

Who Bequeaths, Who Rules: How the Right to Bequeath Affects Intrahousehold Bargaining

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August 2016

Abstract

We examine the influence of changes in status-bequest rules on the outcomes of bargaining between husband and wife in an urban setting in China, where a reform in 1998 ended women's monopoly on the transmission of residency permits (*hukou*) to children. This reform arguably weakened the intrahousehold bargaining position of women with privileged local *hukou* by reducing the demand for them on the urban marriage market. We find that female-favored consumption and investment in child education in pre-existing local-local urban marriages have been negatively affected by the reform. Our findings also indicate that this effect is stronger in settings in which local husbands have better re-marriage prospects.

Keywords: *hukou*; bequest; intrahousehold bargaining; urban China.

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1 Introduction

Forms of family resource allocation, such as consumption, investment in education and saving for old age, constitute the micro-foundations of an economy. Economists have long acknowledged that husbands and wives do not always reach a consensus, and that their interaction in part determines family resource allocation. There is abundant evidence suggesting that spouses with a greater economic value play a greater role in intrahousehold decision making. The often-mentioned mechanism is that individuals with a greater economic value have direct control over more resources and thus enjoy greater bargaining power within marriage. A corollary of this argument is that women can obtain a status within marriage equal to that of their husbands by gaining control of more economic resources. However, this mechanism is not as self-evident as it is often portrayed to be.

Consider Becker's (1973, 1974) famous account of marriage: "Nothing distinguishes married households more from single households... than the presence, even indirectly, of children." If children (or prospective children) provide a foundation for marriage, individuals capable of passing on more resources- or income-enhancing traits to their children are likely to be more sought after in the marriage market. And the availability of outside options provides those individuals more bargaining chips within a marriage. In other words, the more one can give to one's children, the more one can get from one's partner. Therefore, it is theoretically possible that one can improve her/his bargaining position (and receive more net transfer) within marriage without changing the amount of economic resources under control or altering her/his traits. For instance, if mothers' education plays a more important role in determining their children's educational outcomes, highly-educated wives would potentially have a bigger say within household. Similar argument can be made for the transferability of other fundamental resources/traits such as economic/social status, nationality, caste, and so on. More generally speaking, (expected) changes in the intergenerational mobility can lead to changes in equality within the existing generation. Since the transferability of these resources/traits are likely to be affected by public policies or legal restriction, it is thus important to ask to what extent the ability to transfer resources- or other income-enhancing

traits to one's children affects within-marriage bargaining outcomes.

Empirically, it is often difficult to distinguish the ability to transfer to children from direct control over resources. Fortunately, China offers a useful setting for the empirical investigation where changes in the government's rules governing status bequest affect individuals' ability to transfer resources to the next generation but are not associated with direct control over resources. We therefore focus on the formal right to bequeath status and examine the effects of changes in this right on intrahousehold allocation.

Our study is conducted in urban China, where a clearly defined rule governs the right to bequeath a very important form of hereditary legal status: *hukou* (household registration, or the "class system" of residency permits). Similar to caste in India, hereditary *hukou* entrenches social strata, emphasizing social distinctions between those with different types of residency status. Without local *hukou*, employment opportunities, access to public services such as inexpensive education and healthcare, and sometimes even the right to purchase cars and houses in the local area, are greatly restricted. Therefore, migrant workers in cities who have no local *hukou* are considered inferior to locals in the marriage market. In particular, unlike caste in Indian, the more developed the cities are, the higher the value of local *hukou* is. Due to China's enormous regional disparity, local *hukou* holders in economically advanced cities are considered high-status individuals.

Changes in *hukou* status are tightly controlled. However, a policy change in 1998 significantly affected the right to bequeath *hukou*, creating a context of particular relevance to this study. Before 1998, *hukou* inheritance was matrilineal, i.e., children were granted their mother's *hukou*. The law was amended in August 1998 to grant men the same right as women to transmit *hukou* to their children. We investigate the effects of the 1998 policy change on intrahousehold resource allocation in local-local marriages, the most common form of marriage in urban China. The 1998 reform affected neither the status of couples with the same *hukou* nor the status of their (prospective) children. As a result, the relative economic value of local-local marital partners has remained the same. This creates a setting well suited to our study, as it enables us to eliminate the mechanism of direct control over resources and isolate the mechanism of potential transfer to children. Furthermore, the only

channel for the influence of the policy on same *hukou* couples is the marriage market. If members of a given sex are granted the right to bequeath their status to their children, high-status individuals of this sex become more popular in the marriage market, increasing marital transfer even from spouses with a similarly high status.

We use a difference-in-difference (DID) identification strategy. The first difference is the 1998 policy change, which decreased the demand for local women in the marriage market. The second difference is the variation between cities in the density of female migrants who are potential migrant brides (instrumented by the 10-year lagged density of female migrants in each city). The policy change is expected to have caused a greater decrease in demand for local urban women in cities in which more potential migrant brides are available.

Our data are mainly drawn from China's Urban Household Survey (UHS). The survey provides not only individual-level data but also detailed information on household expenditure. We focus on expenditure on female-favored goods, such as women's clothes, cosmetics, children's clothes and children's education. As a robustness check, we also examine expenditure on male-favored goods, such as men's clothes, cigarettes and alcohol, and gender-neutral expenditure, such as overall household food expenses and expenditure on specific food items such as rice, pork and vegetables.

We find evidence to support our hypothesis that the 1998 change in China's *hukou* inheritance rules reduced the bargaining power of urban women within their households. We find that for cities having one standard deviation higher female migrant share, the policy change significantly reduced not only expenditure on women-related consumption such as women's clothes (by 2.4%) and cosmetics (by 7.3%), but also children-related expenditure such as children's clothes (by 9.2%) and children's education (by 3.7%). We further examine the influence of the policy change on women with different outside options. We find that the negative effect of the reform on female-favored consumption was particularly strong among women with weaker outside options, e.g., women who are relatively old compared to their husband.

Several robustness checks are conducted to justify our identification strategy. We first check whether the possible dissolution or the formation of households because of the policy

change affects our results, using households formed prior to the policy change. We then test whether expenditure on women-related consumption followed different time-trends in different cities had there been no policy change, using data from three years before the policy change, i.e., 1995, 1996 and 1997. Thirdly, we investigate whether our results are driven by different macroeconomic status in different cities which may induce household expenditure patterns found in the main results. For the sake of it, we estimate the effects of policy change on male-favored and gender-neutral expenditure on food items. Finally, one could still be concerned that gender-specific macroeconomic shocks in different cities could contaminate our results. For example, if local women in cities having higher ratio of female migrants had experienced slower growth of work opportunities between 1997 and 1999, then our estimates could be contaminated by the worsen bargaining position of women due to their relatively worse economic status within household. We test whether this concern matters by investigating whether the policy affects the probability to be employed and the probability to participate in labor force for women and men, respectively. All the results of robustness checks support our identification strategy.

To determine whether the mechanism underlying the effect of the policy involving children, we also construct tests based on differences between groups of couples in the likelihood of their having another child and the likelihood of their divorcing. We first compare the effects of the policy on younger and older couples. The older individuals are, the less likely they are to have another child, even after divorcing. We find that the effect is stronger for young couples (aged below 35). We further test whether the effect on young couples is stronger for those without a son. Given that son preference remains strong and the one-child policy is strictly enforced in China, husbands without sons are more likely to divorce their wives, remarry and have another child. Consistent with our conjecture, the effect of the policy is found to be stronger for young couples with daughters. This finding further corroborates our hypothesis that the potential transfer of status to children significantly affects intrahousehold allocation. The supportive evidence on this underlying mechanism, together with results from various robustness checks, also mitigate the concern that the estimated policy effect arises from other policy shocks during the relevant time periods.

Our study has several contributions. Firstly, most researchers emphasize gender bias in the right to inherit ancestral property, names or status. For example, Deininger et al. (2013) find that strengthening women’s inheritance right improves their bargaining position within their families and increases their financial independence. Roy (2015) finds that strengthening mothers’ inheritance rights increases their daughters’ level of schooling.¹ Although the right to inherit undoubtedly affects individuals’ well-being, another defining feature of any inheritance system is the right to bequeath, i.e., the right to pass on one’s status or property to the next generation. The right to bequeath is not always consistent with the right to inherit, and has received much less attention from researchers. In examining the right to bequeath, we provide a new perspective on the effects of inheritance regulations on gender relations. To the best of our knowledge, our study is the first to emphasize the role of status-bequest rules in intrahousehold bargaining. The rules governing property bequests may have a similar influence. Secondly, we disentangle the two mechanisms by which more resourceful individuals gain a better standing in their households: direct control over resources or the potential transfer of resources to children. Distinguishing these two mechanisms helps us understand how policies aiming at increasing intergenerational mobility can affect equality within current generation. Although some previous studies (e.g., Anderson (2003); Li and Wu (2013)) point out the importance of children for marital outcomes, they do not treat transfer to children as a distinct mechanism in determining intrahousehold resource allocation. Thirdly, we show that the marriage market provides a channel for the influence of the right to bequeath on intrahousehold allocation. Our findings imply that changes in economic value affect within-couple bargaining outcomes by altering relative demand and supply in the marriage market.

The remainder of this paper is organized as follows. In Section 2, the relevant literature is reviewed. In Section 3, background information is provided. The data are described in Section 4. Section 5 introduces the empirical strategy. The main results are reported in Section 6. In Section 7, the results of robustness checks are presented. In Section 8, we report

¹Jayachandran (2015) provides a more detailed survey.

the results of tests performed to determine the channel for the influence of status-bequest rules on intrahousehold resource allocation. Section 9 concludes the paper.

2 Relevant Literature

Our paper is linked to the literature on the distribution of bargaining power within households, which falls into two broad categories. Research in the first category investigates gender differences in types of economic value, such as income and asset ownership. For instance, Browning et al. (1994) find that the within-couple allocation of expenditure is significantly affected by partners' relative income, age and lifetime wealth. Duflo (2003) finds that pensions received by women in South Africa have a significant positive influence on the anthropometric status of children, especially girls, whereas pensions received by men have no similar effects. Anderson and Eswaran (2009) find that relative contribution to earned income plays a particularly important role in empowering women in Bangladesh, and Luke and Munshi (2011) report similar results in India. Wang (2013) finds that transferring household property rights to men increases household expenditure on certain goods favored by men and time spent by women on chores, whereas transferring property rights to women decreases household expenditure on certain male-favored goods. Majlesi (2016) explores a novel direction and examines how outside options on the labor market affect women's decision making power within household. Studies of the influence of gendered inheritance rights on the intrahousehold allocation of resources also belong to this category.

Our paper falls into the second category of research on within-household bargaining power, which addresses marriage-market conditions. This emphasis can be traced back to Becker's (1991) finding that the relative supply of males and females in the marriage market is an important determinant of intrahousehold allocation. Browning and Chiappori (1998) define distribution factors as variables that can affect intrahousehold decision making without influencing individual preferences or joint consumption; such factors include the sex ratio and divorce legislation. Chiappori, Fortin and Lacroix (2002) use a structural model to investigate the effects of various distribution factors on within-marriage transfer. Rangel (2006) finds

that the extension of alimony rights in Brazil has reduced the time spent on housework by the female members of cohabiting couples, as well as reducing their labor supply. Edlund, Liu and Liu (2013) find that the importation of foreign brides to Taiwan has increased domestic brides' fertility. Rasul (2008) shows that if couples bargain without commitment, the threat point in marital bargaining and the distribution of bargaining power determines the influence of each spouse's fertility preference on fertility outcomes. Sun and Zhao (2016) find that the reduction in divorce costs under China's new divorce law has resulted in a higher divorce rate and fewer sex-selective abortions. Lafortune et al. (forthcoming) analyze the impact of a reform granting alimony rights to cohabiting couples in Canada and they find that the reform benefits women for existing couples. However, for couples not yet formed, they find that the reform generates offsetting intrahousehold transfer and then lowers the benefits of women.

Our paper shows that the rules governing the right to bequeath status are important distribution factors in the marriage market. Although changes in these rules do not affect the right to bequeath of same-status couples, they may alter the relative demand for certain groups in the marriage market and thereby affect within-couple resource allocation.

3 *Hukou* and Marriages in China

The *hukou* system has been strictly enforced to control internal migration in China since the late 1950s (Cheng and Selden, 1994). This system identifies each person as a resident of a specific area and determines the allocation of public services and economic resources. Those without local *hukou* have no access to local public services such as inexpensive education and healthcare, and limited job opportunities in the formal sector. Their right to purchase houses and cars in the local area may also be restricted. Given the enormous economic disparity between regions of China, individuals from economically prosperous cities with local *hukou* are effectively high-status citizens. Due to its entrenchment of social strata, the *hukou* system is often regarded as China's version of a caste system.

Hukou is inherited from one's parents. Ordinary individuals are rarely permitted to

change their *hukou* status. To limit migration through marriage (typically the marriage of migrant women to higher-status men), the government imposed the additional requirement that only mothers can pass on their *hukou* to their children. The transmission of *hukou* status was matrilineal until August 1998, when the national government relaxed its restriction on *hukou* inheritance to allow both men and women to pass on *hukou* to their children. Under the new policy, children born after August 1998 can inherit *hukou* from either parent. Minors born before this policy change whose *hukou* is not in the same place as their fathers' can request a change of status. The government has committed to solving this problem gradually in response to individual requests.² However, the process of changing one's *hukou* is usually tedious and costly. Changes in *hukou* status through marriage or relocation remain tightly controlled.

Migrants without local *hukou* in cities are at a great disadvantage. Residents of poor and/or rural areas of China have been crowding into economically advanced cities in search of employment opportunities since the country's economic liberalization in the late 1970s. Despite the increased mobility in the labor market, migration with *hukou* did not increase and remained at approximately 0.15% to 0.2% of migration in China annually (Lu, 2003). Migrants experience discrimination and work in conditions that would be unacceptable to local residents. The majority of these individuals return to their home towns after several years of hard work in China's cities (e.g., Zhao, 1999, 2002; de Brauw *et al.*, 2002).

Migrants without local *hukou* are also at a disadvantage in the marriage market. The rate of inter-*hukou* marriage is extremely low. Previous studies have shown that only 4% to 6% of local residents who married between 1980 and 2000 had spouses born in another province. In contrast, the number of unmarried local urban men aged between 30 and 39 significantly outnumbered that of unmarried local urban women. Most of local urban men would rather search for a long time than marry a migrant women. This tendency has been changed after the 1998 policy change. The likelihood of marriage between local men and migrant women increased by nearly one half within merely two years after the 1998 change

²Source: State Council Order (1998) No. 24.

in the *hukou*-inheritance rule (Han, Li and Zhao, 2015). Although the overall rate of inter-*hukou* marriage remains modest, this sharp increase in the short term illustrates that migrant women are close substitutes at least for some local women in the marriage market if their prospect children do not have to inherit their migrant *hukou* status.

4 Data

Our main data are drawn from the UHS conducted by the National Bureau of Statistics (NBS) in China. The UHS only sampled households with local *hukou* in urban areas in all provinces in China before 2002 and therefore all migrants are excluded from the sample. The survey was expanded to include migrant households in urban areas after 2002 (Ge and Yang, 2014). The NBS uses a probabilistic sampling and stratified multistage method to select households. The sample is a rotating panel in which one-third of the sample is replaced each year, and hence the entire sample is changed every three years. Therefore, the data are essentially repeated cross-sections. The UHS not only contains demographic and income information for every member of the family, but also collects detailed information about household expenditure. Unfortunately, it has no information on assets. To collect this information, households are asked to keep daily records of their income and expenditures, which are collected by NBS every three months.³ The data we can get access to are aggregated to the year level and collected in forty-nine cities from nine Chinese provinces in a variety of geographical locations and economic conditions, including Beijing, Liaoning, Zhejiang, Anhui, Hubei, Guangdong, Sichuan, Shaanxi, and Gansu. The mean values and trends of the most important variables are comparable between our sample and the national sample.

Our main analysis uses data from 1997 and 1999. Data from 1995, 1996, 2000, and 2001 are used in various robustness checks. We do not use the 1998 data because the *hukou* reform took place in August 1998 and therefore the 1998 data we have are a mixture of pre-

³For in-kind income, households only need to keep monthly records and NBS collects the information every year.

and post-reform information. For our research purpose, we restrict our sample to households having information on both the husband and wife. In total, 30,980 households from six years are kept in the sample, all of which have local *hukou* by the sampling design of the UHS.

We also compile a city-level data set containing information on the density of female migrants and economic conditions. Our main measure of female migrant density is the share of female migrants aged between 20 and 45 years old in the same age female cohorts in each city. This measure is constructed for years 1990 and 2000 using a 1% sample of the 1990 population census and a 0.095% sample of the 2000 population census. Both waves of the population census ask about the location of *hukou* in the census year and the province of residence 5 years before. A migrant is defined as a person whose *hukou* is not in the place of residence in the census year and who was not living in the local province five years before. As no other reliable data are available on the number of migrants in each city in each year, the population census is the most reliable source to compute the density of migrants. However, one disadvantage of using census data is that the census is conducted every 10 years, so we only have information on migrant density for the census years 1990 and 2000. We obtain various city-level macroeconomic variables, including GDP per capita, GDP growth rate, share of GDP in primary, secondary, and tertiary industries, and average wages, from the Chinese City Statistical Yearbook (1995–2001 excluding 1998). Additionally, we use the UHS data to calculate the share of employees in state-owned enterprises (SOEs) in each city in each year.

Table 1 presents the summary statistics for the variables in our analysis. All of the monetary values are adjusted using provincial consumer price indices. Panel A reports the means and standard deviations for household-level variables. The average family size is 3.14 and the average number of children is 0.99, which suggests that most households in our sample are core families. Approximately 48% of families have sons. The average expenditure per capita is 5,915 yuan. As it is difficult to tell which gender is the main consumer of most goods, we focus on goods that are most likely to be gender specific. Four of the categories of expenditure are female-favored goods: women’s clothes, cosmetics, children’s clothes, and

children’s education.⁴ The share of expenditure on women’s clothes is 0.037, and the shares of expenditure on cosmetics and children’s clothes are both 0.006. On average, households spend 5.1% of their total expenditure on children’s education. Male-favored goods are men’s clothes, cigarettes, and alcohol. The share of expenditure on men’s clothes is 0.029. The shares of expenditure on cigarettes and alcohol are 0.048 and 0.014, respectively. We also examine gender-neutral expenditure such as overall food expenditure and expenditure on specific food items including rice, pork, and vegetables. The share of expenditure on food is 0.486, and the shares of expenditure on rice, pork and vegetables are 0.025, 0.047, and 0.046, respectively. Table 1 also shows that 72.4% of women and 81.6% of men were employed while 74.3% of women and 82.3% of men participated in the labor force.⁵

Panel B of Table 1 presents the summary statistics of the city-level variables. The share of female migrants has followed an increasing trend since the early 1990s. The average share of migrant women in the cohort of females aged 20–45 years is 0.062 for the year 2000 but only 0.003 for 1990. Although the density of migrants in 1990 is low, there is substantial variation. The standard deviation of this density is 0.012, which is four times the mean value. The average GDP per capita is 11,393 yuan, and the average annual growth rate of GDP is 13%. We can also see that on average the primary industry contributes to 19% of GDP, the secondary industry contributes to 45%, and the tertiary industry contributes to 36%. The city-level average wage is 8,242 yuan and 59.3% of employees work for SOEs.

5 Empirical Strategy

Our benchmark empirical model is a DID type model that uses both the 1998 policy change and the differences in the density of female migrants aged 20–45 across cities. The density of female migrants aged 20–45 is used as a proxy for the intensity of the policy shock to local

⁴We do not investigate expenditures on children’s health since UHS only has the information of health expenditure in the household level.

⁵The ratio of women or men employed is the ratio of women or men employed to the total sample, and the ratio of women or men participating in labor force is the ratio of women or men employed or without a job but looking for one to the total sample.

marriage markets. The rationale behind this proxy is that the 1998 policy change is expected to have bigger effects on the local marriage market in cities where more migrant women are available. We examine whether the change in intrahousehold bargaining outcomes after the policy change differs across cities with different levels of female migrant density. That is, we separately estimate the following equation for shares of expenditure on different goods.

$$Y_{ict} = \alpha_0 + \alpha_1 Mig_density_{c,2000} \times Post + \gamma_1 X_{ict} + \gamma_2 M_{ct} + \delta_c + \lambda_t + \epsilon_{ict} \quad (1)$$

where Y_{ict} stands for shares of expenditure on different types of good for household i in city c at year t ; $Mig_density_{c,2000}$ is the density of female migrants aged between 20 and 45 in city c , which is computed using the 2000 population census data; $Post$ is an indicator for the post-reform period, which takes the value of 1 for years after 1998; X_{ict} is a vector of covariates including the couple's characteristics (such as husbands' and wives' age and years of schooling), family characteristics (such as the logarithm form of total expenditure per capita, family size and the age structure of family members).⁶

Cities with different female migrant densities could have different macroeconomic cycles, which might also be correlated with household expenditure patterns. To control for these macroeconomic cycles, we include some city-level macroeconomic variables (such as GDP per capita, GDP growth rate, shares of GDP in different industries, and average wage) in the regressions. In addition, there was an SOE reform starting in 1998 which laid off many SOE employees.⁷ If more SOE employees were laid off in cities with more female migrants, then the change in household expenditure patterns could be due to the change in bargaining position between husband and wife because of the change in their relative economic status induced by the SOE reform, leading to bias in our estimates. Therefore, we control for the city-level share of SOE employees in the regression. All these city-level variables are included in M_{ct} .

⁶The age structure of the family includes shares of male family members aged 0–6, 7–18, 19–60, and above 60, and shares of female family members aged 0–6, 7–18 and 19–60. The share of female family members older than 60 is omitted to avoid collinearity.

⁷See Wu(2003) for a detailed description of the SOE reform.

We also include city fixed effects δ_c and year fixed effects λ_t . Therefore, the coefficient α_1 captures how the household bargaining outcomes changed after the policy change in cities with different densities of female migrants. Standard errors are calculated by clustering over the city level.

In the main analysis, we focus on expenditure on female-favored consumption. The UHS data contain information on two categories of women-specific consumption— women’s clothes and cosmetics. Because previous studies show that women tend to invest more in children than men (e.g., Duflo 2003), we also examine child-related expenditures including expenditure on children’s clothes and children’s education. The data for 1997 (pre-reform) and 1999 (post-reform) are used in estimating Equation (1).

The assumption underlying Equation (1) is that female migrant density in the year 2000, $Mig_density_{c,2000}$, should not be correlated with the error term. This assumption would be violated if the policy change induced a change in migration pattern in different cities. To address this concern, we use the city-level density of female migrants aged 20-45 years in 1990 as an IV for the density in 2000.

Concern remains as to whether the IV is correlated with the error term. One possible channel through which the IV might correlate with the error term is that expenditure in cities with a high migrant density in 1990 could have followed a different time trend from cities with low migrant density had there been no policy change. Our estimates would capture the difference in the two trends if this were the case. To check whether the parallel trends assumption is valid, we conduct several placebo tests by using data from the three years before the policy change, i.e., 1995, 1996 and 1997, to estimate Equation (1). If α_1 is statistically insignificant in the placebo tests, then we can have more confidence in the parallel trends assumption.

Another possible channel through which the IV might correlate with the error term is that the migrant density in 1990 could be correlated with macroeconomic status in different cities, which could affect the patterns of household expenditure. Including some macroeconomic level variables in the regression as we do can alleviate this problem. In addition, we conduct another placebo test by investigating the effect of the policy change on other household

expenditure items, such as male-favored goods and gender-neutral goods. If the IV estimates of Equation (1) are driven by unobserved macroeconomic shocks, we should see that the consumption pattern of female-favored goods is similar to that of male-favored goods or gender-neutral goods. A difference in those patterns would suggest that the changes are not likely to be driven by macroeconomic shocks.

One could still be concerned that macroeconomic shocks in different cities might be gender specific. For example, if local women in cities having higher ratio of female migrants in 1990 had experienced slower growth of work opportunities between 1997 and 1999, then our estimates could be contaminated by the worsen bargaining position of women due to their relatively worse economic status within household. We test whether this concern matters by investigating whether the policy affects the probability to be employed and the probability to participate in labor force for women and men, respectively. An insignificant effect of the policy change would suggest that this concern might not be a problem.

One more concern arises with the use of multiple cross-sectional data. Because our samples are not a panel data set, theoretically the composition of households in the sample may change from year to year. In particular, if more local-local households in cities with more female migrants dissolved after the policy change, our estimated effects would suffer from selection bias. Moreover, as pointed out in Lafortune et al. (forthcoming), newly formed households after the policy change could respond differently to the policy, leading to bias in our estimates. To address this concern, we conduct another robustness check by restricting our sample to those couples who married before 1998. As the UHS data do not have information on the year of marriage, we restrict the 1999 sample to households with children older than 2 years, as the couples in these households are most likely to have married before 1998.

6 Empirical Results

6.1 Main Results

Table 2 presents the OLS results for Equation (1). Columns (1)–(4) show the estimation results for the shares of expenditure on women’s clothes, cosmetics, children’s clothes, and children’s education, respectively. The coefficients on the interaction of the post dummy and female migrant density are negative and statistically significant at the 5% level for women’s clothes, cosmetics, and children’s education (-0.011, -0.003 and -0.015, respectively). Although the coefficient of the interaction $Post \times Mig_density$ is statistically insignificant for expenditure on children’s clothes, it is negative (-0.002).

However, as discussed in Section 5, the OLS estimates might be inconsistent if migration had already responded to the policy change before 2000. To address this issue, we use the density of female migrants aged 20–45 years in 1990 as an IV for this density in 2000.

The density of female migrants in 1990 is a strong predictor of the density in 2000. The first stage result is presented in column (1) of Table 3. The coefficient of the interaction of the post dummy and female migrant density in 1990 is 6.98 and it is statistically significant at the 1% level. This result means that the density of female migrants in 2000 is 6.98 percentage points higher in cities where this density was 1 percentage point higher in 1990. The F-value shown in the last row is 372.68, which is much higher than the conventional lower bound for a valid IV.

The second-stage results of the IV estimation are shown in columns (2)–(5) of Table 3. Those IV results are even stronger than the OLS results. The coefficients of the interaction of the post dummy and female migrant density are statistically significant at no less than the 5% level in all columns. The estimated coefficients are -0.008 (women’s clothes in column (2)), -0.004 (cosmetics in column (3)), -0.005 (children’s clothes in column (4)), and -0.017 (children’s education in column (5)). Compared with the average share of expenditure on women’s clothes (0.037, see Table 1), a one-standard-deviation increase (approximately 0.11) in female migrant density leads to a 2.4% (the product of 0.11 and 0.008 divided by 0.037)

decrease in expenditure on women’s clothes. A similar calculation shows that a one-standard-deviation increase in female migrant density leads to 7.3%, 9.2%, and 3.7% decreases in expenditure on cosmetics, children’s clothes, and children’s education, respectively.

Taken together, these results indicate that the 1998 change in the *hukou* bequest rule resulted in a decrease in the female-favored expenditure of local–local couples. Specially, not only women-specific consumption but also the investment in children’s education is adversely affected, which suggests that the adverse effect may be also borne out by next generation.

6.2 Heterogeneous Effects

If the estimated policy effect on female-favored consumption arises through the channel of marriage market, we would expect that females with relatively worse outside option than their husband are more adversely affected. Because being relatively old is usually considered as inferior traits in the Chinese marriage market, we test for the channel by examining whether the policy impact differs by the spousal gap in age (husband age minus wife age).

We include in Equation (1) the interactions between $Post \times Mig_density_{c,2000}$ and spousal age gap (together with all double interaction terms). We use the interactions of female migrant density in 1990 with relevant variables as IVs for the interactions of female migrant density in 2000 with the same variables. Table 4 reports the heterogeneous effects in terms of the husband–wife age gap. Columns (1)–(4) present the estimates for the shares of expenditure on women’s clothes, cosmetics, children’s clothes and children’s education. The coefficients on the triple interaction $Post \times Mig_density_{c,2000} \times age\ gap$ are positive in the last three columns. Moreover, this coefficient is statistically significant for the share of expenditure on cosmetics (column (2)) and children’s clothes (column (3)). These results illustrate that the share of expenditure on cosmetics and children’s clothes dropped less for women who are relatively younger, which is consistent with our hypothesis.

The above results consistently suggest that the negative effects of the 1998 change in the *hukou* bequest rule are stronger for local women who are relatively older and therefore have fewer outside options.

7 Robustness Checks

7.1 Testing for Effects of Possible Dissolution or the Formation of Families

As the data used in our empirical analysis do not have a panel data structure, one concern is that changes in the composition of households may confound our results, especially when the policy change affects the marriage matching pattern.⁸

To rule out this concern, we conduct the analysis using households formed prior to the policy change. Because the UHS data do not include information on years of marriage, we restrict households in 1999 sample to those with children older than 2 years. This group of households is most likely to have been formed before the policy change. The results estimated using 1997 sample and the subsample in 1999 are reported in Table 5. The coefficients of the interaction of the post dummy and female migrant density are all statistically significant. The estimated coefficients for the shares of expenditure on women’s clothes, cosmetics, children’s clothes and children’s education are -0.009 (column (1)), -0.004 (column (2)), -0.004 (column (3)), and -0.017 (column (4)), respectively. These estimates are remarkably similar to the estimated coefficients using the full sample (columns (2)–(5) of Table 3), suggesting that the possible change in the sample composition would not affect our estimates.

We also estimate Equation (1) using 1997 sample and newly formed households in 1999 sample (i.e. households without any children older than 2 years). We find that the effects are much weaker. It is consistent with Lafortune et al. (forthcoming) who suggest that newly formed households could respond to the policy before union which offsets the effects of the policy change. Table 1 in Appendix shows these results.

⁸A related concern is that it could be easier for migrant women who married local men to get local *hukou* after the policy change, and then these couples may be included in our post-reform sample. These migrant women could have a weaker bargaining power within households because they were not born locally even if they have local *hukou*. If there are more such cases in cities with higher female migrant shares, then our estimates are biased.

7.2 Testing for Pre-existing Time Trends

One threat to the validity of the IV estimation is that the IV could be correlated with pre-existing time trends that drive the estimation results. To address this concern, we conduct placebo tests. We firstly estimate Equation (1) using data from 1995 and 1996. In estimating this equation, we label 1996 as the “post” year. If the pre-existing trends are correlated with the IV, we would expect the interaction term $Post \times Mig_density_{c,2000}$ using $Post \times Mig_density_{c,1990}$ as an IV to be statistically significant. We then conduct the same exercise for years 1995 and 1997, and 1996 and 1997, respectively. The estimation results are presented in Table 6. For the sake of space limit, we only present the coefficient of the interaction term $Post \times Mig_density_{c,2000}$ using $Post \times Mig_density_{c,1990}$ as an IV for all four outcome variables. All the coefficients of the interaction term $Post \times Mig_density_{c,2000}$ are statistically insignificant. These results give us more confidence that the IV estimates are not driven by pre-existing time trends.

7.3 Effects of the Policy Change on Male-favored or Gender-neutral Expenditure

Another threat to the validity of the IV is that the IV could be correlated with macroeconomic conditions in different cities, which may induce different household expenditure patterns. Including macroeconomic variables in regressions, as we do in all previous regressions, can alleviate this problem. However, there is still the concern that unobserved macroeconomic variables might be correlated with the IV. To address this, we estimate the effects of the policy change on male-favored expenditure and gender-neutral expenditure on food items. If the estimated effects of the policy change on female-favored expenditure are driven by unobserved macroeconomic variables, we should see the same pattern for male-favored or gender-neutral goods.

Table 7 shows the IV estimations for male-favored expenditure. We can see that, contrary to the result for female-favored expenditure, all of the coefficients on the interaction term of the post dummy and female migrant density in the year 2000 are positive and statistically

significant at no less than the 5% level. The coefficients are 0.021 for men’s clothes (column (1)), 0.029 for cigarettes (column (2)) and 0.003 for alcohol (column (3)). These results are also consistent with our hypothesis that women’s bargaining power within the household is lowered. Table 8 shows the effect of the policy change on gender-neutral expenditure. Column (1) shows the share of expenditure on food. Columns (2)–(4) report expenditure on the three most commonly consumed food items, rice, pork, and vegetables. In all four columns, the coefficients on the interaction term of the post dummy and female migrant density in the year 2000 are not statistically significant.

The results shown in Tables 7 and 8 are different from those for female-favored expenditure shown in columns (2)–(5) of Table 3, suggesting that unobservable macroeconomic shocks would not lead to the results shown in Table 3.

7.4 Effects of the Policy Change on Labor Market Status

One could still be concerned that macroeconomic shocks in different cities might be gender specific. For example, local women in cities with higher ratio of female migrants could experience slower growth of work opportunities from 1997 to 1999 due to the more severe competition from female migrants. Therefore, the negative effects of the policy change could be due to women’s worsen bargaining position within household because of their worse economic status. To address this concern, we investigate the effects of the policy change on the probability to be employed and the probability to participate in labor force for women and men, respectively. We define a person as participating in labor force if he or she is employed or without a job but looking for one. Table 9 shows the results. We can see that none of the coefficients of the interaction term $Post \times Mig_density_{c,2000}$ using $Post \times Mig_density_{c,1990}$ as an IV are significant for either outcome variable, whether the women sample or the men sample is used. These findings suggest that our results in the main analysis are not driven by the worsening economic status of women in cities having higher ratio of female migrants.

7.5 Persistence of the Effects

It is natural to ask whether the adverse effect of the change in the *hukou* inheritance rule on urban women persists over time. If it does, this implies that the growing inequality between men and women due to the policy change might be more severe than expected and should be taken into account in future policy making. Additionally, persistent effects over time could suggest that our main results are not driven by some temporary shock that occurred between 1997 and 1999.

To investigate this issue, we use two more years of data (2000 and 2001). We replace the interaction of the post dummy and female migrant density in the year 2000 in Equation (1) with three interactions, i.e., the interactions of the year dummies for 1999, 2000 and 2001 with the female migrant density in 2000. As above, we use the interactions of these three year dummies and female migrant density in 1990 as IVs. The results are shown in Table 10. The adverse effect on expenditure on women's clothes (column (1)) persists through the period 1999–2001, whereas the negative effect on cosmetics is statistically insignificant in years 2000 and 2001 (column (2)). For children's clothes, the coefficients of the interactions of year dummies for 1999 and 2001 with female migrant density are significant, whereas that for 2000 is insignificant; they are negative. The coefficients for children's education are insignificant for all three years.

Our sample may contain more newly formed marriages as we extend the time period. Therefore, the longer-term effect may be confounded with the effect on the newly formed couples. As discussed in Lafortune et al. (forthcoming), the effect on newly formed partnerships is expected to be lower because offsetting intrahousehold transfers are expected to be generated. Taking this opposite confounding effect into consideration, our estimate of the policy effects on existing couples in a longer term should be deemed as a conservative one.

Overall, the adverse effects of the policy change on female-favored expenditure are not all transitory. The effects on women's clothes remain even three years after the reform.

8 Testing the Channels

Theoretically, there are two combined channels through which the change in the *hukou* status bequest rule could affect within-household bargaining. One is that people care about the status of their prospective children. Otherwise, local people would marry migrants even if there were no such policy change. The second one is that husbands' threats to divorce their wives are credible. In this section, we test these two channels.

First, we investigate whether the effects of the policy change are weaker for older couples. The probability of older couples having another child is lower and therefore the policy effect is expected to be lower. We divide the whole sample into two subsamples, one including couples older than 45 years old and the other one including couples younger than 35 years old. We estimate Equation (1) using these two samples separately. The results are reported in Table 11. Due to the space limit, we only show the coefficient of the interaction of the post dummy and female migrant density. All of the coefficients for the older sample, shown in column (1), are statistically insignificant. In contrast, all of the coefficients for the younger sample, shown in column (2), are statistically significant and the magnitudes of the coefficients are also greater than those estimated for the older sample.

Second, we investigate whether the effects are stronger for those younger couples whose children are all girls. Given the strong son preference and one-child policy in China, couples without a son are more likely to get divorced (Nie, 2008), causing husbands' threats to be more credible. We divide the younger couples into two subsamples, one having only daughters and the other including couples with no children and those with at least one son. We estimate Equation (1) using these two samples separately. Table 12 presents the results. As in Table 11, we only show the coefficient of the interaction of the post dummy and female migrant density. The first column shows the results for those couples only having daughters and the second column shows the results for the remaining couples. The effect of the policy change is generally stronger in the first column.

Combining the results shown in Tables 11 and 12, we can see that caring about prospective children's status and a credible threat to divorce are channels through which the policy

change can affect intrahousehold resource allocation.

9 Conclusion

In the context of urban China, we examine how the bargaining outcomes of couples with the same valuable local *hukou* respond to a policy change that granted men equal rights as women to pass on their *hukou* status to their children. We find that this policy change results in a decrease in female-favored consumption and an increase in male-favored consumption. This finding suggests a worsening relative position of local urban females in the local-local marriages. Evidence shows that the adverse impacts are more salient for local females who has worse outside options in the marriage market relative to their husbands. Our finding illustrates that the regulation on who has the right to bequeath status to next generation matters for intrahousehold bargaining of couples with the same status through changing their outside options in the marriage market. This conclusion can also apply to the more general case of bequeathing property to next generation. In such a case, one possible channel through which the more resourceful one in a marriage enjoys more bargaining power is that his/her potential of bequeathing makes him/her more attractive in the marriage market.

Although the *hukou* system is unique in China, our finding is useful for understanding similar changes in other contexts. Many societies have changed from the patrilineal status bequeathing rule to the ambilineal bequeathing rule, which grants the females equal rights to pass on their status. This change is often considered as part of female empowerment. Although the alleged goal of this type of female empowerment is usually to help increase the position of females in the inter-status marriages, our finding in fact shows that the changes targeting the relative minority in the marriage market can have broad impacts on the majority of marriages in which both husband and wife have the same status. In particular, our finding suggests that this type of female empowerment would increase the bargaining power of females who have high status regardless of marriage type. However, the mechanism that we have examined implies that this type of empowerment may well result in a “within-gender war” instead of a “gender war” in the sense that not all women can

gain. Low-status females may be unable to benefit from this type of empowerment because the relative demand for them may even be lower as high-status women become more sought after.

There are several limitations in our study. First, we are unable to track divorced couples because of data limitation. Family dissolution itself is an outcome of within-household bargaining which is worth exploring. Nevertheless, given the fairly low divorce rates in the time period we study, our study captures the changes in the majority of marriages that sustain. Second, we are unable to explore the effect of changes in the status bequest rights on marriages involving at least one low-status migrant because the rigid sorting by *hukou* leaves us only a small number of across-*hukou* marriages. Analysis of those marriages would help us understand the general equilibrium in the marriage market. Future research in this direction is merited.

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Table 1 Summary Statistics

<u>Panel A. Household level variables</u>	Mean	S.D.
Total expenditures per capita (yuan)	5914.567	4260.346
Share of expenditures on women clothes	0.037	0.037
Share of expenditures on cosmetics	0.006	0.008
Share of expenditures on children clothes	0.006	0.010
Share of expenditures on children education	0.051	0.074
Share of expenditures on men clothes	0.029	0.031
Share of expenditures on cigarette	0.048	0.067
Share of expenditures on alcohol	0.014	0.017
Share of expenditures on food	0.486	0.150
Share of expenditures on rice	0.025	0.023
Share of expenditures on pork	0.047	0.035
Share of expenditures on vegetable	0.046	0.028
Wife was employed	0.724	0.447
Wife participated in labor force	0.743	0.437
Wives' schooling years	10.458	3.064
Wives' age	44.696	10.418
Husband was employed	0.816	0.387
Husband participated in labor force	0.823	0.382
Husbands' schooling years	11.538	2.923
Husbands' age	47.246	11.033
Have sons	0.479	0.500
Number of children	0.989	0.597
Family size	3.143	0.741
Share of 0-6 years old HH member (male)	0.020	0.077
Share of 7-18 years old HH member (male)	0.086	0.143
Share of 19-60 years old HH member (male)	0.333	0.161
Share of 60+ years old HH member (male)	0.061	0.147
Share of 0-6 years old HH member (female)	0.020	0.076
Share of 7-18 years old HH member (female)	0.084	0.142
Share of 19-60 years old HH member (female)	0.346	0.145
Share of 60+ years old HH member (female)	0.049	0.130
OBS	30980	
<u>Panel B City level variables</u>	Mean	S.D.
Ratio of 20-45 migrant women in 2000	0.062	0.110
Ratio of 20-45 migrant women in 1990	0.003	0.012
GDP per capita (yuan)	11393.390	16900.050
GDP growth rate	0.130	0.264
Share of GDP in primary industry	18.686	10.180
Share of GDP in secondary industry	44.932	9.051
Share of GDP in tertiary industry	36.382	6.951
Average wage (yuan)	8242.340	2998.320
Ratio of employees in state-owned enterprises	0.593	0.124
OBS	49	

Note: Wife/husband participated in labor force if she/he was employed or did not have a job but was looking for one.

Table 2 Impact of Local Marriage Market on Intra-household Resource Allocation, OLS

	(1)	(2)	(3)	(4)
	Share of Expenditures on:			
	Women clothes	Cosmetics	Children clothes	Children education
Post*Mig_density2000	-0.011 (0.005)**	-0.003 (0.001)**	-0.002 (0.002)	-0.015 (0.007)**
Husband's age	0.001 (0.001)	-0.001 (0.000)***	-0.001 (0.000)**	-0.001 (0.002)
Wife's age	-0.006 (0.001)***	-0.000 (0.000)*	-0.002 (0.000)***	0.003 (0.002)
Husband's schooling years	0.005 (0.001)***	0.000 (0.000)	0.002 (0.000)***	-0.004 (0.003)
Wife's schooling years	0.010 (0.001)***	0.001 (0.000)***	0.001 (0.000)**	0.004 (0.002)*
Ln(total expenditures per capita)	0.007 (0.001)***	0.001 (0.000)***	-0.001 (0.000)***	0.006 (0.003)**
Household demographic structure	YES	YES	YES	YES
Macroeconomic variables	YES	YES	YES	YES
Year dummies and city dummies	YES	YES	YES	YES
Observations	10351	10351	10351	10351
R-squared	0.17	0.11	0.22	0.16

Robust standard errors in parentheses are calculated by clustering over city level. * significant at 10%; ** significant at 5%; *** significant at 1%. Household demographic structure includes family size, ratio of male family members aged 0-6, 7-18, 19-60, and above 60, ratio of female family members aged 0-6, 7-18, and 19-60. Ratio of female family members aged above 60 is omitted to avoid multi-collinearity. Macroeconomic variables include log GDP per capita, GDP growth rate, ratio of GDP in primary industry, ratio of GDP in secondary industry, log average wage in city level, ratio of SOE employees.

Table 3 Impact of Local Marriage Market on Intra-household Resource Allocation, IV

	(1)	(2)	(3)	(4)	(5)
	Post* Mig_density2000	Women clothes	Cosmetics	Share of expenditures on: Children clothes	Children education
Post*Mig_density1990	6.975 (0.361)***				
Post*Mig_density2000 (Post*Mig_density1990 as IV)		-0.008 (0.003)**	-0.004 (0.001)***	-0.005 (0.001)***	-0.017 (0.006)***
Husband's age	0.001 (0.001)	0.001 (0.001)	-0.001 (0.000)***	-0.001 (0.000)**	-0.001 (0.002)
Wife's age	-0.001 (0.001)	-0.006 (0.001)***	-0.000 (0.000)*	-0.002 (0.000)***	0.003 (0.002)
Husband's schooling years	-0.000 (0.001)	0.005 (0.001)***	0.000 (0.000)	0.002 (0.000)***	-0.004 (0.003)
Wife's schooling years	-0.002 (0.001)	0.010 (0.001)***	0.001 (0.000)***	0.001 (0.000)**	0.004 (0.002)*
Ln(total expenditures per capita)	-0.001 (0.001)	0.007 (0.001)***	0.001 (0.000)***	-0.001 (0.000)***	0.006 (0.003)**
Household demographic structure	YES	YES	YES	YES	YES
Macroeconomic variables	YES	YES	YES	YES	YES
Year dummies and city dummies	YES	YES	YES	YES	YES
Observations	10305	10305	10305	10305	10305
R-squared	0.84	0.17	0.11	0.22	0.16
F-value	372.68				

Robust standard errors in parentheses are calculated by clustering over city level. * significant at 10%; ** significant at 5%; *** significant at 1%. Household demographic structure includes family size, ratio of male family members aged 0-6, 7-18, 19-60, and above 60, ratio of female family members aged 0-6, 7-18, and 19-60. Ratio of female family members aged above 60 is omitted to avoid multi-collinearity. Macroeconomic variables include log GDP per capita, GDP growth rate, ratio of GDP in primary industry, ratio of GDP in secondary industry, log average wage in city level, and ratio of SOE employees.

Table 4 Heterogeneous Effects in Terms of Husband-wife Age Gap

	(1)	(2)	(3)	(4)
		Share of Expenditures on:		
	Women clothes	Cosmetics	Children clothes	Children education
Post*Mig_density2000*Age gap (Post*Mig_density1990*Age gap as an IV)	-0.005 (0.007)	0.011 (0.002)***	0.005 (0.002)**	0.007 (0.012)
Post*Mig_density2000 (Post*Mig_density1990 as an IV)	-0.006 (0.004)	-0.007 (0.002)***	-0.006 (0.001)***	-0.020 (0.008)***
Mig_density2000*Age gap (Mig_density1990*Age gap as an IV)	-0.006 (0.006)	-0.005 (0.002)***	-0.002 (0.002)	0.002 (0.011)
Post*Age gap	0.002 (0.003)	-0.001 (0.001)*	0.000 (0.001)	-0.006 (0.004)
Husband's age	0.000 (0.002)	-0.001 (0.000)*	-0.001 (0.001)	0.001 (0.003)
Wife's age	-0.006 (0.002)***	-0.001 (0.000)**	-0.002 (0.001)***	0.000 (0.003)
Husband's schooling years	0.005 (0.001)***	0.000 (0.000)	0.002 (0.000)***	-0.004 (0.003)
Wife's schooling years	0.010 (0.001)***	0.001 (0.000)***	0.001 (0.000)**	0.004 (0.002)*
Ln(total expenditures per capita)	0.007 (0.001)***	0.001 (0.000)***	-0.001 (0.000)***	0.006 (0.003)**
Household demographic structure	YES	YES	YES	YES
Macroeconomic variables	YES	YES	YES	YES
Year dummies and city dummies	YES	YES	YES	YES
Observations	10305	10305	10305	10305

Robust standard errors in parentheses are calculated by clustering over city level. * significant at 10%; ** significant at 5%; *** significant at 1%. Household demographic structure includes family size, ratio of male family members aged 0-6, 7-18, 19-60, and above 60, ratio of female family members aged 0-6, 7-18, and 19-60. Ratio of female family members aged above 60 is omitted to avoid multi-collinearity. Macroeconomic variables include log GDP per capita, GDP growth rate, ratio of GDP in primary industry, ratio of GDP in secondary industry, log average wage in city level, and ratio of SOE employees.

Table 5 Effects on Households Mostly Likely to be Formed Before Reform

	(1)	(2)	(3)	(4)
	Share of expenditures on:			
	Women clothes	Cosmetics	Children clothes	Children education
Post*Mig_density2000 (Post*Mig_density1990 as IV)	-0.009 (0.003)**	-0.004 (0.001)***	-0.004 (0.001)***	-0.017 (0.008)**
Husband's age	0.001 (0.001)	-0.001 (0.000)***	-0.001 (0.000)**	-0.002 (0.002)
Wife's age	-0.006 (0.001)***	-0.000 (0.000)	-0.002 (0.000)***	0.004 (0.002)*
Husband's schooling years	0.006 (0.001)***	0.000 (0.000)	0.002 (0.000)***	-0.005 (0.004)
Wife's schooling years	0.011 (0.001)***	0.001 (0.000)**	0.001 (0.000)**	0.004 (0.002)
Ln(total expenditures per capita)	0.008 (0.001)***	0.002 (0.000)***	-0.001 (0.000)***	0.006 (0.003)**
Household demographic structure	YES	YES	YES	YES
Macroeconomic variables	YES	YES	YES	YES
Year dummies and city dummies	YES	YES	YES	YES
Observations	9391	9391	9391	9391
R-squared	0.16	0.11	0.22	0.15

Robust standard errors in parentheses are calculated by clustering over city level. * significant at 10%; ** significant at 5%; *** significant at 1%. The sample used includes all households in 1997 sample and households with children older than 2 years in 1999 sample. Household demographic structure includes family size, ratio of male family members aged 0-6, 7-18, 19-60, and above 60, ratio of female family members aged 0-6, 7-18, and 19-60. Ratio of female family members aged above 60 is omitted to avoid multi-collinearity. Macroeconomic variables include log GDP per capita, GDP growth rate, ratio of GDP in primary industry, ratio of GDP in secondary industry, log average wage in city level, and ratio of SOE employees.

Table 6 Pre-trend Testing

	(1)	(2)	(3)
	1995 and 1996	1995 and 1997	1996 and 1997
Share of expenditures on women clothes	-0.011 (0.008)	-0.006 (0.006)	0.001 (0.003)
Share of expenditures on cosmetics	0.000 (0.001)	0.001 (0.001)	0.001 (0.001)
Share of expenditures on children clothes	0.002 (0.002)	-0.002 (0.002)	-0.001 (0.001)
Share of expenditures on children education	-0.019 (0.012)	-0.010 (0.010)	-0.011 (0.007)

Robust standard errors in parentheses are calculated by clustering over city level. * significant at 10%; ** significant at 5%; *** significant at 1%. The same regressions as that in columns 2-5 in Table 3 are estimated. 1996 is defined to be post-reform year in column 1 and 1997 is defined to be post-reform year in columns 2 and 3. The coefficients shown in this table are those of the interaction of the post dummy and the female migrant density in 2000 using the interaction of the post dummy and the female migrant density in 1990 as an IV.

Table 7 Impact of Local Marriage Market on Male-favored Goods

	(1)	(2)	(3)
	Share of expenditures on:		
	Men clothes	Cigarette	Alcohol
Post*Mig_density2000 (Post*Mig_density1990 as IV)	0.021 (0.004)***	0.029 (0.006)***	0.003 (0.001)**
Husband's age	-0.003 (0.001)**	-0.004 (0.003)	-0.001 (0.001)*
Wife's age	-0.001 (0.001)	-0.005 (0.003)	-0.000 (0.001)
Husband's schooling years	0.006 (0.001)***	-0.024 (0.003)***	-0.005 (0.001)***
Wife's schooling years	0.005 (0.002)***	-0.017 (0.004)***	-0.005 (0.001)***
Ln(total expenditures per capita)	0.004 (0.001)***	-0.005 (0.002)**	-0.002 (0.001)**
Household demographic structure	YES	YES	YES
Macroeconomic variables	YES	YES	YES
Year dummies and city dummies	YES	YES	YES
Observations	10305	10305	10305
R-squared	0.12	0.10	0.13

Robust standard errors in parentheses are calculated by clustering over city level. * significant at 10%; ** significant at 5%; *** significant at 1%. Household demographic structure includes family size, ratio of male family members aged 0-6, 7-18, 19-60, and above 60, ratio of female family members aged 0-6, 7-18, and 19-60. Ratio of female family members aged above 60 is omitted to avoid multi-collinearity. Macroeconomic variables include log GDP per capita, GDP growth rate, ratio of GDP in primary industry, ratio of GDP in secondary industry, log average wage in city level, and ratio of SOE employees.

Table 8 Impact of Local Marriage Market on Gender-neutral Goods

	(1)	(2)	(3)	(4)
		Share of expenditures on:		
	Food	Rice	Pork	Vegetable
Post*Mig_density2000 (Post*Mig_density1990 as IV)	-0.011 (0.025)	-0.008 (0.009)	0.010 (0.013)	0.001 (0.004)
Husband's age	0.009 (0.004)**	0.004 (0.001)***	0.002 (0.001)	0.003 (0.001)***
Wife's age	0.004 (0.004)	-0.000 (0.001)	0.004 (0.002)**	0.000 (0.001)
Husband's schooling years	-0.031 (0.005)***	-0.004 (0.001)***	-0.006 (0.001)***	-0.003 (0.001)**
Wife's schooling years	-0.030 (0.006)***	-0.005 (0.001)***	-0.006 (0.002)***	-0.006 (0.001)***
Ln(total expenditures per capita)	-0.188 (0.005)***	-0.025 (0.002)***	-0.030 (0.002)***	-0.032 (0.001)***
Household demographic structure	YES	YES	YES	YES
Macroeconomic variables	YES	YES	YES	YES
Year dummies and city dummies	YES	YES	YES	YES
Observations	10305	10305	10305	10305
R-squared	0.45	0.44	0.46	0.45

Robust standard errors in parentheses are calculated by clustering over city level. * significant at 10%; ** significant at 5%; *** significant at 1%. Household demographic structure includes family size, ratio of male family members aged 0-6, 7-18, 19-60, and above 60, ratio of female family members aged 0-6, 7-18, and 19-60. Ratio of female family members aged above 60 is omitted to avoid multi-collinearity. Macroeconomic variables include log GDP per capita, GDP growth rate, ratio of GDP in primary industry, ratio of GDP in secondary industry, log average wage in city level, and ratio of SOE employees.

Table 9 Impact of Local Marriage Market on Employment Status and Labor Force Participation

	(1)	(2)	(3)	(4)
	Wife		Husband	
	Employed	Participating in labor force	Employed	Participating in labor force
Post*Mig_density2000 (Post*Mig_density1990 as IV)	0.009 (0.041)	0.047 (0.031)	0.018 (0.025)	0.023 (0.032)
Husband's age	-0.067 (0.018)***	-0.062 (0.016)***	-0.181 (0.012)***	-0.185 (0.013)***
Wife's age	-0.140 (0.016)***	-0.158 (0.015)***	0.031 (0.013)**	0.032 (0.013)**
Husband's schooling years	-0.032 (0.012)**	-0.036 (0.013)***	0.033 (0.010)***	0.029 (0.010)***
Wife's schooling years	0.195 (0.020)***	0.174 (0.018)***	0.007 (0.013)	0.004 (0.012)
Ln(total expenditures per capita)	0.029 (0.010)***	0.013 (0.008)	0.020 (0.008)**	0.015 (0.008)*
Household demographic structure	YES	YES	YES	YES
Macroeconomic variables	YES	YES	YES	YES
Year dummies and city dummies	YES	YES	YES	YES
Observations	10305	10305	10305	10305
R-squared	0.48	0.52	0.58	0.59

Robust standard errors in parentheses are calculated by clustering over city level. * significant at 10%; ** significant at 5%; *** significant at 1%. Wife/husband participated in labor force if she/he was employed or did not have a job but was looking for one. Household demographic structure includes family size, ratio of male family members aged 0-6, 7-18, 19-60, and above 60, ratio of female family members aged 0-6, 7-18, and 19-60. Ratio of female family members aged above 60 is omitted to avoid multi-collinearity. Macroeconomic variables include log GDP per capita, GDP growth rate, ratio of GDP in primary industry, ratio of GDP in secondary industry, log average wage in city level, and ratio of SOE employees.

Table 10 Impact of Local Marriage Market on Intra-household Resource Allocation in the Long Run

	(1)	(2)	(3)	(4)
	Share of expenditures on:			
	Women clothes	Cosmetics	Children clothes	Children education
Year 1999 dummy*Mig_density2000 (Year 1999 dummy*Mig_density1990 as an IV)	-0.009 (0.004)**	-0.004 (0.001)***	-0.004 (0.001)***	-0.008 (0.007)
Year 2000 dummy*Mig_density2000 (Year 2000 dummy*Mig_density1990 as an IV)	-0.010 (0.004)***	-0.002 (0.002)	-0.001 (0.001)	-0.005 (0.012)
Year 2001 dummy*Mig_density2000 (Year 2001 dummy*Mig_density1990 as an IV)	-0.020 (0.004)***	-0.003 (0.002)	-0.003 (0.001)***	-0.022 (0.029)
Husband's age	-0.002 (0.001)	-0.001 (0.000)***	-0.001 (0.000)***	-0.003 (0.002)
Wife's age	-0.004 (0.001)***	-0.001 (0.000)**	-0.002 (0.000)***	0.003 (0.002)
Husband's schooling years	0.006 (0.001)***	0.000 (0.000)	0.002 (0.000)***	-0.008 (0.003)***
Wife's schooling years	0.010 (0.001)***	0.001 (0.000)***	0.001 (0.000)**	0.004 (0.002)*
Ln(total expenditures per capita)	0.006 (0.001)***	0.002 (0.000)***	-0.001 (0.000)***	0.010 (0.002)***
Household demographic structure	YES	YES	YES	YES
Macroeconomic variables	YES	YES	YES	YES
Year dummies and city dummies	YES	YES	YES	YES
Observations	20363	20363	20363	20363
R-squared	0.18	0.10	0.22	0.14

Robust standard errors in parentheses are calculated by clustering over city level. * significant at 10%; ** significant at 5%; *** significant at 1%. Household demographic structure includes family size, ratio of male family members aged 0-6, 7-18, 19-60, and above 60, ratio of female family members aged 0-6, 7-18, and 19-60. Ratio of female family members aged above 60 is omitted to avoid multi-collinearity. Macroeconomic variables include log GDP per capita, GDP growth rate, ratio of GDP in primary industry, ratio of GDP in secondary industry, log average wage in city level, ratio of SOE employees.

Table 11 Testing for the Channel: Impacts for Different Groups of Households

	Husband and wife older than 45	Husband and wife younger than 35
Share of expenditures on women clothes	-0.009 (0.006)	-0.020 (0.007)***
Share of expenditures on cosmetics	-0.003 (0.002)	-0.007 (0.003)**
Share of expenditures on children clothes	-0.002 (0.002)	-0.011 (0.004)***
Share of expenditures on children education	0.010 (0.010)	-0.067 (0.015)***

* significant at 10%; ** significant at 5%; *** significant at 1%. The same regressions as those in Table 3 are estimated. The coefficients shown in this table is those of Post*Mig_density2000 (using Post*Mig_density1990 as an IV).

Table 12 Testing for the Channel: Impacts for Different Couples Younger than 35

	All children are girls	Having no girls
Share of expenditures on women clothes	-0.047 (0.013)***	-0.010 (0.013)
Share of expenditures on cosmetics	-0.013 (0.004)***	0.001 (0.003)
Share of expenditures on children clothes	-0.009 (0.005)*	-0.014 (0.005)**
Share of expenditures on children education	-0.080 (0.029)***	-0.029 (0.013)**

* significant at 10%; ** significant at 5%; *** significant at 1%. The same regressions as those in Table 3 are estimated. The coefficients shown in this table is those of Post*Mig_density2000 (using Post*Mig_density1990 as an IV).

Appendix

Table 1 Effects on Households Most Likely to be Formed After Reform

	(1)	(2)	(3)	(4)
	Share of expenditures on:			
	Women clothes	Cosmetics	Children clothes	Children education
Post*Mig_density2000 (Post*Mig_density1990 as IV)	0.001 (0.007)	-0.000 (0.002)	-0.006 (0.003)*	-0.016 (0.016)
Husband's age	-0.001 (0.002)	-0.001 (0.000)***	-0.001 (0.000)**	-0.000 (0.003)
Wife's age	-0.005 (0.002)***	-0.001 (0.000)**	-0.002 (0.000)***	-0.001 (0.003)
Husband's schooling years	0.003 (0.002)*	-0.000 (0.000)	0.002 (0.001)***	-0.002 (0.004)
Wife's schooling years	0.010 (0.001)***	0.001 (0.000)***	0.001 (0.000)**	0.007 (0.003)**
Ln(total expenditures per capita)	0.008 (0.001)***	0.002 (0.000)***	-0.001 (0.000)***	0.007 (0.003)**
Household demographic structure	YES	YES	YES	YES
Macroeconomic variables	YES	YES	YES	YES
Year dummies and city dummies	YES	YES	YES	YES
Observations	6088	6088	6088	6088
R-squared	0.17	0.13	0.22	0.16

Robust standard errors in parentheses are calculated by clustering over city level. * significant at 10%; ** significant at 5%; *** significant at 1%. The sample used includes all households in 1997 sample and households without any children older than 2 years in 1999 sample. Household demographic structure includes family size, ratio of male family members aged 0-6, 7-18, 19-60, and above 60, ratio of female family members aged 0-6, 7-18, and 19-60. Ratio of female family members aged above 60 is omitted to avoid multi-collinearity. Macroeconomic variables include log GDP per capita, GDP growth rate, ratio of GDP in primary industry, ratio of GDP in secondary industry, log average wage in city level, and ratio of SOE employees.