

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 offspring gender structure, on household financial activities. We develop theoretical channels that endogeneously 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 endogenous fertility and sex selection, we present strong evidence that having a son significantly increases both the amounts that a family will loan or give to relatives as well as increase the amounts of gifts they receive from others. Having a son increases the amount of gifts received from others by over 50% 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 Weerdt 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, exogeneous negative or differing income, debt or asset levels are no longer required to generate network-based lending and borrowings.

Although rare in rural finance,¹ the aforementioned heterogeneity is often studied in many streams of development economic literature. Researchers have reported significant gender differences in consumption and human capital investment patterns of families with boys versus girls as

¹The 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.

well as within families (Jacoby 1994; Doelalikar and Rose 1998; Behrman, 1988 1992 1998; Rose, 2000; Chowdury and Bairagi 1990; Das Gupta 1987; Kishor 1993; Muhuri and Preston 1991). If families with girls consume and purchase education differently from families with boys, one might reasonably expect families of different offspring structures also vary in their financial activities in formal and informal networks. 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 boy over a girl.

Children in China are viewed by many parents as the most important contributor 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 over parents' lifetime. This paper bases its primary analysis on the increased incentives to make intergenerational investments when the family starts to have son.

The son preference, however, is not 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) 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 but more prominently results in sex selection in fertility.² There is a rich literature in demography documenting sex selection in developing countries, especially in East Asia (Chu 2001; Hull, 1990; Banister 2004; Kim 2005; Murphy 2003; Yi et al. 1993; Johnson 1996). 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 (Chu 2001; Murphy, 2003; Yi, et al., 1993; Johnson, 1996; Ebenstein 2008). Thus the main empirical challenge of this paper is to properly account for the possibility of sex selection for 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.³ 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 social

²Sen (1990) is a well cited reference that documents the high ratios of males to females in China and concerns it generates.

³Cameron 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.

reasons to favour sons. Non-pecuniary incentives may make parents invest more into a son even when he is not expected to deliver more monetary benefit to parents compared to a daughter. We prefer the economic explanation not only because we believe it is the more important mechanism when it comes to household heterogeneity in rural finance in China but also is due to its capability of producing empirically testable predictions.

This paper is organized as follows. Section 2 provides an overview of the prominent culture, institution and fertility history of rural China and a review of the literature on rural finance and sex selective fertility. The data is described in Section 3. In Section 4 we state the theoretical mechanism and empirical hypotheses before presenting and discussing the empirical results. We present strong evidence that having a boy increases both the amounts that a family will transfer outside and to relatives as well as increase the amounts they receive from these sources. Not only are they 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 one receive a 50% premium. We also present evidence that these family structure variables should not be treated as exogenous and that the results are incredibly robust to a number of criteria used for sample construction, accounting for alternative selection biases and specification. Section 5 is the concluding section.

1.1 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 household 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 timing of shocks that household 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.⁴ There is also mounting evidence that the credit, gifts, and other economic transactions provide insurance for social network members.⁵ 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 research program by investigating the impact of an accurately observed and important shock to rural families - the arrival of a son.

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

⁴For 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).

⁵For 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.

for support in old age (sometimes a son of a specific birth order), not daughters.⁶ 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.⁷ 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.⁸

Any discussion of sex-selective abortion and fertility in China must make mention of China's one-child policy.⁹ 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 and Spencer, 1992; Ahn, 1994).¹⁰ 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

⁶A partial list of studies providing evidence of strong son preference in Asia includes Haughton and Haughton, 1995; Pong, 1994; Larsen et al., 1998.

⁷She 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.

⁸Many 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).

⁹Because 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).

¹⁰There 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.

contracts in the form of fiscal rewards for fulfilling birth targets, and heavy penalties for falling short (Hardee-Cleaveland and Banister, 1988; Short and Zhai, 1998). Moreover, government officials may be demoted for allowing too many above-quota births in their community, which means that they will lose all future income and other benefits that are associated with government positions. As there are fines for having additional children, the implementation of the one child policy encourages the use of sex selective abortions and thus could potentially increase the probability of having a son, given that a family is having a child.¹¹ Factors that have been hypothesized to be linked to explain the local variation in enforcement and these include the overall sex ratio in the village, presence of a doctor or health clinic, land size and overall population. The presence of a doctor or clinic increases the likelihood that one can test for child gender in utero, whereas the other factors are related to the degree in which the local official feels that he will be punished by the center.¹² Gu et al. (2007) discuss factors that impact the heterogeneity in fines to families across regions which include provincial regulations, ethnic composition, and the share of parents with urban registration.

Offspring structure has been shown to affect consumption, saving and investment decisions within families,¹³ and multiple researchers have concluded that gender bias is particularly acute

¹¹In the early 1980s, officials sent portable ultrasound machines to hundreds of cities in China that were later used for sex selective abortion (Ertfelt 2006).

¹²Wang (2006) provides evidence that cultivable land increases the probability a family would have a boy to later provide labor.

¹³Jacoby (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.

in South Asia (Behrman, 1988, 1992, 1998; Rose, 2000). However, to the best of our knowledge no one investigated if there are significant links between activities in formal and informal finance and fertility patterns. We next describe our unique data set that permits us to conduct such an investigation in rural China.

2 Data

This paper uses data primarily from the 2003 National Rural Household Survey (2003RHS). This is a cross-sectional survey conducted by the Rural Survey Team of the National Bureau of Statistics (RSTNBS) for the Ministry of Agriculture. It matches information collected from surveys on up to 9 household members in 300 rural Chinese villages with detailed village level information as provided from interviews with local officials via a series of questionnaires administered in the preceding calendar year. The 2003RHS 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 RSTNBS adopted a four-step stratifying approach towards sampling. First, 10 of China's 31 provinces were selected.¹⁴ Within these provinces, RSTNBS randomly selected 3 counties or county level districts based on economic development levels. From each of these 30 counties, 10 villages were then selected at random. Using a household roster for each village, the RSTNBS 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 study. The RSTNBS conducted a single interview with each household in either February or March

¹⁴They include Jilin, Liaoning and Heilongjiang Province representing the north-east of China, Shandong and Jiangsu Province reflect the wealthier coastal region, Henan, Anhui, Hubei and Hebei Province are all located in central China, and lastly the Sichuan Province is located in western China

of 2003. During this interview, a ten page questionnaire was read to the household head whose responses were immediately recorded.¹⁵ Responses to the questionnaire provided information on the composition of the household, incomes, expenditures, lending, borrowings, and entrepreneurial activities. The 2003RHS 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 16 years of age (we investigate the robustness of our results to alternative age cutoffs such as 18 and 20). In three generation and above families, children refer to the youngest generation household members. Several reasons compel us to restrict the sample this way. First, it is common in rural China for parents to report the spouses of their children as offspring. That is, if a household head is 46 years old and claims that the 22 year old male and 21 year old female residing in the house are his son and daughter, the daughter could very well in fact be his daughter-in-law. The data provides no information that can separate the daughters from daughter-in-laws or the grand daughters from grand daughter-in-laws. This data shortcoming 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. Second, 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 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 structure once families have adult children. Given the

¹⁵Due to illiteracy issue and lack of phone communication issue all of the data was collected by interviews within the home. A selected household was visited successively until the interview could occur, explaining the high compliance rate.

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 (≤ 16) for the eldest child although most marriages occur after age 20 for both girls and boys in rural China in 2003.

Table 1 presents summary information on several of the variables that we will use in our analysis. Notice that each household contains at least one child and the average number of children is 1.52 and on average there is 0.84 male in the home. Slightly over one quarter of the households do not have a male child. While 70% of the families consist of two generations and less than a quarter of parents have high school education. The village sex ratio of first-borns is 117.44:100 but among our households with younger children it is much lower at 107.02:100.¹⁶ Similarly, there is substantial heterogeneity in the myriad of measures of financial activities but none of the rates appear to deviate from other studies. Lastly, most of the villages are small in size (with a population exceeding 1750 on average and in roughly 15% of these villages there is not a doctor.

3 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 typical 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"

¹⁶This is consistent with evidence from the 2000 Chinese census which reflects that for parents bearing children in 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.

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 future productivity.¹⁷ That is, the greater the gap in filial obligations between a son and a daughter set by a society, the greater the gap in investment parents would place on children of different genders. The advantage of this mechanism based on parents' pecuniary incentives is that it is sensitive to a series of market prices, 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. Faced with increased incentives to invest in a son's physical capital (the land and equipments he will possess), human capital (education) and social capital (social network with lending and gift exchange) that can increase his future productivity, parents will engage deeper in a variety of financial activities than if they had a daughter.

Obviously economic rationale is not the only reason why parents may favor sons over daughters. Cultural and social reasons abound. For example, if we assume that parents value their legacy,

¹⁷In 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.

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 is of a specific type: it increases when more investment into a child's future productivity is made and there is no obviously better way to increase it, than through increasing investment in one's children. For example, if parents value carrying on the family name and only sons are socially permissible to do so, it does not necessarily make parents invest more into sons. Having more sons and making sure they get married promptly may dominate investing heavily into the existing son's future productivity. Setting up a foundation or building a museum or library may also be preferred by parents for their valuation of some legacy. Thus cultural preferences towards sons do not guarantee differential investments by parents. Moreover, the hypothesis that parental non-pecuniary incentives are driving gender differential investments fosters fewer refutable predictions than one based on economic incentives, since they are not as sensitive to changes in market conditions. Although we can not clearly identify pecuniary reasons with cross-sectional data for favoring sons, we believe our results favor the pecuniary explanations.

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 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.

We have focused thus far on individual households. In network-based rural finance, households both demand and supply funds to each other, so something has to be said at the equilibrium level. Our mechanism has postulated that compared to a family with a daughter, *ceteris paribus*, a family with a son demands more credit due to stronger incentive to invest in a son's future earnings through

building physical capital and human capital for the son and supplies more credit and reciprocal gifts to other households to help building 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. In a separate 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.

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. 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. The first two columns compare two-daughter nuclear families with two-son nuclear families; the next two columns are daughter-first-son-second and son-first-daughter-second families. Notice that there is substantial heterogeneity in financial activity by offspring gender structure. On average, families with two boys receive significantly more funds from urban relatives, transfer more money out, and spend more money on both investment in the family business and non-consumption items but significantly pay back less money overall as well as to cooperatives. 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.

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 . 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. (Control: Liquid assets are included in the specification because they can be used to finance consumption instead of borrowing.)

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

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 ε_i is also censored, as $\varepsilon_i = \varepsilon_i^* \text{ if } Y_i = Y_i^*$, and $\varepsilon_i = 0 - X_i\beta - X_c\gamma \text{ if } Y_i = 0$.

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.¹⁸ This approach is commonly known 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 variables of interest capture dimensions of family structure that are likely to be endogenous in the sense that they reflect behavioral decisions as to whether the parents should have a (an additional) child and whether to engage in sex selective abortions. If parents who exercise

¹⁸It 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).

strong son preferences that results in more children and more sons also tend to borrow more, the effect of having a son on family borrowing is likely to be overestimated. This endogeneity presents the second empirical hurdle.¹⁹

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 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 .²⁰ 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 in the second stage equation. 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 estimates of the structural parameters ■ and coefficients from Tobit estimates of the reduced form model of equation (1). This estimator is equivalent to the Minimum χ^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.

¹⁹This 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. An alternative empirical approach is proposed in Hong and Tamer (2003) that extended the “censored LAD” estimator proposed in Power (1984) to accommodate endogenous regressors.

²⁰To serve as an instrument in this setting, we require the usual conditions that the instruments are correlated with the endogenous regressors and that $E(\varepsilon_i^*|Wi) = 0$.

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.²¹ 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 well, as well as the intensity of implementation of 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 things. 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 from upper government.

In the raw data we see that having a girl first does indeed significantly increase the likelihood that a family will attempt to have an additional child (one-sided t-test, odds ratio=). In addition conditional on having two girls one is significantly more likely to have a third child. In Table 3 we 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 child gender and the full specification is jointly insignificant at the 15% level. The relationship between a second child being male (assuming exogenous decisions to have 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 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

²¹A 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).

a family has a male child and number of children should be treated as endogenous in estimating equation (2). They further demonstrate that the theory underlying our selection of instruments has support.

3.1 Results

Our baseline specification consists of regressing the log 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.

Table 4 presents Amemiya GLS coefficients from this regression. Notice that there is a positive and statistically significant relationship between transferring funds outside the household, donations to relatives as well as amount of income transferred to the household. 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. Surprisingly, *ceteris paribus* they spend less funds on living expenses and food. Taken together, this indicates 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 not that surprising. Larger families spend less on assets, investing in the family business and significantly more on consumption and food. Larger families are less likely to receive funds from a bank or transfer funds outside of the household and rely more heavily on donations from relatives. Larger families *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 other or receiving funds from other but if that extra child is a boy the impact is 40-67% of the size. While income has impacts on financial activities, parental education and age have very few significant impacts indicating that the only demographic characteristics that seem to have significant relationships are related to the the size and gender composition of the children.²²

The second to last row of the Table 4 contains a Wald test of the exogeneity of the instrumented variables in equation (2). 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 are presented in table 5. Notice that all the instruments are statistically significant 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 the full set of instruments from a linear regression are in all cases significantly greater than commonly used cut-offs for weak instruments.

We next check for 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

²²The 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 but only the number of children and whether or not a boy entered in most specifications in a statistically significant manner and maintained a consistent quantitative and qualitative pattern.

statistic with degrees of freedom equal to the number of extra instruments. The p-value of a chi-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 (2) 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, donations received from relatives outside increase markedly (significant at the 15% 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 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 subsample of families with two children. In doing so we are particularly interested in understanding within families that have one son and one daughter is there any difference in their financial activities based on whether the daughter arrives before or after the son. Or more vaguely the earlier 1st daughter is on birth order the better the

family treats her.

The 1st son phenomena of borrowing, saving and lending rests less on the 1st child being a son versus daughter but on the effect of having 1st boy not as the 1st child. That is, a family that has two daughters differ a lot from a family that has 1st child daughter 2nd child son. The counterfactual of the 2nd on child being the 1st son is driving the differences in outcome. I hope my memory serves this right, but I remember that if your second child is the first son (versus second daughter); the difference is more prominent than if your first child is the first son (versus first daughter). If the above is correct, that is, first daughters are treated better than younger daughters; we could have the flip side of our 1st boy story to see if there is an oldest daughter story. In this case, consider two types of families with one son and one daughter. If the daughter is older than son, the daughter might get invested more “like a son” in human capital because parents may reap more benefit from her education than if the daughter is younger than son. She might also get treated “like a son” in her social status since she has contributed a lot to the family: taking care of younger siblings, working to support younger siblings, her dowry goes to finance son’s marriage and she might keep supporting the younger siblings after her marriage. So the family needs to reward her for her “sacrifices” partially by making her having more say in family life. If the daughter is at least 3-4 years younger than the son (that means birth spacing may need to be included and IV-ed), due to the timing, she cannot make as much contribution as an older daughter so she is not as “useful” as the older daughter. THUS, we might see significant difference in outcomes of oldest daughters versus younger ones. Part 2, if carried out as planned, can help to strengthen the findings for 1st son story.

To investigate these additional hypotheses we estimate a variant of equation 2 on the subsample of families that have two kids. That is our endogenous family structure variable are now the number of males in the household and whether the oldest child is male. We also consider a more general relationship of indicators for whether the first child was a male, the second child was male and an

interaction term The results are presented in Table 7. In this sample, we see that having a boy first leads to significantly larger donations received but actually reduces the amount of donations paid to relatives. Similarly, these families receive substantially more funds and transfer less funds out. Having an additional boy has very limited impacts on these activities. Most surprising, is that if the eldest child is male there is significantly less investment in agricultural activities but more on consumption expense and food. This indicates that when having a boy impacts financial activities it does so differently based on birth order. In particular, it could be that in families with only one child where the child is male substantial investments are made in family businesses and agriculture but when there are added children parents invest heavily in the child's education and receive large funds. Yet, if the family does not make these investments in their first child, in subsequent children particularly males they decide to focus more on maintaining an agricultural life. It could be that those results in Table 5 were driven by regions and villages with low enforcement where agriculture is more important as well. Yet, despite the heterogeneity in the relationships a factor remains clear from these results is that having a son has substantial significant impacts on a households' financial activities.

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3.2 Robustness checks

Our empirical results present strong evidence on how family structure affects financial activity in rural China. We conducted six different exercises to verify the empirical validity of our results. We first replicated our entire analysis using alternative cut-offs 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 16 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 exercises 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. The relatively elderly householders have relatively short saving times and less borrowing capacity. 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 less than 50 (174 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 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. The transfers recorded in the survey may have been received by a parent living in the extended family, and may have affected their home purchase decision while being totally unrelated to the decision of the younger household head. We checked the sensitivity of the estimates when the extended families are dropped from the sample. The effect family structure variables on financial activity for nuclear families are similar to those obtained in the full sample estimates. These robustness checks increase our confidence that having a boy in rural China does indeed impact financial decision making.

4 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 that there theoretical channels which endogeneously 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 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, more willing to give to others to build up the families' 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 gender variables also reflect behavioural decisions we must correct for the endogeneity of their variables, in addition deal 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 outside and to 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 50% 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. 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 and donors 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, that 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 heterogeneity in these activities. Yet, many other questions remain in understanding exactly which dimensions do parents alter their financial activities based on having a son. For example, in response to offspring gender is there heterogeneity in, the organizational form of the informal finance, mechanism of interest rate formation and the extent of credit constraints, *ceteris paribus*. We hope to address these questions in future research.

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Table 1: Summary statistics

Variable	Mean	Standard Deviation
Number of boys in family	0.8438	0.6007
Number of household Members	4.0938	1.0083
Second Child is Male	0.2718	0.445
Village sex ratio of first born children	0.5872	0.2809
Land per population in village	2.2036	3.7054
Whether there is any doctor in the village	0.8257	0.3795
Acreage of cultivated land	3377.474	3080.957
Number of population in the village	1768.901	915.5011
The First child is a boy	0.5351	0.4989
Total household income	14599.65	10677.77
Household head is a Business operator	0.0442	0.2056
Household head is a Cadre (officer)	0.0599	0.2374
Household head is a Business operator and cadre	0.0097	0.098
Household head is a Wubaohu	0.0018	0.0426
Household head is a Pluralizing two kinds of activities	0.2875	0.4527
Household head has other occupation	0.1023	0.3031
Wage income	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
Donation to relatives	5.1231	2.2788
Expense on transfer (money transferring out to somewhere else)	5.3714	2.1532
Informal credit (money borrowed from others)	1.8561	3.2351
Loan borrowed from rural financial co-op	0.5419	1.9825
Donation by relatives	1.2516	2.3926
donation by relatives outside rural areas	0.2731	1.2397
Transferred income	3.7891	2.5687
Bank loan	0.1684	1.1126
Returned money from borrowers	0.9927	2.5417
Total expense	9.2403	0.6202
Expense on family business	7.5879	1.1143
Expense on purchasing productive fixed-asset	1.1224	2.5475
Consumption and Living expenses	8.6745	0.5439
living expense on food	7.94	0.4844
Expense on assets	0.680	1.8265
Total amount of debt	2.0984	3.4644
Debt to other individuals	1.3719	2.9386
Total value of Financial asset	7.9974	1.6284
Observations	1652	

Table 2: Comparing Financial Activities of **Nuclear** Households who have two Children on the basis of the sex ratio and birth order of their Children

Variable	Two Boys	Two Girls	Mixed Boy First	Mixed Girl First
Expense on family business	3750.48 (5922.741)	3336.621 (4490.08)	2889.382 (3262.512)	4134.751 (12726.45)
Agriculture	1792.191 (2249.531)	2020.67 (3356.454)	1683.654 (1919.744)	1664.057 (2197.305)
Expense on agricultural machine	90.3487 (121.9032)	62.6893 (114.2841)	89.4926 (123.8124)	74.6717 (122.4065)
Family business expense on construction	27.3224 (294.5291)	18.8641 (108.5699)	21.3088 (221.2624)	16.7925 (261.8189)
Family business expense on communication and transportation	66.0066 (358.8264)	172.0097 (1276.763)	58.1029 (437.6403)	113.3434 (658.299)
Expense on purchasing productive fixed-asset	409.1908 (1735.57)	233.5146 (929.2378)	375.7426 (1338.653)	414.4226 (1451.644)
Depreciation of productive fixed-asset	335.7368 (386.6632)	306.8447 (451.5708)	374.7353 (522.0383)	314.1358 (407.6941)
Expense on tax and charge	375.2697 (402.6457)	409.2718 (330.5049)	535.1029 (711.6471)	444.434 (549.3395)
Tote of village	10.75 (46.301)	32.3689 (95.1925)	27.4485 (108.708)	36.3698 (160.7434)
charges for the regulation of town government	13.4605 (58.2289)	8 (32.5898)	16.5441 (68.0357)	23.3283 (96.1257)
Other charges for running family business	20.2237 (77.0731)	51.5534 (133.5607)	98.1691 (388.0308)	39.5585 (121.2013)
living expenses (Consumption expense)	7024.632 (6283.19)	6813.816 (5466.574)	7271.735 (4765.097)	6785.77 (4932.11)
living expense on food	3090.77 (1417.369)	2929.806 (1350.103)	3039.654 (1405.237)	2963.993 (1467.628)
expense on clothes	411.1579 (292.2878)	557.4563 (670.2485)	512.9191 (663.9853)	455.4868 (356.5788)
expense on residence	1249.717 (4721.94)	1049.291 (4108.256)	1024.706 (2231.446)	1097.687 (3288.617)
Living expense: decoration on house	21.1776 (134.1489)	228.6505 (1764.27)	19.1324 (105.6391)	71.6906 (694.7097)
Expense on household equipment and services	226.5789 (220.6619)	259.534 (282.9081)	320.3235 (574.782)	248.8943 (241.0651)
Expense on Medical care	539.8224 (2448.703)	366.6796 (513.3196)	350.8456 (548.8389)	414.9472 (782.9059)
Expense on assets	94.8355 (462.3229)	57.9709 (283.0595)	27.1397 (209.821)	131.9623 (791.459)
Expense on interest of loan used for non-production activities	6.7171 (56.8828)	1.2913 (13.1049)	19.0809 (206.0507)	2.5057 (22.872)
Living expense on others	88.1184 (460.107)	56.6796 (283.0172)	8.0588 (43.333)	129.4566 (791.5241)
Expense on transfer (money transferring out to somewhere else)	754.3289 (2949.042)	551.1068 (635.7213)	853.3456 (1613.202)	698.1849 (1069.632)

money Transfer to non-household members	18.9868 (97.4968)	9.5146 (68.4967)	73.5882 (626.804)	12.3057 (107.4292)
Donation to relatives	425.5921 (496.2672)	500.6505 (587.2349)	573.1324 (751.0283)	542.2415 (662.0471)
Donation to relatives outside rural areas	13.9934 (61.0149)	16.7961 (88.0532)	31.9559 (126.5511)	26.5962 (133.3377)
Expense on insurance premium	5.1184 (17.4837)	30.7087 (174.4875)	39.9118 (209.7747)	27.9962 (163.5454)
Expense on penalty	.0066 (.0811)	0 (0)	0 (0)	27.8491 (371.0156)
money transferring out on other stuff	304.625 (2926.282)	10.233 (40.3184)	166.7132 (1018.314)	87.7925 (713.9063)
Cash payout for non-consumption	2183.303 (4404.412)	2292.602 (5100.132)	1981.427 (4795.698)	2347.109 (6633.599)
Loan paid back to bank	73.7961 (545.437)	0 (0)	12.8676 (150.0613)	88.4717 (800.7993)
Loan paid back to financial co-op	57.0395 (673.6889)	290.1165 (1321.399)	87.0588 (421.9077)	63.9623 (465.9559)
Money lent out	292.0724 (1321.502)	105.8932 (433.8301)	94.4853 (543.1374)	232.0755 (1075.893)
Money paid back	462.2763 (1372.165)	672.2913 (2042.303)	395.9118 (1440.578)	430.5396 (1419.167)
Cash saved in the financial co-op	859.5329 (3202.216)	936.8932 (3635.123)	1015.809 (3960.582)	1361.509 (6293.144)
Expense on investment	43.8487 (540.6029)	1 (10.1489)	0 (0)	1.9623 (17.1203)
Transferred income	356.9276 (982.0541)	411.3883 (1435.054)	435.1838 (1168.839)	356.3623 (967.0812)
Income from selling food	2192.947 (3141.286)	2274.563 (3700.081)	2264.809 (3582.296)	1987.215 (2976.021)
Donation by relatives	68 (323.9023)	164.0777 (969.4039)	192.8162 (870.4199)	127.6528 (505.4532)
donation by relatives outside rural areas	5.7039 (32.7001)	4.466 (28.6537)	20.9559 (146.1776)	47.9245 (254.979)
Observations	152	103	136	265

Note: Each cell contains the mean activity in Rmb 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
Business operator	0.012 (0.059)	0.102 (0.095)	0.034 (0.085)	-0.070 (0.153)
Cadre (officer)	0.075 (0.063)	0.079 (0.071)	-0.008 (0.071)	0.053 (0.091)
Business operator and cadre	-0.241 (0.113)*	-0.284 (0.152)	-0.007 (0.169)	-0.022 (0.235)
Wubaohu	0.153 (0.276)	0.001 (0.275)	0.406 (0.054)**	0.430 (0.131)**
Pluralizing two kinds of activities	-0.010 (0.032)	0.043 (0.061)	0.024 (0.042)	-0.032 (0.106)
other type of household	-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 sq	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)
agekid1	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)*
Fixed Effects Included	No	Yes	No	Yes
F test on joint significance of explanatory variables				
Observations	1652	1652	756	756
R-squared	0.01	0.18	0.02	0.29

Note: Specification also include . Robust standard errors in parentheses. * significant at 5%; ** significant at 1%.

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

	Donation to relatives	Expense on transfer	Informal credit (money borrowed from others)	Loan borrowed from rural financial co-op	Donation by relatives	donation by relatives outside rural areas	Transferred income	Bank loan	Returned money from borrowers
There is a male child	2.407 (1.251)*	2.720 (1.160)**	-4.820 (4.816)	-4.635 (11.341)	-3.490 (5.003)	15.078 (10.837)	2.982 (1.780)*	23.358 (17.562)	0.130 (7.835)
Number of children	-5.042 (1.110)***	-4.812 (1.030)***	-8.023 (4.092)**	-35.287 (9.353)***	17.934 (4.847)***	15.568 (11.471)	5.772 (1.596)***	-16.897 (14.592)	-25.534 (6.624)***
Total income	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)*	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)***	-0.000 (0.000)	0.000 (0.000)**
Total income squared	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)***	0.000 (0.000)	-0.000 (0.000)*
Wage income	-0.000 (0.000)	0.000 (0.000)	-0.001 (0.000)***	-0.001 (0.000)***	0.000 (0.000)***	0.001 (0.000)***	0.000 (0.000)	-0.001 (0.001)	-0.001 (0.000)***
Wage income squared	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)**	-0.000 (0.000)	-0.000 (0.000)*	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)**
Head is college educated	0.257 (0.409)	0.201 (0.380)	3.226 (1.520)**	2.110 (3.783)	-0.421 (1.609)	2.743 (2.948)	0.454 (0.579)	4.018 (5.134)	2.848 (2.487)
Head has a high school education	-0.166 (0.199)	-0.144 (0.185)	-0.433 (0.786)	-1.234 (1.940)	0.912 (0.772)	2.287 (1.526)	0.318 (0.281)	1.902 (2.702)	0.482 (1.262)
Age of the mother	-0.010 (0.021)	-0.006 (0.019)	-0.072 (0.080)	-0.398 (0.221)*	0.217 (0.078)***	0.373 (0.148)**	0.060 (0.029)**	-0.019 (0.270)	-0.263 (0.134)**
Age of the Father	-0.055 (0.020)***	-0.041 (0.019)**	-0.063 (0.078)	-0.304 (0.208)	0.131 (0.077)*	0.089 (0.151)	0.080 (0.029)***	-0.218 (0.293)	-0.039 (0.124)
Age of the oldest child	-0.021 (0.080)	-0.016 (0.075)	0.112 (0.311)	0.639 (0.750)	-0.366 (0.312)	-0.523 (0.651)	-0.329 (0.114)***	-2.105 (1.102)*	1.052 (0.521)**
Age of oldest child squared	0.017 (0.005)***	0.015 (0.004)***	0.030 (0.017)*	0.108 (0.042)***	-0.058 (0.019)***	-0.056 (0.041)	-0.012 (0.007)*	0.136 (0.064)**	0.039 (0.029)
Constant	11.522 (1.503)***	10.740 (1.396)***	10.412 (5.546)*	46.393 (12.845)***	-35.154 (6.670)***	-55.015 (16.484)***	-8.486 (2.167)***	-0.332 (19.898)	21.679 (8.899)**
Wald test of exogeneity									
Observations	1652	1652	1652	1652	1652	1652	1652	1652	1652

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

	Total expense	Expense on family business	Expense on productive fixed-asset	living expenses (Consumption expense)	living expense on food	Expense on assets	Total amount of debt	Debt to other individuals	final value of Financial asset
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)***	3.499 (4.869)	0.435 (4.758)	2.149 (6.426)	-0.967 (0.595)
Number of children	-0.333 (0.161)**	-1.135 (0.339)***	-12.456 (4.626)***	0.324 (0.158)**	0.601 (0.168)***	-12.773 (4.132)***	-7.932 (4.170)*	13.280 (6.166)**	0.997 (0.529)*
Total income	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)**	0.000 (0.000)	0.000 (0.000)*	0.000 (0.000)***
Total income squared	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)***
Wage income	-0.000 (0.000)**	-0.000 (0.000)***	-0.001 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	-0.000 (0.000)**	-0.001 (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)**	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)*
Head is college educated	0.051 (0.059)	-0.112 (0.125)	0.584 (1.845)	0.100 (0.058)*	-0.033 (0.062)	0.404 (1.590)	0.947 (1.573)	-0.175 (2.109)	0.030 (0.195)
Head has a high school education	-0.004 (0.029)	-0.125 (0.061)**	-2.279 (0.931)**	0.040 (0.028)	0.004 (0.030)	-0.612 (0.798)	-1.062 (0.783)	-1.051 (1.019)	0.047 (0.095)
Age of the mother	-0.004 (0.003)	-0.008 (0.006)	-0.028 (0.094)	-0.001 (0.003)	0.002 (0.003)	-0.084 (0.081)	-0.095 (0.080)	0.017 (0.102)	-0.004 (0.010)
Age of the Father	-0.003 (0.003)	-0.001 (0.006)	-0.067 (0.092)	0.001 (0.003)	0.001 (0.003)	-0.053 (0.078)	-0.022 (0.078)	0.199 (0.101)**	-0.006 (0.010)
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)***	0.075 (0.318)	0.198 (0.311)	-0.551 (0.412)	0.042 (0.038)
Age of oldest child squared	0.002 (0.001)***	0.004 (0.001)**	0.038 (0.020)*	0.001 (0.001)	0.000 (0.001)	0.038 (0.018)**	0.016 (0.017)	-0.029 (0.024)	-0.004 (0.002)*
Constant	9.148 (0.218)***	8.421 (0.459)***	4.791 (6.174)	7.848 (0.214)***	7.042 (0.228)***	10.676 (5.558)*	10.139 (5.630)*	-30.682 (8.583)***	6.040 (0.717)***
Wald test of exogeneity									
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 -> Variable	There is a male child (Table 4)	Number of children (Table 4)	There is a male child (Table 6)	Number of children (Table 6)	First child is a male (Table 7)	Number of boys in family (Table 7)
Village sex ratio	0.270 (0.027)***	0.100 (0.057)*	0.163 (0.075)**	0.598 (0.058)***	-0.194 (0.079)**	0.878 (0.081)***
Doctor in the village	0.049 (0.021)**	0.061 (0.050)	0.064 (0.077)	0.084 (0.047)*	0.055 (0.057)	0.028 (0.061)
land	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)**	-0.000 (0.000)***
hhpl	0.000 (0.000)	0.000 (0.000)*	0.000 (0.000)*	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Wage income	-0.000 (0.000)**	-0.000 (0.000)***	-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)	0.000 (0.000)	0.000 (0.000)
Head is college educated	0.000 (0.037)	-0.011 (0.056)	-0.111 (0.079)	-0.020 (0.069)	0.003 (0.095)	-0.118 (0.079)
Head has a high school education	0.009 (0.019)	-0.021 (0.036)	-0.002 (0.055)	-0.006 (0.038)	-0.062 (0.046)	-0.084 (0.053)
Age of the mother	-0.001 (0.002)	-0.005 (0.003)*	-0.012 (0.005)**	-0.005 (0.003)	0.007 (0.005)	0.014 (0.006)**
Age of the Father	-0.005 (0.002)***	-0.007 (0.003)**	-0.008 (0.004)*	-0.007 (0.004)*	-0.003 (0.006)	-0.009 (0.006)
Age of the oldest child	0.028 (0.007)***	0.025 (0.012)**	0.086 (0.017)***	0.071 (0.013)***	0.005 (0.044)	-0.002 (0.052)
Age of oldest child squared	-0.000 (0.000)	0.002 (0.001)***	0.000 (0.001)	-0.001 (0.001)	0.001 (0.002)	0.001 (0.002)
Constant	0.161 (0.058)***	1.454 (0.111)***	1.365 (0.128)***	-0.147 (0.107)	0.201 (0.295)	0.249 (0.384)
First Stage F statistic						
Observations	1652	1652	768	768	656	656
R-squared	0.52	0.34	0.35	0.35	0.07	0.18

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 listed in the first row.

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

	Donation to relatives	Expense on transfer	Informal credit (money borrowed from others)	Loan borrowed from rural financial co-op	Donation by relatives	donation by relatives outside rural areas	Transferred income	Bank loan	Returned money from borrowers
There is a male child	1.121 (1.014)	1.095 (1.000)	-0.359 (4.075)	6.442 (9.553)	-0.766 (3.855)	12.704 (8.643)	0.831 (1.324)	20.082 (14.961)	0.489 (5.822)
Number of children	-4.790 (1.781)***	-4.978 (1.755)***	-9.570 (6.957)	-37.560 (15.867)**	14.389 (7.130)**	4.613 (15.739)	3.998 (2.321)*	-20.698 (23.021)	-18.144 (9.822)*
Total income	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)***	-0.000 (0.000)	0.001 (0.000)**
Total income squared	-0.000 (0.000)**	-0.000 (0.000)**	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)***	0.000 (0.000)	-0.000 (0.000)*
Wage income	0.000 (0.000)	0.000 (0.000)	-0.001 (0.000)**	-0.002 (0.001)***	0.001 (0.000)***	0.001 (0.001)*	0.000 (0.000)*	-0.001 (0.001)	-0.000 (0.001)
Wage income squared	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)*	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Head is college educated	-0.867 (0.615)	-1.046 (0.606)*	1.472 (2.385)	0.023 (5.811)	0.125 (2.284)	0.905 (4.363)	0.409 (0.797)	0.607 (8.208)	0.845 (3.457)
Head has a high school education	-0.285 (0.285)	-0.252 (0.281)	-0.656 (1.185)	-1.787 (3.056)	0.403 (1.036)	1.192 (1.969)	0.057 (0.370)	3.388 (4.005)	1.532 (1.653)
Age of the mother	-0.015 (0.033)	-0.008 (0.032)	-0.125 (0.131)	-0.471 (0.346)	0.377 (0.122)***	0.511 (0.252)**	0.108 (0.043)**	-0.127 (0.512)	-0.372 (0.195)*
Age of the Father	-0.051 (0.028)*	-0.040 (0.027)	0.028 (0.110)	-0.319 (0.306)	0.110 (0.100)	-0.186 (0.223)	0.053 (0.036)	-0.313 (0.470)	0.086 (0.151)
Age of the oldest child	0.317 (0.154)**	0.363 (0.152)**	0.711 (0.622)	2.089 (1.451)	-0.940 (0.591)	0.169 (1.314)	-0.483 (0.202)**	-1.120 (1.997)	1.485 (0.885)*
Age of oldest child squared	0.003 (0.005)	0.000 (0.005)	0.005 (0.022)	0.051 (0.053)	-0.030 (0.020)	-0.056 (0.042)	-0.000 (0.007)	0.085 (0.074)	-0.005 (0.031)
Constant	10.205 (2.522)***	9.914 (2.487)***	7.832 (9.820)	48.139 (22.559)**	-33.906 (10.254)***	-35.965 (22.791)	-5.815 (3.295)*	18.236 (31.892)	8.321 (13.980)
Wald test of exogeneity									
Observations	768	768	768	768	768	768	768	768	768

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

	Total expense	Expense on family business	Expense on productive fixed-asset	living expenses (Consumption expense)	living expense on food	Expense on assets	Total amount of debt	Debt to other individuals	final value of Financial asset
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)**	3.469 (3.969)	4.413 (4.292)	1.895 (5.273)	-0.279 (0.462)
Number of children	-0.179 (0.249)	-1.152 (0.546)**	-9.789 (7.202)	0.630 (0.291)**	0.877 (0.334)***	-14.890 (6.798)**	-16.167 (7.457)**	12.911 (9.875)	0.357 (0.811)
Total income	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)***
Total income squared	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)**
Wage income	-0.000 (0.000)	-0.000 (0.000)***	-0.001 (0.000)**	0.000 (0.000)***	0.000 (0.000)***	-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)**	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Head is college educated	-0.063 (0.086)	-0.355 (0.188)*	0.481 (2.463)	0.079 (0.100)	0.052 (0.116)	-0.847 (2.353)	-1.372 (2.591)	-1.044 (3.249)	-0.169 (0.279)
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)	-0.636 (1.160)	-1.674 (1.258)	-2.675 (1.499)*	-0.050 (0.130)
Age of the mother	-0.003 (0.005)	-0.023 (0.010)**	-0.003 (0.142)	0.006 (0.005)	0.008 (0.006)	-0.139 (0.125)	-0.165 (0.139)	0.175 (0.167)	-0.003 (0.015)
Age of the Father	0.002 (0.004)	0.005 (0.008)	-0.042 (0.122)	0.005 (0.005)	-0.000 (0.005)	-0.077 (0.105)	-0.029 (0.119)	0.289 (0.139)**	-0.011 (0.013)
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)**	0.515 (0.592)	1.710 (0.664)***	-1.475 (0.845)*	0.017 (0.070)
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)	0.026 (0.021)	-0.030 (0.023)	0.001 (0.027)	-0.001 (0.002)
Constant	8.684 (0.353)***	8.656 (0.774)***	2.146 (10.092)	7.158 (0.412)***	6.596 (0.475)***	15.185 (9.567)	16.410 (10.553)	-32.235 (14.162)**	6.847 (1.149)***
Wald test of exogeneity									
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 7: Amemiya GLS Estimates of Factors Affecting Financial Activities in Households with Only Two Children—Part 1

	Donation to relatives	Expense on transfer	Informal credit (money borrowed from others)	Loan borrowed from rural financial co-op	Donation by relatives	donation by relatives outside rural areas	Transferred income	Bank loan	Returned money from borrowers
First child is male	-5.520 (2.537)**	-5.290 (2.381)**	-6.966 (7.638)	-38.043 (21.248)*	17.605 (9.826)*	30.509 (23.029)	7.194 (3.470)**	-30.934 (28.705)	-29.920 (15.167)**
Number of boys in the family	-1.369 (0.740)*	-1.175 (0.695)*	-4.041 (2.298)*	-13.901 (6.618)**	4.482 (2.783)	9.791 (6.577)	2.579 (1.013)**	8.886 (10.920)	-7.780 (4.428)*
Total income	0.000 (0.000)**	0.000 (0.000)***	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)**
Total income squared	-0.000 (0.000)**	-0.000 (0.000)**	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)*	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)*
Wage income	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)*	-0.001 (0.001)**	0.000 (0.000)	0.001 (0.001)	0.000 (0.000)	0.000 (0.001)	-0.001 (0.000)*
Wage income squared	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)*	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)*
Head is college educated	0.127 (0.853)	0.194 (0.801)	0.450 (2.778)	7.173 (7.411)	1.111 (3.082)	6.037 (5.645)	0.789 (1.159)	2.491 (9.028)	2.037 (5.095)
Head has a high school education	-0.370 (0.429)	-0.253 (0.403)	-1.352 (1.370)	-3.387 (4.021)	3.262 (1.595)**	4.806 (3.328)	1.265 (0.584)**	-2.223 (5.852)	-1.170 (2.586)
Age of the mother	0.089 (0.056)	0.070 (0.053)	-0.011 (0.191)	0.548 (0.583)	-0.123 (0.200)	-0.050 (0.394)	-0.065 (0.076)	0.230 (0.623)	0.386 (0.338)
Age of the Father	-0.106 (0.049)**	-0.085 (0.046)*	0.096 (0.156)	-0.338 (0.464)	0.150 (0.176)	0.042 (0.347)	0.081 (0.066)	-0.210 (0.576)	-0.180 (0.294)
Age of the oldest child	0.006 (0.312)	0.011 (0.293)	-0.341 (0.983)	-0.037 (3.049)	0.801 (1.145)	3.153 (2.775)	-0.162 (0.425)	1.659 (4.166)	1.273 (1.888)
Age of oldest child squared	0.008 (0.013)	0.007 (0.012)	0.021 (0.040)	0.051 (0.121)	-0.059 (0.046)	-0.156 (0.110)	-0.003 (0.017)	-0.055 (0.166)	-0.038 (0.076)
Constant	6.775 (2.355)***	6.469 (2.211)***	0.738 (7.538)	-4.201 (23.126)	-17.618 (8.765)**	-50.406 (21.654)**	-0.976 (3.204)	-34.926 (32.226)	-13.443 (14.272)
Wald test of exogeneity									
Observations	656	656	656	656	656	656	656	656	656

Table 7B: Amemiya GLS Estimates of Factors Affecting Financial Activities in Households with Only Two Children—Part 2

	Total expense	Expense on family business	Expense on purchasing productive fixed- asset	living expenses (Consumption expense)	living expense on food	Expense on assets	Total amount of debt	Debt to other individuals	final value of Financial asset
First child is male	0.224 (0.274)	-0.231 (0.485)	-16.268 (9.093)*	1.118 (0.462)**	1.300 (0.523)**	-17.960 (9.164)*	-5.673 (7.440)	26.242 (15.431)*	1.895 (1.143)*
Number of boys in the family	-0.167 (0.080)**	-0.136 (0.142)	-1.035 (2.679)	0.101 (0.135)	0.168 (0.153)	-1.572 (2.771)	1.211 (2.226)	9.813 (4.468)**	0.260 (0.334)
Total income	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)*	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)***
Total income squared	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)***	-0.000 (0.000)**	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)**
Wage income	-0.000 (0.000)	-0.000 (0.000)***	-0.001 (0.000)***	0.000 (0.000)***	0.000 (0.000)	-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)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)**
Head is college educated	0.019 (0.092)	-0.349 (0.163)**	-1.482 (3.472)	0.138 (0.155)	-0.074 (0.177)	-2.517 (3.576)	-4.010 (2.886)	-3.688 (5.137)	-0.468 (0.385)
Head has a high school education	-0.007 (0.046)	-0.166 (0.082)**	-3.122 (1.657)*	0.098 (0.078)	0.097 (0.089)	-1.013 (1.604)	-1.715 (1.315)	0.433 (2.473)	0.151 (0.193)
Age of the mother	0.010 (0.006)*	0.013 (0.011)	0.176 (0.222)	-0.004 (0.010)	-0.012 (0.012)	0.060 (0.229)	-0.125 (0.172)	-0.581 (0.325)*	-0.046 (0.025)*
Age of the Father	-0.009 (0.005)*	-0.012 (0.009)	-0.101 (0.186)	-0.002 (0.009)	0.001 (0.010)	0.011 (0.187)	0.241 (0.147)	0.457 (0.278)	0.005 (0.022)
Age of the oldest child	-0.035 (0.034)	-0.016 (0.060)	-0.095 (1.249)	-0.029 (0.057)	-0.048 (0.065)	-0.363 (1.187)	-1.094 (0.894)	-1.534 (1.711)	0.096 (0.141)
Age of oldest child squared	0.002 (0.001)	0.001 (0.002)	0.020 (0.050)	0.001 (0.002)	0.001 (0.003)	0.039 (0.047)	0.038 (0.036)	0.022 (0.069)	-0.004 (0.006)
Constant	8.669 (0.254)***	7.245 (0.450)***	-6.086 (9.240)	8.052 (0.429)***	7.705 (0.487)***	-6.248 (9.175)	1.328 (6.804)	-9.749 (13.207)	6.591 (1.061)***
Wald test of exogeneity									
Observations	656	656	656	656	656	656	656	656	656

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