ORIGINAL PAPER

Does the Happiness of Contemporary Women in China Depend on Their Husbands' Achievements?

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Abstract

The paper investigates the spillover effect of identity within the family, that is, whether and how the spouse's political identity affects happiness in the family. Using the Chinese General Social Survey, we show that the wife's Communist Party of China (CPC) identity has a null effect on a husband's happiness, but a husband's CPC identity has a heterogeneous spillover effect on a wife's happiness: it has a positive effect on a non-CPC wife's happiness but a null effect on a CPC wife's happiness. Nearest neighboring matching further corroborates these results. CPC membership is regarded as important social capital; thus, the findings reflect a glaring social phenomenon that the well-being of women in disadvantaged positions (e.g., living in rural areas and having less education) continues to be related to their husbands' achievements. Additionally, women in advantaged positions (e.g., living in urban areas and having more education) can eliminate their dependence on their husbands after receiving equal political and economic opportunities.

Keywords Chinese general social survey · Happiness · Identity · Spillover effect

In a family, a member's characteristics and behaviors influence his or her happiness and other members' happiness—to some extent—due to the spillover effect (e.g., Camfield et al. 2009; Gray et al. 2013). Reasonably, a married individual's happiness also depends on the spouse's personal characteristics and behaviors in postnuptial family life (Hori and Kamo 2018); thus, a rational choice is to choose the appropriate person to form a happy family.

In the context of China, on the one hand, under the influence of Confucian family ethnics, the traditional view that men should be outside and women should be inside is deeply ingrained in Chinese society (Zuo and Bian 2001). This view results in women's traditional role of being a homemaker and focusing on their husbands. Constrained by the male-dominated culture, women's happiness is largely dependent on their husbands' achievements outside the home. Hence, women prefer husbands with a higher status, and their post-nuptial role is confined to being responsible for the family's household chores (Wei and Zhang 2016; Zheng 2017). On the other hand, with China's opening up and the rapid rise of its economy in recent decades, increasingly more women are gradually throwing away such labels as dependency and obedience and taking advantage of the opportunities to independently pursue their own happiness (Pratten 2013).

The value of life for those women is to be free and independent by utilizing their endowments and potential. Such a social change is closely reflected in Chinese women's decreasing desire to marry. As reported in the statistical bulletin of social service development published by the Ministry of Civil Affairs, the marriage rate in China has decreased to 7.7% in 2017 from 9.9% in 2013, and this decrease was observed for four consecutive years. However, the literature has not provided an answer to the important question of which one out of the two competing forces is the impetus for women's status and happiness.

The New Culture Movement began in 1919 and suggests that without economic development of and improvements to living conditions, the mere aspect of women's awareness

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of self-identity and gender equality does not guarantee their true freedom and independence (Xu 2015). Hence, considering the special background of China's marked economic and social achievements in recent decades, we use the Chinese General Social Survey (CGSS) to study whether the long tradition of the dependence of women's happiness on their husbands' achievements has decreased or even disappeared. To fully identify the relative effect of the two aforementioned impetus, we carried out the following research design. With the CPC identity as unique social capital that reflects an individual's political, economic, and social status, we discussed the possible spillover effect of the spouse's CPC identity on an individual's happiness in the family. Specifically, the paper examines whether the husband's CPC identity improves the wife's happiness and whether the wife's CPC identity enhances the husband's happiness. If the husband's CPC identity positively affects the wife's happiness but the wife's CPC identity has a null or negative effect on the husband's happiness, it suggests that the traditional phenomenon remains: a wife's happiness is dependent on her husband. If neither the husband's CPC identity nor the wife's CPC identity enhances the other's happiness, it suggests that the aforementioned traditional phenomenon has disappeared in relation to social and economic development.

The findings show that the wife's CPC identity has a null effect on the husband's happiness, but the husband's CPC identity conditionally improves the wife's happiness. The conditionality is represented as follows: (1) if the wife is not a CPC member, the husband's CPC identity can enhance the wife's happiness. The indication is that women in disadvantaged positions (e.g., live in rural areas and are less educated) are still dependent on their husbands for happiness; (2) if the wife is also a CPC member, the husband's CPC identity has a null effect on the wife's happiness. This implies that with social advancement, women in advantaged positions (e.g., live in urban areas and are more educated) do not rely on their husbands for happiness.

The study is of great value. The situation that Chinese wives' happiness depends on their husbands has not been completely transformed despite the rapid economic development and the increasing openness of the country. It remains difficult for the social and economic development to largely shake the cultural base of disadvantaged women's dependence on their husbands. Nevertheless, we also unexpectedly observed that if social progress can remove wives' stereotypes and result in equal opportunities, wives can eliminate the dependence of their happiness on their husbands. This type of economic development is not male-led improvement of the family and community well-being and must be based on women's empowerment and access to more opportunities. The findings can thereby be valued as an important reference for many developing countries in the world to enhance women's status and happiness.

The remainder of the paper is structured as follows: (1) conceptual framework for analysis, (2) the literature review and hypothesis, (3) the data, description of variables, and descriptive statistics, (4) the econometric models employed in the paper and their results. The final section discusses the findings and our conclusion.

A Conceptual Framework

Based on the literature (Appleton et al. 2009; Mclaughlin 2016), this study regards the CPC identity as unique social capital in Chinese society that has the collective value of all social networks. Thus, CPC identity can create value for people who are connected and facilitate mutually supportive relations in organizations and communities. As described, an individual's characteristics and behaviors also affect other family members' happiness due to the spillover effect within the family. To make our empirical analysis more reasonable, we first conceptually explain how a spouse's CPC membership affects an individual's happiness within the family from the following three perspectives: family income, job-related social status, and desire for progress.

Family Income

The CPC identity represents a type of social capital because of strong social networks among the CPC members. Other benefits occur because of the trust, information, and cooperation associated with the strong social network relationship among members. For example, Mclaughlin (2016) demonstrated that CPC members compared with non-CPC members have 10% more friends or relatives to help them find jobs. Other studies have demonstrated that CPC members can access more valuable political and economic information to gain benefits in occupational choice and social welfare in the form of, for example, meetings and documents (Knight and Yueh 2008; Kung and Lee 2001). The final outcome of such advantages is comprehensively reflected on income premium, according to the literature. A series of studies have reported that CPC members earn higher wages than non-CPC members when controlling for variables such as human capital and personal characteristics in urban areas (e.g., Johnson and Chow 1997; Knight and Yueh 2008). Additionally, CPC members can seek political rent out of control of resources because of their strong ties with village cadres in rural areas (Chen et al. 2016; Morduch and Sicular 2000). Overall, the CPC identity can result in more financial resources for its members' families, which consequently help to improve the well-being of their family members.
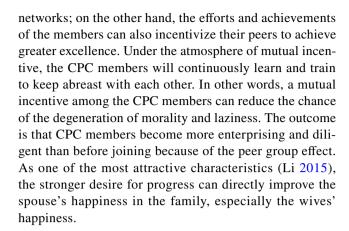
Job-Related Social Status

In contemporary China, the number of applications to civil service posts and large state-owned enterprises remains at a near record high. During just 24 years, the number of applications to civil service posts increased by 377 times, that is, up to 1.66 million in 2018 (Wang 2018). The main point is that the entities with strong government affiliations can provide respectable jobs with considerable incomes. While managing fierce competition, the CPC members have more advantages over non-CPC applicants because of strong social connectedness among the CPC members. In any case, the members have more opportunities to be exposed to people that could help advance their careers (Li and Walder 2001). As a consequence, CPC members are more likely to obtain relatively decent jobs in government departments, public institutions, and state-owned enterprises. On a few occasions, the CPC identity has become the criterion for being recruited for the aforementioned powerful entities (Walder 1995) because membership is considered the sign of loyalty to the CPC. Even in the private sectors, Dickson (2007) observed that CPC members are preferred in the majority of big companies because such a strategy often results in improved relations with local government officials. In comparison with employees in other sectors, the employees of the aforementioned entities are often given preferential treatment and more economic and social benefits (Appleton et al. 2009). Thereby, to the vast majority of Chinese people, people who work in government departments, public institutions, and large state-owned enterprises often receive more respect and enjoy higher social status (Dickson and Rublee 2000). At the household level, if the spouse works in the aforementioned entities, accordingly, an individual's social status is improved, which may enhance his or her subjective well-being.

Desire for Progress

Considering that the CPC identity brings substantial socioeconomic benefits, people have a strong willingness to join the CPC (Appleton et al. 2009). However, limited membership quotas exist, and applicants must undergo a rigorous screening process before being granted CPC membership. Additionally, all candidates must regularly attend party classes to learn about the pioneering exemplary role of the CPC members in society.

On the one hand, the cultivated positive attitudes and good characteristics represented in the classes can positively influence party members due to strong social networks; on the other hand, the efforts and achievements of the members can also incentivize their peers to achieve greater excellence. Under the atmosphere of mutual incentive, the CPC members will continuously learn and train to keep abreast with each other. In other words, a mutual incentive among the CPC members can reduce the chance of the degeneration of morality and laziness. The outcome is that CPC members become more enterprising and diligent than before joining because of the peer group effect. As one of the most attractive characteristics (Li 2015), the stronger desire for progress can directly improve the spouse's happiness in the family, especially the wives' happiness.

Literature Review and Hypothesis

Literature Review

Happiness-Influencing Factors Including Family-Level Factors

There are generally two lines of factors affecting an individual's happiness in the literature. One line of factors are related to social development and progress, for example, income (Hagerty and Veenhoven 2003), unemployment (Clark and Oswald 1994; Lucas et al. 2004), inequality (Alesina et al. 2004), education (Diener et al. 1993; Witter et al. 1984), political participation (Inglehart et al. 2008; Pacheco and Lange 2010) and migration (Bartram 2015). The other line of factors are related to individual-level characteristics, for example, gender (Diener et al. 1995), race (Blanchflower and Oswald 2004; Moller and Schlemmer 1989), health status (Mehnert et al. 1990), religion (Ellison and George 1994), social interaction (Lelkes 2005), personality (Furnham and Cheng 1997, 1999), and age (Dear et al. 2002; Winkelmann and Winkelmann 1998). Additionally, some studies have demonstrated that family-level factors also affect an individual's happiness to a significant degree. Mastekaasa (1994) found that currently married individuals report greater subjective well-being than single individuals, who report greater subjective well-being than separated, divorced, and widowed individuals. The explanation for this phenomenon is that the salutary effects of marriage, such as its buffering role of emotional and economic support from the spouse in case of hardship, have a positive impact on an individual's subjective well-being (Coombs 1991; Hori and Kamo 2018). Therefore, an individual's happiness is affected not only by her or his characteristics but also by her or his family members and home environment due to interpersonal interactions (Camfield et al. 2009; Gray et al. 2013).

The Spouse's Identity as a Happiness-Influencing Factor

When either spouse takes responsibility in the family, this enhances family-level happiness, and the other spouse gains happiness due to the spillover effect. Therefore, any factor that enhances family-level happiness is also a key variable that improves individual happiness through the spillover effect within the family. Among the factors that affect family-level happiness, the often-overlooked variable is the political identity of family members; notably, in this paper, the spouse's identity is discussed. Since the historic contributions of Akerlof and Kranton (2000), there has been a large body of literature that uses an individual's identity to explain various social and economic topics (e.g., Benjamin et al. 2010; Shayo 2009). Based on the aforementioned conceptual framework, we hypothesized that CPC identity is important social capital that can improve the spouse's happiness through the following channels: family income, job-related social status, and desire for progress. Nevertheless, the more intriguing point is to explore gender differences in political and economic affairs and to examine whether the tradition of the dependence of wives' happiness on their husbands has disappeared in relation to social and economic development. Therefore, we further proposed two hypotheses as follows.

Hypothesis

H1 The spouse's CPC identity has an asymmetrical spillover effect on an individual's happiness. Specifically, the husband's CPC identity can improve non-CPC wife's happiness, but the wife's CPC identity has no effect on the husband's happiness.

The emergence of this phenomenon is closely related to the division of labor within the family as determined by long-rooted family ethics. In Chinese traditional culture, men have been regarded as the head of the household and decision-makers in important family affairs. Correspondingly, husbands are given the burden and pressure to financially support their families by working outside the home. Wives are regarded as the strongest backing factor for their husbands (Valutanu 2012), and their main role is to be a homemaker and take care of the husband, children, and other household family affairs (Turner and Salemink 2015). Thus, society has defined different roles for men and women, and the orientations to happiness thus differ by gender. If the gender role-based division of labor is out of balance, the husband and wife lose their happiness due to strong social pressure, that is, family-level happiness decreases when the husband is the homemaker and the wife is the breadwinner who works outside the home. On many occasions, family-level unhappiness increases even when the husband performs worse than the wife in political and economic fields. Gender-biased social norms and other gendered institutions set substantial barriers to the fulfillment of women's potential. One of the consequences is women's limited participation in political affairs, that is, as reported in our analysis sample, the female-to-male ratio of CPC members is 1:3, and this number is up to 1:6.3 in some rural areas.

With modernization and globalization in China, women are enjoying unprecedented rights and freedom in political and economic affairs (Qian and Qian 2015; Xie 2013). Nevertheless, the inequality between women and men leaves much to be desired, for example, women are underrepresented in the most powerful political positions (Zeng 2014). Additionally, visible and invisible constraints are imposed on women's behaviors that disadvantage women in many fields (Attané 2014). This disadvantage is especially obvious in rural areas, where women's employment and political channels are relatively narrow. Many advanced thoughts and ideas that advocate for an individual's independence and autonomy are difficult to promote in geographically isolated locations. These women without choice are pressured to accept the social arrangement of the division of labor, that is, they must focus on being a homemaker and their responsibility for family affairs. Consequently, the happiness of wives in this position in these segments of society is largely dependent on their husbands' achievements in political and economic fields. The social consequences are reflected in a long-time trend of hypergamy (i.e., marrying a person on a higher rung of the social ladder). In the past, Chinese parents tended to marry their daughters to men they considered to have higher status because they hoped to increase their family's status (Xu et al. 2000). However, these days, many Chinese women who choose their husband are showing a preference to marry urban men with higher status because they assume that increasing their status would improve their well-being (Qian and Qian 2015).

In the conceptual framework, we show that CPC identity as a signal of status reflects an individual's political and economic prospects. Thus, other things being equal, there is a difference in status between the non-CPC general public and CPC members. Taking this into account, we proposed the first hypothesis: the husband's CPC identity has a positive effect on the non-CPC wife's happiness, but the wife's CPC identity has null and even negative effect on the husband's happiness. The hypothesis implies that the tradition, that is, the happiness of wives in relatively disadvantaged positions still depends on their husbands, still prevails.

H2 The husband's CPC identity has no spillover effect on the CPC wife's happiness.

Hypothesis 1 says that non-CPC wives' happiness is still dependent on their husbands because of their acceptance of

the social arrangements. This is attributable to the different demographic characteristics of women in the non-CPC and CPC groups. Non-CPC women are more likely to live in rural areas and earn lower incomes; thus, they must manage more social pressure in the case of a violation of the social conventions. By contrast, women who are members of the CPC are more likely to be urbanites and have more opportunities to participate in market competition on their own. In a more inclusive environment, the space for women's free development is enlarged to a great extent in political and economic fields. This situation makes it possible for women and men to obtain the same positions in traditionally male-dominated fields; thus, it lays the foundation for women's potential and endowments to be fully utilized in the market. Additionally, CPC women are more likely to embrace the ideas of independence and autonomy because of their higher level of education and economic power; thus, they will work outside of the home to do something that is traditionally performed by men. Consequently, the necessity of wives' dependence on their husbands for happiness decreases.

The example of education in China is direct evidence. Following China's compulsory education law, the gender gap in the field of education gradually narrowed, that is, the net enrolment rate of primary school for both boys and girls was 99.8% in 2014. Women now outperform men in higher education because of their strong desire to embrace modern education (Hua and Li 2015). Thus, education is not as gender biased as political and economic participation, because of the equal positions of women and men in education. Consequently, the share of education level in an individual's status indicator has largely declined. Ceteris paribus, it is not necessary for women to marry men with a higher level of education to improve their status. Instead, more commonly, highly educated women marry less educated men. Therefore, if there were no gender-biased arrangements in political and economic activities, women's endowments would be used more to improve their well-being. As a result, the dependence of wives' happiness on their husbands should continue to decrease and even disappear.

Similarly, when wives obtained CPC membership, their actions would be less bound by their husbands' behaviors. Thus, we proposed the following hypothesis: The CPC husband's CPC identity has no spillover effect on the CPC wife's happiness. This hypothesis implies that wives with a strong willingness can have happiness that is not dependent on their husbands in cases where they have equal opportunities to participate in political and economic affairs.

Data, Variables, and Descriptive Statistics

Data

This study aims to deepen the general understanding of individuals' happiness in China and mainly examines the spillover effect of the spouse's identity within the family. To this end, we used nationally representative sample data from the CGSS for the following empirical analysis. The CGSS is an annual survey of China's urban and rural households designed to gather data on social trends and the changing relationship between social structure and quality of life in China (Bian and Li 2012). According to its description, there were two phases of the CGSS project between 2003 and 2019. To closely track well-being, we employed the data from the second phase of the CGSS project (implemented between 2010 and 2019) for the empirical analysis.

The national population data in 2009 was a sampling frame and adopted a multistage, stratified, and probability-proportional-to-size sampling method. In the first stage, the survey collected data from 100 counties (districts) and five major cities, namely, Beijing, Shanghai, Tianjin, Guangzhou, and Shenzhen, as primary sampling units. In the second stage, four neighborhood or village committees were randomly selected in each county (district) where the sample was selected. In the third stage, 25 households were sampled in each selected neighborhood or village committee, and one person in each household was randomly selected for an interview. In the five major cities, 80 neighborhood committees were selected. In this manner, 480 neighborhood or village committees were surveyed nationwide. The response rate of the CGSS data was greater than 70%.

The CGSS data were ideal for this study because the survey collected information on the respondent's subjective happiness, the CPC identity and spouse's CPC identity, and other sociodemographic characteristics. The CGSS is one of the most comprehensive and widely used large-scale survey projects in China. Five sets of annual survey data have been made publicly available from the 2010–2019 CGSS, including the surveys completed in 2010, 2011, 2012, 2013, and 2015. In this study, we used the combined sample of CGSS 2013 and 2015 for the empirical analysis. First, some variables were either changed or added in CGSS 2013 and later versions compared with the previous three rounds of surveys. For example, used as an alternative explanatory variable, life satisfaction has the same definition in only CGSS 2013 and the later rounds. Second, considering that our estimation was based on many sub-sample regressions, the results from the 1-year CGSS data may be imprecise. Hence, to improve the precision of the estimates, we merged CGSS 2013 and CGSS 2015 to create a larger analytical sample.

Variables

Happiness is often treated as a personal and subjective phenomenon and defined in terms of frequent positive affect and infrequent negative affect (Lyubomirsky et al. 2005). Happiness is a common pursuit in life, evaluated with various measures, although the simplest and the most common measure is through self-report on a single item. Veenhoven (1991) demonstrated that the respondent simply answers a question that has been posed to hundreds of thousands of people in many countries: Taken all together, how happy are you?

In the same manner, we also used the single question of how happy you are to assess individuals' happiness in the CGSS. Five options were available to the respondent: "very unhappy," "relatively unhappy," "neutral," "relatively happy," and "very happy." We assigned a score of 1–5 to each response, respectively; thus, a higher number indicates the respondent is happier. In the analysis sample, only 1.13% of respondents considered their life "very unhappy." To better meet the prerequisite of the logistic distribution of disturbing errors in an ordinal logit model, we combined "very unhappy" and "relatively unhappy" to obtain a new happiness variable that ranged from 1 to 4. The score for each of the scales was straightforward. A score of 1 was assigned to signify unhappy, 2 to signify neutral, 3 to signify relatively happy, and 4 to signify very happy.

To decrease the reliance on a single item measure of the explained variable, we constructed an alternative variable measuring life satisfaction. In the psychology literature, the concepts of happiness and subjective well-being (SWB) have often been used interchangeably. However, Diener (1984) developed a tripartite model of SWB, which describes how people judge the quality of their lives that includes emotional feelings and cognitive evaluations. One year later, Diener et al. (1985) asserted three distinct but often related primary components of SWB: (1) the frequency and degree of positive affect, (2) the relative absence of negative affect, and (3) cognitive judgments of an individual's life satisfaction. Given that SWB encompasses transient moods, emotions, and evaluations of an individual's life satisfaction (DeNeve and Cooper 1998), we also used an individual's life satisfaction as an alternative explanatory variable to comprehensively reflect an individual's well-being. Given the data available, we assessed life satisfaction through the following item: "I feel that I am living comfortably and have not much to worry about in my life." The respondent could choose one of the following options: "very incorrect," "relatively incorrect," "relatively correct," and "very correct." We assigned scores of 1–4 to each of the four options, respectively, regarding the respondent's life satisfaction. The higher the number, the higher the life satisfaction of the respondent.

The core explanatory variable, the spouse's CPC identity (or S_CPC hereafter), was drawn from the question regarding the spouse's political status. There were four options: a CPC member, another party member, a Communist Youth League member, and the general public. There were 13,901 observations, among which 10.84% were CPC members and the remaining 89.16% were non-CPC members. We assigned 1 to respondents with the CPC identity, and 0 to the others. To minimize omitted variables bias, we controlled for many important happiness-influencing factors, and some of them were emphasized for the first time. These factors are comprised not only of the respondent-related variables emphasized in literature, but also her or his underemphasized spouse-related variables. The control variables related to the respondent included employment, educational level, annual income, religion, household registration (hukou), health status, age, whether she or he voted in village committee elections, the perception of social fairness, and the frequency of social interaction during free time. The control variables related to her or his spouse included the spouse's employment, education level, and annual income. To control for heterogeneity across provinces and years, we included provincial and year effects in our models. In addition to the aforementioned factors, we also considered the real estate situation of Chinese society. Thus, the spouse's property rights to the house are added to an individual's happiness equation. These days, without a well-decorated house before marriage, single men have difficulty finding a spouse in Chinese society. Under this social environment, it is reasonable to consider the spouse's property rights to the house as a critical happiness-influencing factor. The detailed variables and their descriptions used in the econometric analysis are listed in Table 1.

Descriptive Statistics

Table 2 lists the descriptive statistics of the variables. There were 13,901 observations, in which the wives and husbands had an almost equal share. In the sample, 11.50% had the CPC identity, among which, the male-to-female ratio was approximately 3. Further, 10.84% had CPC spouses, among which, the female-to-male ratio was approximately 2.92. Consistent with China's political reality in 2015, according to the Organization Department of the CPC Central Committee, the number of male members in the CPC (approximately 66 million) is about three times that of female members. As a consequence, the proportion of wives who have CPC husbands (15.9% in the wife sample) is much larger than that of the husbands who have CPC wives (5.6% in the husband sample). The demographic variables demonstrated that 54.2% resided in urban areas, 64.5% were employed, 10.2% had religious beliefs, and 50.5% never voted in village committee elections. The average education level of the sampled

Table 1 Description of variables

Variable	Definition
Variables used in main econometric analysis	
Happiness	Level of happiness in life. Ranges from 1 to 4
Life_satisfaction	Level of life satisfaction. Ranges from 1 to 4
S_CPC	If your spouse is a CPC member (1 = yes, 0 = no)
CPC	If you are a CPC member (1 = yes, 0 = no)
Employed	If you are employed (1 = employed, 0 = unemployed)
S_Employed	If your spouse is employed (1 = employed, 0 = unemployed)
Education	Educational level (1-6, 1: illiterate, 2: primary school and below, 3: junior secondary school, 4: senior secondary school and its equivalence, 5: college diploma, 6: bachelor's degree and above)
S_Education	Level of your spouse's education (1-6), the same definition as Education
Income	Logarithmic total annual income
S_Income	Logarithmic total annual income of your spouse
S_House	If the property rights to the house you live in belong to your spouse (1 = yes, 0 = no)
Religion	1 = religious people, 0 = atheists
Urban	1 = urban, 0 = rural
Health	Health status (1–4, 1: unhealthy, 2: general, 3: relatively healthy, 4: very healthy)
Perception of social fairness	Overall, do you think that society is fair (1-3, 1: unfair, 2: neutral, 3: fair)
Frequency of social interaction	Frequency of social interaction during free time (1-3, 1: rarely, 2: sometimes, 3: often)
Participation in vote	If you voted in the previous village committee election (1 = yes, 0 = no)
Age	Age in years
Variables used in explanations and nearest neighboring matching	
Manage_position	If you are a middle or senior manager of your work units (1 = yes, 0 = no)
Marry_better	If you agree that it is better to marry well than to do well (1 = yes, 0 = no)
S_Urban	If your spouse has urban household registration (1 = yes, 0 = no)
S_Moreinc	If your spouse has more annual income than you (1 = yes, 0 = no)
S_Moreedu	If your spouse has higher education level than you (1 = yes, 0 = no)
Family income	If family's economic condition is above the average (1 = yes, 0 = no)
Social status	Level of social status (1–6), and a larger value means a higher social status
Learn during free time	If you learn during free time (1 = yes, 0 = no)
S_Parentshouse	If the spouse's parents own the property rights to the younger couple's house (1 = yes, 0 = no)
F_CPC	If your father is a CPC member (1 = yes, 0 = no)
M_CPC	If your mother is a CPC member (1 = yes, 0 = no)
F_Workunit	If your father worked in government institutions when you were 14-years-old (1 = yes, 0 = no)

Data source Chinese General Social Survey (2013 and 2015)

respondents was junior secondary school, and the average age was 50 years.

According to our calculation, compared with 28.8% of the males, 20.5% of the females held middle and senior managing positions at work units. The average annual income for males and females was RMB 34,385 and RMB 18,545, respectively. The level of education was not gender biased because the males and females approached the average level of junior secondary school. Thus, women were underrepresented in political and economic affairs despite their catching up with men in education. To understand more demographic characteristics of non-CPC women and the CPC women, we reported the mean value of some important variables

of women's identity in Table 3. The last column presents the *t*-test of the mean comparison. Compared with the CPC women, the proportion of urbanites was much lower among non-CPC women. This difference was statistically significant at the 1% level. This result also applies to the case of education and income, that is, the proportion of respondents with strong education and economic backgrounds among the non-CPC women compared with the CPC women was much lower. Therefore, non-CPC women compared with CPC women were generally in disadvantageous positions.

Table 4 lists the tabulation of the spouse's CPC identity and an individual's happiness. Among wives with CPC husbands ($S\_CPM_w = 1$), 20.6% responded that they were

Table 2 Descriptive statistics of variables

Variable	N	Mean	SD	Min	Max
Happiness	13,901	2.872	0.752	1	4
Life_satisfaction	7033	2.532	0.854	1	4
S_CPC	13,901	0.108	0.311	0	1
CPC	13,901	0.115	0.319	0	1
Employed	13,901	0.645	0.478	0	1
S_Employed	13,901	0.641	0.480	0	1
Education	13,901	3.048	1.335	1	6
S_Education	13,901	3.013	1.326	1	6
Income	13,901	8.539	3.347	0	13.82
S_Income	13,901	8.194	3.687	0	13.71
S_House	13,901	0.349	0.477	0	1
Religion	13,901	0.102	0.303	0	1
Urban	13,901	0.542	0.498	0	1
Health	13,901	2.696	1.005	1	4
Perception of social fairness	13,901	2.136	0.873	1	3
Frequency of social interaction	13,901	1.891	0.814	1	3
Participation in vote	13,901	0.505	0.500	0	1
Age	13,901	50.31	14.25	18	94
Manage_position	5441	0.254	0.435	0	1
Marry_better	13,901	0.445	0.497	0	1
S_Urban	13,872	0.433	0.495	0	1
S_Moreinc	13,901	0.353	0.478	0	1
S_Moreedu	13,901	0.251	0.434	0	1
Family income	7025	0.670	0.470	0	1
Social status	13,901	3.415	1.405	1	6
Learn during free time	13,901	1.863	1.015	1	5
S_Parentshouse	13,901	0.0296	0.170	0	1
F_CPC	13,697	0.502	0.500	0	1
M_CPC	13,743	0.489	0.500	0	1
F_Workunit	12,583	0.100	0.300	0	1

All variables used in the paper are displayed, and the number of observations has some variations in analysis of transmission channels and nearest neighboring matching due to missing values of some variables in the dataset

SD standard deviation

Table 3 Mean comparison by women's CPC identity

	(1) Non-CPC women	(2) The CPC women	(3) Mean difference
Urban	0.518 (0.500)	0.872 (0.334)	− 0.354***
Education	2.771 (1.297)	4.614 (1.368)	− 1.843***
Income	17,033.8 (28,142.16)	43,823.2 (55,884.73)	− 26,789.4***
N	7073	7073	7073

Standard deviation in parentheses

***$p < 0.001$

very happy. However, among husbands with CPC wives ($S\_CPM_h = 1$), only 7.9% responded they were very happy. Moreover, from being unhappy to being very happy, there was a 12.6% increase in the proportion of wives with CPC husbands, but only a 5.1% increase in that of husbands with the CPC wives. Taking these two results into account, we observed there was a much closer relationship between the wife's happiness and the husband's CPC identity compared with that between the husband's happiness and the wife's CPC identity. Given that the other demographic variables also affected an individual's happiness, we conducted more rigorous econometric analyses to identify the effect of the spouse's identity.

Econometric Analysis

Empirical Strategy

In this section, we used the ordinal logit model to examine if the spouse's CPC identity affected an individual's happiness and tested the two hypotheses proposed in "Literature Review and Hypothesis" section. We estimated the following model:

$$Happiness_i = \beta \times S\_CPM_i + a \times X_i + u_i,$$

where $Happiness_i$ is the level of happiness for individual i. S_CPM_i is the spouse's CPC identity for individual i. X_i are the other control variables, for example, individual i's employment status and educational level, and the spouse's employment status and educational level. u_i is the disturbance.

Let U^i be individual i's happiness, and it is a function of three closely related factors x^i, p^i and p^j, where x^i is i's consumption of a vector of goods, p^i, i's CPC identity, and p^j is her or his spouse's CPC identity. And thus, individual i's happiness can be expressed as $U^i(x^i, p^i; p^j)$, correspondingly, the wife's happiness function is $U^w(x^w, p^w; p^h)$, and the husband's is $U^h(x^h, p^h; p^w)$ where w stands for wife and h stands for husband. Hence, we presented the two aforementioned hypotheses as follows:

H1 If $p^w = 1$, then $\frac{\partial U^h(x^h, p^h; p^w)}{\partial p^w} \leq 0$, but if $p^w = 0$ and $p^h = 1$, then $\frac{\partial U^w(x^w, p^w; p^h)}{\partial p^h} \geq 0$;

H2 If $p^w = 1$ and $p^h = 1$, then $\frac{\partial U^w(x^w, p^w; p^h)}{\partial p^h} \leq 0$.

Hypothesis 1 says that there is an asymmetrical effect of the spouse's CPC identity on an individual's happiness. The wife's CPC identity has either a null or negative effect on the husband's happiness, but the husband's CPC identity has a positive effect on the non-CPC wife's happiness. Furthermore, Hypothesis 2 says that there is a null and even negative spillover effect of the husband's CPC identity on the CPC wife's happiness. The asymmetrical effect proposed

Table 4 Tabulation of the spouse's CPC identity and an individual's happiness

	Wife					Husband				
	$S\_CPM_w = 0$		$S\_CPM_w = 1$			$S\_CPM_h = 0$		$S\_CPM_h = 1$		
	N	Percent	N	Percent	Total	N	Percent	N	Percent	Total
Unhappy	428	92.0	37	8.0	465	457	97.2	13	2.8	470
Neutral	963	90.5	101	9.5	1064	1022	96.0	43	4.0	1065
Relatively happy	3608	83.0	738	17.0	4346	4028	94.2	248	5.8	4276
Very happy	951	79.4	247	20.6	1198	937	92.1	80	7.9	1017
Total	5950	84.1	1123	15.9	7073	6444	94.4	384	5.6	6828
N	7073					6828				

$S\_CPM_w = 0$, wives married to non-CPC husbands, $S\_CPM_w = 1$, wives married to the CPC husbands. $S\_CPM_h = 0$, husbands married to non-CPC wives, $S\_CPM_w = 1$, husbands married to the CPC wives

in Hypothesis 1 is intriguing and insightful for our analysis because it can reflect a critical social phenomenon that the happiness of those wives in disadvantaged positions is still dependent on their husbands in contemporary China. Hypothesis 2 presented us with some evidence that the happiness of the wives in advantaged positions is no longer dependent on their husbands, further deepening the understanding of women's status and happiness.

Results and Explanations

Effect of the Spouse's CPC Identity on an Individual's Happiness is Asymmetrical

The results in Table 5 show that the coefficients of the spouse's CPC identity were significantly different across gender. For a husband, the wife's CPC identity had no effect on his happiness as a whole. The null effect of the wife's CPC identity remained, and was not dependent on the husband's CPC identity. As shown in Columns (3) and (4), the coefficients of S_CPC in both cases are not significant even at the 10% level. Although for a non-CPC wife, the husband's CPC identity improved her happiness. As shown in Column (1), the coefficient of S_CPC was significant at the 1% level. Therefore, we observed an asymmetrical effect of the spouse's CPC identity, that is, the husband's CPC identity was a critical predictor of the non-CPC wife's happiness, but the wife's CPC identity had a null effect on the husband's happiness. The alternative life satisfaction regression in Table 6 presents the same finding. Thus, overall, Hypothesis 1 is confirmed: There is an asymmetrical effect of the spouse's CPC identity on an individual's happiness.

Explanations of the Asymmetrical Effect of the Spouse's CPC Identity

The descriptive statistics show that non-CPC women were more likely to live in rural areas where market activities

and employment opportunities were insufficient. The direct consequence is women's lower economic power in families living in rural communities. Additionally, non-CPC women had less education, which makes it difficult to participate in the male-controlled field of politics. This phenomenon resulted in non-CPC women's lower political power in their neighborhoods of residence. With limited economic and political power, non-CPC women had to accept the traditional social arrangement where women work inside the home. Thus, non-CPC wives' happiness was dependent on their husbands who work outside the home to financially support their families. To improve their well-being and status, non-CPC women preferred to marry men they consider to have a higher status. Overall, the lower level of economic and political participation of non-CPC women resulted in the asymmetrical effect of the spouse's CPC identity on an individual's happiness.

First, we empirically examined women's participation in important political and economic affairs, especially the role of non-CPC women. We used participation in voting for the village (neighborhood) committee election as the indicator of political participation and being middle and senior managers as the indicator of leadership in economic affairs. Columns (1) and (2) in Table 7 reveal that women, especially non-CPC women were less likely to participate in the village (neighborhood) committee election. Similarly, Columns (3) and (4) reveal a significant lower possibility of women, especially non-CPC women, becoming middle and senior managers of work units. Taken together, non-CPC women's participation in politics and presence in managerial positions in work units was substantially limited. Next, we empirically examined women's tendency to marry up, especially among non-CPC women. We used the question of whether you agree that it is better to marry well than to do well to assess an individual's tendency to marry up. Columns (5) and (6) show that women, especially non-CPC women had a higher tendency to marry up.

Table 5 Results of gender differences in the effect of the spouse's CPC identity on an individual's happiness

Sub-sample	(1)	(2)	(3)	(4)
	Dependent: wife's happiness		Dependent: husband's happiness	
	Non-CPC wife	CPC wife	Non-CPC husband	CPC husband
S_CPC	0.217**	0.288		
	(0.077)	(0.273)		
S_CPC			0.068	0.144
			(0.177)	(0.190)
Employed	− 0.213**	0.430	0.053	0.217
	(0.067)	(0.440)	(0.082)	(0.220)
S_Education	0.128***	0.051	0.110**	0.143[+]
	(0.032)	(0.151)	(0.035)	(0.079)
Income	0.008	− 0.015	0.049***	0.034
	(0.008)	(0.085)	(0.013)	(0.044)
S_Income	0.046***	0.056	0.000	0.035[+]
	(0.011)	(0.064)	(0.008)	(0.021)
S_House	0.100[+]	− 0.216	0.080	0.204
	(0.052)	(0.266)	(0.074)	(0.163)
Religion	0.273***	0.394	0.352***	0.095
	(0.083)	(0.628)	(0.099)	(0.373)
Health	0.423***	0.543***	0.439***	0.540***
	(0.031)	(0.155)	(0.034)	(0.085)
Perception of social fairness	0.577***	0.606***	0.696***	0.567***
	(0.032)	(0.157)	(0.035)	(0.086)
Frequency of social interaction	0.170***	0.274[+]	0.162***	0.271**
	(0.032)	(0.155)	(0.036)	(0.089)
Participation in vote	0.084	0.657*	0.060	0.100
	(0.054)	(0.307)	(0.059)	(0.151)
Age	− 0.059***	− 0.160**	− 0.055***	− 0.043
	(0.012)	(0.061)	(0.013)	(0.033)
Age2	0.001***	0.002**	0.001***	0.001*
	(0.000)	(0.001)	(0.000)	(0.000)
Provincial effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
Pseudo R^2	0.087	0.160	0.092	0.115
N	6674	399	5628	1200

Robust standard errors in parentheses. The following variables are also included but not reported—S_ Employed, Education, and Urban—due to their non significance and for sake of saving space

[+] $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Husband's CPC Identity has a Null Spillover Effect on the CPC Wife's Happiness

Compared with their husbands, non-CPC wives continued to rely on their husbands to gain happiness. These wives were inclined to accept the traditional husband-centered gender roles because of the low level of political and economic participation. However, Column (2) in Table 5 shows that the husband's CPC identity had a null impact on the CPC wife's happiness. Once CPC membership was granted, the wife's happiness did not be dependent on the husband's CPC identity. In the alternative life satisfaction regression

in Table 6, we also found that the husband's CPC identity had a null effect on the CPC wife's life satisfaction. Overall, Hypothesis 2 is confirmed: The husband's CPC identity has no effect on the CPC wife's happiness.

Explanations for the Null Effect of the Husband's CPC Identity on the CPC Wife's Happiness

The descriptive statistics report that the CPC women were more likely to live in urban areas, be well educated, and be financially independent. CPC women were able to challenge the gender-biased social norms of men outside and women

Table 6 Results of gender differences in the effect of the spouse's CPC identity on an individual's life satisfaction

Sub-sample	(1)	(2)	(3)	(4)
	Dependent: wife's life satisfaction		Dependent: husband's life satisfaction	
	Non-CPC wife	CPC wife	Non-CPC husband	CPC husband
S_CPC	0.206*	0.589		
	(0.100)	(0.388)		
S_CPC			−0.181	0.146
			(0.236)	(0.224)
Covariates	Yes	Yes	Yes	Yes
Provincial effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
Pseudo R^2	0.057	0.225	0.048	0.109
N	3308	194	2990	620

Robust standard errors in parentheses. Covariates are same as those in Table 5. The variable of life satisfaction has 7112 observations in the dataset

*$p < 0.05$

Table 7 Non-CPC women's participation in political and economic affairs and tendency to marry up

	(1)	(2)	(3)	(4)	(5)	(6)
	Participation in voting for village committee election		Middle and senior managers of work units		Agree that it is better to marry well than to do well	
Female	−0.116**		−0.201*		0.184***	
	(0.040)		(0.082)		(0.037)	
Non-CPC Female		−0.279*		−0.566**		0.261*
		(0.117)		(0.182)		(0.118)
Covariates	Yes		Yes		Yes	
Provincial effect	Yes		Yes		Yes	
Year effect	Yes		Yes		Yes	
Pseudo R^2	0.121	0.127	0.170	0.150	0.032	0.040
N	13,901	7073	5441	2263	13,901	7073

Robust standard errors in parentheses. Covariates include CPC, Education, Urban, Income, Age, and Age square. The explained variable in Columns (2) and (3) has 5441 and 2263 observations in the dataset; thus, the sample size is smaller than that in other columns, respectively

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

inside because of the more inclusive social environment around them. The dependence of the CPC wives' happiness on their husbands' achievements on social and economic status consequently decreased. This result is further reflected in Table 8: a husband's relative advantages in household registration (hukou), employment, and income had a null effect on the CPC wife's happiness.

Table 9 reveals that unlike household registration, employment, and income, education was not gender biased; instead, it approached a gender-neutral identity. In detail, the coefficients in Columns (1), (3), and (5) are significantly positive while nonsignificant in Columns (2), (4), and (6). Consistent with the previous finding, non-CPC women's happiness was dependent on their husbands' achievements in political and economic fields. By contrast, non-CPC husband's happiness was not dependent on their wives'

achievements in the aforementioned fields. The exception was the effect of the spouse's educational advantages on an individual's happiness. The positive coefficients in Columns (7) and (8) indicate that both non-CPC women and men were happy to accept their spouses' educational advantages.

With the implementation of the compulsory education law, women and men have received equal access to education. Women's hard work pays off under the equal condition of education. The statistics from the Ministry of Education indicate that in 2013, 51.74% of college students were female, and 48.97% of graduate students were female. In 2005, the corresponding ratio of female college students was 47.08%, and the ratio of female graduate students was 43.39%. The proportion of female students with higher education increases annually and has already surpassed that of male students by 2017 (Wutongguo 2017). In this context,

Table 8 Dependence of wife's happiness on husband's relative advantages with respect to the CPC identity (dependent variable: wife's happiness)

	(1) Non-CPC wife	(2) CPC wife	(3) Non-CPC wife	(4) CPC wife	(5) Non-CPC wife	(6) CPC wife
S_Urban	0.202**	0.506				
	(0.077)	(0.479)				
S_Emp			0.222**	0.071		
			(0.080)	(0.409)		
S_Moreinc					0.202***	0.400
					(0.055)	(0.284)
Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Provincial effect	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.084	0.092	0.084	0.092	0.085	0.092
N	6660	5614	6674	5628	6674	5628

Robust standard errors in parentheses. Covariates are almost identical to those in Table 5 except that we exclude S_Income. Explanatory variables are three binary variables: S_Urban, whether your spouse has urban household registration; S_Emp, whether your spouse is currently employed; and S_Moreinc, whether your spouse has more annual income than you

**$p < 0.01$; ***$p < 0.001$

Table 9 Education as gender neutral identity improves each other's happiness (dependent variable: an individual's happiness)

Sub-sample	(1) Non-CPC wife	(2) Non-CPC husband	(3) Non-CPC wife	(4) Non-CPC husband	(5) Non-CPC wife	(6) Non-CPC husband	(7) Non-CPC wife	(8) Non-CPC husband
S_Urban	0.202**	0.079						
	(0.077)	(0.080)						
S_Emp			0.222**	0.073				
			(0.080)	(0.063)				
S_Moreinc					0.211***	−0.119		
					(0.054)	(0.099)		
S_Moreedu							0.314***	0.246**
							(0.058)	(0.086)
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.084	0.092	0.084	0.092	0.085	0.092	0.086	0.092
N	6660	5614	6674	5628	6674	5628	6674	5628

Robust standard errors in parentheses. Covariates are almost identical to those in Table 5 except that we exclude S_Income and S_Education. Explanatory variables are four binary variables: S_Urban, whether your spouse has urban household registration; S_Emp, whether your spouse is currently employed; S_Moreinc, whether your spouse has more annual income than you; and S_Moreedu, whether your spouse has higher level of education than you

**$p < 0.01$; ***$p < 0.001$

access to education has gradually become a gender–neutral opportunity; thus, whoever strives for it deserves fair returns. It is becoming more common that well-educated women are marrying less educated men, given that the narrowing gender gap in education. Hence, education is an example that demonstrates that traditionally defined gender roles can be reshaped in cases where women and men are granted equal opportunities.

Transmission Channels Between the Husband's CPC Identity and the Wife's Happiness

The empirical results in Table 5 report that the husband's CPC identity improved the wife's happiness, especially a non-CPC wife's happiness, but not vice versa. This finding reflects a critical social phenomenon of the dependence of wives' happiness on their husbands. However, we have

no empirical evidence to support the proposed channels in the conceptual framework through which the spouse's CPC identity affects an individual's happiness within the family. Hence, this section empirically deciphered the transmission channels between the husband's CPC identity and the non-CPC wife's happiness. According to the conceptual framework, we focused on three influencing channels: family income, job-related social status, and desire for progress. To examine if the husband's CPC identity can increase the family income, we regressed a binary variable of family income on the husband's CPC identity. The variable had a value of 1 when a family's economic condition was above the average, and otherwise, a value of 0. To examine if the husband's CPC identity improved a non-CPC wife's social status, we regressed an ordinal variable of social class on the husband's CPC identity. The value of the variable ranged from 1 to 6, and a larger value means higher social status. When controlling for some relevant variables, Columns (1) and (2) in Table 10 show that the husband's CPC identity improved the family's economic condition and the non-CPC wife's social status.

Furthermore, we empirically tested if the CPC husband had a stronger desire for progress, which enhances the wife's happiness within the family. In the CGSS data, continuous learning was used as a proxy for an individual's desire for progress; thus, we examined if the CPC husband was more likely to continue learning compared with the non-CPC husband. Regarding the empirical strategy, we regressed a binary variable of learning during free time on the husband's CPC identity. The variable was valued 1 when the husband learned during free time, and 0 otherwise. When controlling for some relevant variables, Column (3) in Table 10 shows

that the CPC husband had a higher likelihood of learning during free time; thus, it lowered the possibility of degeneration of morality and laziness. This result implied that the CPC husband has a stronger desire for progress. At the household level, increased family income, higher social status, and a husband's stronger desire for progress were all positively associated with the non-CPC wife's happiness. Therefore, we found support that the husband's CPC identity enhances the non-CPC wife's happiness through the aforementioned three channels.

One-to-One Nearest Neighboring Matching

Econometricians have recently questioned the prior results because the difference in the level of happiness between those with CPC spouses and those with non-CPC spouses may depend on the characteristics that affect whether one has a CPC spouse instead of due to the effect of the spouse's CPC identity per se. There will be a self-selection effect resulting in biased estimation because people who have a CPC spouse differ from those who have a non-CPC spouse. This problem occurs due to the confounding effect embedded in the estimation model when the assignment of the spouse's CPC identity to an individual's happiness is typically not random. In this case, we are not sure if the estimated effect of the spouse's CPC identity is ascribable to the spouse's CPC identity or to other unobservable factors. However, the traditional approaches to decreasing the confounding effect are invalid and impracticable, given the results would be largely driven by the functional forms rather than the data (Gilligan and Sergenti 2008).

Table 10 The transmission channels behind the positive effect of the husband's CPC identity on non-CPC wife's happiness

	(1)	(2)	(3)
Sub-sample	Non-CPC wife		Husband with non-CPC wife
Dependent	Family income	Social status	Learn during free time
S_CPC	0.298*	0.273***	
	(0.127)	(0.074)	
CPC			0.611***
			(0.072)
Covariates	Yes	Yes	Yes
Provincial effect	Yes	Yes	Yes
Year effect	Yes	Yes	Yes
Pseudo R^2	0.068	0.033	0.115
N	3268	6674	6444

Robust standard errors in parentheses. Covariates include Employed, Education, S_Education, Income, S_Income, Age, and Age square. Family income has a value of 1 when family's economic condition is above the average, and a value of 0 otherwise. The value of social class ranges from 1–6, and a larger value means a higher social status. Learning during free time is valued 1 when the husband learns during free time, and 0 otherwise

*p < 0.05; ***p < 0.001

We used the matching method proposed by Rubin (1979) and Rosenbaum and Rubin (1984) to handle confounders in the estimation models. We used matching attempts to mimic randomization by creating a sample in which all observed covariates were comparable between the treated and non-treated units. Thus, the mean difference between the units that receive and do not receive the treatment can be attributed to the treatment effect of interest because all other covariates were similar. Regarding this study, we used the one-to-one nearest-neighbor matching (NNM) method to create the matched sample and obtain the effect of the spouse's CPC identity on an individual's happiness through mean comparison. This matching approach is the most effective method for our settings, where there are a small number of treated individuals and a large number of control individuals, given that the NNM method matches control individuals to the treated group and discards controls not selected as matches; thus, we can always obtain an average treatment effect on the treated (ATT). Additionally, Guo and Fraser (2010) demonstrated that compared with propensity score matching, the NNM method has the advantage of minimizing subjective judgments on choices of functional form for modeling the propensity to treatment selection (i.e., an individual has a CPC spouse).

According to Wooldridge (2010), NNM uses the distance between covariate patterns to define the closest neighborhood, and we took the Mahalanobis distance between continuous covariates to match observations. As for the discrete variables, we used exact match to match observations. According to Morgan and Winship (2014), the matching variables should correspond to a model predicting whether an individual has a CPC spouse (S_CPC); thus, we chose a set of covariates related to the couple's (own) family background. In detail, the covariates for matching included binary variables, that is, whether the spouse had urban household registration (S_Urban) and whether the spouse's parents owned the property rights to the younger couple's house (S_Parentshouse), an individual's CPC identity, an individual's father's CPC identity (F_CPC), an individual's mother's CPC identity (M_CPC) and whether an individual's father worked in government institutions when he or she was 14 years old (F_Workunit), and two continuous covariates: an individual's education level (Education), and the spouse's education level (S_Education). To better fit the NNM model, we dropped the observations that violated the overlap assumption. To be specific, in the NNM model, we kept only the observations that had matches in the counterpart group.

Table 11 displays the results of the NNM model. In the NNM model, we adjusted the standard error of estimators, given that Abadie and Imbens (2011) indicated that NNM estimators are not consistent while matching on more than one continuous covariate. From Table 11, several conclusions can be drawn. First, the ATE and ATT of the husband's CPC identity were significantly positive among the non-CPC wives. Thus, the husband's CPC identity contributed to the non-CPC wife's happiness; however, there was no treatment effect of the wife's CPC identity on the husband's happiness. Second, the ATE and ATT of the husband's CPC identity were not significant among the CPC wives. Thus, the husband's CPC identity had a null effect on the CPC wife's happiness. Overall, the conclusions obtained by the matching method corroborated the previous findings in the econometrics analysis.

Covariate-balance summary statistics in Table 12 indicate that after raw samples were matched through the NNM method, the data were generally balanced; thus, the quasi-randomization requirement was satisfied. Our model improved the level of balance across covariates, given the standardized difference in means of the two continuous

Table 11 Treatment effect of the spouse's CPC identity on an individual's happiness

Sub-sample	(1) Outcome: wife's happiness	(2)	(3) Outcome: husband's happiness	(4)
	Non-CPC wife	CPC wife	Non-CPC husband	CPC husband
ATE(S_CPC)	0.173***	0.041	0.017	0.050
	(0.047)	(0.084)	(0.136)	(0.085)
ATT(S_CPC)	0.132***	0.045	−0.068	0.028
	(0.032)	(0.092)	(0.071)	(0.069)
N	5818	309	4785	963

Robust standard errors in parentheses. ATE: average treatment effect; ATT: average treatment effect on the treated. We use the following matching variables to estimate the ATE and ATT: S_Urban, whether the spouse has urban household registration; S_Parentshouse, whether the spouse's parents own the property rights to the younger couple's house; CPC, an individual's own CPC identity; F_CPC, an individual's father CPC identity; M_CPC, an individual's mother CPC identity; F_Workunit, whether an individual's father worked in government institutions when he or she was 14 years old; Education, an individual's own education level; S_Education, the spouse's education level

***$p < 0.001$

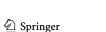**Table 12** Balance test of covariates in nearest neighboring matching

Sub-sample	(1) Non-CPC wife		(2) CPC wife		(3) Non-CPC husband		(4) CPC husband	
	Raw	Matched	Raw	Matched	Raw	Matched	Raw	Matched
Education								
Mean difference	0.431	−0.009	−0.061	−0.173	1.090	−0.005	0.667	−0.006
Variance ratio	1.340	1.018	1.138	1.282	1.350	1.007	0.941	1.055
S_Education								
Mean difference	0.841	0.008	0.405	−0.075	1.469	−0.005	1.031	0.028
Variance ratio	1.324	1.002	0.892	0.973	1.285	1.023	0.938	1.065

All discrete covariates in the spouse's CPC equation have exact match (i.e., S_Urban, S_Parentshouse, CPC, F_CPC, M_CPC and F_Workunit), and we remove large-sample bias by using a linear model (Abadie and Imbens 2006, 2011), while including two continuous covariates: Education and S_Education

covariates (i.e., Education and S_Education) decreased to approximately zero, and the mean ratio of the variance of the two covariates in the treated group to the variance of the same covariates in the control group almost shrank to 1.

Limitations

To isolate the net effect of the spouse's CPC identity on an individual's happiness, we control for as many as important happiness-influencing factors as possible. However, there might still be some control variables omitted due to data unavailability; among them, the lack of personality variables in the dataset might overestimate the spillover effect of the spouse's CPC identity, because personality traits explains approximately 50% of the variations of happiness (Lyubomirsky et al. 2005). Literature spanning almost a century has suggested that personality traits and dispositions are more correlated with happiness compared with circumstantial factors, demographic variables, and life events (Diener 1984; Lyubomirsky and Ross 1997). This limitation in our study is critical. The ongoing data collection related to personality might provide a basis for further identification of the spillover effect of a spouse's CPC identity on an individual's happiness. Additionally, while employing the one-to-one nearest neighboring matching method to obtain a treatment and control group with similar covariate distributions, we still cannot establish a causal relationship between the two groups based on only observable characteristics. There could still be unobserved confounders correlated with both the spouse's CPC identity and an individual's happiness that bias our estimations. This limitation is the second of our study. While removing the unobserved time-invariant confounders, the ongoing time-series-cross-section data collection can help to obtain more accurate estimators.

Discussion and Conclusion

Discussion

In this paper, we regard the CPC identity as important social capital because of its collective value of all the social networks among the CPC members. Under the conceptual framework, we hypothesize that strong social networks benefit the CPC members and their spouses in the form of increased family income, higher job-related social status, and a stronger desire for progress. We find that the husband's CPC identity can enhance the non-CPC wife's happiness, but the wife's CPC identity has a null effect on the husband's happiness. The asymmetrical effect of the spouse's CPC identity indicates that the well-being of those women with relative disadvantages willingly or unwillingly still relies on their husbands. The result reveals a somewhat gender-biased division of labor which emphasizes women's role as homemakers. There are many institutional barriers for women, especially non-CPC women who live in rural areas and have less education. Hence, these women compared with men do not receive equal opportunities to participate in political and economic affairs. Moreover, while often described as having insufficient self-confidence, many women gradually have accepted the traditional role of homemakers (Howell 2006). Thus, they do not actively participate in political and economic activities; instead, they focus on family affairs. Additionally, we find that the husband's CPC identity has a null effect on the CPC wife's happiness. This result indicates that wives' well-being does not have to be dependent on their husbands when they obtain an equal position to men. In a fairer and more inclusive urban environment, the CPC women as an advantaged group (e.g., more income) are not much dependent on their husbands. This is further confirmed when we show that the husband's relative advantages in household registration, employment, and income also have a null effect on the CPC wife's happiness.

The determinants of an individual's happiness in the family remain an area of interest for family scholars. Our findings provide additional details for the ongoing discussion in two aspects. First, the micro-level evidence on the antecedents of women's happiness can provide more insights for other researchers examining macro-level happiness both specific to and external to China. The paper reveals that gender-biased division of labor in China leads to the asymmetrical effect of the spouse's CPC identity on an individual's happiness. Out of personal control, socio-environmental factors such as social norms and customs even overrule the individual- and family-level happiness-influencing factors. Among them, the gendered institutions, defined as the asymmetrical social norms, beliefs, and practices, affect women and men's behaviors differently, and often unequally (Goetz 1997; Van Staveren and Bode 2007). A series of visible and invisible constraints are imposed on women's behaviors; thus, women compared with men suffer many disadvantages. Consequently, in the traditionally male-dominated political and economic affairs, women are still inferior and even subordinate to men despite their own efforts to change this situation. In this sense, the researchers who focus on macro-level happiness should emphasize not only the visible socioeconomic factors, for example, income, but also pay more attention to the invisible cultural factors, for example, gendered institutions.

Second, this study has strong policy implications for other societies around the world, especially, societies in many developing countries. Similar to Chinese societies, substantial improvements have been made in gender equality in these countries, but this factor continues to lag behind the majority of developed countries. In a society with strong patriarchal traditions, the social division of labor and gender role orientation leads to the phenomenon of women's dependence on men. However, as the education example indicates, in a socioeconomic environment with equal opportunities and fair competition, women can eliminate the fetters of male dominance and independently gain their happiness through their own efforts. Similar to the practice in education in China, we should take measures to ensure women's fair access to political and economic opportunities, such as increasing investment in education, eliminating gender discrimination in the job market, providing more suitable jobs for women, and enacting laws and measures to protect women's rights (Jin 2007). As long as women with men are provided equal opportunities, their well-being will not be bound by the gender-biased division of labor within the family. In addition, we use the case of China to prove that economic development and opening up of the society can greatly increase the probability of women breaking the traditional division of labor within the family because more opportunities are created and new ideas are proposed and

considered. Consequently, women's status is improved to some extent.

Conclusion

Overall, based on our analysis, the paper mainly draws the following three conclusions. First, a husband's happiness does not depend on a wife's political identity, given a serious gender bias in political and economic fields. Second, the well-being of non-CPC wives remains dependent on their husbands due to relatively disadvantaged positions in the gender-biased division of labor. Third, the happiness of the CPC women is not dependent on their husbands after equal opportunities are open to them. The results reveal that social and economic development as a macro-level factor is a critical approach to strengthen women's independence and autonomy. Additionally, the results reveal that micro-level gender-biased division of labor is a significant determinant of women's well-being. Therefore, whenever we study women's status and well-being, we should analyze these factors from the perspectives of the macro and micro levels. As the case of education indicates, women's well-being will improve when women and men have equal opportunities in the processes of social and economic development.

Compliance with Ethical Standards

Conflict of interest The authors declared that they have no conflicts of interest to this work, and they have no competing financial interests.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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