Gender Disparity in Credit Access: A Case Study of Entrepreneurs in China

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H. Brin Xu[a], Shengwei Sun[b], Feinian Chen[a]

a. Department of Sociology, Maryland Population Research Center, University of Maryland, College Park

b. Weidenbaum Center, Washington University-St. Louis

Introduction

Research has brought out clearly the extent to which women occupy disadvantaged positions in traditional economic and social arrangements (Bianchi et al., 2010). While gender inequalities have been observed extensively in the workplace, nevertheless in credit market women's relative deprivation is much less understood (Dwyer, 2017). Access to financial resources has been a pivotal domain to economically empower women (Golla et al., 2011). Constraints to external finance, either formal or informal, is often found negatively associated with women's economic advancement (e.g., Coleman and Robb, 2012). In line with this strand of literature, most studies particularly devote to examining whether or not have credit access, much less differentiate formal and informal access, nor examine the two accesses simultaneously. We still need to know the underlying mechanism leading to formal access versus informal access.

China has been experiencing a large scale of financialization since its market reforms since 1970s (Fligstein and Zhang, 2011). In order to raise the efficiency of economy, the central government pushed state-owned enterprises to be market-oriented, resulting in the rise of self-employed small and micro businesses. The number of female small and micro-entrepreneurs is growing in the country's male-dominated business world. Seeking funding in capital markets is pivotal for entrepreneurial success (Blanchflower and Oswald, 1998). In spite of a rich literature on the credit market, the knowledge gap still exists in the gender disparity of credit access for small and micro business owners in China.

This study aims to fill these gaps by using a nationally representative panel data set from the China Household Finance Survey (N=9,784) to explore gender disparity in the financial setting. To be specific, we ask whether women small- and micro-business owners are disadvantaged compared to their male counterparts when seeking funding in the credit market;

and if so, what the mechanisms behind the gender disparity are. Firstly, we examine whether there is a gender disparity in small and micro entrepreneurs' access to formal credit markets, namely, banks and other formal financial institutions, as well as informal credit markets. Secondly, we explore the mechanisms behind the gender disparity building on the three theoretical perspectives. We examine how the individual characteristics - gender-based resources, risk attitude, as well as structural conditions explain such disparity. We find that women entrepreneurs are disadvantaged in accessing formal credits but not informal credits after controlling individual characteristics, suggesting the existence of additional structural barriers against women in the formal credits market.

Explaining Gender Disparity in Credit Access

We draw on three perspectives pertaining to gender disparity in obtaining business loan: resources-based theory, attitudinal perspective based on gendered socialization theory, and structural discrimination and barriers against women in financial markets. The resource-based theory attributes gender disparity in credit access to men's advantage – and women's disadvantage – in the socioeconomic resources one has already accrued prior to applying for a business loan. The entrepreneur's tasks are to assemble, develop and transform needed resources to generate unique capability that will give him or her a competitive advantage (Amit and Schoemaker, 1993; Wernerfelt, 1984). For small-micro business, entrepreneurs' personal sources, including education attainment, economic and political resources, are especially crucial to firms' performance. And yet, women often face unequal treatment at the hands of lenders or other business organizations partly because historically, they had lower levels of education (Hisrich and Brush, 1983; Watkins and Watkins, 1983), less work experience and less relevant

experience in the field of business (Belcourt et al., 1991). Thus, the gender difference in personal resources may create barriers for women in accessing credits.

Second, the attitudinal perspective focuses on individual-level attitudes about risks in explaining the gendered disparity in accessing business loans. The individual-level attitudes about risks, however, are developed from long-term socialization based on gendered norms about stereotypical masculine or feminine behaviors. For example, traditional gender norms dictate women to be subordinate and risk-averse while expecting men to be aggressive and risk-taking. Gendered socialization may have led to differential motivations and expectations for businesses between male and female entrepreneurs. As a result, the actions they take to achieve business outcomes may also differ (Hughes, 2006; Manolova et al., 2008). Moreover, since the risk of acting on a new status belief is often more challenging for women than for men (Rudman and Fairchild 2004), women are usually less willing to act on beliefs that challenge the traditional gender norms. If attempting to get credit from financial institutions is often seen as men's job, acting on this new status feels like betraying traditional feminine ideal and can be punitive for women.

Third, women face gender discrimination in the financial markets due to stereotypical ideas by officers and managers in the financial institutions. Doing business, including small and micro business, is often seen as a masculine industry (Fischer, Reuber, & Dyke, 1993). This is particularly so in financial markets which require specialized knowledge, as this arena has long been dominated by men. Men are believed to be more experienced in financial decisions and funding in the credit market, while women have long been viewed as less credible applicants for credit. This may further create barrier for women who seek funding, as lenders are predominantly men who hold such stereotypical views about women. Moreover, gender biases

are often built into loan policies. For example, female loan applicants are frequently required to have their husbands cosign their loan applications (Li et al., 2013). Previous studies on this topic has found that women business owners face discrimination from financial institutions when seeking business funds (e.g. Carter and Rosa, 1998; Fay and Williams, 1993). This theory provides a demand-side explanation for gender disparity in accessing business loans.

In sum, the gender discrimination perspective provides a demand-side explanation of why women may be less likely than men to obtain loans in the credit markets. In comparison, the resource-based perspective and attitudinal perspectives focus on supply-side factors that may contribute to gender disparity in credit access. Still, we acknowledge that these supply-side factors are shaped by cultural ideals and social structures that reinforce men's advantages over women.

Research on Gender Disparity in Credit Access in Developing Countries

Research reveals that women's motivations in conducting business are often more basic than that in developed countries; survival, better nutrition, better health care and better education for themselves and their families (Hanson, 2009; Minitti, 2010). Many developing countries experience high levels of poverty, and educational opportunities, especially for women, may be more limited than they are for men. Women entrepreneurs from developing countries are often found facing bleak prospects for securing funding due to the underdeveloped financial markets. Few women obtain loans from formal financial institutions, and when they do, they pay higher interest rates and have higher collateral requirements (Coleman and Robb, 2012). Credit rationing status of spouses is found varied by gender in Paraguay, providing evidence that women face more credit constrain (Fleschner, 2009). On the other hand, some recent research

yields inconsistent finding. The gender gap in access to finance in Sub-Saharan Africa disappears when key observable characteristics of the enterprises or individuals are taken into account (Aterido et al., 2013). Likewise, a field experiment in Sri Lanka reveals that return to capital shocks are much higher for men than for women, suggesting it is microenterprises run by men rather than women are more credit constrained (Suresh de Mel et al., 2009). This strand of literature is far from conclusive.

Facing constraints from formal financial institutions, small and micro enterprises often bypass the formal credit market to seek external funding from informal financial channels. Informal finance is referred to as unofficial credit, and it includes informal loans, commercial credit, and *hehui* (rotating savings and credit associations) (Zeng and Wang, 1993). A field study conduct in southern China finds no significant gender difference in informal credit access, as women are more likely than men to connect other women business owners creating a supporting system and a sense of community (Tsai, 2000). A study setting in two urban slum communities of Manila in the Philippines finds that women are more likely to be credit constrained than men, as informal lenders may rely more on reputation and credit history to screen prospective borrowers leading (Malapit, 2012). Studies on informal credit market add to the inconsistency.

Such inconsistency highlights the financial constraints female entrepreneurs face are a function of personal backgrounds and structural setting. We may not find the same gender gap in developing countries across regions, across countries, and across formal and informal lending. Despite the increasing attention on women's access to credit, the knowledge gaps in this topic remain. In addition, in line with this strand of literature, most studies particularly devote to examining whether or not have credit access, very few differentiate formal and informal access, nor examine the two accesses simultaneously. While it is widely regarded that no access to

external finance, either formal or informal, is negatively associated with business success, we know relatively little about the underlying mechanism leading to formal versus informal lending.

The Background of China

Since China embarked on market reform in 1978, small and micro businesses have been playing an increasingly active role in economic development (Shen et al., 2009). The number of small and micro businesses has increased from 3 million in 2008 to 7.8 million in 2013, with an annual increase rate of 10 percent (National Bureau of Statistics, 2013). They contribute 50.6% jobs in China today (National bureau of Statistics, 2013). Among the self-employed entrepreneurs, nearly half are women (Yueh, 2008), indicating the important role of women entrepreneurs in this sector. Despite Chinese women's increasing presence in the business world, they are more likely to run small and micro businesses (Yueh, 2008).

Compared to large and state-owned companies, small and micro businesses have difficulties in obtaining credits from formal financial institutions (Shen et al., 2009). Tsai (2002) proposed multiple reasons why banks are reluctant to lend to small and micro business. The first and foremost is that State Owned Enterprises (SOEs) continue to receive the majority of bank credits due to political pressures to maintain social stability and minimizing unemployment. The credits to SOEs also relate to both centrally and provincially defined industrial priorities. When the SOEs loans become bad loans, banks usually expect to get forgiveness from the state, as the SOEs are essential parts of the state. In addition to the political pressure on banks to lend to the SOEs, the state banks also simply lack the experience in lending to private enterprises. This is made worse by the widespread prejudice against people who pursued private profit and became rich during the earlier years of market reform. In sum, few banks are willing to lend to private

sectors. Inadequate financial support has become one of the main obstacles to the development of small and micro businesses (Shen et al., 2009).

It is not surprising, therefore, that a large volume of small and micro business owners turns to informal finance, including interpersonal lending, trade credit, rotating credit associations, pawnshops to seek funding (Tsai, 2002). Informal finance, including interpersonal lending, trade credit, rotating credit associations, and pawnshop, emerges as a significant component for financing small business in China (Tsai, 2002).

Existing studies on credit access in China rarely seek to explain the gender differences in market behaviors. The only study on this topic we could find (Tsai 2002) is ethnographical and restricted to five case studies in South China. We do not know, on a national level, whether women small business owners have more difficulties accessing credits as compared to men, and whether the gender disparity exists in both formal and informal banking systems.

Research Questions

In the first part of the study, we plan to examine whether there is gender disparity in small and micro entrepreneurs' access to formal credit markets, namely, bankers and other formal financial institutions, as well as informal credit markets. Credit from formal and informal credit market can be seem as two sides of a coin, as they can compensate for each other as alternative funding resources. Based on previous findings that male and female entrepreneurs have different resource endowments in china (Li, 2008; Tsai, 2000), and given that socioeconomic resources matter for credit application, we hypothesize:

Hypothesis 1a: Women are less likely to have access to formal credits compared to their male counterparts.

On the other hand, although facing greater structural barriers to the formal financial sector, women are found no less likely to receive informal credit in general, because women possess a greater stock of interpersonal trust or a stronger sense of community than men in China (Tsai, 2000). We expect:

Hypothesis 1b: There is no significant gender disparity in accessing informal credits.

In line of Hypothesis 1a and Hypothesis 1b, we further expect:

Hypothesis 1c: Women are less likely to get credit from formal credit market than from informal credit market.

In the second part of the paper, we plan to explore the mechanisms behind the gender disparity building on the three theoretical perspectives. From the insight of resource-based theory, we expect that the resources owned by men and women entrepreneurs partly explain gender disparity in credit access). On average, women tend to have lower levels of education and are disadvantaged in the labor market as compared to men. In China, gender gap in earnings and employment rate has increased since the 1990s, particularly in urban areas following the restructuring of SOEs (Attané 2012). During the public-sector downsizing, women were laid off disproportionally and faced more difficulties in seeking reemployment (Dong et al. 2006). Women's educational and labor market disadvantages may limit their capacity to apply for loans. In addition, being a member of Communist Party of China (hereafter CPC) will make the business owner have more connection with state corporatist organizations and regulation organizations. Private entrepreneurs may later on benefit from bureaucratic protection, which is a practical way to reduce transaction costs in a transitional economy (Tsai, 2005). Men are more likely than women to be a CPC member (Inter-Parliamentary Union, 2018). Taken together, we expect:

Hypothesis 2a: Part of the gender disparity in credit accessing can be attributed to gender differences in socioeconomic resources including educational attainment, labor market position, and CPC membership.

Building on the attitudinal perspective, another source of the gender disparity in credit accessing may come from gender differences in the odds of applying for credits in the first place. Credit is a risk asset, as a borrower is expected to pay interest in the future in the return of a loan. Gendered risk aversion may have led women to be more cautious in the credit application process (Agier & Szfarz, 2013; Akpalu, Alnaa, & Aglobitse, 2012). Internalized patriarchal ideas such as "women belong to the domestic sphere" may also limit women's motivation in seeking funding. We therefore hypothesize:

Hypothesis 2b: Women are more likely than men to be deterred from getting credit due to risk attitude in applying for a loan.

Finally, women and men may be treated differently even though other conditions remain the same. Thus, after controlling their socioeconomic resources and risk attitudinal characteristics, if the gender disparity still exists, the findings may lead us to the discriminatory structural factors relating to gender disparity in business loan. We expect:

Hypothesis 2c: After controlling for all the individual-level variables introduced above, gender disparity still exists in the formal credit market.

Data and Sample

This study utilizes a dataset collected by the Survey and Research Center for China Household Finance (hereafter CHFS), a non-profit institute for academic inquiry at Southwestern University of Finance and Economics. This survey is the only nationally representative study in China that

has detailed information about household finance and assets, including housing, business assets, financial assets, and other household assets. In addition, the survey also has information about income and expenditures, social and commercial insurance, and much more. This research uses three waves of the survey conducted in summer 2011, 2013, and 2015 with an original sample size of 8,438 households and 29,500 individuals.

The sampling design for the China Household Finance Survey (CHFS) consists of two major components, a nation-wide general sampling scheme and an onsite sampling scheme based on GIS mapping. At the national level, the sample included 25 out of 30 provinces in China, covering 2,585 cities/counties of the nation (excluding Tibet, Xinjiang, Inner Mongolia, Hongkong, Macao, and Taiwan regions) as the initial sampling base. These sampling bases have taken into account urban and rural, rich and poor, interior and exterior differences. The sampling frame is stratified from city/county to neighbor community and weighted by population (or household) per city/county.

Considering the study purpose, we define the research subjects as business loan applicants. Our sample includes only those who are "household heads." According to the survey design, a "household head" is the person in charge of finance and other significant issues in the household. We further choose those whose family conduct small-micro business and in need of credit. Once we eliminated observations with missing data, our final analytic sample consisted of 9,784 individuals from the three waves, which accounts for 62% of the total sample in 2013, 57% in 2015, and 47% in 2017. An individual can appear in the sample one to three times depending on the survey year the person is included.

Measurement of Key Variables

From the pool of household heads whose families conduct small-micro business, we identify the dependent variable – credit access – from three questions. The first question asks whether a respondent currently has a business loan from a bank (formal credit market). Those who chose yes are coded as having formal credit access. For those who said no, a second question further asks the reasons of not having credit loans, including 1) do not need loans, 2) had credit but has repaid, 3) need credits but did not apply, and 4) was rejected. We excluded those who chose 1) do not need credits and 2) had credit but has repaid from our sample and defined those who chose 4) were rejected as not having formal credit access. The third question asks about informal credit access: "whether you borrowed money from 1) Parents/Parents-in-law; 2) Children; 3) Siblings; 4) Other relatives; 5) Friends/Colleagues (including neighbors); 6) Financial organization or professional lender (including loan sharks); 7) Micro Lending Company; 8) Partnership with cooperation or individual (including work-unit or village committee); 9) Others (please specify) 10) Online lending platform)". Following existing literature (Li and Hsu, 2009), we identify those who chose at least one of them as informal credit borrowers. Putting the three questions together, we construct a three-category dependent variable, with 1 indicating having access to both formal credits and informal credits (hereafter "formal access"), 2 indicating having informal credit access but not to formal credits (hereafter "informal access"), and the reference category being having access to neither type of credits (hereafter "no access").

Among credit applicants' personal characteristics, gender is the key independent variable dummy-coded (0=men; 1=women). We include three key independent variables to indicate a respondent's socioeconomic resources. First, we use the respondents' occupation classification score to indicate their labor market position. The questionnaire asks a respondent the occupation the he/she used to do. Following previous research (Yu, 2012), we transfer the answers into

International Socio-Economic Index of Occupational Status (hereafter ISEI) score (Ganzeboom and Treiman, 1996). We convert the answers into a continuous variable ranging from 20 to 70, where 20 means elementary operations and 70 legislators, senior officials and managers. Second, the questionnaire asks about a respondent's completed education level. It is a continuous variable ranging from 1- 9 where 1 means no education and 9 means Ph.D. Third, we include CPC membership as a dummy variable. Besides, a respondent risk attitude is coded from self-reported risk attitude. A question asks what kind of project a respondent would like to invest. The answer includes: 1) high risk and return; 2) higher than average risk and return; 3) average risk and return; 4) lower than average risk and return; 5) not willing to take any risk. The answers are reversed and then coded as 1-5 where the higher score means higher risk preference.

In addition, we control for a set of socioeconomic variables that may influence one's likelihood of accessing business credits. Urban residence is a binary variable where 1 means urban and 0 means rural. Marital status is a nominal variable where 1 refers to never married, 2 married, and 3 divorced or widowed. As an indicator of wealth (Chen, 2010), family assets score is a continuous variable calculated by adding all big properties, such as television, laundry machine. Each type of property accounted for 1 score. Household size is also included as an indicator of a possible family resources. Age is included as a continuous variable.

Methods and Analytic Strategy

In this study, the dependent variable is a nominal variable with three outcomes: having no access to credits, having informal access, and having formal access. We used Stata code mlogit to fit random-effects multinomial logistic models. Since an individual may contribute more than one person-year observations to our analytic sample, we use random effects models in this study to

account for the clustering effect at the individual level. Random-effects models allow unbalanced data in time by including all individuals in its estimation without excluding their attrition status or the number of waves they contribute to the person-year dataset (Hsiao 1986).

We use the random-effects (mixed-effects) multinomial logistic regression model which allows for the simultaneous estimation of the probability of more than two outcomes (Hedeker, 2006). The outcome, credit access, has three response categories. Firstly, we set no access (c = 1) as reference cell and make two pairs of comparison: formal access versus no access (c2 vs, c1), informal access versus no access (c3 vs. c1). Secondly, since we are also interested in comparing formal access versus informal access, we set informal access (c = 2) as reference cell and then compare formal access versus informal access (c3 vs. c2). Let $\beta_c$represents regression effects, v_{ic} represents random effect, and x_{ij} represents c × 1 vector for the set of c covariance for which proportional odds is not assumed. See the equation below:

$$p_r(Y_{ij} = c \,|v_{ic}) = \frac{\exp(x_{ij}^{'}\beta_c + v_{ic})}{1 + \sum_{1,2}^{c} \exp(x_{ij}^{'}\beta_c + v_{ic})}$$

Where i = survey years

j = observations in each survey year

c = response categories

For each pair of comparisons, we fit the following set of nested models: the base line model (Model 1) includes gender of the respondent as the key predictor, controlling for one's basic demographic and household characteristics as well as factors that may influence one's ability to get loans. The baseline model examines whether there is an overall gender disparity in credit accessing net of the above socioeconomic characteristics that may be correlated with credit accessing. Model 2 adds variables indicating one's resources – ISEI score, education attainment, and CPC membership - to examine the extent of the gender disparity in credit accessing that

could be attributed to the differences in applicant's resources. Next, we add risk attitude score to examine its role in explaining gender disparity in credit access (Model 3). As Model 3 takes into account supply-side factors that may affect one's ability to get a loan, the remaining effect of gender on credit access in Model 3 may provide some clues about structural barriers against women in the credit markets.

Descriptive Results

Table 1 presents descriptive statistics for the dependent variable. Credit access is a nominal variable, which has three categories (no access, informal access, and formal access). Overall, 85.0 % of respondents said that they did not obtain the loans they needed, 8.32 % reported they had access to informal credits, and 6.68% had access to formal credits. 85.25% of women in our sample reported no access, 8.22% informal credit access, and 6.53% formal access, while 84.87% of men reported no access 8.22% informal access, and 6.53% formal access. Notably, when further broken down by gender, women were less likely to get credit access.

Women account for 47.5% of our sample. The vast majority of the applicants (62.30%) resided in an urban area. The majority of the applicants were married (75.89%). Female entrepreneurs had average family asset scores as 5.69, which is slightly higher than male entrepreneurs (5.52) in our sample. In terms of resources, male entrepreneurs were higher than female entrepreneurs in all the three indexes. The percentage of party members was almost twice for men than for women. Education attainment and ISEI score were both higher for men than for women. These patterns indicate that men have more resources than women on average. Men also appear to have slightly higher preference for risk than women.

Insert Table 1 About Here.

Multivariate Regression Results

To what extent is there gender disparity in having access to formal credits and informal credits, and what factors contribute to such disparity? We address these questions by using random-effects multinomial logistic models to estimate the likelihood of obtaining credits in formal and informal credit markets simultaneously (see Table 2).

Insert Table 2 About Here.

We start by focusing on the first group of comparison between having access to formal credits vs. having no access. On the left panel in Table 2, Model 1 is the baseline model which controls for basic demographic and family characteristics. The gender coefficient in Model 1 is negative and statistically significant meaning a male entrepreneur is 1.17 times as likely as a female entrepreneur in getting formal credit access. It indicates that women are less likely to obtain loans in formal credit markets, controlling for basic demographic and family characteristics. When further taking into account of one's resources in Model 2, gender disparity in accessing credits to formal markets reduces in magnitude. After further adding risk attitude in Model 3, the magnitude of gender further reduces, yet the negative effect of being women on getting credits from the formal credit market is still significant, suggesting the existence of structural barrier in formal credit market. **These findings accept Hypothesis 1a that women are less likely to have access to formal credits compared to their male counterparts.**

Moving on to the second group of comparison between having informal access verses no access, results from Model 1 shows that a male entrepreneur is 1.03 times as likely as a female entrepreneur in getting informal credit access. The significant effects disappear when resources variables are controlled (Model 2) and the same to one's risk attitude is further controlled (Model

3). **The results presented in the middle panel suggest that there is no significant gender disparity in credit accessing in the informal credit market net of individual-level factors, confirming Hypothesis 1b.**

Finally, for the third comparison between having formal access with informal access, the results are similar to those in formal access verses no access comparison with lesser magnitude. In Model 1 where only socioeconomic variables are controlled, a male entrepreneur is 1.04 times as likely as a female entrepreneur in getting formal credit access. A male entrepreneur is still 1.01 times as likely as a female entrepreneur in getting formal credit access in the full model. **These results accept Hypothesis 1c that women are less likely to get credit from formal credit market than from informal credit market.**

Next, we investigate the mechanisms behinds such gender disparity. Across all three pairs of comparison, one's resources, namely, ISEI score, education attainment, and CPC membership, help explain part of one's credit access and reduces gender effect in getting credit access. For formal access versus no access comparison, a person with one more education year is 1.001 times as likely in getting formal credit access, with one unit of ISEI score 1.03 times, and being CPC member 1.04 times. For the informal versus no access setting, being a communist party member increases 1.35 times as likely in getting credit access from informal credit market, while the other variables only have economic positive effects without statistical significance. It suggests well-connected political elites may have an advantage in accessing informal access. For the formal verse informal credit market, a person with one more education year is 1.11 times as likely in getting formal credit, with one unit of ISEI score 1.02 times, and being CPC member 1.48 times, holding all the conditions the same. **These results confirm hypothesis 2a that resources can explain part of gender disparity in credit market.**

Similarly, controlling for one's risk attitude reduces gender disparity of all the three groups. For formal access versus no access, a person with one more risk attitude score is 1.40 times as likely in getting formal access holding all the conditions the same. For formal access versus informal access, a person with one more risk attitude score is 1.15 times as likely in getting formal credit. Risk attitude does not have significant influence in getting informal access though. **These results confirm Hypothesis 2b that risk attitude explains part of gender disparity in credit market.**

After controlling their socioeconomic resources and risk attitudinal characteristics, however, gender disparity still exists in formal credit market but not in the informal credit market. For the formal access and informal access, a male entrepreneur is still 1.12 times as likely as a female entrepreneur in getting formal credits. For formal access versus informal access, a male entrepreneur is still 1.01 times as likely as a female entrepreneur in getting formal credits. **These findings suggest the existence of structural discrimination against women entrepreneurs in formal credit markets, confirming Hypothesis 2c; the net gender effect is not significant, however, for the informal access versus no access comparison.**

Discussion and Conclusion

Building on three theoretical perspectives, resource-based theory, and attitudinal perspective based on gender socialization theory, and the existence of gender discrimination in financial markets, this study uses a national representative data to examine gender disparity in obtaining business loan in China. Resources-based theory explains gender disparity in credit access to men and women's different level of socioeconomic resources. Our findings support this perspective: borrowers' resources such as education attainment, labor market position, and CPC membership

partly contribute to women's credit constrain. Secondly, the attitudinal perspective suggests that entrepreneurs' performance will be determined by their motivation and attitude. According to gendered socialization theory, however, individual's attitudes towards risk are shaped by long-term socialization under mainstream gender norms. Traditional gender ideals expect women to be risk-averse while expecting men to be risk-seeking. We find that risk attitude plays a role in explaining gender disparity in accessing credits in the formal market. Finally, after taking into account the differences in men and women's resources, risk attitude, and other demographic characteristics, gender disparity in accessing formal credits still exists. This finding suggests there are structural and cultural barriers in formal credit market against women.

This study goes beyond previous research which often solely examine the formal access or the informal access; and examines gender disparity in the informal credit market simultaneously, to further validate the existence of structural bias informal financial setting. After control individual characteristics, the gender gap disappears in an informal financial setting. Women entrepreneur, facing financial constraint informal financial institutions, may have no choice but engage in informal lending such as mutual assistance for the capital-raising purpose. Indeed, women entrepreneurs are not more likely than men in accessing informal credit, suggesting they turn to informal lending driven by the imperfection in the formal credit market, and do not prefer informal access than formal access. Another possible explanation is that informal credit access may not be as highly valued as men's financial activities, as men are more likely to access formal credits and thus less willing to participate in the informal credit market.

The banking industry in China has been particularly restrictive to women in China. Chinese women entrepreneurs received far less loans from banks (3.125%) comparing to that of male entrepreneurs (7.624%) (Liao et al., 2003). Female applicants are frequently required to

have their husbands cosign any applications in order to even receive a loan (Li et al., 2013). They report more experience of being rejected by loan officers than male applicants, with other conditions the same (Xu et al., 2018). Structural barriers against women in accessing formal credits limit women entrepreneurs' ability in obtaining funds at every stage of their business. At the initial stage, the difficulties imposed by sexist policies listed above in getting business loans relegate women who aspired to venture into the business world to domestic spheres and less lucrative sectors of the labor market, further perpetuating the unequal power between men and women. For those women were able to obtain loans to start their businesses, they still tend to face more difficulties than their male counterparts in growing their businesses down the road. Even though women entrepreneurs may resort to informal credits as an alternative, the informal credit market provides less legal protection and thereby incurs higher risks.

Indeed, the gender disparity we observed in this study reflects that women entrepreneurs' economic activities are still structured around patriarchal boundaries. Our findings highlight the need for policies that facilitate equal opportunities for women entrepreneurs to participate in the formal capital market. Given its implication for gender inequality as well as economic development in contemporary China, further exploration about how gendered work and family transition impacts on credit access is warranted.

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Table1: Description of All Variables in CHFS, 2011-2013 (N = 9,784)

Variables	Full sample (N = 9,784)	Female (N = 4,647)	Male (N = 5,137)	
Dependent variable				
Credit access				
No credit access (%)	85.0	85.25	84,87	***
Informal credit access only (%)	8.32	8.22	8.41	*
Formal credit access (%)	6.68	6.53	6.72	***
Independent variable				
Female (%)	47.5	---	---	
Socioeconomic Variables				
Age (Mean)	39.57	38.53	40.49	***
Urban residence (%)	62.30	62.90	61.71	
Marital status				
Never married (%)	20.30	17.90	22.47	
Married (%)	75.89	77.00	74.89	
Divorced/widowed (%)	3.81	5.10	2.65	
Family asset score (Mean)	5.60	5.69	5.52	***
Household size (Mean)	3.65	3.66	3.64	**
Resource Variables				
Highest education year (Mean)	15.5	11.5	19.10	*
CPC membership (%) +	4.11	4.07	4.14	***
ISEI score (Mean) ++	46.10	40.88	52.13	***
Attitude Variable				
Risk attitude (Mean)	2.27	2.25	2.27	*

Notes: The descriptive statistics are based on person-year observations. Percentages are presented for categorical variables, while means and standard deviations are presented for continuous variables.

*, ** and *** indicate statistically significant differences between men and women at the alpha levels of 0.1, 0.01 and 0.001, respectively.

+ CPC indicates Communist Party of China.

++ ISEI indicates International Socio-Economic of Occupational Index.

Table 2: Results of Random-Effects Multinomial **Logistic Models in CHFS, 2011-2015 (N = 9,784)**

	Formal Access vs. No Access			Informal Access vs. No Access			Formal Access vs. Informal Access		
	Model 1	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Independent Variable									
Female	-0.155*	-0.121*	-0.115*	-0.034*	-0.031	-0.023	-0.042*	-0.012*	-0.010*
Socioeconomic Variables									
Age	0.02**	0.013*	0.011*	0.004*	0.002*	0.002*	0.009*	0.002*	0.001**
Urban residence	1.36***	1.301***	1.271***	2.155	1.983	1.979	1.57***	1.41***	1.401***
Marital status (Ref. Single)									
Married	0.485*	0.430*	0.38*	0.194	0.153	0.15	0.821	0.882*	0.894*
Divorced/widowed	0.17	0.176	0.163	0.081	0.016	0.011	0.134	0.269*	0.297*
Family asset score	0.098***	0.079**	0.097**	1.102***	0.072***	0.082***	0.074**	0.1***	0.093***
Household size	0.364***	0.348***	0.361***	0.233***	0.205***	0.204***	0.228***	0.207***	0.211***
Resource Variables									
Highest education year		0.009*	0.001*		0.065+	0.065+		0.098*	0.101*
ISEI score		0.034*	0.026*		0.006+	0.001+		0.020*	0.017*
CPC membership		0.056*	0.042*		0.291***	0.299***		0.432***	0.389***
Attitude Variable									
Risk attitude			0.338***			0.012			0.141***
Constant	-3.592***	-3.788***	-4.586***	-1.86***	-1.611***	-1.627***	-3.049***	-2.704***	-3.025**
Good of fitness									
BIC	9775.579	9799.549	9751.397	9775.569	9799.549	9751.377	9775.569	9799.549	9751.397