Information Disclosure and Marriage Quality: Evidence from Premarital Medical Exams

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January 19, 2023

Abstract

Many countries vary in their regulations regarding premarital health examinations, which is a form of information disclosure. To examine how premarital health examinations affect marriage quality and children's health, we exploit a policy shock in China that changes premarital health examinations from mandatory to voluntary. Consistent with our theoretical predictions, this policy shock significantly increases the marriage probability while decreasing positive assortative matching in health among married couples. We also find an increase in low birth weight rates after the policy shock. Our findings suggest that mandatory premarital examination is beneficial in promoting the quality of marriage and children's health.

Keywords: Information disclosure; Premarital health examination; Assortative matching; Marriage quality; Children's health quality

JEL code: I18; D82; J12

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1 Introduction

The quality of children is a primary concern of families and the long-term development of society. As emphasized by Becker (1973, 1974), the most distinguishable character of married households is the presence of children. Many governments have implemented policies, such as forbidding marriage across different racial groups or castes, to intervene with the quality of marriage and children (Bayly, 1999; Botham, 2009).

Among various factors that determine the well-being of children, health is undoubtedly the most important one, because it is the basis of many other achievements, such as education, social status, and wealth (Glewwe & Miguel, 2007; Halla & Zweimüller, 2013). The presence and health of children are considerably influenced by parental health. Severe reproductive system diseases in one or both sides of the parents impede the ability to give birth. Some genetic diseases, such as thalassemia and epilepsy, largely hamper children's growth. To maximize the welfare of marriage, it is rational for people to seek partners who are most likely to produce healthy children. As a result, positive marital sorting based on health is often socially desirable.

Nevertheless, the marriage market itself frequently fails to deliver socially desirable matching outcomes. One reason is information asymmetry: many diseases that lead to infertility or birth defects among newborns are often difficult to observe. Evidently, individuals with inferior health status do not want to reveal such private information. Consequently, policies or social norms regarding information disclosure in the marriage market are important. In practice, premarital medical examinations are mandatory or highly recommended in many countries to reduce information asymmetry and improve the quality of marriage and children. For example, such examination is compulsory by law in many Arab countries, such as Egypt (UNFPA, 2010). In France and Japan, it is not mandatory but highly encouraged by the government (Zhai & Hou, 2007). However, whether to make the examination mandatory is highly controversial. It was once stipulated but no longer required in most states in the U.S.

There is little empirical evidence on whether information disclosure is really as beneficial as it intends to be. Although the assortative marital matching of education, religion, income, ethnicity, and social class has been widely studied by economists (Banerjee et al., 2013; Cole et al., 1992; Fryer Jr., 2007; Han et al., 2015; Lewis & Oppenheimer, 2000; Nakosteen et al., 2004; Restuccia & Urrutia, 2004; Scully, 1979), marital sorting based on health was rarely examined in the literature. This research gap largely results from the lack of data on private health status and the lack of exogenous change in information disclosure.

To examine the effects of information disclosure on marital sorting based on health and the quality of newborns, we explore a natural experiment in China that involves an exogenous policy change on information disclosure through premarital health examination. Since 1986, the Chinese government has required individuals to take a premarital medical examination before getting married. A premarital medical examination has been effective in revealing diseases from both members of a potential couple that may hamper their creation of healthy children. In October 2003, however, the State Council announced that premarital medical examination would no longer be compulsory, providing individuals with the discretion of whether to undergo premarital examinations. The exam rate declined sharply after this policy change, accompanied by a rising birth defect rate. As a response, some provincial governments exempted fees for the examination after August 2005 to encourage people to take the checkup before getting married. Evidently, these exogenous policy changes on premarital health examination have affected the accessibility of the health information of each partner for potential couples, offering us an opportunity to study the role of information disclosure in assortative health matching and the quality of children.

We first provide a conceptual framework that extends the classical search and matching model to include incomplete information of both parties and endogenize people's decision on disclosing private health information before marriage. We analyze the comparative statistics in two scenarios: compulsory and voluntary information unraveling mechanisms. The model predicts that when premarital

health examination changes from mandatory to voluntary, the exam rate plunges, the marriage rate rises, the rate of positive assortative matching of spousal health falls, and the health of newborns declines. These effects are mitigated when the cost of information disclosure declines.

We then use data from the Chinese Family Panel Studies (CFPS) to test the hypotheses of the model. We employ the difference-in-difference method to study the effects of compulsory premarital physical examination on the assortative matching of health and the birth weight of children. Before the premarital medical examination was made voluntary, provinces varied in the enforcement of the examination, and thus varied in the examination rates. After the policy change, all provinces have close to zero examination rates. As a result, provinces with higher premarital exam rates in 2002 were more affected by the policy. Therefore, we use the premarital exam rate of each province prior to the policy change (in 2002) to measure the intensity of shock of the new policy for each province. Second, we apply the survival analysis to unmarried people to examine whether the policy raises the possibility of getting married for marriageable cohorts.

Consistent with the theoretical predictions, we find that when premarital health examination changes from mandatory to voluntary, the examination rate declines sharply by about 65 percentage points. When the examination rates decline by one percentage point, the marriage rate will rise by 0.70 percentage points, the proportion of positive assortative matching based on health will decline by 0.15 percentage points, and the rate of having an underweight newborn will increase by as much as 0.32 percentage points. The exemption of health examination expenses exhibits no significant effect on marriage rate and positive assortative matching based on health, but it significantly reduces the probability of newborns having low birth weight. These findings indicate that information disclosure reduces an individual's propensity to get married, but increases positive assortative matching based on health in the marriage market and improves the quality of newborn. Moreover, the insubstantial monetary cost of premarital examinations does not seem to be a major factor that affects the decision of most

people to take premarital medical examinations.

Our study is related to two lines of literature. First, our study contributes to the empirical literature on how policies on marriage affect the marriage market and children's welfare (Evans & Lien, 2005; Gray, 1998; Han & Shi, 2015; Han et al., 2015). We contribute to this strand of literature by studying how information disclosure, in the form of premarital medical examination, may affect the sorting of couples, and, eventually, the baby outcome. We are among the first to provide empirical evidence for the effect of the important but controversial policy on mandatory premarital health examination. This policy is important for individuals, families, and society. However, few empirical studies are available for its cost-benefit evaluations.

Second, we contribute to the literature on the effects of information disclosure on matching outcomes. Our conceptual framework is based on the theoretical literature about search and assortative matching (Becker, 1973; Bilancini & Boncinelli, 2013; Burdett & Coles, 1999; Shimer & Smith, 2000) and is extended to include the choices of disclosing private information by both sides. Only a few empirical studies examine the effect of information disclosure on matching outcomes. Tadelis and Zettelmeyer (2015) investigate the effect of information disclosure on the wholesale market of used automobiles (matching with private information from one side) and find that information disclosure brings the largest gains for the best- and worst-quality cars. We illustrate theoretical predictions in the context of the marriage market.

The remainder of this paper proceeds as follows. Section 2 introduces background information and the policies on premarital medical examination in China. Section 3 presents a conceptual framework that incorporates private information from both sides and makes predictions about the effects of policy change on premarital health exams and positive assortative marriage. Section 4 describes the empirical strategy and data. Section 5 presents the empirical results. Section 6 concludes the paper.

2 Background

Premarital medical tests have a long history of development. The UK, Canada, Cyprus, Greece, and Italy started nationwide screening programs in the 1970s. The first two countries began with voluntary implementation, while the others adopted a mandatory policy (Alswaidi & O'Brien, 2009). In the US, 34 states required a blood test for marriage licenses in 1980. However, most of the states repealed this law, and Mississippi was the only state with a blood test requirement in 2009. Premarital HIV test is currently not mandatory, but at least 13 states require applicants to receive HIV educational materials or testing information (Buckles et al., 2011).

Premarital medical examinations became mandatory in China through a range of laws developed since 1981. In October 1994, the central government announced that premarital medical examination by designated medical and health institutions was necessary when registering for marriage.

Premarital medical examination in China entails three parts: inquiry about family and individual medical history, physical examination, and premarital health instruction (Hesketh, 2003). We provide the detailed contents of the exams in the Appendix. After premarital examination, prospective couples are informed of their health status and the diagnosed disease, if any. Those who are diagnosed as healthy receive a certificate of being healthy for marriage. Those who are diagnosed with problems are given medical advice by doctors and asked to postpone their marriage. According to Hesketh (2003), 1%–10% of couples fall into the second class. If genetic diseases that prevent having children are diagnosed, then the couple should adopt long-term contraception measures or ligation before getting married. The proportion of this class is about 0.03%. However, the criteria for the three categories may vary locally.

In October 2003, the central government implemented the new marriage law, which made the premarital medical exam voluntary, under the concern that such an exam may not accurately reflect the suitability of marriage and amidst complaints from the public that many exam items are unnecessary.

After the abrogation of the mandatory premarital examination, premarital health examination rates dropped drastically in all regions. As shown in Figure 1, the rate dropped from about 68% in 2002 to 2.7% in 2004. At the same time, the official statistics show that the defect rates of newborns reversed their declining trend in 2004 and started to increase gradually after 2004. The birth defect rate was 2.2% in 2004, rose to 2.22% in 2006, and 2.4% in 2009.

To improve the premarital health examination rate, some local governments exempted the fees of premarital medical examinations. Shanghai was the first to offer free voluntary premarital examination in August 2005. Then, similar policies were gradually implemented in other provinces. The sequence of the exemption policy across provinces is presented in Appendix Table A.1. As provinces gradually exempted examination fees, recovery in the examination rate was reported in later years. However, it was still below 20% in 2010, when most provinces were already offering free health examinations.

3 Conceptual Framework

In this section, we analyze the effects of premarital medical examinations using the conceptual framework of the two-sided matching model with ex-ante heterogeneity in health status (Burdett & Coles, 1999). We extend the search and matching model to endogenize people's decisions on whether to disclose private health information before marriage and whether to get married to a potential partner.

3.1 Setup

A marriage market with an equal number of men and women, N, is considered. Assume that a single person meets the opposite sex following a Poisson process with parameter α, which is the same for both sexes. Participants in the marriage market are ex-ante heterogeneous, i.e., men and women have two types: good health and bad health. Assume that the proportion of participants with good health type is λ, which is the same for men and women. Participants in the

market are homogeneous with regard to other traits. The utility of marrying a partner with good health is x_G (per unit of time), while the utility of marrying a partner with bad health is x_B, where $x_G > x_B > 0$, and r is the lifetime discount rate. We also assume that no divorce will occur, people will live forever, and a single person will obtain zero utility flow. Let V_J denote the expected lifetime utility of being unmatched and continuing to search of the health type J.

We assume that each individual knows his/her own health status. However, they do not know the health status of the opposite sex unless both parties go through a premarital medical examination with a cost of c per person. We now discuss the equilibrium when the examination is either compulsory or voluntary.

3.2 Compulsory Premarital Medical Examination

If the premarital medical examination is mandatory, then a single man and woman meet each other and undergo a compulsory premarital medical examination, and disclose their health status to the other party. After observing the information, the person decides whether to get married or stay single. Let Δ denote the time interval. Since all people want to get married to a partner with good health, the decision of the good type is the key. The expected lifetime utility of staying single for an individual with good health is as follows:

$$V_G = \frac{1}{1+r\Delta}\{(1-\alpha\Delta)V_G + \alpha\Delta\mathbb{E}[max(V_G, \frac{x}{r}) - c]\}, \tag{1}$$

where $x = x_G$ with probability λ, and $x = x_B$ with probability $1-\lambda$. With a probability of $1-\alpha\Delta$ probability, a single person will remain single. With a probability of $\alpha\Delta$ probability, a single person will meet someone.

Now, consider the problem of an individual with good health G who must decide whether he/she should marry a bad type. Equation (1) implies that the expected lifetime utility of staying single for an individual with good health is

$$V_G = \frac{1}{1+r\Delta}\{(1-\alpha\Delta)V_G + \alpha\Delta\lambda(\frac{x_G}{r} - c) + \alpha\Delta(1-\lambda)[max(V_G, \frac{x_B}{r}) - c]\}. \tag{2}$$

The optimal strategy for the good type being marrying the bad type happens only when $\frac{x_B}{r} > V_G$. Accordingly,

$$V_G = \begin{cases} \frac{\alpha\lambda}{\alpha\lambda + r}(\frac{x_G}{r} - \frac{c}{\lambda}) & \text{if } \alpha\lambda > \frac{rx_B}{x_G - x_B - \frac{rc}{\lambda}} \text{ and } x_G - x_B > \frac{rc}{\lambda} \\ \frac{\alpha}{\alpha + r}(\frac{\lambda x_G + (1-\lambda)x_B}{r} - c) & \text{if } \alpha\lambda \leq \frac{rx_B}{x_G - x_B - \frac{rc}{\lambda}} \text{ or } x_G - x_B \leq \frac{rc}{\lambda}, \end{cases} \tag{3}$$

where $\alpha\lambda$ is the rate at which an individual with good health will meet another individual with good health.

The strategy of the good type is to marry only an individual with good health if $\alpha\lambda > \frac{rx_B}{x_G - x_B - \frac{rc}{\lambda}}$ and $x_G - x_B > \frac{rc}{\lambda}$; and to marry the first person they meet if $\alpha\lambda \leq \frac{rx_B}{x_G - x_B - \frac{rc}{\lambda}}$ or $x_G - x_B \leq \frac{rc}{\lambda}$.

The first case is an elitist Nash equilibrium, while the second case is a mixing Nash equilibrium. If the cost of the examination is not excessively high, such that $x_G - x_B > \frac{rc}{\lambda}$, then whether the good type will marry the bad type depends on whether $\alpha\lambda$ is larger than $\frac{rx_B}{x_G - x_B - \frac{rc}{\lambda}}$; the higher the rate, the more likely that the good type will only marry an individual with good health (the first case). When this scenario happens, the bad type can only marry another bad type. When the rate is not sufficiently high (the second case), then the good type will accept the bad type, and the bad type will accept one another. Waiting and searching again will have no additional value, and thus, everyone will marry the first person they meet.

The preceding analysis implies that two types of Nash equilibria exist. In an elitist Nash equilibrium, people with good health status only marry other people with good status. In a mixing equilibrium, everyone marries the first person of the opposite sex that they meet regardless of their health status. When c is not high, the elitist Nash equilibrium occurs when $\alpha\lambda$ is larger than $\frac{rx_B}{x_G - x_B - \frac{rc}{\lambda}}$. Otherwise, the mixing equilibrium happens.

In addition, the threshold of the two equilibria increases with c, i.e., the mixing Nash equilibrium is more likely to occur when c rises. Intuitively, a higher cost of premarital examination increases the cost of the subsequent search, encouraging

people to marry the first person they meet.

3.3 Voluntary Premarital Medical Examination

If the premarital examination is voluntary, then a person has an additional choice, i.e., marrying the partner they meet without knowing their health status. We assume that two people will not undergo premarital examination if neither wants to (they have to undergo examination if one of them plans to do so). Going through examinations incurs a cost of c and reveals the person's type. By contrast, not going through an examination is free but generates uncertainty in type. For simplicity, we assume that individuals are risk neutral and only concerned about the expected value of utility if the health status of their partners is unknown.

In equilibrium, a person with bad health status will not choose to disclose his/her health status because doing so reduces his/her chances of marrying a good type. Consequently, the decision to undergo an examination solely depends on the person with good health status. Moreover, people with good health will always be accepted by their potential partners if their health information is revealed. Then, the expected lifetime utility of staying single for the good type is

$$V_G = \frac{1}{1+r\Delta}\{(1-\alpha\Delta)V_G + \alpha\Delta max[\lambda\frac{x_G}{r} + (1-\lambda)max(V_G, \frac{x_B}{r}) - c, \frac{\mathbb{E}(x)}{r}]\}. \quad (4)$$

Here, $\mathbb{E}(x) = \lambda x_G + (1-\lambda)x_B$. Accordingly,

$$V_G = \begin{cases} \frac{\alpha\lambda}{\alpha\lambda + r}(\frac{x_G}{r} - \frac{c}{\lambda}) & \text{if } \alpha\lambda > \frac{rx_B + \frac{r^2c}{1-\lambda}}{x_G - x_B - \frac{rc}{\lambda}\frac{1}{1-\lambda}} \text{ and } x_G - x_B > \frac{rc}{\lambda}\frac{1}{1-\lambda} \\ \frac{\alpha}{\alpha + r}\frac{\lambda x_G + (1-\lambda)x_B}{r} & \text{if } \alpha\lambda \leq \frac{rx_B + \frac{r^2c}{1-\lambda}}{x_G - x_B - \frac{rc}{\lambda}\frac{1}{1-\lambda}} \text{ or } x_G - x_B \leq \frac{rc}{\lambda}\frac{1}{1-\lambda}. \end{cases} \quad (5)$$

The strategy for an individual with good health is to take the exam and marry only the good type if $\alpha\lambda > \frac{rx_B + \frac{r^2c}{1-\lambda}}{x_G - x_B - \frac{rc}{\lambda}\frac{1}{1-\lambda}}$ and $x_G - x_B > \frac{rc}{\lambda}\frac{1}{1-\lambda}$; and not to take the exam and marry the first person they meet if $\alpha\lambda \leq \frac{rx_B + \frac{r^2c}{1-\lambda}}{x_G - x_B - \frac{rc}{\lambda}\frac{1}{1-\lambda}}$ or $x_G - x_B \leq \frac{rc}{\lambda}\frac{1}{1-\lambda}$.

Similar to the previous case, the optimal strategy for individuals with good health depends on the rate at which the good type meets another good type and the cost, c. When the probability that two good types meet is sufficiently high or when the examination cost is sufficiently low, the good type takes the examination and only marries another good type. The market is in an elitist Nash equilibrium (i.e., only people with the same health status marry one another). Otherwise, nobody undergoes examination, and the market is in a mixing Nash equilibrium where everyone marries the first person they meet.

3.4 Market Outcome in Equilibria

In this section, we consider the market outcomes on the marriage rate, the positive assortative matching rate, and the birth defect rate in both equilibria.

In a mixing equilibrium, people marry the first person they meet. The proportion of people who get married within a certain period over the total number of people who are searching for a partner within the same period is α (i.e., the rate of marriage offer received). Among the pairs of people who are getting married within that period, $\lambda^2 + (1-\lambda)^2$ pairs have the same health status. Thus, given marriage, the positive assortative matching rate is $\lambda^2 + (1-\lambda)^2$.

In an elitist equilibrium, marriage will only occur when people have the same health status. Therefore, the marriage rate within a period is $\alpha(\lambda^2 + (1-\lambda)^2)$. Given marriage, the positive assortative matching rate of health is 1.

Assume that the probability of a birth defect is σ_G, σ_{GB} and σ_B for married for a married couple with both good health, one with good health and one with bad health, and both with bad health, respectively. We further assume that $\sigma_G < \sigma_{GB} \leq \sigma_B$. In a mixing equilibrium, the expected birth defect rate, given marriage, is $\lambda^2\sigma_G + 2\lambda(1-\lambda)\sigma_{GB} + (1-\lambda)^2\sigma_B$. In an elitist equilibrium, the expected birth defect rate, given marriage, is $\dfrac{\lambda^2\sigma_G + (1-\lambda)^2\sigma_B}{\lambda^2 + (1-\lambda)^2}$.

Whether the expected birth defect rate in a mixing equilibrium is higher than that in an elitist equilibrium depends on whether $\dfrac{\sigma_{GB} - \sigma_G}{\sigma_B - \sigma_{GB}} > \frac{(1-\lambda)^2}{\lambda^2}$. This condition is satisfied when λ is high (meaning that most individuals are in good

health) or when σ_{GB} is considerably closer to σ_B than to σ_G (meaning that children's health is dominated by whether one side of the couple having bad health). In reality, defects frequently happen when one side of the couple has bad genetic health, i.e., σ_{GB} can be very close to σ_B. In the extreme case, where $\sigma_B = \sigma_{GB} > \sigma_G$, the expected birth defect rate is higher in a mixing equilibrium. The birth defect rate among all potential couples in each period must be higher in the mixing equilibrium compared to the elitist equilibrium, with the former being $\alpha[\lambda^2\sigma_G + 2\lambda(1-\lambda)\sigma_{GB} + (1-\lambda)^2\sigma_B]$, and the latter being $\alpha[\lambda^2\sigma_G + (1-\lambda)^2\sigma_B]$.

In summary, the marriage rate tends to be higher in a mixing equilibrium in real life, while the fraction of positive assortative matching tends to be higher in an elitist equilibrium. The birth defect rate is likely to be higher in a mixing equilibrium.

3.5 Compare Two Policy Regimes

Here, we compare the outcomes of the two policy regimes: one is the mandatory premarital health exam, while the other allows couples to take the exam voluntarily. Both regimes have two equilibria: an elitist equilibrium and a mixing equilibrium. However, the threshold of the two equilibria is different depending on whether the examination is mandatory. Notably,

$$\frac{rx_B + \frac{r^2c}{1-\lambda}}{x_G - x_B - \frac{rc}{\lambda}\frac{1}{1-\lambda}} > \frac{rx_B}{x_G - x_B - \frac{rc}{\lambda}}. \tag{6}$$

With all else being equal, an elitist equilibrium is more likely to happen when the examination is mandatory than when it is voluntary.

This result implies that the marriage rate is lower, the assortative matching rate is higher, and the birth defect rate is most likely lower when the examination is mandatory. Moreover, with all else being equal in both environments, the lower the cost, the more likely an elitist equilibrium will occur. We summarize the testable hypotheses as follows.

1. When premarital health examination changes from being mandatory to be-

ing voluntary,

(a) marriage rate increases;

(b) positive assortative matching rate declines among the married;

(c) birth defect rate increases among those who are married.

2. Reducing the examination fee will increase the assortative matching rate and reduce the birth defect rate, regardless of whether premarital health examination is mandatory or voluntary.

In the theoretical model, the prediction regarding the change in positive assortative matching is measured among the married population. Although those who are married under voluntary or compulsory exams may not be the same (selection into marriage exists), the model predicts differences in the assortative matching rate conditional on marriage. By contrast, the selection issue (selection into having a child) is a potential problem for the analysis of the birth defect rate, because we do not observe the counterfactual birth defect rate of couples who get married but do not have a child. We discuss our empirical strategy and how to address this issue in the next section.

A high marriage rate and a low birth defect rate are widely agreed to be socially desirable. However, these two goals can conflict with each other. A low birth defect rate demands positive assortative matching in health, which can lead to more unmarried individuals. Which of the two goals is more socially valuable depends on the value of a low-quality or mixed-health marriage relative to being single, which decreases with the cost of child defect in society[1]

[1]Assume the social benefits of marriage is X_{GG}, X_{GB} and X_{BB} respectively for a married couple with both good health, one good health and both bad health. For society, the total welfare is $\alpha[\lambda^2 X_{GG} + 2\lambda(1-\lambda)X_{GB} + (1-\lambda)^2 X_{BB}] + [(1-\alpha)][\lambda V_G + (1-\lambda)V_B]$ in the mixing equilibrium and $\alpha[\lambda^2 X_{GG} + (1-\lambda)^2 X_{BB}] + [(1-\alpha) + 2\alpha\lambda(1-\lambda)][\lambda V_G + (1-\lambda)V_B]$ in the elitist equilibrium. The mixing equilibrium delivers lower welfare as long as $X_{GB} < \lambda V_G + (1-\lambda)V_B$. This implies that as long as a mixed marriage in terms of health matching does not deliver higher utility than the average reservation utility of staying single, then the elitist equilibrium is better for society. X_{GB} decreases with the harm that children's bad health brings. Therefore, the higher the cost of children's birth defection, the worse the mixing equilibrium is for society, compared with the elitist equilibrium.

4 Empirical Strategy

4.1 Data, Sample, and measures

We use data from CFPS, a nationally representative longitudinal survey of Chinese households. The survey sampled households in 25 provinces and collected detailed information about each household's demographic information, marital status, self-reported health conditions, and birth weight of all of the children. We use the 2010 version, the first wave which interviewed about 15,000 families and 30,000 individuals within these families.

The information regarding annual premarital health examination rates and other provincial year-level characteristics are obtained from the China Public Health Statistical Yearbooks. Provincial-level premarital health examination rates are available since 2002. We also searched government and news reports to collect information about the time that each province had exempted examination fees.

We construct two dependent variables. First, we use self-reported health status to construct assortative matching in health as suggested by Idler and Kasl (1995) and McGee et al. (1999). In the survey data, self-reported health condition falls under five categories: healthy (63.5%), general (31.8%), less healthy (2.5%), unhealthy (1.9%), and very unhealthy (0.3%). We define a person as having good health if his/her self-reported health condition is under the first three categories. Otherwise, a person is labeled as having bad health. In general, only serious health problems can significantly affect marriage decisions; therefore, we only consider unhealthy and very unhealthy as bad health in our baseline regressions. Accordingly, about 2.2% of the sample suffers from bad health. We also use other categorization approaches to examine sensitivity. Then, we construct the variable PAM by assigning a value of one if both husband and wife have good health or both having bad health and a value of zero otherwise. Second, we construct the variable *lowbweight*. It is a dummy variable that indicates whether the birth weight of a child is less than or equal to 2500g, following the definition of the World Health Organization in 2004 and the literature.

One major problem with CFPS data is that the self-reported health status is provided in 2010. Hence, the status may have changed after the couple got married, and thus, may not be the same as their conditions at the time of marriage. We partially validate the quality of the self-reported health status by examining the correlation between the low birth weight of a child and its parents' self-reported health status. If the self-reported health status in 2010 is correlated with the condition at the time of marriage, then it should also predict the likelihood of low birth weight. We find that if both parents report good health in 2010, they are 8.6 percentage points less likely to give birth to children with low birth weight, and the effect is significant at the 5% significance level. This evidence indicates that the self-reported health status in 2010 is related to health status at the time of marriage that affects children's birth weight. To further address the issue, we also conduct robustness checks using another dataset, namely, the China Health and Nutrition Survey (CHNS), which provides health information at the time of marriage. Moreover, we use other health status measures from CFPS data, including the self-evaluated health status relative to people with similar age and the health status evaluated by the interviewer. However, information regarding objective health status, such as activities of daily living (ADL) and instrumental ADL (IADL), is unavailable in CFPS.

We distinguish three periods according to a couple's year of marriage: 2000.1–2003.9, 2003.10–2005.7, and 2005.8–2009.12. The three periods represent the time when mandatory, voluntary with fees, and free voluntary premarital medical examinations were adopted. For the effect of mandatory marital examination, we focus on the first two periods (2000.1–2005.7). We then analyze the change in outcomes between 2004 and 2010 to examine the effect of providing free premarital examinations.

We construct three samples to analyze different outcomes—the adult sample, the married couple sample, and the children's sample. The adult sample is used to examine the decision to get married. It includes individuals born after 1970 (age 30 years in 2000) and who remained unmarried before 2000. The married

couple sample is used to examine the effects on the assortative marital matching of health. This sample includes couples married between January 2000 and July 2005, husbands getting married between 20 and 40 years old, and wives getting married between 18 and 40 years old. The age restriction guarantees that giving birth to a child is possible. If a couple got married multiple times, then we only include their most recent marriage during the period. Finally, to examine the effects on children's health, we construct a children's sample that includes the firstborn children in the married couple sample before 2010.

Table 1 presents the summary statistics for the three periods in accordance with a couple's year of marriage. In all the periods, positive assortative matching rates are more than 94%. More than 96% of the individuals report being healthy. Males get married later in life, have more years of education, and higher annual income. About 49% to 65% of the households are from urban areas. We also find that about 5% to 7% of the children have low birth weight.

4.2 Econometric Models

The sudden suspension of compulsory premarital medical examination in 2003 brought an exogenous shock to the health information disclosure mechanism. The announcement was made only two months before the implementation of the new policy; hence, adjusting their behavior in advance was difficult for potential couples. As a result, the premarital exam rate fell abruptly from 2003 and further plunged after 2004 (Figure 2), consistent with the theoretical prediction. The average exam rate in China was 68% in 2002, 53.4% in 2003, and dramatically dropped to 2.67% in 2004. The numbers are 67% in 2002 and 2.65% in 2004 among provinces in our sample. This huge decrease demonstrates that the removal of the compulsory premarital medical examination has changed people's attitudes toward revealing their health information before marriage.

Although the premarital examination was required by the central government before 2003, the enforcement of the requirement varied across provinces because of different economic or medical conditions. As shown in Figure 2, the exam rate was

the highest in Beijing and Shanghai, at 99.3% and 98.7%, respectively. Meanwhile, the rate in Shanxi was the lowest, at only 35.2%. After premarital examination became voluntary, the rates dropped to less than 5% for all provinces. Thus, provinces with a higher premarital examination rate in 2002 were more affected by the policy. Consequently, we use the exam rate in 2002 as our major measure for the intensity of policy shock. Column 1 in Table 2 shows the regression of the provincial-level exam rates in each year on the exam rates in 2002 using data in 2002, 2004, and 2005. It confirms that a one percentage point higher exam rate in 2002 corresponds to about 0.97 percentage point more decrease in the exam rate after the reform. We also apply the specification that uses the decline in the exam rate between 2002 and 2004 ($\Delta rate$) as an alternative measure. However, the exam rate in 2004, and thus, the change in the exam rate, are more likely to be endogenous, we use this measure only for robustness check.

We leverage this variation and evaluate whether mandatory premarital examination affects assortative marital matching and birth weight by using the following difference-in-difference model:

$$y_{ipt} = \beta_0 + \beta_1 rate02_p \cdot Post_t + \delta Post_t + X_{ip}\theta + Z_{pt}\gamma + \mu_p + \sigma_t + \epsilon_{ipt}. \quad (7)$$

The dependent variable y_{ipt} is either the assortative matching measure PAM for family i in province p at time t, which indicates whether a couple has the same self-reported health status, or $lowbweight$, which indicates whether a child born to family i in province p has a birth weight lower than $2500g$ at time t. We use the married couple sample to estimate the effect on assortative matching, and use the children sample (the firstborn children to the married couple sample) to estimate the effect on the newborn's health. $rate02_p$ is the premarital examination rate in 2002 in the province where family i lives in 2002, which measures the strictness of implementation of the premarital examination in province p before the reform.

We control for year fixed effects σ_t and province fixed effects μ_p. We also use the specifications that control county fixed effects as robustness check. However, we lose some observations because several counties have only one observation.

Notably, the policy change happened in the middle of the year (October 2003), and thus, we include $Post_t$ to indicate whether the period is after October 2003. In some specifications, we also control for couples' characteristics, X_{ip}, including the birth years of the husband and wife, hukou status (urban or rural), education years, ethnicity (Han or others), annual income, and whether the family resides in rural or local areas. In the regression using examining the impacts on low birth weights, we also include children's gender and birth year.

An important question is what drove the provincial variation in premarital examination rates in 2002. Two primary reasons are presented. On the supply side, provinces differ in their fiscal support for medical facilities and workers necessary for the examination. Apparently, these factors also affect certain outcome variables, such as birth weight. Thus, we control for a range of provincial-level, time-varying characteristics Z_{pt}, including the number of community health clinics, the number of health workers, and the number of hospital beds in each province and year. On the demand side, the expenses of premarital medical examination vary across places. Zhou and Gao (2004) reported that costs of examination ranged from 42.5 yuan to 252.8 yuan per couple in China. Nevertheless, the examination fees rarely change in our sample period. Thus, provincial-level fixed effects would absorb such differences.

Our conceptual framework predicts that the coefficient, β_1, is significantly negative for PAM and positive for $lowbweight$, meaning that abolishing the implementation of mandatory medical examination should reduce the propensity of positive assortative marital matching and increase the probability of having a low-weight birth.

One issue with the empirical setting for the effect on birth weight is that not all couples have a child. For childless couples, we do not have a direct measure for child birth quality. Given that those who have a child are more likely to be healthy couples, the data issue may cause downward bias in our estimation. To illustrate this issue, we consider an imputation strategy under which we assume low birth weight for couples without a child. This imputation can be regarded as

an upper bound on the effect of the policy change on birth outcome.

Notably, our theoretical prediction on the policy effect on assortative marital matching, given marriage, incorporates the sample selection effect on getting married; that is, couples who got married after the reform can have different compositions from those who got married before the reform. Therefore, for empirical estimates on the policy effect on marital matching, we are not concerned with the sample selection problem.

Next, we examine whether mandatory premarital examination affects the decision to get married by estimating the Cox model:

$$h(t|X_{ip}) = h_0(t)exp(\beta_2 * rate02_p * Post_t + X_{ip}\theta + \mu_p), \tag{8}$$

where $h(t|X_{ip})$ denotes the hazard rate of marriage that an individual i in province p faces at time t. A period is defined as a month. Therefore, $h(t|X_{ip})$ indicates that individual i in province p is expected to take another $1/h(t|X_{ip})$ months to get married if he/she is still single at time t. μ_p is province fixed effect. $rate02_p$ measures the strictness of implementation of the premarital exam in province p before the reform. It is equal to the premarital exam rate in 2002 in the province where individual i lives in 2002. $Post_t$ is the indicator for months after October 2003. X_{ip} denotes individual characteristics, including the husband's and wife's birth years, hukou status (urban or rural), education years, ethnicity (Han or other), annual income, and whether the family resides in rural or local areas.

Our conceptual framework predicts that coefficient β_2 is positive, meaning that abolishing the implementation of mandatory medical examination will increase people's propensity to get married.

Finally, we estimate the effects of exempting the fee of premarital examination on marriage decisions, positive assortative matching in health, and low birth weight by using a staggering difference-in-difference design:

$$y_{it} = \beta_0 + \beta_3 free_{pt} \cdot rate_p + \delta post_t + X_{ip}\theta + Z_{pt}\gamma + \mu_p + \sigma_t + \epsilon_{ipt}, \tag{9}$$

where $free_{pt}$ indicates whether premarital examination is free in province p in month t. $rate_p$ is the premarital examination rate in the year prior to the implementation of free examination. The key variable of interest is β_3, which should be positive for positive assortative matching and negative for birth defect rates in accordance with our theory. We estimate the model using data from January 2004 to December 2009.

5 Results

This section presents the empirical results. We first examine the effects of health information disclosure on the positive sorting of health between spouses and the quality of newborns. Then, we estimate its effect on people's propensity to marry. Next, we present the heterogeneity in the effects and the robustness. Finally, we examine the effects of exempting examination fees.

5.1 Positive Assortative Marital Matching

Table 2 reports the effect of mandatory premarital examinations on the positive sorting of health. In Column (2), we control for province and marriage year fixed effects but add no other controls. We add time-varying provincial characteristics to capture potential effects from the supply of medical care in Column (3), and further control for individual socioeconomic characteristics in Column (4). In Column (5), we replace the province fixed effects with the county fixed effects. In Column (6), we add a provincial-specific year trend. In Column (7), we add observations after 2005 in provinces that did not offer free premarital examination in our sample period to increase the sample size.

The results confirm that changing premarital examination from mandatory to voluntary significantly reduces the proportion of positive sorting of health. The coefficient of interaction of the examination rate in 2002 and the post dummy are negative in all columns and are significant by at least 10% in all but one of the

columns.[2] The point estimate is between 0.117 and 0.148, suggesting that when the examination rate in 2002 was higher by one percentage point, and hence, the reduction in exam rate due to the reform was stronger, the positive sorting rates experienced a larger reduction by as much as 0.148 percentage points after the policy change. The results are consistent with the theoretical prediction that the positive matching of health between spouses occurs less when the disclosure of private information changes from mandatory to voluntary. Given that the exam rate on average declined by 65.3 percentage points from 2002 to 2004, the decrease in positive sorting due to the reform would be about 9.7 percentage points, which is more than 10% of the positive sorting rate before the reform. We only label serious health problems as bad health; hence, 9.7 percentage points are not trivial, as confirmed by the results of newborns' health.

We next estimate an event study specification, where we control for the interaction terms between the 2002 premarital examination rates and the year dummies. This specification can help us examine the pre-trend assumption, which requires that provinces with higher or lower premarital examination rates in 2002 have similar trends in positive sorting rates. To learn the long-term dynamics of the responses, we include observations after 2015 in provinces with no free premarital examinations in our sample period. Figure 3 shows that the pre-trend assumption holds for assortative marital matching because there is no significant difference in the assortative matching between provinces before 2002. The figure also indicates that the effect of the reform is insignificant in 2003, which is consistent with the expectation because the reform is implemented in October 2003. The ratio of assortative matching is considerably lower for the years 2004, 2007, and 2008, and it is significant at the 10% level. This indicates that provinces having higher premarital examination rates in 2002 experience a larger reduction in assortative matching. However, the effects are insignificant in 2005 and 2006, probably due to noise or outliers in the data, given that our sample size is not very large.

[2]When we control for the provincial time trend, the estimate is not sufficiently precise, probably due to our small sample size, but the magnitude is similar to those in other columns.

5.2 Newborns' Health

Table 3 provides the estimates for the effect of removing mandatory premarital examination on low birth weight. The first five columns are based on the sample of married couples with children. Similar to the specifications in Table 2, we use different regional and year fixed effects in each column and add different control variables. In Column (6), we add observations after 2005 in provinces that do not offer free premarital examinations to increase the sample size. In Column (7), we impute the birth weight as below 2500 g for couples who had not given birth after marriage in our sample period to address the potential selection problem.

All the estimates confirm that the removal of mandatory premarital examination leads to more newborns with low birth weights. The coefficient of the interaction term is all positive and significant by at least 5% in nearly all the columns.[3] The point estimates suggest that when a province has a higher premarital examination rate by one percentage point before the reform, its increase in low birth rates is larger by 0.23 to 0.40 percentage points after the reform. Therefore, the decline of 65.3 percentage points in exam rates leads to an increase of up to 26.1 percentage points in the possibility of low birth weight among newborns. This value is considerably higher than the average probability of low birth weight prior to the reform (7%).

If we assume that no-birth couples have a low birth weight, then we obtain an even stronger estimate of the reform effect on the probability of low birth weight: one percentage point more decline in the exam rate leads to a 0.53 percentage point increase in the probability of low birth weight. This estimate provides an upper bound of the policy effect. It is consistent with the result in Appendix Table A.2, which shows that changing the examination from mandatory to voluntary reduces the likelihood of having a child, although the estimate is noisy.

We also examine the pre-trend assumptions and the dynamic effects by using the event study framework. Figure 4 shows no significant difference in the pre-

[3]The specification that controls for the provincial time trend provides an estimate that is only significant at 20% again, but the magnitude is still similar to those in the other columns.

trends of low birth weight rates among provinces with different exam rates before the reform. At the same time, we see an immediate increase in the low birth weight rate in 2004, i.e., the year after the reform. Moreover, the effects remain positive in most years after 2004.

5.3 Possibility of Getting Married

The results of assortative marital matching and children's birth weights depend on who gets married. Table 4 presents the results of the Cox proportional hazards model for the reform effect on marriage probability. In Column (1), we control for province fixed effects. In Column (2), we control for county fixed effects. In Column (3), we control for province fixed effects and individual characteristics. All the specifications show that consistent with the theoretical predictions, changing premarital medical examinations from mandatory to voluntary significantly increases people's possibility of getting married. The coefficient of concern, β_2, is 0.574, which indicates that when the negative policy shock on the examination rate increases by one percentage point, the hazard rate of getting married increases by 0.775 percentage points.[4]

5.4 Heterogeneous Effects

According to the theoretical analyses, the policy may have heterogeneous effects, depending on the parameters of α, λ, x_B, and x_G. Intuitively, these parameters vary with the individual's demographics. We focus on the heterogeneity over the following demographics: age, education, gender, and residential status.

We first examine how the policy affects couples who get married at different ages. We divide the sample into two groups—senior and young couples. For the married couple sample and the children sample, senior couples are those with both sides getting married at an age older than the median marriage age in our whole sample, i.e., 26 for males and 24 for females. The young couples comprise the rest.

[4]One unit of decrease in the exam rate results in the hazard rate being $exp(\beta)$ times the original level. Thus it increases the hazard rate by $exp(\beta) - 1 = 0.775\%$.

In the adult sample used for analyzing marriage, we use the median birth year, i.e., 1985, as the threshold to separate young adults (born after 1985) from senior adults (born before 1985). The results are presented in Table 5 Panel A.

We find that the policy change increases the marriage probability for young adults. The effect on senior adults is insignificant. This result is not surprising because the cost of waiting (related to α) tends to be higher for senior potential couples, implying that they are not very choosy about partners before the policy change. By contrast, senior couples experience a larger decline in positive assortative matching, indicating that although their marriage rate does not decline, the composition of marriage becomes less assortative with regard to health after the removal of the premarital health examination. This finding implies that the insignificant change in the marriage probability is more likely to result from the fact that seniors sacrifice requirements for dimensions other than health to get married before the reform. It may also be related to the fact that young potential couples are more likely to get married, such that the pool for seniors is altered after the policy change. Consistently, the low birth weight rate increases more for senior couples after the reform. These findings indicate that senior potential couples benefit more from the requirement of mandatory premarital health exams.

Next, we examine how the policy affects individuals with different education levels in Table 5 Panel B. For the analysis of marriage, we divide the sample into two groups in accordance with whether an individual has more than nine years of education. In the married couple and children samples, couples with high education are those with a total education year of 18 or more years. The positive effect of the removal of the mandatory premarital exam on marriage is stronger among individuals with higher education, which can be attributed to the lower cost of waiting for the higher education group. Thus, they are more selective before the reform. Consistently, the reduction in the probability of positive assortative matching is larger among couples with higher education. In terms of low birth weight, however, couples with low education are more affected by the policy. This finding indicates that couples with higher education can be more capable of im-

proving the health status of their baby or avoiding low birth weight. These results demonstrate that the removal of the mandatory premarital exam hurts newborns of less educated parents the most.

We examine how the policy affects households living in urban areas versus rural areas. Panel C of Table 5 shows that the change in the marriage probability is insignificant at the 10% level for both rural and urban households. For positive assortative matching, urban households experience a larger decrease in assortative matching rates after the removal of the mandatory premarital exam, implying that urban households are more selective in terms of health before the reform. However, the negative policy effect on newborn's health is considerably larger and more significant in rural areas. This finding is consistent with the fact that rural residents are disadvantaged in improving birth quality. Combined with the previous heterogeneity analysis, the results indicate that the removal of the mandatory premarital examination hurts the birth quality of disadvantaged groups the most, including rural, less educated, and senior groups.

Finally, we investigate how policy effects vary across genders. Panel D of Table 5 shows that the increase in marriage probability is larger for males, i.e., males tend to be more selective with regard to health before the reform. Making the premarital exam voluntary significantly increases the birth defect rate of boys, while the effect on girls is considerably smaller and insignificant. This result is consistent with the finding that boys are more vulnerable to the environment, as shown in the literature about gender differences in surviving the harsh environment of the uterus (Kraemer, 2000). It may also be related to gender selection, i.e., boys with defects are less likely to be aborted than girls with defects.

5.5 Robustness Checks

We conduct several robustness checks for the major results. First, to double confirm the comparability between provinces with different exam rates in 2002, we perform counterfactual tests by using hypothetical treatment time and estimate Equation 7. Table A.3 shows the results. In one counterfactual analysis (Columns

(1) and (2)), the *Post* variable is assigned a value of zero if the couple gets married between 1998 and 1999, and a value of one if the couple gets married between 2000 and 2001. In another case (Columns (3) and (4)), *Post* is assigned a value of zero if the couple gets married between 2004 and 2005, and a value of one if the couple gets married between 2006 to 2008 in provinces that do not offer free premarital exams. The coefficients of the interaction term between $rate02_p$ and $Post_t$ are all insignificant, suggesting that the significant estimates in our baseline model do not result from the difference in counterfactual trends between provinces.

Next, we exclude couples who got married in 2003 because the policy was implemented in the middle of the year, and some provinces may not have implemented the policy precisely around the national schedule. Columns (1) and (2) in Table A.4 provide similar estimates as the baseline results.

Third, we use an alternative measure for the policy shock. In particular, we replace the key independent variable, $rate02_p$, with the reduction in exam rate between 2002 and 2004. The change in the exam rate is highly correlated with the exam rate in 2002 because the exam rate drops to close to zero in 2004 in all provinces. This finding explains why the results using the alternative measure for policy shock are similar to the estimates in our baseline regressions (see Columns (3) and (4) in Table A.4.)

One major problem with CFPS data is that the couples' characteristics are reported in 2010, which may not describe their health status at the time of marriage. To address this issue, we use CHNS. This survey was started in 1989 and conducted every two or three years. The survey includes self-reported health status (but not birth weight). For each couple, we use the wave closest to their marriage and require that the health status measure is within three years of their marriage. The sample size of CHNS is smaller, and thus, we use a longer period (from 2000 to 2006, the last year when the self-reported health status is available). Column (5) in Table A.4 shows that the results are consistent with our baseline results: for provinces with a higher exam rate in 2002 (by one percentage point), their decline in positive assortative matching rate is larger (by 0.71 percentage point).

The magnitude of the estimate is much larger than the estimates in CFPS, and we think the estimates in CFPS are more reliable due to the larger sample size and the reasonability of the magnitude.[5]

For the effects on assortative marital matching, we also use other health status measures from the CFPS data, including changing the definition of having bad health to include "less healthy" individuals, using the self-evaluated health status relative to people with similar age, and using the evaluated health status by the interviewer.[6] The results are presented in Appendix Table A.5. The major conclusion on assortative matching still holds, although the precision or magnitude changes modestly.

5.6 Free Premarital Examinations

Our model predicts that reducing the costs of premarital examinations increases examination rate, and thus, reduces marriage probability, increases positive assortative marital sorting in health, and decreases the incidence of low birth weight. We first examine whether making the examination free increases the exam rate by using provincial-level measures on examination rates and a staggering difference-in-difference design. Table 6 shows that implementing the free examination policy increases the examination rate by 15.3 percentage points, which is significant at the 10% significance level.

Next, we use adults who are not married before December 2004 and born after 1970 to analyze the effect on marriage. We estimate their decision to marry until December 2009. In Column (2) of Table 6, we show that the policy change exerts no significant effect on the marriage probability, although the direction is consistent with the theoretical prediction. The result indicates that people who are affected by the cost of examination on the margin may not be highly selective with regard to health when making marriage decisions.

Finally, we use couples married between January 2004 and December 2009 to

[5]In the CHNS sample, the average positive assortative matching rate is lower, about 0.802.
[6]The evaluation is subjective without a thorough medical examination.

estimate the effects of free premarital examination on assortative matching and low birth weights. We find an increase in assortative matching in health and a decrease in low birth weight after the examination becomes free. The direction is consistent with the theoretical predictions. However, only the effect on birth weight is statistically significant (at the 1% level).

Overall, although the reduction in the cost of taking the premarital exam does not exhibit a strong effect on marriage rate and composition, it is effective in improving exam rate and birth quality.

6 Conclusion

In this study, we utilize the abrupt removal of the mandatory premarital medical examination in China to study the effects of health information disclosure on the marriage market and newborns' health quality. Our theoretical model predicts that when premarital health examinations change from mandatory to voluntary, people are more likely to get married and less likely to find a spouse with the same health status. Furthermore, if bad health of one of the parents has a dominant effect on the health of the newborns, then the overall health quality of newborns declines after abolishing mandatory examinations. If the monetary cost of premarital examinations constitutes a large part of the total cost, the adverse outcomes induced by the implementation of voluntary examination can be mitigated by exempting the examination fees.

Our empirical findings are consistent with the theoretical predictions. These findings suggest that although making health information disclosure mandatory reduces marriage rate, it is socially beneficial by effectively raising the positive sorting rate of health between spouses and the health quality of children. Positive marital sorting of health can be important for improving the quality of marriage. Moreover, the removal of the mandatory premarital examination hurts the birth quality of disadvantaged groups the most, including the rural, less educated, and senior groups. It hurts male newborns more than female newborns.

Later exemption of examination fees can only modestly mitigate the influences of the removal of mandatory exams on newborns' birth weight. This finding can be related to the fact that monetary cost may not be the largest part of the total cost. The major cost of premarital examinations may be time and psychological costs, which were also the major complaints related to premarital medical examinations from the public in China before 2003. Therefore, making the examination less time-consuming should be beneficial. In addition, educating potential couples about the importance of knowing both parties' health status to have a happy marriage and healthy children can be important for reducing psychological costs.

Our findings cast light on the controversial issue of premarital medical examinations. The exams can help improve marriage quality and children's health but is criticized on the ground of human rights. Governments in different countries have adopted different policies toward such examinations. Our study provides empirical evidence that premarital medical examinations should be highly recommended to potential couples. If making it mandatory is too controversial, then it should be the default choice for potential couples. The literature on behavior economics has agreed on the power of default choices (Madrian & Shea, 2001).

Besides educating potential couples, making the exams less time-consuming, and changing the default choice, we can also directly subsidize health exams to incentivize people to disclose health information before marriage. Further research is warranted on which instrument or what combination of different instruments is most effective at increasing the take-up rate of premarital medical examinations.

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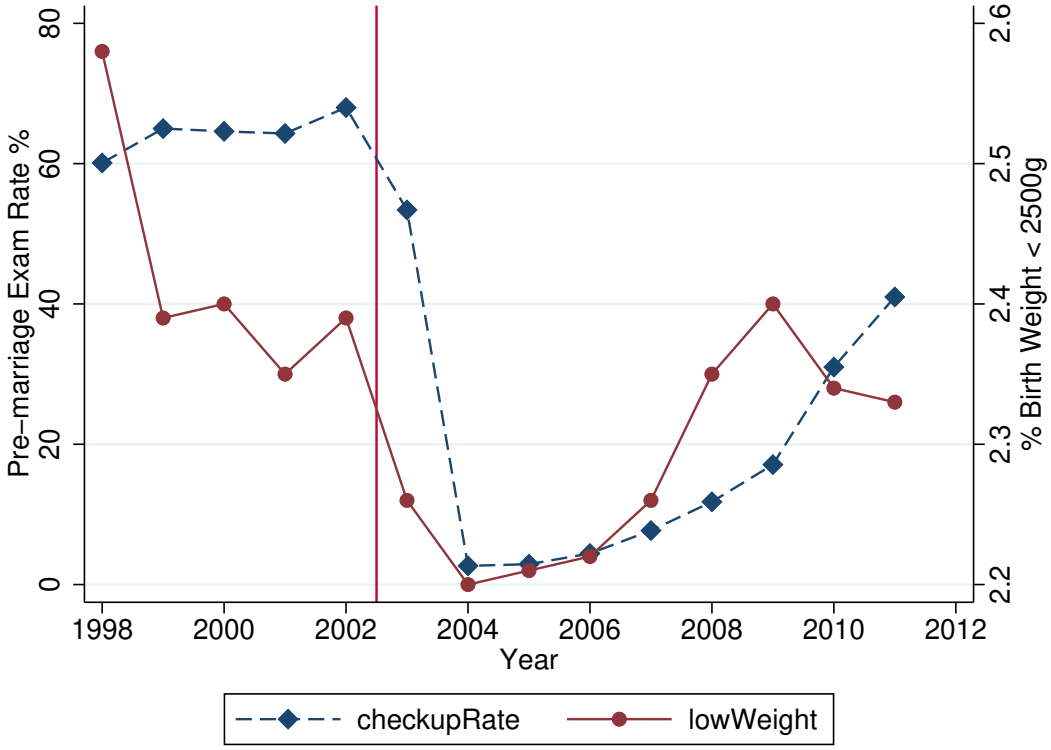
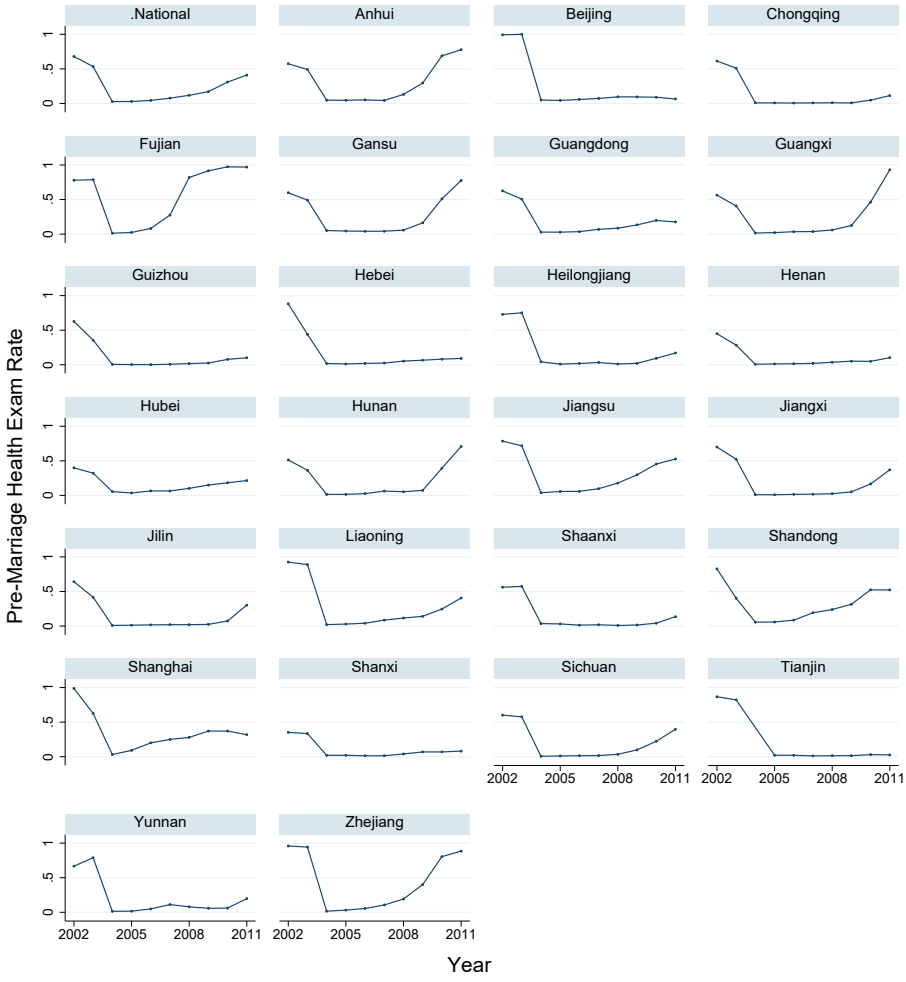
Figure 1: Premarital Health Examination Rates and Low Birth Weight Rates: National Trends Over Time



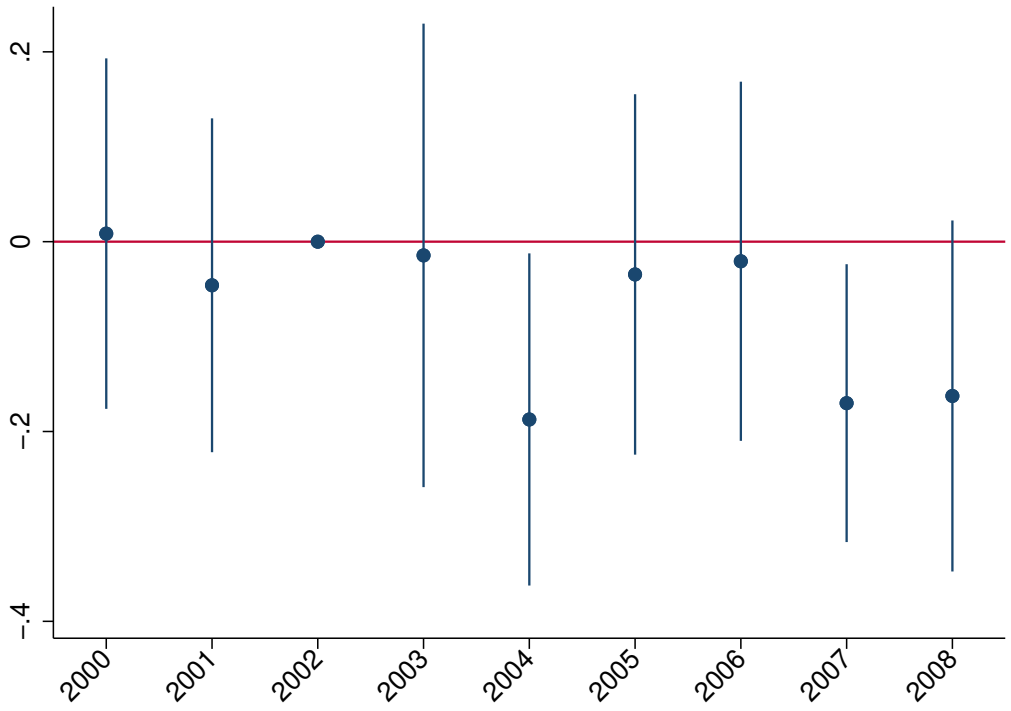
Note: The graph shows the national premarital health examination rates and low birth weight (birth weight $< 2500g$) rates from 1998 to 2011. Data are collected from the China Public Health Statistical Yearbooks. The vertical red line indicates the policy time: The State Council passed the "Marriage Registers Regulation" on July 30, 2003 and implemented it in October 2003.

Figure 2: Premarital Health Examination Rates Over Time and Across Provinces



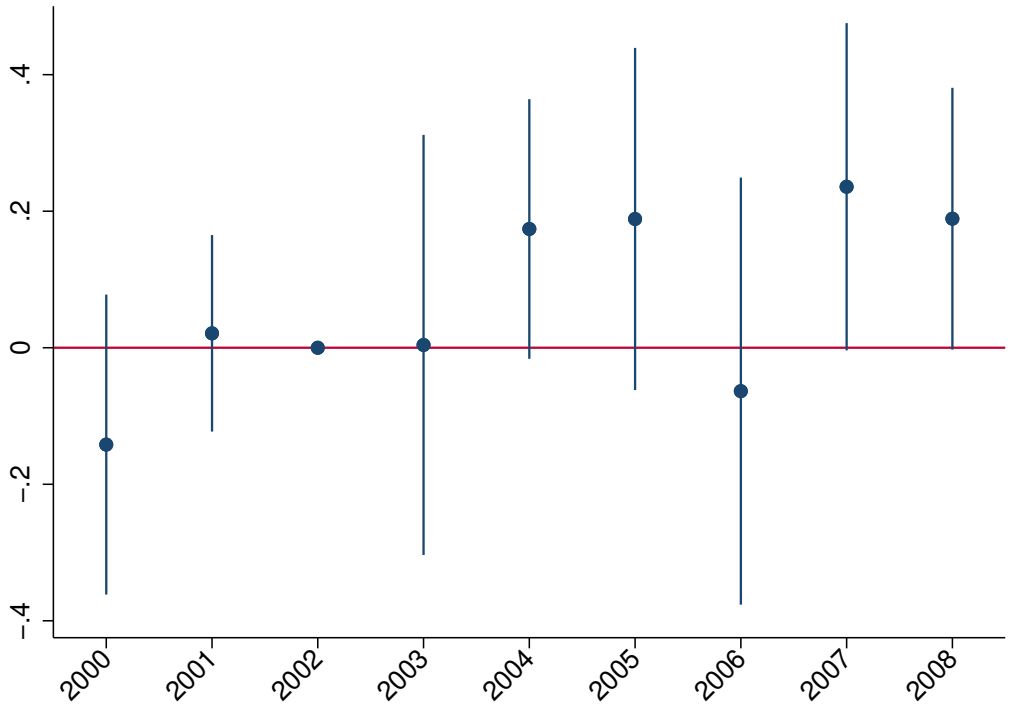
Note: The graph shows the premarital health examination rates from 2002 to 2011 across provinces in our sample. Data are collected from the China Public Health Statistical Yearbooks. The provincial-level exam rate is only available after 2002. The State Council passed the "Marriage Registers Regulation" on July 30, 2003 and implemented it in October 2003.

Figure 3: The Event Study: Positive Assortative Matching



Note: The graph shows the dynamic effects, with point estimate and 90% confidence interval. The regression sample includes couples who got married between January 2000 and 2008, with the husband getting married between the ages of 20 and 40 years and the wife getting married between the ages of 18 and 40 years. The dependent variable is the indicator of positive assortative marital matching (1 if both report healthy or neither reports healthy , and 0 otherwise). The policy change happened in October 2003. We include the following variables as controls: individual characteristics (education of husband and wife, ethnicity (Han or others), income level, and whether the family resides in rural or local areas), time-varying provincial characteristics (the number of health centers for women and children, the number of hospital beds, the number of health workers, and GDP; all in log scales), province fixed effects, and marriage year fixed effects. Standard errors are clustered at the province level.

Figure 4: The Event Study: Birth Defect Rate



Note: The graph shows the dynamic effects, with point estimates and 90% confidence interval. The regression sample includes the firstborn child of couples who got married between January 2000 and 2008, with the husband getting married between the ages of 20 and 40 years and the wife getting married between the ages of 18 and 40 years. The dependent variable is the birth defect rate. The policy change happened in October 2003. We include the following variables as controls: individual characteristics (education of husband and wife, ethnicity (Han or others), income level, and whether the family resides in rural or local areas, and children's birth year and gender), time-varying provincial characteristics (the number of health centers for women and children, the number of hospital beds, the number of health workers, and GDP; all in log scales), province fixed effects, and marriage year fixed effects. Standard errors are clustered at the county level. Although the coefficients are robust, the standard deviations are slightly sensitive to the clustering level: if we cluster at the provincial level, then the standard errors are larger.

Table 1: Summary Statistics

	2000.1-2003.9	2003.10-2005.7	2005.8-2009.12
	Panel A. Married Couple Sample		
Positive Assortative Matching	0.94	0.96	0.97
(PAM)	(0.25)	(0.20)	(0.18)
Low Birth Weight Imputed	0.13	0.17	0.38
	(0.33)	(0.38)	(0.49)
Husband Being Healthy	0.97	0.98	0.98
	(0.17)	(0.13)	(0.12)
Wife Being Healthy	0.96	0.97	0.98
	(0.19)	(0.16)	(0.15)
Husband's Birth Year	1975.52	1977.79	1981.39
	(4.21)	(4.46)	(5.05)
Wife's Birth Year	1977.58	1979.90	1983.84
	(3.89)	(4.14)	(4.64)
Husband's Marriage Age	25.66	26.13	26.32
	(4.09)	(4.44)	(4.81)
Wife's Marriage Age	23.59	24.02	23.88
	(3.76)	(4.12)	(4.38)
Husband's Education Years	8.66	9.52	9.25
	(4.10)	(4.29)	(4.09)
Wife's Education Years	7.68	8.88	8.89
	(4.40)	(4.48)	(4.15)
Husband's Ethnicity: Han	0.92	0.91	0.92
	(0.27)	(0.29)	(0.28)
Wife's Ethnicity: Han	0.91	0.89	0.89
	(0.29)	(0.32)	(0.31)
Husband's Annual Income	0.02	0.02	0.02
(thousand)	(0.03)	(0.03)	(0.03)
Wife's Annual Income	0.01	0.01	0.01
(thousand)	(0.01)	(0.02)	(0.02)
Residence: Urban	0.49	0.65	0.53
	(0.50)	(0.48)	(0.50)
N	510	302	856
	Panel B. Children Sample		
Low Birth Weight	0.07	0.07	0.05
	(0.25)	(0.26)	(0.22)
Child Gender: Boy	0.59	0.51	0.53
	(0.49)	(0.50)	(0.50)
Husband's Age Giving Birth	26.80	27.14	26.54
	(3.70)	(4.06)	(3.85)
Wife's Age Giving Birth	24.82	25.31	24.06
	(3.15)	(3.69)	(3.31)
N	447	254	550

Note: Mean and standard deviation in parentheses. Positive assortative matching measure and health measures of husband and wife use self-reported health status. It takes the value of one if both report healthy or neither reports healthy, and zero otherwise. Low birth weight is defined as birth weight below 2500 g. Imputed low birth weight takes the value of one if without child or the birth weight is below 2500 g.

Table 2: Effect of Pre-marriage Health Exam on Positive Assortative Matching

Dependent var.	Exam rate	Positive assortative matching					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ExamRate2002×Post	-0.970***	-0.131*	-0.117*	-0.138**	-0.148**	-0.145	-0.122**
	(0.023)	(0.064)	(0.064)	(0.064)	(0.072)	(0.130)	(0.058)
Post	0.007	0.117*	0.105	0.124*	0.157**	0.128	0.102*
	(0.016)	(0.062)	(0.064)	(0.061)	(0.065)	(0.106)	(0.052)
Husband: Edu				0.005	0.004	0.005	0.004**
				(0.003)	(0.003)	(0.003)	(0.002)
Wife: Edu				0.003	0.007***	0.003	0.003
				(0.002)	(0.002)	(0.003)	(0.002)
Husband: Han				0.038	0.032	0.029	0.024
				(0.030)	(0.044)	(0.031)	(0.030)
Wife: Han				-0.008	0.028	-0.001	0.001
				(0.012)	(0.023)	(0.017)	(0.015)
Husband: Income				0.206	0.146	0.194	0.204*
				(0.196)	(0.173)	(0.208)	(0.099)
Wife: Income				0.845*	1.085**	0.751	0.364*
				(0.428)	(0.500)	(0.476)	(0.194)
Residence: Urban				-0.026	-0.058*	-0.023	-0.007
				(0.021)	(0.030)	(0.022)	(0.014)
log(#HealthClinics)			-0.020	-0.019	0.007	-0.030	-0.023
			(0.063)	(0.070)	(0.086)	(0.113)	(0.049)
log(#HealthWorkers)			0.185	0.217	0.127	-0.398	-0.051
			(0.230)	(0.210)	(0.297)	(0.406)	(0.121)
log(#Hosp.Beds)			-0.192	-0.219	-0.291	0.538	-0.126
			(0.193)	(0.192)	(0.210)	(0.416)	(0.107)
log(GDP)			-0.014	-0.042	0.131	0.445	0.031
			(0.141)	(0.152)	(0.256)	(0.430)	(0.097)
Observations	361	812	812	812	798	812	1,315
R-squared	0.999	0.037	0.038	0.059	0.228	0.079	0.050
Marriage Year FE	N	Y	Y	Y	Y	Y	Y
Province FE	Y	Y	Y	Y	N	Y	Y
County FE	N	N	N	N	Y	N	N
Province Time Trend	N	N	N	N	N	Y	N
Dep. Var. Mean	0.666	0.943	0.943	0.943	0.943	0.943	0.950
Dep. Var. SD	0.188	0.231	0.231	0.231	0.231	0.231	0.218

Note: In Columns (2) to (6), the regression sample are couples who got married between January 2000 and July 2005, with the husband getting married between the ages of 20 and 40 years and the wife getting married between the ages of 18 and 40 years old. Column (1) further restricts the sample to year 2002, 2004 and 2005. Column (7) includes couples who are married later in provinces that have not offered free exam. The dependent variable in column (1) is the annual exam rate for each province. We exclude the observations in 2003 for this regression because the reform was implemented in October of the year and the annual exam rate in 2003 mixed the rate before and after the reform. The dependent variable in column (2) to (7) is the indicator for positive assortative marital matching (based on self-reported health status, = 1 if both report healthy and 0 otherwise). In column 1, the mean and SD of dependent variable refers to the value in the pre-reform period (2002). In all other columns, these vales are for the regression sample. Post is a dummy variable that is equal to one for families married after Oct. 2003, and zero otherwise. "ExamRate2002" is the province-level premarital examination rate in 2002. Standard errors are clustered at the province level. $^{*}: p < 0.1, ^{**}: p < 0.05, ^{***}: p < 0.01$.

Table 3: Effect of Pre-marriage Health Exam on Low Birth Weight

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ExamRate2002×Post	0.230**	0.270**	0.323**	0.402***	0.408	0.243**	0.525***
	(0.083)	(0.103)	(0.119)	(0.140)	(0.266)	(0.102)	(0.173)
Post	-0.149*	-0.175*	-0.212**	-0.282**	-0.256	-0.167*	-0.372**
	(0.085)	(0.089)	(0.090)	(0.119)	(0.189)	(0.086)	(0.157)
Husband: Edu			0.001	0.001	0.000	-0.002	-0.001
			(0.004)	(0.004)	(0.004)	(0.003)	(0.006)
Wife: Edu			-0.009**	-0.009*	-0.009**	-0.005	-0.007*
			(0.004)	(0.005)	(0.004)	(0.003)	(0.004)
Husband: Han			0.082	0.121	0.084	0.036	0.044
			(0.077)	(0.102)	(0.082)	(0.043)	(0.108)
Wife: Han			-0.016	0.023	-0.016	-0.011	-0.012
			(0.040)	(0.053)	(0.045)	(0.023)	(0.057)
Husband: Income			0.598	0.393	0.536	0.709	0.035
			(0.486)	(0.533)	(0.452)	(0.721)	(0.618)
Wife: Income			0.059	-0.085	0.172	0.122	0.588
			(0.848)	(1.264)	(0.919)	(0.694)	(1.107)
Residence:Urban			-0.032	-0.051	-0.041	-0.033	-0.007
			(0.028)	(0.039)	(0.031)	(0.025)	(0.032)
Child:Boy			-0.014	-0.008	-0.009	-0.006	
			(0.031)	(0.031)	(0.032)	(0.020)	
Child Birth Year			-0.006	-0.011**	-0.006	0.001	
			(0.005)	(0.005)	(0.006)	(0.002)	
log(#HealthClinics)		0.023	0.037	0.032	0.164***	0.035	0.030
		(0.020)	(0.028)	(0.023)	(0.054)	(0.021)	(0.041)
log(#HealthWorkers)		0.120	0.130	-0.144	0.056	0.081	-0.029
		(0.412)	(0.419)	(0.482)	(0.754)	(0.293)	(0.383)
log(#Hosp.Beds)		-0.110	-0.078	-0.096	-0.065	-0.141	-0.111
		(0.328)	(0.311)	(0.416)	(0.950)	(0.181)	(0.495)
log(GDP)		0.512	0.561	0.840*	1.740**	0.288**	-0.131
		(0.356)	(0.385)	(0.445)	(0.699)	(0.115)	(0.467)
Observations	702	702	702	683	702	1,109	812
R-squared	0.074	0.078	0.108	0.258	0.140	0.073	0.130
Marriage Year FE	Y	Y	Y	Y	Y	Y	Y
Province FE	Y	Y	Y	N	Y	Y	Y
County FE	N	N	N	Y	N	N	N
Province Time Trend	N	N	N	N	Y	N	N
Dep. Var. Mean	0.071	0.071	0.071	0.072	0.071	0.148	0.065
Dep. Var. SD	0.256	0.256	0.256	0.259	0.256	0.355	0.246

Note: In Columns (1) to (5) and (7), the sample includes the firstborn child of couples who got married between January 2000 and July 2005, with the husband getting married between the ages of 20 and 40 years and the wife getting married between the ages of 18 and 40 years. The dependent variable is the dummy variable, which is equal to one if the birth weight is below 2500 g and zero otherwise. In Column (6), the regression sample extends to include couples who are married later in provinces that have not offered free exam. In Column (7), we impute the dependent variable as one for childless couples. Post is a dummy variable that is equal to one for couples married after Oct. 2003, and zero otherwise. "ExamRate2002" is the rate of premarital examination at the province level in 2002. Standard errors are clustered at the province level. $^{*}: p < 0.1, ^{**}: p < 0.05, ^{***}: p < 0.01$.

Table 4: Effect of Pre-marriage Health Exam on Possibility of Marriage: Cox Model

	(1)	(2)	(3)
ExamRate2002 × Post	0.584**	0.613**	0.574**
	(0.250)	(0.263)	(0.254)
Education Years			-0.084***
			(0.010)
Ethnicity: Han			0.008
			(0.145)
Annual Income			6.450***
			(0.851)
Residence: Urban			0.286***
			(0.064)
Observations	16,494	16,494	16,446
Province FE	Y	N	Y
County FE	N	Y	N

Note: The regression sample comprises individuals born after 1970 and who remained unmarried before 2000, with an observation period between January 2000 and August 2005. "ExamRate2002 × Post" is the 2002 premarital examination rates before October 2003, and 0 thereafter. Standard errors are clustered at the province level. $^{*}: p < 0.1, ^{**}: p < 0.05, ^{***}: p < 0.01$.

Table 5: Effect of Pre-marriage Health Exam: Heterogeneity

	Marriage Prob.		PAM		Low Birth Weight	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Age						
	Young	Senior	Young	Senior	Young	Senior
ExamRate2002×Post	0.705**	-1.045	-0.035	-0.190*	0.221	0.361**
	(0.274)	(1.789)	(0.121)	(0.104)	(0.151)	(0.158)
Observations	7,031	9,407	348	462	300	399
R-squared	/	/	0.141	0.117	0.158	0.183
Panel B. Education						
	High	Low	High	Low	High	Low
ExamRate2002×Post	1.156***	0.111	-0.139**	-0.102	0.126	0.748**
	(0.226)	(0.306)	(0.059)	(0.143)	(0.091)	(0.339)
Observations	7,181	9,257	441	370	401	300
R-squared	/	/	0.092	0.092	0.108	0.198
Panel C. Residence						
	Urban	Rural	Urban	Rural	Urban	Rural
ExamRate2002×Post	0.299	0.462	-0.172	-0.075	0.156	0.586**
	(0.544)	(0.303)	(0.101)	(0.184)	(0.145)	(0.213)
Observations	8,398	8,048	444	367	401	299
R-squared	/	/	0.097	0.063	0.127	0.270
Panel D. Gender						
	Female	Male			Girls	Boys
ExamRate2002×Post	0.439**	0.745**			0.349	0.421***
	(0.212)	(0.329)			(0.242)	(0.134)
Observations	8,107	8,331			331	369
R-squared	/	/			0.239	0.190
Individual Controls	Y	Y	Y	Y	Y	Y
Provincial Controls	N	N	Y	Y	Y	Y
Province FE	Y	Y	Y	Y	Y	Y
Marriage Year FE	/	/	Y	Y	Y	Y
Birth Controls	/	/	/	/	Y	Y

Note: In Columns 1 and 2, we conduct survival analysis to examine marriage probability between January 2000 and July 2005 for the adult individual sample used in all columns in Table 4. The regression sample for Columns 3 and 4 is the married couple sample used in columns 1-4 in Table 2. The sample for Columns 5 and 6 include the firstborn children of these married couples. Senior (young) population is defined as individuals born after (before) 1985 in Columns 1 and 2, and if either husband or wife is born after 1985 in Columns 3 to 6. The high education population is defined as having more than 9 years of education for an individual, and the total year of education (sum of husband and wife) is 18 years or more. The dependent variable in Columns 3 and 4 is the indicator for positive assortative matching score. The dependent variable in Columns 5 and 6 is the dummy variable that is equal to one if the birth weight is below 2500 g. Other specifications are the same as those in Columns 3 in Table 2-4. Standard errors are clustered at the province level. $^{*}: p < 0.1, ^{**}: p < 0.05, ^{***}: p < 0.01$.

Table 6: Effect of Free Pre-marriage Health Exam: 2004-2010

	Exam Rate	Marriage Prob.	PAM	Low Birth Weight
	(1)	(2)	(3)	(4)
Exam Rate$_{t-1}$× Post	0.153*	-1.816	0.969	-1.118***
	(0.077)	(1.251)	(0.567)	(0.429)
Observations	319	38,699	1,085	737
R-squared	0.751	/	0.051	0.091
Individual Characteristics	N	Y	Y	Y
Provincial Characteristics	N	N	Y	Y
Birth Characteristics	/	/	N	Y
Province FE	Y	Y	Y	Y
Year FE	Y	/	Y	Y
Dep. Var. Mean	0.236	/	0.963	0.060
Dep. Var. SD	0.284	/	0.189	0.237

Note: In Column 1, each observation is a province-year in 2004 to 2010. The regression sample in Columns 2 to 4 are couples who got married between January 2004 and July 2010 and the husband got married between the ages of 20 and 40 and wife got married between the ages of 18 and 40. In Column 2, we limit the samples to those who were born after 1970 and were not yet married before January 2005. We examine their marriage decision from 2004 to 2010. In Columns 3, we limit the samples to married couples; In columns 4, the sample includes couples with a child during 2004 to 2010. The dependent variable in Column 3 is the indicator for positive assortative matching score. The dependent variable in Column 4 is a dummy variable that is equal to one if birth weight is below 2500 g. Individual characteristics include the years of education of husband and wife, ethnicity (Han or others), annual income, and urban or rural residence. Provincial characteristics include the number of health centers for women and children, the number of health workers, the number of inpatient beds, and GDP per capita, all in log scales. Birth characteristics include child's gender and birth year. Standard errors are clustered at the province level. $^{*}: p < 0.1, ^{**}: p < 0.05, ^{***}: p < 0.01$.

Online Appendix

A.1 Premarital Medical Exam in China

The premarital medical examination in China entails three parts: inquiry about family and individual medical history, physical examination, and premarital health instruction (Hesketh, 2003). In the inquiry part, doctors first ask the consanguinity of the couple. Then, both prospective spouses are asked about their current health status and previous medical history, including problems, such as venereal diseases, leprosy, mental disorder, infectious diseases, genetic diseases, and reproductive system diseases, which may jeopardize the ability to have children. Family medical history is also on the checklist of doctors.

Physical examination includes several aspects (Hesketh, 2003; Wang et al., 2013). Height, weight, and blood pressure are routinely tested. Special emphasis is placed on secondary sexual characteristics. Men are examined for the feminization of breasts, pubic hair, phimosis, size of testes and epididymis, and presence of varicocoeles, among others. Women have to go through pelvic examination that includes palpation of the uterus and ovaries. Laboratory tests consist of blood RT, urine RT, stool RT, some organ-specific tests that are used to examine liver and renal functions, and the detection of gonococcus, and sometimes, trichomonas and chlamydia. Mental health assessments are performed if necessary.

Premarital health instruction is typically carried out in the form of a video program that instructs potential couples on ways to avoid sexually transmitted diseases and producing healthy children.

On July 30, 2003, the State Council passed the "Marriage Registers Regulation," which claimed that premarital examination is no longer compulsory. This regulation was formally implemented in October 2003. The Ministry of Civil Affairs explained that the abolishment of mandatory examination resulted from two problems brought by the unclear definition of "diseases that are unfit for marriage" in the Marriage Law. First, the marriage registration authority cannot judge whether prospective couples are qualified for marriage on the basis of the certificate issued by medical and health institutions. Second, the public complains about complicated, and sometimes, unnecessary inspection items. No evidence was available for the abrupt change in health exam expense when the stipulation of premarital examination was removed in 2003.

Table A.1: Free Pre-Marriage Health Exam Policy Implementation Across Provinces

Date	Province
2005.8	Shanghai
2006.1	Hubei
2007.4	Jilin
2009.1	Zhejiang, Beijing, Anhui, Gansu, Ningxia
2010 and after	Other provinces

Note: Data collected by authors from government and news reports. We only present provinces that implement free pre-marriage health exam for the whole province before 2010.

A.2 Robustness Checks

Table A.2: Effects of Pre-marriage Health Exam: Decision to Have Child

	Prob. Having Child	Husband's Age Giving Birth	Wife's Age Giving Birth
	(1)	(2)	(3)
Exam Rate 2002 * Post	-0.247	-2.471	-0.136
	(0.163)	(1.908)	(1.706)
Observations	812	702	702
R-squared	0.152	0.166	0.143
Individual Characteristics	Y	Y	Y
Provincial Characteristics	Y	Y	Y
Province FE	Y	Y	Y
Marriage Year FE	Y	Y	Y
Dep. Var. Mean	0.917	26.92	25.00
Dep. Var. SD	0.276	3.829	3.363

Note: The regression sample for column (1) are couples who got married between January 2000 and July 2005, and husband getting married at between 20 and 40 years old and wife getting married at between 18 and 40 years old. The dependent variable is a dummy variable indicating whether the couple had a child after marriage. The sample in columns (2)- (3) are restricted to couples with a child. Individual characteristics include husband and wife's years of education, ethnicity (Han or other), annual income, and urban or rural residence. Provincial characteristics include the number of health centers for women and children, the number of health workers, the number of inpatient beds, and GDP per capita, all in log scales. Standard errors are clustered at the province level. $^{*}: p < 0.1,^{**}: p < 0.05,^{***}: p < 0.01$.

Table A.3: Robustness Check: Counterfactual Treatment Time

	1998-2001		2004-2008	
	PAM	Low Birth Weight	PAM	Low Birth Weight
	(1)	(2)	(3)	(4)
ExamRate2002×Post$_{c1}$	0.063	0.049		
	(0.103)	(0.220)		
ExamRate2002×Post$_{c2}$			-0.095	-0.019
			(0.063)	(0.128)
Observations	677	587	654	536
R-squared	0.070	0.113	0.074	0.109
Individual Characteristics	Y	Y	Y	Y
Provincial Characteristics	Y	Y	Y	Y
Birth Characteristics	N	Y	N	Y
Province FE	Y	Y	Y	Y
Marriage Year FE	Y	Y	Y	Y
Dep. Var. Mean	0.916	0.107	0.957	0.060
Dep. Var. SD	0.278	0.310	0.203	0.237

Note: The regression sample are couples who got married between January 2000 and August 2005, and husband getting married at between 20 and 40 years old and wife getting married at between 18 and 40 years old. In column (1)-(2), we assume that the policy shock happened in 2000, Post is zero if the couple gets married during 1998 and 1999, and one if they get married during 2000 and 2001. In column (3)-(4), we assume that the policy shock happened in 2006. Post is zero if the couple gets married during 2004 and 2005, and one if they get married between 2006 and 2008. The dependent variable in column (1) and (3) is the positive assortative matching score (based on self-reported health, which is one if both reported healthy or neither reported healthy.) The dependent variable in column (2) and (4) is the dummy variable equals one if the birth weight is below 2500kg. Post is a dummy variable equals one for families married after October 2003, zero otherwise. Individual characteristics include husband and wife's years of education, ethnicity (Han or other), annual income, and urban or rural residence. Provincial characteristics include the number of health centers for women and children, the number of health workers, the number of inpatient beds, and GDP per capita, all in log scales. Standard errors are clustered at the province level. $^{*}: p < 0.1, ^{**}: p < 0.05, ^{***}: p < 0.01$.

Table A.4: Robustness Check: Alternative Variable and Sample

	Exclude 2003		Change in Exam Rate		CHNS Data
	PAM	Low Birth Weight	PAM	Low Birth Weight	PAM
	(1)	(2)	(3)	(4)	(5)
Exam Rate 2002 × Post	-0.142*	0.261*			-0.713*
	(0.073)	(0.130)			(0.370)
$\Delta rate$ × Post			-0.174***	0.252**	
			(0.049)	(0.110)	
Observations	671	575	812	702	202
R-squared	0.067	0.112	0.061	0.106	0.130
Individual Characteristics	Y	Y	Y	Y	Y
Provincial Characteristics	Y	Y	Y	Y	Y
Birth Characteristics	N	Y	N	Y	N
Province FE	Y	Y	Y	Y	Y
Marriage Year FE	Y	Y	Y	Y	Y
Dep. Var. Mean	0.939	0.063	0.943	0.071	0.802
Dep. Var. SD	0.240	0.244	0.231	0.256	0.159

Note: In column (1) and (2), the sample includes couples got married between January 2000 and July 2005, where husband getting married at between 20 and 40 years old and wife getting married at between 18 and 40 years old, excluding who were married in 2003. In column (3) and (4), the sample includes couples who got married between January 2000 and July 2005, and the husband getting married at between 20 and 40 years old and the wife getting married at between 18 and 40 years old. The sample in column (5) is from the CHNS data. The dependent variable in column (1), (3) and (5) is the positive assortative matching score (based on self-reported health. 1 if both reported healthy or neither reported healthy. 0 if one reported healthy while the other reported unhealthy.) The dependent variable in column (2) and (4) is a dummy variable equals one if the birth weight is below 2500kg. In column (3) and (4), $\Delta rate$ is the change in the premarital exam rate between 2002 and 2004. The 2004 exam rate is missing for Tianjin, and we impute using the 2005 value. Individual characteristics include husband and wife's years of education, ethnicity (Han or other), annual income, and urban or rural residence. Provincial characteristics include the number of health centers for women and children, the number of health workers, the number of inpatient beds, and GDP per capita, all in log scales. Standard errors are clustered at the province level. $^{*}: p < 0.1, ^{**}: p < 0.05, ^{***}: p < 0.01$.

Table A.5: Robustness Check: Positive Assortative Matching Measure

	Benchmark	Self:Healthy2	Relative	Evaluated
	(1)	(2)	(3)	(4)
ExamRate2002×Post	-0.138**	-0.110	-0.235**	-0.117*
	(0.064)	(0.097)	(0.098)	(0.064)
Observations	812	812	812	812
R-squared	0.059	0.052	0.093	0.066
Individual Characteristics	Y	Y	Y	Y
Provincial Characteristics	Y	Y	Y	Y
Province FE	Y	Y	Y	Y
Marriage Year FE	Y	Y	Y	Y
Dep. Var. Mean	0.943	0.900	0.807	0.948
Dep. Var. SD	0.231	0.300	0.395	0.222

Note: The regression sample includes couples who got married between January 2000 and July 2005, and the husband got married between 20 and 40 years old and the wife got married between 18 and 40 years old. The dependent variable is the positive assortative matching score (1 if both reported healthy or neither reported healthy. 0 if one reported healthy while the other reported unhealthy.) In column 1, "healthy" is defined based on the answer to the question "self report your current health status", and takes the value one if the response is healthy, general or less healthy. In column 2, "healthy" takes the value of one if the response is healthy or general. In column 3, the score is based on the answer to "compare to your peers, do you think you are healthy or not?", and takes the value one if the response is healthy, general or less healthy. In column 4, "healthy" is based on interviewer's evaluation, and takes the value one if the response is healthy, general or less healthy. Post is a dummy variable equals one for families married after October 2003, 0 otherwise. "ExamRate2002" is the rate of pre-marriatal exam at the province level in 2002. Individual characteristics include husband and wife's years of education, ethnicity (Han or other), annual income, and urban or rural residence. Provincial characteristics include the number of health centers for women and children, the number of health workers, the number of inpatient beds, and GDP per capita, all in log scales. Standard errors are clustered at the province level. $^{*}: p < 0.1, ^{**}: p < 0.05, ^{***}: p < 0.01$.