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Attitude toward gender inequality in China

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This study explores determinants of attitudes toward gender inequality among Chinese people using five waves of the Chinese General Social Survey (CGSS) and East Asian Social Survey (EASS, 2016). The study uses five survey questions regarding the relative roles of men and women in the family and workplace to measure gender attitudes. Utilizing the pooled data, the study finds temporal changes of attitude: women are expected to be more responsible for paid jobs than before while their job security is not given enough support; meanwhile, women's share in housework is not anticipated to be reduced. The results suggest that the Chinese attitude toward women's roles is stuck between the modern and old eras. Education is found to be the most crucial determinant of attitude. Education is positively correlated with attitudes supporting women regarding gender inequality. In addition, if the wife has a higher education than the husband, the respondent tends to have an attitude toward gender equality. Furthermore, a large part of the urban-rural difference in attitude can be explained by the urban-rural difference in education. These findings have a straightforward policy implication: to reduce the negative attitude toward gender inequality, education for women and rural regions needs to be promoted. Additionally, by combining the Chinese General Social Survey 2017 and the East Asian Social Survey 2016, this study finds that an individual's patrilineal values conflict with the attitude toward gender equality, suggesting that traditional culture is a potential root of gender inequality.

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Introduction

Chinese households have traditionally practiced the patrilineal system, giving males precedence in a family (Song, 2008). In this system, the whole society will undoubtedly support the perspective of gender inequality that restricts women in domestic matters. After the success of the socialist revolution in 1949, an egalitarian ideology subverted the patriarchal tradition. Official support for gender equality might be seen from Mao's claim that "women can hold up half of the sky" (Zhong, 2010). One of the most observable achievements is that women's labor participation had increased to 74 percent by 1952 (Nan and Xue, 2002), while in the past, a woman was encouraged to be an assistant to her husband and raise children in the household. The Cultural Revolution from 1967 to 1977 had further enhancing effects on erasing traditional values. Like their male counterparts, female college students joined the Red Guard to engage in political strife during this period. Women in today's China indeed have unprecedented status in the economic and political fields.

However, traditions are not eradicated easily. Implementing the one-child policy in the late 1970s revived the traditional culture of favoring sons. The immediate adverse effect of this policy is the large number of 'missing women' because of female infanticide and sex-selective abortion (Chen and Zhang, 2019). According to the Global Gender Gap Report 2020 (World Economic Forum, 2020) issued by the World Economic Forum, China's gender gap, measured by female-male difference in economic participation and opportunity, educational attainment, health and survival, and political empowerment, is ranked 106 out of 153 countries. Although the proportion of Chinese women in the professional and technical fields is classed in the first place, it is found that under the same qualification, it is more challenging for women to earn higher positions because of gender bias (Bao and Huang, 2022a, 2023). In particular, China achieved the lowest score in health and survival due to the most imbalanced male-female ratio at birth, which was 121:100 in 2010 according to the survey by the National Bureau of Statistics of China and still estimated to be around 111:100 in 2020 (Jiang and Zhang, 2021). The byproduct of an imbalanced sex ratio is the trafficking of women. Because of the lack of females, particularly in rural areas, trafficking women for coerced marriage is well-noted in China (Xia et al., 2020).

Alongside the observable national sex ratio imbalance, Chinese women's hardship in personal life is generally overlooked. Research or survey results for domestic violence against women differ according to the type of violence (physical and/or psychological), sample size (rural or urban), and sample groups (general population or married and/or cohabited). For example, a nationally represented survey in 1999–2000 found that 34 percent of women aged 20–64 with a spouse or a partner experienced domestic violence, and the proportion was substantially more in rural than in urban areas (Parish et al., 2004); 28.83 percent of married women in rural areas reported having experienced domestic violence (Song et al., 2021). Domestic violence is considered a private family issue in China, so the statistic is believed to be underreported (Yang et al., 2019).

Infanticide, coerced marriage, or domestic violence all show gender discrimination, which is rooted in the biased perspective against women. As women's rights, like those of minority groups, are getting more attention internationally, progress depends on people's attitudes. As a result, understanding how people think about the roles of men and women in society and family is essential to improving gender equality. However, an individual's background can determine their attitude in many aspects. Personal religious beliefs, for example, are found to be associated with an attitude toward taking financial risks (Renneboog and Spaenjers, 2012), while belonging to a minority can determine an individual's attitude toward national identity (Karlsen and Nazroo, 2015). One of the research purposes of this study is to find the individual-level determinants of attitude toward gender inequality, defined as the thoughts about women's career and family roles in China. If someone agrees (disagrees) that women should play their traditional roles as housewives, then it shows a gender inequality (equality) attitude. Because Chinese society has a strong and long tradition of patrilineal practices, this study particularly examines whether an individual with patrilineal values is inclined to support gender inequality. In addition to individual determinants of attitude, the pooled cross-section datasets allow us to determine whether Chinese society is becoming more friendly to women over time.

The consequences of gender inequality are commonly observed between couples in a married household. For example, gender plays an active role in the distribution of housework and financial management. Gender theory considers that traditional values confine women to domestic work even though they could earn as much as their husbands (Zvonkovic et al., 1996). However, other studies predict that housework distribution between couples depends on their relative resources (Brines, 1994; Lundberg et al., 1997). The partner with the higher income has more bargaining power to do less housework than their partner. Other studies have found that a household's financial decision-making is determined by the couple's relative age and education levels (Smith et al., 2010; Fonseca et al., 2012). While we can observe that a better educated or more affluent wife may make a decision, we are unsure about her husband's thoughts. He could share the decision-making at will or reluctantly because of his lower bargaining power. Therefore, by restricting the sample to married households, the second research purpose of this study is to explore whether a couple's relative age, education, and earnings determine attitude.

Practices of gender inequality like female infanticide and domestic violence are found to be more severe in rural areas (Bulte et al., 2011; Song et al., 2021). China is known to have a deep urban-rural gap in terms of production methods and traditional values. Rural residents engage in laborious agricultural production (Li et al., 2023) and follow the patrilineal tradition more closely than urbanites, making rural areas a breeding ground for gender inequality. Therefore, the third purpose of this study is to compare urban and rural differences in attitudes toward gender inequality. Using a decomposition approach, we can find the share of perspectives biased against women in rural areas that should be attributed to differences between individuals' characteristics and regional differences. The results of this study have policy implications for changing attitudes against women to reduce gender inequality.

Determinants of attitude

Aggregate-level determinants. Levels of gender inequality and development are found to follow some patterns. Females in countries with higher development levels enjoy more equal educational opportunities and longer life expectancy than their male counterparts (Jayachandran, 2015). The economic reasoning behind these patterns might be that developed countries do not heavily rely on production with physical strength, so men are not as valued as those in developing countries, which depend on manufacturing or agricultural industries (Alesina et al., 2013; Carranza, 2014). Another strain of literature focuses on how culture causes gender inequality. For example, it is found that in a patrilineal society, the sex ratio is more skewed toward males (Ebenstein, 2011), and medical care is not equally distributed between genders (Ramakrishnan et al., 2011). Gender equality is

found to correlate with some positive results, such as increasing life satisfaction (Audette et al., 2019) and economic growth through equality in education (Klasen, 2002).

Individual-level determinants. Compared with studies using aggregate data, far fewer studies investigate individuals' practices or attitudes toward gender inequality. Dhar et al. (2019) found that children's views on gender equality in India are affected by their parents' opinions. Using individual surveys from eight developing countries, Levtov et al. (2014) found that men with higher education, income, and experience of gender equality during their childhood tend to support women's rights and have better relationships with their partners. Oláh and Gähler (2014) used Swedish panel data to examine the correlation between an individual's attitude and partnership stability. They found that an attitude of gender equality strengthens a partnership; however, inconsistency between attitude and practices, measured by division of household work, risks the partnership.

While aggregate data can show people's attitudes in a country, heterogeneity exists among people in the same region. For example, when examining the correlation between wealth and attitude toward environmental protection using cross-country survey data, Fairbrother (2013) controlled for both individual income and national GDP and found that individual income had a more significant impact. Other studies using survey data to find the determinants include Karlsen and Nazroo (2015), who found that Muslim immigrants show more robust recognition of being British than their Caribbean Christian counterparts. Brumbaugh et al. (2008) found that people who are younger, white, and female are more liberal toward same-sex marriage. Renneboog and Spaenjers (2012) found that religious individuals trust people more and have a higher bequest motive, while Catholics are less willing to take risks, and Protestants believe material wealth is a personal responsibility. Exercising an experiment, Kirchmaier et al. (2018) found that religious people are less likely to agree with unethical behaviors. Since the literature has found that many aspects of attitude vary with individual characteristics, this study also expects some individual characteristics to determine attitudes toward gender inequality. One individual characteristic of interest is patrilineal values. In a patrilineal system, a family traces descent through the male line, and sons are valued for their role in practicing religious rites on behalf of ancestors who were also males (Den Boer and Hudson, 2017). As a result, women are considered to be secondary and are treated unequally. This study expects an individual possessing patrilineal values to be more likely to have an attitude implying gender inequality.

Although national developments may determine people's attitudes, evolving and improving attitudes takes a long time. From a policymaker's perspective, understanding individuals' attitudes can generate policy implications to make changes sooner. Bao and Huang (2020, 2022a, 2022b) proposed mechanisms in education and elections to mitigate the outcomes caused by gender inequality. For a developing country like China, where women are threatened by human trafficking and domestic violence with few judicial interventions, a quick and efficient policy to improve gender equality is essential. Thus, this study focuses on the individual-level determinants of attitudes toward gender inequality and provides policy implications for reducing negative attitudes toward women regarding gender inequality.

Data

Attitude toward gender inequality. To study Chinese people's attitudes toward gender equality, this study uses data from the Chinese General Social Survey (CGSS), the first continuous survey in China conducted by Chinese academic institutions. This cross-sectional survey was launched jointly in 2003 by the Renmin University of China and the Hong Kong University of Science and Technology and was conducted by seven other universities. Since a new survey is conducted every two or three years, each wave randomly samples around 10,000 nationwide respondents and enquires about their personal and family social demographic backgrounds and opinions regarding social issues. To reduce respondents' concerns and understand their true views, the survey emphasizes that there are no right or wrong responses. Since the 2006 survey when the CGSS joined the East Asian Social Survey (EASS) project, four-item questions about gender equality have been added to the survey; for each question, seven ordinal responses range from totally agree to totally disagree, identical to the EASS. Thus, the survey results about attitudes toward gender equality are comparable to those in other East Asian countries/regions. However, starting in 2010, a few changes were made. Firstly, the questions about attitudes toward gender equality became a regular module in each survey wave hereafter. Secondly, the number of questions asked was expanded to five items. Thirdly, the ordinal responses for each item were reduced to five levels only, where "generally (dis)agreed" and "somehow (dis)agreed" were combined into "(dis)agreed." After that, the five items and five ordinal responses were adopted in each survey wave until the latest one in 2017. These five-item questions are used to evaluate gender inequality and explore related issues in China (e.g., Li et al., 2019; Zi and Song, 2021). To satisfy data consistency and the research purpose of examining the temporal change of attitude, this study pools the data from CGSS 2010, 2012, 2013, 2015, and 2017. The advantage of using pooled cross-sectional data is that an individual's attitude tends to persist (Hart et al., 2009). Different observations in each wave of the survey give more variation in attitude but also allow us to examine society's change in attitude over time.

The five-item questions about attitudes toward gender inequality in the CGSS and the total number of responses for each item over the five surveys are listed in Panel A of Table 1. Over the five waves of the survey, more than 58,000 respondents responded to the five-item questions, which are similar to those used in other surveys, such as the International Social Survey Program (ISSP), National Longitudinal Survey of Youth (NSLY79), and Marital Instability Over the Life Course (MIOLC). For CAREER, ABILITY, MARRIAGE, and LAYOFF, the ordinal response from totally disagree to totally agree indicates an increasingly positive attitude toward gender inequality against women;[1] for CHORE, it signifies an increasingly negative attitude toward gender inequality. CAREER—"men focus on career; women focus on family"—reveals a traditional perspective, expecting women to conduct domestic routines and raise children while men work to provide the family's material needs. More than 60 percent of respondents agreed (including totally agree) and less than 30 percent of respondents disagreed (including totally disagree) with this statement. A closely related statement is CHORE—"husband and wife should share housework equally"—with which more than 70 percent of respondents disagreed and less than 15 percent agreed. An item in response to which more respondents showed lower bias against women was MARRIAGE: "(a woman) having a good marriage is better than managing her career", implying that a woman should be dependent on her husband for life instead of being self-supporting. The percentage gap between agree and disagree was around 10 percent for this item, lower than that for CAREER and CHORE, for which about 20 percent of respondents chose neither disagree nor agree. For ABILITY—"men are more capable than women"—around 43 percent of respondents disagreed, and 41 percent agreed, the proportions being roughly equal. LAYOFF—"female workers should be laid off first if the economy is in a downturn"—might show women

Table 1 Attitude toward gender inequality and responses.

	Attitude					
	Totally disagree	Disagree	Neither disagree nor agree	Agree	Totally agree	Don't know/ refuse to answer
Item [number of respondents]						
Panel A: Women and men combined						
CAREER: men focus on careers; women focus on family [58,466]	4131 (7.07%)	12,952 (22.15%)	6076 (10.39%)	25,211 (43.12%)	9996 (17.10%)	100 (0.17%)
ABILITY: men are more capable than women [58,406]	6351 (10.87%)	19,210 (32.89%)	8112 (13.89%)	19,132 (32.76%)	5461 (9.35%)	140 (0.24%)
MARRIAGE: (a woman) having a good marriage is better than managing her career [58,361]	5610 (9.61%)	15,106 (25.88%)	11,327 (19.41%)	20,164 (34.55%)	5942 (10.18%)	202 (0.36%)
LAYOFF: female workers should be laid off first if the economy is in a downturn [58,163]	16,266 (27.97%)	24,459 (42.05%)	10,302 (17.71%)	5496 (9.45%)	1132 (1.95%)	508 (0.87%)
CHORE: husband and wife should share housework equally [58,446]	1416 (2.42%)	6516 (11.15%)	9041 (15.47%)	26,077 (44.62%)	15,260 (26.11%)	136 (0.23%)
Panel B: Women and men separated (women/men)						
CAREER	2450/1681	7011/5941	2778/3289	12,541/12,670	5126/4870	61/39
ABILITY	3859/2492	9696/9514	3652/4460	9867/9265	2781/2680	83/57
MARRIAGE	3103/2507	5667/9439	5260/6067	12,580/7587	3215/2727	99/103
LAYOFF	10,516/5750	12,134/12,325	4610/5692	2645/2851	584/546	309/199
CHORE	569/847	2833/3683	4194/4847	13,299/12,778	9001/6259	68/68

are not seriously discriminated against in work, because more than 70 percent of respondents disagreed with this statement and only 12 percent agreed. This result somehow contradicts CAREER, but it might indicate that while people expect a woman to be a housewife, she should be granted work security if she is employed. It needs to be noted, however, that Table 1 shows the average attitude across the survey years. People's opinions might change over time, particularly on subjects related to economic or social movements. Panel B separates the responses of women and men to the five-item questions. In general, the number of women who disagreed with the attitude toward gender inequality is significantly larger than men in CAREER, ABILITY, and LAYOFF; however, the number of women and men who agreed on each item of gender inequality attitude is not very distinct, indicating a fair proportion of Chinese women agree with traditional views about gender roles. Similarly, comparing marriage and work, more women than men agree that MARRIAGE is more critical. The largest disagreement between women and men is whether to distribute housework equally (CHORE). Although more respondents for both genders agreed that housework should be shared equally, the proportion of women who agreed or totally agreed was much larger than that of men. These five-item questions examine whether an individual supports equal participation in the family and family roles for women and men, which reveals egalitarian gender role attitudes (Katz-Wise et al., 2010). According to Davis and Greenstein (2009), the items used in the population-based surveys to measure attitudes toward gender roles can be summarized in six categories. The five items from the CGSS fall into five of these categories: (i) primacy of the breadwinner role (LAYOFF); (ii) belief in separate gendered spheres (CAREER); (iii) wife/motherhood and the feminine self (MARRIAGE); (iv) household utility (CHORE); and (v) acceptance of male privilege (ABILITY).

This study focuses on the individual-level determinants of attitude toward gender inequality. Thus, the covariates are respondents' characteristics, including gender, age, ethnicity, previous year's income, religious belief, etc. The sample averages of these covariates across five waves of the survey are presented in Table 2. Slightly more respondents are female; most respondents are Han, married, employed with a high school degree, and without religious beliefs and political party membership. More respondents have a household origin in rural areas. The average age is around 50, and yearly personal income is on average 27,796 RMB.

CGSS (2017) contains the EASS (2016) module, which investigated around 4,000 Chinese respondents' subjective opinions on social and household issues. Along with using five waves of pooled CGSS data to examine the determinants of attitude, this study will also use the data in CGSS (2017) with EASS 2106 to explore whether patrilineal values explain attitude. One of the EASS questions is whether to "be obedient to one's father in all cases"; the other is "the oldest son has the right to inherit the largest share of wealth". This study uses these two questions to proxy an individual's patrilineal values since it is a feature of patrilineality that property, land, and power exclusively belong to the male household head (Den Boer and Hudson, 2017). The seven levels of ordinal response to these two questions, ranging from strongly agree to strongly disagree, reveal how a respondent supports or opposes patrilineality.

Change of attitude over time and urban-rural comparison. One of the purposes of this research is to explore whether gender inequality decreases over time. For CAREER and LAYOFF, a response of "totally disagree" is given five points, the highest score showing no gender inequality against women; "disagree" is granted four points, and so on. For CHORE, the highest number of points (5) is given to the response "totally agree", while four points are assigned to "agree", and so on. Figure 1 presents the change in the sample average scores for each item in five survey waves. Although the period is not long, the scores for CAREER and MARRIAGE are increasing. Scores for ABILITY and LAYOFF declined in some years but improved overall. Only the score for CHORE in 2017 is lower than in 2010. Because the change in score is small and might be sensitive to the sample, the empirical results later will control for these characteristics and examine the statistical correlation between time and attitude toward gender inequality.

Table 2 Descriptive statistics.

Covariate	# of obs.	Mean	Std. dev.	Min	Max
Gender					
Male	56,638	0.4875	0.4998	0	1
Female	56,638	0.5125	0.4998	0	1
Age	56,631	50.2759	16.4474	18	99
Ethnicity					
Han (majority)	56,638	0.9151	0.2787	0	1
Meng	56,638	0.0032	0.0563	0	1
Man	56,638	0.0077	0.0876	0	1
Hui	56,638	0.0209	0.1429	0	1
Cang	56,638	0.0017	0.0416	0	1
Zhuang	56,638	0.0123	0.1101	0	1
Wei	56,638	0.0033	0.0575	0	1
Other minority	56,638	0.0349	0.1834	0	1
Religion					
None	56,636	0.8779	0.3274	0	1
Buddhism	56,636	0.0524	0.2228	0	1
Christianity	56,636	0.0213	0.1445	0	1
Muslim	56,636	0.0178	0.1321	0	1
Other religion	56,636	0.0253	0.1571	0	1
Education					
Illiterate	56,638	0.1313	0.3377	0	1
Elementary	56,638	0.2334	0.4230	0	1
Junior High School	56,638	0.2871	0.4524	0	1
Senior High School	56,638	0.1659	0.3720	0	1
Some college	56,638	0.0780	0.2682	0	1
University	56,638	0.0768	0.2663	0	1
Graduate	56,638	0.0084	0.0914	0	1
Political party					
None	56,638	0.8391	0.3674	0	1
Communist	56,638	0.1570	0.3638	0	1
Other parties	56,638	0.0012	0.0344	0	1
Household origin					
Rural	56,638	0.5508	0.4974	0	1
Urban	56,638	0.4492	0.4974	0	1
Special certificate	56,638	<0.0001	<0.0001	0	1
Income (RMB)					
Personal	52,151	27,796.088	150,315.4	0	1,000,000
Household	50,714	60,951.180	199,752.74	0	1,000,000
Marital status					
Never married	56,638	0.0971	0.2960	0	1
Married	56,638	0.7884	0.4084	0	1
Divorced	56,638	0.0249	0.1558	0	1
Widowed	56,638	0.0891	0.2850	0	1
Work status					
Employed	56,638	0.5580	0.4966	0	1
Not employed	56,638	0.2992	0.4579	0	1
Retired	56,638	0.1428	0.3499	0	1

Note: Province/Municipality is a covariate but not shown in this table for simplicity. Special certificates of household origin include temporary and military certificates. CGSS public datasets do not provide the exact number for personal and household incomes larger than one million RMB, so the maximum income is set to one million.

The aggregate percentage of respondents with a positive attitude toward each item over time (choosing "agree" or "totally agree" for CHORE and "disagree" or "totally disagree" for the remaining items) is reported in Fig. 2 The percentage of respondents with a positive attitude toward CAREER is the lowest, but it increases with time; the percentage of respondents with a positive attitude toward ABILITY and MARRIAGE decreased marginally and increased after 2015; the percentages for LAYOFF and CHORE had a low point in 2013 but continued to improve after that. The trend for each item is close to itself in Fig. 1, which justifies using the five-point scale to present the overall attitude toward gender inequality. Figure 3 shows the percentages of respondents with negative attitudes (choosing "disagree" or "totally disagree" for CHORE and "agree" or "totally agree" for the remaining items). The percentage of respondents with a negative attitude toward CAREER decreases over time. The percentages fluctuate for ABILITY and MARRIAGE, while the percentage of negative attitudes toward ABILITY has a noticeable decrease in 2017. LAYOFF and CHORE have the lowest percentages of negative attitudes; their changes over time are also marginal.

Another research purpose is to explore the difference in attitude between urban and rural areas because 'missing women' are believed to be more common in rural areas and have led to today's unbalanced sex ratio. Measuring the average score for each item similarly, like Fig. 1, Fig. 4 compares the average scores between these two areas. Urban respondents show a higher score for attitude toward gender inequality than rural respondents in each item, but the gap is not extremely large, particularly for CHORE.

Empirical results

Individual-level determinants of attitude. The first research aim is to find the individual-level determinants of attitude toward gender inequality and the change of attitude over time. The ordered probit model is used because the respondents' responses are ordinal. Because the response order for CAREER, ABILITY, MARRIAGE, and LAYOFF from "totally disagree" to "totally agree" indicates the attitude is becoming unequal against women, we changed the sign for the estimation results when the attitude of these four items are the dependent variables such that a positive (negative) coefficient for a covariate means it positively (negatively) contributes to the attitude of gender equality. The estimation results are reported in Table 3.

Using the year 2010 as a base year, it is found that the coefficients for the year dummy are positive and increasing, which indicates that people disagree with the traditional idea that women should only focus on housework. For the remaining items, there is no clear pattern. For ABILITY and MARRIAGE, in the most recent survey, people showed much less agreement that women are less capable and should depend on their husbands. Overall, from CAREER to MARRIAGE, some evidence exists that the attitude toward gender inequality is improving. However, for LAYOFF, the coefficients for 2013 and 2015 are negatively significant, and 2017 is positively and weakly significant. People's attitudes toward women's employment opportunities might change with the economic performance when the survey was conducted. CHORE is special because the coefficients are negatively significant, although less negative than in the most recent survey. Combining these results with those for CAREER and LAYOFF, we find that Chinese women need to carry a greater burden: society asks them to get paid work with lower job security but does not release them from doing housework.

How do women think about gender inequality? Unsurprisingly, compared with men, women have positive perspectives on gender equality, shown in positive and significant coefficients. The only exception is MARRIAGE, in which women tend to agree with the traditional view that the husband (or his family) should be the primary breadwinner.

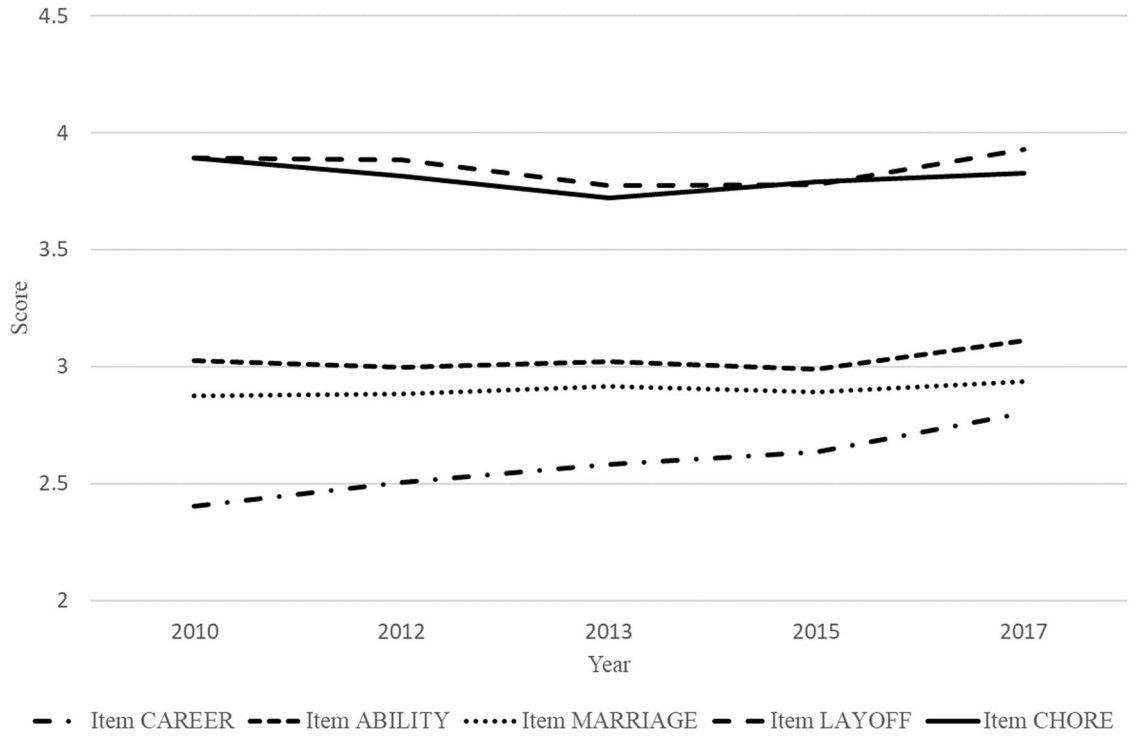

Fig. 1 Attitude toward gender inequality across time. The attitude remains mostly the same over time. Respondents in different survey periods show stronger equality attitudes toward women in paid jobs and household work and weaker equality attitudes in focusing on career or family.

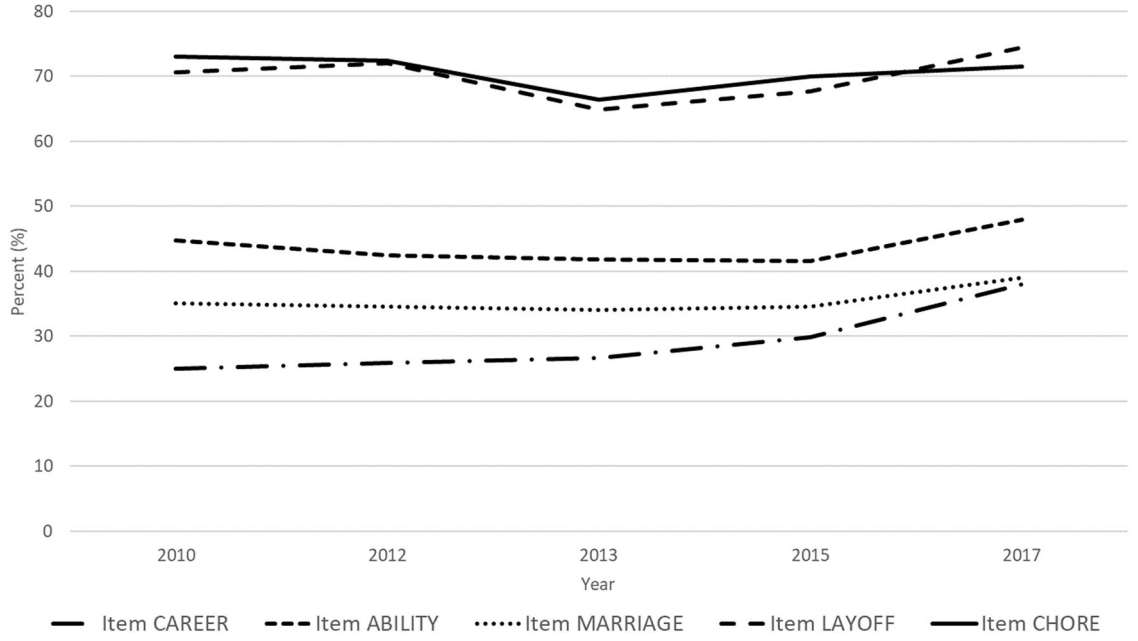

Fig. 2 Positive attitude toward gender inequality across time. The percentages of respondents showing a positive gender attitude toward each item improved in the latest survey. Still, only support for women not being constrained in the family increases over time.

Another covariate with clear patterns is education. Using senior high school as a reference category, it is found that the coefficients for all levels of education are significant, except for graduate degrees. Respondents with an education level lower than high school tend to support gender inequality, while more highly educated respondents are more likely to opt against gender inequality. Possible reasons that education promotes views on gender equality are that students can learn to respect classmates of the opposite gender by interacting with them or receiving information showing gender equality from the teachers (Dhar et al., 2019).[2] This finding gives a straightforward policy suggestion —i.e., to reduce gender inequality, the scope of education needs to be expanded further. Based on the estimated results in Table 3, we calculate the marginal probability of each level of education to see the potential effects of education improvement on gender attitudes. Figure 5 shows that a higher degree can alter the

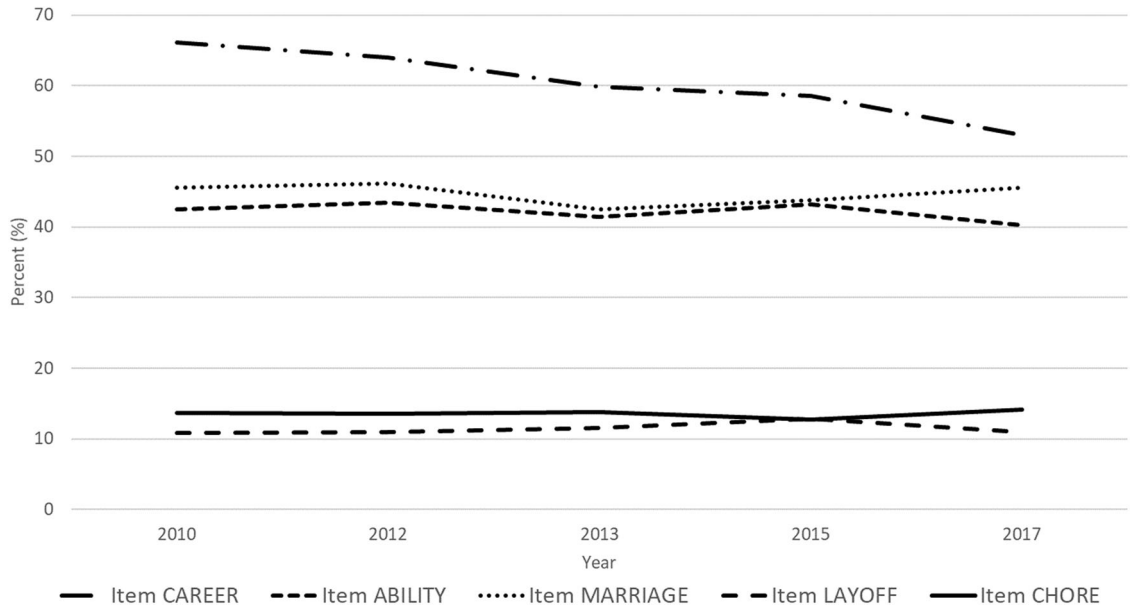

Fig. 3 Negative attitude toward gender inequality across time. The percentages of respondents showing a negative gender attitude toward each item are relatively stable over time, but disagreement that women should be constrained in the family decreases over time.

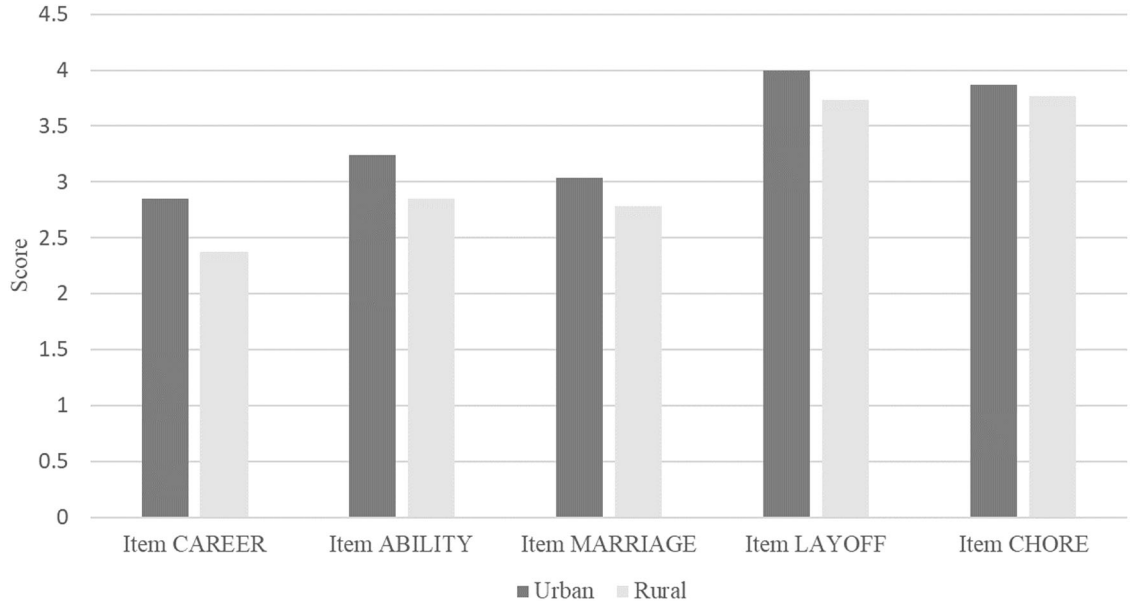

Fig. 4 Comparing attitudes toward gender inequality between urban and rural areas. For each part of the attitude, urban respondents show more equality in their attitude toward women than rural respondents, while the difference is not substantial.

likelihood of choosing a negative ("agree" or "totally agree" for CAREER, ABILITY, MARRIAGE, and LAYOFF; "disagree" or "totally disagree" for CHORE) and positive ("disagree" or "totally disagree" for CAREER, ABILITY, MARRIAGE, and LAYOFF; "agree" or "totally agree" for CHORE) gender attitude compared with a high school degree. A more highly educated individual is expected to have a 3 percent lower chance of disagreeing that women should only focus on the family and be laid off first and a 2 percent higher chance of disagreeing with the attitude against women in all aspects except housework. Figure 6 shows that if a lower-educated individual can receive a high school degree, their gender attitude is expected to improve. The negative attitude toward the first four items, particularly women's capability, would decrease by 4 percent or more, while the positive attitude would increase by 4 percent at least. This indicates that promoting primary education, from elementary to high school, could improve gender attitudes more than promoting higher education (college or higher degree).

The rest of the covariates significantly correlated with gender attitude are personal income, work status, party membership, marital status, and religious belief: people with a higher personal income, retired people, and communist members are more likely to oppose gender inequality; in married or widowed people, people from rural areas and Christians are more likely to uphold gender inequality.

Next, we add two covariates—"be obedient to the father's authority in all cases" and "the oldest son has the right to inherit the largest share of wealth", representing the individual's

Table 3 Ordered probit estimation coefficients of determinants of attitude toward gender inequality.

	Attitude				
	CAREER	**ABILITY**	**MARRIAGE**	**LAYOFF**	**CHORE**
Covariate					
Year (Base: 2010)					
2012	0.1505*** (0.0163)	0.0002 (0.0161)	0.0166 (0.0158)	−0.0189 (0.0163)	−0.1025*** (0.0164)
2013	0.2087*** (0.0160)	0.0013 (0.0159)	0.0333** (0.0157)	−0.1413*** (0.0163)	−0.2091*** (0.0161)
2015	0.2618*** (0.0162)	−0.0267* (0.0158)	0.0122 (0.0156)	−0.1531*** (0.0161)	−0.1443*** (0.0162)
2017	0.3646*** (0.0163)	0.0659*** (0.0159)	0.0327** (0.0158)	0.0237 (0.0161)	−0.1001*** (0.0162)
Gender (Base: male)					
Female	0.1647*** (0.0105)	0.1250*** (0.0104)	−0.0281*** (0.0104)	0.2529*** (0.0108)	0.2749*** (0.0106)
Age	−0.0258*** (0.0021)	−0.0202*** (0.0021)	−0.0234*** (0.0021)	−0.0257*** (0.0021)	−0.0006 (0.0021)
Age squared	0.0002*** (< 0.0001)	0.0002*** (< 0.0001)	0.0002*** (< 0.0001)	0.0002*** (< 0.0001)	<0.0001 (< 0.0001)
Ethnicity (Base: Han)					
Meng	0.0034 (0.0875)	−0.0852 (0.0861)	0.0330 (0.0849)	−0.0376 (0.0951)	−0.1088 (0.0846)
Man	0.0347 (0.0533)	0.0669 (0.0516)	0.0482 (0.0535)	0.0385 (0.0528)	−0.0004 (0.0515)
Hui	−0.0789 (0.0743)	−0.0208 (0.0739)	0.0299 (0.0704)	−0.0267 (0.0732)	0.0619 (0.0715)
Cang	0.5343** (0.2419)	0.0107 (0.2647)	0.0606 (0.2025)	−0.1064 (0.2419)	0.1676 (0.2198)
Zhuang	−0.0092 (0.0592)	0.0387 (0.0583)	0.0451 (0.0564)	−0.0193 (0.0551)	0.0415 (0.0587)
Wei	−0.8745*** (0.3043)	−0.7323*** (0.2816)	−0.4097 (0.3326)	−0.4940 (0.3017)	0.0124 (0.2679)
Other minority	−0.0477 (0.0299)	0.0126 (0.0296)	0.0769*** (0.0288)	−0.0022 (0.0296)	−0.0043 (0.0309)
Religion (Base: none)					
Buddhism	−0.0706*** (0.0239)	−0.0287 (0.0231)	−0.0288 (0.0234)	0.0216 (0.0241)	−0.0106 (0.0237)
Christianity	−0.1107*** (0.0339)	−0.1565*** (0.0343)	−0.0242 (0.0338)	−0.0832** (0.0343)	0.0291 (0.0337)
Muslim	−0.0067 (0.0773)	−0.1045 (0.0784)	−0.1038 (0.0749)	−0.0425 (0.0792)	−0.0558 (0.0780)
Other religion	−0.0695* (0.0366)	0.0050 (0.0355)	0.0230 (0.0349)	−0.0395 (0.0354)	0.0306 (0.0369)
Education (Base: senior high school)					
Illiterate	−0.4375*** (0.0215)	−0.4936*** (0.0212)	−0.3733*** (0.0209)	−0.4030*** (0.0216)	−0.1741*** (0.0213)
Elementary	−0.4057*** (0.0174)	−0.3702*** (0.0171)	−0.2607*** (0.0170)	−0.2378*** (0.0174)	−0.0409** (0.0172)
Junior High	−0.1977*** (0.0151)	−0.1481*** (0.0148)	−0.0990*** (0.0149)	−0.0800*** (0.0154)	0.0020 (0.0150)
Some college	0.1075*** (0.0207)	0.0924*** (0.0202)	0.0368* (0.0211)	0.0947*** (0.0220)	0.0462** (0.0214)
University	0.1710*** (0.0218)	0.1348*** (0.0217)	0.0758*** (0.0221)	0.0887*** (0.0236)	0.0462** (0.0224)
Graduate	0.1700*** (0.0510)	0.1749*** (0.0504)	0.1419*** (0.0516)	0.0632 (0.0593)	−0.0252 (0.0541)
Political party (Base: none)					
Communist	0.1242*** (0.0152)	0.1387*** (0.0147)	0.1368*** (0.0149)	0.1314*** (0.0156)	0.0772*** (0.0153)
Other parties	0.1472 (0.1216)	0.1243 (0.1273)	0.0660 (0.1358)	0.0689 (0.1439)	−0.0688 (0.1348)
Household origin (Base: special certificate)					
Rural	−0.1638*** (0.0352)	−0.1452*** (0.0336)	−0.0219 (0.0346)	−0.1387*** (0.0380)	−0.0497 (0.0361)
Urban	0.0016 (0.0342)	−0.0400 (0.0325)	0.0485 (0.0335)	−0.0238 (0.0371)	0.0122 (0.0351)
Log (income)					
Personal	0.0114*** (0.0019)	0.0071*** (0.0019)	0.0043** (0.0018)	0.0039** (0.0019)	0.0007 (0.0019)
Household	0.0059 (0.0037)	0.0075** (0.0036)	0.0166*** (0.0035)	0.0079** (0.0036)	−0.0017 (0.0036)
Marital status (Base: never married)					
Married	−0.0662*** (0.0214)	−0.0166 (0.0210)	0.0032 (0.0213)	0.0734*** (0.0222)	0.0358* (0.0218)
Divorced	0.0705* (0.0381)	0.0591 (0.0382)	0.0732* (0.0380)	0.1549*** (0.0393)	−0.0067 (0.0380)
Widowed	−0.0749*** (0.0284)	−0.0522* (0.028)	0.0130 (0.0278)	0.0504* (0.0288)	−0.0859*** (0.0281)
Work status (Base: not employed)					
Employed	0.0143 (0.0134)	0.0265** (0.0134)	0.0230* (0.0133)	0.0381*** (0.0137)	0.0343** (0.0137)
Retired	0.1039*** (0.0199)	0.1120*** (0.0195)	0.0680*** (0.0194)	0.0718*** (0.0203)	0.0493** (0.0197)
Province	Controlled	Controlled	Controlled	Controlled	Controlled
Observations	49,741	49,667	49,587	49,181	49,704
Pseudo R^2	0.0415	0.028	0.0174	0.0337	0.0139

Note: Standard errors are in parentheses; ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$. The coefficients of 30 provinces/municipalities and four cut-off terms of the ordered probit are suppressed for simplicity.

patrilineal values using data from CGSS (2017) and EASS (2016)—to test whether patrilineal values are associated with gender attitude. We further divide each variable into three categories: agree, disagree, and neither agree nor disagree, where the last category is chosen as a reference category. The ordered probit estimation is presented in Panel 1 of Table 4. The significantly negative estimates of agreement for both explanatory variables indicate that individuals possessing patrilineal values to some extent are more likely to support gender inequality, mainly when the attitude is measured by CAREER, ABILITY, and MARRIAGE. On the other hand, the significantly positive coefficients of disagreement show that individuals against patrilineal values tend to oppose gender inequality, and this is even more obvious for the explanatory variable "the oldest son has the right to inherit the largest share of wealth." Because the possible reverse causality inflates the estimated coefficients between gender attitude and patrilineal values, this study uses the new two-stage-least-square (2SLS) approach proposed by Lewbel (2012) to examine whether patrilineal values affect gender attitude. Lewbel's 2SLS suggests generating an instrumental variable by the residuals from the regression of the potential endogenous variable on other control variables. Each time, we set one of the following variables as the endogenous variable—"agree with father's authority," "disagree with father's authority," "agree with the oldest son's right," and

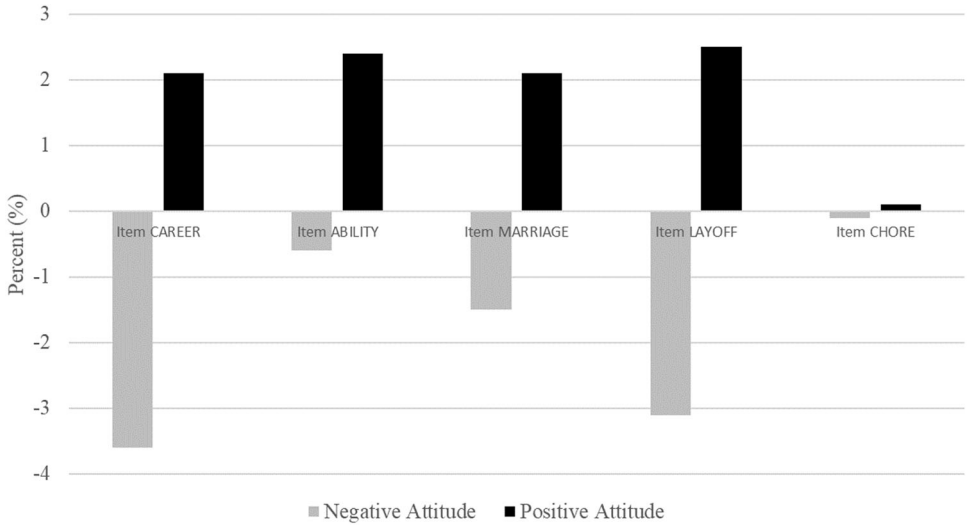

Fig. 5 Marginal effects of higher education on gender attitude. Compared with a high school degree, on average, higher-educated people have at least 2 percent more probability of displaying a positive attitude, except for attitude toward the share of housework.

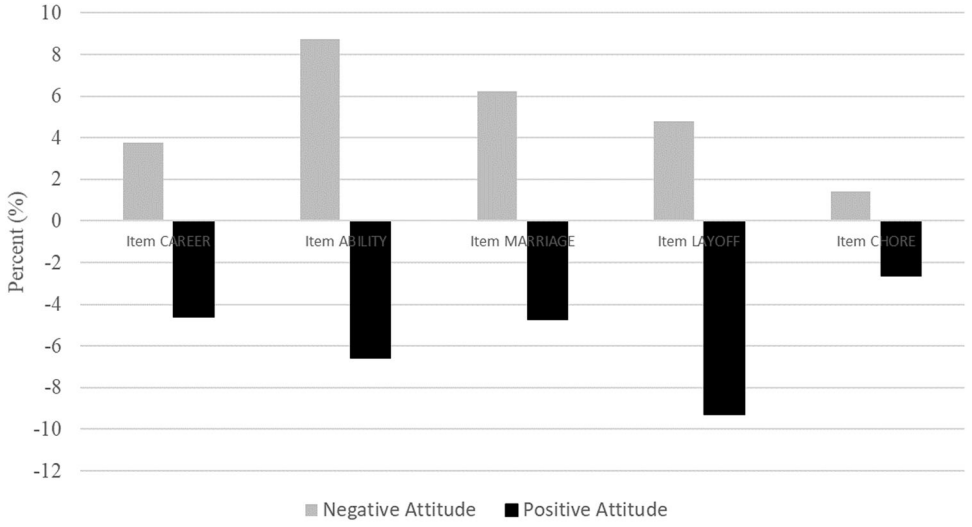

Fig. 6 Marginal effects of lower education on gender attitude. Compared with a high school degree, on average, lower-educated people have a 4 percent or higher probability of displaying a negative attitude and a less than 4 percent probability of displaying a positive attitude, except for an attitude toward the share of housework.

"disagree with the oldest son's right"—and apply the 2SLS. The results are shown in Panel 2 of Table 4. Similar to the results in Panel 1, belief in patrilineal values negatively affects gender attitude, while disbelief leads to a more positive gender attitude. These results prove that patrilineal values might be the root of gender inequality. It is worth mentioning that adding the covariates of patrilineal values does not change the estimates of other control variables sustainably, particularly education, suggesting that education does not eliminate patrilineal tradition.

Couples' relative resources and attitudes. Couples' relative resources are found to determine household decision-making (Fonseca et al., 2012; Olson and Xiao, 1996; Smith et al., 2010) and financial satisfaction (Bonke and Browning, 2009). Because attitude and behavior or outcomes are closely related (Levtov et al., 2014; Oláh and Gähler, 2014), this subsection explores whether relative resources also determine attitudes toward gender inequality. The primary resources that a married couple brings to the family are income, education (Li et al., 2022), and occupational prestige (Blood and Wolfe, 1960). Because relative occupational prestige cannot be clearly identified in the survey data and is heavily dependent on this cultural context, this study only adopts the couple's relative income and education as relative resources. Additionally, it has been a stylized fact that when a wife is older than her husband, she is more likely to be financially satisfied (Bonke and Browning, 2009), and the older person tends to make financial decisions (Smith et al., 2010). Thus, this study includes relative age as a covariate, which might be a proxy for relative life experience. The estimation results focusing on couples' relative resources using the sample of married households are presented in Panel 1 of Table 5.

When a wife earns more income than a husband, the respondents, whether male or female, are more likely to support that women should not focus only on family (CAREER), and they tend to disagree that women should depend on their husbands for living (MARRIAGE). Having a wife earning a higher income might promote the view that women should have careers and be independent. However, there is only a weak positive correlation between the wife's higher relative income and perceived women's

Table 4 Ordered probit estimation coefficients of the correlation between attitude toward gender inequality and patrilineal values (CGSS 2017 and EASS 2016).

Panel 1: Correlation

	Attitude				
	CAREER	**ABILITY**	**MARRIAGE**	**LAYOFF**	**CHORE**
Covariate					
Be obedient to the father's authority in all cases (Base: neither agree nor disagree)					
Agree	−0.3912*** (0.0664)	−0.1813*** (0.0695)	−0.2085*** (0.0689)	−0.0898 (0.0749)	0.0584 (0.0684)
Disagree	−0.0674 (0.0915)	0.2497*** (0.0915)	−0.0433 (0.0965)	0.2780*** (0.0986)	0.2239** (0.0929)
Oldest son has the right to inherit the largest share of wealth (Base: neither agree nor disagree)					
Agree	−0.1712*** (0.0535)	−0.0979* (0.0537)	−0.1595*** (0.0529)	−0.0006 (0.0548)	0.0916* (0.0534)
Disagree	0.0931** (0.0426)	0.1518*** (0.0415)	0.0778* (0.0421)	0.3527*** (0.0442)	0.1407*** (0.0429)
Other control variables	Included	Included	Included	Included	Included
Observations	3604	3598	3587	3551	3600
Pseudo R^2	0.0636	0.0474	0.0378	0.0693	0.0236

Panel 2: Lewbel's 2SLS

	Attitude				
Endogenous variable	**CAREER**	**ABILITY**	**MARRIAGE**	**LAYOFF**	**CHORE**
Be obedient to the father's authority in all cases (Base: neither agree nor disagree)					
Agree	−0.4140*** (0.0826)	−0.1980** (0.0809)	−0.2087** (0.0854)	−0.1063* (0.0642)	0.0269 (0.0710)
Be obedient to the father's authority in all cases (Base: neither agree nor disagree)					
Disagree	−0.0653 (0.1016)	0.3026*** (0.0952)	−0.0282 (0.1059)	0.1933*** (0.0733)	0.1767** (0.0858)
Oldest son has the right to inherit the largest share of wealth (Base: neither agree nor disagree)					
Agree	−0.2148*** (0.0587)	−0.1115* (0.0584)	−0.2048*** (0.0591)	−0.0290 (0.0505)	0.0788 (0.0524)
Oldest son has the right to inherit the largest share of wealth (Base: neither agree nor disagree)					
Disagree	0.0798 (0.0497)	0.1812*** (0.0478)	0.0871* (0.0497)	0.2818*** (0.0392)	0.1150*** (0.0435)
Other control variables	Included	Included	Included	Included	Included

Note: Standard errors are in parentheses; ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$. The coefficients of 30 provinces/municipalities and four cut-off terms of the ordered probit are suppressed for simplicity.

relative capability (ABILITY). For respondents in households where a wife has a higher education degree than her husband, their attitude toward every aspect of gender equality is more positive. On the other hand, a respondent in a household where a wife is less educated than a husband is more likely to think women should stick to the family and that women are less capable than men (CAREER and ABILITY). As for relative age, no matter whether the wife or husband is older, it is not significantly correlated with attitude. Education is therefore the most essential relative resource for determining attitude found in this study. Since education level is a symbol of social status, this result may reflect another Chinese traditional saying that a good match is a couple of people of the same social status. To earn respect from their husbands and equal treatment at home, we suggest women's education should be improved while gender inequality still exists in education (Zeng et al., 2014).

However, this estimation for correlations cannot rule out the possibility that a man is willing to marry a woman with an equal or higher education level because he already has a positive attitude toward gender equality. To ease the concern of reverse causality, this study again applies Lewbel's 2SLS approach to examine whether the two most significant married household characteristics and potential endogenous variables—the wife earning more income and the wife being better educated—affect gender attitude. The estimated results are reported in Panel 2 of Table 5. When a wife earning more income is an endogenous variable, the estimated coefficients are insignificant for all items, showing that a wife's ability to make money cannot positively affect gender attitude. As the wife being better educated is an endogenous variable, the estimated coefficients are all positive and significant for all items, even for MARRIAGE, which is only weakly correlated with the wife being better educated (see Panel 1). Therefore, improving women's education has the potential effect of reducing the negative attitude against women.

As for the change of attitude over time, married people are not substantially different from the total sample shown in Panel 1 of Table 3: women are expected to participate in paid work. Expectations of their capability and independence improve in the most recent survey, but they are not expected to be exempt from housework and granted more job security.

Urban-rural difference in attitude. Figure 4 shows that rural regions have lower average scores than urban regions for an attitude of equality toward women, while the gap seems mild. This subsection examines whether the urban-rural difference in attitude is statistically significant and what individual characteristics contribute to the difference. The approach used is Oaxaca-Blinder decomposition, which is popular in studying gender inequality in terms of wage, promotion, and education (Bao and Huang, 2023; Cobb-Clark and Moschion, 2017; Cutillo and Centra, 2017; Piazzalunga and Di Tommaso, 2019). To employ this approach, this study transfers the ordered response to the score as in the section "Change of attitude over time and urban-rural comparison". The lower the score, the higher the level of gender inequality against women. The decomposition results are presented in Table 6.

The first part of Table 6 shows the urban-rural difference in attitude measured by scores for five items. Although the differences in scores between these two regions seem small, they are all significant at 1 percent. Because urban areas show less biased attitudes, the urban-rural differences are positive. The largest gap between these two regions is in their perspectives on traditional gendered roles in career and family (CAREER), while the two regions' attitudes toward sharing housework (CHORE) are closer.

Table 5 Ordered probit estimation coefficients of couples' relative resources on attitude toward gender inequality.

	Panel 1: Correlation				
	Attitude				
	CAREER	ABILITY	MARRIAGE	LAYOFF	CHORE
Covariate					
Relative income (Base: husband earns higher income or the couple earns equally)					
Wife earns higher income	0.0886*** (0.0149)	0.0268* (0.0146)	0.0325** (0.0147)	0.0233 (0.0151)	−0.0023 (0.0149)
Relative education (Base: the couple is equally educated)					
Wife is better educated	0.0537*** (0.0155)	0.0471*** (0.0153)	0.0259* (0.0153)	0.0486*** (0.0159)	0.0499*** (0.0157)
Husband is better educated	−0.0480*** (0.012)	−0.0279** (0.0119)	−0.0015 (0.0118)	0.0100 (0.0122)	0.0042 (0.012)
Relative age (Base: the couple are the same age)					
Wife is older	−0.0299 (0.0185)	−0.0171 (0.0182)	−0.0154 (0.0182)	0.0204 (0.0188)	−0.0242 (0.0186)
Husband is older	−0.0126 (0.0144)	−0.0042 (0.0143)	−0.0118 (0.0143)	0.0180 (0.0148)	−0.0116 (0.0144)
Year (Base: 2010)					
2012	0.1525*** (0.0179)	−0.0098 (0.0177)	0.0145 (0.0174)	−0.0197 (0.0179)	−0.1085*** (0.018)
2013	0.2114*** (0.0177)	−0.0124 (0.0176)	0.0230 (0.0173)	−0.1514*** (0.018)	−0.2167*** (0.0178)
2015	0.2698*** (0.0179)	−0.0283 (0.0176)	0.0164 (0.0173)	−0.1578*** (0.0178)	−0.1497*** (0.0180)
2017	0.3631*** (0.0182)	0.0635*** (0.0177)	0.0228 (0.0176)	0.0145 (0.0179)	−0.1002*** (0.0181)
Other control variables	Included	Included	Included	Included	Included
Observations	40,199	40,140	40,083	39,771	40,186
Pseudo R^2	0.0397	0.0259	0.0163	0.0301	0.0138
Panel 2: Lewbel's 2SLS					
	Attitude				
Endogenous variable	CAREER	ABILITY	MARRIAGE	LAYOFF	CHORE
Relative income (Base: husband earns higher income or the couple earns equally)					
Wife earns higher income	0.0750 (0.0617)	0.0737 (0.0620)	0.0058 (0.0619)	0.0077(0.0512)	0.0109 (0.0533)
Relative education (Base: the couple are equally educated)					
Wife is better educated	0.0703*** (0.0173)	0.0626*** (0.0174)	0.0401** (0.0174)	0.0485*** (0.0144)	0.0416*** (0.0149)
Other control variables	Included	Included	Included	Included	Included

Note: Standard errors are in parentheses; ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$. Like other indicators of a relative resource, there should be three categories for relative income: the wife has a higher income, the wife has a lower income, and the couple has equal income. There are few observations in the last category, so this is combined with "wife has lower income" to be a base. The coefficients of 30 provinces/municipalities and four cut-off terms of the ordered probit are suppressed for simplicity.

Table 6 Oaxaca-Blinder decomposition of difference in attitudes between urban and rural areas.

	Attitude				
	CAREER	ABILITY	MARRIAGE	LAYOFF	CHORE
Covariate					
Part 1: Differential					
Urban	2.8515*** (0.0084)	3.2374*** (0.0081)	3.0368*** (0.0081)	3.9938*** (0.0067)	3.8774*** (0.0068)
Rural	2.3498*** (0.0069)	2.8488*** (0.0073)	2.7780*** (0.0071)	3.7353*** (0.0062)	3.7770*** (0.0063)
Difference	0.5017*** (0.0109)	0.3886*** (0.0109)	0.2587*** (0.0108)	0.2585*** (0.0091)	0.1003*** (0.0093)
Part 2: Decomposition					
Explained	0.3155*** (0.0100)	0.2625*** (0.0099)	0.1784*** (0.0098)	0.1586*** (0.0083)	0.0445*** (0.0084)
Unexplained	0.1862*** (0.0141)	0.1261*** (0.0143)	0.0803*** (0.0142)	0.0998*** (0.0118)	0.0558*** (0.0124)
Part 3: Important contributions to the explained component of the decomposition					
Age	−0.0464*** (0.0053)	−0.0334*** (0.0044)	−0.0396*** (0.0049)	−0.0311*** (0.0039)	0.0044(0.0028)
Age squared	0.0486*** (0.0054)	0.0328*** (0.0045)	0.0441*** (0.0051)	0.0251*** (0.0037)	−0.0060* (0.0033)
Illiterate	0.0676*** (0.0034)	0.0780*** (0.0036)	0.0592*** (0.0034)	0.0490*** (0.0030)	0.0221*** (0.0029)
Elementary School	0.0901*** (0.0042)	0.0845*** (0.0042)	0.0598*** (0.0040)	0.0425*** (0.0034)	0.0074*** (0.0034)
Junior High School	0.0173*** (0.0016)	0.0129*** (0.0015)	0.0087*** (0.0014)	0.0052*** (0.0011)	−0.0003 (0.0011)
Some college	0.0153*** (0.0029)	0.0131*** (0.0027)	0.0048* (0.0029)	0.0088*** (0.0022)	0.0050** (0.0024)
University	0.0267*** (0.0033)	0.0188*** (0.0031)	0.0109*** (0.0032)	0.0070*** (0.0025)	0.0055 (0.0027)
Communist	0.0240*** (0.0028)	0.0240*** (0.0027)	0.0244*** (0.0027)	0.0168*** (0.0022)	0.0113*** (0.0023)
Personal income	0.0186*** (0.0031)	0.0116*** (0.0033)	0.0070** (0.0032)	0.0055** (0.0027)	0.0002 (0.0028)
Household income	0.0061* (0.0036)	0.0079*** (0.0037)	0.0170*** (0.0036)	0.0077** (0.0031)	−0.0005 (0.0032)
Retired	0.0341*** (0.0063)	0.0359*** (0.0064)	0.0218*** (0.0063)	0.0212*** (0.0054)	0.0137** (0.0054)
Observations	48,728	48,653	48,575	48,170	48,691

Note: Standard errors are in parentheses; ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$. The coefficients of 30 provinces/municipalities and four cut-off terms of the ordered probit are suppressed for simplicity.

Table 7 Oaxaca-Blinder decomposition of difference in attitude between urban and rural areas explained by patrilineal values (CGSS 2017 and EASS 2016).

	Attitude				
	CAREER	ABILITY	MARRIAGE	LAYOFF	CHORE
Covariate					
Part 1: Differential					
Urban	3.1222*** (0.0311)	3.3278*** (0.0291)	3.1505*** (0.0298)	4.1077*** (0.0225)	3.9188*** (0.0246)
Rural	2.5378*** (0.0278)	2.9236*** (0.0281)	2.7505*** (0.0277)	3.7938*** (0.0233)	3.7631*** (0.0243)
Difference	0.5844*** (0.0417)	0.4041*** (0.0404)	0.4000*** (0.0407)	0.3139*** (0.0324)	0.1557*** (0.0346)
Part 2: Decomposition					
Explained	0.3661*** (0.0389)	3402*** (0.0377)	0.2331*** (0.0377)	0.1882*** (0.0303)	0.0647** (0.0325)
Unexplained	0.2182*** (0.0528)	0.0640 (0.0513)	0.1668*** (0.0523)	0.1257*** (0.0397)	0.0910** (0.0457)
Part 3: Patrilineal values to the explained component of the decomposition					
Be obedient to the father's authority in all cases (Base: Neither agree nor disagree)					
Agree	0.0356*** (0.0082)	0.0151** (0.0068)	0.0176** (0.0070)	0.0046 (0.0052)	−0.0040 (0.0057)
Disagree	−0.0032 (0.0054)	0.0147*** (0.0057)	−0.0019 (0.0054)	0.0101** (0.0042)	0.0092* (0.0047)
Oldest son has the right to inherit the largest share of wealth (Base: Neither agree nor disagree)					
Agree	0.0173*** (0.0066)	0.0115* (0.0040)	0.0177*** (0.0065)	0.0034 (0.0052)	−0.0073 (0.0055)
Disagree	0.0139** (0.0058)	0.0188*** (0.0059)	0.0112** (0.0056)	0.0309*** (0.0061)	0.0120** (0.0050)
Observations	3591	3585	3574	3538	3587

Note: Standard errors are in parentheses; ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$. The coefficients of 30 provinces/municipalities and four cut-off terms of the ordered probit are suppressed for simplicity.

The next part shows the difference decomposed into explained and unexplained components. The former tells how much of the difference can be attributed to the urban-rural difference in covariates; the latter, equal to the total difference minus the explanatory component, measures the difference in attitude attributed to differences in systematic factors, such as production methods and institutions.[3] From CAREER to LAYOFF, the unexplained components are all significantly positive and account for more than 60 percent of the urban-rural difference, indicating that respondents' characteristics correlated with attitude in these two regions are quite contrasting. On the other hand, 30 percent or more of the positive difference in attitude cannot be explained by respondents' characteristics, which is probably because, in rural regions, the prevailing patrilineal system or the physically intensive industry develops favoritism toward men (Alesina et al., 2013). CHORE is an exception, where the unexplained component is more considerable than the explained component.

The third part focuses on the explained proportion by presenting the most important covariates contributing to the difference in attitude between these two regions regarding significance and magnitude. A positive (negative) coefficient of a covariate means that this covariate enlarges (narrows) the urban-rural difference. The most important covariates that explain the difference for the first four items are identical. Education levels lower than senior high school—i.e., being illiterate or having graduated from elementary or junior high school—contribute positively to the difference. Given that these three education levels are negatively correlated with attitudes toward gender equality, this result shows that a lower population in urban regions have educational degrees under senior high school than in rural areas. Similarly, because a proportion of the urban population has a college or university degree, two covariates positively correlated with attitude against gender inequality contribute positively to the difference. Other than education, communism membership and retirement contribute to the difference because people belonging to these two groups against gender inequality are concentrated in the urban regions. Age is the only covariate that narrows the difference, because the older generation, following the tradition of gender bias, represents a larger proportion of the urban population than the rural population. CHORE is again a special case where fewer covariates can explain its urban-rural difference. The most important contributors to the difference are being illiterate, having an elementary diploma, or communist membership.

The decomposition results also suggest that education plays a role in reducing urban-rural differences. If the average rural population has a senior high school degree, at least half of the positive difference of the explained part would be eliminated. Therefore, improving access to schooling in rural regions is suggested while there is still an education gap (Zeng et al., 2014). As for the unexplained part of the difference, it might partially be attributed to the difference in economic development. Agriculture relies on physical strength, so men are prioritized for being more productive. Technological progress, such as mechanization in agricultural production, is expected to reduce the need for physical strength and improve rural residents' gender attitudes. Thus, this study predicts that the urban-rural difference will get narrower with time.

To examine whether patrilineal values contribute to the rural-urban difference in attitude, this study again employs the sample combined from CGSS (2017) and EASS (2016). The decomposition results of interest are presented in Table 7. Part 1 and Part 2 provide similar information to Table 6, indicating that urban areas have a lower attitude toward gender inequality than rural areas. The differences are significant, and around 60 percent or more of the differences can be explained by the controlled individuals' characteristics, except for CHORE. Part 3 shows that patrilineal values—choosing either agree or disagree—positively explain the urban-rural difference for CAREER and MARRIAGE; for LAYOFF and CHORE, only the choice of disagree positively explains the difference. Since agreeing (disagreeing) with patrilineal values is positively (negatively) correlated with attitude toward gender inequality, the positive contribution of both choices to the difference implies it is more common for people in rural areas to possess patrilineal values. This finding is consistent with the fact that the practices of gender inequality, such as women trafficking and missing women, more frequently occur in rural areas.

Conclusion and discussion

This study uses five waves of the CGSS to research the temporal change in attitude toward gender inequality, individual determinants of attitude, the correlation between a couple's relative

resources and gender attitude, and the urban-rural difference in attitude. The primary results are as follows. Firstly, the attitude toward gender inequality does not clearly improve over time, except that people in general increasingly agree that women should have their careers and not be confined only to family, and education is the most crucial individual characteristic that positively explains the attitude supporting gender equality. Secondly, among various indicators of a couple's relative resources, relative education is the most critical factor determining attitude: the higher a woman's education, the less likely her husband or herself will think women should be restricted to domestic tasks. Thirdly, the major part of the urban-rural difference in attitude comes from the difference in respondents' characteristics, particularly education.

Based on these results, this study suggests that education needs to be promoted further, particularly schooling access to women and rural populations, to improve gender attitudes. There might be some concerns that school teachers in rural areas are subject to the rural region's outdated production method (Li et al., 2023) and possess gender inequality beliefs; thus, the difference between urban and rural areas in gender attitudes would not be narrowed. However, according to a natural experiment conducted by Bao and Huang (2022b), the technical progress in artificial intelligence (AI) implemented in education has the potential to provide an unbiased learning environment for students. Additionally, policymakers should consider adopting gender-neutral mechanism procedures to increase women's participation in traditionally male-dominated fields (Bao and Huang, 2022a, 2023). As women prove their abilities in work, we can expect that the stereotype of women will be substantially reduced.

Furthermore, by combining the survey data from CGSS (2017) and EASS (2016), this study finds that individuals with (without) patrilineal values are more (less) likely to have an attitude of gender inequality, and patrilineal values also explain why rural areas have more biased views on gender equality.

Among the five measures of attitude, the item "husband and wife should share housework equally" is exceptional in the analysis. The determinants of this item are somehow different from others; the unexplained part of the urban-rural difference is larger than the explained part of this item but smaller for the other items. The reason for this item being distinctive might be that some respondents define the term 'equally' as '50 percent' or 'fairly', but the terms may have different meanings in the gender context (Grote and Clark, 2001).

It must be noted that the reliability of the empirical results is subject to self-reported surveys. Although education is negatively associated with an attitude of gender inequality, its potential impact on attitude should not be overstated. A well-educated respondent might acknowledge that gender inequality is not socially desirable, so he could prevent himself from presenting his true opinions in the related questions. Likewise, a party member might not show his attitude against gender equality considering his ideological requirement. The other limitation is that a respondent may not offer a true attitude at a specific time. For example, one who generally disagrees with "female workers should be laid off first if the economy is in a downturn" could agree with it because he has encountered difficulty in the job market while answering the survey questions. This study tries to control for time and individual characteristics to minimize the impact of personal issues on the empirical results, but they are not entirely preventable.

What makes it challenging to change gender attitudes by policy is the nationwide cultural, institutional, and traditional procedures that determine attitudes. Although this study expects that part of the urban-rural difference in attitude will narrow with development and technology, empirical studies show that the overall gender attitude is not improving over time. Equal treatment of women will promote their welfare and contribute to further economic development (Glewwe and Kremer, 2006). Given that gender attitudes can govern behavior and impact women's treatment, China should continue implementing the openness policy and exchange ideas with other countries promoting women's rights.

Data availability

The datasets analyzed during the current study are available in the National Survey Research Center at Renmin University of China's repository, cnsda.ruc.edu.cn. However, it could block users outside China. In this case, the datasets generated are available from the corresponding author on reasonable request.

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Notes

1 This survey cannot rule out the possibility that respondents who answer "agree" or "totally agree" for these four items have an attitude toward gender inequality against men, so this study emphasizes gender inequality in all texts as meaning inequality against women.
2 Dhar et al. (2019) used the school-level gender ratio to proxy the interaction between boys and girls but did not find it significant. They explained that boys and girls might be segregated into different classes, even in a co-educational school.
3 In the literature regarding male-female differences in wages, the unexplained component is interpreted as gender discrimination (Stanley and Jarrell, 1998; Weichselbaumer and Winter-Ebmer, 2005).

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