

**Property Right Talks: The 2011 Chinese Divorce Reform and Its Gendered  
Consequences**

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## **Abstract**

This study examines the effect of intra-household property rights on household members' well-being by exploiting the 2011 Chinese divorce reform. This reform transfers ownership of the family home to the registered buyer, most often the husband, in the event of a divorce. Prior to this legal change, the family home was considered joint property. Using data from the China Family Panel Studies (CFPS), a nationally representative survey of Chinese households, I implement a difference-in-differences strategy to compare the outcomes of married individuals in households where only the husband's name is on the deed and in those where the husband and the wife have equal house ownership status. My findings reveal that in the short term, the 2011 Chinese divorce reform leads to diminished well-being for women in a typical Chinese household where the deed to the marital home is in the husband's name only. This adverse effect is particularly large for women with perceptions of high divorce risks. No significant effects are found for either women or men living in a household where only the wife's name is on the deed. The findings provide some evidence supporting the argument that gender constraints override the pattern of how intra-household property rights affect household members' well-being. In addition to gender-neutral theories, more theories based on gender are needed to describe family dynamics. The findings demonstrate how a seemingly gender-neutral policy can generate gendered consequences. It is critical that policy makers consider implications for intra-household inequality.

**Keywords:** Divorce Law, Property Rights, Gender Inequality, Patriarchy, Household Bargaining

## 1. Introduction

Despite a booming economy, gender equality remains an elusive pursuit for China. According to the Global Gender Gap Index published by the World Economic Forum, China ranked 63<sup>rd</sup> among 115 countries (45<sup>th</sup> percentile) in gender equality in 2006 (Hausmann et al., 2006) and has continued to regress relative to other countries over the past decade. In 2016, China fell to 99<sup>th</sup> among 144 countries (31<sup>st</sup> percentile) in gender equality (Leopold et al., 2016). Aggregate statistics indicate that Chinese women are disadvantaged relative to Chinese men in almost all aspects: income (All-China Women's Federation, 2011), education (The World Bank, 2006b), employment (The World Bank, 2006b), occupation (Ngo, 2002; Shu, 2005), health (The World Bank, 2006b), property ownership (Duncan & Li, 2001; FAO, 2011), leadership (Credit Suisse Research Institute, 2014; The World Economic Forum, 2015), and political representation (The World Bank, 2006b).

Reducing gender inequality could benefit China in several ways. First, promoting gender equality raises women's economic productivity, which leads to economic growth (FAO, 2011). Second, the populations living in poverty in less-developed regions of the country are disproportionately women (The World Bank, 2006a). Improving gender equality by reducing female poverty rates could help reduce the overall poverty rate in China (The World Bank, 2006a). Third, when women have access to more resources within the household, they have higher bargaining positions in the family. Studies consistently show that children benefit when the mother's bargaining power increases because women tend to invest more in children (Behrman & Skoufias, 2006; Duflo, 2000; Lépine & Strobl, 2013; Rangel, 2006; Thomas, 1990). With healthier and better educated offspring, a long-term benefit is improved quality of human capital in future generations (Osmani & Sen, 2003).

In this paper, I focus on an important but less studied aspect of gender inequality –

intra-household property ownership – and examine how changes in property ownership within the household affect both men’s and women’s well-being, by exploiting a recent major divorce reform in China. On August 13th, 2011, a new interpretation of the Marriage Law was enforced by the Chinese Supreme Court.<sup>1</sup> Prior to this change, the family home was, in general, considered joint property upon divorce. The new interpretation stipulates that upon divorce, a family home belongs to the registered buyer. Traditionally, the husband and his birth family provide the family home and only the husband’s name is on the deed. This legal change will therefore lead to a significant number of Chinese women losing their portion of ownership in the marital home in the event of divorce. Using data from the China Family Panel Studies (CFPS), a nationally representative survey of Chinese households, I implement a difference-in-differences strategy to compare the outcomes of married individuals in households where only the husband’s name is on the deed and in those where the husband and the wife have equal house ownership status.

This study has important theoretical implications for household bargaining theories. The first theoretical contribution is to highlight the role of perceptions of divorce risks in how divorce-related family policies affect household outcomes. In many developing regions, divorce is legally feasible but practically difficult or culturally unacceptable. This study is the first to emphasize the heterogeneous effects of divorce-related family policies on household outcomes by household members’ perceptions of divorce risks. The second theoretical contribution is to highlight the independent effects of gender when understanding intra-household dynamics. Existing theories along this line tend to take a gender-neutral perspective. The findings of this paper suggest that gender expectations shaped by patriarchal features of the Chinese society play a key role in understanding family dynamics, net of

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<sup>1</sup> *Interpretation (III) of the Supreme People’s Court of Several Issues on the Application of the Marriage Law of the People’s Republic of China* (Document Number: Interpretation No. 18 of the Supreme People’s Court).

economic considerations.

This study also has important practical implications. This study is the first to empirically examine the consequences of the 2011 divorce reform, the most recent divorce reform in China. In 2011, China had a population of roughly 1,347 million, with a marriage rate of 73%<sup>2</sup> and a homeownership rate of 90%.<sup>3</sup> Therefore, up to 890 million individuals could have been affected by the 2011 divorce law change, in addition to the effects on future generations. Findings from carefully evaluating the 2011 Chinese divorce reform have important policy implications for policy makers in China and other developing countries.

## **2. Intra-Household Gender Inequality in China**

The progress of gender equality in China has been slow since the ‘reform and opening-up’ policies in 1978 (Chi & Li, 2014; Gustafsson & Li, 2000; Hannum, 2005; Knight & Song, 2003), with the exception of educational attainment (Lavelly et al., 1990; Wu & Zhang, 2010). The narrowing gender gap in educational attainment coupled with the widening gender gap in income and wealth presents a major paradox in the Chinese inequality literature (see Appendix Figure A1). This paradox could potentially be explained by the persistence of micro-level, intra-household gender inequality (Fuwa, 2004; Xie, 2013). Compared to their male counterparts, educated women are more likely to accept lower paying jobs because of their heavier burden of household tasks. Additionally, Chinese households’ gendered investment decisions for sons versus daughters can also be explained by women’s lower household bargaining power compared to their husbands (Qian, 2008). However, despite the continuing focus on macro-level gender inequality, few studies have focused on intra-household gender inequality in China.

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<sup>2</sup> The number is estimated from the China 2005 One-Percent Population Survey.

<sup>3</sup> The number is estimated from the 2011 China Household Finance Survey (CHFS).

The lack of focus on intra-household gender inequality is at least partly due to the traditional belief that gendered division of household labor allows households to function more efficiently, and a well-functioning household benefits both men and women. This belief is reflected in old Chinese sayings such as “*nan zhu wai nv zhu nei*” (men take care of things outside the household, whereas women take care of things within the household). This traditional patriarchal gender discourse resurged in the post-reform period, which some argue was reinforced through market liberalism via the male wage premium (Ji et al., 2017; Wu, 2009). As a result, not only men but also women in China increasingly believe that women are responsible for taking care of the household (National Bureau of Statistics of China, 2010). Understanding whether and how intra-household gender inequality affects household members’ well-being is particularly important in the modern Chinese context, considering that China’s family policies overlook intra-household gender inequality.

Despite documentations on intra-household gender inequality in time allocation (Brown, 2009; Qi & Dong, 2016; Qi et al., 2017; Ruan, 1984; Wang, 2014; Yu & Xie, 2011; Zhang & Farley, 1995) and household consumption (Brown, 2009; Sun & Zhao, 2016; Wang, 2014), we still know little about how this inequality affects the well-being of household members. Most outcomes examined in existing studies do not directly measure well-being, and it is not clear how we should interpret the results in terms of well-being. Measures such as consumption, production, and labor force participation are difficult to interpret in terms of well-being because preferences on those outcomes are often unobserved (Doss, 2013). For example, higher female participation in the labor force may come at the expense of leisure time, which is linked to decreased well-being. However, it also provides women with greater independent income, which is linked to increased well-being. When it comes to household consumption, these studies tend to make the assumptions that women prefer certain types of consumption (e.g. tea and salon visits) and oppose male-associated preferences (e.g.

cigarettes and alcohol) (Doss, 2013).

In this study, I aim to address the question of how intra-household gender inequality affects women's and men's well-being by focusing on intra-household inequality in property rights. My focus on intra-household property rights is driven by the fact that among all the resources typically held by a family, land and housing account for a significant portion of household wealth throughout the world. In the United States, real estate represented almost one-third of total household wealth in 2010 and 2013 (Wolff, 2016).<sup>4</sup> The proportion is typically even larger in developing countries. In China, land and housing assets represented 78.9% of urban household wealth and 79.6% of rural household wealth in 2012 (Xie & Jin, 2015).<sup>5</sup>

### **3. Divorce Laws and Trends in China**

Changes in property rights within Chinese households have been closely linked to marriage-related legal changes since the establishment of the People's Republic of China in 1949. The first Marriage Law was promulgated in 1950 by the new Chinese government with the purpose of ensuring women's rights to property upon divorce (Articles 23-25). Although the 1950 Marriage Law grants the right to divorce unilaterally (Article 17), divorce was extremely difficult in practice due to institutional, political, and cultural factors (Celello & Kholoussy, 2016; Woo, 2003). The Chinese government amended the Marriage Law in 1980, allowing divorce due to incompatibility (Article 25), making divorce easier and leading to a significant increase in the divorce rate between 1980 and 1990 (Celello & Kholoussy, 2016). An increasing number of divorce cases brought to court related to property divisions are due

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<sup>4</sup> Numbers calculated from Table 3 in Wolff (2016), by adding percentages of Principal residence and Other real estate, and minus Debt on principal residence.

<sup>5</sup> Numbers calculated from Table 4 in Xie and Jin (2015), by adding percentages of Land Assets and Housing Assets, and minus Housing Debts.



to the lack of specific articles in the divorce law. The Chinese Supreme Court, therefore, announced in 1993 that housing and other valuable assets purchased prior to marriage are considered joint property, conditional on common usage and management for eight years (Article 6).<sup>6</sup>

An amendment to the Marriage Law in 2001 further elaborates on the definition of personal property within marriage (Article 18) and introduces provisions for financial compensations (Article 40). Specifically, properties acquired during the marriage, including land use rights, are considered to be joint property (Article 17, Article 39). The 2001 divorce law is considered to have promoted women's property rights (Sun & Zhao, 2016). It stipulates that joint property will be divided favoring the interests of the children and wife upon divorce (Article 39). The first two judicial interpretations, occurring in 2001 and 2003, carried forward this spirit of promoting women's rights. According to the First Judicial Interpretation, if one spouse has difficulties in maintaining a basic living standard after divorce, including a lack of residence, the other spouse must provide appropriate aid by transferring his or her personal properties and offering housing ownership or dwelling rights (Article 27). The Second Judicial Interpretation further stipulates that housing obtained from the parents of one spouse within the marriage is considered joint property upon divorce (Article 22).

However, in 2011, the Chinese Supreme Court re-interpreted the divorce law for the third time. This new interpretation addressed several important property issues and generally reversed the property protections for women in the event of divorce. First, immovable property purchased prior to marriage, such as the family home, belongs to the registered owner, usually the buyer, upon divorce.<sup>7</sup> This applies even when the buyer makes the initial

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<sup>6</sup> Other valuable assets, regardless of who is the buyer, had been considered joint property, conditional on common usage and management for four years (Article 6).

<sup>7</sup> Although the 2001 divorce law states that pre-marital properties are personal properties upon

down payment prior to marriage, but subsequent mortgage payments are made jointly during the marriage (Article 10). Second, when only one spouse's parents assist in the purchase of immovable property within marriage, and the property is registered under that spouse, the property is that spouse's personal property (Article 7).<sup>8</sup> Third, within marriage, if the couple purchased a housing unit created through the housing reform in the name of and registered under one spouse's parents, the housing unit belongs to the spouse's parents upon divorce (Article 12).

Although seemingly gender-neutral, when analyzed in the context of Chinese social norms, the 2011 divorce law may adversely affect women. Deep-rooted Chinese traditional beliefs consider the man to be the head of the household and the homeowner. Since a family home is considered a prerequisite for a Chinese man looking for a wife,<sup>9</sup> a young man's family members and relatives often pool money to help him purchase housing. Chinese parents rarely help a daughter to purchase a home before marriage (Hu, 2017). For this reason, the majority of family homes in China are registered in the name of the husband (Fincher, 2016). While not responsible for providing the family home, Chinese women are expected to furnish and decorate the house, do the housework, and take care of children and the elderly.<sup>10</sup> However, these efforts are not valued by the 2011 divorce law. Moreover, as housing became more expensive, many women and their families also provided financial assistance to purchase a family home (Fincher, 2016). According to the 2012 Horizon survey

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divorce, it was only principle-setting and was not enforceable in the case of division of family homes in the event of divorce until the judicial interpretation in 2011 was announced (Sun & Zhao, 2016; Wang, 2006).

<sup>8</sup> If both spouses' parents paid during the marriage and the property is only registered under one spouse's name, the property is considered the spouses' joint property based on the relative contribution of their parents (Article 7).

<sup>9</sup> In the Chinese Marriage Relationship Status Report 2010 published by the Committee of Matchmaking Service Industries of the China Association of Social Workers, and one of the biggest Chinese matchmaking service providers - baihe.com, almost 70 percent of the Chinese women require a man to own a home before accepting his marriage proposal.

<sup>10</sup> Houses in China are typically sold without furnishings. Furnishing and decorating can be costly, too (Fincher, 2016).

with iFeng.com, women made financial contributions to the purchase of almost 90% of houses paid for in cash, and over 70% of homes bought with a mortgage loan (Fincher, 2016). However, their names are typically not on the deed, and many did not retain evidence of their financial contribution since they could not anticipate the legal change in 2011 (Fincher, 2016). The law's dissenters contend that the new law yields asymmetric consequences between men and women – men exit the marriage with a valuable appreciating asset, whereas women, having failed to anticipate the legal change, are unable to recoup any value from the time they invested in household labor or the money they invested in furnishing, housekeeping, and the home purchase.

Why did the Chinese Supreme Court launch such a controversial law in 2011? There are four major socioeconomic forces in the 2000s behind this legal change. First, with the rapid advancement of the Chinese economy and the accumulation of wealth among the Chinese, there appeared a strong legal need to protect personal property. As a result, China launched its first property law in 2007 to protect personal property. Second, since the early 2000s, China has experienced a dramatic real estate boom, with over a 10 percent increase per year in housing prices between 2003 and 2014 (Glaeser et al., 2017). As a result, the husband's birth family typically spent a larger portion of their household wealth to purchase a family home. Third, the divorce rate in China has been increasing steadily over time and dramatically since the early 2000s. Figure 1 shows the crude divorce rate (CDR) from 1978 to 2014.<sup>11</sup> In 2011, the crude divorce rate was double that of 1991. The husband's birth family increasingly faced the potential for losing a large share of household wealth upon their son's divorce, which was "unfair to them" (The Chinese Supreme Court, 2011).

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<sup>11</sup> Wang and Zhou (2010) suggest that the crude divorce rate may overestimate the increase in divorce in China because of the increased proportion of married individuals. However, despite a slight overestimation, the trend of China's refined divorce rate in Wang and Zhou (2010) is highly consistent with that of China's crude divorce rate.

Consequently, the number of divorce cases related to the division of a family home has been increasing dramatically. Fourth, social media began to play an important role in supervising the government's actions. Similar cases resulting in conflicting court rulings tended to generate controversies on the internet, which subsequently harmed the government's credibility. There was a need for the courts to have a divorce law that was clear, simple, and specific, and was consistent with the spirit of the property law launched in 2007, to reduce the flexibilities of judges' rulings (The Chinese Supreme Court, 2011). As a result, the 2011 divorce law was enacted.

[Figure 1 Here]

#### **4. Theoretical Framework**

The effects of the 2011 Chinese divorce reform on male and female well-being in a typical Chinese household where only the husband's name is on the deed of the family home are theoretically ambiguous, with existing theories providing several possibilities.

The unitary model predicts that there will be no changes in women's and men's well-being after a transfer of property rights from one spouse to the other. This model assumes that couples act together and share a set of common preferences (Becker, 1965). In this model, the household, as a single decision unit, maximizes its utility independent of the power dynamics of couple. Because the 2011 divorce reform did not take away property rights from the household, it is predicted that both women's and men's well-being will not change.

The divorce-threat bargaining model introduced by McElroy (1990) predicts that a transfer of property rights from one spouse to the other will lead to opposite consequences for women's and men's well-being. In this model, the divorce threat point represents a household member's potential options and well-being outside of marriage, which determines his or her bargaining power within marriage. A household member's bargaining power on decisions of

household resource allocation is influenced by “extrahousehold environmental parameters” (EEPs) by changing the threat point (McElroy, 1990). These EEPs could include, for example, marriage laws that shift alimony rights (Chiappori et al., 2016; Rangel, 2006) and intra-household property rights (Chiappori et al., 2002; Gray, 1998; Sun & Zhao, 2016; Wang, 2014), and wealth obtained from natal families (Brown, 2009). An analysis of family bargaining and marriage markets using this model gives us straightforward policy predictions, as referenced in McElroy (1997). One of the most commonly examined predictions is that policies empowering women by increasing their bargaining power within marriage help them obtain their preferred household outcomes (e.g., consumption, time allocation). This prediction has been confirmed by a large number of studies (Allendorf, 2007; Beegle et al., 2001; Chiappori et al., 2002; Datta, 2006; Doss, 2006; Fafchamps et al., 2009; Fafchamps & Quisumbing, 2002; Gray, 1998; Panda & Agarwal, 2005). Another prediction, which is applicable to the case of the 2011 Chinese divorce reform and has not been examined extensively empirically, suggests that policies that transfer a woman’s control of property to a spouse will cause women to suffer while men prosper (McElroy, 1997).

The sociological exchange theory provides similar predictions to those of the divorce-threat bargaining model (Bittman et al., 2003; Cook et al., 2013; Molm & Cook, 1995). According to this theory, one spouse A is considered to be more dependent on the other spouse B if A has limited access to certain resources such as income or social status other than through B. In exchange, A has to provide more within the marriage. In the case of the divorce reform, women would need to sacrifice more within the marriage to compensate for their dependence on their husbands for housing.<sup>12</sup> This will decrease women’s well-being while increasing men’s well-being.

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<sup>12</sup> There might be multiple factors that lead to housing difficulties for women in divorce, such as shortages of affordable housing and the location of housing as a determinant of children’s school enrollment.

These theories are not mutually exclusive and they provide reasonable predictions in many contexts. However, neither theory considers the role of household members' perceptions of divorce risks and is gender-neutral. Individuals who perceive low divorce risks may believe that they are unlikely to be affected by the legal change. Moreover, net of economic reasons, gender has independent effects on family dynamics through gendered expectations (Bittman et al., 2003). Although the Chinese Supreme Court argues that the law is gender-neutral, transferring property rights to spouses may affect well-being differently for women and men. The patriarchal features of Chinese society have shaped the 'bride price' practice on the marriage market, whereby the groom's family is expected to provide the family home as a precondition for marriage in order to gain the approval of the bride's family. The patriarchal society also led to the development of a son preference, which culminated in a shortage of women on the marriage market and thus reinforced the bride price practice. As a result of these marriage norms, transferring property rights from men to women may be expected, whereas the reverse may be considered unacceptable. For a typical Chinese household, where only the husband's name is on the deed of the family home, women are likely to be negatively affected by the reform because they may lose the home they expected to retain. Moreover, this reduction in women's well-being need not be countered by an increase in well-being for the men, who may suffer from a spousal spillover effect.

In this study, I examine the effect of intra-household property rights on married men's and women's well-being for a typical Chinese household where only the husband's name is on the deed of the family home and investigate its heterogeneous effects by individuals' perceptions of divorce risks. In addition, I examine whether gender constraints override the pattern of how economic factors (e.g. intra-household property rights) affect household members' well-being.

## 5. Data and Measures

### 5.1. Data

The empirical analysis uses data from the China Family Panel Studies (CFPS) 2010, 2012, 2014, and 2016 waves. CFPS is a nationally representative and longitudinal survey of Chinese communities, families, and individuals launched in 2010 by the Institute of Social Science Survey (ISSS) of Peking University. Using the probability proportional to size (PPS) sampling method, this survey is designed to examine social and economic changes in China through individual-, family-, and community-level data. Both immediate and non-immediate relatives living in the household continuously for at least three months at the time of interview are considered ‘core family members’ (Xie, 2012). Core family members and their offspring are the gene members of CFPS (Xie, 2012). Similar to the design of the Panel Study of Income Dynamics (PSID) in the U.S., gene members are permanent respondents of CFPS and are tracked through death (Xie, 2012). In the 2010 baseline survey, almost 15,000 families comprised of approximately 30,000 individuals were interviewed. The total response rate is 81.25%, and the response rates for rural and urban households are 89.16% and 69.35%, respectively (Sun, 2012). Twenty-five provinces, which represent about 95% of the Chinese population, are covered in that wave.<sup>13</sup> The CFPS gene members are tracked in the follow-up surveys in 2012, 2014, and 2016. The attrition rate for 2010-2012, 2012-2014, and 2014-2016 at the individual level is 19.3 percent, 13.9 percent, and 25.5 percent, respectively. After applying several sample restrictions as shown in Online Appendix Figure A2, the final sample includes 80,165 observations of 22,544 individuals. Since only married individuals were included in 2010, the number of cases lost due to attrition is small (less than 10

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<sup>13</sup> Hong Kong, Taiwan, Macao, Xinjiang, Ningxia, Tibet, Qinghai, Hainan, and Inner Mongolia are not covered.

percent). Therefore, it is unlikely that sample attrition would significantly change my results. There are slightly more women than men in the data because not all husbands in the households were successfully interviewed. Restricting data to couples who were both interviewed does not change my main results.

A major data limitation in existing studies which exploit legal changes related to intra-household property rights is the lack of property rights data at the household member level. This makes it difficult to accurately construct treatment and control groups. Many studies adopt an intention-to-treat approach to identify which households may have experienced changes of property rights, which may not be accurate. Moreover, without property rights data at multiple time points, it is difficult to determine if there are non-compliers with the policy, which could bias the estimates of interest. The CFPS used in the present study provides detailed property rights records over time. This unique feature allows me to accurately construct the treatment and control groups, and also to identify non-compliers (i.e., households that added the wife's name to the deed after the 2011 divorce law reform).

## 5.2. *Well-being*

Individuals' well-being is measured by their subjective well-being. Subjective well-being is a measure of an individual's perceived well-being, which is considered a valid measure of well-being and has been widely used to monitor quality of life (Dolan & Kahneman, 2008; Dolan & Peasgood, 2008; Treasury, 2008). In the current study, subjective well-being is measured by asking respondents "Are you satisfied with your life?" using a 1 (*Very unsatisfied*) – 5 (*Very satisfied*) score. Existing studies show that this single-item life satisfaction measure has a comparable performance with multiple-item life satisfaction measures (Cheung & Lucas, 2014). To make the results interpretable, I standardized this measure using z-scores. I have also explored other measures of well-being, including a



dummy variable of high satisfaction (4 or 5) and a dummy variable of low satisfaction (1-3). Results using these alternative well-being measures are consistent with the main results reported in this paper.

### *5.3. Construction of Treatment and Control Groups*

My identification strategy is based on comparing pre- and post-reform outcomes for treated and untreated individuals. In 2010, participants were asked whether the home they were living in was fully owned by them, jointly owned with their working units, rented, or provided by others. Households which fully owned<sup>14</sup> or jointly owned a family home with their working units<sup>15</sup> were asked in whose name(s) the family home was registered.

There are four situations in terms of house ownership: 1) both spouses' names are on the deed, 2) only the husband's name is on the deed, 3) only the wife's name is on the deed, and 4) neither's name is on the deed. The first and fourth groups are the control group, and the second group is the treatment group. Individuals living in households where only the wife's name is on the deed are excluded from the main analyses but are analyzed later to examine the independent effects of gender. When a spouse's parents' or grandparents' names are on the deed, it is treated as if that spouse's name is on the deed. One concern is that if that spouse has siblings, he or she may not inherit the house. There are 2,214 individuals in the treatment group living in households where parents' or grandparents' names are on the deed of the family home. Robustness checks excluding these individuals from the analyses did not change my main results (see Appendix Table A1). Finally, there are 16,499 individuals (74%) assigned to the treatment group and 5,780 individuals (26%) assigned to the control group.

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<sup>14</sup> "Fully own" means having complete legal documents: a property ownership certificate, a certificate of land use right, and a certification for deed tax payment of real estate, for urban residents. For rural residents, it usually refers to a house built by the residents.

<sup>15</sup> "Jointly own a family home with their working units" refers to the situation that the work unit holds the certificate of land use right.

## 6. Empirical Strategy

I adopted a Difference-in-Differences (DID) framework to evaluate the impact of the divorce reform on married men's and women's well-being. The idea underlying the identification strategy is to compare the outcome not only before and after the reform but also between a treatment group and a control group. After the announcement of the policy change occurred in August 2011, the start of the implementation of the new marriage law did not vary across regions. Therefore, I cannot use regional variations in this setting. Fortunately, the data provides me with unique information on deed ownership for each household, which allows me to accurately identify the treatment and control groups. In the event of divorce, women in the treatment group are expected to lose their home property rights after the reform, while those in the control group are expected to retain their rights. Because I am interested in the effect of the divorce reform on spouses' well-being regardless of whether they divorce, the sample includes individuals who did and did not divorce after the reform.

The DID approach can provide unbiased estimates of the average treatment effect on the treated (ATT) under certain assumptions. The first assumption is that most Chinese citizens were immediately aware of the 2011 Chinese divorce reform and could not take actions before the announcement. The evidence strongly suggests that the general public was acutely aware of the reform due to extensive media coverage and numerous controversies.<sup>16</sup> Even major international media outlets such as *The New York Times*, *The Economist*, *Time*, *The Telegraph*, and *The Guardian* devoted pages to it.<sup>17</sup> The general public also had no way to foresee the timing or to have knowledge of the specifics of the reform. Another important

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<sup>16</sup> This legal change has been reported by major domestic media in China, including the China Central Television (CCTV). Discussions on this legal change have been read more than 3 million times on the "Chinese twitter" *weibo*.

<sup>17</sup> See an example "Chinese Law Could Make Divorced Women Homeless." *The New York Times*, 2011 (<http://www.nytimes.com/2011/09/08/world/asia/08iht-letter08.html>).

assumption is that in the absence of the intervention, the outcome trend of the treatment group would parallel that of the control group over time. Verification of this assumption is discussed in Online Appendix A1. In addition, the DID design requires that no other policies in 2011 have changed the subjective well-being of individuals in the treatment group. Discussions on this assumption can be found in Online Appendix A2.

The responses immediately following the policy change may be the strongest compared to subsequent responses. Therefore, I examine both the immediate and the longer-term effects of the Chinese divorce reform by estimating the following equation for married men and women separately:

$$y_{it} = \alpha_1 Treat_i * Year2012_t + \alpha_2 Treat_i * Post2012_t + \delta_t + \alpha_3 X_{it} + \eta_i + \varepsilon_{it} \quad (1)$$

where  $y_{it}$  is the well-being outcome of individual  $i$  at time  $t$ .  $Treat_i$  is an indicator of whether individual  $i$  is in the treatment group.  $Year2012_t$  is an indicator of the year 2012.  $Post2012_t$  is an indicator of the period after year 2012. Since there are few time-varying variables in the data that are unlikely to be affected by the 2011 divorce reform,  $X_{it}$  only include a quadratic in the age.  $\delta_t$  include wave dummies.  $\eta_i$  are individual fixed effects and  $\varepsilon_{it}$  is an error term.  $\alpha_1$  captures the immediate effects and  $\alpha_2$  captures the longer-term effects. Standard errors are clustered at the household level.

Although the DID strategy does not require the characteristics of the treatment and control groups to be identical, systematic differences between them that are also related to subjective well-being may add uncertainty to our estimates. In particular, if individuals select themselves into the treatment group according to certain individual traits, the estimated effect could potentially be attributed to selection bias. Therefore, I compare pre-treatment characteristics of the treatment and control groups and present the results in Table 1. The coding of these pre-treatment characteristics can be found in Online Appendix A3.

[Table 1 Here]

For both males and females, there are significant differences between treatment and control groups in annual personal income, whether an individual had children, age, urban residence, years of education, age difference with spouse, spouse's years of education, migration status and subjective well-being. On average, individuals in the treatment group have lower personal income, less educated spouses, and a smaller age difference from their spouses. They are also more rural, less educated, more likely to have children, and less likely to be migrants from another county. In the female sample, individuals in the treatment group are older, whereas the opposite holds in the male sample. Having a close relationship with their spouse is more important to men in the control group compared to those in the treatment group. The household size is slightly bigger for men in the treatment group compared to those in the control group. For both men and women, individuals in the treatment group are on average happier than those in the control group.

These differences indicate that house ownership status is not randomly assigned to individuals. There may be some individual characteristics that affect both the probability of being treated and well-being outcomes. For example, women who were migrants in 2010 may be more likely to live in a rental apartment, and therefore are more likely to be in the control group. At the same time, they are likely to have a lower overall satisfaction with life than those who were not migrants. However, the individual fixed effects model in equation (1) has the advantage of removing the effects of time-invariant characteristics and the effects of time-variant characteristics that affect both the treatment and control groups in the same way. Even when there exist time-varying unobserved characteristics at the household level between the treatment and control groups, the differential effects between men and women within the household can still be estimated without bias. One remaining concern is that there could be some individual-level time-varying unobserved characteristics that would affect both groups in different ways. I discuss the possibility of this scenario in the results section.

## 7. Main Results

Before examining the consequences of the 2011 Chinese divorce reform on spousal well-being, I examine the effect of the reform on the probability of divorce. The probability of divorce is a direct outcome of the divorce reform, and the divorce reform may affect spousal well-being through affecting the probability of divorce. On the one hand, the divorce reform may increase the probability of divorce by triggering negotiations and conflicts for couples. On the other hand, the divorce reform may decrease the probability of divorce by making women, who initiate more than half of all divorces in China,<sup>18</sup> less willing to divorce.

I examine these possibilities by investigating the effect of the reform on the probability of divorce for men and women combined. Results from fixed effects models are reported in Table 2. Individuals in the treatment group are less likely to divorce after the reform relative to those in the control group. The magnitude of the longer-term effect is larger than that of the immediate effect, probably due to the fact that the divorce process takes time. These results suggest that the probability of divorce decreases because the cost of divorce rises for women after the legal change.

[Table 2 Here]

The decreased probability of divorce caused by the reform may negatively affect the well-being of women by incentivizing them to stay in unhappy marriages. However, the effect of decreased probability of divorce on men's well-being is still unclear. They may benefit from it due to increased household bargaining power, be harmed because of the negative spousal spillover effect, or not be affected at all. To examine these possibilities, I

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<sup>18</sup> See "Divorce: a love story." *The Economist*. Retrieved from <https://www.economist.com/news/china/21688901-while-government-talks-up-family-values-marriage-break-ups-are-soaring-divorce-love-story>.

examine the effect of the legal change on men's and women's well-being separately. Results are reported in Table 3.

[Table 3 Here]

For immediate effects, eliminating women's property rights significantly reduces women's subjective well-being by 0.057 standard deviations. The magnitude of the effect is sizable, considering that a one percent increase of individual annual income is associated with an increase in subjective well-being by 0.00001 standard deviations in the female sample.<sup>19</sup> This result provides evidence that women are concerned about losing property rights upon divorce, which has negatively affected their well-being within marriage. At the same time, men do not benefit from the legal change as their well-being has not been changed significantly. For longer-terms effects, no significant results are found for either men or women. The negative effect of the 2011 divorce reform for women has been weakened in terms of the magnitude or entirely disappeared in terms of the statistical significance in the long run.

Taken together, the findings are not completely consistent with the predictions of any specific existing theory discussed in the theoretical section, although the immediate negative effects for women provide support for the social exchange/divorce-threat bargaining model. The lack of responses for Chinese men and the weakening longer-term effects for Chinese women are more consistent with the gendered expectation argument. The 2011 Chinese divorce reform defies the expectations of traditional gender roles by transferring women's property rights to men, which immediately negatively affects women. It does not benefit men either. It is possible that men also find it unexpected and are not sure immediately whether it is a good thing. It is also possible that they are happy about obtaining additional property

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<sup>19</sup> This coefficient is estimated by predicting standardized subjective well-being using individual annual income, including individual fixed effects, wave dummies, and a quadratic function of age in the model.

rights but at the same time are negatively affected by their wives' decreased well-being. The weakening longer-term effects suggest that couples may have arranged to abide by a more traditional Chinese marriage contract after the reform. To further investigate this possibility, I identified households in the treatment group that changed their treatment status after the reform. By 2016, 9.1 percent of the individuals in the treatment group added the wife's name to the deed of the family home, 29.5 percent of them transferred ownership to their children, and 3.2 percent of them transferred ownership to the wife. In total, approximately 42 percent of individuals in the treatment group have changed property ownership status within five years of the legal change, suggesting that couples made adaptations in response to the divorce reform to abide by traditional gendered expectations. This overlaps with the idea of 'marriage binding' proposed by Lundberg and Pollak (1993). However, while the original marriage binding theory is gender-neutral, my results emphasize gendered expectations shaped by the patriarchal features of Chinese society.

One possible concern is that the negative immediate effects simply reflect year-to-year noise. I therefore examine the effect of the 2011 Chinese divorce reform on four household bargaining outcomes available in the data: housework hours, body weight, work hours, and confidence about the future. If the effects are also gendered for these four outcomes, it will increase confidence in the main results for subjective well-being. Housework is a household public good, and fewer hours spent on housework is often used as an indicator of higher bargaining power within marriage (Becker, 1981). Housework hours were not surveyed in 2012, so I use housework hours in 2014 and 2016. A reduction in body weight by a spouse in China can be considered either a gesture to please one's partner by increasing one's physical attractiveness or an indicator of increased stress, both of which suggest lower household bargaining power. Longer work hours reflect reduced leisure, which is also linked to lower household bargaining power. Confidence about the future is a measure

of self-confidence and positive thinking. Although it is not a typical indicator of household bargaining power, it can be considered a proxy for subjective well-being.

Results are reported in Table 4. Panel A and Panel B show the estimates for women and men, respectively. The results for confidence about the future are highly consistent with those for subjective well-being. We observe an immediate reduction in women's confidence about the future by 0.076 standard deviations, and this effect disappeared in the long run. The legal change also reduces women's body weights by 0.468 percent. This negative effect is reduced to 0.388 percent in the long run but is still significant at the 10% level. There is a significant increase in the hours women spent on housework in the long run. The magnitude of the increase is as large as 5 percent. The magnitude of the immediate increase in women's work hours is 9.51 percent. In the long run, this positive effect disappeared. For all the household bargaining outcomes, no significant effects are found for men. These gendered results give us more confidence in the main findings on subjective well-being.

[Table 4 Here]

It seems unlikely that the results were biased by remaining individual-level unobserved characteristics, as these characteristics would have been required to satisfy multiple conditions. First, the characteristics must have affected men and women differently and at the same time produced patterns for the four household bargaining outcomes similar to the one for subjective well-being in order to have produced the observed results. Second, they could not have been consequences of the legal change in 2011. Finally, they must produce significant results in 2012 but not in 2014-2016. I have not thought of any specific unobserved characteristics that would satisfy all these requirements based on existing literature on determinants of home ownership.

To summarize, the 2011 Chinese divorce reform results in a partial transfer of property rights from the wife to the husband, which defies the traditional gendered



expectations. It negatively affects women's subjective well-being immediately and men's subjective well-being does not improve either. Over the longer term, couples made adaptations in response to the divorce reform to abide by traditional gendered expectations. Therefore, the negative effects for women have been weakened or disappeared.

## **8. Heterogeneous Effects of Transferring Property Rights**

The 2011 Chinese divorce law may have heterogeneous effects for individuals with different perceptions of divorce risks. Individuals who believe a divorce is more likely to happen would be more likely to respond to the divorce reform, compared to those who believe a divorce is relatively unlikely. To test these heterogeneous effects, I conduct various subgroup analyses. Although direct measures of perceptions of divorce risks are not available in the data, there are several proxies.

First, I compare individuals living in households where the couple has comparable educational attainments and those living in households where the wife has lower educational attainments than the husband. Divorces in China tend to be initiated by women. If a wife's socioeconomic status is lower than her husband's, she may be less likely to initiate a divorce because she depends more on the husband compared to a wife who has comparable socioeconomic status with the husband. Therefore, the perceptions of divorce risks should be lower for women with lower educational attainments than their husbands, compared to those with comparable educational attainments with their husbands.

Second, I compare individuals who were parents in 2010 and who were not. Couples with children may be less likely to divorce because many Chinese couples believe divorce negatively affects children. In my data, 84 percent of the parents interviewed agree that divorce is always bad for children, and 64 percent of them agree that parents should not divorce for the purpose of protecting children even if their marriage is unhappy. Therefore,

the perceptions of divorce risks should be lower for parents compared to non-parents.

Third, I compare new couples with old couples. The average years of marriage in my sample are 24 years. New couples are defined as those who were married for no more than 10 years in 2011. As couples stay together longer, their perceptions of divorce risks should be relatively lower compared to newer couples.

Fourth, I compare individuals living in provinces with high divorce rates and those living in provinces with low divorce rates. I calculated the Crude Divorce Rates (CDR) for each Chinese province in 2010 using divorce counts from the *China Civil Affairs Statistical Yearbook* and population counts from the *China Statistical Yearbook*. The ten provinces with the highest CDRs in my data are defined as provinces with high divorce possibilities. Couples living in provinces with high divorce possibilities should have perceptions of higher divorce risks compared to those living in other provinces.

Results for these subgroup analyses are shown in Table 5 and are highly consistent with the predictions above. The legal change immediately negatively affects women whose educational attainments are comparable with those of their husbands. No significant results are found in the long run or for women with lower educational attainments than those of their husbands. The legal change negatively affects women regardless of parental status. However, the magnitude of the effect is much larger for non-parents (0.232 standard deviations) than for parents (0.0507 standard deviations). The legal change also negatively affects new couples and couples living in provinces with high divorce possibilities both immediately and in the long run, whereas no significant results are found for old couples and couples living in other provinces. In all models, no significant results are found for men.

[Table 5 Here]

## **9. Further Investigation on the Independent Effects of Gender**

To further examine the independent effects of gender in household dynamics, I compare my main results with the effects of transferring men's property rights to their wives. Following the hypothesis of gendered expectations, we would expect that transferring the husband's property rights to the wife should not affect their well-being significantly because both of them should find it culturally acceptable. To test this possibility, I examine the impact of the 2011 Chinese divorce reform on the well-being of individuals living in households where only the wife's name is on the deed of the family home in 2010. The control group still includes individuals living in households where the husband and wife had the same house ownership status in 2010.

Results are shown in Table 6. I again examine the effect of the legal change on the probability of divorce first. The effect is positive immediately and has been weakened in the long run. For both men and women, no significant effects are found for their well-being. If gendered expectations do not play a role in household dynamics, we would expect somewhat symmetric results from those in the main analyses. The results here provide us more confidence that gendered expectations should have played a role in how intra-household property right affects women's and men's well-being. Although transferring the husband's property rights to the wife also creates intra-household inequality of property rights, it does not appear to decrease either men's or women's well-being in the Chinese context.

[Table 6 Here]

## **10. Conclusion**

This paper examines the effect of intra-household property rights on women's and men's well-being by exploiting the 2011 Chinese divorce reform as a natural experiment. My findings reveal that in the short term, the 2011 Chinese divorce reform leads to diminished well-being for women in a typical Chinese household where the deed to the marital home is

in the husband's name only. This adverse effect is particularly large for women with perceptions of high divorce risks. The effect of the reform has been weakened in the long run. No significant effects are found for men both immediately and in the long run.

The findings provide some evidence supporting the argument that gender constraints override the pattern of how intra-household property rights affect household members' well-being. The patriarchal features of Chinese society shaped gendered expectations, in which men are the household heads and should provide family homes for women. The 2011 Chinese divorce reform defies this cultural marriage contract, which significantly decreases women's subjective well-being while not affecting men's net subjective well-being. In the long run, evidence from my data shows that couples adapt to adhere to pre-marital agreements and traditional practices, which nullifies any distributional effects caused by the legal change.

The results of the present study are not completely consistent with the predictions of existing family theories (e.g., unitary model and exchange/divorce-threat bargaining model), suggesting that family theories taking the independent effects of gender into account are needed. A large body of studies identify the effect of property rights on intra-household outcomes by exploiting policies granting women property rights (Allendorf, 2007; Beegle et al., 2001; Chiappori et al., 2002; Datta, 2006; Doss, 2006; Fafchamps et al., 2009; Fafchamps & Quisumbing, 2002; Gray, 1998; Panda & Agarwal, 2005). The gender-neutral feature of the existing theories would imply that the consequences of a policy that restricts women's property rights should be the exact reverse. This study shows for the first time that the effect of intra-household property rights exploiting policies eliminating women's rights is not the exact reverse from that exploiting policies expanding women's rights.

The present study demonstrates how a seemingly gender-neutral policy can generate gendered consequences. They highlight the importance of advancing gender equality not only from the perspective of social justice and feminist politics but also from the perspective of

improving the well-being of the society as a whole (Kawachi et al., 1999). Although some men undeniably derive benefits from patriarchal practices, men as a whole have to bear the heavy burden of gendered expectations, such as preparing the family home for the bride. Family policies reducing these gendered expectations within the household could benefit both women and men.

Although the 2011 divorce reform is unique to China, the findings in this paper are relevant to other developing countries as well. For example, in rural regions of developing countries, it is not uncommon to find developmental policies meant to increase household income by promoting improved agricultural technologies, such as fertilization and irrigation. Such policies often unintentionally transfer the control of land from women to their husbands by replacing subsistence crops with cash crops (Boserup, 1970; Schultz, 1989). When making developmental policies, it is critical that policy makers consider implications for intra-household inequality.

This study only focuses on the impact of the 2011 Chinese divorce reform on the well-being of married individuals. Inevitably, though, such a major reform will generate a diverse set of consequences among multiple populations. Future studies could examine the impact of this reform on other aspects, such as marriage compositions, labor force participation, health related behaviors, migration patterns and fertility outcomes.

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**Tables**

Table 1. Pre-reform Individual Characteristics, by Gender and Treatment Status

	Male		Female	
	Treatment	Control	Treatment	Control
Annual personal income (CNY)	12953.899** *	14188.78 5	5626.344***	6771.686
	(224.489)	(460.277)	(147.875)	(249.609)
Had children	0.964***	0.951	0.970***	0.954
	(0.002)	(0.004)	(0.002)	(0.004)
Household size	3.588*	3.527	3.566	3.597
	(0.018)	(0.031)	(0.018)	(0.028)
Age	48.29***	49.526	46.552***	45.43
	(0.140)	(0.294)	(0.133)	(0.268)
Years of education	7.466*	7.638	5.46***	6.137
	(0.045)	(0.086)	(0.050)	(0.084)
Urban	0.381***	0.537	0.377***	0.507
	(0.005)	(0.010)	(0.005)	(0.009)
Age difference with spouse	2.033***	2.322	-1.924***	-2.193
	(0.037)	(0.068)	(0.035)	(0.061)
Spouse's years of education	4.783***	5.262	6.619***	6.954
	(0.051)	(0.096)	(0.049)	(0.082)
Working sector	0.095	0.096	0.043	0.05
	(0.003)	(0.006)	(0.002)	(0.004)
Political affiliation	0.129	0.139	0.025	0.023
	(0.004)	(0.007)	(0.002)	(0.003)
Migration status	0.023***	0.127	0.043***	0.133
	(0.002)	(0.006)	(0.002)	(0.006)
Importance of a happy family	4.637	4.64	4.609	4.619
	(0.007)	(0.013)	(0.008)	(0.012)
Importance of being close with spouse	4.403**	4.449	4.298	4.303
	(0.009)	(0.016)	(0.010)	(0.016)
Subjective well-being (non-standardized)	3.494***	3.382	3.535***	3.469
	(0.011)	(0.021)	(0.011)	(0.018)
# of Individuals	8,247	2,666	8,386	3,245

Note: Standard errors in parentheses. \*\*\*, \*\*, \* denotes that the comparison group is significantly different from the treatment group at the 1%, 5%, and 10% levels, respectively. There are slightly more women than men in the data because not all husbands in the households were successfully interviewed.

Table 2. Effects of the 2011 Chinese Divorce Reform on the Probability of Divorce

Treat * Year 2012	-0.00190*
	(0.00114)
Treat * Year 2014-2016	-0.00540***
	(0.00172)
Year 2012	-0.00332
	(0.00321)
Year 2014	-0.00657
	(0.00625)
Year 2016	-0.0114
	(0.00928)
# of Observations	80,159
# of Individuals	22,544
Adjusted R square	0.009

Notes: Robust standard errors clustered by household in brackets. \*\*\*, \*\*, \* denotes significance at the 1%, 5%, and 10% levels, respectively. Age, age square, a constant term, and individual fixed effects are included in all models.

Table 3. Effects of Intra-Household Property Rights on Women's and Men's Well-Being

	Female Sample	Male Sample
	(1)	(2)
Treat * Year 2012	-0.0570** (0.0261)	-0.0267 (0.0278)
Treat * Year 2014-2016	-0.0317 (0.0234)	-0.0390 (0.0257)
Year 2012	-0.0673 (0.0527)	-0.0967** (0.0476)
Year 2014	0.444*** (0.0978)	0.448*** (0.0851)
Year 2016	0.376** (0.147)	0.293** (0.127)
# of Observations	40,422	37,453
# of Individuals	11,628	10,913
Adjusted R square	0.052	0.060

Notes: Robust standard errors clustered by household in brackets. \*\*\*, \*\*, \* denotes significance at the 1%, 5%, and 10% levels, respectively. Age, age square, a constant term, and individual fixed effects are included in all models.

Table 4. Effects of Intra-Household Property Rights on Household Bargaining Outcomes

	Confidence about the Future	Log Body Weight	Log Housework Hours	Log Work Hours
	(1)	(2)	(3)	(4)
<i>Panel A: Female Sample</i>				
Treat * Year 2012	-0.0760*** (0.0265)	-0.00468** (0.00234)	- -	0.0951*** (0.0366)
Treat * Year 2014-2016	-0.0288 (0.0237)	-0.00388* (0.00220)	0.0500** (0.0207)	0.0375 (0.0378)
Year 2012	0.0421 (0.0651)	0.00696 (0.00438)	- -	0.121** (0.0595)
Year 2014	0.410*** (0.125)	0.0245*** (0.00809)	-0.0884 (0.126)	-0.0328 (0.106)
Year 2016	0.305 (0.189)	0.0351*** (0.0121)	-0.143 (0.190)	0.0956 (0.160)
# of Observations	40,227	40,328	30,503	20,404
# of Individuals	11,628	11,618	11,628	9,358
<i>Panel B: Male Sample</i>				
Treat * Year 2012	0.0169 (0.0289)	0.00283 (0.00241)	- -	0.0266 (0.0308)
Treat * Year 2014-2016	0.0236 (0.0257)	0.000845 (0.00214)	-0.00155 (0.0353)	-0.0189 (0.0288)
Year 2012	-0.0450 (0.0402)	-0.0134*** (0.00381)	- -	-0.124*** (0.0457)
Year 2014	0.314*** (0.0662)	-0.00908 (0.00651)	0.0427 (0.103)	-0.367*** (0.0793)
Year 2016	0.186* (0.0973)	-0.0182* (0.00966)	0.0378 (0.153)	-0.507*** (0.121)
# of Observations	37,357	37,831	28,476	23,429
# of Individuals	10,913	10,911	10,913	9,591

Notes: Robust standard errors clustered by household in brackets. \*\*\*, \*\*, \* denotes significance at the 1%, 5%, and 10% levels, respectively. Age, age square, a constant term, and individual fixed effects are included in all models.



Table 5. Heterogeneous Effects of Intra-Household Property Rights on Household Members' Well-Being, by Perceptions of Divorce Risks

	Wife's Relative SES		Parental Status		Years of Marriage		Provincial Divorce Possibility	
	Lower SES	Comparable	Non-Parent	Parent	New Couple	Old Couple	High Possibility	Low Possibility
		SES						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<i>Panel A: Female Sample</i>								
Treat * Year 2012	-0.0343 (0.0430)	-0.0719** (0.0328)	-0.232* (0.129)	-0.0507* (0.0265)	-0.125** (0.0576)	-0.0462 (0.0303)	-0.162*** (0.0524)	-0.0182 (0.0299)
Treat * Year 2014-2016	-0.0214 (0.0371)	-0.0397 (0.0302)	-0.0883 (0.117)	-0.0303 (0.0238)	-0.114** (0.0494)	-0.0104 (0.0272)	-0.132*** (0.0459)	0.00504 (0.0270)
Year 2012	-0.180** (0.0729)	-0.0480 (0.0541)	-0.211 (0.281)	-0.0698 (0.0502)	-0.306*** (0.111)	-0.0152 (0.0446)	-0.185 (0.115)	-0.0636 (0.0498)
Year 2014	0.241* (0.129)	0.470*** (0.0967)	-0.0854 (0.544)	0.449*** (0.0922)	0.00604 (0.208)	0.517*** (0.0755)	0.184 (0.218)	0.456*** (0.0884)
Year 2016	0.0995 (0.192)	0.392*** (0.144)	-0.469 (0.824)	0.384*** (0.138)	-0.366 (0.315)	0.509*** (0.111)	-0.140 (0.327)	0.440*** (0.131)
# of Observations	16,252	24,069	1,291	39,131	6,262	32,301	11,118	29,304
# of Individuals	4,669	6,926	398	11,230	1,869	9,208	0.064	0.049
<i>Panel B: Male Sample</i>								
Treat * Year 2012	-0.0525 (0.0368)	0.00358 (0.0428)	0.140 (0.149)	-0.0352 (0.0283)	-0.0219 (0.0677)	-0.0399 (0.0311)	-0.0725 (0.0574)	-0.0107 (0.0316)
Treat * Year 2014-2016	-0.0402 (0.0343)	-0.0347 (0.0394)	-0.0502 (0.123)	-0.0391 (0.0264)	-0.0676 (0.0603)	-0.0453 (0.0290)	-0.0641 (0.0523)	-0.0310 (0.0293)
Year 2012	-0.0539 (0.0740)	-0.165** (0.0649)	-0.328** (0.143)	-0.0519 (0.0553)	-0.239*** (0.0705)	-0.00418 (0.0590)	-0.123 (0.0914)	-0.0921 (0.0572)
Year 2014	0.486*** (0.137)	0.372*** (0.112)	0.371** (0.155)	0.519*** (0.102)	0.236** (0.0976)	0.599*** (0.108)	0.345** (0.156)	0.474*** (0.105)
Year 2016	0.371* (0.205)	0.150 (0.166)	0.0463 (0.213)	0.407*** (0.153)	-0.151 (0.135)	0.544*** (0.161)	0.106 (0.231)	0.344** (0.156)
# of Observations	4,877	32,407	1,378	36,075	5,682	30,173	10,020	27,433
# of Individuals	1,422	9,435	1,422	9,435	1,723	8,705	0.061	0.060

Notes: Robust standard errors clustered by household in brackets. \*\*\*, \*\*, \* denotes significance at the 1%, 5%, and 10% levels, respectively. Age, age square, a constant term, and individual fixed effects are included in all models.

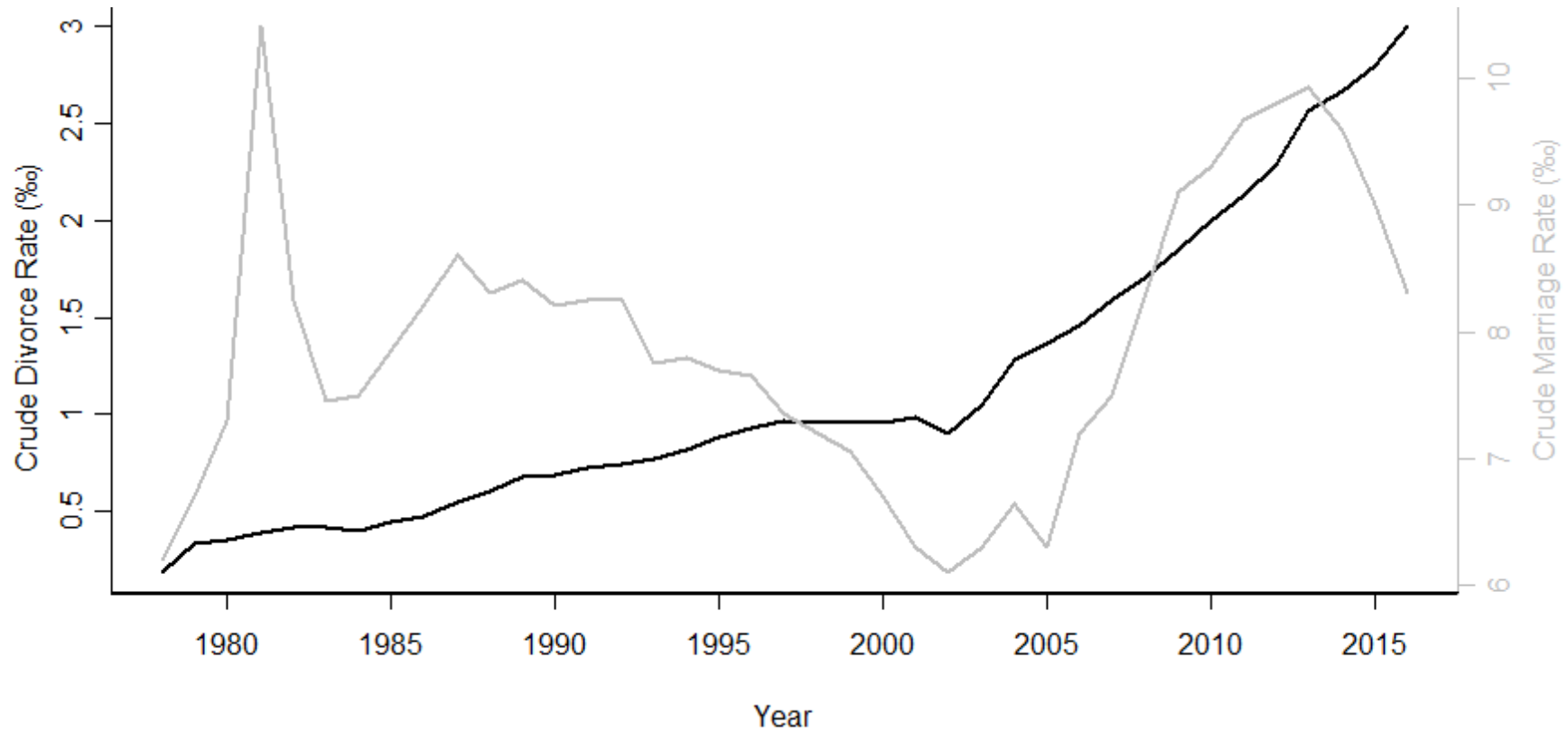
Table 6. Effects of Expanding Wives' Property Rights on Household Members' Well-Being

	Divorce Probability	Female Well-Being	Male Well-Being
	(1)	(2)	(3)
Treat * Year 2012	0.00740** (0.00318)	0.0358 (0.0466)	-0.0247 (0.0559)
Treat * Year 2014-2016	0.00612 (0.00398)	-0.0458 (0.0422)	-0.0477 (0.0483)
Year 2012	-0.00388 (0.00480)	-0.155* (0.0831)	-0.00220 (0.0835)
Year 2014	-0.00748 (0.00947)	0.273* (0.161)	0.620*** (0.163)
Year 2016	-0.0134 (0.0138)	0.117 (0.242)	0.581** (0.245)
# of Observations	25,768	14,007	11,007
# of Individuals	7,514	4,196	3,317
Adjusted R square	0.011	0.046	0.061

Notes: Robust standard errors clustered by household in brackets. \*\*\*, \*\*, \* denotes significance at the 1%, 5%, and 10% levels, respectively. Age, age square, a constant term, and individual fixed effects are included in all models.

## Figures

Figure 1. Crude Divorce Rate (CDR) and Crude Marriage Rate (CMR) in China (per 1,000 population), 1978-2016



Data source: The National Bureau of Statistics of the People's Republic of China.

## Online Appendix

### Appendix A1. Robustness to the Parallel Trend Assumption

An important assumption of the DID design is that in the absence of the intervention, the outcome trend of the treatment group would parallel that of the control group over time. Though hard to verify empirically, existing studies often rely on pre-treatment data to support this assumption. However, the first wave of the CFPS data is in 2010, so it cannot be used for this purpose. I, therefore, make use of another nationally representative dataset – the China General Social Survey (CGSS), to explore pre-treatment outcome trends. The CGSS are repeated cross-sectional data. The advantage of this dataset is that eight waves from 2003 to 2013 are available, which allows us to examine the 8-year trend prior to the reform. Except for the 2008 wave, all the others contain detailed information on family home ownership. A drawback of this dataset is that only information for urban residents is available in the 2003, 2006, 2012, and 2013 waves. Therefore, to be consistent, I restrict the sample in each wave to urban residents when plotting these trends. Another drawback is that the data are cross-sectional, so the composition of the sample varies wave by wave.

Appendix Figure A3 shows the pre- and post-treatment outcome trends by treatment status and gender. The outcome trends of treatment and control groups are generally indistinguishable before the reform year, which supports the assumption that the pre-treatment outcome trends are parallel. I have also run regressions on subjective well-being with interaction terms between the treatment variable and time dummies for the men and women separately as a placebo test. All the pre-treatment interaction coefficients are insignificant ( $p > 0.05$ ). Therefore, I fail to find evidence that house ownership status had an effect on subjective well-being in the years preceding the reform for either men or women.

[Appendix Figure A3 Here]

Notably, we do not observe obvious diverging trends after the reform year between the treatment and control groups either. It is possible that the compositions of the treatment and control groups changed before and after the reform. However, we cannot examine this hypothesis using cross-sectional data. Another caveat is that the ways that house ownership information is asked are different in CGSS and CFPS. In CFPS, respondents were asked to list all names that are on the deed of the family home. In CGSS, when asking about house ownership, respondents were asked to choose one from the following options: self, spouse, self and spouse, children, parents, parents-in-law, grandparents, children-in-law, siblings, relatives, and others. This difference may lead to discrepancies in the coding of house ownership. For example, if a family home is registered in the names of the husband and his

parents-in-law, the household will be in the control group in CFPS, whereas it could be in the treatment group in CGSS if the husband chose “self.”

## **Appendix A2. Robustness to Other Policies**

An important assumption for the validity of the DID design is that no other policies have reduced the subjective well-being of individuals in the treatment group in 2011. To deal with this concern, I conducted an exhaustive search of policies related to real estate and homeownership in 2011. I did not find any other policy change in 2011 that would directly affect the well-being of individuals in the treatment group. Events that are potentially relevant include a series of government regulations to discourage the rapid increase in housing prices. According to the statistics published by the National Bureau of Statistics of China, housing prices did decline in 2012. Individuals who owned their homes may have experienced reduced subjective well-being in 2012 simply because their properties were devalued. Considering that approximately 40 percent of the individuals in the control group live in rental homes, the difference in subjective well-being between the treatment and the control groups is possibly driven by the reduced subjective well-being among individuals who owned their homes.

In order to deal with this concern, I excluded individuals who lived in rental homes in 2010 from the control group and re-ran the main analyses. Now individuals in both the treatment and control groups lived in owned houses in 2010. Results are presented in Appendix Table A2. Although the magnitudes of the effects become slightly smaller compared to those in Table 3 and the longer-term effect for females becomes statistically insignificant at the 10% level, these results are consistent with the main findings presented earlier. They suggest that the treatment effects found earlier are not driven by real estate regulations in 2011, and therefore give us greater confidence in the main findings.

[Appendix Table A2 Here]

## **Appendix A3. Coding of Pre-Treatment Characteristics**

Variables of pre-treatment characteristics include age, age difference with spouse, years of education, spouse’s years of education, and various characteristics in 2010: logged personal income, logged household size, whether the family had children, working sector, political affiliation, migration status, importance of a close relationship with spouse, importance of a happy family, urban residence, and subjective well-being. Age and age difference with spouse are entered as quadratic functions. Logged household size, logged

personal income, years of education, and spouse's years of education are entered as continuous variables. Whether the family had children and urban residence are entered as dummy variables. Working sector is entered as a dummy indicating if an individual worked in the public sector. Political affiliation is entered as a dummy indicating if a participant was a Chinese Communist Party (CCP) member. Working in the public sector and being a CCP member may have advantages in obtaining public housing. Importance of a close relationship with spouse and importance of a happy family are measured using 1(*Not Important*) - 5 (*Very Important*) scores. Migration status is a dummy indicating whether a participant's Household Registration Record (*Hukou*) was registered in the same county as in 2010.

*Online Appendix Tables*

Appendix Table A1. Effects of Intra-Household Property Rights on Women's and Men's Well-Being, Excluding Households with Parents' or Grandparents' Names on the Deed

	Female Sample	Male Sample
	(1)	(2)
Treat * Year 2012	-0.0470* (0.0265)	-0.0158 (0.0283)
Treat * Year 2014-2016	-0.0216 (0.0238)	-0.0285 (0.0261)
Year 2012	-0.0614 (0.0495)	-0.0357 (0.0484)
Year 2014	0.452*** (0.0909)	0.564*** (0.0870)
Year 2016	0.394*** (0.136)	0.490*** (0.129)
# of Observations	36,967	33,434
# of Individuals	10,626	9,695
Adjusted R square	0.052	0.060

Notes: Robust standard errors clustered by household in brackets. \*\*\*, \*\*, \* denotes significance at the 1%, 5%, and 10% levels, respectively. Age, age square, a constant term, and individual fixed effects are included in all models.

Appendix Table A2. Effects of Intra-Household Property Rights on Well-Being, for Individuals Lived in Owned Houses before the Reform

	Female Sample	Male Sample
	(1)	(2)
Treat * Year 2012	-0.0528* (0.0317)	-0.0148 (0.0351)
Treat * Year 2014-2016	-0.0199 (0.0287)	-0.0210 (0.0329)
Year 2012	-0.0590 (0.0572)	-0.142*** (0.0503)
Year 2014	0.458*** (0.102)	0.370*** (0.0832)
Year 2016	0.403*** (0.153)	0.179 (0.121)
# of Observations	36,211	33,478
# of Individuals	10,359	9,702
Adjusted R square	0.052	0.060

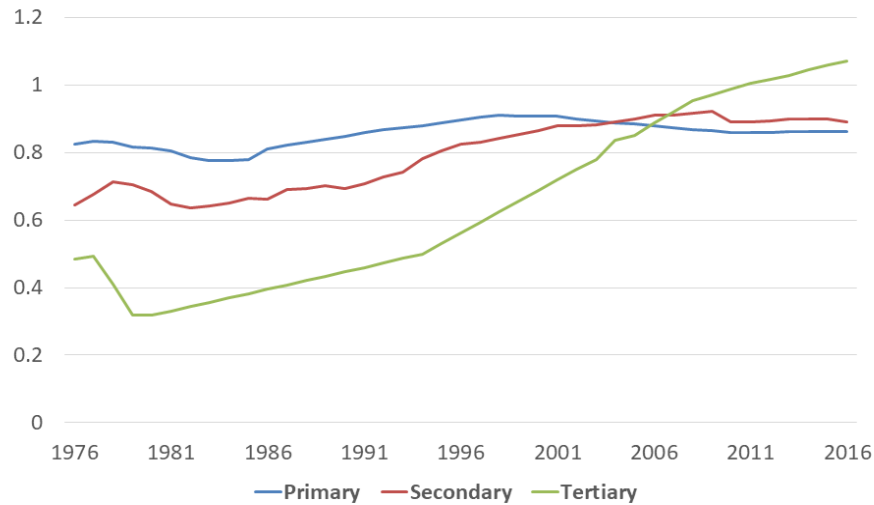
Notes: Robust standard errors clustered by household in brackets. \*\*\*, \*\*, \* denotes significance at the 1%, 5%, and 10% level, respectively. Age, age square, a constant term, and individual fixed effects are included in all models.



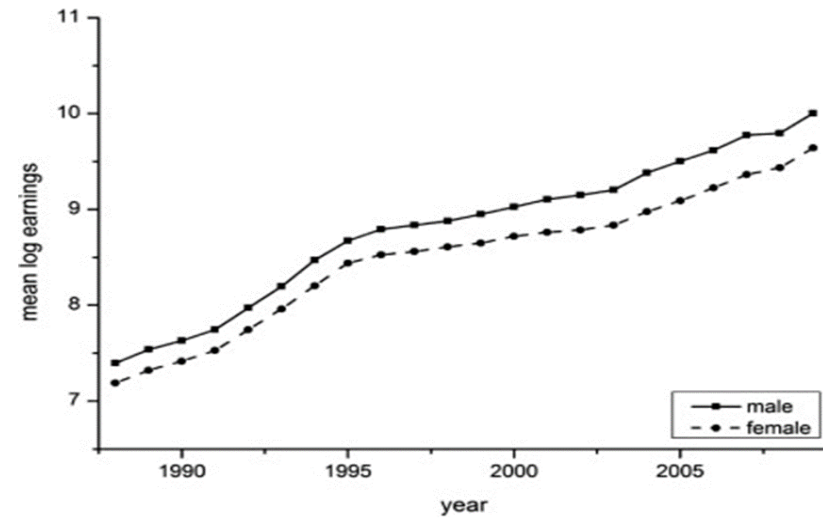
## Online Appendix Figures

### Appendix Figure A1. A Flow of Sample Restrictions

*Panel A: Female to Male in Enrollment Ratio by Level of Education*

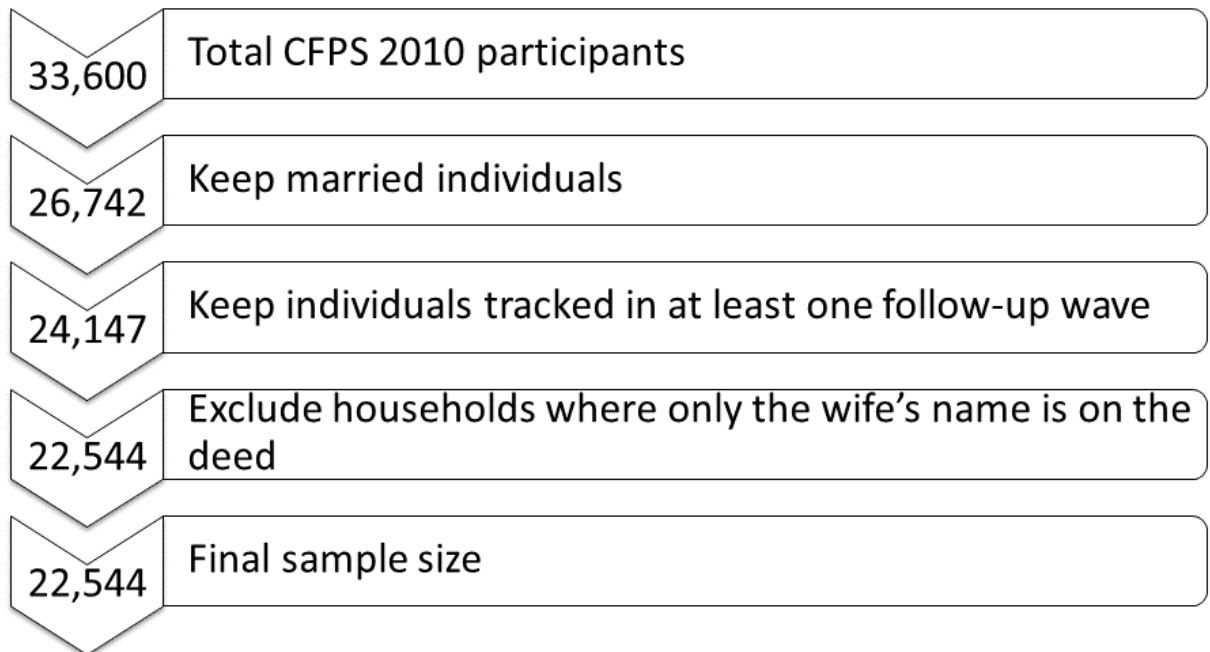


*Panel B: Male and Female Mean Earnings*



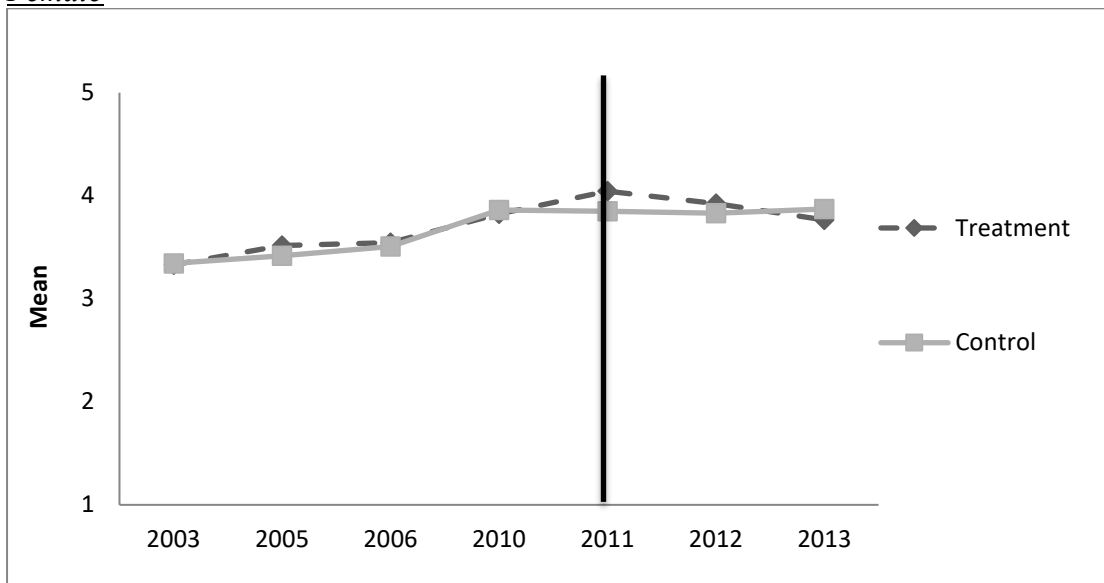
Note: Panel A data source: UNESCO Institute for Statistics (2017). Panel B data source: Chi, W., & Li, B. (2014)'s calculation using the NBS Urban Household Survey data 1989–2009. Earnings are annual earnings in RMB Yuan.

Appendix Figure A2. A Flow of Sample Restrictions



Appendix Figure A3. Trends of Subjective Well-Being by Treatment Status and Gender, 2003-2013

*Female*



*Male*

