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Political connections and household access to bank loans: evidence from China

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ABSTRACT

Using data from a large household survey among 8,438 households in China in 2011, we analyse whether the fact that a household head is a member of a political party in China increases the probability that the household has access to a bank loan. We investigate how these connections influence the decision of households to apply for a bank loan (i.e., the demand side) and the decision of the bank to approve the loan (i.e., the supply side). We show that political connections are positively associated with both the households' willingness to apply for a loan, as well as with the probability that they get a loan from the bank. We make two contributions to the literature on the determinants of households' access to credit. We are the first to analyse the role of political connections as a determinant of households' access to bank loans. Second, we analyse the role of political connections throughout the process of allocating bank loans, i.e., we decompose the loan application process into the households' self-selection process and bank's selection process.

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1. Introduction

The inability to acquire bank credit prevents households from engaging in profitable activities and diversifying their household incomes (see, e.g., Aghion & Bolton, 1997; Boucher, Guirkinger, & Trivelli, 2009; Ghosh and Vinod, 2017; Foltz, 2004). Households facing credit constraints also have limited possibilities of smoothing their consumption and improving their welfare (Coleman, 1999; Karlan & Morduch, 2009; Li, Li, Huang, & Zhu, 2013). One of the main challenges households face in obtaining loans is that banks have imperfect information with regard to loan repayment probabilities (Stiglitz & Weiss, 1981). Households can circumvent this challenge by signaling their ability to repay. One way of doing this is by putting up valuable collateral (Bester, 1985). Yet, for many households, especially the poorer, this is difficult because they lack the assets the bank is willing to accept as collateral. Households therefore need to develop other ways to reduce the barriers to obtain credit.

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In this article, we add to literature investigating the determinants of household credit constraints by focusing on political connections of household members. First, we argue that such connections may increase households' confidence in getting a loan, which increases the probability they will also apply for a loan. Second, being a party member allows a household head to develop private relationships with bank officers, potentially providing additional information about the creditworthiness of the household. This may positively affect their decisions about extending loans. Although the importance of political connections for firms in obtaining bank credit has been established (see, e.g., Cheng, 2018; Faccio, 2006; Feng, Johansson, & Zhang, 2015; Houston, Jiang, Lin, & Ma, 2014; Khwaja & Mian, 2005; Kung & Ma, 2018; Zhou, 2009), to the best of our knowledge, the value of political connections for households has not yet been studied.

To investigate the role of political connections as a determinant of households' access to credit, we use data from a large household survey carried out in China. The data set includes information about the membership of a household head of the ruling political party of China. This information allows us to analyse whether party membership increases the probability of households having access to a bank loan. We investigate the role of political connections at sequential stages of the bank loan allocation process. More specifically, we examine how these connections influence households' decisions to apply for bank loans and how they influence banks' decisions to approve loans. On the demand side, households with political connections may self-select when applying for loans: because of their connections, they may be more confident than non-connected households about obtaining loans. On the supply side, banks may use information about political connections as a screening device when allocating loans. Only a few studies investigate the determinants of households' access to bank loans by separating the decisions of households to apply (i.e., the demand side) and the decisions of banks to approve applications (i.e., the supply side) (see, e.g., Chakravarty & Xiang, 2009; Cole & Sokolyk, 2016). Yet, none of these studies takes into account the role of household political connections.

The data set we use is based on a survey of 8,438 households in China, carried out in 2011 by the People's Bank of China (the central bank of China) and Southwestern University of Economics and Finance. The survey covers the economic and financial activities of Chinese households in 2010. Using a two-stage Heckman probit model to examine the separate decision-making processes of the demand side and the supply side, we find that political connections are positively associated with both households' willingness to apply for loans and their probability of obtaining loans. These results suggest that political connections are indeed important throughout the bank allocation procedure.

The remainder of this article is organised as follows. In Section 2, we review the related literature and develop our hypotheses. In Section 3, we discuss the data set, and in Section 4, we provide a description of the empirical methodology. We present our empirical results in Section 5 and our conclusions in Section 6.

2. The importance of political connections: a review of literature

In the literature, the advantages of political connections have been investigated in the context of (listed) firms. Firms are faced with financial constraints and limited access

to bank loans. Several studies show that political connections can help firms obtaining bank credit (Cheng, 2018; Claessens, Feijen, & Laeven, 2008; Faccio, 2006; Feng, Johansson, & Zhang, 2014; Feng et al., 2015; Guo, Kun, Kim, & Xu, 2014; Infante & Piazza, 2014; Khwaja & Mian, 2005; Kung & Ma, 2018; Leuz & Oberholzer-Gee, 2006; Zhou, 2009). Such connections prove to have wide implications. For instance, studies show that for Chinese firms, political connections facilitate the probability of IPO approval from the central government (Chen, Guan, Zhang, & Zhao, 2017; Liu, Tang, & Tian, 2013; Li & Zhou, 2015; Piotroski & Zhang, 2014). In addition, Chinese firms with political connections experience a number of economic benefits during the process of going public, such as higher offering price, lower underpricing, lower fixed costs, preferential tax treatment, more government subsidies, and superior access to regulated industries through corporate deals (Feng et al., 2015; Francis, Hasan, & Sun, 2009). Feng et al. (2014) focus on Chinese listed firms; they find that political connections contribute to firms' post-IPO stock values and accounting performances. These outcomes help explain why firms are encouraged to actively develop political connections (Banerji, Duygun, & Shaban, 2018; Dong, Wei, & Zhang, 2016; Feng et al., 2015; Yueh, 2009).

Households have difficulties in obtaining bank loans because of asymmetric information with regard to the probability of repayment (Stiglitz & Weiss, 1981). Banks do not have sufficient information about the creditworthiness of households and often they are unwilling to invest in collecting information because of the small sizes of the loans and the fixed-cost nature of collecting information (Beck, Büyükkarabacak, Rioja, & Valev, 2012). This may be particularly true for households in emerging and developing economies, where financial markets are less developed and information problems are more prevalent. Households may increase the probability of getting access to loans once they can put up valuable collateral. However, for most households in emerging economies, it is problematic to provide collateral.[1]

One alternative for these households may be to develop political connections. Having such connections may indirectly help influencing credit allocation decisions made by the banks. Political connections are often associated with political power, which is still an important factor in markets of many transition economies (Asher & Novosad, 2017; Faccio, 2006; Fisman & Wang, 2015; Khwaja & Mian, 2005). We investigate the importance of having political connections in the context of China. In particular, we address the question of whether and to what extent politically connected households have better access to bank loan allocation. We define a household as being politically connected when the household head is a member of the Communist Party (the leading political party of the country) or of one of the political parties and movements linked to the Communist Party, such as the minor democratic parties or the Communist Youth League. Several studies document that in transition economies the government or the ruling party exercises considerable control over key economic resources through state-owned enterprises and involvement in financial markets (i.e., stated-owned banks) (Chen et al., 2017; McMillan, 1997; Pan & Tian, 2017). This is also the case in China, which has a one-party political system (Liu, 2003).

The fact that a household head is politically affiliated with the political party may be an indicator of the household having access to party officials such as local party leaders, bureaucrats, and bank officers of state-owned banks. Political affiliation provides exclusive opportunities to attend political activities such as official meetings with other Party members and to have frequent interactions with these members, thereby enriching the household's social network (McLaughlin, 2017). Having access to these party officials may indicate that a household has access to larger pools of resources associated with political networks (Cruz, Labonne, & Querubin, 2017; Faccio & Hsu, 2017; Fafchamps & Labonne, 2017). This may reduce the reluctance of banks to extend credit. Moreover, developing relationships with party officials may help households overcome regulatory constraints and receive preferential treatment from the government (Feng et al., 2014; Kung & Ma, 2018). With regard to access to bank loans, connections to bank officers who are also party officials may be instrumental in more successfully negotiating access to bank loans (Dickson, 2003).[2]

There are three steps in the process of obtaining a bank loan (Cole & Sokolyk, 2016). First, a household must decide whether it needs (i.e., has demand for) a bank loan. This decision may be correlated with the household's economic characteristics such as income status and level and propensity to consume and/or invest. Moreover, interactions with other households, because this may increase the household's awareness of banks as a source of external finance, its knowledge of how to apply for a loan, and its familiarity with the economic benefits of using bank credit (Li, 2018; Okten & Osili, 2004; Wydick, Karp Hayes, & Hilliker Kempf, 2011).

Second, households in need of bank loans must decide whether they want to apply for (i.e., demand) a bank loan. They may be discouraged to apply, once they expect the bank will turn them down due to asymmetric information and lack of valuable collateral. That is, they may self-select and decide not to apply. The importance of self-selection has been shown empirically for firms. Cavalluzzo, Cavalluzzo, and Wolken (2002) find that nearly half of small business firms are discouraged from applying for bank loans. Chakravarty and Xiang (2009) report that one-third of small businesses do not apply because they think loan officers will turn them down. Kon and Storey (2003) and Han, Fraser, and Storey (2009) stress that imperfect information is the major reason that financially constrained firms are discouraged from applying, because most have difficulties with signaling their credibility and repayment capability to banks. Cole and Sokolyk (2016) estimates that about 20%–50% of firms that do not apply for loans would have been approved, suggesting that self-selection plays an important role in determining the allocation of bank loans.

Households with political connections are more likely to become bank credit applicants, because they may be more confident in passing the bank's selection process than households without such connections. Regular participation in political activities enhances their opportunities to cultivate close relationships with party members such as bank officials. Frequent contacts facilitate mutual trust and eliminate information asymmetry problems between households and loan officers, thereby increasing the households' probability of getting loans (Banerji et al., 2018; Cole, 1998; Dong et al., 2016; Feng et al., 2015). Therefore, because politically connected households may be more motivated to apply for bank loans, we derive the following hypothesis:

H1: Households with political connections having demand for bank loans are more likely to apply for loans than households without such connections.

The third step in obtaining a bank loan is being screened and selected by the bank. In this step, loan officers collect information with regard to applicants' social backgrounds, economic conditions, and reasons for applying for loans. One important source of information that loan officers may use in this process is their connections with loan applicants through party membership. These connections provide additional information about the creditworthiness of applicants. Households with political connections that are applying for loans may be in a better position to obtain loans than households without such connections. Being a party member allows a household head to develop private relationships (i.e., friendships) with other party members, including bank officials, through political activities. Such private links may enhance a household's access to bank credit because relationships are established on the basis of mutual trust and support. Based on these relationships, bank officials may decide to provide (i.e., supply) credit to households with whom they are linked through political networks. Politically connected applicants may thus gain preferential treatment when applying for loans (Feng et al., 2014; Kung & Ma, 2018; Zhou, 2009). We expect that applicants with political connections will be shown preferential treatment in the screening process, which leads us to derive the following hypothesis:

H2: Politically connected households have a higher probability of having access to bank loans than households without such connections.

3. Data

We use a new data set provided by Southwestern University of Economics and Finance. The survey, known as the China Household Finance Survey (C.H.F.S.), was conducted in 2011 by the People's Bank of China (the central bank of China) and Southwestern University of Economics and Finance.[3] The survey employs a stratified sampling strategy using three-stage randomisation to select interviewed households at the national level. In the first stage, 80 counties are randomly selected from a total of 2,585 counties in 25 provinces (all mainland provinces except for Tibet, Xinjiang and Inner Mongolia). The 80 counties cover diverse geographic regions and contain enough observations to be a representative sample.

The second stage is to randomly select residential communities from the 80 counties. The primary purpose of the C.H.F.S. is to collect information on households' financial activities, and because urban households are more likely involved in financial activities than rural residents, the survey oversamples the urban population. Among the selected 320 communities, the ratio of urban to rural communities is 181:139, which meets the goal of oversampling the urban population.

In the final stage, 20 households are randomly drawn from each rural community to be interviewed for the survey. At every stage, the probability proportion to size method is applied, that is, all sampled counties and communities are weighted by the population size. The final data set consists of answers from 8,438 households across China.[4]

The data set covers information on household non-financial assets, financial assets, debt, insurance, social welfare, income, and expenditure. Moreover, it gathers information on household members' demographic and work characteristics, including gender, age, marriage status, educational attainment, ethnicity, political affiliation, occupation, salary, and involvement in agricultural and commercial activities.[5] It also includes data on whether a household needed bank credit, whether a household decided to apply for bank financing, and whether the bank accepted the household's loan application. This information allows us to explicitly distinguish between the household's loan application and the bank's loan approval decision. This is a clear advantage of our data set compared with other data sets that have been used to analyse the determinants of access to loans for households and/or firms. The questions on loan application and loan approval are available only for a sub-sample of the selected households, that is, those that are involved in agricultural and/or commercial activities. The sub-sample we use in the analysis consists of 3,858 households.

Two questions in the survey enable us to identify a household's bank credit status. The first question asks whether the interviewed household has a bank loan for commercial and agricultural activities. Households that answer 'yes' are labelled as members of the group of households that need a bank loan, have applied for a loan, and have successfully obtained it. Households that answer 'no' indicate their reasons for not having bank loans in a second question. This second question has four optional answers: (1) 'I don't need a bank loan'; (2) 'I had a bank loan before and I paid it off'; (3) 'I need a bank loan but I never applied'; or (4) 'I applied for a bank loan but was rejected'. Based on answers to the second question, we group households as follows:

- Households choosing option (1) are those that do not need a bank loan;
- Households choosing option (2) are those that need a bank loan;
- Households choosing option (3) are those that need a bank loan but decided not to apply; and
- Households choosing option (4) are those that need bank credit and applied for a loan but were rejected.

As illustrated in Figure 1, we use the above two questions to identify households in the three stages of the bank credit application procedure. Specifically, in the first stage, the sample of 3,858 households is sub-divided into a group that needs a bank loan and a group that does not. In the second stage, households in need of bank loans decide whether or not to apply. At this stage, we divide households into those that apply and those that do not. In the third stage, loan officers screen applicants; those who meet the banks' eligibility criteria are granted loans and the others are rejected.

Figure 1 shows that about one-third of the households in the sample say they need bank loans. However, more than half of these households (54%) did not apply for a loan. This indicates that compared with non-applying small businesses, Chinese households show a high probability of not applying for loans (Brown, Jappelli, & Pagano, 2009; Cavalluzzo et al., 2002; Chakravarty & Xiang, 2009; Cole & Sokolyk,

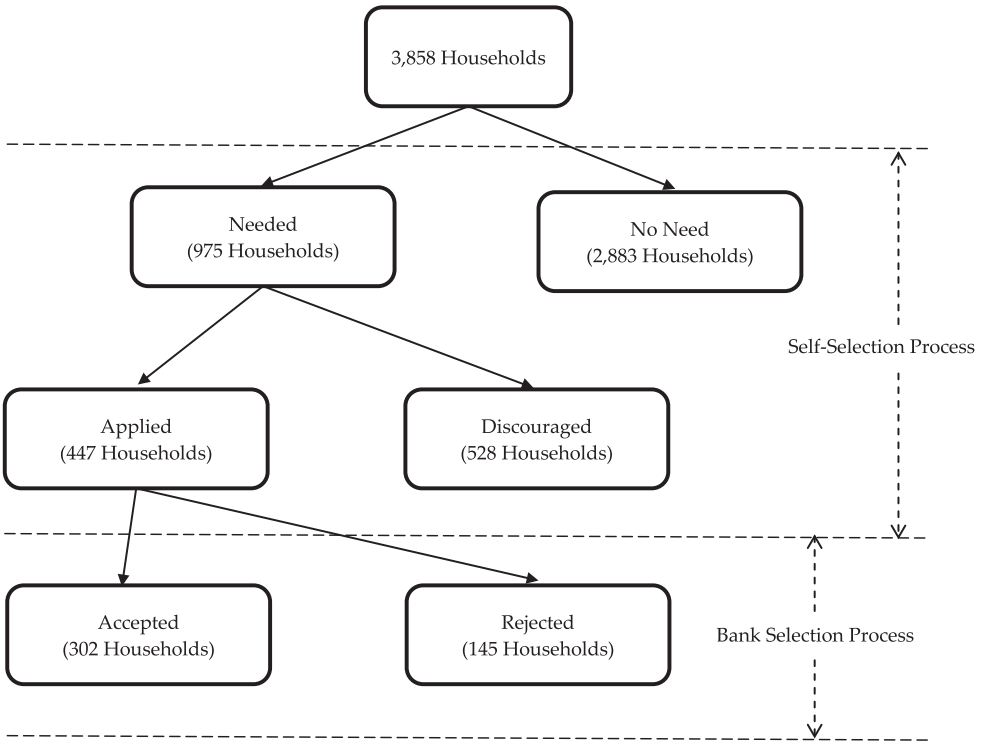

Figure 1. Bank credit allocation procedure.

2016). Of those that did not apply, 51% state that their reason for not applying is that their chances of getting accepted are minimal. This suggests they lack confidence that they will be successful in passing bank selection processes; 24% say they are discouraged by the bank's documentation requirements, 13% say they lack knowledge with respect to the application procedure, and 22% give other reasons.

Of those households that applied, 68% received loans. The survey includes a question that focuses on those households that applied for a bank loan but were rejected, asking them about the reasons for their failure to pass the screening process. More than 35% of rejected households state they were unsuccessful because they did not have a guarantee from a wealthy individual or company; 32% say their income was too low; 26% report that they lacked collateral; and 17% say they did not have a personal relationship with the loan officer. Therefore, households' subjective beliefs of why they were not granted bank loans can be ascribed to either poor economic conditions (i.e., income, collateral) or poor social relationships (i.e., guarantees from others, relationships with loan officers). The latter explanation is consistent with results from previous studies of social capital, showing that borrowers who are more engaged in social activities and have broader social networks are more likely to be granted bank loans (Banerji et al., 2018; Dong et al., 2016; Dufhues, Buchenrieder, & Munkung, 2013; Feng et al., 2015; Okten & Osili, 2004; Wydick et al., 2011).

Households that obtained loans confirm the importance of the borrower–bank relationship. The survey contains a question asking these households about their

reasons for choosing a particular bank to apply for a loan. Most households answer they have no alternatives (24%) and/or the bank is located nearby (24%); 23% state that their main reason is that they have business contacts with the bank and/or personal relationships with bank officials.

4. Empirical methodology

An unbiased investigation of the determinants of bank loan allocation should take into account both the bank's decision-making stage (i.e., the supply side) and the household's decision-making process (i.e., the demand side). Yet, the decision of households to apply for a loan is rarely taken into account in empirical studies (Cole & Sokolyk, 2016; Han et al., 2009), because data describing these decisions is often not available. Fortunately, our data includes information allowing us to explicitly take into account household decision making with respect to loan applications. We are therefore able to explicitly examine the role of political connections in the household's self-selection process (combining both the household's need stage and application stage), as well as their role in the bank's selection process (denoting the bank's decision on credit approval among applicants).

It is important to explicitly take into account the different stages of the bank loan allocation process, because a simple comparison of the incidence of bank loan acquisition between politically connected and non-connected households may lead to biased results (Li et al., 2007). In our empirical analysis, we create three binary variables. The first is *Need Bank Loan*, which equals 1 when a household reports it is in need of bank credit and 0 otherwise. The second binary variable, *Bank Loan Applied*, captures a household's decision to apply, which equals 1 for households that need a loan and decide to apply and 0 for households that need a loan but do not apply. The third binary variable, *Bank Loan Granted*, exhibits the bank's selection decision; it equals 1 for households that apply for and successfully obtain a loan and 0 for households that apply but are rejected. We use these three binary variables to decompose the loan allocation by the bank into the self-selection process of households and the selection process of banks, and examine what role political connections play in both processes.

To examine the determinants of the households' self-selection process, we need to take into account both the first stage (identifying household demand for bank credit) and the second stage (specifying household decision to apply), because the decision to apply is conditional on whether a household needs bank credit. Conducting a simple probit regression using a sample that covers only households that are in need of bank credit may lead to biased outcomes, because the households in the sample may not be randomly selected (Coady & Parker, 2009; Heckman, 1979). Unobserved factors may influence both a household's need for a loan and its decision to apply. To control for possible sample selection bias, we apply the Heckman probit model (Das, 2015; Van de Ven & van Praag, 1981) and identify the selection equation and outcome equation as follows:

$$Need\ Bank\ Credit_i = \alpha_1 + \beta_1 \text{Political Connection}_i + X_i\beta + \delta_i. \quad (1)$$

$$Bank\ Loan\ Apply_j = \alpha_2 + \theta_1 \text{Political Connection}_j + Y_j\theta_2 + \text{Mill's Ratio1} + \varepsilon_j. \quad (2)$$

Selection Equation (1) is a simple probit model estimating the propensity of household i (= 1, 2, …, 3,858) needing a bank loan. *Political Connection* is the variable of primary interest. It has the value 1 if the household head is member of the Communist Party or one of the political parties and movements linked to it (e.g., the minor democratic parties and the Youth League) and 0 otherwise. X_i is a vector of control variables that affects household i's need for bank credit. β_1 and β are parameters to be estimated, α_1 is the constant, and δ_i denotes the error term. The outcome Equation (2) is also a probit model estimating the probability for household j (= 1, 2, …, 975) to apply for a loan, conditional on the need for bank credit. Y_i, θ_1, θ, α_2, and ε_i are analogous to X_i, β_1, β, α_1, and δ_i in the selection Equation (1). Both ε_i and δ_i are assumed to be standard normal distributed.

As mentioned above, unobserved factors may influence both $Need\ Bank\ Credit_i$ and $Bank\ Loan\ Apply_i$, because the sample used in the estimations may not be randomly selected. If the simple probit model is employed to estimate Equation (2), the endogeneity problem may arise because the error terms of two equations may be correlated ($corr\ (\delta_i, \varepsilon_j) = \rho_1 \neq 0$). The Heckman probit model addresses the sample selection bias by estimating the Inverse Mill's ratio, which is based on the correlation between error terms δ_i and ε_j (ρ_1) and adding to the outcome equation as an independent variable to Equation (2). The extent to which the analysis suffers from sample selection is reflected in the significance level of the Inverse Mill's ratio. If the Inverse Mill's ratio is significant, it denotes that the null hypothesis of $\rho = 0$ is rejected, and a selection bias exists in the decision-making process. Since our dependent variable in the outcome equation is a discrete choice variable, we apply the Heckman probit model instead of the ordinary least squares version of the model.

One important feature of the Heckman selection strategy is that the two-step model must be estimated using one or more exclusion variables to estimate the selection equation; these variables should not be included in the outcome equation (Heckman & Navarro-Lozano, 2004). In the household's self-selection process, the exclusion variable(s) should be associated with the household's need for a bank loan, but not with the household's decision to apply. As our exclusion variable, we take the percentage of households having bank account living in the same community as the responding household. This variable signals the probability households in a community interact with other households in the community having a bank account. Such interaction may increase their awareness of banks as a source of external finance, their knowledge of how to apply for a loan, and their familiarity with the economic benefits of using bank credit (Okten & Osili, 2004; Wydick et al., 2011). This may stimulate their demand for bank credit.

To examine the validity of our exclusion variable, we use a simple probit model to check its associations with *Need Bank Credit* and *Bank Loan Apply*. The results confirm that the percentage of households in the community having a bank account is positive and strongly significant in the model for *Need Bank Credit*, while it is insignificant in the model for *Bank Loan Apply*. Accordingly, we argue that the exclusion

variable exerts no impact on a household's decision to apply for bank credit in our estimations.

When deciding to approve loans to new or existing clients, banks collect information on economic performance and potential repayment capacity to verify which applicants satisfy the eligibility criteria for granting a loan. Similar to the self-selection process, the sample of households applying for a loan may be non-randomly selected, if unobserved factors influence both a household's decision to apply and the bank's decision to approve the loan. Therefore, we again employ the Heckman probit model when examining the bank's selection process:

$$Bank\ Loan\ Apply_j = \alpha_3 + \gamma_1 \text{Political Connection}_j + Y_j\gamma_2 + \text{Mill's Ratio1} + \varepsilon_j. \quad (3)$$

$$Bank\ Loan\ Granted_k = \alpha_4 + \mu_1 \text{Political Connection}_k + Z_k\mu_2 + \text{Mill's Ratio2} + \sigma_k. \quad (4)$$

Equation (3) specifies the selection equation and is similar to Equation (2), and Equation (4) is the outcome equation. The model specification investigating the bank's selection process is similar to the model investigating the household's self-selection process, with two exceptions. First, because a household's decision to apply is conditional on the need for a loan, we keep the Inverse Mill's ratio of the self-selection process (Mill's Ratio1) in the selection Equation (3) as a regressor. Second, because sample selection is also at stake in the bank's selection process, we calculate the Inverse Mill's ratio of selection Equation (3) based on ρ_2 ($corr$ (ε_j, σ_k)) and adopt the outcome Equation (4) as an additional regressor (Mill's Ratio2).

The exclusion variable we use in the estimations of the bank's selection process is a measure of the household head's evaluation of the safety and security of the area in which the household resides (*Public Security Evaluation*). In the survey, household heads are asked to grade the safety in the area in which the household lives on a 5-point Likert scale ranging from 1–5 (where 1 is very dangerous and 5 is very safe). We expect household heads who believe they live in safe environments to show a higher propensity of applying for loans, because they are less worried about unexpected shocks such as assault, robbery, and theft that threaten their businesses and their ability to repay. At the same time, these beliefs are not expected to influence bank decisions with regard to approving loans for two reasons. First, throughout the bank credit application procedure, loan officers do not ask for the applicant's evaluation of the safety of their neighborhood. Second, households generally apply for credit at local bank branches, and local loan officers are quite familiar with social environment and security conditions in the neighborhood. Hence, in the screening process, loan officers allocate funding based on applicant's socioeconomic characteristics, trustworthiness, repayment capabilities, and the potential risks of their projects, rather than subjective security evaluation because all local applicants are living in the same environment.[6]

To capture the role of political connections in the household's self-selection process and the bank's selection process, we control for a large number of variables that capture households' demographic, economic conditions, and financial characteristics.

Our choice of controls is based on previous studies on the determinants of the demand and supply of bank loans. In particular, we control for demographic characteristics (gender, age education and occupation of the household head, household size, and household location), economic conditions (the household's income, wealth, liquid assets, and house ownership), and financial characteristics (household's borrowing from informal financial sources and the household head's subjective attitude towards risk).[7]

When estimating the models, we use the following econometric strategy. First, we acknowledge that there are significant differences in the economic, financial and social environment across different regions in China (Liu, 2003). Therefore, in all regression models we use robust standard errors adjusted for clustering observations at the community level.[8] Second, because the data set we use is a cross-sectional stratified random sample, each household is endowed with a sampling weight representing the selection probability to obtain results that are representative for all households in China (Cole & Sokolyk, 2016). Third, in all tests, we calculate regression coefficients as average marginal effects using the finite-difference method.[9] This means that the parameter of each independent variable can be interpreted as the probability for the dependent variable to be equal to 1. Finally, we acknowledge that because we use cross-sectional data, we cannot rule out the possibility that our specification suffers from unobserved heterogeneity. However, by using an IV approach, we are able to control for reverse causality and/or omitted variable bias.

5. Descriptive statistics and empirical results

Panel A of Table 1 shows the univariate analysis of the households' need of a bank loan using the full sample. Column (1) provides the means and standard deviations (in parentheses) of all variables for the households in our sample. Politically connected household heads account for 12.3% of the total sample.[10] The table also shows that 26% of households have loans from the informal financial sector; yet, only 7.8% has a bank loan (7.8%). This suggests that it is difficult for households to access bank loans in China, and they therefore rely more on lending through informal financial channels.

Columns (2) and (3) of Panel A show the means and standard deviations of all variables for the sub-sample of households that need a bank loan and the sub-sample that do not need a loan. Column (4) of the table shows results of the t-test to examine whether the mean values of variables are statistically significantly different for the two sub-samples of households. Sample weights are adopted in the estimation of the t-test, and robust standard errors are clustered at the community level. The results show that although the sub-sample of households in need of a loan is more politically connected than the sub-sample of households without the need, the difference between the mean values for this variable is not statistically significant.

Panel B of Table 1 provides information on the sub-sample of households that say they need a bank loan. Column (1) provides the descriptive statistics of this sub-sample; the information in this column is equal to that in Column (3) in Panel A of Table 1. Columns (2) and (3) show the means and standard deviations of variables

Table 1. Univariate analyses.

Panel A: Univariate analysis of bank loan need				
	(1) All HHs	(2) No Need	(3) Need	(4) T-Test
Political Connection	3,850 0.123 (0.328)	2,875 0.120 (0.326)	975 0.127 (0.334)	3,850 0.0157 (0.0348)
Panel B: Univariate analysis of bank loan application				
	(1) All Needing HHs	(2) Discouraged	(3) Applied	(4) T-Test
Political Connection	975 0.127 (0.334)	528 0.080 (0.270)	447 0.183 (0.390)	975 0.214*** (0.0615)
Panel C: Univariate analysis of bank loan approval				
	(1) All Applied HHs	(2) Rejected HHs	(3) Approved HHs	(4) T-Test
Political Connection	447 0.183 (0.390)	145 0.090 (0.289)	302 0.229 (0.422)	447 0.227*** (0.0542)

Notes: Standard deviations in parentheses of columns (1), (2) and (3); robust standard errors in parentheses of column (4) are adjusted for 320 clusters in community. Sample weight is adopted in the estimation of the T-test (*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$).

for households that do not apply and for households that do apply for a bank loan, respectively. Column (4) shows results of the t-test that compares the mean values of variables for both sub-samples. Most importantly for the discussion in this article, the table shows that for households that apply for loans, 18.3% have political connections, which is significantly higher than the percentage of households that do not apply (8.0%). This suggests that politically connected households in need of bank credit are significantly more motivated to apply for loans than households without such connections.

Panel C focuses on those households that have applied for a loan. This sub-sample is further separated into a sub-sample of those that were not granted a loan (Column [2]) versus those that did obtain a loan from the bank (Column [3]). Results from a simple t-test (Column [4]) show that households that received a loan have a significantly higher probability of being politically connected compared to households that did not obtain a loan (22.9% versus 9%).

Column (1) of Table 2 shows the results of selection Equation (1), investigating the likelihood that a household needs a bank credit. The exclusion variable, *Percentage Households Having a Bank Account*, is significant at the 10% level. The Wald test of the Selection Equation (1) is significant at the 1% level, which strongly rejects the null-hypothesis that $\rho_1 = 0$, indicating the existence of sample selection bias.

Most importantly, the results in Column (1) of Table 2 show that the coefficient for the variable *Political Connection* is not statistically significant, suggesting that the fact that the household head is politically connected is not associated with the household's need for a loan. Apparently, political connections do not increase the demand for bank loans.

Column (2) of Table 2 provides the results of the analysis in which we investigate the determinants of applying for a loan, conditional on whether households say they

Table 2. Heckman probit model of the self-selection process.

Explanatory Variables	(1) Selection Equation Need Bank Credit (=1)	(2) Outcome Equation Bank Loan Apply (=1)	(3) Outcome Equation (Marginal Effect) Bank Loan Apply (=1)
Political Connection	0.0107	0.217**	0.0369**
	(0.0995)	(0.110)	(0.0176)
Social-Economic Characteristics (Age reference group: Young Heads)			
Female	0.0634	−0.199**	−0.0393*
	(0.0803)	(0.0966)	(0.0206)
Middle-aged	0.213*	−0.00342	−0.000634
	(0.129)	(0.138)	(0.0256)
Old	0.0694	0.0830	0.0151
	(0.145)	(0.140)	(0.0253)
Household Size	0.0274	−0.0108	−0.00200
	(0.0179)	(0.0218)	(0.00402)
Rural	0.279***	−0.196**	−0.0348**
	(0.0796)	(0.0959)	(0.0160)
Educational Attainment (Reference group: Primary School or less)			
Middle School or Vocational School	0.0780	−0.0613	−0.0113
	(0.0663)	(0.0770)	(0.0141)
Bachelor's degree or Above	0.522**	−0.384	−0.0847
	(0.239)	(0.269)	(0.0688)
Occupation Types (Reference group: Unemployed)			
Freelance or Farmer	0.0343	0.0809	0.0151
	(0.0748)	(0.0940)	(0.0178)
Entrepreneur	−0.0112	0.191	0.0323
	(0.145)	(0.187)	(0.0290)
Employee	0.0757	0.110	0.0196
	(0.103)	(0.119)	(0.0207)
Household Income (Reference group: Low-Income Class)			
Middle-Income Class	−0.0507	−0.0205	−0.00381
	(0.0734)	(0.0883)	(0.0164)
Top-Income Class	0.0683	0.113	0.0203
	(0.0988)	(0.114)	(0.0200)
Durable Goods Value (Reference group: Low-Durable-Value Level)			
Middle-Durable-Value Level	−0.106	0.142*	0.0265*
	(0.0687)	(0.0806)	(0.0150)
Top-Durable-Value Level	−0.142	0.374***	0.0617***
	(0.0967)	(0.117)	(0.0177)
Liquid Assets Value (Reference group: Low-Liquid-Value Level)			
Middle-Liquid-Value Level	−0.168**	0.0466	0.00854
	(0.0719)	(0.0833)	(0.0151)
Top-Liquid-Value Level	−0.153*	0.0716	0.0130
	(0.0911)	(0.121)	(0.0213)
Real Estate			
Own House	0.0290	0.00991	0.00185
	(0.140)	(0.171)	(0.0321)
Financial Characteristics			
Informal Lending	1.001***	−0.847***	−0.197***
	(0.0626)	(0.0719)	(0.0189)
Risk Preference	0.0787***	0.0359	0.00666
	(0.0238)	(0.0304)	(0.00576)
Exclusion Variables			
Public Security Evaluation	−0.0255	0.130***	0.0240***
	(0.0342)	(0.0418)	(0.00833)
Percentage of Households Having Bank Accounts in the Community	0.301**	–	–
	(0.141)	–	–
Constant	−2.134***	0.870**	
	(0.674)	(0.374)	
N	3,776	961	961

(*continued*)

Table 2. Continued.

Explanatory Variables	(1) Selection Equation Need Bank Credit (=1)	(2) Outcome Equation Bank Loan Apply (=1)	(3) Outcome Equation (Marginal Effect) Bank Loan Apply (=1)
ρ_1		0.9724***	–
		(0.0368)	–
$\chi 2$ (Wald test of $\rho_1 = 0$)		10.01***	–
Prob ($> \chi 2$)		0.0016	–
Standard Errors Clustered at the Community Level		Yes	Yes
Sample Weight Adopted		Yes	Yes

Notes: Robust standard errors in parentheses are adjusted for 320 clusters in community. In column (3), Average Marginal Effects are calculated with finite-difference method. Sample weight is adopted in all estimations of the model (***$p < 0.01$, **$p < 0.05$, *$p < 0.1$).

need a bank loan. The results show that *Political Connection* is statistically significant and has a positive sign ($p < 0.01$), indicating that politically connected households are more likely to apply for a bank loan than households without such connections. This result confirms our *Hypothesis 1*. We interpret this as evidence for the argument that households with political connections self-select when applying for a loan, because they are more confident about obtaining a loan through their connections. As a robustness check, we present in Column (3) the results of a simple probit estimation model (e.g., not controlling for selection bias) of the model in Column (2). Compared with the Heckman probit model, *Political Connection* is again positive and significant.

Table 3 displays the results of the investigation focusing on the selection process applied by banks to screen loan applications. Column (1) shows results that describe households' decisions to apply for bank loans, similar to the results in Column (2) of Table 2 with two exceptions. First, to control for the sample selection bias in the self-selection process, we add the Inverse Mill's ratio from the household's self-selection equation (*Mill's Ratio1*) as an additional regressor. Second, we use the household head's subjective attitude towards the public safety of the living environment (*Public Security Evaluation*) as the exclusion variable in the bank loan application equation presented in Column (1). The results show that *Public Security Evaluation* is statistically significant. They also show that both the *Mill's Ratio1* and the Wald test of the bank selection process are significant. This rejects the null-hypothesis of $\rho_2 = 0$, and confirms the existence of the sample selection bias in the household's self-selection process and the bank's selection process.

The results in Column (1) of Table 3 are consistent with the results in Column (2) of Table 2. Household heads with political connections have a higher probability of applying for a bank loan when they show the need for a loan. As discussed above, this may be driven by the confidence they have that these connections will help them obtain a loan.

Column (2) of Table 3 shows the results of the bank's screening process. The coefficient of the variable *Political Connection* is statistically significant and has a positive sign, suggesting that politically connected households are more likely to be approved

Table 3. Heckman probit model of the bank selection process.

Explanatory Variables	(1) Selection Equation (2) Bank Loan Apply (=1)	(2) Outcome Equation (2) Bank Loan Granted (=1)	(3) Simple Probit Bank Loan Granted (=1)
Political Connection	0.386**	0.302*	0.0633*
	(0.165)	(0.187)	(0.0357)
Social-Economic Characteristics (Age reference group: Young Heads)			
Female	−0.441***	0.207	0.0456
	(0.151)	(0.187)	(0.0379)
Middle-aged	−0.189	−0.258	−0.0564
	(0.294)	(0.241)	(0.0483)
Old	0.134	−0.411	−0.107
	(0.237)	(0.265)	(0.0755)
Household Size	−0.0355	−0.0798*	−0.0187
	(0.0436)	(0.0483)	(0.0119)
Rural	−0.586**	−0.0443	−0.0103
	(0.256)	(0.172)	(0.0395)
Educational Attainment (Reference group: Primary School or less)			
Middle School or Vocational School	−0.159	0.199	0.0472
	(0.139)	(0.144)	(0.0345)
Bachelor's degree or Above	−1.283**	0.672	0.113**
	(0.642)	(0.476)	(0.0538)
Occupation Types (Reference group: Unemployed)			
Freelance or Farmer	0.157	0.0593	0.0139
	(0.138)	(0.194)	(0.0457)
Entrepreneur	0.466*	0.592	0.105*
	(0.264)	(0.444)	(0.0554)
Employee	0.0861	−0.0431	−0.0102
	(0.189)	(0.205)	(0.0492)
Household Income (Reference group: Low-Income Class)			
Middle-Income Class	−0.0103	0.150	0.0349
	(0.133)	(0.156)	(0.0362)
Top-Income Class	0.0667	0.475**	0.0988**
	(0.164)	(0.213)	(0.0414)
Durable Goods Value (Reference group: Low-Durable-Value Level)			
Middle-Durable-Value Level	0.369**	0.0703	0.0165
	(0.147)	(0.168)	(0.0397)
Top-Durable-Value Level	0.844***	0.0135	0.00315
	(0.213)	(0.229)	(0.0533)
Liquid Assets Value (Reference group: Low-Liquid-Value Level)			
Middle-Liquid-Value Level	0.259	−0.0603	−0.0143
	(0.189)	(0.167)	(0.0403)
Top-Liquid-Value Level	0.338*	−0.186	−0.0462
	(0.200)	(0.190)	(0.0498)
Real Estate			
Own House	−0.0328	0.495	0.139
	(0.259)	(0.377)	(0.126)
Financial Characteristics			
Informal Lending	−2.744***	−0.0488	−0.0114
	(0.949)	(0.136)	(0.0320)
Risk Preference	−0.0116	−0.0379	−0.00888
	(0.0846)	(0.0526)	(0.0123)
Exclusion Variables			
Public Security Evaluation	0.283***	–	–
	(0.0638)	–	–
Mill's Ratio 1 (ρ_1)	−3.467***	–	–
	(1.300)	–	–
Constant	−1.219***	0.892	
	(0.419)	(0.577)	
NO. of Observations	961	441	441
ρ_2		−0.8394***	

(*continued*)

Table 3. Continued.

Explanatory Variables	(1) Selection Equation (2) Bank Loan Apply (=1)	(2) Outcome Equation (2) Bank Loan Granted (=1)	(3) Simple Probit Bank Loan Granted (=1)
		(0.1237)	
$\chi 2$ (Wald test of $\rho_2 = 0$)		8.47***	–
Prob ($> \chi 2$)		0.0036	–
Standard Errors Clustered at the Community Level		Yes	Yes
Sample Weight Adopted		Yes	Yes

Notes: Robust standard errors in parentheses are adjusted for 320 clusters in community. Average Marginal Effects are calculated with finite-difference method. Sample weight is adopted in all estimations of the model (***$p < 0.01$, **$p < 0.05$, *$p < 0.1$).

for a bank loan than households without such connections, which supports our *Hypothesis 2*. Such connections provide additional information about the creditworthiness of applicants. This puts households with political connections that apply for a loan in a better position to actually obtain a loan than households without connections. Such connections allow for developing private relationships (i.e., friendships) with other Party members, including bank officials. Private links may enhance households' accessibility to bank credit because friendships are established on the basis of mutual trust and support. Bank officials may decide to provide (i.e., supply) credit to households with whom they are linked as a form of friendly assistance. Politically connected applicants may thus gain preferential treatment when applying for a loan.

As a robustness check, in Column (3) of Table 3, we use a simple probit model and re-estimate the model displayed in Column (2). The most important outcome of this exercise is that *Political Connection* remains statistically significant and has the expected sign.

6. Conclusion

In this article, we investigate the role that household political connections play in determining household access to bank loans. We use data from a large household survey carried out in China to analyse whether membership of a household head in a political party in China increases the probability that the household has access to a bank loan. We investigate the role of political connections at different stages of the bank loan allocation process. More specifically, we look at how these connections influence the decisions of households to apply for bank loans and the decisions of banks to approve the loans. Households with political connections may self-select when applying for loans because they are more confident of obtaining loans through their connections. Banks may use information about political connections as a screening device when allocating loans. Our data come from a large survey covering 8,438 households in China, carried out by the Survey and Research Center of China Household Finance in 2012 and covering the economic and financial activities of Chinese households in 2011. Using the two-stage Heckman probit model in both the

household's self-selection process and the bank's selection process, we find evidence that political connections are positively associated with both households' willingness to apply for a loan on the demand side and their probability of obtaining a loan on the supply side. These results thus confirm our hypotheses.

We make two contributions to literature on the determinants of household access to credit. First, to the best of our knowledge, we are the first to analyse the role of political connections as a determinant of household access to bank loans. Second, we analyse the role of political connections throughout the bank loan allocation process, that is, we decompose the loan application process into the household's self-selection process and bank's selection process. The separate discussion of different stages of the bank loan allocation process enables us to analyse the impact of political connection on both the credit demand and credit supply side.

Because we use cross-sectional data, it is impossible to investigate the impact of changes in the variable of interest; that is, analysing the impact of the acquisition or loss of political connections. Moreover, we are unable to observe the decision-making process of the bank loan allocation procedure over time. Future research should focus on creating panel data to allow further investigation of these issues.

Notes

1. For instance, land is a traditional and prevalent form of collateral in developing countries when applying for bank credit. In the case of China, however, land is state-owned property by law and households are not allowed to use it as collateral (Park & Ren, 2001). This exacerbates the difficulty for households in accessing bank credit.
2. One potential concern may be that households realise that having political connections enhances their access to bank credit. Therefore, they may attain the political affiliation as a shortcut to get access to credit. If this is what really happens, our analysis cannot prove that political connected households are motivated by their political memberships to apply for bank credit. Nevertheless, as described by Li et al. (2008), the attainment of Party membership in China follows a distinct selection process that generally involves five stages: self-selection, political participation, daily monitoring, closed-door evaluation, and probationary examination. This distinct process generally takes three or four years, during which the candidate must make a continuous effort to meet the standard of being a party member, such as regular report to the party branch and a good performance in the working field. The candidate is afforded a membership only when all party members in the local branch have no doubt on the candidate's evaluation. Accordingly, attaining the party membership is much more costly with respect to time and effort than applying for bank credit. It is less likely that people attain the party membership with the aim of obtaining bank credit.
3. Detailed information on the survey design and data collection is described by Gan et al. (2014).
4. The data set has recently been used in several empirical studies; see; e.g., Lu and Turvey (2014), Zhu, Du, and Zhang (2014), Liang and Guo (2015), Chen and Wen (2017) and Li (2018).
5. For the English version of the questionnaire, see http://www.chfsdata.org/upload/CHFS-Questionnaire-CAPI-English.pdf.
6. Again, we conduct simple probit models using selection Equation (3) and outcome Equation (4) and adding *Public Security Evaluation* to both regression models. Results confirm that *Public Security Evaluation* and *Bank Loan Apply* are positively and

statistically significantly associated, but *Public Security Evaluation* and *Bank Loan Granted* are not.

7. Appendix Table A.1 describes the measurement of all control variables we use in the analysis.
8. In our sample, we have data from 320 communities in 25 provinces. The large number of communities ensures the effectiveness of clustering standard errors in our model.
9. According to the finite difference method, the numerical derivative of each variable is the mean derivative of the sample rather than the derivatives evaluated at the mean of the variable. That is, we calculate the derivative (or the finite difference for binary variables) for each observation and report the (weighted) sample mean (Heckman et al., 2003).
10. According to the Xinhua News Agency (the official press agency of the People's Republic of China), in 2010 the number of Communist Party members was 80.269 million; the total number of minor democratic party members and Youth League members was estimated to be 80 million. Given that the total Chinese population in 2010 is estimated at 1.339 billion, the actual share of individuals who have a party membership is 12%. This suggests that our sample is representative of the total Chinese population in terms of party membership.

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Appendix Table A.1. Description of control variables

Control Variables	Description
Social-Economic Characteristics	
Female	Dummy variable = 1 if household head is female
Young	Dummy variable = 1 if household head is under 30-years-old
Middle-Aged	Dummy variable = 1 if household head is 30- to 60-years-old
Old	Dummy variable = 1 if household head is over 60-years-old
Household Size	Number of household members
Rural	Dummy variable = 1 if household lives in rural area
Educational Attainment	
Primary School or less	Dummy variable = 1 if household head highest level of education is primary school or lower
Middle School or Vocational School	Dummy variable = 1 if household head highest level of education is middle or vocational school
Bachelor's degree or Above	Dummy variable = 1 if household head highest level of education is Bachelor's degree or higher
Occupation Types	
Unemployed	Dummy variable = 1 if household head is unemployed
Freelance or Farmer	Dummy variable = 1 if household head is farmer or has no regular job
Entrepreneur	Dummy variable = 1 if household head is entrepreneur
Employee	Dummy variable = 1 if household head is employee at private or public company
Household Income	
Low-Income Class	Dummy variable = 1 if household income is in the 1^{st} to 25^{th} percentile of household incomes
Middle-Income Class	Dummy variable = 1 if household income is in the 26^{th} to 74^{th} percentile of household incomes
Top-Income Class	Dummy variable = 1 if household income is in the 75^{th} to 100^{th} percentile of household incomes
Durable Goods Value, based on the market value of durable goods such as televisions, refrigerators, computers, etc.	
Low-Durable-Goods Value	Dummy variable = 1 if household durable goods value is in the 1^{st} to 25^{th} percentile of household durable goods value
Middle-Durable-Goods Value	Dummy variable = 1 if household durable goods value is in the 26^{st} to 74^{th} percentile of household durable goods value
Top-Durable-Goods Value	Dummy variable = 1 if household durable goods value is in the 75^{st} to 100^{th} percentile of household durable goods value
Liquid Assets Value based on the value of bank accounts, market value of stocks, amount of money lent to others, and cash held at home	
Low-Liquid-Assets Value	Dummy variable = 1 if household liquid assets value is in the 1^{st} to 25^{th} percentile of household liquid assets value
Middle-Liquid-Assets Value	Dummy variable = 1 if household liquid assets value is in the 26^{st} to 74^{th} percentile of household liquid assets value
Top-Liquid-Assets Value	Dummy variable = 1 if household liquid assets value is in the 75^{st} to 100^{th} percentile of household liquid assets value
Real Estate	
Owns House	Dummy variable = 1 if household owns a house (i.e., has officially certified property right)
Financial Characteristics	
Informal Lending	Dummy variable = 1 if household borrows from informal sources, such as relatives, friends, or non-bank financial institutions
Risk Preference	Measure of household head's subjective attitude towards risk, based on a question that captures the risk preferences of household heads. The question is: 'If you have some idle assets, would you like to invest in a project that is: (1) the least risky and the least profitable; (2) relatively less risky and less profitable; (3) neither lower, nor riskier and profitable; (4) relatively riskier and more profitable; or (5) the riskiest and the most profitable?' Answers from (1) to (5) classify household heads into five groups, ranging from the most risk-averse to the most risk-seeking; the higher the score of the variable Risk Preference, the higher the risk the household head prefers.