

# When a Son is Born: The Impact of Fertility Patterns on Family Finance in Rural China\*

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## Abstract

This paper examines the impact of an observable "shock" to households in rural China, the birth of a son, on household financial activities. We develop theoretical channels that endogenously generate heterogeneity in the levels of financial activities on the basis of a child's gender, even if the parents do not possess discriminatory tastes. Using nationally representative household data collected in 300 rural Chinese villages and econometric models that account for censored financial activities as well as endogenous fertility and sex selection, we present strong evidence that having a son significantly increases both the amount that a family loans or gives to relatives as well as increase the amount of gifts they receive from their friends. Having a son increases the amount of gifts received from others by over 30% and is also found to increase household investments in both agricultural activities and family businesses. Finally, we present evidence that these family structure variables should not be treated as exogenous and demonstrate the robustness of our results to a number of criteria used for sample construction, specification and to account for alternative selection biases. Taken together these results suggest that social norms or convention play important roles in household financial decisions that extend beyond the traditional role of budget constraints and consumption shocks. This has clear implications for policies that aim to address rising sex imbalance amid economic growth and discriminating investment to female children in developing countries.

**PRELIMINARY**  
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# 1 Introduction

Understanding the role of rural finance has been an important research agenda in development economics. The prevailing consensus is that informal network-based loans and transfers provide insurance against negative shocks in consumption, production and health (Fafchamps 1992; Rosenzweig 1988 1993; Udry 1994; Townsend 1994). Most empirical testing of this theoretical consensus has shown that such insurance is only partially achieved (Morduch 1991; Grimard 1997; Fafchamps and Lund 2003; De Weerd and Dercon 2006). A detailed examination of some informal financial networks reveals that they were largely kinship based and geographically constrained, thus limiting the organizations' ability of risk hedging (Fafchamps and Gubert 2007). The mechanisms and costs required to enforce the informal contracts might be responsible for the limited scales observed in order to sustain the networks (Murgai et al. 2002). Thus this line of research has completed a satisfying sequence of explanations from the demand side on the role of informal network-based finance. What is missing from this literature is household heterogeneity, that households of different types might have differing demand for loans and transfers when faced with the same shock and same budget constraints. Symmetrically, these households are likely to provide different supply of loans and transfers when faced with the same environment. The addition of household heterogeneity could potentially augment the picture on rural finance in a significant way. For example, exogenous negative shocks or differing income, debt or asset levels may no longer be required to generate network-based lending and borrowings.

Although rare in rural finance,<sup>1</sup> the aforementioned heterogeneity is often studied in many streams of development economics literature. Researchers have reported significant gender differences in consumption and human capital investment patterns of families with sons versus daughters

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<sup>1</sup>The exception includes Rahman (1999) that documents females, while less likely to obtain loans, were more likely to return loans. La Ferrara (2003) finds that borrowers who have children in kinship band networks in Ghana are less likely to default, which means that the family structure has a significant effect on borrower's repayment decision.

as well as within families.<sup>2</sup> If families consume and purchase education differently for sons over daughters, one might reasonably expect families of different offspring structures also vary in their financial activities. The focus of our paper is to examine a major household heterogeneity, the offspring gender structure, on household financial activities. We employ a nationally representative data of households in rural China as the cultural and institutional features there generate distinctively different expectations and incentives for parents from the birth of a son over a daughter.

Children in China are viewed by many parents as the most important contributors of their old-age care. This is particularly the case in rural China where social security or community-based old-age care system has been scarce. However, like in many developing and developed countries, not all children are equal when it comes to old-age care (Astone et al. 1999). Cultural norms in rural China have it that male adult children are primarily responsible for the care of their elderly parents, while female adult children are mainly responsible for the care of their elderly in-laws. Together with the common belief that female laborers are less productive than their male counterparts in agricultural production, these conventions provide powerful economic incentives for parents to favor sons over daughters. Rural Chinese parents have stronger incentives to invest into the physical capital, human capital and social capital of their sons over their daughters due to the expected higher returns sons would bring when parents become old. This paper bases its primary analysis on the increased incentives to make intergenerational investments when the family starts to have a son.

The son preference, however, is not necessarily monotonically increasing with the number of sons. Conditional on having a son, the arrival of a daughter brings at least two benefits to a rural Chinese family: the bride price that the family receives when they marry off their daughter, which usually helps financing the bride price that family has to pay towards the marriage(s) of their son(s)

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<sup>2</sup>For example, see Jacoby 1994; Deolalikar and Rose 1998; Behrman, 1988 1992 1998; Rose, 2000; Chowdury and Bairagi 1990; Das Gupta 1987; Kishor 1993; Muhuri and Preston 1991.

and some of the wage income from the daughter before she is married off that helps the family to feed, cloth and educate her younger siblings, especially son(s) (Greenhalgh 1994; Lin 1993; Parish and Willis, 1993; Tatyana and Vaithianathan, 2008). Thus, although the preference of the first son over any daughter is strong, conditional on having a son, a daughter, especially an elder daughter who would start working earlier and marry off earlier, could be more welcome than son(s) in some situations.

The strong son preference in rural China not only manifests in discriminating investments in children of different gender but more prominently results in sex selection in fertility.<sup>3</sup> There is a rich literature in demography documenting sex selection in developing countries, especially in East Asia. The main method of sex selection in China has changed to sex selective abortions from abandoning female infants and female infanticide with the widespread adoption of ultrasound machines in China from late 80's to early 90's.<sup>4</sup> Thus the main empirical challenge of this paper is to properly account for potential sex selection by each rural family when investigating the impact of a son, especially the first son, on household financial activities.

We propose a specific mechanism in the style of statistical discrimination on how the arrival of a son makes a family invest differently. There is strong social convention in rural China that sons should provide filial support for their elders.<sup>5</sup> Parents who value this support are incentivized to invest more into their son and thus deeper engagement in the rural financial market despite the lack of an explicit “taste” against daughters. Parents may also be incentivized by cultural and

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<sup>3</sup>Sen (1990, 1992) are well cited references that documents the high ratios of males to females in India and China and the concerns it generates.

<sup>4</sup>For instance, Chu 2001; Hull, 1990; Banister 2004; Kim 2005; Murphy 2003; Yi et al. 1993; and Johnson 1996 provide evidence of sex selection. The manners in which it takes place in China is documented in Chu 2001; Murphy, 2003; Yi, et al., 1993; Johnson, 1996; and Ebenstein 2008.

<sup>5</sup>Cameron and Cobb-Clark (2001) and Das Gupta et al. (2003) both note that the persistence of son preference is driven by greater anticipated old age support from sons relative to daughters and the absence of formal financial mechanisms for families to save for retirement.

social reasons to favour sons. Non-pecuniary incentives may prompt parents to invest more into a son even when he is not expected to deliver more monetary benefit to parents compared to a daughter. We focus on expected old age support from sons as a main mechanism for heterogeneous household finance decisions in rural China, which is also more capable of producing empirically testable predictions than non-pecuniary motivations.

This paper is organized as follows. Section 2 provides a review of the literature on rural finance and sex selective fertility as well presents an overview of the prominent culture, institution and fertility history of rural China. The data is described in Section 3. In Section 4 we state the theoretical mechanism and empirical hypotheses. The empirical results are presented and discussed in Section 5. We present strong evidence that having a son increases both the amounts that a family will transfer to friends and relatives in rural areas as well as increase the amounts they receive from these sources. Not only are these families more active in transfers but they also invest more in agricultural activities and family businesses. We find that having an additional child increases the amount of funds received but if that child is a boy, the family receives a 30% premium. We also present evidence that these family structure variables should not be treated as exogenous in household finance decisions and that the results are incredibly robust to a number of criteria used for sample construction, accounting for alternative selection biases and specification. Section 6 is the concluding section.

## **2 The Literature on Rural Finance and Sex Selection**

This paper relates to branches of the development economics literature that examine formal and informal mechanisms in rural finance, fertility and evidence for sex-selection. Within rural finance, it is well established that when confronted by a negative income or consumption shock, rural households have limited access to formal mechanisms. As such, informal channels are used to generate

funding from others and social networks have played a large role in these activities. Not surprisingly, these activities have led to both theoretical and empirical investigation within economics. The main empirical challenge in this area is trying to identify different kinds and the timing of shocks households face.

In general, researchers present evidence that members within a social network are more likely to obtain loans and insurance which is then used to smooth consumption.<sup>6</sup> There is also mounting evidence that the credit, gifts, and other economic transactions provide insurance for social network members.<sup>7</sup> Lastly, evidence indicates that these ties between households in social network provide similar returns to that which would have been achieved by purchasing insurance contracts that protect against the consequences of adverse events such as earnings losses and illness (Caldwell et al., 1986; Rosenzweig, 1988; Rosenzweig and Stark 1989). Thus, these kinship and marital ties that exist within informal mechanisms in rural finance have been termed “insurance capital” by Rosenzweig (1993). Our study contributes to this line of research by investigating the impact of an accurately observed and important shock to rural families - the arrival of a son.

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<sup>6</sup>For example, using longitudinal household data from rural India, Rosenzweig (1988, 1993) finds that inter-household financial transfers play a small but significant role in contributing to consumption-smoothing. Using data from northern Nigeria, Udry (1994) reports that within informal credit institutions there is a great deal of activity by individuals on both sides of the credit market. Specifically, within a single year he finds that approximately 75% of households made loans, 65% of households borrowed (50% participated as both lenders and borrowers), and 97% of the loans (weighted by value) were between neighbors or between relatives. Lastly, the role of credit as a smoothing device has long been recognized in the sovereign debt literature (e.g., Eaton and Gersovitz, 1981; Kletzer, 1984; Grossman and Van Huyck, 1988).

<sup>7</sup>For example, Fafchamps (1992) presents evidence that solidarity systems are usually organized around delayed reciprocity contingent upon need and affordability. In other words, solidarity is a form of mutual insurance and can provide protection against many sources of risk. Fafchamps and Lund (2003), using detailed data on gifts, loans, and asset sales in the rural Philippines, finds that income and expenditure shocks have a strong effect on gifts and informal loans, but little effect on sales of livestock and grain. Mutual insurance does not appear to take place at the village level; rather, households receive help primarily through networks of friends and relatives.

The arrival of a son has been argued to be preferred in rural regions where households' livelihood depends mainly upon agricultural production. Further, parents typically depend upon their sons for support in old age (sometimes a son of a specific birth order), not daughters.<sup>8</sup> As sons may be preferred for a variety of reasons it is not surprising that fertility levels, infant and child mortality levels (Das Gupta 1987; Kishor 1993; Muhuri and Preston 1991) are increasingly reflecting these choices. Chu (2001) presents evidence that these tastes have led to the prevalence of prenatal sex determination and sex-selective abortion in rural central China.<sup>9</sup> She concludes that prenatal sex selection was probably the primary cause, if not the sole cause, for the continuous rise of the sex ratio at birth in the study area in the past decade.<sup>10</sup> Here, the presence of a doctor or clinic in a village encourages families to exercise their son preference through the spread of knowledge on sex selection choices and access to health care after abortions and for fertility in general, which reduces the cost of sex selective abortions. Note that it cannot be argued in reverse that strong son preference encourages the establishment of a health clinic or presence of a doctor in a village.

Any discussion of sex-selective abortion and fertility patterns in China must make mention of China's one-child policy.<sup>11</sup> Empirical studies have found that the one-child policy is enforced more strictly in urban areas than in rural areas (Zhang and Spencer, 1992; Ahn, 1994) and that better-educated women are more likely to comply with the one-child policy (Wang, 1989; Zhang

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<sup>8</sup>A partial list of studies providing evidence of strong son preference in Asia includes Haughton and Haughton, 1995; Pong, 1994; Larsen et al., 1998.

<sup>9</sup>She finds that, among survey respondents, nearly half of reported pregnancies were subject to sex determination by ultrasound examination, and nine out of ten of the determined female fetuses in second pregnancies were aborted if the couple's first child was a girl.

<sup>10</sup>Many other studies also arrive at the same conclusion that sex-selective abortion in China is an important cause for the rising sex ratio (Murphy, 2003; Yi, et al., 1993; Johnson, 1996).

<sup>11</sup>Because of the difficulties of implementation and potential social unrest, in some rural areas and in certain years the policy is relaxed to allow women to have a second child if the first child is female (Hardee-Cleaveland and Banister, 1988; Qian, 1997).

and Spencer, 1992; Ahn, 1994).<sup>12</sup> While the one child policy is national, its implementation at the local level exhibits great heterogeneity. To implement the policy, local governments at all levels are given incentive contracts in the form of fiscal and career rewards for fulfilling birth targets and heavy penalties for falling short (Hardee-Cleaveland and Banister, 1988; Short and Zhai, 1998). For example, government officials may be demoted for allowing too many above-quota births in their regions, which means loss of all future income and benefits that comes with government positions. The implementation of the one child policy encourages the use of sex selective abortions by families with son preference when prenatal sex detection technology became widely available.<sup>13</sup> However, the consensus in the demography literature (Gu and Roy, 1995 for example) is that the population policy in China can at most account for accelerated rising sex ratio imbalance at higher birth parities, while the overall rising sex ratio imbalance since mid-1980s is attributed to changed norm preferring smaller family size combined with persistent son preference since such rising sex ratio at birth has also been witnessed in Korea, Taiwan and India. Factors that can influence the local intensity in fertility control enforcement include the overall and by parity sex ratios, land size and population size in a region. If a village have many people over small plots of land, the collective desire to control population growth is strong and thus the more intense enforcement of fertility control policy. Higher sex ratios by birth in a region not only represent strong cultural preference for son but also imply increased pressure for local officials to enforce fertility control given that upper level governments frequently use those figures to assess their performance and set new performance

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<sup>12</sup>There are many potential explanations for both of these relationships. On the former, as noted, parents in rural areas may have a stronger desire for a son for both consumption and investment reasons. On the latter, women with more education may also have better knowledge of the effective contraceptive methods, and thus engage in better birth control. These women also are more likely to suffer a larger cost by violating the policy, as higher levels of education is associated with improved socioeconomic status.

<sup>13</sup>In the early 1980s, officials dispatched portable ultrasound machines to hundreds of cities in China that were later used for sex selective abortion (Ertfelt 2006).



targets.

Offspring structure has been shown to affect consumption, saving and investment decisions within families.<sup>14</sup> Researchers have concluded that such gender bias is particularly acute in South Asia (Behrman, 1988, 1992, 1998; Rose, 2000). However, to the best of our knowledge no one investigated if there are significant associations between activities in formal and informal finance and fertility patterns. We next describe the dataset that enables us to conduct such an investigation in rural China.

### 3 Data

This paper uses data from a 2003 national Rural Household Survey (hereafter RHS03). This is a cross-sectional survey conducted by the Rural Survey Team of the National Bureau of Statistics (NBS) for the Ministry of Science and Technology. It matches information collected from questionnaires on up to 9 household members in 300 rural Chinese villages with detailed village level information from local officials via survey administered in the preceding calendar year. The RHS03 is unique in its information on a multitude of dimensions reflecting household financial activities and is understudied relative to most micro datasets collected by the National Bureau of Statistics (NBS) in China. The RST adopted a four-step stratifying approach towards sampling. First, 10 of

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<sup>14</sup>Jacoby (1994) examines the impact of borrowing constraints on human capital accumulation in Peru, and finds that sons are favored in the intra-household allocation of human capital investment. Deolalikar and Rose (1998) find that the birth of a boy relative to the birth of a girl reduces savings for medium and large farm households in rural India. The reduction of savings arises from its effect on consumption in the year following the birth, and its effect on income in subsequent years. Rose (2000) reports that poor women in rural India, increasingly reduce their labor supply subsequent to the birth of a boy relative to a girl. La Ferrara (2003) finds that those borrowers who have children in kinship band networks in Ghana are less likely to default, which is indicative of family structure having a significant effect on borrower's repayment decision.

China's 31 provinces were selected.<sup>15</sup> For each province, the RST randomly selected 3 counties or county level districts based on levels of economic development.<sup>16</sup> From each of these 30 counties, 10 villages were then selected at random. Using a household roster, the RST randomly selected 10 households from each village to participate in the survey.

In total, 3000 households were selected and each household complied and participated in the in-house study. The RTS conducted a single interview with each household in either February or March of 2003. During this interview, a ten page questionnaire was read to the household head whose responses were immediately recorded.<sup>17</sup> Responses to the questionnaires provided information on the composition of the household, incomes, expenditures, lending, borrowings, and entrepreneurial activities. The household head also provided detailed history regarding their own fertility history and of their children who still reside at the residence.<sup>18</sup> As mentioned above, the RHS03 also contains questionnaires answered about the village by a village official in 2002.

In our analysis we focus on the financial activities of families in which the eldest child is no more than 18 years of age (we investigate the robustness of our results to alternative age cutoffs such as 16 and 20). This sampling requires each household to have at least one child. In families of at least three generations, the term "children" refers to the youngest generation of the household. Several

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<sup>15</sup>Namely, Jilin, Liaoning and Heilongjiang Provinces that are the "rust-belt" north-east of China, Shandong and Jiangsu that are among the wealthiest coastal provinces, Henan, Anhui, Hubei and Hebei that are provinces in central China, of whose economy agriculture is a large component, and lastly Sichuan in the west, the most populous province in China.

<sup>16</sup>Primarily using GDP and GDP per capita criteria, the RTS picks one county from the highly developed counties of the province, one from the average developed and one from the under developed.

<sup>17</sup>To address the concerns of illiteracy and lack of telephone communication in some parts of China all data was collected by at-home interviews. A selected household was visited successively by surveyors until the interview could occur, explaining the complete compliance rate.

<sup>18</sup>The questions on family structure and the history of the number of live births for the household head are substantially more detailed than other datasets from rural China increasing our confidence that we have reasonably accurate family histories.

reasons compel us to restrict the sample this way. First, the data provides no information that can separate the daughters from daughter-in-laws or the grand daughters from grand daughter-in-laws. In the sample parents refer to the spouses of their children also as “children”. That is, if a 46-year-old household head claims that the 22-year-old male and 21-year-old female residing in the house are his “children”, the female “child” could indeed be his daughter-in-law. This shortcoming of the data could confuse family fertility pattern in a significant way (adding daughters, at least). Limiting to families with all children still to be married is the surest way to purge that threat. More importantly, this is an investigation of whether parents make differential investment on sons over daughters before the children start to provide filial support back to parents. Having adult children greatly complicates the analysis. For example, little information is collected about their pecuniary and non-pecuniary contributions to parents, which alters a family’s financial calculations; Marriage of a child is an important decision that may be influenced by a family’s financial situation; Dependent children live with parents but not all married children so we may have an endogenous censoring of family offspring structure once families have adult children. Given the cross-sectional nature of the data, we have no good ways to control for potential biases associated with having adult children. We make the conservative cut of ( $\leq 18$ ) for the eldest child although most marriages occur after age 20 for both girls and boys in rural China.

Table 1 presents summary information on several of the variables that we will use in our analysis. As we notice that the families are small in size, with slightly over four members on average. The average number of children in the family is 1.52 and on average there is 0.84 boys in the home. Slightly over one quarter of the households do not have a male child. Less than a quarter of the household head has high school education and 70% of the families consist of two generations. The village sex ratio of firstborns is 117.44:100 but among our households with younger children it is much lower at 107.02:100.<sup>19</sup> Similarly, there is substantial heterogeneity in the myriad of measures

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<sup>19</sup>This is consistent with evidence from the 2000 Chinese census which reflects that for parents bearing children in

of financial activities but none of the rates appear to deviate from other studies. The standard deviation on many of these financial activities is large as the data is heavily skewed to the right. Lastly, most of the villages are small in size (with a population exceeding 1750 residents on average) and in roughly 15% of these villages there is not a doctor.

## 4 Empirical Setup

We propose the following mechanism for how the arrival of a son, especially the first son, increases a Chinese family's incentive in engaging in a variety of financial activities that include lending, borrowing and giving gifts. The mechanism has the flavor of a standard theory of statistical discrimination. Assume parents care about the welfare of their children equally but compared to a daughter, a son is expected to provide more transfer to the elderly parents, due to the existence of a social norm that dictates a son's filial support. That is, parents do not have an explicit "taste" against daughters but a son is believed to bring more welfare to the parents. In this case the belief derives from a social convention. Assume that parents can invest in their children's future productivity in stage one which determines the children's wage and ability to support their elderly parents in stage two. If the believed transfer (determined by social convention) from a child in stage two is greater than the expected returns of the same amount on other available investments or saving instruments, parents will invest more into their child's future productivity than in a society where parents expect zero transfer from their child when old. Given that a son is believed to transfer more than a daughter, *ceteris paribus*, parents would then invest more into their son's

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the last two decades roughly 9 million females are "missing" relative to naturally-occurring birth patterns, distorting the sex ratio. Chinese government figures indicate that the female deficit at birth continues to grow with the overall sex ratio at birth reaching 118 boys born for every 100 girls in 2005.

future productivity.<sup>20</sup> That is, the greater the expected gap in filial obligations between a son and a daughter in a society, the greater the gap in investment parents would place on children of different genders. Faced with increased incentives to invest in a son's physical capital (the land and equipment he will possess), human capital (education) and social capital (social network with lending and gift exchange) that can increase his future productivity and thus his expected filial support, parents will engage deeper in a variety of financial activities than if they had a daughter.

The advantage of this proposed mechanism based on parents' pecuniary incentives is that it is sensitive to market conditions and policy interventions, thus can generate lots of empirically testable predictions. For example, if the labor market condition has changed such that for the same amount of parental investment, daughters are expected to earn more wages than sons, this mechanism should predict the gender-differential investment gap to close. When parents can depend more on government for old-age care or when better investment options are available for parents, this mechanism predicts that parent will invest less in their children. Should such predictions fail in reality, we can confidently state that monetary incentives are most likely not a dominant reason of favoring son.

Obviously economic rationale is not the only explanation why parents may favor sons over daughters. Cultural and social reasons abound. For example, if parents value their legacy, and in a patriarchal society a son is believed to be a better instrument for parents to leave their legacy, differential investment into sons over daughters may also result. However, the legacy parents value has to be of a specific type: it should increase with more investment into a child's future productivity and there should not exist obviously better ways to increase it other than through increasing investment in one's son. For example, if parents value carrying on the family name and only sons are socially

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<sup>20</sup>In the simplest setting, parents would only invest in a son for filial transfers in the future since the socially expected return from a daughter is lower, *ceteris paribus*. In this setting, parents only invest in a daughter since they care about her welfare. If we add the desire for investment risk diversification into the setting, parents may also want to invest in their daughter (less than son) for future transfers.

permissible to do so, it would not necessarily make parents invest more into each son or one son. Having more sons and making sure they get married and have children promptly could dominate the strategy of investing heavily into the existing sons' future productivity.<sup>21</sup> Thus cultural preferences towards sons do not necessarily result in intra-family gender-differential investments. Moreover, the hypotheses that certain cultural norms are driving gender differential investments by parents are much less refutable than ones based on economic incentives, given that the evolution of such incentives is often hard to measure, less understood and quite insensitive to market conditions or policy interventions. We argue here that even though our data does not enable us to make direct distinction between the “use” of son and a “taste” for son, we should adopt as null hypothesis the “use” of son, whose mechanism is articulated above, because it holds the promise to be identified from a “taste” of son which the opposite does not hold. For its ability to generate more informative results, we propose it as a more promising start of this line of research program. We will discuss later our indirect evidence favoring the “use” of son.

This paper tests the empirical hypothesis that the financial activity of households in rural China responds in a heterogeneous manner to changes in family structure from a birth where the heterogeneity is driven by the gender of the child. That is, we expect that the arrival of a son would lead households to both request more and contribute more to relatives and friends in an effort to build up their son's physical, social and financial capital. In addition, the presence of a son increases the likelihood that parents will invest in family enterprise and more into physical capital for the son to enjoy expected higher productivity in the future.

We have thus far focused on individual households. In network-based rural finance, households both demand and supply funds to each other, so we have to bring our discussion to the equilibrium level. Our mechanism has postulated that compared to a family with a daughter, *ceteris paribus*, a

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<sup>21</sup>Setting up a foundation or building a museum or library may also be preferred by parents for their valuation of certain legacy. Thus legacy concerns favoring sons do not automatically lead to differential investment in a family.

family with a son demands more credit due to stronger incentive to invest in a son's future earnings through building physical and human capital for the son and is willing to supply more credit and reciprocal gifts to other households to build up greater social capital for the son. Thus a family with a son is clearly preferred by credit (and reciprocal gifts) suppliers as well as credit (and reciprocal gifts) demanders on the market, *ceteris paribus*. At least one cannot argue that a family with a son should be less preferred in the market to the same family with a daughter. This greatly simplifies the prediction of equilibrium quantities. In equilibrium, the greater demand and supply from a family with a son translates into greater equilibrium level of credit obtained and supplied, as well as more gift exchange.<sup>22</sup>

Simple summary statistics are consistent with this hypothesis. This is documented in Table 2 where we compare the financial activities of a specific subsample of our data. In the fourth and fifth column, we consider families with two parents and two children (16 years and under) so that they have the same family size. These are the “model” nuclear rural families in China that want to have more than one child but are constrained by the “one-child” policy to stop fertility at two children. Notice that there is substantial heterogeneity in financial activity by offspring gender structure. Unconditionally on average families with at least one boy, receive significantly more funds from relatives and friends both from urban and rural areas, make larger gifts made to friends and relatives in rural areas, and spend more money on both investment in the family business, fixed assets for productive activities and non-consumption items. A closer examination of these families in column 4 indicate that there are few systematic differences in financial activities between families who have one kid of each gender irrespective of the gender of the first child. The first two columns of Table 2 present the results for our full sample and unconditionally there does not appear to be

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<sup>22</sup>In a companion paper, we describe in detail the rural network-based financial market with families that have sons versus those with daughters and provide an alternative explanation of the functions of this market when we have heterogeneous households to the prevailing argument of the need for consumption insurance. In this paper, we stay focused on the household level, not the market level.

any financial activity in which differences differ based on child gender. While Table 2, may suggest that any of our subsequent results will be driven by the nuclear families, we will present evidence that this is not the case and that the arrival of a son increases financial activities for all types of rural households.

We investigate the equilibrium level of activities in specific financial markets and capture the vector of variables of interest in  $X_i$  and other variables that typically affect market demand and supply in  $X_c$ . These factors also include several control for existing assets (i.e. land size) that could be used for collateral. In particular, our focus is on whether the family has a son and we will also condition on the number of children, both of which we treat as endogenous.

$$Y_i^* = X_i\beta + X_c\gamma + \varepsilon_i^* \quad (1)$$

where  $Y_i^*$  is the equilibrium level of financial activity. A challenge is that we do not directly observe  $Y_i^*$  but rather see  $Y_i$  where

$$Y_i = Y_i^* \text{ if } Y_i^* \geq 0 \quad (2)$$

$$Y_i = 0 \text{ if } Y_i^* < 0 \quad (3)$$

In other words the data only contains  $X_i$  and  $Y_i = \max\{0, Y_i^*\}$  and implicitly the regression error term  $\varepsilon_i$  is also censored, as  $\varepsilon_i = \varepsilon_i^*$  if  $Y_i = Y_i^*$ , and  $\varepsilon_i = 0 - X_i\beta - X_c\gamma$  if  $Y_i = 0$ .

Two econometric issues arise in the estimation of equation (2). First,  $Y$  is a zero-inflated continuous variable and OLS estimation of equation (1) would yield biased and inconsistent estimates. If we assume that  $\varepsilon_i^* \sim N(0, \sigma^2)$  the model can be estimated via maximum likelihood to recover consistent estimates.<sup>23</sup> This is commonly referred to as a Type I Tobit model. However, a Type I Tobit model requires that all the covariates in  $X_i$  be exogenous. In our setting our key explanatory

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<sup>23</sup>It is well established that consistency of estimates derived from a Tobit maximum likelihood estimation procedure is sensitive to the assumption on the error term's distribution. Several semi-parametric strategies have been proposed for exogenous covariates (See Chay and Powell (2003) for a discussion).



variables of interest capture dimensions of family offspring structure that are likely to be endogenous in the sense that they reflect behavioral decisions as to whether the parents would conceive a (an additional) child and whether to engage in sex selective abortion. If parents who exercise their strong son preference that results in more children and more sons in a family are also the ones tend to borrow more, the effect of having a son on family borrowing is likely to be overestimated. This type of endogeneity presents the second empirical hurdle for our investigation.<sup>24</sup>

To account for both the zero-inflated nature of our dependent variable and for the endogeneity of family structure and child gender, we use Amemiya Generalized Least Squares (AGLS) estimator for the Tobit with endogenous regressors described in Newey (1987). Intuitively the estimation involves two stages. In the first stage, OLS estimation is applied to produce the predicted value for the endogenous regressors on all the exogenous regressors including a set of instruments  $Wi$ .<sup>25</sup> In the second stage, Tobit estimation of equation (1) takes places where the endogenous regressors are replaced by their fitted value and residuals from the first-stage regression are included with the other control variables. However, the estimated coefficient on the first-stage fitted values are not efficient since they do not take into account the variance–covariance of the predicted variable and the first-stage residuals. To remedy this Newey (1987) proposes to use the Amemiya (1978) Generalized Least Squares counterpart of the conditional maximum likelihood estimator to recover the structural parameters. Specifically, GLS is applied to minimize the distance between the structural parameters  $\beta$  and coefficients from Tobit estimates of the reduced form model of equation (1). This estimator

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<sup>24</sup>This endogeneity problem presents an even more significant hurdle to the general semi-parametric estimators mentioned in footnote 15; their trimming procedures depend on the covariates, hence the trimming itself is endogenous. Recently several empirical approach have been proposed that extend the “censored LAD” estimator proposed in Powell (1984) to accommodate endogenous regressors. In subsequent versions of the text we will consider the Chernozhukov, Fernandez-Val and Kowalski (2008) estimator (instead of the Hong and Tamer (2003)) that essentially introduces a control function strategy into the estimation strategy proposed in Chernozhukov and Hong (2002).

<sup>25</sup>To serve as an instrument in this setting, we require the usual conditions that the instruments are correlated with the endogenous regressors and that  $E(\varepsilon_i^*|Wi) = 0$ .

is equivalent to the Minimum  $\chi^2$  estimator and under some general regularity conditions this yields asymptotically efficient estimates. A further advantage of this approach is that the minimum distance function provides a convenient statistic for the test of over-identification restrictions.

Identification of the structural parameters require that the instruments in  $Wi$  only affect financial activities through whether there is a male child in the household and the number of children. Our instruments are based on factors that can influence the demand and supply of sex selective abortions.<sup>26</sup> The demand for sex selective abortions depends on the cost and risk of abortions, which the presence of a clinic nearby is expected to reduce, the intensity of son preference in the region, which the village level sex ratio by birth order, especially on higher order parities, can expose, as well as the intensity of implementation of the one child policy in the region which is influenced by the total acreage of cultivated land in the village and actual population of the village, among other factors. Villages with more land per capita have less incentive to implement fertility control policies (our comparison of households controls family land sizes). An imbalance of existing sex ratio towards males usually indicates a loose implementation of the policy in the past and pressure to reduce such imbalance from upper levels of government in the future.

In the raw data, we observe that having a girl first does indeed significantly increase the likelihood that a family will attempt to have an additional child (one-sided test of equality of proportions,  $z = 8.8659$ ,  $\Pr(Z > z) = 0.0000$ ). In addition, conditional on having two girls one is significantly more likely to have a third child. In Table 3 we first regress the gender of the first child on a series of parental characteristics, both including and excluding village fixed effects. Notice that there are very weak relationships between any of the explanatory variables and the gender of the first child; the full specification is jointly insignificant at 15% level. However, consistent with observations from recent Census we should note that in recent years the sex ratio has increased sharply and that there

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<sup>26</sup>As discussed in Section 2, a consensus has emerged that sex selection via abortion is the principal explanation for the rising sex ratio in China (Yi et al. 1993, Junhong 2001, Ebenstein 2008).

are wide variations between China’s provinces.<sup>27</sup> The relationship between a second child being male (conditional on having a second child) and the same characteristics are presented in columns 3 and 4 of Table 3. The F test in the bottom row indicate that there are substantial relationships between observed parental characteristics and the gender of the second child. In addition, the sex ratio of the second born is heavily tilted towards being male. These regressions simply highlight why we believe measures such as whether a family has a male child and the number of children a family has should be treated as endogenous in estimating equation (1). They further demonstrate that the theory underlying our selection of instruments may have support.

## 5 Results

Our baseline specification consists of regressing the log of a series of financial activities on covariates that include family structure, household type, family gross income and wage income from salaried positions (both up to a quadratic), regional macroeconomic indicators, parental age and education indicators. Our main interest in the initial specification is on whether or not the family has a boy and we treat this variable as well as the number of children as endogenous in the specification. Since there is substantial skewness to the right in each financial activity measure (recall table 1 containing measures in 2002 Yuan), we transformed each of these measures by taking the logarithm.

Table 4 presents Amemiya GLS coefficients of equation (2). If there is a male child in the household, families receive more income from gifts and remittances as well as all other transfers into the households. These increases are statistically significant. Having a male child also increases the amount of funds transferred outside the household, donations to relatives as well as amount of income transferred to the household (all income from gifts and remittances) but it is only statistically

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<sup>27</sup>Recent research with census data documents that there are five provinces with more than 125 male births for every 100 females, with the percentage reaching 130 in Guangdong and as high as 135 in Hainan. As such, we are uncomfortable treating this variable as exogenous.

significant at the 20% level. In addition, having a boy also significantly increases both bank loans and donations from relatives that reside in urban areas. Families with a boy also appear to have a long term horizon as they are significantly more likely to increase investment in family businesses and spend funds on long term assets that are productive in agricultural activities. At the same time, they spend slightly less funds on household expenses and food. While contrary to the general perception, these results on food consumption are consistent with recent work(Lee, 2007) that does not find any evidence of bias on food consumption but significant bias on medical care towards sons in rural China.<sup>28</sup> Taken together, the results in Table 4 indicate that having a boy *ceteris paribus* does lead to increased financial activities.

While the patterns between having a boy in the household and financial activities are somewhat surprising, the general relationship between other covariates including the number of children and financial activities is commonly expected. Families with more children have less assets, investing less in family business and significantly more on consumption and food. Larger families are also less likely to receive funds from a bank or transfer funds outside of the household and rely more heavily on donations from relatives. Families with more children, *ceteris paribus*, are less likely to get loan. In general, having an additional kid leads to a large decline in many activities such as transferring funds to others but does lead to a marked significant increase in receiving gifts from others, particularly those outside rural areas. If extra child is a boy the impact on transfers to friends and relatives is 40-67% of the size but the gift is approximately 20% larger. While income has impacts on financial activities, parental education and age have very few significant impacts, indicating that the only demographic characteristics of a family that seem to have significant impact on financial activities are related to the size and gender composition of the children in rural China.<sup>29</sup>

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<sup>28</sup>Lee (2007) concludes that while the family-planning policy may have increased sex selective abortions, it also likely improved the observed welfare of the girls who are born in the family.

<sup>29</sup>The age of the children (both of the eldest and youngest) do not have strong systematic patterns. We considered several alternative variables for dimensions of the children along birth order but only the number of children and

Finally, it is interesting to note that as the child ages the family is will likely receive smaller gifts from friends and relatives but are making larger transfers outside the home.

The second to last row of the Table 4 contains a Wald test of the exogeneity of the instrumented variables in equation (1). Irrespective of the dependent variable, the test statistic is significant providing sufficient information in the sample to reject the null hypothesis of no endogeneity.

In order to examine the performance of instruments we considered several additional tests. We examined the first-stage regression results where the number of children and whether or not there is a boy in the household is instrumented using the village level sex ratio of first born children, whether or not a doctor is present in the village, the total acreage of cultivated land in the village and actual population of the village which we argue they jointly affect the demand and supply of sex-selective abortions.

First stage regression results that correspond to Table 4 are presented in the first two columns of Table 5. Notice that all the instruments are statistically significant in explaining whether there is a male child and as indicated in the bottom row are jointly relevant in explaining both of the family structure variables. For both having a boy and the number of children, the F statistic from a test of the joint significance using the full set of instruments from a linear regression are in all cases significantly greater than commonly used cutoffs for weak instruments. As hypothesized, the presence of a doctor, village sex ratio and village land per capita are positively associated with both endogenous regressors and acreage of cultivated land is negatively related.

We next examine the over-identifying restriction of the model, which is a joint test of the overall specification of the model and the validity of the instruments. Given that the AGLS estimate is equivalent to the minimum Chi squared estimate, the value of the criterion function is a chi-square statistic with degrees of freedom equal to the number of extra instruments. The p-value of a chi-

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whether or not having a son entered in most specifications in a statistically significant manner and maintained a consistent quantitative and qualitative pattern.

square statistic and in all cases (all outcomes listed in Table 4) the null-hypothesis that the model is correctly specified and the instruments are valid cannot be rejected.

We next re-estimate equation (1) only on that subsample of families for which their first child was a female. For this subsample, one could argue the endogeneity issues that arise from having a boy or number of kids may be more severe. The results are presented in Table 6. In general, we see that the sign of the coefficients appear similar but due to the smaller sample size many lose their statistical significance. Yet, cash gifts received from relatives outside increase markedly (significant at the 10% level) when an additional child is male. Most surprising is that the large positive impact of having a boy on funds spent on productive fixed assets for agricultural activities remains, providing further support for the second mechanism. Similarly, expenses on a family business are significantly greater and funds spent on consumption and consumption on food in particular, *ceteris paribus*, are significantly lower upon the arrival of a son. The relationship between number of children and financial activities are fairly similar to that reported in Table 4 although most coefficients are slightly smaller in magnitude. This may indicate that in families which had a boy first, each additional child has a larger impact on investment and savings decisions. Lastly, tests of exogeneity continue to suggest these family structures variables should be treated as endogenous.

The third and fourth column of Table 5 presents the first stage regression results that correspond to Table 6. as before three of the four instruments are individually statistically significant in explaining each of the endogenous regressors. While the first stage F statistic for whether there is a male child is above current cutoffs for weak instruments, the joint relationship of these instruments with the number of children is 6.81. as there are multiple endogenous regressors, we computed the Cragg-Donald statistic and compared it to the cutoffs presented in Stock and Yogo (2005). The results suggest that weak instrument bias is of limited concern in this sample.

The gender of the first child poses some additional issues in understanding the impacts of family structure on financial activities. It may not only impact decisions related to subsequent child bearing

but birth order on its own may have some additional impacts. To focus more clearly on this issue and attempt to separate out the role of having at least a son in rural Chinese family versus the birth order we will replicate our analysis using the full sample where we now separate the timing of having a boy. That is we no longer allow the impact of having a boy on financial activities to be invariant to the birth order but now see if there is a differential impact of the first child being a male or if a later child is a boy. As before we treat the gender of the first born, later born and number of children as endogenous. The results are presented in Table 7.

There are substantial differences in the timing of when a family has a boy on financial activities. Notice that in panel 7A we observe that if a subsequent child is a boy it does not significantly impact any financial activity. In contrast if the first child is a boy there is a significant increase in the amount of income received in gifts and remittances but this is not obtained from friends and relatives. As well, there is a significant decrease in all expenses on financial transfers out of household as well as loans obtained from either informal credit or a rural financial cooperative if the first child is male. Interestingly disentangling the birth order of the male child changes the picture of the impacts of the number of children on financial activities. More children now lead to a significant increase in cash gifts made to friends and relatives but much smaller in magnitude gifts from friends and relatives that reside outside rural areas and total income from gifts and remittances. It also substantially reduces the magnitude of the negative and significant impact on expense on all financial transfers out of household loans obtained from informal credit or rural financial cooperative and gifts from friends and relatives. Taken together this indicates that the role of subsequent children is in fact heavily driven by the gender of the child and as many families may continue having children until they have a son, this reinforces our main finding that child gender impacts financial activities.

In panel B of table 7 we continue to see that having a son has substantial significant impacts on a households' financial activities. For instance while having additional children continues to decrease

household expenditures on either family enterprises or on fixed-asset for productive activities, if the later child is male enters in a positive and marginally significant manner. Not only is the gender impact on family investment activities reported in Table 4 driven by whether only a subsequent child is a boy, but the negative and significant decrease in household expenditures on consumption and food driven by boys later in the birth order. These results are consistent with the findings in Table 6 that document that if the first child was a female, having a boy afterwards has large impacts on financial activities. The results suggest that having a boy in rural China alters how a family conducts their affairs and indicates the importance of having a boy on a family's decision to maintain and invest in an agricultural livelihood.

## 5.1 Robustness checks

Our empirical results present strong evidence on how family structure affects financial activity in rural China. We conducted six different analyses to verify the empirical validity of our results. We first replicated our entire analysis using alternative cutoffs for the oldest child in the household. Restricting the sample to where the eldest child is either no greater than 20 years or no greater than 18 years of age does not change the quantitative nor qualitative pattern of our results. Second, we recast the empirical exercise to determine whether family structure affected decisions to participate in a variety of financial activities (instead of amount) and there were no major changes.

Our remaining analyses used the same empirical strategy but considered whether our results are robust to other potential sources of bias. Potentially, our earlier estimates may suffer from a different selection bias as we have implicitly assumed that access to credit does not vary over time. If few households had access to credit in earlier time periods, the unobserved variability of credit ceilings over time and across households may affect financial decision making and the reliability of the estimates. To explore how the unobserved credit market conditions might affect the estimate we repeated our analysis only including families in which the oldest person in the home is first less



than 50 (1126 observations), then less than 40 (801 observations). In all these scenarios the effect of having a boy on financial activities is not greatly affected.

For several reasons, extended families (i.e. households sharing living arrangements with parents or other relatives), may behave differently from nuclear families. Intergenerational transfers from the elderly to the young or vice versa may take place within the extended family but they are not recorded in the survey since only transfers received by the household from outside are reported. We checked the sensitivity of our estimates when the extended families are dropped from the sample. We find that the impact of family structure variables on financial activity for nuclear families are similar to those obtained with the full sample. These robustness checks increase our confidence that having a boy in rural China does indeed impact financial decision making.

## 6 Conclusion

In this paper we examine whether in rural China there is a relationship between a principal dimension of household heterogeneity, the offspring gender structure, on household financial activities. We argue for theoretical channels that endogenously generate discrimination on the basis of a child's gender, even if the parents do not possess discriminatory tastes against daughters. Within these families, the arrival of a son could be viewed as a positive shock to the expected permanent income of the parents, particularly the expected old-age income, due to the prevailing social convention in China that sons are supposed to take care of their elderly parents, while there does not exist the same level of social pressure on daughters. This convention can be viewed as socially entitling the parents to a greater share of their son's future income compared to the share they are socially allowed to take from their daughter. Faced with this environment, the model generates testable empirical prediction that parents would invest more into their son's economic and social wellbeing, *ceteris paribus*. Specifically, we would expect that parents with son(s) are more willing to invest

in agricultural productions or other businesses, more willing to lend to others in expectation of receiving more loans from others as well as build up family's social capital, more willing to give to others to build up the family's social capital in expectation of receiving more gifts and transfers from others.

Using data collected in 300 villages in rural China we investigate whether the number of children and whether one of the children is a biological son affect sixteen dimensions of financial activities. We expect that the arrival of a son would lead households to both request more and contribute more to relatives and friends in an effort to build up their social and financial capital. In addition, the presence of a son increases the likelihood that they will invest in family enterprise and more into physical capital for the son to enjoy higher productivity in the future. These family structure and offspring gender variables also reflect behavioral decisions, thus we must correct for the endogeneity of these variables, in addition to dealing with the censored nature of data on the amount of financial activities.

We present strong evidence that having a boy increases both the amounts that a family will transfer to friends and relatives as well as increase the amounts of gifts they receive from these sources. Our results suggest that while having an additional child by itself increases the amount of gifts received from other, there is a 30% premium if the additional child is male. Not only are families that have a boy more active in both sending and receiving transfers but they also invest more in agricultural activities and family businesses. In addition, these families spend less on basic consumption activities. These decreases in consumption expenses and increases in investment activities are driven by families whose boys are not the first born. Lastly, we find that these family structure variables should not be treated as exogenous and demonstrate the robustness of our results to a number of criteria used for sample construction, specification and to account for alternative selection biases.

Taken together these results suggest that social norms or convention play important roles in

household financial decisions that extend beyond the traditional role of budget constraints and consumption shocks. This has clear implications for policies that aim to address rising sex imbalance amid economic growth and discriminating investment to female children in developing countries.

Understanding the factors that affect credit market participation in rural China is receiving increased attention from not just policy-makers who view these activities as a pre-condition for economic growth but also formal institutions who are increasingly entering these villages, attracted by the size of this generally untapped marketplace. This paper argues theoretically and presents strong empirical evidence that since different expectations and incentives arise for parents when a son is born in lieu of a daughter, there is an increase in both the amounts and levels of participation in a wide variety of financial activities. Thus due to existing conventions, the gender of one's child can explain an aspect of heterogeneity in these activities across families. Yet, many other questions remain in understanding exactly which dimensions parents alter their financial activities based on having a son. For example, in response to offspring gender structure, is there heterogeneity in the organizational form of the informal finance, mechanism of interest rate formation and the extent of credit constraints? We hope to address these questions in future research.

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Table 1: Summary Statistics of the Sample

Variable	Mean	Standard Deviation
Number of boys in each family	0.8438	0.6007
Family size	4.0938	1.0083
First child is male	0.5351	0.4989
Family has a second child	0.4576	0.4983
Second child is male	0.5952	0.4912
Village sex ratio of first born children	0.5872	0.2809
Village sex ratio of second born children	0.6055	0.2290
Whether there is any doctor in the village	0.8257	0.3795
Acreage of cultivated land	3377.474	3080.957
Village population size	1768.901	915.5011
Village land per capita	2.2036	3.7054
Total household income	14599.65	10677.77
Household head is a business operator	0.0442	0.2056
Household head is a cadre (government official)	0.0599	0.2374
Household head is both a business operator and cadre	0.0097	0.098
Household head is on welfare (Wubaohu)	0.0018	0.0426
Household head has another occupation	0.1023	0.3031
Annual wage income for the household head	3437.441	4457.272
Household head has a college education	0.0454	0.2082
Household head has a high school education	0.2452	0.4303
Age of the mother	35.3606	7.1105
Age of the father	36.4787	7.3815
Age of the oldest child	11.5866	4.8499
Cash gifts made to friends and relatives	591.4546	926.0483
Expense on all financial transfers out of the household	728.6665	1438.24
Loans obtained from informal credit	783.3269	2612.193
Loans obtained from rural financial co-op	243.4401	1373.382
Gifts from friends and relatives	172.2191	907.707
Gifts from friends and relatives that reside outside rural areas	34.57869	331.6523
All income from gifts and remittances	440.1416	1416.708
Loans obtained from banks	58.29237	559.9215
Amount of money returned from loans	432.3269	2060.632
Total household expenditures	13013.29	13124.13
Household expenditures on medical care	457.465	1220.734
Debt to Financial Cooperatives	116.530	769.032
Debt to Bank	107.312	966.645
Debt to rural organization and enterprises	240.533	1498.902
Household expenditures on family enterprises	3390.769	6448.529
Household expenditures on fixed-asset for productive activities	313.5448	1301.18
Household expenditures on consumption	6957.104	5477.184
Household expenditures on food	3129.799	1643.905
Cash gifts made to friends and relatives in rural areas	29.64831	145.5833
Household expenditures on assets	103.0369	1082.409
End of term net amount of debt	1137.967	3383.926
End of term net debt to other individuals	672.0048	2609.146
End of year net value of all financial assets	7041.399	10380.1
Observations	1652	

Note: All financial variables are measured in 2002 Yuan.

Table 2: Comparing Financial Activities Unconditionally Between Families With and Without a Son

Sample -> Variable	All Households		Nuclear Families Only	
	Family has a son	Family does not have a son	Family has a son	Family does not have a son
Gifts from friends and relatives	163.4769 (912.8141)	196.1516 (894.1629)	99.7169 (522.9805)	58.5149 (267.0181)
Cash gifts made to friends and relatives in rural areas	29.64831 (145.583)	33.8213 (167.908)	25.294 (124.181)	17.8713 (87.7934)
Cash gifts made to friends and relatives	570.5496 (901.6569)	648.6833 (988.5572)	521.4944 (676.9027)	509.802 (601.701)
Expense on all financial transfers out of the household	726.2545 (1538.977)	735.2692 (1118.46)	732.6562 (1973.95)	585.1584 (740.3112)
Loans obtained from informal credit	763.3182 (2599.113)	838.1018 (2649.865)	624.7213 (2172.293)	712.5248 (1622.076)
Loans obtained from rural financial co-op	231.2083 (1297.572)	276.9253 (1563.34)	191.4607 (1254.351)	230.6931 (943.2648)
Gifts from friends and relatives that reside outside rural areas	30.4744 (216.5642)	45.8145 (532.0149)	27.3191 (183.9977)	3.0693 (16.5374)
All income from gifts and remittances	412.6124 (1299.214)	515.5045 (1696.663)	319.7371 (942.1122)	342.703 (1126.341)
Loans obtained from banks	69.2083 (637.1199)	28.4095 (244.2542)	41.6 (343.7998)	9.901 (99.5037)
Amount of money returned from loans	392.6273 (1981.846)	541.0068 (2261.155)	393.9798 (2237.112)	538.2277 (1784.554)
Total household expenditures	12904.95 (13359.89)	13309.88 (12465.75)	13335.64 (16139.58)	12139.6 (12471.77)
Household expenditures on family enterprises	3540.78 (7250.801)	2980.106 (3363.987)	3596.791 (8408.564)	3012.891 (4465.107)
Household expenditures on fixed-assets for productive activities	298.1 (1179.61)	355.8258 (1587.851)	360.8449 (1327.497)	204.5644 (833.0972)
Household expenditures on consumption	6843.272 (5413.62)	7268.724 (5642.032)	6743.546 (5210.973)	6332.95 (5311.942)
Household expenditures on food	3076.085 (1585.254)	3276.844 (1788.349)	2907.405 (1349.333)	2799.97 (1235.272)
Household expenditures on assets	116.7595 (1247.913)	65.4706 (339.1132)	116.6562 (676.7065)	50.0594 (268.5264)
End of term net amount of debt	1106.96 (3405.98)	1222.851 (3325.138)	1109.847 (3439.262)	1036.406 (2579.561)
End of term net debt to other individuals	667.4909 (2578.814)	684.362 (2693.376)	758.6629 (2853.327)	699.9703 (2316.78)
End of year net value of all financial assets	6995.554 (10267.45)	7166.903 (10693.26)	7101.292 (11104.35)	5476.782 (10866.53)
Household expenditures on medical care	435.3041 (1233.518)	518.1312 (1184.279)	383.6 (710.849)	319.733 (445.329)
Debt to Financial Cooperatives	121.1347 (837.3514)	103.9253 (540.0483)	175.346 (1148.512)	111.683 (522.672)
Debt to bank	113.9669 (1059.671)	89.095 (647.5277)	71.348 (484.66)	19.802 (199.007)
Observations	1210	442	445	101

Note: Each cell contains the mean activity in 2002 Yuan and the standard deviation is presented in parentheses.

Table 3: Is There a Relationship Between The Gender of The Child and Family Characteristics?

	First Child is Male	First Child is Male	Second Child is Male	Second Child is Male
Household head is a business operator	0.012 (0.059)	0.102 (0.095)	0.034 (0.085)	-0.070 (0.153)
Household head is a cadre (government official)	0.075 (0.063)	0.079 (0.071)	-0.008 (0.071)	0.053 (0.091)
Household head is both a business operator and cadre	-0.241 (0.113)*	-0.284 (0.152)	-0.007 (0.169)	-0.022 (0.235)
Household head is on welfare (Wubaohu)	0.153 (0.276)	0.001 (0.275)	0.406 (0.054)**	0.430 (0.131)**
Household head is employed in two activities	-0.010 (0.032)	0.043 (0.061)	0.024 (0.042)	-0.032 (0.106)
Other type of employment for household head	-0.017 (0.041)	-0.043 (0.079)	-0.065 (0.060)	-0.111 (0.132)
Wage income	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Wage income squared	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)**	-0.000 (0.000)**
Household head has a college education	-0.008 (0.063)	-0.007 (0.070)	-0.047 (0.091)	-0.137 (0.136)
Household head has a high school education	-0.016 (0.032)	-0.014 (0.040)	0.002 (0.044)	-0.049 (0.066)
Age of the mother	0.004 (0.003)	0.006 (0.004)	0.006 (0.005)	0.006 (0.008)
Age of the Father	-0.005 (0.003)	-0.005 (0.004)	-0.005 (0.005)	-0.004 (0.006)
Age of the eldest child	0.014 (0.011)	0.017 (0.013)	-0.028 (0.033)	-0.025 (0.045)
Constant	0.498 (0.090)**	0.406 (0.114)**	0.835 (0.258)**	0.798 (0.387)*
Village Fixed Effects Included	No	Yes	No	Yes
F test on joint significance of explanatory variables	0.92 [0.5402]	1.02 [0.4336]	11.04 [0.0000]	8.69 [0.0000]
Observations	1652	1652	756	756
R-squared	0.01	0.18	0.02	0.29

Note: Specification also includes household gross income up to a quadratic and indicators for six household structure (i.e. nuclear households, three generations, etc.). Robust standard errors in parentheses. \* significant at 5%; \*\* significant at 1%. The p-values from an F test of the joint significance of the explanatory variables are presented in [ ].

Table 4A: Amemiya GLS Estimates of Factors Affecting Financial Activities in Rural Households—Part 1

	Cash gifts made to friends and relatives in rural areas	Expense on all financial transfers out of household	Loan Repayment Received	Gifts from friends and relatives that reside outside rural areas	All income from gifts and remittances	Income from all financial transfers into the household	Debt to Financial Cooperatives	Debt to rural organization and enterprises
There is a male child	7.316 (5.140)	0.072 (1.376)	27.010 (20.703)*	8.644 (6.837)	3.737 (2.227)	5.271 (2.255)*	5.975 (13.823)	12.889 (11.934)
Number of children	-12.201 (9.184)	-7.562 (2.176)**	-34.335 (29.252)	40.854 (23.273)	11.344 (3.546)**	-9.455 (4.890)	10.213 (23.035)	-15.517 (18.584)
Total income	21.091 (15.413)	6.690 (1.679)**	11.669 (7.571)	1.681 (13.601)	10.780 (2.704)**	10.175 (2.448)**	-11.939 (15.305)	-13.395 (23.284)
Total income squared	-44.692 (31.752)	-3.054 (1.620)	-9.351 (7.159)	-0.231 (11.293)	-9.112 (2.626)**	-6.904 (2.340)**	4.406 (14.905)	-3.589 (50.451)
Wage income	4.205 (2.378)	0.332 (0.398)	3.938 (1.790)*	12.665 (4.151)**	0.606 (0.640)	-0.159 (0.592)	-2.989 (5.183)	1.158 (3.327)
Wage income squared	-2.680 (1.487)	-0.108 (0.174)	-0.428 (0.748)	-4.198 (2.178)	-0.076 (0.279)	0.287 (0.259)	0.234 (3.654)	0.351 (1.196)
Head is college educated	2.879 (1.798)	-0.081 (0.439)	1.120 (2.022)	4.973 (3.460)	0.935 (0.706)	0.073 (0.650)	1.608 (3.967)	1.272 (2.905)
Head has high school education	-0.071 (0.931)	0.014 (0.204)	0.308 (0.926)	1.805 (1.628)	0.193 (0.329)	0.231 (0.292)	1.425 (1.866)	-1.116 (1.655)
Age of the mother	0.078 (0.096)	0.006 (0.021)	0.171 (0.094)	0.328 (0.158)*	0.039 (0.034)	0.011 (0.030)	-0.198 (0.204)	0.184 (0.162)
Age of the Father	-0.153 (0.104)	-0.038 (0.022)	0.093 (0.097)	0.064 (0.171)	0.074 (0.035)*	0.033 (0.033)	0.259 (0.213)	-0.120 (0.181)
Age of the oldest child	0.748 (0.551)	0.320 (0.125)*	-1.750 (0.601)**	-2.093 (1.239)	-0.833 (0.203)**	0.145 (0.255)	-0.414 (1.418)	1.557 (1.141)
Age of oldest child squared	-0.014 (0.019)	-0.001 (0.004)	0.009 (0.019)	0.010 (0.035)	0.012 (0.007)	0.001 (0.006)	-0.013 (0.038)	-0.065 (0.032)*
Constant	1.204 (13.134)	16.176 (3.089)**	-65.186 (15.470)**	-95.810 (34.197)**	-18.446 (5.041)**	10.265 (6.833)	-28.253 (33.619)	-11.219 (27.544)
Wald test of exogeneity	31.04 [0.000]	36.04 [0.000]	23.63 [0.000]	5.89 [0.0525]	61.11 [0.000]	16.70 [0.000]	15.43 [0.001]	12.31 [0.007]
Observations	1652	1652	1652	1652	1652	1652	1652	1652

Note: Standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 4B: Amemiya GLS Estimates of Factors Affecting Financial Activities in Rural Households —Part 2

	Total household expenditures	Household expenditures on family enterprises	Household expenditures on fixed-asset for productive activities	Household expenditures on consumption	Household expenditures on food	Household expenditures on medical care	End of term net amount of debt	End of term net debt to other individuals	Amount of money returned from loans
There is a male child	-0.316 (0.181)*	0.591 (0.381)	11.629 (5.630)**	-0.407 (0.177)**	-0.639 (0.189)***	1.234 (0.958)	0.435 (4.758)	2.149 (6.426)	27.010 (20.703)
Number of children	-0.333 (0.161)**	-1.135 (0.339)***	-12.456 (4.626)***	0.324 (0.158)**	0.601 (0.168)***	-0.527 (2.075)	-7.932 (4.170)*	13.280 (6.166)**	-34.335 (29.252)
Total income	6.198 (0.259)**	8.743 (0.542)**	37.375 (7.075)**	3.582 (0.257)**	2.643 (0.305)**	4.385 (1.045)**	1.709 (6.203)	23.997 (12.446)	-13.439 (22.228)
Total income squared	-2.775 (0.250)**	-4.144 (0.523)**	-20.012 (6.424)**	-2.064 (0.248)**	-1.515 (0.295)**	-2.679 (0.991)**	2.122 (5.698)	-35.265 (19.860)	21.382 (16.857)
Wage income	-0.125 (0.073)	-0.884 (0.154)**	-3.109 (2.138)	0.171 (0.073)*	0.253 (0.086)**	1.206 (0.254)**	-0.001 (0.000)***	0.000 (0.000)	-3.944 (5.552)
Wage income squared	0.095 (0.062)	-0.125 (0.131)	-3.625 (1.946)	0.134 (0.062)*	0.244 (0.074)**	0.250 (0.111)*	0.000 (0.000)	-0.000 (0.000)	1.610 (1.957)
Head is college educated	0.051 (0.059)	-0.112 (0.125)	0.584 (1.845)	0.100 (0.058)*	-0.033 (0.062)	0.029 (0.278)	0.947 (1.573)	-0.175 (2.109)	3.392 (5.615)
Head has high school education	-0.004 (0.029)	-0.125 (0.061)**	-2.279 (0.931)**	0.040 (0.028)	0.004 (0.030)	0.017 (0.125)	-1.062 (0.783)	-1.051 (1.019)	2.333 (2.810)
Age of the mother	-0.004 (0.003)	-0.008 (0.006)	-0.028 (0.094)	-0.001 (0.003)	0.002 (0.003)	0.020 (0.013)	-0.095 (0.080)	0.017 (0.102)	-0.015 (0.294)
Age of the Father	-0.003 (0.003)	-0.001 (0.006)	-0.067 (0.092)	0.001 (0.003)	0.001 (0.003)	0.013 (0.014)	-0.022 (0.078)	0.199 (0.101)**	-0.140 (0.333)
Age of the oldest child	-0.007 (0.012)	-0.005 (0.025)	-0.112 (0.360)	-0.025 (0.011)**	-0.035 (0.012)***	-0.083 (0.108)	0.198 (0.311)	-0.551 (0.412)	-1.419 (1.684)
Oldest child age squared	0.002 (0.001)***	0.004 (0.001)**	0.038 (0.020)*	0.001 (0.001)	0.000 (0.001)	-0.001 (0.003)	0.016 (0.017)	-0.029 (0.024)	0.096 (0.057)
Constant	9.148 (0.218)***	8.421 (0.459)***	4.791 (6.174)	7.848 (0.214)***	7.042 (0.228)***	4.990 (2.904)	10.139 (5.630)*	-30.682 (8.583)***	20.306 (41.401)
Wald test of exogeneity	23.69 [0.000]	17.46 [0.000]	9.63 [0.008]	4.94 [0.084]	15.15 [0.001]	13.78 [0.003]	8.58 [0.014]	9.96 [0.007]	39.03 [0.00]
Observations	1652	1652	1652	1652	1652	1652	1652	1652	1652

Note: Standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 5: First Stage Regressions

Endogenous Regressor ->	There is a male child (Table 4)	Number of children (Table 4)	There is a male child (Table 6)	Number of children (Table 6)
Village sex ratio	0.270 (0.027)***	0.100 (0.057)*	0.163 (0.075)**	0.598 (0.058)***
Doctor in the village	0.049 (0.021)**	0.061 (0.050)	0.064 (0.077)	0.084 (0.047)*
Acreage of cultivated land	-7.42*10E-6 (3.84*10E-6)***	-1.51*10E-5 (3.37*10E-6)***	-1.33*10E-5 (5.42*10E-6)***	-2.09*10E-5 (5.70*10E-6)***
Village land per capita	1.46*10E-5 (1.20*10E-5)	1.17*10E-5 (1.05*10E-5)	1.14*10E-5 (1.57*10E-5)	2.36*10E-5 (1.65*10E-5)*
Wage income	-0.094 (0.044)**	-0.035 (0.038)	-0.126 (0.073)	-0.149 (0.071)**
Wage income squared	0.020 (0.019)	0.021 (0.012)	0.045 (0.035)	0.060 (0.037)*
Head is college educated	0.000 (0.037)	-0.011 (0.056)	-0.111 (0.079)	-0.020 (0.069)
Head has a high school education	0.009 (0.019)	-0.021 (0.036)	-0.002 (0.055)	-0.006 (0.038)
Age of the mother	-0.001 (0.002)	-0.005 (0.003)*	-0.012 (0.005)**	-0.005 (0.003)
Age of the Father	-0.005 (0.002)***	-0.007 (0.003)**	-0.008 (0.004)*	-0.007 (0.004)*
Age of the oldest child	0.028 (0.007)***	0.025 (0.012)**	0.086 (0.017)***	0.071 (0.013)***
Age of oldest child squared	-0.001 (8.5*10E-4)	0.002 (0.001)***	0.000 (0.001)	-0.001 (0.001)
Constant	0.161 (0.058)***	1.454 (0.111)***	1.365 (0.128)***	-0.147 (0.107)
First Stage F statistic	26.72 [0.00]	11.37 [0.00]	32.33 [0.00]	6.81 [0.00]
Observations	1652	1652	768	768
R-squared	0.52	0.34	0.35	0.35

Note: Robust standard errors in parentheses clustered at the village level. \*, \*\*, \*\*\* denote significant at 10% 5% 1%. Specifications include the full set of explanatory variable listed under the Table 3 listed in the first row as well as provincial indicators. The p-values from an F test of whether the coefficients on the full set of instruments are jointly equal to zero are presented in [].

Table 6A: Amemiya GLS Estimates of Factors Affecting Financial Activities in Households where First Child was Girl—Part 1

	Cash gifts made to friends and relatives	Cash gifts made to friends and relatives in rural areas	Expense on all financial transfers out of household	Loan Repayment Received	Gifts from friends and relatives that reside outside rural areas	All income from gifts and remittances	Income from all financial transfers into the household	Debt to Financial Cooperatives	Debt to rural organization and enterprises
There is a male child	1.121 (1.014)	6.256 (5.024)	1.095 (1.000)	0.489 (5.822)	12.704 (7.643)	3.737 (2.227)**	5.271 (2.255)***	5.975 (13.823)	9.445 (7.161)
Number of children	-4.790 (1.781)***	-5.396 (11.902)	-4.978 (1.755)***	-18.144 (9.822)**	4.613 (15.739)	11.344 (3.546)****	-9.455 (4.890)**	10.213 (23.035)	-19.164 (13.445)
Total income	7.414 (2.185)**	9.341 (17.098)	7.638 (2.156)**	12.026 (8.049)	0.938 (15.413)	10.757 (2.889)**	10.667 (3.338)**	102.049 (98.579)	-19.836 (18.359)
Total income squared	-3.865 (1.743)*	-16.761 (28.322)	-4.025 (1.721)*	-4.514 (6.153)	3.153 (10.299)	-7.096 (2.318)**	-6.944 (2.626)**	-448.327 (346.475)	7.342 (24.120)
Wage income	0.445 (0.679)	7.238 (3.969)	0.406 (0.670)	7.001 (2.598)**	10.190 (5.618)	1.694 (0.903)	-0.422 (1.027)	-8.151 (8.241)	-6.995 (5.024)
Wage income squared	-0.290 (0.339)	-4.573 (2.491)	-0.252 (0.334)	-1.463 (1.238)	-3.460 (2.893)	-0.670 (0.453)	0.077 (0.520)	5.351 (5.160)	3.376 (2.115)
Head is college educated	-0.867 (0.615)	4.241 (2.804)	-1.046 (0.606)*	0.125 (2.284)	0.905 (4.363)	0.409 (0.797)	-1.145 (0.991)	3.149 (6.252)	0.291 (3.661)
Head has a high school education	-0.285 (0.285)	0.023 (1.352)	-0.252 (0.281)	0.403 (1.036)	1.192 (1.969)	0.057 (0.370)	0.245 (0.434)	0.723 (2.821)	0.480 (1.987)
Age of the mother	-0.015 (0.033)	0.046 (0.152)	-0.008 (0.032)	0.377 (0.122)***	0.511 (0.252)**	0.108 (0.043)**	-0.004 (0.048)	-0.239 (0.378)	0.254 (0.203)
Age of the Father	-0.051 (0.028)*	-0.097 (0.137)	-0.040 (0.027)	0.110 (0.100)	-0.186 (0.223)	0.053 (0.036)	-0.016 (0.041)	0.239 (0.289)	-0.416 (0.208)*
Age of the oldest child	0.317 (0.154)**	-0.171 (1.122)	0.363 (0.152)**	-0.940 (0.591)	0.169 (1.314)	-0.483 (0.202)**	0.658 (0.362)	0.315 (2.178)	2.624 (1.401)
Age of oldest child squared	0.003 (0.005)	0.015 (0.031)	0.000 (0.005)	-0.030 (0.020)	-0.056 (0.042)	-0.000 (0.007)	-0.013 (0.010)	-0.062 (0.067)	-0.104 (0.044)*
Constant	10.205 (2.522)***	0.721 (17.505)	9.914 (2.487)***	-33.906 (10.254)***	-35.965 (22.791)	-5.815 (3.295)*	12.055 (5.645)*	-48.789 (30.295)	8.869 (20.134)
Wald test of exogeneity	15.87 [0.000]	14.65 [0.000]	20.96 [0.000]	10.20 [0.006]	5.02 [0.081]	14.92 [0.001]	10.20 [0.006]	6.18 [0.035]	9.91 [0.007]
Observations	768	768	768	768	768	768	768	768	768

Note: Standard errors in parentheses \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%



Table 6B: Amemiya GLS Estimates of Factors Affecting Financial Activities in Households where First Child was Girl—Part 2

	Total household expenditures	Household expenditures on family enterprises	Household expenditures on fixed-asset for productive activities	Household expenditures on consumption	Household expenditures on food	Household expenditures on medical care	End of term net amount of debt	End of term net debt to other individuals	Amount of money returned from loans
There is a male child	-0.103 (0.142)	0.623 (0.311)**	5.892 (4.344)	-0.292 (0.166)*	-0.417 (0.190)**	1.061 (0.688)	4.413 (4.292)	1.895 (5.273)	0.489 (5.822)
Number of children	-0.179 (0.249)	-1.152 (0.546)**	-9.789 (7.202)	0.630 (0.291)**	0.877 (0.334)***	-0.864 (1.676)	-16.167 (7.457)**	12.911 (9.875)	-18.144 (9.822)*
Total income	6.318 (0.311)**	8.423 (0.668)**	42.086 (8.634)**	3.811 (0.349)**	2.672 (0.405)**	4.398 (1.447)**	-6.541 (9.532)	4.833 (12.636)	56.848 (23.421)*
Total income squared	-2.627 (0.249)**	-3.594 (0.534)**	-22.634 (6.428)**	-2.061 (0.279)**	-1.377 (0.323)**	-2.661 (1.134)*	6.323 (7.302)	-9.145 (13.961)	-76.091 (41.771)
Wage income	-0.097 (0.097)	-1.366 (0.208)**	-10.024 (4.080)*	0.525 (0.108)**	0.365 (0.125)**	1.762 (0.445)**	-4.801 (3.135)	4.657 (3.967)	-1.272 (5.197)
Wage income squared	-0.023 (0.048)	0.083 (0.104)	-0.636 (3.217)	-0.132 (0.054)*	-0.050 (0.063)	-0.656 (0.225)**	-0.147 (1.693)	-2.859 (2.355)	-5.785 (3.962)
Head is college educated	-0.063 (0.086)	-0.355 (0.188)*	0.481 (2.463)	0.079 (0.100)	0.052 (0.116)	-0.288 (0.429)	-1.372 (2.591)	-1.044 (3.249)	0.845 (3.457)
Head has a high school education	-0.001 (0.040)	-0.085 (0.087)	-1.846 (1.275)	0.028 (0.046)	-0.019 (0.054)	-0.032 (0.188)	-1.674 (1.258)	-2.675 (1.499)*	1.532 (1.653)
Age of the mother	-0.003 (0.005)	-0.023 (0.010)**	-0.003 (0.142)	0.006 (0.005)	0.008 (0.006)	0.012 (0.021)	-0.165 (0.139)	0.175 (0.167)	-0.372 (0.195)*
Age of the Father	0.002 (0.004)	0.005 (0.008)	-0.042 (0.122)	0.005 (0.005)	-0.000 (0.005)	0.022 (0.018)	-0.029 (0.119)	0.289 (0.139)**	0.086 (0.151)
Age of the oldest child	0.007 (0.022)	0.054 (0.047)	0.174 (0.634)	-0.050 (0.025)**	-0.071 (0.029)**	0.021 (0.156)	1.710 (0.664)***	-1.475 (0.845)*	1.485 (0.885)*
Age of oldest child squared	0.001 (0.001)	0.000 (0.002)	0.014 (0.023)	0.001 (0.001)	0.001 (0.001)	-0.006 (0.004)	-0.030 (0.023)	0.001 (0.027)	-0.005 (0.031)
Constant	8.684 (0.353)***	8.656 (0.774)***	2.146 (10.092)	7.158 (0.412)***	6.596 (0.475)***	4.719 (2.433)	16.410 (10.553)	-32.235 (14.162)**	8.321 (13.980)
Wald test of exogeneity	1.83 [0.400]	6.21 [0.045]	2.65 [0.266]	6.09 [0.047]	10.24 [0.006]	13.64 [0.001]	9.43 [0.009]	5.89 [0.053]	9.91 [0.007]
Observations	768	768	768	768	768	768	768	768	768

Note: Standard errors in parentheses \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Table 7A: Amemiya GLS Estimates of Factors Affecting Financial Activities Accounting for Timing of Boys

	Cash gifts made to friends and relatives	Cash gifts made to friends and relatives in rural areas	Expense on all financial transfers out of household	Gifts from friends and relatives	Gifts from friends and relatives that reside outside rural areas	All income from gifts and remittances	Income from all financial transfers into the household	Debt to Financial Cooperatives	Debt to rural organization and enterprises
First child is male	1.710 (2.160)	-2.277 (2.778)	-2.191 (0.539)**	-11.391 (5.280)*	-0.670 (4.354)	2.796 (0.785)**	0.583 (0.916)	-13.462 (5.633)*	-8.670 (4.325)*
Later Child is Male	-2.608 (4.756)	5.276 (5.618)	-0.161 (1.191)	-20.080 (12.204)	6.449 (10.259)	2.686 (1.737)	4.834 (1.830)**	-15.337 (12.964)	9.099 (9.866)
Number of kids in the family	17.640 (4.675)**	2.367 (14.172)	-4.273 (1.051)**	-31.467 (9.366)**	19.121 (11.222)	5.903 (1.548)**	-10.811 (4.879)*	-37.385 (18.639)*	-19.845 (19.457)
Total income	7.406 (2.096)**	22.655 (14.923)	11.524 (17.161)	-0.961 (24.135)	14.756 (8.892)	8.720 (17.947)	12.092 (2.355)**	-17.401 (17.628)	-6.138 (22.822)
Total income squared	-3.684 (1.671)*	-45.854 (30.942)	-23.061 (27.652)	-3.910 (31.523)	-7.079 (6.856)	-3.125 (12.664)	-8.637 (2.268)**	14.160 (17.145)	-7.424 (49.891)
Wage income	0.546 (0.648)	4.393 (2.375)	6.497 (3.894)	-22.202 (8.003)**	7.506 (2.846)**	13.673 (6.441)*	-0.547 (0.559)	-9.885 (4.700)*	-0.521 (3.150)
Wage income squared	-0.235 (0.318)	-3.256 (1.522)*	-4.161 (2.442)	7.832 (3.684)*	-1.781 (1.338)	-4.436 (3.186)	0.407 (0.256)	1.894 (2.459)	0.781 (1.194)
Head is college educated	-0.887 (0.630)	3.257 (1.788)	4.091 (2.911)	1.215 (5.818)	1.665 (2.772)	4.540 (5.588)	0.026 (0.627)	0.526 (4.455)	1.303 (2.891)
Head has a high school education	0.819 (0.771)	-0.299 (0.905)	-0.136 (0.195)	-0.634 (1.982)	2.135 (1.541)	0.299 (0.282)	0.112 (0.282)	0.760 (2.133)	-1.681 (1.659)
Age of the mother	0.224 (0.078)**	0.124 (0.093)	-0.004 (0.020)	-0.418 (0.225)	0.409 (0.151)**	0.061 (0.029)*	0.014 (0.029)	-0.325 (0.239)	0.175 (0.163)
Age of the Father	0.134 (0.077)	-0.176 (0.101)	-0.067 (0.020)**	-0.341 (0.212)	0.078 (0.154)	0.084 (0.029)**	0.005 (0.030)	-0.013 (0.213)	-0.231 (0.169)
Age of the oldest child	-0.364 (0.312)	-0.002 (0.019)	0.047 (0.079)	0.963 (0.776)	-0.289 (0.652)	-0.323 (0.115)**	0.002 (0.006)	2.847 (1.234)*	-0.056 (0.032)
Constant	-34.246 (6.702)**	-16.754 (22.364)	11.704 (1.486)**	43.004 (13.382)**	-54.568 (16.443)**	-8.590 (2.189)**	16.798 (7.597)*	54.697 (28.084)+	4.909 (30.913)
Wald test of exogeneity	24.32 [0.00]	18.91 [0.00]	48.31 [0.000]	54.80 [0.000]	8.43 [0.038]	64.29 [0.000]	12.11 [0.00]	19.85 [0.000]	9.92 [0.021]
Observations	1652	1652	1652	1652	1652	1652	1652	1652	1652

Note: Standard errors in parentheses \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Table 7B: Amemiya GLS Estimates of Factors Affecting Financial Activities Accounting for Timing of Boys—Part 2

	Total household expenditures	Household expenditures on family enterprises	Household expenditures on fixed-asset for productive activities	Household expenditures on consumption	Household expenditures on food	Household expenditures on medical care	End of term net amount of debt	End of term net debt to other individuals	Amount of money returned from loans
First child is male	-0.277 (0.082)**	0.205 (0.169)	-0.604 (2.412)	-0.097 (0.078)	-0.095 (0.081)	-0.490 (0.416)	-7.089 (2.111)**	5.926 (2.870)*	-1.240 (3.567)
Later Child is Male	-0.480 (0.180)**	0.632 (0.374)	10.782 (5.711)	-0.362 (0.171)*	-0.479 (0.177)**	1.303 (0.827)	-1.122 (4.748)	4.854 (6.226)	-7.592 (7.843)
Number of kids in the family	-0.293 (0.159)	-1.152 (0.331)**	-12.670 (4.572)**	0.299 (0.151)*	0.535 (0.156)**	-1.391 (2.201)	-7.721 (4.116)	13.169 (6.017)*	-22.038 (6.487)**
Total income	58.700 (24.153)*	8.197 (0.678)**	41.929 (8.224)**	3.852 (0.386)**	2.697 (0.485)**	5.133 (1.068)**	-3.262 (8.715)	6.871 (13.115)	-47.568 (36.006)
Total income squared	-80.257 (42.507)	-3.424 (0.541)**	-22.617 (6.077)**	-2.136 (0.309)**	-1.460 (0.387)**	-3.362 (1.020)**	4.951 (6.617)	-10.940 (16.491)	38.320 (23.654)
Wage income	-1.706 (5.320)	-1.368 (0.209)**	-9.184 (3.859)*	0.559 (0.119)**	0.412 (0.149)**	1.058 (0.255)**	-3.767 (2.884)	3.482 (3.793)	-8.188 (12.218)
Wage income squared	-5.299 (3.951)	0.091 (0.103)	-0.258 (2.974)	-0.152 (0.059)**	-0.077 (0.074)	-0.197 (0.117)	-0.023 (1.555)	-2.726 (2.199)	2.061 (6.647)
Head is college educated	0.051 (0.061)	-0.116 (0.126)	0.528 (1.846)	0.099 (0.058)	-0.035 (0.060)	-0.006 (0.285)	0.876 (1.596)	-0.194 (2.135)	0.013 (9.681)
Head has a high school education	0.001 (0.029)	-0.123 (0.061)*	-2.292 (0.936)*	0.040 (0.028)	0.002 (0.029)	-0.032 (0.128)	-1.116 (0.793)	-1.163 (1.029)	0.769 (1.277)
Age of the mother	-0.004 (0.003)	-0.009 (0.006)	-0.023 (0.094)	-0.001 (0.003)	0.002 (0.003)	0.021 (0.013)	-0.084 (0.081)	0.015 (0.103)	-0.275 (0.134)*
Age of the Father	-0.004 (0.003)	-0.001 (0.006)	-0.089 (0.092)	0.001 (0.003)	0.001 (0.003)	0.002 (0.014)	-0.042 (0.080)	0.233 (0.103)*	-0.037 (0.125)
Age of the oldest child	-0.004 (0.012)	-0.009 (0.025)	-0.060 (0.363)	-0.026 (0.011)*	-0.037 (0.012)**	-0.000 (0.003)	0.290 (0.315)	-0.651 (0.417)	1.054 (0.528)*
Constant	9.142 (0.225)**	8.346 (0.467)**	6.324 (6.340)	7.877 (0.214)**	7.105 (0.222)**	6.292 (3.430)	12.085 (5.764)*	-31.960 (8.733)**	15.120 (9.179)
Wald test of exogeneity	25.55 [0.000]	21.74 [0.000]	9.73 [0.021]	5.43 [0.143]	16.85 [0.001]	13.32 [0.00]	16.04 [0.001]	10.52 [0.015]	44.34 [0.000]
Observations	1652	1652	1652	1652	1652	1652	1652	1652	1652

Note: Standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%