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FOREIGN BANK OWNERSHIP AND HOUSEHOLD CREDIT

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Abstract: This paper uses survey data for over 23,000 households from 28 transition countries in 2010 to explore how the use of household credit is related to foreign bank ownership. In countries with higher foreign bank presence we find a stronger relation between household income, education and employment status and the use of credit cards and mortgages. Our findings are robust to endogeneity and are supply rather than demand-driven. They suggest that foreign banks- as compared to domestic banks – are more likely to cherry-pick their retail credit customers.

Keywords: Access to finance, Household credit, Bank-ownership.

JEL Codes: G2, G18, O16, P34

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1. Introduction

Access to banking services is viewed as a key determinant of economic well-being for households. Savings and credit products make it easier for households to align income and expenditure patterns over the life-cycle, to insure themselves against income and expenditure shocks, as well as to undertake investments in human or physical capital. While there is a growing literature on access by enterprises to external finance in developing countries, there is little cross-country evidence on the availability of household credit; in particular, how cross-country variation in the the structure of the banking sector affects the type of households which use credit.

The relationship between the ownership structure of the banking system and access to credit has been intensively discussed, both in the theoretical and empirical literature. On the one hand, foreign banks are considered more efficient, have better access to (cross-border) funding, employ new technologies, increase competition and thus ultimately enhance access to credit in the host countries. On the other hand, foreign-owned banks are conjectured to "cherry pick" clients, leaving less profitable client segments underserved. While the cherry-picking argument has been applied predominantly to enterprise finance it may also apply to household credit. If, e.g. due to different credit-assessment techniques, foreign banks focus their lending on large and transparent rather than small and opaque firms, it is also likely that the same banks will focus on wealthy, formally employed households as opposed to low-income households which are active in the informal sector.

This paper uses household survey data from 27 transition economies and Turkey taken from the EBRD's Life in Transition Survey (LITS) database to assess how cross-country variation in bank ownership affects the composition of the population which uses unsecured and secured credit. Specifically, we assess whether foreign banks cherry-pick their retail borrowers, by focusing on high-income, formally employed and well educated segments of

the population. By focusing on the compositional effects of bank ownership, we reduce simultaneity and omitted variable biases that may explain the relationship between foreign bank presence and the aggregate level of household credit. By using an instrumental variable approach and including additional interaction terms between household and country characteristics we further control for endogeneity and omitted variables biases. Finally, we disentangle supply and demand-side effects by considering triple differences, gauging whether the interaction between foreign bank share and household characteristics varies between young and old households who should have different demand for credit according to the life-cycle hypothesis of consumption.

Transition economies are an almost ideal sample to study the relationship between bank ownership and household use of credit. After the fall of communism, 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, 2007). These different strategies were mostly driven by different macroeconomic policy programs and less if at all by concerns about access to household credit.

Our empirical analysis shows a large variation in the use of credit by households across the transition economies. Specifically, we find that between 35 and 50 percent of households in the Czech Republic, Estonia, Slovakia, Slovenia, Hungary and Turkey have a credit card, which is comparable to the levels of credit card use in Germany, Italy, France, or the U.K. In contrast, less than 5 percent of households in Azerbaijan, Kyrgyzstan, Tajikistan

[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 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.

and Moldova have a credit card. Within the transition countries we find that the use of credit cards and mortgage loans is more common among households with higher income, formal employment and university education. Critically, we find evidence that the composition of the households with credit is related to bank ownership. The market share of foreign banks is positively associated with the use of credit cards and mortgage loans among high-income, formally employed and better educated households. These findings are robust to the use of instrumental variables for foreign bank penetration – total population and distance to Western Europe – and are also robust to additional interactions between the legal environment or GDP per capita and these three household characteristics. By splitting the sample into young and old households who – according to the life-cycle theory of consumption - have different demand for credit we are able to gauge whether the compositional effect of bank ownership on household credit is demand or supply-driven. We find no significant difference across age groups in the elasticity of credit to income, employment status and education across countries with different levels of foreign bank ownership. We therefore conclude that our findings are predominantly supply-side driven.

This paper contributes to the nascent literature on household use of formal banking services. On a cross-country level, Beck et al. (2007) find that foreign ownership is negatively associated with outreach as measured by the number of accounts per capita, while Beck et al. (2008) find that barriers for bank customers are lower in banking systems with 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; Aterido et al., 2011).[3] None of the previous literature, however, has used survey data for such a broad cross-section of countries as we do in this paper. To our best knowledge, this is the

[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).

first study to examine how variation in the structure of the banking sector across countries affects the composition of households which use secured and unsecured credit.

We also relate to the extensive literature on the relationship between bank ownership and credit market development. This literature makes ambiguous predictions for 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.[4] 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 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. De Haas and Naaborg (2006) find that while foreign banks in Eastern and Central Europe initially focused on large corporates, they have increasingly gone down-market in recent years. Supporting this view, recent bank-level evidence by Brown and De Haas (2012) suggests that foreign bank takeovers in Emerging Europe did lead to increased lending to the household sector. By contrast, 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. We add to this literature by providing household-level evidence on the effect of bank ownership structure.

Finally we contribute to the literature on how the structure of the banking sector and legal institutions affect the provision of household credit and thus liquidity constraints to the

[4] 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).

intertemporal consumption choice of households. Based on the 1983 US Survey of Consumer Finances Cox and Jappelli (1993) provide evidence that roughly 17% of US households were liquidity constrained. Using the same data and methodology, Gropp et al (1997) document that liquidity constraints are stronger in states which provide more generous bankruptcy exemptions to households. Duygan-Bump et al. (2009) examine household survey data for 14 Western European Economies for 1984-2001 and show that legal enforcement of debt contracts and information sharing arrangements affect arrears on household credit. Guiso et al. (2004) exploit variation in social capital across Italian provinces to show that social capital rather than legal institutions have a significant impact on household access to unsecured consumer credit and mortgage loans. We add to this literature by documenting how foreign ownership of the banking sector affects the availability of credit to households in low and middle-income countries.

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

2. Data and methodology

This section describes the different data sources, presents descriptive statistics and discusses our methodology.

A. Household-level data

Our household-level data are taken from the EBRD-World Bank *Life in Transition Survey* (LITS) implemented in 2006 and 2010, as a repeated cross-sectional survey. Our analysis focuses on the 2010 survey wave as this wave provides more comprehensive information on

the use of secured and unsecured credit.[5] The 2010 survey wave covered 30 countries in which the EBRD operates, comprising 29 transition countries and Turkey.[6] In each country, roughly 1,000 interviews were conducted with randomly selected households for each wave of the survey. A consistent two stage sampling method was used, with 50 areas based on census, electoral register or other territorial classification systems per country as primary sampling units (PSU).[7] 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.[8] In order to separate the use of household credit from the use of business credit we drop all self-employed households from our sample, i.e. households which report that their main source of income is a family-owned business. After further excluding households with missing information on socioeconomic control variables we are left with a total sample of 23,126 observations.

The first part of the LITS questionnaire is conducted with the household head and elicits information on household composition, housing, expenses and use of services. The second part of the questionnaire is administered to one adult member of the household and yields information on that person's attitudes and values, current economic activity, life history, as well as personal information.[9] We use information from the first part of the survey to yield indicators of household use of credit, income, economic activity as well as household size, and the gender and age of the household head. From the second part of the survey we obtain

[5] The 2006 survey does not allow us to isolate household use of credit cards and thus unsecured credit. We confirm the robustness of our results for secured credit (mortgages) with data from the 2006 survey wave.
[6] The survey does not cover Turkmenistan. Due to missing data on country-level variables, we cannot include Uzbekistan and Kosovo in our analysis.
[7] The total number of PSU sample frames varied from 182 in Mongolia to over 48,000 in Turkey, with a similar variation in their size, ranging from a few hundred to several hundred thousand.
[8] Details of the LITS methodology are available at: http://www.ebrd.com/downloads/research/economics/litsrepo.pdf.
[9] 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).

indicators of education, employment status, social integration, and religion. Table 1 provides definitions and the sources for all variables. Table 2 provides summary statistics.

Table 1 here

Table 2 here

We employ two indicators of household credit, one each for unsecured and secured debt. The dummy variable *Credit card* measures whether any member of the household has a credit card. The dummy variable *Mortgage* indicates whether a household owns its own dwelling and finances it mainly with a mortgage. Summary statistics presented in Table 2 show that 22 percent of the households in our sample have a credit card and 9 percent have a mortgage. The use of credit cards and mortgages is only weakly correlated: Of the 4,406 households which have a mortgage only 48 percent also have a credit card.[10]

We find substantial variation in the use of household credit across the countries in our sample, with the use of unsecured and secured credit much more common in the new EU member states than in the CIS countries. Between 35 and 50 percent of households in the Czech Republic, Estonia, Slovakia, Slovenia, Hungary and Turkey have a credit card, which is comparable to the levels of credit card use in Germany, Italy, France, or the U.K. By contrast, less than 5 percent of households in Azerbaijan, Georgia, Kyrgyzstan, Tajikistan and Uzbekistan have a credit card. Only two countries in our sample, Hungary (30 percent) and Bosnia (24 percent) show levels of mortgage use which are comparable to that in Western Europe.[11] By contrast, even in the advanced economies of Latvia, Lithuania and Slovenia not more than 10 percent of households have a mortgage.

[10] The correlation coefficient between *Credit Card* and *Mortgage* is 0.199 and is significant at the 1% level.
[11] Data from the 2010 LITS suggests that 20 percent of households in Germany and 25 percent of households in Italy have a mortgage. The level of mortgage use in the UK (42 percent), Sweden (43 percent) and France (59 percent) is substantially higher.

Figure 1 compares our indicators of household credit to an aggregate measure of financial depth, *Private Credit / GDP*, which is defined as the total outstanding credit to the domestic, private, non-financial sector as share of GDP and which has been used widely in the finance and growth literature.[12] Spearman rank correlations on country averages suggest that there is positive though far from perfect correlation between our survey-based indicators of use of household credit and the aggregate credit volume.[13]

Figure 1 here

Motivated by the conjecture that foreign banks may "cherry pick" clients we are primarily interested in how strongly the use of household credit is related to three indicators of the attractiveness of households as bank clients: household income, employment status and education. The variable *Expenses* is our proxy of household income and measures annual household expenses in USD.[14] We expect households with higher income to both have higher demand for financial services and be more attractive clients for banks. The dummy variable *University degree* captures whether the respondent to the survey has a tertiary-level degree, while the variable *Formally employed* captures the respondent's most recent employment history, i.e. whether the respondent had a formal employment contract during the past 12 months. We expect both to be positively correlated with the use of household credit, education through its potential link with financial literacy and formal employment through its payroll link.[15] In our sample, 39% of households have a formally employed member and 21% have an adult with a university degree.

[12] See, e.g., Beck, Levine and Loayza (20000).
[13] As suggested by Figure 1 the correlation between Private Credit /GDP and *Credit card* (0.56) is stronger than that between Private Credit /GDP and *Mortgage* (0.40). Both rank-correlations are significant at the 5% level.
[14] Household expenses are measured according to the OECD household equivalized scale. In line with the literature on household surveys, LITS asks about expenses rather than income as households are more likely to be truthful about expenses.
[15] See van Rooij, Lusardi and Alessie (2011) and Lusardi (2008) for U.S. and Dutch based evidence, respectively, on the link between financial literacy and financial market participation.

We control for an array of household characteristics which previous research (e.g. Cox and Jappelli 1993) suggests affect household demand for and access to credit. The dummy variable *Young* indicates if the household head is below 40 years of age as the permanent income hypothesis suggests that young households are more likely to demand credit. We include two further demographic characteristics, including household *Size*, which is the number of adults and children in the household, and the gender of the household head, captured by the dummy variable *Male*. We use a dummy variable *Transfer receiver* to capture households which rely on state or private transfers as their main source of income. and are thus less likely to have access to household credit.[16] *Language* indicates whether the respondent speaks at least one official language and is thus an indicator of social integration. Households which do not speak an official language are hypothesized to be less likely to have access to credit. The variable *Muslim* is a dummy variable indicating followers of Islam. We expect that Muslim households are less likely to use banking services. Grosjean (2011) shows that regions in South-East Europe which were under the influence of the Ottoman Empire, and thus the religion-based prohibition of interest-lending persisted longer show a significant lower level of financial development.

B. Country-level data

Our indicator of foreign bank-ownership is defined as the asset share of foreign controlled banks in the respective country, averaged over 2007 to 2009, (*Foreign banks*) and is taken from the EBRD transition report. There is considerable variation in the market share of foreign banks across countries: foreign banks have only 16 percent of total banking assets in Turkey, while their market share is 98 percent in Estonia. Figure 2 shows a positive correlation between foreign bank ownership and our two indicators of household credit.

[16] Transfer income covers both state and private (charity) transfers. Using separate dummy variables for these two transfer categories yields qualitatively similar findings.

While this correlation is strong for the share of households with a mortgage, it is very noisy for the use of credit cards. [17]

Figure 2 here

To control for endogeneity, we instrument the foreign bank market share with two country-level variables. Specifically, we use total *Population* and the *Distance* to Frankfurt. We also employ two country-level explanatory variables to control for omitted variables biases. As in the case of the foreign bank share, we average data over 2007-2009. First, we control for *GDP per capita* as a measure of aggregate income. Aggregate income levels differ strongly across our sample. In 2007-2009, the average (unweighted) GDP per capita was 8,101$ in our sample, but ranged from 714$ in Tajikistan to 25,001$ in Slovenia. Second, we control for *Creditor rights* from the Doing Business database of the World Bank; an index that increases in the rights of secured and unsecured creditors vis-a-vis debtors in- and outside bankruptcy. This index ranges from 2 in Belarus to 10 in Montenegro.

C. Methodology

To assess the hypothesis that foreign banks cherry pick high income, formally employed and better educated clients, we employ a difference-in-differences approach. In a first step, we conduct univariate difference-in-differences tests: We compare the incidence of household credit, in sub-samples of high vs. low-income households, formally and not formally employed households and households with and without university education. We conduct this difference test for countries with market shares of foreign banks above and below the sample median (70%). These univariate comparisons give us first insights into whether the elasticity of household credit to income, employment status and education varies

[17] The rank correlation coefficient between *Foreign Banks* and the country average of *Mortgage* is 0.7 ($p < .05$) while the correlation coefficient between *Foreign Banks* and *Credit Card* is 0.33 ($p < 0.1$).

across countries with different levels of foreign bank ownership. Results of our univariate analysis are presented in Table 3.

The second step of our analysis involves a multivariate regression analysis in which we employ household-level control variables to control for differences in the composition of households across countries. We relate our two indicators of household credit $B_{h,c}$ of household *h* in country *c* to our main household-characteristics X_h , household-level control variables Z_h and the interaction terms of our main household characteristics with the foreign bank share F_c.

$$B_{h,c} = \alpha_p + \beta_1 X_h + \beta_2 X_h * F_c + \gamma Z_h + \varepsilon_{h,c} \qquad [1]$$

While β_1 measures the relationship between our household characteristics and household credit, β_2 captures the differential relationship between household characteristics and household credit across countries with different market shares of *Foreign Banks*. We include PSU fixed effects α_p to control for omitted variables at the region-level within countries.

We allow for clustering of error terms on the country-level to control for possible correlation between error terms across households within countries. We estimate model [1] with a linear probability model due to the difficulty of interpreting the marginal effects of interaction terms in non-linear models (Ai and Norton, 2003).[18] In addition, we would lose PSU where all or no household uses household credit if we used non-linear regression models with PSU fixed effects. Results from model [1] are presented in Table 4.

In the third step of our analysis we account for endogeneity and omitted variables bias. Note that as we examine differential effects of foreign bank presence across household types our results cannot be driven by an aggregate endogeneity effect, i.e. that foreign banks expand their activities in countries where households on aggregate use more credit.

[18] In unreported regressions, we confirm our findings qualitatively using probit regressions.

However, it could be that foreign banks choose (for other reasons) to expand their activities in countries where high income, formally employed and well educated households use more credit. For example foreign banks are more likely to expand their activities in countries with stronger expected income growth in the formal economy. It might be precisely in such economies that high-income, formally employed and well educated households incur more debt in order to smooth consumption, because they also expect their own incomes to grow fast in future. To account for this endogeneity bias we instrument *Foreign banks* with the *Population* of each country in 2007 and the *Distance* between the capital city of the country and Frankfurt. Country size may be either positively or negatively related to foreign bank presence. On the one hand, larger countries (e.g. Russia or Turkey) may be more likely to attract international banks as they provide better possibilities to exploit scale economies and undertake arms-length operations. On the other hand, smaller countries (e.g. Montenegro) may be more likely to attract foreign banks as they do not provide sufficient market scale to sustain an independent banking sector. Closer distance to the home base, on the other hand, reduces transaction costs and information frictions between headquarters and subsidiary (Mian, 2006).

To account for omitted variable bias in model [1] we control for the interaction of the "cherry-picking" household characteristics with *GDP per capita* and *Creditor Rights* so as not to mix up compositional effects of aggregate income levels and the efficiency of the contractual framework with those of bank ownership. Existing evidence shows for example that countries with higher income levels display a broader access to banking services (see e.g. Beck et al. 2007). We present these results in Table 5.

In a final step, we aim to disentangle supply and demand-side effects. Significant coefficient estimates β_2 in model [1] can be explained both by households being more attracted to foreign banks as their incomes and education rise and their employment status is

formalized or by foreign banks reaching more out to these groups. Only the latter can be properly referred to as cherry-picking. In order to distinguish between these two effects, we gauge whether the interaction between the market share of *Foreign banks* and the three "cherry-picking" household characteristics varies between the group of old and young households. According to the life-cycle hypothesis the demand for consumer finance should be stronger for younger households. In line with the empirical literature on intertemporal consumption choice (see Attanasio and Weber, 2010, for an overview), we define young households as those whose head is less than 40 years of age. If our results from model [1] are driven by demand-side factors, we should observe differences across these two age groups in the interaction between *Foreign Bank* share and the three "cherry-picking" household characteristics, with the effect being stronger for younger households. Specifically, we augment model [1] with an additional triple interaction term:

$$B_{h,c} = \alpha_p + \beta_1 X_h + \beta_2 X_h * F_c + \beta_3 X_h * F_c * Y_h + \beta_4 X_h * Y_h + \gamma Z_h + \varepsilon_{h,c} \qquad [2]$$

where Y_h is a dummy variable indicating young households. The coefficient β_3 measures the differential effect of foreign bank share on the elasticity of household credit Card to the "cherry-picking" household characteristics for young as opposed to old households. We also include the respective double interaction terms. Results are presented in Table 6.

3. Results

A. Univariate and Multivariate results

Table 3 presents our univariate difference-in-differences comparisons for the incidence of Credit card (Panel A) and Mortgage (Panel B). As mentioned in section 3 above we compare the incidence of credit across three household characteristics that constitute the best proxies for cherry-picking: Household income, formal employment status of the adult household respondent and whether the respondent has a university degree. Differences

across household characteristics are compared for countries with low market shares of foreign banks versus countries with high market shares of foreign banks. All differences and difference-in-differences tests are based on t-tests adjusted for sample weights.

The Table 3 results provide preliminary evidence for cherry-picking by foreign banks. We find that the share of households with a *Credit card* is significantly higher in countries with a high market share of foreign banks (25.4%) than in countries with a low market share of foreign banks (18.8%). In line with our predictions this difference is significantly stronger, however, for high-income (10%) than for low-income households (2.8%). Similarly, the difference in the use of credit cards between countries with a high market share of foreign banks compared to countries with a low market share of foreign banks is also higher for formally employed households (15%) than for households without formal employment (1.5%) and for households with a university degree (14.3%) than for households without a university degree (5.3%). The results in Panel B for mortgages provide similar significant differences, though of lower economic size, as the share of households with mortgages is substantially lower than the share of households with a credit card. In summary, the results in Table 3 show that the relation between household debt and household income, employment or education is significantly stronger in countries with a larger market share of foreign banks.

Table 4 provides multivariate evidence for cherry-picking of foreign banks. In columns (1-2) we present OLS regressions of *Credit card* separately for the sample of countries with low foreign bank market share (column 1) and high foreign bank share (column 2) respectively. Column (3) presents our estimation of model [1] using the complete sample of countries and interacting *Expenses*, *Formally employed* and *University degree* with *Foreign banks* to gauge the continuous variation of the elasticity of *Credit card* to these three household characteristics across countries with different market shares of foreign banks. Columns (4) to (6) repeat this exercise for our second dependent variable *Mortgage*. All

regressions contain PSU fixed effects and the standard errors reported in brackets are adjusted for clustering at the country level.

The Table 4, column (1) estimates show a strong elasticity of *Credit card* use to income, employment status and education in countries with a high share of foreign banks. All three variables enter positively and significantly at the 1% level in column (1). The same variables enter positively, but at a lower significance level and with smaller coefficients in a sample of countries with low share of foreign bank assets (column 2). Specifically, while *Expenses* continues to enter positively and significantly at the 1% level, *University degree* enters positively and significantly at the 5% level, while *Formally employed* enters positively but insignificantly. The coefficient sizes are between 30 and 60% smaller. The results in column (3) confirm that the elasticity of *Credit card* use with respect to household income and employment status increases significantly with the share of foreign banks; the interaction terms of *Expenses* and *Formally employed* with *Foreign Banks* enter positively and significantly, while the interaction term *University degree *Foreign Banks* enters positively but is imprecisely estimated.

These results are not only statistically but also economically significant. To illustrate the economic significance, compare Slovenia where the market share of foreign banks is 30% and neighboring Croatia where the market share of foreign banks is 90% In Slovenia, a one standard deviation in *Expenses* is associated with an a 4.9% higher likelihood of having a credit card, while in Croatia, the same variation is associated with a 9.2% higher likelihood. Similarly, we estimate that in Slovenia households with formal employment (a university degree) are 0.3% more likely to use a credit card than households without formal employment while for Croatia the effect of formal employment is estimated at 7.9%. Finally, we estimate that in Slovenia households with a university degree are 3.2% more likely to use

a credit card than households without a university degree while for Croatia the effect of higher education is estimated at 5.1%.

The columns (4) to (6) results in Table 4 confirm these findings for *Mortgage*, though as in our univariate tests reported in Table 3 with smaller coefficient sizes. Households with higher income and a university degree are more likely to have a mortgage in countries with a higher share of foreign banks, while it is only income that enters significantly in the regression of Mortgage for countries with low foreign bank share. *Formally employed* does not enter significantly in either regression. In column 6 we find that the elasticity of *Mortgage* to income and education varies across countries with different levels of foreign bank share, though these interactions are significant only at the 10% level. Households with formal employment do not seem to be more likely to have a mortgage than households without formal employment, independent of the share of foreign banks.

Considering our household-level control variables the column (1-3) estimates confirm our main conjectures: Households with a younger head are more likely to have a credit card, while households which rely on transfer income or are Muslim are less likely to have a credit card. In addition, we find some evidence that households with a male head who speaks the official language are more likely to have a credit card, though these findings are significant only at the 10% level. The columns (4-6) results display similar, but less precise estimates of our household controls for mortgage use.

In the appendix, we provide several robustness tests. In Appendix Table A1, we present OLS and logit regression with country rather than PSU fixed effects.[19] Our results are consistent across the two estimation techniques and with the results reported in Table 3. The results Appendix Table A2 confirm our findings for *Mortgage* using data from the 2006 wave

[19] We cannot run logit regressions with PSU fixed effects as we would lose PSU where no or all households have access to household credit.

of LITS.[20] Specifically, the use of mortgages increases in income and education for countries with above-median foreign bank share, while none of the three "cherry-picking" variables enters significantly at the 5% level in the country group with foreign-bank share below the median.[21] The results in column (3) show that the elasticity of mortgage use with respect to income, employment status and education varies significantly across countries with different shares of foreign banks, though the interaction of *Foreign banks* with *University degree* only enters significantly at the 10% level.

B. Accounting for Endogeneity

Our findings so far provide evidence that the use of unsecured and secured household credit is more dependent on household income, employment status and education in countries where the market share of foreign banks is higher. But this does not necessarily imply that foreign banks cherry pick their retail credit clients. Our univariate and multivariate findings may be driven by endogeneity or spurious correlation due to omitted variables.. The instrumental variables estimates presented in columns (1-2) of Table 5 attempt to account for the potential endogeneity of foreign bank market shares.

The Table 5 regressions show that our results are robust to accounting for the potential endogeneity of foreign bank market shares. We instrument the market share of *Foreign banks* with a country's *Population* and the *Distance* to Frankfurt. The (non-reported) first stage regression shows that the market share of foreign banks is negatively correlated with population and negatively correlated with distance to Frankfurt. Both variables enter significantly at the 1% level and jointly significant with an F-test of 8.51.

[20] The question on the use of credit cards varies across the two waves, so that we do not use it for 2006.
[21] We still use 70% as cut-off between the two groups to make our results compare with those in Table 4, although the number of countries with "low" share of foreign banks is higher in the 2006 sample than in the 2010 sample.

The second-stage regressions reported in columns (1-2) of Table 5 show that the interaction of *Foreign Banks* with *Expenses* and *Formally employed* enter positively and significantly at the 1% level in the *Credit card* regression, while the interaction with *University degree* enters positively but not significantly. The interaction of *Foreign Banks* with *Expenses* and *University degree* enter positively and significantly at the 5% level, while the interaction with *Formally employed* enters positively and significantly at the 1% level.

A further concern regarding the causal interpretation of our findings is omitted variable bias: Foreign banks are more likely to enter more developed host markets and countries where it is easier to enforce contracts, so that our findings might be spurious. The column (3-6) regressions in Table 5 address this concern, gauging whether our findings are robust to controlling for the efficiency of the contractual framework and for the level of economic development. More precisely, we control for the interaction of *Creditor rights* or *GDP per capita* with the three "cherry-picking" household characteristics.

The column (3) and (4) regressions of Table 5 confirm our findings; none of the interaction of *Creditor rights* with *Expenses*, *Formally employed* or *University degree* enters significantly at the 5% level, while the interactions of *Foreign banks* enter with the same significance level and similar coefficient size. Similarly, in columns (5-6) none of the interactions of *GDP per capita* with the three "cherry-picking" variables enters significantly at the 5% level. The interaction of *Foreign banks* with *Expenses* enters significantly at the 10% level in both *Credit card* and *Mortgage* regressions, while the interaction with *Formally employed* enters positively and significantly at the 1% level in the *Credit card* regression. The other interaction terms enter positively but insignificantly and often with lower coefficient sizes. While these results confirm our overall findings, they also suggest that it may be difficult to fully disentangle the impact of foreign banks as opposed to other macroeconomic conditions on household use of credit.

C. Demand vs. Supply

The differential effect of foreign banks on the use of consumer credit across household types identified so far might be driven by either demand or supply-side factors. Households with higher incomes, formal employment and higher education might be more likely to use credit in countries with a higher share of foreign banks, because the products these banks offer (to all clients) appeal most to these segments of the population. Alternatively, foreign banks may target their retail credit products specifically to households with higher incomes, formal employment and higher education, while discouraging potential borrowers among low-income, informally employed and less educated households.

In order to isolate supply- side drivers of our results, we use household age as an instrument for credit demand: According to the life-cycle hypothesis, the demand for consumer credit should be stronger for younger households (see e.g. Attanasio and Weber 2010). Table 6 presents our corresponding regression results. Columns (1-2) present estimates for *Credit card*, while columns (3-4) present estimates for *Mortgage*. We run both OLS and IV regressions, where we again use population and distance to Frankfurt as instruments for the foreign bank market share.

The estimates presented in Table 6 suggest that our results are not predominantly driven by demand-side factors. The triple interaction terms between *Foreign banks*, the three "cherry-picking" household characteristics, and the dummy variable *Young* do not enter significantly in any of the four regressions. On the other hand, the double interaction terms between *Foreign banks* and the three "cherry-picking" household characteristics enter with similar coefficient size as in Tables 4 and 5. The interaction of *Foreign Banks* with *Expenses* enters positively and significantly at least at the 10% level in the regressions for *Credit card*. The interaction of *Foreign banks* with *Formally employed* enters significantly at the 1% level

in the regression of *Credit card*, and at the 10% level for *Mortgage*. The interaction of *Foreign Banks* with *University degree* also enters significantly in all four regressions. In all regressions we control for the main effect of *Young* (and other socioeconomic controls) as well as its interaction term with our cherry picking variables and foreign bank market share.

In robustness tests, reported in Appendix Table A3, we present univariate comparisons similar to Table 3, but with a three-way split, by foreign bank share, the three "cherry-picking" household characteristics and young vs. old households. Panel A reports the results for *Credit card* and Panel B reports the results for *Mortgage*. The results in Panel A show that the elasticity of credit card use to income, employment status and education varies significantly for both young and old households across countries with high and low foreign bank share. The difference of this difference-in-difference between young and old households (triple difference), on the other hand, is not significantly positive for any of our "cherry-picking" variables. Similarly, the Panel B results show that the elasticity of mortgage use to income, employment status and education varies significantly for both young and old households across countries with high and low foreign bank share, while the triple difference between young and old households is not significant across any of the three "cherry-picking" characteristics.

Together, these results suggest that the variation in the composition of households which use credit with foreign bank share does not vary across young and old households, i.e. two groups with different demand profiles. This suggests that our findings are supply- rather than demand-driven.

5. Conclusions

This paper uses household survey data from 27 transition economies and Turkey to assess how cross-country variation in bank ownership affects the composition of the households

which use credit. Specifically, we assess whether foreign banks cherry-pick their retail borrowers, by focusing on high-income, formally employed and well educated segments of the population. Our results suggest that the composition of the households which use credit is strongly related to bank ownership: The market share of foreign banks is positively associated with the use of credit cards and mortgage loans among high-income, formally employed and better educated households. This result is robust to accounting for differences in socioeconomic characteristics of surveyed households across countries, the endogeneity of foreign banks market share as well as omitted variable bias, e.g. the correlation between foreign bank presence and aggregate income levels or the efficiency of the legal environment. Testing for differential effects of foreign banks on (young) households with high demand for credit as opposed to (old) households with low demand for credit we conclude that our results are driven by supply side constraints rather than demand effects.

Our results on the cherry-picking of retail credit clients by foreign banks are consistent with previous evidence for small business lending and aggregate lending (Gormley 2010, Detragiache et al. 2008). Our results 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.

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Figure 1. Household credit and Private credit / GDP

This figure plots the share of households which have a *Credit card* and *Mortgage (as reported in the 2010 LITS)* against the volume of *Private credit* (in % of GDP, mean 2007-2009). All variables are defined in Table 1.

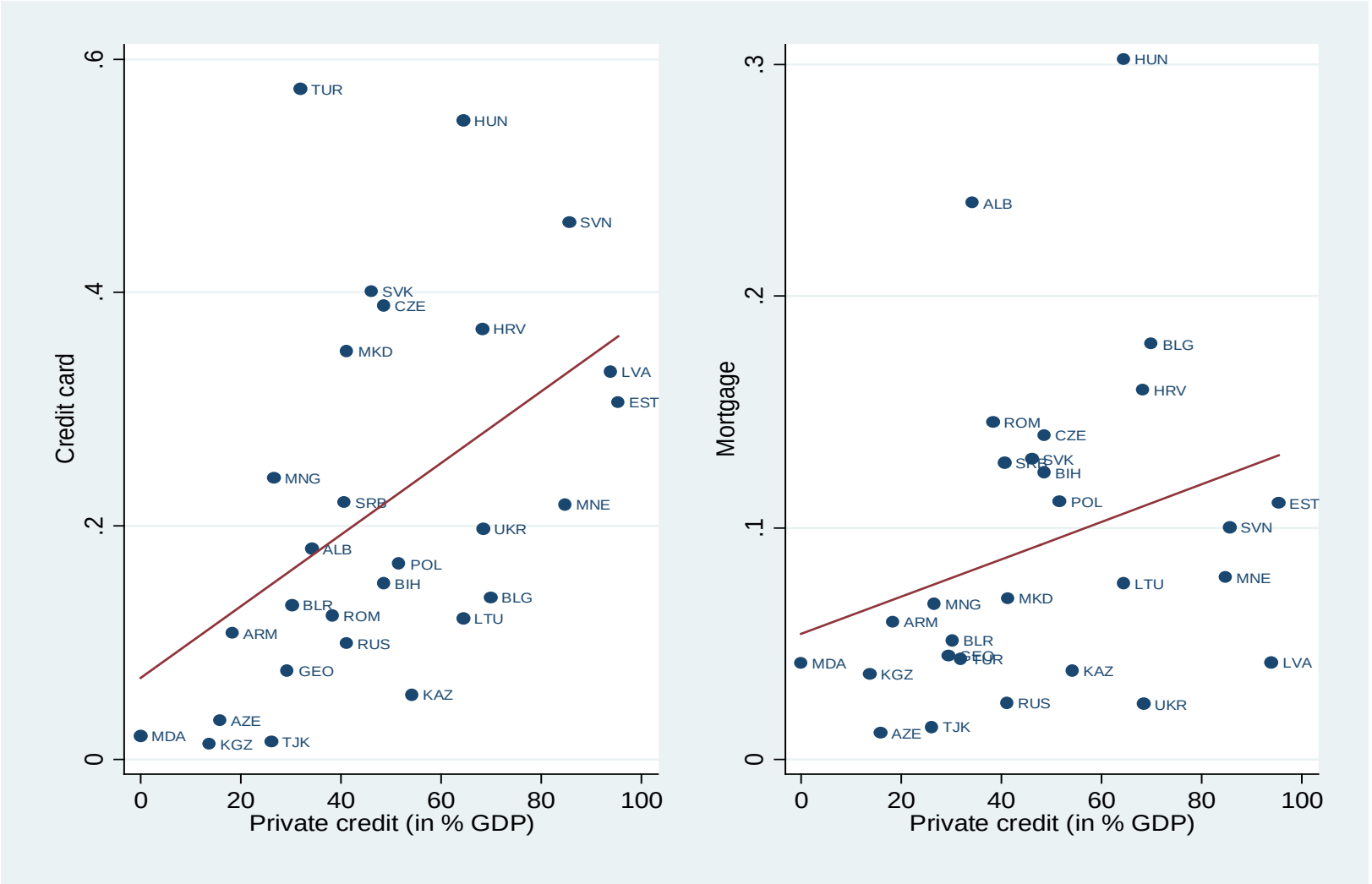

Figure 2. Household credit and Foreign banks

This figure plots the share of households which have a *Credit card* and *Mortgage (as reported in the 2010 LITS)* against the asset share of *Foreign banks* (mean 2007-2009). All variables are defined in Table 1.

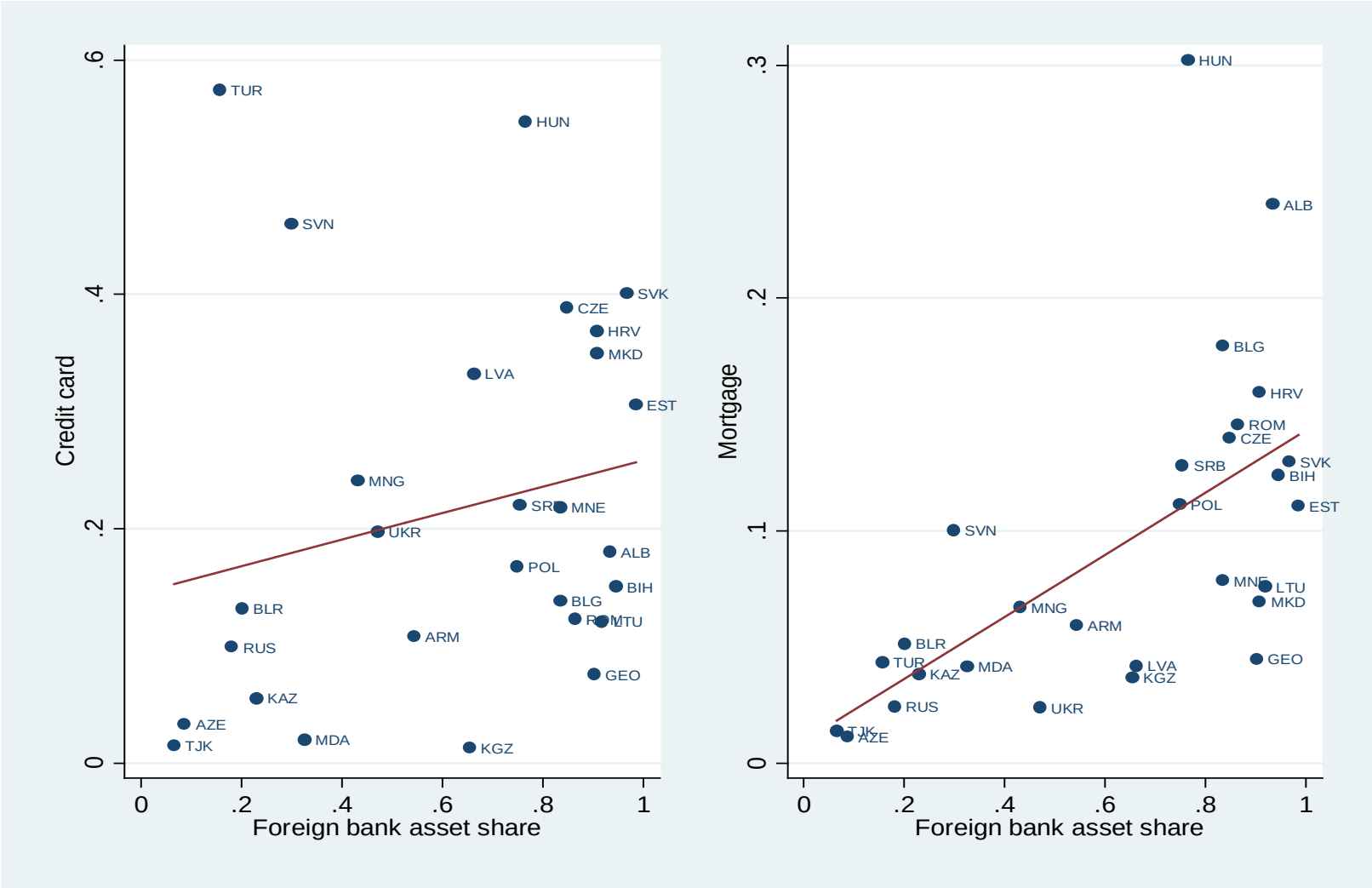

Table 1. Variable definitions and sources

Variable name	Definition	Source	Period of observation
Household-level data			
	Access to finance		
Credit card	Dummy=1 if a household member has a debit or credit card, =0 otherwise	LITS	2010
Mortgage	Dummy=1 if the household owns its own dwelling and financed it mainly with a mortgage, =0 otherwise	LITS	2010
	Household / respondent characteristics		
Expenses	Household equivalized expenses using OECD scales in USD per year (Log)	LITS	2010
Formally employed	Dummy =1 if respondent had formal labor contract in past 12 months , =0 otherwise	LITS	2010
University degree	Dummy=1 if respondent has a university degree, =0 otherwise	LITS	2010
Young	Household head is between 18 and 40 years old.	LITS	2010
Size	Number of household members (adults & children)	LITS	2010
Male	Dummy =1 if household head is male, =0 if household head is female	LITS	2010
Transfer receiver	Dummy =1 if main household income source is state or private transfer , =0 otherwise	LITS	2010
Language	Dummy =1 if respondent speaks an official national language =0 otherwise	LITS	2010
Muslim	Dummy =1 if respondent is muslim, =0 otherwise	LITS	2010
Country-level data			
Private credit	Private credit in % of GDP	EBRD	2007-2009
Foreign banks	Assets share of foreign controlled banks in domestic banking system	EBRD	2007-2009
GDP per capita	Per capita GDP in log USD	EBRD	2007-2009
Creditor rights	Doing business index of creditor rights	DB	2007-2009
Population	Population in log persons	WDI	2007
Distance	Distance of capital city to Frankfurt in log kilomters	GoogleMaps	

Sources: LITS: EBRD Life in Transition survey. EBRD: EBRD (2009). DB: www.doingbusiness.org. WDI: World Development Indicators.

Table 2. Descriptive statistics

Panel A and B in this table reports summary statistics for our household-level and country-level variables by observation period. The means for the household level variables in panel A are not adjusted for sampling weights in the LITS surveys. Panel C presents Spearman rank correlations for our country-level explanatory variables by period. Definitions and

Panel A. Household-level variables

Variable name	Obs.	Mean	Std. Dev.	Min	Max
Credit Card	23123	0.22	0.41	0	1
Mortgage	23126	0.09	0.29	0	1
Expenses	23126	7.94	0.84	2.6	11.4
Formally employed	23126	0.39	0.49	0.0	1.0
University degree	23126	0.21	0.40	0.0	1.0
Young	23126	0.25	0.43	0	1
Size	23126	2.86	1.58	1	12
Male	23126	0.57	0.49	0	1
Transfer receiver	23126	0.40	0.49	0	1
Language	23126	0.93	0.25	0	1
Muslim	23126	0.17	0.38	0	1

Panel B. Country-level variables

Variable name	Obs.	Mean	Std. Dev.	Min	Max
Foreign banks	28	0.62	0.31	0.07	0.98
GDP per capita	28	8.72	0.89	6.57	10.13
Creditor rights	28	6.48	2.09	2.00	10.00
Population	28	15.71	1.22	13.35	18.77
Distance	28	7.35	0.68	6.02	8.80

Table 3. Household characteristics, foreign banks and household credit - Univariate results

This table shows difference-in-difference estimates for *Credit card* and *Mortgage* comparing households in countries with a low asset share of foreign banks (≤70%) compared to households in countries with a high asset share of *Foreign Banks* (>70%). Differences are estimated for households with *High income* vs. households with Low income, *Formally employed* vs. Not formalyl employmed, and *University degree* vs. no university degree. High (low) income households are defined as households with above (below) median of *Expense* s in their respective country. All univariate tests are adjusted for sample weights. Standard errors are reported in brackets. ***, **, * denote significance at the 0.01, 0.05 and 0.10-level. Definition and sources of the variables are provided in Table 2.

Panel A. Credit Card

	Foreign banks > .7	Foreign banks ≤ .7	Difference	**Difference in Difference**
All households	0.254 (0.004)	0.188 (0.004)	0.066*** (0.005)	
High income	0.327 (0.006)	0.227 (0.006)	0.100*** (0.007)	**0.072***** **(0.010)**
Low income	0.171 (0.005)	.143 (0.005)	0.028*** (0.007)	
Formally employed	0.377 (0.007)	0.227 (0.006)	0.150*** (0.009)	**0.134***** **(0.011)**
Not formally employed	0.176 (0.004)	.161 (0.005)	0.015** (0.006)	
University degree	0.367 (0.009)	0.223 (0.008)	0.143*** (0.013)	**0.090***** **(0.014)**
No University degree	0.230 (0.004)	.176 (0.004)	0.053*** (0.006)	

Panel B. Mortgage

	Foreign banks > .7	Foreign banks ≤ .7	Difference	**Difference in Difference**
All households	0.137 (0.003)	0.043 (0.002)	0.093*** (0.004)	
High income	0.152 (0.004)	0.050 (0.003)	0.101*** (0.005)	**0.017**** **(0.007)**
Low income	0.120 (0.004)	.036 (0.003)	0.084*** (0.005)	
Formally employed	0.155 (0.005)	0.051 (0.003)	0.105*** (0.006)	**0.018**** **(0.008)**
Not formally employed	0.125 (0.004)	.039 (0.003)	0.086*** (0.004)	
University degree	0.182 (0.008)	0.051 (0.004)	0.130*** (0.009)	**0.044***** **(0.002)**
No University degree	0.127 (0.003)	.041 (0.02)	0.086*** (0.004)	

Table 4. Household characteristics, foreign banks and household credit - Multivariate results

The dependent variables in this table are *Credit Card* (columns 1-3) and *Mortgage* (columns 4-6). All models report estimates from OLS regressions including fixed effects per primary sampling unit (PSU). 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	*Credit Card*			*Mortgage*		
	Foreign banks > 0.7	*Foreign banks ≤ 0.7*		*Foreign banks > 0.7*	*Foreign banks ≤ 0.7*	
Countries			*All countries*			*All countries*
Model	(1)	(2)	(3)	(4)	(5)	(6)
Expenses	0.0889***	0.0500***	0.027	0.0273***	0.0173***	0.0116**
	[0.0149]	[0.0130]	[0.0186]	[0.00554]	[0.00302]	[0.00462]
Formally employed	0.0592***	0.024	-0.0344*	0.006	0.002	-0.014
	[0.0123]	[0.0151]	[0.0189]	[0.00795]	[0.00425]	[0.0104]
University degree	0.0483***	0.0343**	0.022	0.0358***	0.008	0.000
	[0.0113]	[0.0113]	[0.0149]	[0.00715]	[0.00760]	[0.0134]
***Foreign banks ** **						
Expenses			0.0723**			0.0184*
			[0.0316]			[0.00940]
Formally employed			0.126***			0.031
			[0.0292]			[0.0182]
University degree			0.032			0.0371*
			[0.0219]			[0.0186]
Young	0.0291**	0.0476***	0.0381***	-0.003	0.0120*	0.004
	[0.0118]	[0.00993]	[0.00807]	[0.0180]	[0.00656]	[0.00977]
Size	0.0308***	0.0112**	0.0213***	0.00951***	0.00325*	0.00654***
	[0.00510]	[0.00383]	[0.00376]	[0.00295]	[0.00180]	[0.00183]
Male	0.006	0.019	0.0124*	0.0110***	-0.003	0.005
	[0.00829]	[0.0110]	[0.00662]	[0.00323]	[0.00481]	[0.00307]
Transfer receiver	-0.117***	-0.0729***	-0.0972***	-0.022	-0.002	-0.013
	[0.0228]	[0.0182]	[0.0151]	[0.0170]	[0.00472]	[0.00957]
Language	0.023	0.022	0.0229*	0.007	0.0194*	0.017
	[0.0150]	[0.0196]	[0.0115]	[0.0131]	[0.0108]	[0.0103]
Muslim	-0.0534*	-0.012	-0.0329*	-0.0384**	0.014	-0.010
	[0.0264]	[0.0177]	[0.0166]	[0.0162]	[0.0103]	[0.0140]
Method	OLS	OLS	OLS	OLS	OLS	OLS
Fixed effects	PSU	PSU	PSU	PSU	PSU	PSU
R2	0.10	0.05	0.08	0.01	0.01	0.01
# Households	12'749	10'374	23'123	12'749	10'377	23'126
# countries	15	13	28	15	13	28
# PSU	1094	749	1843	1094	749	1843

Table 5. Accounting for endogeneity and omitted variables

The dependent variables in this table are *Credit card* (models 1,3,5) and *Mortgage* (models 2,4,6). In all models we report estimates from linear regressions including comtrol variables for household characterstics (estimates not reported) and fixed effects per primary sampling unit (PSU). In all regressions we instrument the interaction terms of *Foreign banks*Expenses*, *Foreign banks*Formally employed* and *Foreign banks*University degree* with the interaction terms *Population*Expenses, Distance*Expenses, Population*Formal employed, Distance*Formally employed, Population*University degree* and *Distance*University degree*. The instruments are jointly significant in the first-stage estimation of *Foreign banks*Expenses* (F(6,27)=4.49) , *Foreign banks*Formally employed* (F(6,27)=8.66) and *Foreign banks*University degree* (F(6,27)=16.36). 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.

Dependent variable	*Credit card*	*Mortgage*	*Credit card*	*Mortgage*	*Credit card*	*Mortgage*
Model	(1)	(2)	(3)	(4)	(5)	(6)
Foreign banks *						
Expenses	0.147***	0.0350***	0.161**	0.0476***	0.0933**	0.0241**
	[0.0562]	[0.0132]	[0.0783]	[0.0142]	[0.0465]	[0.0118]
Formally employed	0.177***	0.0488**	0.186**	0.0812**	0.150***	0.023
	[0.0540]	[0.0225]	[0.0861]	[0.0321]	[0.0413]	[0.0223]
University degree	0.0538*	0.0722*	0.057	0.111**	0.048	0.044
	[0.0320]	[0.0407]	[0.0432]	[0.0451]	[0.0376]	[0.0284]
			Creditor rights*		**GDP per capita***	
Expenses			-0.005	-0.00337***	0.0241**	0.005
			[0.00743]	[0.00122]	[0.0122]	[0.00331]
Formally employed			-0.002	-0.00803**	0.016	0.010
			[0.00973]	[0.00342]	[0.0131]	[0.00656]
University degree			-0.001	-0.00938**	0.004	0.0148*
			[0.00413]	[0.00467]	[0.00967]	[0.00780]
Method	IV	IV	IV	IV	IV	IV
Household variables	yes	yes	yes	yes	yes	yes
Fixed effects	PSU	PSU	PSU	PSU	PSU	PSU
R2	0.08	0.01	0.08	0.01	0.09	0.01
Hansen J-Statistic (p-value)	0.46	0.51	0.41	0.37	0.76	0.37
# Households	23'086	23'089	23'086	23'089	23'086	23'089
# countries	28	28	28	28	28	28
# PSU	1806	1806	1806	1806	1806	1806

Table 6. Demand vs. Supply

The dependent variables in this table are *Credit card* (models 1-2) and *Mortgage* (models 3-4). All models report estimates from linear regressions including control variables for household characterstics (estimates not reported) and fixed effects per primary sampling unit (PSU). In models (2,4) we instrument all interaction terms *Foreign banks* and Foreign banks* Young* with the interaction terms Population*, Distance*, Population* Young*, and Population* Young**. 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.

Dependent variable	*Credit card*	*Credit card*	*Mortgage*	*Mortgage*
Households	*All*	*All*	*All*	*All*
Model	(1)	(2)	(3)	(4)
Foreign banks *				
Expenses	0.0655**	0.230*	0.013	-0.085
	[0.0312]	[0.121]	[0.00928]	[0.108]
Formally employed	0.151***	0.181***	0.0405*	0.0685*
	[0.0334]	[0.0619]	[0.0199]	[0.0354]
University degree	0.0571*	0.122***	0.0338**	0.0845*
	[0.0291]	[0.0454]	[0.0160]	[0.0479]
Young	-0.218	2.435	-0.203	-3.800
	[0.220]	[3.190]	[0.227]	[3.323]
Young*				
Expenses	0.00905	0.192	-0.003	-0.242
	[0.0152]	[0.213]	[0.0143]	[0.235]
Formally employed	0.0415	0.0083	0.028	0.032
	[0.0340]	[0.0500]	[0.0184]	[0.0370]
University degree	0.0382	0.116	0.008	0.046
	[0.0286]	[0.0754]	[0.0202]	[0.0524]
Foreign banks * Young*				
Expenses	0.035	-0.295	0.027	0.468
	[0.0276]	[0.395]	[0.0287]	[0.413]
Formally employed	-0.105	-0.037	-0.039	-0.058
	[0.0650]	[0.106]	[0.0307]	[0.0701]
University degree	-0.069	-0.203	0.016	-0.046
	[0.0440]	[0.123]	[0.0417]	[0.0836]
Method	OLS	IV	OLS	IV
Household variables	yes	yes	yes	yes
Fixed effects	PSU	PSU	PSU	PSU
R2	0.09	0.07	0.01	-0.02
# Households	23'123	23'086	23'126	23'089
# countries	28	28	28	28
# PSU	1843	1806	1843	1806

Table A1. Household characteristics and household credit - Robustness tests

This table reports robustness tests to the subsample estimates presented in Table 4. The dependent variables are *Credit card* (models 1-4) and *Mortgage* (models 5-8). Models (1-2, 5-6) report OLS estimates including country fixed effects. Models (3-4, 7-8) report reports marginal effects of logit estimates including country fixed effects. 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	*Credit Card*				*Mortgage*			
	Foreign banks	*Foreign banks*	*Foreign banks*	*Foreign banks*	*Foreign banks*	*Foreign banks*	*Foreign banks*	*Foreign banks*
Sample	*> 0.7*	*≤ 0.7*	*> 70%*	*≤ 70%*	*> 0.7*	*≤ 0.7*	*> 70%*	*≤ 70%*
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Expenses	0.0930***	0.0590***	0.131***	0.0585***	0.0280***	0.0131***	0.0315***	0.0124***
	[0.0189]	[0.0167]	[0.0148]	[0.00839]	[0.00648]	[0.00415]	[0.00711]	[0.00290]
Formally employed	0.0610***	0.0289*	0.0494***	0.0220***	0.007	0.000	0.006	0.000
	[0.0148]	[0.0153]	[0.0122]	[0.00824]	[0.00803]	[0.00398]	[0.00689]	[0.00323]
University degree	0.0798***	0.0364**	0.0755***	0.0285***	0.0406***	0.005	0.0367***	0.003
	[0.0136]	[0.0137]	[0.0122]	[0.0103]	[0.0127]	[0.00766]	[0.0129]	[0.00583]
Method	OLS	OLS	Logit	Logit	OLS	OLS	Logit	Logit
Fixed effects	country	country	country	country	country	country	country	country
Household variables	yes	yes	yes	yes	yes	yes	yes	yes
R2	0.11	0.06	0.20	0.26	0.01	0.01	0.06	0.05
# Households	12'749	10'374	12'749	10'374	12'749	10'377	12'749	10'377
# countries	15	13	15	13	15	13	15	13
# PSU	1094	749	1094	749	1094	749	1094	749

Table A2. Mortgage borrowing in 2006

This table provides robustness tests for the estimates presented in columns 4-6 of Table 4. We employ data from the 2006 LITS wave instead of the 2010 wave in our main analysis. Accordingly, Foreign banks is measured as the 2003-2005 average market share of foreign controlled banks per country as opposed to the 2007-2009 share used in our main analysis. All models report estimates from OLS regressions including fixed effects per primary sampling unit (PSU). 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	*Mortgage*		
Countries	*Foreign banks > 0.7*	*Foreign banks ≤ 0.7*	*All countries*
Model	(4)	(5)	(6)
Expenses	0.0230**	0.004	-0.007
	[0.00808]	[0.00296]	[0.00532]
Formally employed	0.0183**	-0.001	-0.0188***
	[0.00771]	[0.00332]	[0.00664]
University degree	0.0288**	0.00738*	0.000
	[0.0125]	[0.00410]	[0.00683]
***Foreign banks ** **			
Expenses			0.0335***
			[0.0100]
Formally employed			0.0500***
			[0.0152]
University degree			0.0297*
			[0.0167]
Young	0.0477**	0.007	0.0224**
	[0.0181]	[0.00444]	[0.00819]
Size	0.0112***	0.000	0.00406**
	[0.00316]	[0.000992]	[0.00164]
Male	0.0109*	0.003	0.00674**
	[0.00488]	[0.00273]	[0.00269]
Transfer receiver	-0.003	-0.007	-0.006
	[0.00842]	[0.00513]	[0.00417]
Language	0.0184*	-0.004	0.001
	[0.00956]	[0.00836]	[0.00707]
Muslim	-0.008	0.009	0.000
	[0.0121]	[0.00849]	[0.00585]
Method	OLS	OLS	OLS
Fixed effects	PSU	PSU	PSU
R2	0.02	0.00	0.01
# Households	8'830	13'675	22'505
# countries	10	18	28
# PSU	500	896	1396

Table A3. Demand or Supply - Univariate results

This table shows difference-in-difference estimates for *Credit card* (Panel A) and *Mortgage* (Panel B) comparing households in countries with a low asset share of foreign banks (≤70%) compared to households in countries with a high asset share of foreign banks (>70%). Differences are estimated sperately for *Young* households (household head less than 40 years old) and *Old* households (household head at least 40 years old). Estimates are provided for households with *High income* vs. households with Low income, *Formal employed* vs. Not formal employmed, and *University degree* vs. no university degree. High (low) income households are defined as households with above (below) median *Expenses* in their respective country. All univariate tests are adjusted for sample weights. Standard errors are reported in brackets. ***, **, * denote significance at the 0.01, 0.05 and 0.10-level. Definition and sources of the variables are provided in Table 2.

Panel A. Credit card

Household type		Foreign banks > .7	Foreign banks ≤ .7	Difference	Difference in Difference	**Difference in Difference in Difference**
Young	High income	0.390 (0.011)	0.264 (0.010)	0.126*** (0.014)	0.055** (0.024)	**-.014** **(0.026)**
	Low income	0.292 (0.014)	.222 (0.013)	0.071*** (0.019)		
Old	High income	0.301 (0.006)	0.205 (0.007)	0.096*** (0.009)	0.069*** (0.011)	
	Low income	0.144 (0.005)	.117 (0.005)	0.027*** (0.007)		
Young	Formally employed	0.402 (0.011)	0.256 (0.011)	0.146*** (0.016)	0.104*** (0.023)	**-.024** **(0.027)**
	Not formally employed	0.280 (0.013)	.239 (0.011)	0.041** (0.006)		
Old	Formally employed	0.361 (0.008)	0.208 (0.008)	0.153*** (0.011)	0.129*** (0.013)	
	Not formally employed	0.158 (0.004)	.133 (0.005)	0.024** (0.006)		
Young	University degree	0.405 (0.017)	0.271 (0.014)	0.134*** (0.022)	0.033 (0.026)	**-.079**** **(0.031)**
	No University degree	0.338 (0.010)	.237 (0.010)	0.101*** (0.014)		
Old	University degree	0.347 (0.012)	0.189 (0.010)	0.158*** (0.016)	0.112*** (0.017)	
	No University degree	0.200 (0.004)	.153 (0.005)	0.047*** (0.006)		

Panel B. Mortgage

		Foreign banks > .7	Foreign banks ≤ .7	Difference	Difference in Difference	**Difference in Difference in Difference**
Young	High income	0.164 (0.008)	0.063 (0.006)	0.101*** (0.010)	0.006 (0.015)	**-.016** **(0.017)**
	Low income	0.134 (0.010)	.039 (0.006)	0.095*** (0.012)		
Old	High income	0.147 (0.005)	0.043 (0.003)	0.104*** (0.006)	0.022*** (0.008)	
	Low income	0.116 (0.005)	.035 (0.003)	0.082*** (0.005)		
Young	Formally employed	0.162 (0.008)	0.063 (0.006)	0.100*** (0.010)	0.002 (0.015)	**-.022** **(0.018)**
	Not formally employed	0.141 (0.010)	.045 (0.006)	0.095** (0.011)		
Old	Formally employed	0.152 (0.006)	0.042 (0.004)	0.110*** (0.007)	0.024*** (0.011)	
	Not formally employed	0.123 (0.004)	.037 (0.003)	0.085** (0.005)		
Young	University degree	0.205 (0.015)	0.064 (0.008)	0.141*** (0.016)	0.055*** (0.019)	**0.014** **(0.022)**
	No University degree	0.136 (0.007)	.050 (0.005)	0.086*** (0.009)		
Old	University degree	0.169 (0.009)	0.042 (0.005)	0.128*** (0.011)	0.041*** (0.012)	
	No University degree	0.125 (0.004)	.038 (0.003)	0.087*** (0.004)		