The Impact of Market Economy on Individuals' Financial Behaviors

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Abstract

While small family business is playing a significant role in China's national economy, little is known about its loan defaults. Using data from a national commercial bank in China (n=925), we examine loan defaults by putting borrowers in familial, social, and cultural contexts. We find:1) age has a significant negative effect on loan defaults; 2) the cohort of 35 to 50 years old are less likely to default. We argue that the drastic shift from socialism to market economy have had a lasting impact on the cohort who entered adulthood during the transaction. Policy discussions and recommendations are presented.

Keywords: loan default; China; market economy; age, gender and cohort effect; life course perspective; financial behavior

Introduction

On Nov. 30th, 2015, a New York Times article announced that "The China's Renminbi (RMB) is approved by I.M.F. as a Main World Currency." The weight of its currency is 11 per cent, ranked second only after the United States as an independent nation because the Euro is the currency of many European nations (Bradsher 2015). As recently as 1980, the World Bank classified China as "a low income economy," sharing only 3 per cent of the global Gross Domestic Product (GDP).Today, it is claiming 12 per cent of the world's GDP (Lardy 2014). This unprecedented economic growth can be explained by multiple macro and structural changes; among them, without a doubt, is the rapid development of its banking system, as money runs like blood in an economic system. In 1980, there were only 23 million Yuan RMB loaned to private individuals as short-term loans. By 2012, 11 Trillion Yuan bank loans (16.37% of total loan) were issued to individual businesses, and another 5.7 Trillion (8.46% of total loan) were issued to household businesses (Lardy 2014). Clearly individual and household business loans played a significant part in the rapid growth of China's national economy. Beyond the descriptive statistics, little is known about the individual characteristics, family dynamics, and cultural implications of these individual and household loan borrowers. This paper attempts to shed some light on the understanding of household loans and the reasons behind loan defaults by putting the loan borrowers in the familial, social, and cultural contexts of China.

Literature Background and Review

One of the engines of corporate and global economic growth is the efficient functioning of the banking system and the dynamic nature of our world's credit markets. Numerous studies have attempted to identify risk factors for loan and credit default. Among them, three bodies of literature emerged to focus on three types of loans: student, mortgage, and business loan defaults.

The focus of this paper is on business loan defaults. Lenders are increasingly relying on credit scoring when evaluating the credit-worthiness of small business loan applicants (Mester1997).One of the most useful elements of credit-scoring models is the ability to predict how likely a borrower is to default on a loan (Glennon and Nigro 2005). Studies on loan defaults and risk factors associated with the likelihood of borrowers defaulting on mortgage loans have been prolific (Canner, Gabriel and Woolley 1991); there is also a large body of literature on student loans (Flint 1997; Volkwein and Szelest1995). Little is known about small business loan defaults, particularly in relation to family businesses.

Defining Loan Default

The new Bank for International Settlements (BIS)1998 capital requirements for market risks allows banks to use internal models to assess regulatory capital related to both market and credit risks for their trading book. The definition of credit default is verified according to the current proposed industry sponsored Credit Value-at-Risk methodologies. First, the credit migration approach, as proposed by JPMorgan with Credit Metrics, is based on the probability of moving from one credit quality to another, including default, within a given time horizon. Second, the option pricing, or structural approach, as initiated by Kealhofer, McQuown and Vasicek (KMV),is based on the asset value model originally proposed by Merton (Merton 1974). In this model the default process is highly risky, and relates to the capital structure. Default occurs when the value of the assets falls below acritical level. Third, the actuarial approach as proposed by Credit Suisse Financial Products (CSFP) with Credit Risk+ only focuses on default. Default for individual bonds or loans is assumed to follow an external Poisson process. Finally, McKinsey proposes Credit Portfolio View which is a discrete time multi-period mode where default probabilities are conditional on the macro-variables, such as unemployment, the level of interest rates, and the growth rate in the economy, which, to a large extent, drive the credit cycle in the economy. In China, according to Regulatory Guidelines for Internal Credit Risk Rating System in Commercial Banks, a credit loan that is overdue for more than 90 days is regarded as a loan default (People's Bank of China1996). Data for this study is drawn in China. We will therefore apply the Chinese definition of loan default in the operation of the study. The varying definitions of the loan default in America will provide a reference or background for readers to understand Chinese context of loan defaults.

Factors Associated with Loan Defaults

Firstly, gender. Various research has examined key demographic factors in relation to loan default. For example, when evaluating small business loan repayment using gender as an independent variable, researchers found that women were less likely to default a loan than men (Adanuand Boateng 2015). Additionally, for group borrowers, having a higher proportion of female group members was associated with a lower likelihood of loan defaults (Anthony and Horne 2003). Some researchers have suggested that the gender effect is actually a function of women's increased sense of responsibility, which is said to be related to their responsibility toward their families (Aggarwal, Goodell andSelleck2015).

When examining the gender effect, it is important to understand hierarchical power relations within families in order to assess the degree to which women control money they have borrowed from microfinance institutions. Research on small business lending in Bangladesh has focused on the ways in which male family members, particularly husbands, may influence women's decisions with regard to money they have borrowed. Findings indicate that women retain much more control over financed loans when their husbands are absent due to death, divorce, or separation (Goetz and Gupta 1996), which is likely due to strong adherence to patriarchy within Bangladeshi families. Kassim and Rahman (2008) suggest that Bangladeshi women are pressured by their husbands to undertake riskier investments than they otherwise would, resulting in an increased likelihood of a loan default. Similarly, Cameroonian women are often pressured to give their income to their husbands, which may severely limit control over profits from business and the likelihood of repayment (Mayoux 2001). Additionally, Bangladeshi women were found to retain more control over financed money when the money was used for more home-based enterprises. The findings of these studies suggest that researchers should explore the influence of male relatives, particularly husbands, on the gender effect in loan repayment in different locations, as hierarchical power relations differ across cultures. Secondly, family size. It is also important to understand the effect of family size on the likelihood of loan repayment. Research findings are not consistent in this area. Some studies have found that families can be both important resources for business owners; others suggest that family members can also be sources for conflict and stress (Olson et al. 2003).

Family size has been found to be positively associated with business related tension (Danes and Lee 2004), particularly for families with younger children who are not old enough to help with household labor (Kim and Ling 2001). Family size has also been found to have a negative effect on small business earnings, with each additional child representing an additional loss in earnings for self-employed women (Budig2006). Other researchers have found that, to put it simply, more family members mean more potentially conflicting opinions on the direction and success of the business (Boles1996)In contrast, Gudmunson and Danes (2013) found a negative association between family size (measured by number of children) and business related tension. This finding was only applicable to families that discontinued business ownership, which suggests that further research is needed to understand the pathways through which family size affects business success. Family responsibilities have been found to provide motivation, particularly for women, to be successful in business (Loscocco and Leicht 1993). Additionally, large families (measured by number of dependent children) can provide a greater degree of household help, such as caring for younger siblings and doing domestic chores. This additional help results in less work-family conflict for female business owners (Kim and Ling2001). The most direct benefit of family size is financial capital; small family business owners often turn to extended family to help with both start-up costs and costs associated with maintaining business during slow periods (Dunn and Holtz-Eakin1996). The findings of these studies suggest that the relationship between family size and business success is complex and dependent on a variety of factors. Business owners may draw financial and social support from family members, but they may also experience increased work-family conflict and even lost earnings related to their families. Further exploration is needed to understand how family size affects business success, which affects the likelihood of loan repayment. Thirdly, age. Findings from studies that use age as an independent variable have not been consistent. A study of microfinance in Bangladesh found that borrowers from the ages of 46 to 55 had a greater likelihood of loan default (Mokhtar, Nartea and Gan, 2012). The researchers posited that the increased risk could be a function of the increased financial obligations to families faced by borrowers in that age group compared to their younger counterparts. Other studies, however, have found a positive association between age and the likelihood of loan repayment (Bassemand Borhen 2008).Is it really an age effect? Could it be a historical or social context that impacted certain age groups to create a period effect of certain age cohorts of people in attitudes and behavior? A discussion of age, period, and cohort effect is particularly relevant to the discussion of loan default in China.

Age, Period, and Cohort Effects on Loan Default in China in A Life Course Perspective

The life course perspective has been widely used to explain cohort differences and interactions between social and historical events in relation to individual behaviors or opportunities. Glen Elder's (1974) well-known study of Children of the Great Depression is a good example of cohort effect. Even though the Great Depression had a societal effect on all of the people who lived through it, Elder found that the Great Depression had greater adverse effect on younger children (those born in the early 1920s) than the older ones (those born in the late 1920s) due to the timing of their personal experiences and opportunities available to them. Further, Giuliano and Spilimbergo (2014) used the "impressionable years hypothesis" from social psychology proposed by Krosnich and Alwin (1987) to explain how the Great Depression affected political belief in redistribution for cohorts of people who experienced during their young adulthood. They argued that "large macroeconomic shocks experienced during the critical years of adolescence and early adulthood between the ages of 18 and 25 years" is critical for shaping the life experiences and attitudes. This is a phase of "mental plasticity," when "core attitudes, beliefs, and values crystallized." These values "remain largely unaltered thereafter" (Giuliano and Spilimbergo 2014).

In the Chinese context, several studies have used the life course perspectives to examine the interaction between larger social events and personal experiences and opportunities. Zhou and Hou(1999) found that the sent-down youth during the Cultural Revolution had fewer job and employment opportunities than those who did not have the experience. They had lower levels of education and fewer skills in the labor market. Consequently, they were fewer employable job candidates in the market economy after they returned to cities from rural areas. Zhan (2002) in her study of Chinese family caregivers in the late 1990sappeared to support Zhou and Hou's claim that women who were sent down to the countryside during the Cultural Revolution were more likely to be the ones who stayed at home to take care of the physically dependent parent because of their lower educational levels and limited skills to find a well-paying job in the new market economy. This earlier life experience of the Send Down Movement clearly had an impact on their later life choices or opportunities from a life course perspective.

Liang (2011) uses qualitative method, studied the retirement experience of the 1950 birth cohorts. Being born under socialism in New China, maturing and marrying during the compulsory one-child family planning policy, and retiring in the market economy, mostly having one child, this cohort of the recent retirees tends to be "conforming," "traditional", family centered, and "optimistic" (Liang 2011).

All of the three studies discussed above focused on the 1950s birth cohort, studying the impact of major social events, such as the Cultural Revolution and Sent-Down Movement, on the employment opportunity, family care giving duties, and retirement experiences. No known study has examined the impact of the transition to market economy on younger cohorts of Chinese who were born during the Cultural Revolution, but matured under the market economy during their "impressionable years." Is there a period impact of market economy on cohorts' behaviors and family life? Is there possibly a cohort difference for people who experienced the direct impact of dismantling of the "iron-rice bowl" and discontinuation of life-long job assignments? This study sheds light on the 35-50 age cohorts in 2014, those born between 1964-1979, who had experienced drastic changes of transition from socialism to a market economy during their "impressionable years" of young adulthood, when they were stepping into the labor force where lifelong employment was no longer a given.

Study Questions and Hypotheses

At the time when young adults were stepping into the job market in the 1980s and 1990s in China, major social changes were taking place—privatization, decentralization, mashing the iron-rice bowl, dismantling the job assignment system. Many young adults immediately found themselves lost in the middle of the "freedom" to look for jobs and making money. With little prior experience and training in job seeking, many ended up becoming self-employed. Till today, self-employment play an important role in China's rapidly growing economy. During the last four years, a commercial bank whose headquarters in Sichuan has been issuing credit loans to small family businesses. It became a pioneer in providing this new type of loan. This study utilizes a dataset collected by the commercial bank to test whether age has a significant negative effect on loan default of micro entrepreneurs; whether credit borrowers in different age cohorts differ in financial behaviors of loan default. We will also examine gender and familial contexts in relation to loan default. Based on the theoretical framework of a life course perspective and review of the prior literature, we propose five hypotheses in this study:

Hypothesis 1: Age is negatively correlated with loan default: the older the borrower, the less likely they are to default on loans.

Hypothesis 2: Women are more likely to default on loans because of their inexperience in the financial world, which is predominantly male.

Hypothesis 3: Family size has a positive effect on loan default: the larger the family size, the greater the likelihood the borrower is going to default on a loan.

Hypothesis 4:There is a period effect in loan default: those who matured under market economy (35-50 cohort) are less likely to default loans than other age groups.

Hypothesis 5: Married female borrowers are more likely to default on loans because of the patriarchal influence or pressure at home.

To address these research hypotheses, we use a sample collected in a commercial bank in China. Below is the description of the sample and study methods.

Data and Methods

Data and Sample

This study utilizes a dataset collected by a commercial bank based in Sichuan Province, Southwestern China. The bank primarily issues loans to small-micro enterprise owners, with a guarantor or house as a main form of collateral, to meet their business needs. The maximum amount of a single loan is RMB100 million (approximately equal to United States Dollar 16.12 million). Loan periods, which are also called credit terms, range from 3 to 24 months. The total credit is divided by month, according to credit term. The bank provides a choice of two repayment methods: equal principal, or principal and interest equal two. Credit borrowers are required to pay back the loan before the due date each month during the loan term. If a payment is submitted later than the due date, the loan becomes overdue for that month. The bank began giving small-micro personal loans in June 2012. As one of the earliest banks that operate small-micro business, this bank in our study had issued as many as 6,849 loans to small-micro enterprises as of April 2014.This sample was collected from the bank's database using a random sampling method.

The first stage of the sampling procedure was to divide the dataset into ten portions for every year. Then a sample of 1000 cases was randomly drawn from the different portions. After dropping cases with missing values, the final study sample for this paper consists of 925 credit borrowers. Among them, 706 were males and 211 females, ranging in age from 19 to 60 years old. Each borrower had at least one credit with the bank.

Although it is not a perfect probability sample, we believe that the results may be revealing and insightful for the understanding of family business in the rapid development of China's market economy. Sichuan is the southwest financial center of China, and its small-micro businesses are placed in a national leading position. The growth of small-micro enterprises (credit) is ranked number three among all the provinces in China, according to a leading Chinese economic media. Although the repayment of family business focuses only on Sichuan, it may still serve as a window to the world of family businesses in the whole country.

Measurements

The most current literature has frequently used default/non-default as a binary variable to describe loan payment conditions. However, the binary variable may ignore the intensity of default. Furthermore, since a credit loan that has been overdue for less than 90 days is not technically "defaulted", a bank could still take actions to prevent the loan from defaulting. Thus, financial risk management in this period has a high degree of practical value to financial institutions. Therefore, the authors contend that not only is loan default (loans that have been overdue by more than 90 days) important, but also loans that have been overdue for less than 90 days are important. In this study, the cumulative overdue times during the loan term is used as the dependent variable, referring to the count of over-due times or "overct" as the variable name. It is a continuous measure of loan overdue payment condition. Among credit borrowers' personal characteristics, gender is dummy-coded (0=male; 1=female). To accurately assess the relationship between cumulative times of overdue payment and age (a continuous variable in years), dimensions of family characteristics potentially correlated with credit payment behavior must be controlled. Measures of family characteristics include borrowers' gender, number of dependents in the family (1= the borrower has at least two family member to support; 0=borrower has no more than one family member to support). In addition, spouse-joint (1= the borrower's spouse as a full-time worker in family business; 0= the spouse not as a full-time worker), guarantor relationship (1= the guarantor is the borrower's relative; 0=the guarantor is not the borrower's relative). The income per year is used in this study to capture the small-micro enterprise's financial situation. The income variable is turned to a logarithm before being added to models. In order to examine the difference between different age groups, we divided our sample into three age groups: 35 and below, 35-50, and 50+; we used the cohort of age 35-50 as a reference category in data analysis. The term of the loan, the guarantor status, the repayment method, and the rate of interest may affect credit payment; consequently, these variables are introduced as control variables in this study. Guarantee was a binary variable (1=secured by a guarantor; 0=secured by mortgage). Repayment method refers to the payback (1= principal; 0=principal and interest equal two). Rate is used to measure the price of the loan, which is a continuous variable.

Method of Analyses

The analysis started with a detailed report of descriptive results of all variables. To understand correlation between variables, a zero-order correlation analysis was performed between all variables to eliminate variables with high co-linearity (table not included, but can be provided upon request). Variables that showed statistical significance and were theoretically important in the study were then selected for further analysis. In the third step, Tobit regression was conducted for data analysis. Tobit regression is intended for continuous data that are censored, or bounded at a limiting value. The Tobit model may be a particularly good match for measures of cumulative overdue times, since the measure ranges from zero to twenty-four. Therefore, the authors presented empirical analysis to the assumption of Tobit regression models. Loan context refers to the Guarantee, Repayment, Term and Rate. Its coefficient β is a vector. The resulting regression equation is as follows.

$$Overct = \alpha + \beta_1 Gender * A + \beta_2 Age + \beta_3 Housing + \beta_4 Num\_dependent + \beta_5 Spouse\_join + \beta_6 \text{Re}lationship$$

$$+ \beta_7 Lincome + \beta_8 Loancontext + \varepsilon$$

Study Results

Descriptive Statistics

Table 1 presents descriptive statistics for the dependent variable (cumulative overdue times) and all independent variables in the analysis. The average cumulative number of overdue times is 1.32.

Table 1. Description statistics of all variables

Variables	Mean	Std.Dev.	Min	Max	Percent
Dependent variable					
Overct	1.32	2.59	0	29	100%
Independent variable					
Age	37.76	7.49	19	60	100%
<35					33.62%
35-50					61.73%
>50					4.65%
Family characteristics					
Female	0.23	0.42	0	1	100%
Female					23.03%
Male					76.97%
Housing	0.69	0.46	0	1	100%
Own at least one house					69.08%
No house					30.92%
Number of dependents	0.75	0.43	0	1	100%
≤ one family member					74.40%
≥ two family members					25.60%
Spouse joints	0.84	0.37	0	1	100%
Yes					84.00%
No					16.00%
Relationship	0.27	0.44	0	1	100%
as borrower's relative					27.03%
as not borrower's relative					72.97%
Financial characteristics					
Income per year(RMB)	5,502,105	9,713,781	34,500	1.32E+08	-
Loan context					
Term	11.73	1.32	3	24	-
Guarantee	0.01	0.1	0	1	
Repayment	0.99	0.08	0	1	-
Rate	15.03	1.31	9.6	18	-

1

The average age of credit borrowers is 38. Roughly a third of credit borrowers (33.62%) were in the age group younger than 35. The majority of the borrowers were in the middle aged group (61.73%).

The majority of the credit borrowers are male (76.97%); still roughly a quarter were female (23.03%). The majority (69.08%) of the credit borrowers own at least one house. Spouses taking part in their family businesses is common. To be more specific, spouse-joint in this study is defined as the spouse being employed as a full-time worker in the family business, differing from those who act as part-time workers. As the table shows, 84 per cent of credit borrowers' spouses had joined the family enterprise as a full-time employee. Only 27 per cent of credit borrowers are guaranteed by their relatives, suggesting that credit borrowers have more access to personal loans. As far as the family business annual income is concerned, on average, the mean is 5,502,105RMB (roughly $860,000 at the rate of $1=6.4Yuan). Number of dependents measures the family burden of borrowers. In this sample, roughly ¼ of loan borrowers (24.54%) had no dependent. A little over half (51.14%) had one dependent. Nearly 25 per cent (24.32%) of respondents have two or more dependents. The term of the loan, the guarantor status, the repayment method, and the rate of interest may affect credit payment; consequently, these variables were also included as control variables. The term of the loan ranges from 3 months to 24 months and averages 11.73 months. The mean of Guarantee is close to zero, suggesting that the vast majority of credit loans were guaranteed by another person. With a mean valued 0.99 for repayment method, almost all credit borrowers chose principal and interest equal two as their payment method.

To bit Regression Results

It is important to test for multicollinearity to ensure that variables are not highly correlated. Highly correlated variables can result in an increase in standard error, which would decrease reliability and might produce misleading results. This paper used correlation matrices to assess the linear association between variables. The summary statistics, the Pearson's Correlation Coefficient, and correlation matrix for all of the variables were used to estimate co-linearity (Table not included, but will be available upon request). We excluded variables that have high correlation (r>.75). Only variables that are theoretically important and statistically significant were included in further analyses. To understand the correlation of the variables in the study, the Tobit regression on the evaluation of credit borrowers' characteristics are presented in Table 2. In order to evaluate different characteristics of credit borrowers, their personal, family and financial characteristics are added to models step by step. In the initial analysis, age was included as a continuous variable. However, after obtaining the initial result of data analysis, we realized that the correlation between age and loan default is not linear, more like U shaped. To address the non-linear correlation, we added a quadratic term by using age-squared. Loan context, such as the guarantor status, the repayment method, the term of loan and the rate of interest are controlled for in each model.

Table 2. *OLS regression result of loan default*

Variables	loan default		
	Model1	Model 2	Model 3
Age	-0.0507***	-0.0428*	-0.0421*
	(0.0241)	(0.0251)	(0.0251)
Female	-2.866	-0.771*	-0.777*
	(4.535)	(0.429)	(0.429)
Housing		-0.568	-0.558
		(0.440)	(0.440)
Number of dependents		-0.830**	-0.818*
		(0.420)	(0.422)
Spouse joints		-0.135	-0.117
		(0.457)	(0.459)
Relationship		-0.360	-0.368
		(0.423)	(0.423)
Income			-0.0419
			(0.126)
Guarantee	-4.393*	-4.243*	-4.232
	(2.598)	(2.576)	(2.575)
Repayment	-1.304	-1.699	-1.719
	(3.583)	(3.556)	(3.551)
Term	0.233*	0.199	0.200
	(0.129)	(0.132)	(0.132)
Rate	0.138	0.164	0.162
	(0.139)	(0.139)	(0.139)
Constant			-0.749
			(4.917)
Observations	925	925	925
R square	0.087	0.104	0.112
R square change		0.017	0.008

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

2

Based on the regression analysis, we find that credit borrowers' age has a significant negative relationship with loan defaults. Older credit borrowers are less likely to be past due on loan payments than younger borrowers. An increase in one year of age is significantly associated with a 40 per cent decrease in likelihood of defaulting on a loan. Compared to that of older borrowers, the cumulative overdue times of the younger borrowers present a decrease of 0.05 times roughly. The initial model accounted for 8.7 per cent of the explained variance to loan default. Family characteristics added 1.7 per cent to the total explained variance in the second model.

In the third model, incomes added and increased the explained variance by 0.8 per cent. The age effect is still significant in all 3 models when all variables under study were controlled for. This finding supports Hypothesis 1: Age has a negative effect on loan default—older adults in general are less likely to default on loans than younger counterparts. As shown in Table 2, gender is negatively correlated with loan default. Female borrowers are less likely to default than the male ones. This finding rejects Hypothesis 2 that women are more likely to default a loan than men. According to the study result, family size is also negatively correlated with loan default. The larger the family size, the less likely the borrowers are to default a loan. Putting this "family size" into context, in China, family size in 2014 is likely to be small over all because of the one-child family. Having two or more children or dependent is shown to increase borrowers' sense of responsibility. This finding supports Hypothesis 3.Looking into age as a continuous variable in relation to loan default, we found that age-squared is also negatively correlated with loan default at a statistically significant level. That denotes that age and loan default do not have a linear correlation, rather, a U shaped relationship. The individuals in different age groups experience different social events, which result in different financial behaviors and risks.

Analysis of the Middle Aged Cohort

Prior research has found that age has an impact on loan default, but the directions of the impact are inconsistent. The finding of the microfinance in Bangladesh shows that the increasing financial burden makes the middle aged more likely to default a loan (Mokhtar, Nartea andGan2012). But other research contends that age and loan default is negative related (Bassem and Borhen 2008 To further understand and differentiate between age and cohort differences, we re-coded age into three different age groups in this study: 35 and under, 35-50, and 50+ for further analysis. Table 3 presents the regression results by age groups. The 35-50 age group becomes a benchmark or reference category in the analysis.

Table 3. *Logit regression of loan default by age groups*	
Variables	loan default
Age < 35	0.313***
	(0.152)
Age > 50	0.640**
	(0.322)
Guarantee	1.488
	(1.385)
Repayment	0.291
	(1.473)
Term	0.0246
	(0.0522)
Rate	0.0570
	(0.0573)
Female	-0.172
	(0.164)
Housing	-0.0857
	(0.150)
Number of dependents	-0.246
	(0.158)
Spouse joints	-0.203
	(0.185)
Relationship	-0.148
	(0.154)
Income	0.00813
	(0.0471)
Guarantee	1.488
	(1.385)
Repayment	0.291
	(1.473)
Term	0.0246
	(0.0522)
Rate	0.0570
	(0.0573)
Observations	925

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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Taking the middle age group, or those aged 35-50 as a reference group, we find that those in the younger age group were 31per cent more likely to default than those in the middle age group. Furthermore, those in the older age group are 64 per cent more likely to default than those in the middle age group. We found that the middle generation was least likely to default than the other two age groups. After controlling for the financial variables, age still has a significant impact on loan default. That is, the default could not be explained by financial reasons. Thus, we conclude that it could be period effect on the cohort of the people in China who matured and entered into job market at the onset of the market economy. This finding supports Hypothesis 4: there is a period effect on loan default: the cohort of 35-50 who entered into the job market in their early adulthood at China's transition to market economy are less likely to default on a loan.

We will further explain this period effect in a life course perspective in the social context of China. Although the initial study results have shown that Chinese women are less likely to default on a loan. How does marital status and being a family caregiver impact their financial responsibility when they are taking bank loan in a self-employed business world? To further understand the interaction of gender and marriage on loan default, we added two interaction terms into the analysis of loan default: gender*number of dependents and gender*having spouse as joint business.

Table 4. *Tobit regression results of gender by three interaction terms*

Variables	Credit Default				
	Model 1	Model 2	Model 3	Model 4	Model 5
Female	-0.87**	-0.84*	-0.85*		
	(0.44)	(0.43)	(0.43)		
Guarantee	-3.85	-4.39*	-4.37*	-4.33*	-4.37*
	(2.64)	(2.59)	(2.59)	(2.59)	(2.60)
Repayment	-1.01	-1.79	-1.82	-1.76	-1.87
	(3.74)	(3.57)	(3.57)	(3.55)	(3.59)
Term	0.23*	0.22	0.22	0.22	0.22
	(0.17)	(0.14)	(0.14)	(0.14)	(0.14)
Rate	0.20	0.15	0.15	0.15	0.15
	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
Age		-0.05**	-0.05***	-0.05*	-0.05**
		(0.02)	(0.02)	(0.02)	(0.02)
Housing		-0.52	-0.51	-0.50	-0.52
		(0.44)	(0.44)	(0.44)	(0.44)
Num_Dependent		-0.87**	-0.85**	-0.67	-0.87**
		(0.43)	(0.43)	(0.45)	(0.43)
Spouse_Joint		-0.06	-0.04	-0.05	0.18
		(0.47)	(0.47)	(0.48)	(0.49)
Relationship		-0.34	-0.35	-0.34	-0.36
		(0.43)	(0.43)	(0.43)	(0.43)
lnincome			-0.05	-0.04	-0.04
			(0.13)	(0.13)	(0.13)
Gender * Num_dependent				-0.85*	
				(0.50)	
Gender * Spouse_join					-0.81*
					(0.49)
R square	0.030	0.041	0.043	0.047	0.050
R square change		0.011	0.002	0.004	0.003

N = 925 clusters

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

4

Based on regression results, women who have dependents and who are married are both more likely to pay loans on time—they are less likely to default on a loan compared to their male counterparts. The initial model for loan default accounted for 3 per cent of the variance. Family characteristics added 1.1 per cent to the total explained variance in the second model. Income increased0.2 per cent in the third one. In the fourth model, interaction gender*number of dependents was added and increased the explained variance by 0.4 per cent; while in the fifth one, interaction gender*having spouse as joint business increased by 0.3 per cent. This finding rejects Hypothesis 5 that women who are married and raising children are more likely to default a loan due to their husbands' influence or pressure.

Discussions

This paper explores the impact of market economy on the individual behavior and family life in a life course perspective. The life course perspective is particularly insightful for understanding the impact of earlier life experiences on later life opportunities. In China, drastic changes were taking place during the 1980s and 1990s. The cohorts, born during the Cultural Revolution, experienced the direct impact of dismantling the "Iron Rice Bowl" and discontinuation of life-long job assignment during their young adulthood. At they time when they were entering the job market during the impressionable age, they found themselves in a shock of having neither job security nor stable income source. Yet, what did not break them makes them stronger. This study shows that this age cohort, when they reach adult age of 35-50 years, are becoming more financial responsible, less likely to default on a bank loan in their self-employed family business. This macro-social change in their early adulthood may have toughened them up and given them a strong sense of financial responsibility; this sense of responsibility may explain the lower levels of probability for them to default loans in their middle age between ages 35 and 50.

Age, Cohort, and Period Effects

At the first sight, our finding did support the first hypothesis that age is negatively correlated with loan default. In other words, older borrowers are less likely to default on a loan. However, this is when age is viewed as a continuous variable, and the older age group of 50 plus represents only about 5 per cent of the sample. When age groups are broken down into categorical variables, we see a different scenario. One of our striking findings in this study is that the coefficient value of the older group (50+) is greater (b=.649) than that of the 35 and younger group (b=.312) in loan default. It suggests that the 50+ cohort seems more likely to default than the 35-50 years old and younger group. Compared to the younger group, one would imagine the older people who had been accumulating wealth for a long period during their career should have been in a better financial situation. To the older people, however, reduced income and increasing medical expenses on life maintenance at the time of retirement may have imposed greater financial strain. Furthermore, the 50+ in China today are those who were born in the 1950s or earlier. They are the people who worked under socialism, retired under market economy. As earlier studies have shown they may have been disadvantaged due to their experiences of the Culture Revolution and Sent-down Movement. Large numbers of this older cohorts may have limited chance to accumulate wealth, and they may have had limited access and experience with bank loans. Being accustomed to a communist system, some may not even be familiar with the functions of bank loans. Loan default could be their lack of experience in the market economy.

Contrast to the 50+, the middle age group, 35-50, who were born during the Cultural Revolution, and entered the labor force at the time of market economy during their "impressionable years," were more familiar with the functions of the market economy. They were the ones riding the waves of China's rapid economic growth. Study findings reveal that they are less likely to default a loan. Clearly, it is not age alone that make them less likely to default a loan, we argue that it is the period effect of China's market economy on their young adulthood. Although this is not a longitudinal study, we cannot actually prove our argument. With a lack of longitudinal data in China, especially no data collected in the 1980 and 1990s, our understanding of historical event as the social context is probably the best explanation we can offer in terms of the difference in financial behavior among different age groups.

Policy Implications for Family Size

Contrary to Dynarski's argument(1994) that the larger the family size of the borrower, the greater the likelihood of loan defaults, our study finds that family size has a negative effect on credit default. This finding indicates that the more responsibility a person has to his family members, the less likely he or she is to default on his/her debt. The Minimum Living Standard Assurance (MLSA) program, China's anti-poverty initiative, has been moderately successful but has not been able to fully eliminate poverty, particularly in rural areas (Gao and Zhai2014). Researchers have suggested that entrepreneurship offers one of the best opportunities for the poor to escape poverty (Bruton, Ketchen and Ireland 2013).

China, like many other nations, has attempted to address poverty through microfinance initiatives, but success has been limited (Cheng2007) and the government-run programs essentially failed (Park, Ren and Wang 2004), due in part to low repayment rates. Given their sense of responsibility and lower likelihood of loan default, the 35-50 age cohort can be a low-risk target for small business loans.

One way to identify this population is by real estate tax or mortgage records, as across all income groups, homeownership is highest among the cohort that includes 35-50 year olds (Dunbar and Fu2015).Banks may not want to shy away from families with one or more children. Having more family members in China appear to be a positive force in financial responsibility. Having more family member, as shown in earlier studies (Loscocco and Leicht 1993) may provide motivation for women to be successful in business.

For the two age cohorts with a higher likelihood of loan default, it may be necessary for microfinance institutions to implement a cosigner requirement. Research indicates that cosigned loans are particularly successful in cases where the cosigner has the power to socially sanction the borrower (Bond and Rai 2008). In this context, individuals in the middle-age cohort (35-50 year olds) can be put in the position to either induce the younger borrower to repay the loan, or to help repay the loan on behalf of the older borrower.

Women in Business and Policy Implications

Consistent with previous literature (Adanu and Boateng 2015), our findings indicate that women are less likely to default on loans than are men. Gender was significant in all 3 models after controlling for all other variables. As was previously discussed, we should take caution to understand hierarchical power relations within families when discussing the gender effect. Unlike the cases of Bangladesh (Goetz and Gupta 1996) and Cameroon (Mayoux 2001), Chinese wives appear to enjoy some degree of economic decision-making power within their family relationships (Shu, Zhu and Zhang 2013). This is true even among rural wives, who have entered the self-employed labor market at increasing rates since the 1990s (Song2015).Although patriarchy is still an important factor in gender relations in Chinese society, Chinese husbands in this study did not appear to have the same degree of control over wives' loan expenditures as do husbands in more traditionally patriarchal societies, such as Bangladesh. Indeed, "spouse joints" or husbands as full employee in 25 per cent of wife-headed family businesses were not significant in load default in our model. Chinese women, unlike women in Bangladesh, appeared not to yield to husbands' pressure in their sense of responsibility to repay the loan. Similar to age group targeting, gender targeting may be a mutually beneficial strategy for government programs and microfinance lenders. Women pose a lower default risk for lenders, making them good candidates for business loans. Research also indicates that entrepreneurship provides a pathway to empowerment for women through the strengthening of women's social networks, specialized training for new skills, and an increased sense of agency (Mayoux 2001).

Conclusion

In conclusion, this study has examined the demographic and familial characteristics in relation to loan default. By providing a social and cultural background of the Chinese economic transition from socialism to free market system in a life course perspective, this study has shed light on the understanding of the loan behavior of the current middle aged cohort (35-50) in China. Findings have revealed that age alone is not a determinant predictor for loan default. It is important to treat age in cohorts or categories to understand loan borrowers' behavior. Gender is an important predictor for loan default—women are less likely to default loans. Family size is not always a negative factor contributing to loan default; it can be a motivator for responsible market behavior of the middle generation. Future studies may explore age-cohort effect in loan default and other financial behavior by fine-tuning age range. Due to the lack of longitudinal studies in China, our study may serve as a first step toward a greater understanding of the impact of major social transition on individual behaviors at cohort levels. Readers may need to take caution in interpretation of the findings considering it is a cross-sectional data. Future studies will benefit from longitudinal data to further tease out age, cohort, and period effect in China as a result of major social changes, such as the transition from socialism to market economy, in individuals' financial behaviors.

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