Are India's Gender Imbalances Inducing Higher Household Savings?

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1. Introduction

In this paper we try to bridge two very different literatures on India's economic development. The first relates to explaining India's rapid growth in savings. Contributing almost 38 percent of GDP in 2008, domestic savings has been fuelling India's growth acceleration. Moreover, household savings, averaging above 60 percent of domestic savings since the 1950s, remains the predominant source of Indian savings (RBI, 2009). Explaining the growth in savings is therefore a central task in understanding India's economic resurgence. The second literature relates to Asia's widely documented gender imbalances, an issue often referred to as "missing women", "female infanticide" or "gendercide" (The Economist, 2010). While much of this literature seeks to explain the phenomenon or account for its social consequences, we hypothesize that an important economic consequence of the gender imbalance is increased competition in the marriage market, which may induce higher pre-marital savings.

With regard to the first of these literatures, there are several competing explanations of household savings behavior. The precautionary saving motive is one of the oldest theories used to explain savings. The basic idea is that households save to smooth future consumption when faced with income uncertainty (Friedman, 1957). If an economy became more volatile due to economic liberalization, for example, the permanent income hypothesis would predict increased savings. But while this might account for some of the surge in Chinese savings, the hypothesis is not convincing in the Indian setting where privatization has been limited, and where social protection programs

have been scaled up rather than scaled down (admittedly, many evaluations of these programs often suggest that they are rather ineffective – see Jha and Bhattacharyya, 2010).

A second explanation is the level of financial development and the general macroeconomic environment. Improved accessibility to banks reduced transaction costs and thus encourages financial savings (Athukorala, 1998), although financial development could reduce savings as households have better access to credit and are able to finance their consumption with lower savings (Loayza and Shankar, 2000). Like China, India's financial sector has developed rapidly since the reforms of 1991. Bank deposits, for example, grew by almost 17% over 1991-2004, while district level data show that credit or deposits as a percentage of district output roughly doubled between 1991 and 2001 (Kendall, 2009). Savings could also be driven by higher real interest rates (lower inflation). However, another view if financial development is that it is driven by growth rather than a driver of growth (Robinson, 1952). This also raises the possibility that higher savings in India is caused by growth rather a cause of growth.

A third explanation is explicitly demographic in nature. The life-cycle hypothesis (Modigliani, 1970) relating savings to the age profile of the population. Modigliani's model predicts that savings rate rise with the proportion of the working age population who are at the peak of their earning potential, and decreases with the proportion of the young and elderly population, as dissaving behavior is displayed. In India, the ratio of dependent to working age adults declined from 77% in 1960 to 60% in 2006, and Loayza

and Shankar (2000) do indeed find macroeconomic evidence that this sharp demographic transition explains the rising rate of savings in India.

The theory proposed in this paper also links to the demographic literature. Specifically, we test a prediction resulting from the microeconomic model of the "marriage market" (Becker, 1973,1974; Grossbard-Shechtman, 1993, 2003). This theory explains men's and women's mate selectivity in part as a function of their own "supply" and "demand." If there are too many men relative to the number of women, then the "supply" of men is high. When this is the case two things may happen. First, men's "value" decreases and women's increases, so men have to lower their standards and become less selective in order to find a mate. Alternatively, men (or their parents) can behave competitively and carry out investments designed to enhance their attractiveness in the marriage market. The operational sex ratio (the ratio of available men to available women) thus becomes a crucial factor in the rational choice theory of marriage market (Bokek-Cohen et al., 2007).

In the developed world a relatively large economic literature has validated the importance of sex ratios in determining marriage market outcomes. For example, Chiappori, Fortin, and Lacroix (2002) find that the higher the ratio of men to women in Israel, the more husbands share their incomes with their wives. Angrist (2002) studies the influx of various immigrant groups into the United States, and the effect of the sex ratios of different nationality groups on the largely endogamous marriage of the second generation. His analysis shows that higher sex ratios also decrease women's labor force

participation. South and Lloyd (1992) find that the quantity and quality of potential husbands increase both the rates of marriage and divorce because married women can find better alternatives if there are more unmarried men in the area. Similarly, South and Lloyd (1995) find that the number of unmarried women in school or labor force increases the rates of divorce because married men can find better alternatives in such conditions. Perhaps most similar to our own research is the work of Charles and Luoh (2006), who show that the shortage of black men in the New Mexico marriage market (because of high rates of incarceration) has induced more black women to get themselves a job or go to college so as to improve their marriage prospects.

Although the Charles and Luoh piece investigates an opposite gender imbalance to the Indian context, it similarly invokes the notion of a competitive savings/investment effect of gender imbalances. In the developing world Wei and Zhang (2009) test the competitive savings/investment model in the Chinese context where the interaction of strong male preferences and the one child policy has produced some of the sharpest gender imbalances in the world. Specifically, they argue that families with sons increase their savings rates in the face of competition in the marriage market caused by sex ratio imbalance. Using data at the household, county and provincial level, as well as an instrumentation strategy that relies on provincial variations in the so called "one child policy", they find that local sex imbalances are strongly associated with higher savings and entrepreneurial activity in households with sons.

Our research question is whether this type of competitive saving behavior can be observed in India, given that gender imbalances have also been increasing in India (see Bhaskar (2010) for a theoretical treatment in the Indian context). In India these imbalances arise from the combination of a generally patrilineal inheritance system, the dowry convention, and the spread of sex selection technologies such as amniocentesis and ultrasound (UNFPA, 2007; Arnold et al., 2002; Clark, 2000; Dyson and Moore, 1983; Das Gupta, 1987; The Economist, 2010). In one of the states with the highest gender imbalance, Punjab, there is even a saying that "raising a daughter is like watering your neighbor's garden". As a result of these factors the ratio of marrying age women to marrying age men reaches as high 1.2 in states such as Punjab and Haryana, and is moderately high in states like Gujarat.

Are these imbalances likely to induce competitive savings or investment? Certainly there is indirect evidence suggests that this could be the case. For example, Kaur (2004) reports that men of marriageable age are having difficulties in finding brides, while The Economist (2010) reports an incredible case of a Hindu from gender-imbalanced Haryana importing a Muslim bride from Assam. The same article reports that the Red Cross Society of India estimates that at least 100 brides have been brought into Bhiwani, one of Haryana's 21 districts. These examples suggests that India-specific social norms related to inheritance systems, dowry practice, and the complications of caste, language and religion, may not fully impede the effects of shifting conditions in the marriage market. Indeed, historical evidence shows that the dowry system is not set in stone and that Indian marriage norms have fluctuated between dowries (or negative bride

prices) and (positive) bride prices, and that dowry prices have changed over time in response to demographic shifts (Rao, 1993). And although Indian marriages for most of the 20th century have been secured through net dowry payments, many Indian marriages involve a two way transfer of resources; that is, from the groom's side to the brides, and vice versa. Other evidence also shows that net bride prices are negative (i.e. dowries), Indian men of marrying age still compete with each other, with a range of research showing that the most important quality of a groom it is the ability to earn a living (Anderson, 2007).[1]

These various pieces of evidence and the economic theory underlying them lead us to believe that gender imbalances could indeed be inducing greater competition among marrying age men and their families, which may result in higher savings rate among boy-dominated households in India. Our approach broadly tries to follow that of Wei and Zhang (2009), although we acknowledge up front that Indian data is empirically much more challenging (Section 2). Moreover, our study focuses on rural areas partly because of the suitability of the widely used Rural Economic and Demographic Surveys (REDS) (see Munshi and Rosenzweig (2009) for another paper that uses REDS to study the marriage market), and partly because rural areas are more likely to have more spatially segmented marriage markets, making the impact of district level gender imbalances more significant. And although we thus far lack the neat instrumentation of Wei and Zhang (2009) – which relies on variations in China's one child policy – in Section 3 we presents

[1] One piece of evidence that might contradict our theory would be dowry inflation. However , Edlund (2000) and Arunachalam and Logan (2008) argue that there is no evidence of dowry inflation in India. In future we hope to uncover evidence that net dowry prices are in fact going down in India.

tests that specifically examine interactions between district level gender imbalances and boy-dominated households. Section 4 concludes by summarizing our findings, and identifying areas for future research.

2. Data

To examine the variation of saving rates across households in regions with different degrees of gender imbalance, we use 1999 household level data from the Rural Economic and Demographic Surveys (REDS) collected by the National Council of Applied Economic Research (NCAER) and 1991 district level population data from the Indian census (Indian District Database developed by Vanneman and Barnes, 2000). The REDS was started in 1968 and the 1999 round provides nationally representative data on 7,474 rural Indian households residing in 253 villages in 16 major states and 100 districts. Following Dyson and Moore (1983), we group the states into three regions: the north, the south, and the east.[2] Besides household member characteristics and information on access to banks at the village level, the survey provides details on farm (crop production, livestock and allied activities, and agricultural wages) and non-farm (self-employment, salary/wage employment, and others) income sources, investments in physical and financial assets, allowing us to measure savings of the households.

[2] North: Gujarat, Haryana, Himachal Pradesh, Madhya Pradesh, Punjab, Rajasthan, Uttar Pradesh; South: Andhra Pradesh, Karnataka, Kerala, Maharashtra, Tamil Nadu; East: Assam, Bihar, Orissa, West Bengal

Mainly following Vashishtha (1989) and Paxson (1992), we define savings as the sum of investments in physical assets and net financial assets during the survey period. Physical assets include land, irrigation equipment, machinery, livestock, other allied agricultural activity assets, business assets, house property, and inventory accumulation. Financial assets include deposits with commercial banks, shares and securities, gold and jewelry, chit fund, cash holdings, small savings instruments, insurance, and provident funds. From the census data we are able to calculate district-wise rural sex ratios of the age cohort 0-14 in 1991, which we then use to infer the sex ratios for the age cohort 8-22 in 1999 as the two groups should theoretically be the same. Although a broad group, we consider this to be an age-group in which children are of marrying age, or in which parents are at least considering pre-marital savings decisions. Finally, we match the census-based district level sex ratios in 1991 to household level data in 1999, yielding a sample of 5,531 households in 13 states and 74 districts.

Summary statistics for the full sample and the subsamples of four-person households of various compositions and head ages are presented in table 2. These subsamples are constructed by limiting the head ages to 40, 45, and 50 with two sons, two daughters or one son and one daughter who are unmarried and are younger than 20. This is to exclude households with both older and younger children, which would potentially contaminate the results for pre-marital savings. We are left with 396, 504, and 556 observations respectively in the subsamples. Because of the considerable noise with savings, we report median savings rates. In the full sample, household heads are on average 49 years old with primary education. Almost half (48%) of the sample have a

young child aged 14 years or less and over 60% of the households have at least one unmarried son. Regarding religion and caste, more than 90% of households are Hindu and about 20% belong to scheduled castes and tribes. More than half the households reside in the north and about one-third of households have access to banks locally. On the district level, close to 60% of the population are of working age (15-64). Across the districts, median sex ratio of the age cohort 8-22 is approximately 1.06. Median savings rate across all households is 9.2%. Consistent with the full sample, the four-person household subsamples all exhibit the same trend that savings rate is higher among households in districts with stronger gender imbalance. As will be shown in the section below, this result is mainly driven by households with sons. The heads are slightly more educated than the full sample and received on average 6 years of education.

3. Statistical Evidence

Since the 1980s, both the sex ratio for marrying-age cohort and the savings rate of India have been increasing and tracking each other very closely. This is evident in figure 1 where we plot the sex ratio of age cohort 14-20 against national savings rate. Correlation between these two series is as high as 0.92.

To empirically test the hypothesis that households with sons display higher savings rate when faced with competition in marriage market due to intensifying local sex ratio, we estimate median regressions for household savings rate for the full sample and the four-person households with heads younger than 40, 45, and 50 respectively.

With the full sample, we interact the number of unmarried sons aged 20 and younger with local sex ratio of the age cohort 8-22. With the four-person household subsample, ideally we could examine the impact separately for each subgroup. Given the constraint of insufficient sample sizes of households with only two sons, two daughters, or one son and one daughter, we pool these households, create dummies for two-son and one-son-one-daughter households and interact them with local sex ratio to examine the hypothesized relationship.

As controls, we include education of head, age of head, household income, age category dummy of child, caste dummy, religion dummy, shares of young (15 and below) and old (60 and above) population, regional dummy, and household's access to a bank in village dummy in the regressions. In addition, we control for household size in the full sample regression.

Table 3 presents the regression results of the full sample. In column 4 we control for regional effects and access to banks, we find that although the coefficient on number of unmarried young sons is negative and significant, its interaction with local sex ratio is positive and significant. Moreover, the magnitude of the interaction term barely changes across various specifications. This result suggests that having a son *per se* would not raise savings rate, savings rate will increase only when households with sons face rising local marriage market pressure from gender imbalance.

Savings rate also increases with household income, which supports the prediction of the precautionary saving theory. A 1 percent increase in income is associated with an

increase in savings rate of approximately 0.2 percentage point. Surprisingly, education of head is negatively related to savings rate. This could be attributed to the strong correlation between head's education and household income. Compared to the omitted category of 15-20, households with households with child aged 10-14 save less as they may incur higher education expenditures. Consistent with Modigliani's life-cycle theory (1970), a high dependency ratio has a negative impact on household savings rates. This is evident in the negative and significant coefficients on the local shares of young and old populations. The coefficient on household size is negative and significant. While caste and religion are not significant, there exist regional differences in savings. Households in the north exhibit stronger propensity to save (see column 2 of table 3). However, the significance goes away when we add access to banks in the regression. Access to banks, an indicator for local financial development, is negatively associated with savings rate. Improved access to credit may somewhat discourage savings to finance consumption.

Turning to the four-person households, results obtained in the full sample hold in general. Our primary interest lies in the interaction terms between the son dummies and local sex ratio. As a check of robustness, we repeat the regression exercise on households with heads subject to various age limits. Our main result is with head age limit set as 45 (average age of head of four-person household is 43 in the data) and is presented in table 4a. In the full specification, the interaction terms are positive and significant. Using households with two daughters as a control group, with a one percentage point increase in sex ratio, households with two sons and those with one son and one daughter raise their savings rate by approximately one percentage point (see

column 4 of table 4a). Household income remains significant at 1 percent level. A 1 percent increase in income raises savings rate by roughly 0.3 percentage point. Again, age structure of local population affects savings rates of households. In the full specification, increases in shares of young and old populations by 1 percentage point reduce savings rates by 1.2 and 4.6 percentage points respectively. These results are also significant at 1 percent level. In contrast to the full sample, households that belong to scheduled caste save more. Coefficient on the north dummy is positive and significant. However, one should use caution when interpreting this coefficient as it captures some income and sex ratio effects. Households in the north are richer than the rest in other regions. They also experience a worse sex ratio than other regions. If all else equal, households in the north tend to save more. Similar to the full sample, the coefficients on bank and head education are negative.

Robustness of results is established with varying the age limits of household heads (see table 4b). It comes to our attention that the interaction term of two sons with sex ratio is no longer significant in the sample when the upper bound of head age is set to be 40. The two-son dummy is also insignificant. We interpret this as a sample size issue as lowering the age limit significantly reduces the number of observations by more than 20 percent.

4. Conclusion

With the availability of ultrasound sex identification technology and the presence of son-preference culture, sex ratios in several Indian states have become increasingly skewed. Based on household survey data, we empirically show that the phenomenon of "missing women" appears to have resulted in a significant increase in household saving rates. This evidence is consistent with a marriage market squeeze, which in turn forces households with boys have to save more in order to improve the likelihood of their sons' marriage.

Of course, we do not consider this preliminary evidence definitive. Future research could usefully examine alternative forms of evidence, such as trends in net dowry prices, investments in human capital, evidence on migration for marriage, or analogous evidence for urban areas. We also cannot yet say how important a role the marriage market squeeze plays in aggregate savings trends for India, given that gender imbalances are mostly clustered in several north-western states, and given that many other factors could be driving up household savings in India (Section 1). Nevertheless, we believe that our preliminary evidence certainly warrants further investigation of India's admittedly complex marriage market.

References

Anderson, S. 2007. "The Economics of Dowry and Brideprice." *The Journal of Economic Perspectives* 21(4):151-74.

Angrist, J. 2002. How do sex ratios affect marriage and labor market? Evidence from America's second generation. Quarterly Journal of Economics, 117, 997-1038.

Arnold, F., S.Kishor, and T.K.Roy. December. 2002. "Sex-selective abortions in India." *Population and Development Review* 28(4):759-785.

Arunachalam, R. and T.Logan. 2008. "Is there Dowry Inflation in South Asia? " NBER Working Paper No.13905.

Athukorala, P. 1998. "Interest rates, saving and investment: Evidence from India. " *Oxford Development Studies* 26(2):153-69.

Becker, G. S. 1973. A theory of marriage: Part I. Journal of Political Economy, 81, 13-846.

Becker, G. S. 1974. A theory of marriage: Part II. Journal of Political Economy, 82, S11-S26.

Bhaskar,V. January 2010. "Sex Selection and Gender Balance." Mimeo. University College London.

Bokek-Cohen, Y., Peres, Yochanan, and S. Kanazawa. 2007. "Rational Choice and Evolutionary Psychology as Explanations for Mate Selectivity." Journal of Social, Evolutionary, and Cultural Psychology, 2 (2): 42-55.

Charles, K. and M. Luoh (2006). "Male Incarceration, the Marriage Market and Female Outcomes." Unpublished paper.

Chamon, M. and E.Prasad. 2010. "Why Are Saving Rates of Urban Households in China Rising? " *American Economic Journal: Macroeconomics* 2(1), 93-130.

Chiappori, P.-A., Fortin, B., & Lacroix, G. 2002. Marriage market, divorce legislation, and household labor supply. Journal of Political Economy, 110, 37-72.

Clark, Shelley. 2000. "Son preference and sex composition of children: Evidence from India. " *Demography* 37(1):95-108.

Deininger, K., S.Jin, and H.K.Nagarajan. February 2009. "Determinants and Consequences of Land Sales Market Participation: Panel Evidence from India." *World Development* 37(2):410-21.

Deolalikar, A. and E.Rose. 1998. "Gender and Savings in Rural India." *Journal of Population Economics* 11(4):453-70.

Dyson, T. and M.Moore. 1983. "On Kinship Structure, Female Autonomy, and Demographic Behavior in India." *Population and Development Review* 9(1):35-60.

Edlund, L. 2000. "The Marriage Squeeze Interpretation of Dowry Inflation: Comment" *Journal of Political Economy* 108(6):1327-1333.

Foster, A.D. and M.R.Rosenzweig. 2004. "Agricultural Productivity Growth, Rural Economic Diversity, and Economic Reforms: India, 1970-2000." *Economic Development and Cultural Change* 52(3):509-42.

Friedman, M. 1957. A Theory of the Consumption Function. Princeton Univ Press, Princeton, CA.

The Economist. 2010. Gendercide: The worldwide war on babygirls. *The Economist*. March 6, 2010, pp. 77-80.

Grossbard-Shechtman, S. (1993). On the Economics of Marriage: A Theory of Marriage, Labor, and Divorce. Boulder: Westview Press.

Grossbard-Shechtman, S. (2003). Marriage and Economy: Theory and Evidence from Advanced Industrial Societies. Cambridge: Cambridge University Press.

Guilmoto,C.Z. 2007. Characteristics of Sex-Ratio Imbalance in India, and Future Scenarios. 4th Asia Pacific Conference on Reproductive and Sexual Health and Rights. UNFPA.

Gupta, M.D. 2005. "Explaining Asia's "Missing Women": A New Look at the Data." *Population and Development Review* 31(3):529-35.

----- 1987. "Selective Discrimination against Female Children in Rural Punjab, India." *Population and Development Review* 13(1):77-100.

Jha,K. and S.Bhattacharyya. January 2010. "Social Security System in India: An International Comparative Analysis." *MPRA Paper No. 20142*.

Kaur,R. June 2004. "Across-Region Marriages: Poverty, Female Migration and the Sex Ratio." *Economic and Political Weekly* 39(25):2595-603.

Kendall, Jake. 2009. Local Financial Development and Growth. Policy Research Working Paper 4838. World Bank, Washington DC.

Leff,N.H. 1969. "Dependency Rates and Savings Rates." *The American Economic Review* 59(5):886-96.

Loayza,N., K.Schmidt-Hebbel, and L. Servén. 2000. "Saving in Developing Countries: An Overview." *The World Bank Economic Review* 14(3):393-414.

Loayza,N. and R.Shankar. 2000. "Private Saving in India." *The World Bank Economic Review* 14(3):571-94.

Masson,P.R., T.Bayoumi, and H.Samiei . 1998. "International Evidence on the Determinants of Private Saving." *The World Bank Economic Review* 12(3):483-501.

Modigliani,F. 1970. "The Life Cycle Hypothesis of Saving and Intercountry Differences in the Saving Ratio." In W. A. Elits, M. F. Scott, and J. N. Wolfe, eds. *Growth and Trade, Essays in Honor of Sir Roy Harrod.*Oxford University Press.

Munshi,K. and M.Rosenzweig. 2009. "Why is Mobility in India so Low? Social Insurance, Inequality, and Growth. " NBER Working Paper No.14850.

Paxson,C.H. 1992. "Using Weather Variability to Estimate the Response of Savings to Transitory Income in Thailand." *The American Economic Review* 82(1):15-33.

Rao,V. August 1993. "The Rising Price of Husbands - A Hedonic Analysis of Dowry Increases in Rural India." *Journal of Political Economy* 101(4):666-77.

Reserve Bank of India. 1999. Annual Report. Reserve Bank of India, New Delhi.

Robinson, Joan. 1952. The rate of Interest and Other Esays, London: Macmillan.

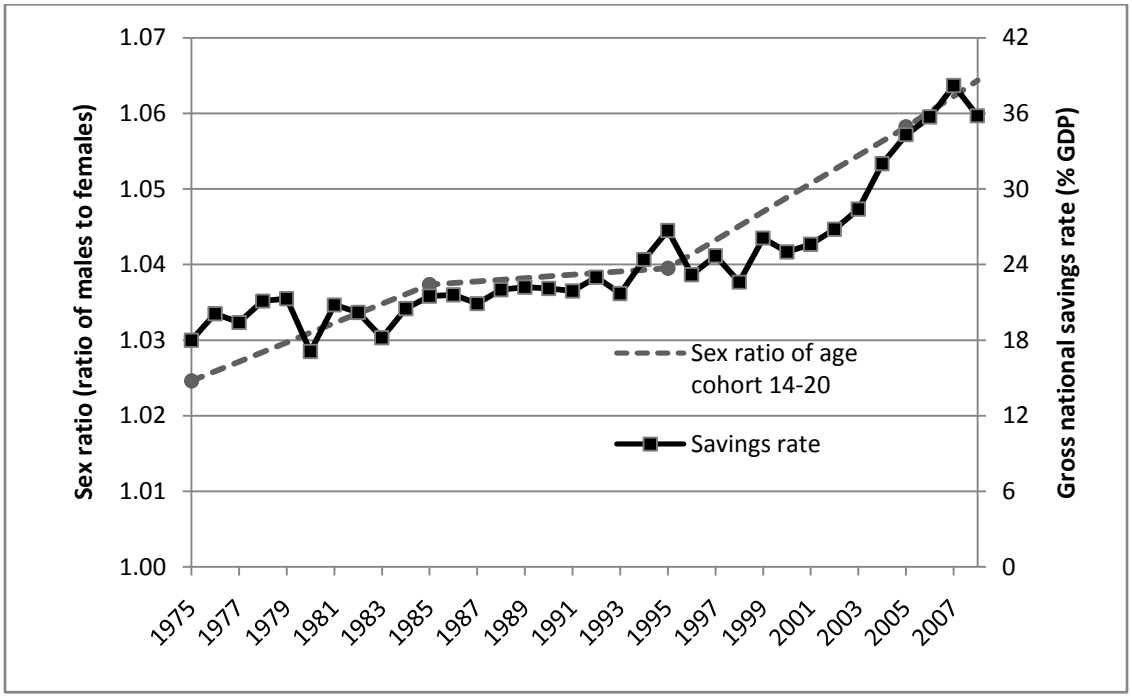
South, S. J., & Lloyd, K. M. 1995. Spousal alternatives and marital dissolution. American Sociological Review, 60, 21-35.

Vanneman, Reeve and Douglas Barnes. 2000. Indian District Data, 1961-1991: machine-readable data file and codebook. Internet address: http://www.inform.umd.edu/~districts/index.html. College Park, Maryland: Center on Population, Gender, and Social Inequality.

Vashishtha,P.S. 1989. "Changes in Structure of Investment of Rural Households: 1970-71 - 1981-82." *Journal of Income and Wealth* 10(2):21-45.

Wei,S.-J. and X.Zhang. 2009. "The Competitive Saving Motive: Evidence from Rising Sex Ratios and Savings Rates in China." NBER Working Paper No.15093 .

Figure 1: Sex Ratio and Savings Rate



Note: The sex ratio variable is defined as the child (0-6) sex ratio lagged by 14 years, which is available from the online database Indiastat (Indiastat.com). The savings rate is defined as the percentage of (Gross national income - Total consumption + Net transfers) in total GDP, which is available from the World Development Indicators (WDI) 2009.

Table 1: National Savings and Sex Ratio

Variables	1975	1985	1995	2005
Savings rate (% of GDP)	18	21.5	26.7	34.3
Sex ratio for age cohort 14-20 (male:female)	1.025	1.037	1.04	1.058
Sex ratio at birth	N/A	1.1[a]	1.11[b]	1.12[c]

Notes: Gross national savings rate is defined as the percentage of (Gross national income - Total consumption + Net transfers) in total GDP, which is available from WDI 2009. The sex ratios for age cohort 14-20 are inferred from child (0-6) sex ratio. For example, the cohort 14-20 in 2005 was the cohort 0-6 in the 1991 census, since the two groups should theoretically be the same. Sex ratio data are available from Indiastat.

a/ Sex ratio at birth (1985-1987)

b/ Sex ratio at birth (1993-1995)

c/ Sex ratio at birth (2004-2006)

Table 2: Summary Statistics on household and district characteristics and savings rates

	All households	**4-person households of head age ≤ 40**				**4-person households of head age ≤ 45**				**4-person households of head age ≤ 50**			
	All	All	2 sons	2 daughters	son and daughter	All	2 sons	2 daughters	son and daughter	All	2 sons	2 daughters	son and daughter
Median Savings rate (as % of income at1999 prices)	9.17	6.68	7.66	3.81	6.08	7.59	8.07	6.27	7.35	7.69	8.24	8.05	6.75
Basic characteristics													
Education of household head (years)	4.77	6.32	6.35	6.36	6.29	6.49	6.54	6.53	6.43	6.64	6.8	6.73	6.49
Age of household head (years)	49.45	33.86	33.71	32.58	34.3	35.8	35.91	34.45	36.24	37.04	37.23	35.62	37.24
Household income (log)	10.44	10.23	10.25	10.24	10.2	10.3	10.35	10.29	10.26	10.33	10.41	10.32	10.28
Child aged 0-4	0.18	0.43	0.39	0.6	0.41	0.36	0.33	0.55	0.34	0.33	0.3	0.5	0.32
Child aged 5-9	0.28	0.6	0.6	0.76	0.57	0.55	0.53	0.7	0.52	0.51	0.49	0.64	0.49
Child aged 10-14	0.32	0.4	0.39	0.26	0.44	0.45	0.47	0.35	0.46	0.46	0.46	0.38	0.48
Religion													
Hindu	0.91	0.93	0.95	0.98	0.9	0.92	0.94	0.97	0.9	0.93	0.94	0.97	0.91
Muslim	0.06	0.06	0.03	0.02	0.09	0.06	0.04	0.03	0.08	0.05	0.04	0.03	0.07
Caste													
Scheduled caste	0.12	0.11	0.16	0.1	0.09	0.12	0.15	0.08	0.1	0.11	0.15	0.08	0.09
Scheduled tribe	0.08	0.06	0.05	0.02	0.08	0.07	0.05	0.03	0.08	0.06	0.05	0.05	0.08
Region													
North	0.54	0.44	0.51	0.38	0.4	0.42	0.49	0.35	0.38	0.41	0.47	0.33	0.38
South	0.32	0.43	0.36	0.5	0.46	0.44	0.37	0.55	0.47	0.45	0.38	0.58	0.47
Bank in village	0.33	0.35	0.33	0.34	0.38	0.37	0.35	0.37	0.38	0.37	0.35	0.36	0.38
Community characteristics													
District sex ratio	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
District share of population aged ≤ 15	0.38	0.38	0.38	0.37	0.38	0.38	0.37	0.37	0.37	0.38	0.37	0.37	0.37
District share of population aged ≥ 60	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Number of observations	5531	396	147	50	199	504	192	60	252	556	215	66	275

Table 3: Median Regressions for Household Savings Rate in Rural India for the Full Sample in 1999

	1	2	3	4
Sex ratio	0.31***	0.22***	0.28***	0.23***
	(0.09)	(0.08)	(0.08)	(0.08)
Number of unmarried sons	-9.63*	-10.72**	-9.60**	-10.33**
	(5.13)	(4.71)	(4.62)	(4.62)
Number of unmarried sons x Sex ratio	0.08*	0.09**	0.08*	0.09**
	(0.05)	(0.04)	(0.04)	(0.04)
Education of household head	-0.35***	-0.38***	-0.37***	-0.37***
	(0.07)	(0.07)	(0.06)	(0.07)
Age of household head	-0.03	-0.02	-0.03	-0.03
	(0.02)	(0.02)	(0.02)	(0.02)
Household income (log)	22.83***	22.95***	23.09***	23.01***
	(0.43)	(0.40)	(0.39)	(0.39)
Child aged 0-4	0.84	0.72	0.14	0.37
	(0.92)	(0.84)	(0.82)	(0.83)
Child aged 5-9	0.44	0.55	0.66	0.48
	(0.84)	(0.78)	(0.76)	(0.76)
Child aged 10-14	-1.31*	-1.61**	-1.66**	-1.49**
	(0.79)	(0.72)	(0.71)	(0.71)
Scheduled caste	0.28	0.58	0.53	0.9
	(0.95)	(0.87)	(0.86)	(0.85)
Scheduled tribe	1.67	0.95	1.32	1.49
	(1.20)	(1.10)	(1.08)	(1.08)
Muslim	-0.01	0.44	0.41	0.53
	(1.26)	(1.18)	(1.14)	(1.16)
Share of population in district younger than 15	-0.41***	-0.64***	-0.51***	-0.75***
	(0.11)	(0.13)	(0.10)	(0.13)
Share of population in district older than 60	-1.42***	-1.64***	-1.61***	-1.86***
	(0.38)	(0.39)	(0.34)	(0.39)
Household size	-2.08***	-2.10***	-2.13***	-2.14***
	(0.11)	(0.10)	(0.10)	(0.10)
North		2.03*		1.41
		(1.08)		(1.06)
South		-1.18		-2.11*
		(1.25)		(1.24)
Bank			-3.77***	-3.66***
			(0.60)	(0.60)
Constant	-218.83***	-200.83***	-211.14***	-194.36***
	(10.03)	(10.54)	(9.05)	(10.33)
Pseudo R^2	0.1727	0.1736	0.1753	0.1762
Observations	5473	5473	5473	5473

*** Significant at 1% level ** Significant at 5% level * Significant at 1% level

Table 4a: Median Regressions for Household Savings Rates in Four-Person Households with Head Age ≤ 45

	1	2	3	4
Education of household head	-0.55**	-0.61**	-0.43*	-0.50**
	(0.25)	(0.25)	(0.23)	(0.24)
Age of household head	-0.04	0.17	0.15	0.22
	(0.22)	(0.21)	(0.19)	(0.21)
Household income (log)	30.40***	30.16***	29.71***	30.05***
	(1.64)	(1.59)	(1.47)	(1.56)
Child aged 0-4	-0.27	1.55	3.23	3.09
	(2.84)	(2.73)	(2.51)	(2.68)
Child aged 5-9	2.76	2.79	2.99	3.01
	(2.19)	(2.15)	(1.95)	(2.09)
Child aged 10-14	-5.58**	-4.24*	-2.69	-3.43
	(2.64)	(2.55)	(2.36)	(2.48)
Scheduled caste	7.84**	7.64**	5.83**	7.41**
	(3.26)	(3.24)	(2.96)	(3.10)
Scheduled tribe	2.68	2.86	5.89	4.25
	(4.24)	(4.09)	(3.80)	(4.10)
Muslim	-0.73	0.62	0.66	0.92
	(4.66)	(4.64)	(4.03)	(4.47)
Share of population in district younger than 15	-0.81**	-0.69	-0.90***	-1.17***
	(0.37)	(0.45)	(0.34)	(0.45)
Share of population in district older than 60	-3.48***	-4.63***	-3.66***	-4.59***
	(1.27)	(1.36)	(1.13)	(1.32)
Sex ratio	-0.78	-1.12**	-0.79	-0.91*
	(0.56)	(0.55)	(0.50)	(0.54)
Two sons	-151.57**	-118.74*	-128.00**	-118.14*
	(68.65)	(66.77)	(60.58)	(64.54)
One son and one daughter	-123.87*	-94.5	-137.39**	-137.34**
	(66.22)	(64.30)	(58.97)	(62.48)
Two sons x Sex ratio	1.42**	1.11*	1.22**	1.13*
	(0.65)	(0.63)	(0.57)	(0.61)
(One son and one daughter) x Sex ratio	1.20*	0.91	1.32**	1.32**
	(0.63)	(0.61)	(0.56)	(0.59)
North		10.24**		6.85*
		(4.14)		(4.07)
South		6.43		3.29
		(4.48)		(4.41)
Bank			-8.81***	-6.78***
			(1.98)	(2.14)
Constant	-162.73***	-134.96**	-156.70***	-137.92**
	(60.73)	(61.37)	(54.15)	(59.80)
Pseudo R^2	0.2073	0.2111	0.2176	0.2202
Observations	504	504	504	504

*** Significant at 1% level ** Significant at 5% level * Significant at 1% level

Table 4b: Median Regressions for Household Savings Rates in Four-Person Households with Different Cutoff Age of Household Head

	1	2	3	4
Age of household head <= 40				
Sex ratio	-0.84*	-1.04*	-0.51	-0.75
	(0.46)	(0.55)	(0.43)	(0.57)
Two sons	-65.33	-76.72	-68.84	-52.53
	(59.23)	(68.54)	(55.19)	(70.69)
One son and one daughter	-108.32*	-126.64*	-119.05**	-126.34*
	(55.33)	(64.92)	(51.31)	(66.26)
Two sons x Sex ratio	0.65	0.74	0.70	0.53
	(0.56)	(0.64)	(0.52)	(0.66)
(One son and one daughter) x Sex ratio	1.06**	1.23**	1.17**	1.22*
	(0.52)	(0.61)	(0.48)	(0.62)
Pseudo R^2	0.2088	0.2101	0.2174	0.2189
Observations	396	396	396	396
	1	2	3	4
Age of household head <= 50				
Sex ratio	-1.12	-1.22*	-0.95	-1.21*
	(0.76)	(0.65)	(0.68)	(0.65)
Two sons	-178.67*	-120.54	-138.90*	-144.46*
	(91.93)	(77.40)	(82.75)	(78.01)
One son and one daughter	-160.05*	-147.67*	-167.06**	-153.00**
	(89.91)	(75.31)	(80.41)	(75.66)
Two sons x Sex ratio	1.66*	1.12	1.32*	1.36*
	(0.87)	(0.73)	(0.78)	(0.74)
(One son and one daughter) x Sex ratio	1.51*	1.40**	1.59**	1.45**
	(0.85)	(0.71)	(0.76)	(0.72)
Pseudo R^2	0.2015	0.2049	0.211	0.2137
Observations	556	556	556	556

*** Significant at 1% level ** Significant at 5% level * Significant at 1% level

Note: All specifications include the same control variables as in the regression on the subsample of age of household head ≤ 45, but their estimated coefficients are not reported here.