18	0.39	0	1
Worked	Dummy =1 if respondent worked for wages 1989-2005, =0 otherwise	LITS	2006	29002	0.64	0.48	0	1
Minority	Dummy =1 if respondent is perceived to be member of an minority, =0 otherwise	LITS	2006	28976	0.11	0.31	0	1
Language	Dummy =1 if respondent speaks an official national language =0 otherwise	LITS	2006	28972	0.94	0.23	0	1
Muslim	Dummy =1 if respondent is muslim, =0 otherwise	LITS	2006	28971	0.22	0.42	0	1
Country-level data (n = 29)								
	Access to finance							
Credit / GDP	Private credit in % of GDP	EBRD	2003-2005	29	25.9	13.8	6.6	60.0
Saving accounts	Saving accounts in commercial banks per 100 adults	CGAP	2009	18	144.4	91.4	11.5	375.5
Loan accounts	Loan accounts in commercial banks per 100 adults	CGAP	2009	13	42.6	30.0	2.5	102.2
Composite	Composite index of access to financial services	Honohan	2008	27	41.7	28.5	1.0	97.0
	Banking structure & institutions							
Foreign banks	Assets share of foreign controlled banks in domestic banking system, in %.	EBRD /BCL	2003-2005	29	50.3	31.5	4.3	98.3
Foreign greenfield	Assets share of foreign greenfield banks in domestic banking system, in %.	dHFT	2004	20	15.4	16.6	0.0	56.0
Foreign takeover	Assets share of foreign takeover banks in domestic banking system, in %.	dHFT	2004	20	45.2	34.1	0.0	99.6
State banks	Assets share of state controlled banks in domestic banking system, in %.	EBRD /BCL	2003-2005	29	15.9	20.0	0.0	69.0
Deposit insurance	Deposit insurance coverage / per capita GDP	DKL	2003	29	2.0	2.6	0.0	10.0
POS terminals	Point of sale terminals per 1 mio inhabitants (log)	GPSS	2006	26	7.7	1.4	4.6	9.8
Credit information	Information sharing index, scale 0-6	DB	2004-2005	27	2.5	1.9	0.0	5.0
Creditor rights	Legal rights index for secured creditors, scale 0-10	DB	2004-2005	29	6.1	2.0	2.0	9.0

Sources: LITS: EBRD Life in Transition survey. EBRD: EBRD (2009). DB: www.doingbusiness.org. CGAP: www.cgap.org/financialindicators. DKL: Deminrgüc-Kunt, Karacaovalli & Laeven (2005). dHFT: De Haas, Fereira & Taci (2010). Honohan: Honohan (2008). BCL: Barth, Caprio and Levine (2009), 2003 and 2007 datasets. GPSS: Global Payment Systems Survey (Cirasino and Garcia, 2008).

Table 2. Household use of banking services and access to finance

Panel A. Means by country

This panel reports means for each variable by country. The means for the variables *Account* and *Card* are adjusted for sampling weights in the LITS survey. Definitions and sources of the variables are provided in Table 1.

	Account (share)	Card (share)	Credit / GDP (in %)	Saving accounts (per 100 adults)	Loan accounts (per 100 adults)	Composite (in %)
Albania	0.18	0.17	10	45	10	34
Armenia	0.04	0.04	7	57	19	9
Azerbaijan	0.01	0.02	8	70	.	17
Belarus	0.15	0.23	14	.	.	16
Bosnia	0.40	0.29	17	38	34	17
Bulgaria	0.18	0.41	35	199	46	56
Croatia	0.80	0.75	60	.	.	42
Czech Rep	0.79	0.61	33	168	.	85
Estonia	0.94	0.82	42	275	102	86
Georgia	0.05	0.09	11	66	35	15
Hungary	0.64	0.50	45	157	.	66
Kazakhstan	0.11	0.12	28	.	.	48
Kyrgyzstan	0.02	0.01	7	11	3	1
Latvia	0.65	0.63	53	122	69	64
Lithuania	0.69	0.53	31	214	38	70
Macedonia	0.20	0.14	21	130	96	20
Moldova	0.09	0.11	22	.	.	13
Mongolia	0.32	0.10	29	194	27	25
Montenegro	0.29	0.21	17	.	.	.
Poland	0.66	0.43	29	153	.	66
Romania	0.27	0.35	16	.	43	23
Russia	0.31	0.21	24	.	.	69
Serbia	0.56	0.42	26	.	.	.
Slovak Rep	0.79	0.48	32	.	.	83
Slovenia	0.97	0.75	49	139	.	97
Tajikistan	0.01	0.01	16	.	.	16
Turkey	0.24	0.30	18	185	32	49
Ukraine	0.15	0.18	27	376	.	24
Uzbekistan	0.04	0.02	25	.	.	16
Mean	0.36	0.31	26	145	43	45

Table 2. Household use of banking services and access to finance

Panel B. Rank correlations

This panel reports Spearman rank correlations between the country averages for each variable. * denotes significance at the 0.05 level. The means for the variables Account and Card are adjusted for sampling weights in the LITS survey. Definitions and sources of the variables are provided in Table 1.

	Account	Card	Credit / GDP	Saving accounts	Loan accounts	Composite
Account	1					
Card	0.8252*	1				
Credit / GDP	0.7622*	0.8531*	1			
Saving accounts	0.5944*	0.6573*	0.7902*	1		
Loan accounts	0.6014*	0.7063*	0.8182*	0.6573*	1	
Composite	0.7902*	0.9441*	0.8601*	0.7972*	0.6364*	1

Table 3. Household determinants of banking services - Univariate tests

The table reports means for each variable for the full sample as well as for the sub-samples of households with and without a bank account, and for the sub-samples of households with and without a debit / credit card. All means are adjusted for sample weighting in the LITS survey. The Smple tests reports the results of linear independant sample tests which examine whether household characteristics differ for households with and without a bank account or debit / credit card. ***, **, * denote significance at the 0.01, 0.05 and 0.10-level. Definition and sources of the variables are provided in Table 1.

	All Households	Household has bank account			Household has debit / credit card		
		yes	no	Sample test	yes	no	Sample test
Urban	0.60	0.69	0.55	***	0.73	0.54	***
Homeowner	0.87	0.83	0.89	***	0.81	0.89	***
Expenses	7.53	8.15	7.18	***	8.20	7.23	***
Self employed income	0.16	0.12	0.18	***	0.11	0.18	***
Capital income	0.01	0.01	0.00	***	0.01	0.00	***
Transfer income	0.34	0.25	0.39	***	0.19	0.41	***
Professional	0.51	0.63	0.44	***	0.64	0.45	***
Formal employed	0.35	0.50	0.26	***	0.56	0.26	***
State employed	0.19	0.23	0.17	***	0.26	0.16	***
Worked	0.67	0.76	0.62	***	0.78	0.62	***
Minority	0.11	0.09	0.12	***	0.09	0.12	***
Language	0.94	0.96	0.93	***	0.95	0.94	***
Muslim	0.22	0.08	0.30	***	0.09	0.28	***

Table 4.   Household-level determinants of banking services

The dependent variables in this table are *Account* (models 1-2) and *Card* (models 3-4). All models report marginal effects from probit estimations and include country fixed effects. Observations are weighted according to sample weighting in the LITS survey. Standard errors are reported in brackets and are adjusted for clustering at the country level. ***, **, * denote significance at the 0.01, 0.05 and 0.10-level. All variables are defined in Table 1.

Dependant variable	Account		Card	
Model	(1)	(2)	(3)	(4)
Urban	0.0662***	0.0542***	0.0855***	0.0787***
	[0.0161]	[0.0157]	[0.0141]	[0.0144]
Homeowner	0.0308**	0.0251**	0.003	-0.001
	[0.0126]	[0.0124]	[0.0150]	[0.0151]
Expenses	0.199***	0.182***	0.168***	0.154***
	[0.0125]	[0.0113]	[0.00872]	[0.00763]
Self employed income	-0.016	0.035	-0.0760***	-0.0338*
	[0.0192]	[0.0219]	[0.0147]	[0.0184]
Capital income	0.053	0.099	-0.0817**	-0.049
	[0.0749]	[0.0807]	[0.0378]	[0.0442]
Transfer income	-0.166***	-0.113***	-0.195***	-0.148***
	[0.0288]	[0.0296]	[0.0110]	[0.0135]
Professional		0.0864***		0.0517***
		[0.0126]		[0.0102]
Formal employed		0.0853***		0.0849***
		[0.0181]		[0.0181]
State employed		-0.006		0.018
		[0.0122]		[0.0137]
Worked		0.0310***		0.012
		[0.0106]		[0.0118]
Minority		-0.021		-0.0229*
		[0.0161]		[0.0120]
Language		0.0865***		0.037
		[0.0278]		[0.0352]
Muslim		-0.0765***		-0.0500***
		[0.0207]		[0.0189]
Method	Probit	Probit	Probit	Probit
Pseudo R2	0.43	0.44	0.37	0.38
Country fixed effects	yes	yes	yes	yes
# Households	28,911	28,825	28,908	28,822
# countries	29	29	29	29

Table 5. Household-level determinants of *Account* by country

This table reports marginal effects of selected household-level explanatory variables for the dependent variable *Account* based on regressions by country. The estimated probit model for each country is identical to model (2) in Table 4 (excluding country fixed effects). Non reported variables included in each regression are *Self employed*, *Capital income*, *State employed* and *Minority*. Observations are weighted according to sample weighting in the LITS survey. ***, **, * denote significance at the 0.01, 0.05 and 0.10-level. All variables are defined in Table 1.

Explanatory variable: Country	Urban	Homeowner	Expenses	Transfer income	Professional	Formal employed	Worked	Language	Muslim	Obs.	Pseudo R2
Full sample	0.0542***	0.0251**	0.182***	-0.113***	0.0864***	0.0853***	0.0310***	0.0865***	-0.0765***	28825	0.44
Albania	0.100***	0.051	0.103***	-0.0967***	0.111***	0.008	-0.031		-0.037	997	0.23
Armenia	-0.015		0.0341***	-0.008	0.0224**	0.007	-0.013	-0.162		954	0.22
Azerbaijan	-0.001	-0.021	0.003		0.007	-0.002	0.007	-0.016		733	0.33
Belarus	0.025	-0.016	0.0869***	-0.0716**	0.036	-0.003	-0.029	0.072		983	0.13
Bosnia	0.003	-0.113*	0.252***	-0.160***	0.054	0.166***	-0.017	-0.107	-0.161***	971	0.16
Bulgaria	0.0647**	0.0856***	0.117***	-0.036	0.103***	-0.002	0.039	-0.265	0.108*	999	0.15
Croatia	0.0464*	0.0837*	0.0943***	-0.106***	0.0877***	0.0820**	0.019	0.144	-0.003	975	0.28
Czech Rep	0.017	0.019	0.150***	-0.278***	0.034	0.0773*	0.0511*			991	0.37
Estonia	0.0320**	0.013	0.0123**	-0.0328**	0.0384***	0.020	0.005	0.006	-0.575	936	0.28
Georgia	0.008	-0.002	0.0181***	-0.0154**	0.00758*	0.020	0.001		0.004	944	0.31
Hungary	0.067	0.136**	0.199***	-0.245***	0.232***	0.035	0.131***			997	0.25
Kazakhstan	-0.002	-0.102**	0.0582***	0.0616*	0.0598***	-0.039	0.024	-0.018	-0.011	997	0.07
Kyrgyzstan	-0.002	0.000	0.00600**	0.006	0.0124**	0.000	0.000	0.00474*	-0.018	992	0.26
Latvia	-0.0843**	-0.008	0.279***	-0.011	0.110***	0.182***	0.070	0.191***		994	0.28
Lithuania	-0.050	0.025	0.249***	-0.030	0.103**	0.0929*	0.024	0.182*		998	0.17
Macedonia	0.0585*	0.023	0.185***	-0.0698**	-0.023	0.057	0.011	0.075	-0.0948***	977	0.14
Moldova	0.0395**	-0.031	0.0440***	0.004	0.0583***	0.033	-0.002	0.0510***	0.098	995	0.16
Mongolia	-0.004	0.014	0.182***	-0.054	0.120***	0.164***	0.019	-0.043		999	0.14
Montenegro	0.013	0.048	0.186***	-0.203***	0.0609*	-0.027	-0.054	-0.056	-0.0751*	977	0.13
Poland	0.156***	0.011	0.291***	-0.139***	0.0996***	0.109**	0.022		-0.407*	999	0.23
Romania	0.214***	-0.058	0.178***	0.025	0.045	0.045	0.0911***	0.063		997	0.22
Russia	0.0626*	0.028	0.150***	0.195***	0.0731*	0.0975**	-0.015	0.010	-0.022	1000	0.07
Serbia	0.036	0.091	0.117***	-0.243***	0.115***	0.130**	0.0810*	0.058	-0.118	994	0.16
Slovak Rep	0.0509*	0.104	0.136***	-0.304***	0.019	0.055	0.0565*	0.298		988	0.32
Slovenia	-0.0168*	0.009	0.0232***	-0.0520***	0.005	-0.009	0.006			894	0.15
Tajikistan	0.000		0.001		0.001	-0.002		-0.002	0.000	196	0.57
Turkey	0.140***	0.042	0.127***	0.028	0.114	0.118	0.009	0.189***	0.063	999	0.12
Ukraine	-0.026	-0.044	0.0870***	-0.0822***	-0.002	-0.007	0.0555**	0.023	-0.019	987	0.11
Uzbekistan	0.004	0.0302***	0.0198*	-0.021	0.014	0.007	0.008	0.014	0.002	998	0.08

Table 6. Bank ownership and bank accounts

The dependent variable in this table is *Account*. All models report estimates from OLS regressions including country fixed effects. Observations are weighted according to sample weighting in the LITS survey. Standard errors are reported in brackets and are adjusted for clustering at the country level. ***, **, * denote significance at the 0.01, 0.05 and 0.10-level. All variables are defined in Table 1.

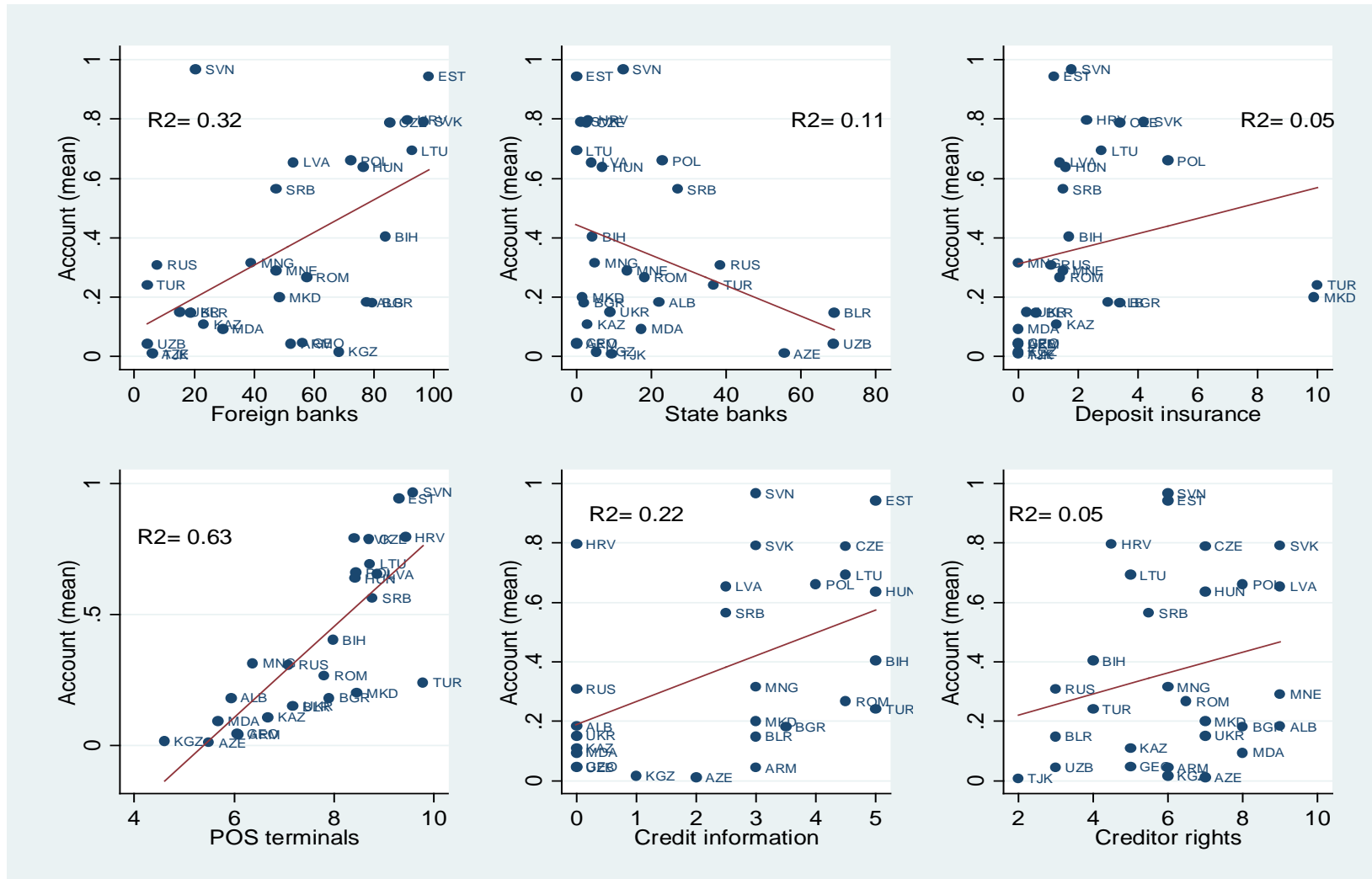| Model	(1)		(2)		(3)		(4)	
	Main effects	Foreign banks *	Main effects	State banks *	Main effects	Foreign greenfield *	Main effects	Foreign takeover*
Urban	0.020	0.000	0.0292**	0.000	0.031	0.001	0.0361*	0.000
	[0.0173]	[0.000286]	[0.0123]	[0.000444]	[0.0196]	[0.000517]	[0.0199]	[0.000317]
Homeowner	-0.008	0.000476*	0.0260**	0.000	-0.003	0.00157***	0.001	0.000
	[0.0126]	[0.000247]	[0.0111]	[0.000299]	[0.0110]	[0.000414]	[0.0168]	[0.000285]
Expenses	0.0727***	0.000710*	0.119***	-0.001	0.126***	0.000	0.101***	0.001
	[0.0194]	[0.000372]	[0.0172]	[0.000522]	[0.0237]	[0.000711]	[0.0180]	[0.000449]
Self employed income	0.0404*	0.000	0.009	0.001	0.0606**	-0.001	0.0712**	-0.001
	[0.0212]	[0.000356]	[0.0154]	[0.000516]	[0.0275]	[0.00100]	[0.0319]	[0.000503]
Capital income	0.058	0.000	0.020	0.003	0.109	0.001	0.016	0.002
	[0.112]	[0.00212]	[0.0575]	[0.00230]	[0.0793]	[0.00385]	[0.0668]	[0.00189]
Transfer income	0.036	-0.00203***	-0.0922***	0.001	-0.027	-0.00350**	-0.017	-0.00144*
	[0.0263]	[0.000570]	[0.0297]	[0.000849]	[0.0390]	[0.00165]	[0.0429]	[0.000800]
Professional	0.0300**	0.000468*	0.0581***	0.000	0.0395***	0.001	0.0539***	0.000
	[0.0125]	[0.000263]	[0.0132]	[0.000325]	[0.0135]	[0.000847]	[0.0132]	[0.000234]
Formal employed	0.0371*	0.000	0.0759***	-0.001	0.0804***	-0.001	0.0476*	0.000
	[0.0215]	[0.000352]	[0.0206]	[0.000560]	[0.0254]	[0.000786]	[0.0237]	[0.000412]
State employed	-0.007	0.000	-0.014	0.000	-0.024	0.00113**	0.002	0.000
	[0.0131]	[0.000290]	[0.0130]	[0.000425]	[0.0149]	[0.000482]	[0.0125]	[0.000349]
Worked	0.008	0.000	0.0231**	0.000	0.016	0.001	0.0350*	0.000
	[0.0102]	[0.000192]	[0.00950]	[0.000274]	[0.0108]	[0.000544]	[0.0173]	[0.000287]
Minority	-0.023	0.000	-0.010	0.000	0.006	-0.001	-0.021	0.000
	[0.0152]	[0.000312]	[0.0125]	[0.000593]	[0.0172]	[0.000997]	[0.0242]	[0.000451]
Language	0.033	0.000	0.050	0.000	0.0653*	0.000	0.0577*	0.000
	[0.0277]	[0.000612]	[0.0297]	[0.000728]	[0.0362]	[0.00144]	[0.0318]	[0.000686]
Muslim	-0.012	-0.001	-0.0496**	0.000	-0.0572*	0.000	-0.0557**	0.000
	[0.0165]	[0.000476]	[0.0228]	[0.000861]	[0.0316]	[0.00123]	[0.0242]	[0.000582]
Method		OLS		OLS		OLS		OLS
R2		0.48		0.47		0.44		0.44
Country fixed effects		yes		yes		yes		yes
# Households		28,825		28,825		19,851		19,851
# countries		29		29		20		20

Table 7. Financial infrastructure and bank accounts

The dependent variable in this table is *Account*. All models report estimates from OLS regressions including country fixed effects. Observations are weighted according to sample weighting in the LITS survey. Standard errors are reported in brackets and are adjusted for clustering at the country level. ***, **, * denote significance at the 0.01, 0.05 and 0.10-level. All variables are defined in Table 1.

Model	(1)		(2)		(3)		(4)	
	Main effects	Deposit insurance *	Main effects	POS terminals*	Main effects	Credit info*	Main effects	Creditor rights*
Urban	0.016	0.0104***	-0.015	0.007	0.026	0.005	0.041	-0.001
	[0.0113]	[0.00242]	[0.0506]	[0.00675]	[0.0165]	[0.00596]	[0.0268]	[0.00482]
Homeowner	0.006	0.00539*	-0.106**	0.0153***	0.006	0.004	-0.028	0.00740*
	[0.0104]	[0.00289]	[0.0395]	[0.00475]	[0.0189]	[0.00559]	[0.0241]	[0.00362]
Expenses	0.0873***	0.0117**	-0.0895*	0.0267***	0.0696***	0.0169***	0.059	0.008
	[0.0143]	[0.00435]	[0.0518]	[0.00751]	[0.0143]	[0.00510]	[0.0358]	[0.00601]
Self employed income	0.0284*	-0.003	0.0897*	-0.008	0.0488**	-0.008	0.023	0.000
	[0.0148]	[0.00256]	[0.0457]	[0.00657]	[0.0205]	[0.00667]	[0.0457]	[0.00769]
Capital income	0.014	0.0137**	0.288	-0.024	0.208	-0.042	-0.058	0.018
	[0.0612]	[0.00556]	[0.314]	[0.0358]	[0.125]	[0.0359]	[0.208]	[0.0364]
Transfer income	-0.0519**	-0.009	0.150	-0.0279**	-0.017	-0.0188*	0.041	-0.019
	[0.0252]	[0.00856]	[0.0884]	[0.0133]	[0.0300]	[0.0110]	[0.0625]	[0.0110]
Professional	0.0552***	0.001	0.012	0.006	0.0465***	0.005	0.032	0.004
	[0.0130]	[0.00604]	[0.0447]	[0.00623]	[0.0158]	[0.00610]	[0.0226]	[0.00408]
Formal employed	0.0545**	0.009	-0.041	0.014	0.0537**	0.007	0.031	0.006
	[0.0198]	[0.00610]	[0.0954]	[0.0127]	[0.0217]	[0.00690]	[0.0410]	[0.00738]
State employed	-0.0186*	0.004	0.021	-0.003	0.002	-0.004	-0.025	0.002
	[0.00943]	[0.00323]	[0.0709]	[0.00865]	[0.0188]	[0.00625]	[0.0261]	[0.00414]
Worked	0.0191**	-0.002	-0.049	0.00900**	0.009	0.004	0.012	0.001
	[0.00927]	[0.00159]	[0.0288]	[0.00415]	[0.0101]	[0.00386]	[0.0210]	[0.00402]
Minority	-0.003	-0.00460*	0.0793*	-0.0115*	0.009	-0.008	-0.0776**	0.0106**
	[0.0114]	[0.00248]	[0.0439]	[0.00665]	[0.0135]	[0.00501]	[0.0301]	[0.00491]
Language	0.031	0.0106*	-0.064	0.016	0.0426*	0.003	-0.086	0.0223**
	[0.0226]	[0.00531]	[0.0948]	[0.0156]	[0.0210]	[0.0110]	[0.0525]	[0.00980]
Muslim	-0.0401**	-0.002	0.012	-0.009	-0.0340**	-0.011	-0.029	-0.003
	[0.0178]	[0.00553]	[0.0650]	[0.0112]	[0.0126]	[0.00890]	[0.0369]	[0.00562]
Method		OLS		OLS		OLS		OLS
R2		0.48		0.47		0.48		0.47
Country fixed effects		yes		yes		yes		yes
# Households		28,825		25,848		26,848		28,825
# countries		29		26		27		29

Figure 1. Household use of bank accounts, bank ownership and financial infrastructure

This figure plots the country mean of *Account* against each of the following country-level variables: *Foreign banks, State banks, Deposit insurance, POS terminals, Credit information* and *Creditor rights.* All variables are defined in Table 1.

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