



Farm credit and credit demand elasticities in Shaanxi and Gansu [☆]

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ARTICLE INFO

Article history:

Received 9 October 2010

Received in revised form 4 May 2012

Accepted 13 May 2012

Available online 24 May 2012

JEL classification:

Q12

Q14

O17

Keywords:

Credit demand

Credit demand elasticities

Duration elasticity

Tweedie regression

Agricultural finance

People's Republic of China

PRC

ABSTRACT

This paper empirically estimates individual household credit demand elasticities based on 897 farm households surveyed in Shaanxi and Gansu provinces in the People's Republic of China (PRC) in October 2009. We used survey-based experimental techniques to extract individual household credit demand functions from which we estimated point demand elasticities. From a theoretical point of view, we proposed that as interest rates fell the demand for credit increased in elasticity, and this appears to hold in our data. We find a range of elasticities with mean point estimates of about -0.6 . We find that nearly 20% of farm households have nearly perfectly inelastic demands for credit but we also find that nearly 20% have elasticities above -0.75 including some 15% that have elasticities greater than -1.0 . Previous studies that have argued against credit policies because of the low inelasticity of demand do not generally hold. There is much heterogeneity in credit demand and we would argue that a full spectrum of targeted credit policies can be used to address differences across farms.

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1. Introduction

Perhaps the most challenging problem facing farmers in the People's Republic of China (PRC) is access to credit. There are three key issues. First is the role of public policy and intervention in rural credit markets, second is the willingness of rural lenders to make loans to farmers under current risk conditions, and third is the actual demand for credit. It is this latter issue which is of primary concern to this paper. Understanding the demand for credit is a prerequisite to setting either credit policies or setting a path for rural credit reform. The key objective of the CBRC as it pertains to agriculture is to promote the development of financial services and increase competition in rural areas. Ultimately the goal is to match supply to demand and policies instituted to increase supply would be highly effective if aggregate demand was highly elastic and less so if highly inelastic. Likewise, if credit supply is chronically low

[☆] This paper was prepared by consultants based on results of the technical assistance project TA-7187 PRC Rural Finance Development and Supervision funded by the Asian Development Bank (ADB). The views expressed in this paper are those of the consultants and do not necessarily reflect the views and policies of ADB or its Board of Governors or the governments they represent. Partial support was provided by the China National Nature Science Fund with grant number 70873096 and Humanities and Social Science Fund of China Education Department with grant number 07JA790027 and W.I. Myers Endowment Funds, Cornell University. The authors thank Betty Wilkinson and Ying Qian from the Asian Development Bank, and Xing Guijun from the China Banking and Regulatory Commission for their financial and organizational support. The authors would like to thank two anonymous referees and the journal editor Xiaobo Zhang for their efforts and helpful critiques.

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then knowledge of credit demand and credit demand elasticities would be of limited value since setting policies through demand driven policies would be ineffectual. China's rural credit goals are based on both supply and demand driven processes.

To accomplish these goals, the CBRC adjusted and relaxed its market-entry policy for rural banking institutions in December 2006. New types of rural financial institutions including village or township banks, lending-only companies, and rural mutual credit cooperatives are now permitted. These new institutions are contributing to the diversification of rural finance by providing wider coverage in the central and western regions. The CBRC Annual Report 2008 identified a "catfish effect," wherein weaker financial institutions were responding to the new competitive realities with efficiencies realized in pilot areas. The policy objective is to ensure all counties and towns have access to financial services by 2012 through the establishment of new-type rural financial institutions, mobilizing these and existing institutions to open new branches, extend services, or offer mobile services.

Much has changed since reforms were instituted in 2003. A host of new financial institutions have been registered and allowed to lend. For example in 2008, 91 new village banks were opened, 6 new lending companies were started, and 10 rural mutual credit cooperatives were initiated for a total of 109 new institutions (China Banking Regulatory Commission (CBRC) Annual Report 2008). The growth in village and township banks has been substantial. As of late 2011, some 570 VTBs had been licensed, while a further 103 preliminary approvals had been given by CBRC (i.e. for preparation to become licensed). Approximately one-third of these approvals were given in 2011 alone. Geographically, 196 institutions were approved in the Western region, 207 in the Central region, and 270 in the Eastern region (the numbers do not include a separate count of branches). The great majority of VTBs (84%) were sponsored by commercial banks – mainly city commercial banks (50%) and rural commercial banks (19%), with state-owned, joint-stock, and cooperative institutions (Rural Credit Cooperatives and Rural Cooperative Banks – respectively, RCCs and RCBs) also represented. VTBs are set up generally at county level, with a smaller number at township level, in addition to branches. Major international banks including HSBC, Citi, and StanChar have invested in rural finance provision through VTBs and other means.¹

China has many means to affect credit demand including monetary policy and interest rate subsidies. According to *Notice of the Peoples Bank of China on Adjusting Financial Institutions Deposit and loan Interest Rates*, for RCCs, there is a ceiling loan interest rate of 2.3 times the base rate, and a floor that is 0.9 times the base rate. At the time of writing (January 2012) the base interest rate is 6.56% so that the range of interest that can be charged farmers is between 5.904% and 15.088%. RCC's dominate agricultural finance in rural China, but for commercial banks, there is no ceiling. With such a wide range of interest rates chargeable to farmers through the RCCs, Postal Savings, village banks (VTB), and non-deposit micro-credit companies (MCC) it is important to understand how farmers will respond in their demand for credit.

To motivate this paper we illustrate how our results can be applied in a policy context. First, the base interest rates between 2009 when we first collected the data and the time of writing has increased by 23.50% as a monetary response to reducing credit demand.² How do such policies affect agricultural loans? Assuming that the increase is passed onto farmers we multiply the mid-point elasticities in Fig. 5 by their respective frequencies and find a weighted elasticity of 0.598 (assuming a maximum elasticity of 1.3750). Multiplying this by -0.2350 implies a weighted reduction in loan demand of 14.05% or CNY 140,530 for every CNY 1,000,000 in initial loan demand. From Fig. 5, 19.8% of households would reduce loan demand by only 2.94% for the lowest elasticity and 32.31% for the highest. In other words for every 1,000,000 lent to low elasticity borrowers representing 19.80% of the population the net reduction would be in the neighborhood of only CNY 29,375, but for the 13.4% facing an elastic demand their reduction in demand would be in the region of CNY 323,100.³ The average reported interest rate charged by RCC to our sample of farmers was actually 10.8%.⁴ As a second example suppose that the PBC agreed to a 3% subsidy to boost demand in rural areas. The farmers in our sample reported a total of CNY 6,504,911 in RCC loans outstanding. A 3% subsidy on 10.8% implies a 27.78% reduction in the interest rate. The weighted average elasticity is 16.6%. Thus we would estimate that credit demand would increase by CNY 1,080,538. For simplicity assume that the loans are evenly distributed across farms so that every farm had an average of CNY 21,611. The lowest elasticity group, comprising 19.8% of farmers would increase demand by only 3.47% or CNY 750.38, while the most elastic group, representing 13.4% would increase loan demand by 38.19% or by CNY 8,254.20 for a final loan of CNY 29,865.2.

As these two examples show, understanding how credit demand elasticities are distributed across farm populations a much clearer picture can be inferred with regards to farmers' response to credit policies. With the economic problems faced by the Government of the People's Republic of China, the ministries of finance and agriculture, and the CBRC in matching demand to supply, regulating the institutions serving agriculture, and considering how best to use credit policy to achieve related goals of food security, rural income growth, and closing the income gap between rural and urban households, the type of micro-analysis presented in this paper is critically important. Resolving the economic problem requires as a first step an understanding of the

¹ Further reforms included redefining the role of the Agricultural Development Bank of China (ADBC). ADBC now operates under a diversified agriculture-supporting model that provides loans for the purchase, distribution, and storage of grain, cotton and oil. ADBC also lends to leading agricultural enterprises and finances rural infrastructure under medium- to long-term credit. The Agricultural Bank of China (ABC) completed a financial restructuring to better meet the needs of rural stakeholders and in 2010, became publicly listed on the Shanghai Stock Exchange and the Hong Kong Stock Exchange. See source: <http://www.abchina.com/en/investor-relations/corporate-announcements/Announcements/201103/W020110329730695969099.pdf>.

² <http://www.global-rates.com/interest-rates/central-banks/central-bank-china/pbc-interest-rate.aspx>, accessed January 9, 2012.

³ We use our results as an example. We cannot verify that the elasticity frequencies we present in this paper would hold globally across China, because the demand requirements in the many economic zones (agricultural vs industrial) and regions is so varied.

⁴ In the demand investigation which follows we use a base rate of 7.8%. Prior to the survey we met with many RCC directors who indicated a range of interest rates charged depending on conditions in the area. The consensus rate was about 7.8%. In our sample many farmers did not know their rate with certainty but on average indicated 0.9% per month which gives a simple rate of 10.8%/year.

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