# Causes of Gender Wage Gap in China: Evidence from 2018 CHIP Data

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#### Abstract

This paper investigates the underlying causes of China's gender wage gap using microdata from the 2018 Chinese Household Income Project (CHIP). Employing the Oaxaca–Blinder two-fold decomposition method on both the overall workforce and subgroups stratified by marital status and age, it quantifies the contributions of observable characteristics and unexplained factors to wage disparities. The findings reveal that observable endowments such as education and experience inadequately explain the wage gaps. Instead, structural constraints linked to marriage and occupational segregation emerge as the primary drivers of persistent wage inequalities. Drawing on Sen's capability approach, this study argues that entrenched social institutions, notably marital expectations and gender norms, systematically limit women's economic capabilities. Effective policies must therefore transcend traditional human capital-focused interventions and directly address these institutional barriers by expanding publicly funded childcare, improving parental leave policies, harmonizing retirement ages, and incentivizing occupational integration.

## 1 Introduction

Since initiating economic reforms in 1978, China has experienced rapid economic growth, achieving an average annual GDP growth rate exceeding 9% (World Bank 2025). This remarkable growth has been accompanied by profound structural and social transformations, notably the privatization of state-owned enterprises (SOEs) in the late 1990s and China's accession to the World Trade Organization (WTO) in 2001. Although economic expansion has substantially raised overall living standards, it has also contributed to increased economic inequality (Piketty, Li, and Zucman 2019). A critical, yet frequently overlooked, dimension of this inequality is the persistent gender disparity in labor market outcomes. Empirical evidence consistently indicates that gender gaps in labor force participation and wages have significantly widened since the 1990s, reflecting deeply rooted institutional and structural inequalities (Brussevich, Dabla-Norris, and Li 2021; Attané 2012; Song, Sicular, and Gustafsson 2017).

This study aims to identify the specific factors driving contemporary gender wage disparities in China using micro-level data from the 2018 Chinese Household Income Project (CHIP). By employing Oaxaca—Blinder two-fold decomposition analysis on both the overall workforce and subgroups segmented by marital status and age, the paper systematically evaluates the roles of observable human capital characteristics and unexplained structural determinants. The findings clearly demonstrate that observable endowments such as education and work experience play only a minimal role in explaining wage gaps. Instead, institutional constraints, particularly marriage and associated caregiving responsibilities, occupational segregation, and employer biases, emerge as pivotal factors driving persistent inequalities. Leveraging Sen's capability approach, this research underscores that deeply entrenched social institutions and gendered expectations substantially restrict women's economic opportunities and freedoms. Consequently, effective policy interventions must address these institutional barriers directly, extending beyond conventional human capital strategies, to facilitate genuinely equitable economic participation and outcomes for women in China.

#### 2 Literature Review

This section provides a brief review of China's economic reform and the existing literature on the state and causes of gender wage gap in China.

#### 2.1 China's Economic Reform

China's market-oriented reforms, initiated in 1978, marked a fundamental shift from a centrally planned economy toward a more open and competitive market system. Prior to these reforms, the socialist state explicitly promoted gender equality through policies that facilitated women's full participation in the workforce. Government interventions such as publicly funded childcare services and comprehensive maternity leave policies significantly boosted women's labor force participation. However, despite these progressive measures, women predominantly occupied lower-paying jobs and rarely advanced to managerial or political leadership roles, reflecting deep-rooted societal biases and persistent gender inequalities in practice (Attané 2012; Liu 2011).

Economic liberalization substantially reshaped gender dynamics within China's labor market. Initial rural reforms introduced the household responsibility system, replacing collective agriculture and spurring rural industrialization through township and village enterprises (TVEs). These structural transformations provided a foundation for subsequent urban economic changes. By the late 1990s, extensive privatization of state-owned enterprises (SOEs) accelerated urban industrial growth, but simultaneously resulted in disproportionate

job losses for female workers (Liu 2011; Brussevich, Dabla-Norris, and Li 2021). Additionally, China's integration into the global economy following its 2001 accession to the World Trade Organization (WTO) created new employment opportunities, particularly in exportoriented manufacturing sectors. Nevertheless, this economic openness also intensified occupational segregation, channeling women disproportionately into lower-paid and less secure jobs, thereby exacerbating existing gender wage disparities (Chen, Ge, and Wan 2013; Wang, Kis-Katos, and Zhou 2020).

## 2.2 Gender Wage Gap in China

China's gender wage gap has progressively widened following the economic liberalization initiated in the 1990s. Initially modest, the gap expanded significantly as men disproportionately accessed higher-paying jobs emerging from newly liberalized, market-oriented sectors. Gustafsson and Li (2000), analyzing data from the Chinese Household Income Project (CHIP) surveys of 1988 and 1995, reported an increase in the urban gender wage gap from approximately 15.6% in 1988 to 17.5% by 1995, highlighting women's disadvantaged positions amid structural labor market shifts. The wage disparity continued to increase substantially during the late 1990s and further accelerated following China's WTO accession in 2001. Utilizing subsequent CHIP data, Song, Sicular, and Gustafsson (2017) documented that the urban gender wage gap expanded from 15.5% in 1995 to 23.9% in 2002 and reached a peak of 35.6% by 2007, although it moderated somewhat to 28.2% between 2007 and 2013. This empirical evidence clearly demonstrates that China's structural economic reforms coincided with and contributed to the widening gender wage inequality in the labor market.

Liu (2011), using data from the China Health and Nutrition Survey (CHNS), reported that during the privatization of state-owned enterprises (SOEs) in the late 1990s, 60% of laid-off workers were women, who also faced lower reemployment rates compared to men, resulting in prolonged periods of unemployment or permanent withdrawal from the labor force. This gendered pattern in job displacement significantly contributed to the widening gender wage gap in China, as women disproportionately lost stable employment opportunities and subsequently experienced lower wage trajectories upon reemployment. Similarly, Brussevich, Dabla-Norris, and Li (2021), drawing upon data from the Chinese Household Income Project (CHIP) surveys, documented consistent findings of women's disadvantaged labor market positions and wage penalties following SOE privatization. China's accession to the WTO in 2001 and subsequent globalization further reshaped gender dynamics in the labor market. Using firm-level manufacturing census data and household surveys, Chen, Ge, and Wan (2013) found that globalization expanded employment opportunities for women, especially within export-oriented and foreign-invested firms, yet these positions typically offered lower

wages, thus sustaining gender wage disparities. Additionally, based on Chinese population censuses (1990, 2005) and firm census data (1995, 2004), Wang, Kis-Katos, and Zhou (2020) observed that increased market competition from trade liberalization reduced explicit employer discrimination against women; however, significant gender wage gaps persisted due to productivity differentials linked to occupational segregation. Thus, globalization exerted mixed effects on gender wage inequalities, simultaneously improving employment prospects and reducing overt discrimination, while structural constraints, such as occupational segregation and productivity-based wage differentials, continued to maintain substantial gender disparities.

Besides the impact of structural reforms on gender inequality in the labor market, institutional factors such as marriage, parenthood, and unpaid care responsibilities significantly shape gender wage outcomes. Parenthood commonly results in wage penalties for women and wage premiums for men, reinforcing traditional gender roles and widening the gender wage gap, especially among middle-aged cohorts. Using data from the Chinese Household Income Project (CHIP) for 2002 and 2018, Ma (2022) finds that women consistently faced significant motherhood wage penalties, whereas men increasingly benefited from fatherhood wage premiums. Specifically, in 2018, fatherhood increased men's hourly wages by approximately 15.2\%, while motherhood reduced women's wages by around 6.0\%, substantially contributing to gender wage inequality. Marriage similarly emerges as a critical institutional factor negatively affecting women's labor market outcomes. For instance, Song, Sicular, and Gustafsson (2017) reports that married women faced a gender wage gap nearly twice as large as that experienced by unmarried women in urban China, indicating significant wage penalties tied directly to marital status. Furthermore, unpaid care responsibilities disproportionately burden women. According to data from China's 2008 Time Use Survey, women spent on average about 27.3 hours per week on unpaid care work compared to 10.6 hours for men, limiting their time and energy for paid employment and career (Dong and An 2015). Connelly et al. (2018) show that reduced state and employer support for childcare and eldercare has shifted these responsibilities back to households, intensifying the work-family conflicts experienced by women, especially in rural and low-income urban areas connelly care 2018. These findings illustrate how unpaid care duties serve as substantial barriers to women's full economic participation, exacerbating the gender wage gap in China.

In conclusion, the existing literature underscores that China's economic reforms and global integration have played a significant role in shaping gender wage disparities. While economic liberalization has expanded employment opportunities for women, particularly in exportoriented sectors, structural transformations and institutional barriers such as occupational segregation, marriage, and parenthood have simultaneously reinforced and sustained consid-

## 3 Data and Methodology

#### 3.1 Data

This study utilizes data from the 2013 and 2018 waves of the Chinese Household Income Project (CHIP), a nationally representative survey providing comprehensive information on household income, employment, and demographic characteristics (Song, Sicular, and Gustafsson 2017). While data from both survey waves are utilized, the analysis primarily focuses on the 2018 dataset. The sample is restricted to the working-age population, excluding individuals who reported working fewer than 80 hours per year or earned annual wages below 200 yuan (approximately 30 USD). Wage income refers specifically to annual income from the individual's primary job, including in-kind subsidies.

Several demographic and socioeconomic variables are included to represent workers' personal endowments, such as region of residence (Eastern vs. non-Eastern provinces), urban residency status, rural migrant status (applicable only to urban residents), years of formal education, age, subjective health status, political affiliation (membership in the Communist Party of China or other democratic parties), single-child status, and ethnicity (Han versus ethnic minority).

In addition to personal endowments, the analysis incorporates several key labor-market characteristics. Employer ownership is classified into three categories: state-owned enterprises (SOEs, encompassing state and collective-owned enterprises and government institutions), privately owned firms, and foreign-owned enterprises, with private ownership serving as the reference group. Industry sectors are categorized into primary, secondary, and tertiary sectors according to the Chinese National Standard Industrial Classification, with the primary sector as the reference category (Statistics of China 2003). Employment type includes three groups: employed (as the reference), self-employed, and family helpers. Finally, binary variables indicate workers who have formal employment contracts and those occupying high-skilled positions, defined as department heads or professional technicians ("good job").

#### [Insert Table 1 about here]

Descriptive statistics clearly indicate that men consistently earned higher wages than women in both 2013 and 2018, measured in terms of mean annual wages and hourly wages. The average female-to-male wage ratio slightly declined from 81.2% in 2013 to 79.2% in 2018, while the median wage ratio remained stable at approximately 80% over this period, highlighting the persistence of the gender wage gap.

Regarding working hours, women worked approximately 80 hours more than men annually in 2013; by 2018, women's average annual working hours had become slightly lower than men's. However, considering prior evidence documenting women's significantly greater involvement in unpaid care work, averaging more than double men's weekly hours (27.6 hours versus 12.9 hours per week), women's comparable or higher paid work hours suggest a substantially heavier total workload relative to men(Dong and An 2015).

Additionally, women are more likely to reside in urban areas and in the eastern region of China across both survey years. For clarity, the "East" region in this study includes the provinces of Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, and Hainan; all remaining provinces constitute the "non-East" region.

Women also exhibit higher educational attainment than men in both years. It should be noted that the education measure excludes kindergarten, such that ten years of education corresponds to the completion of the first year of high school. However, women report fewer non-education years relative to men, likely reflecting women's earlier exit from the labor force due to China's gender-differentiated statutory retirement ages.

Several additional differences are notable. Men have substantially higher membership rates in the Communist Party of China compared to women. In 2013, women were slightly more likely to hold high-skilled positions ("good jobs") compared to men, but by 2018 this trend reversed, with men significantly outpacing women in these roles. The secondary industry is predominantly male, while women are heavily concentrated in the tertiary sector. Finally, women are less likely to be single children and more likely to report employment as family helpers.

## 3.2 Methodology

This study employs the Oaxaca–Blinder decomposition method based on pooled regressions to analyze the determinants of the gender wage gap (Oaxaca 1973; Blinder 1973). The decomposition is applied to the overall workforce as well as to distinct subgroups defined by marital status, age, and economic sectors, to identify potential heterogeneity in factors influencing gender wage disparities. The pooled regression approach is selected due to significant differences in the estimated coefficients for certain explanatory variables between men and women, which can complicate interpretation when using separate regressions. Formally, the decomposition using pooled regression coefficients can be expressed as:

$$\overline{W}_m - \overline{W}_f = (\overline{X}_m - \overline{X}_f) \hat{\beta} + \left\lceil \overline{X}_m (\hat{\beta}_m - \hat{\beta}) + \overline{X}_f (\hat{\beta} - \hat{\beta}_f) \right\rceil$$

<sup>&</sup>lt;sup>1</sup>The Oaxaca-Blinder decompositions in this study are conducted with the oaxaca library in Stata (Jann 2008).

In this equation,  $\overline{W}_m$  and  $\overline{W}_f$  represent the mean log hourly wages of men and women, respectively;  $\overline{X}_m$  and  $\overline{X}_f$  are vectors of mean observable characteristics (such as education, age, occupation, and industry); and  $\hat{\beta}$  denotes coefficients estimated from a pooled regression that combines data for both genders. The first component,  $(\overline{X}_m - \overline{X}_f)\hat{\beta}$ , captures the wage gap explained by differences in observable characteristics. The second component,  $\overline{X}_m(\hat{\beta}_m - \hat{\beta}) + \overline{X}_f(\hat{\beta} - \hat{\beta}_f)$ , measures the "unexplained" portion, reflecting the differences in returns to these characteristics between genders relative to the pooled average, which may indicate discrimination or other unobserved factors.

## 4 Results

#### [Insert Table 2 about here]

The results show that in 2013, men's average log hourly wage exceeded women's by 0.27 log points, corresponding to an approximate wage premium of 31% relative to women. By 2018, this gender wage gap had slightly narrowed to 0.25 log points, equivalent to roughly a 28.4% wage premium for men. Although this modest reduction alone does not definitively confirm a sustained narrowing trend, it nonetheless suggests a moderate improvement during the observed period. These findings align with the evidence presented by Song, Sicular, and Gustafsson (2017), who documented a similar narrowing of the gender wage gap between 2007 and 2013 following an earlier expansion from 1995 to 2007. Table 3 presents a detailed decomposition of the wage gap, highlighting only statistically significant coefficients. Additionally, Table 4 provides pooled and gender-specific regression results to further elucidate the factors underlying these wage differences.

[Insert Table 3 about here]

[Insert Table 4 about here]

The decomposition results indicate that differences in observable characteristics between men and women account for only 0.017 log points of the total 0.248 log point gender wage difference. While women exhibit slightly favorable endowments such as greater urban residency and higher likelihood of living in Eastern regions, these advantages have negligible effects on reducing the wage gap. Women's higher educational attainment and younger average age collectively contribute to reducing the wage differential by approximately 0.014 log points. Additionally, women's slightly higher probability of holding formal employment contracts further reduces the gap by roughly 0.003 log points. Conversely, women's underrepresentation in managerial and professional positions contributes an increase of about 0.015 log points to the gender wage gap. Most notably, women's significantly lower employment rates in the

higher paying secondary industry substantially widen the gap by around 0.032 log points. Although women's higher representation in the tertiary sector slightly narrows the gap by about 0.011 log points, this positive effect is insufficient to offset the wage disadvantage resulting from the secondary industry's predominantly male composition.

Compared to the explained portion, the unexplained component of the gender wage gap is substantially larger, highlighting the role of unobserved factors such as potential discrimination or institutional biases. Women receive greater returns from residing in Eastern regions and urban areas, collectively reducing the wage gap by approximately 0.042 log points. Furthermore, women's returns to education are notably higher, significantly narrowing the wage gap by around 0.083 log points. Women also experience greater returns related to political affiliation, single child status, formal employment contracts, and occupying high skill ("good") positions, collectively further decreasing the gender wage gap by about 0.045 log points in total.

However, women experience notably lower returns compared to men when employed in state-owned and foreign-owned enterprises relative to domestic private firms, contributing approximately 0.089 log points to the wage gap. Additionally, women receive substantially lower returns from employment in secondary and tertiary industries compared to men, collectively widening the wage gap by about 0.146 log points. Specifically, as detailed in Table 4, women employed in the secondary industry gain only 0.061 log points relative to employment in the primary industry, whereas men realize a gain of about 0.258 log points. Similarly, women's employment in the tertiary sector results in lower returns compared to the primary sector, while men benefit from an increase of approximately 0.117 log points. These findings clearly indicate that women face significantly lower relative returns in secondary and tertiary industries compared to their male counterparts. One cautious interpretation is that women may be disproportionately segregated into lower skill and lower pay roles within these sectors, though further research would be needed to confirm this speculation. Finally, the constant term, capturing unobserved factors including potential discrimination, is positive yet not strongly significant, contributing an additional 0.168 log points to the gender wage gap.

The remaining variables, including health status, ethnicity, and employment by foreign firms, do not contribute significantly to the gender wage gap. Neither their explained nor unexplained effects achieve statistical significance, suggesting these factors do not play a meaningful role in determining the observed wage disparities between men and women.

#### 4.1 Impact of Marriage on Gender Wage Gap

To investigate how marriage affects the gender wage gap, this section applies the Oaxaca–Blinder decomposition method to samples partitioned by marital status and age.

[Insert Table 5 about here]

Summary statistics for each subgroup are presented in Table Table 5. On average, female workers—both married and unmarried—are younger than their male counterparts within their respective marital-status groups, with the age difference being particularly pronounced among married individuals. When examining age-based subgroups, women have a lower average age than men only within the group aged 50 years and older. This pattern likely reflects China's earlier statutory retirement age for women, prompting their earlier exit from the labor market relative to men. Because linear regressions are sensitive to sharp, non-linear changes in data, the marriage-stratified decomposition restricts the sample to workers aged 50 years or younger. However, the subsequent age-stratified decomposition explicitly includes workers aged above 50 as a separate subgroup.

#### [Insert Table 6 about here]

The results highlight a substantial difference in the gender wage gap between married and unmarried workers. Among unmarried workers, the gender wage gap is relatively modest, at approximately 0.062 log points (6.4%). Differences in observable characteristics—including personal endowments and labor market attributes—actually reduce this gap by around 0.040 log points, whereas the unexplained component widens it by approximately 0.102 log points. In contrast, the gender wage gap among married workers increases substantially to approximately 0.307 log points (36%), nearly five times larger than the gap observed among unmarried workers.

Among unmarried workers, women possess substantially higher educational endowments, reducing the gender wage gap by approximately 0.079 log points. However, their lower average non-education years or experience widens the gap by about 0.033 log points. Additionally, unmarried women are more likely to have formal job contracts, further narrowing the gap by 0.018 log points. They also benefit from higher returns to urban residency, possibly due to their higher educational attainment. Other variables that contribute to widening the gender wage gap are mostly statistically insignificant and are thus omitted from the table.

For married workers, observable characteristics explain only a small fraction of the substantial gender wage gap. Married women are less likely to be employed in the secondary industry but more likely to work in the tertiary sector. Additionally, married women are less likely to hold "good jobs," defined here as management or professional positions. In contrast to

unmarried workers, differences in educational endowments and age explain little of the gender wage disparity among married individuals.

The most important finding here is that married women have significantly lower returns to their non-education years (experience) compared to married men. As shown in Table Table 7, the return for non-education years is 0.064 for men but only 0.047 for women. Given the relatively large number of non-education years, this differential in returns contributes approximately 0.124 log points to the gender wage gap. This finding aligns with existing literature highlighting marriage as a critical life event that negatively impacts women's career trajectories and widens the gender wage gap. Moreover, married women are cumulatively disadvantaged relative to married men with similar observable characteristics. To verify the robustness of these results and to further examine the gender wage gap among workers above age 50, additional decompositions stratified by age groups are conducted.

#### [Insert Table 9 about here]

The Oaxaca–Blinder decomposition stratified by age group highlights several important findings. First, among workers younger than 26, the gender wage gap is relatively modest at about 0.109 log points (approximately 11.5%), slightly larger than the gap among unmarried workers but substantially smaller than that observed in older cohorts. Young women possess better educational endowments but fewer non-education years (experience), and these factors combined reduce the gender wage gap by approximately 0.037 log points. Aside from their higher likelihood of having formal job contracts, which further narrows the gap by less than 1%, none of the other explained or unexplained components are statistically significant. The modest size of the gender wage gap and the lack of significant unexplained components suggest that labor market disadvantages faced by young women relative to young men have not yet fully emerged.

For workers aged 26 to 50, the gender wage gap increases substantially to approximately 0.284 log points (about 32.9%). Observable characteristics explain only a small fraction of this disparity, leaving the majority of the gap unexplained. While differences in educational endowments and experience become less pronounced compared to the younger cohort, women aged between 26 and 50 are notably less likely to hold "good jobs," a disadvantage not observed among younger women. Additionally, industry segregation emerges as a significant factor widening the wage gap. Nevertheless, the most critical finding is that women in this age group experience substantially lower returns to their non-education years (experience) compared to their male counterparts. This aligns with the earlier findings in Table Table 6, highlighting that young and unmarried women face minimal penalties related to experience or age, whereas married and older women encounter significant penalties.

For workers older than 50, the gender wage gap further widens to approximately 0.329 log points (about 38.9%). In contrast to the two younger cohorts, observable characteristics explain a relatively larger share of the gap—around 0.108 log points. However, differences in endowments still contribute minimally; instead, factors related to labor-market segregation, such as formal job contracts, access to "good jobs," and male dominance in the secondary industry, primarily drive the explained portion. Additionally, at this age, women experience significantly lower returns than men from employment in secondary and tertiary industries compared to the primary industry. This finding may reflect selection effects: women previously employed in relatively higher-paying positions have already retired, leaving a disproportionate share of older women in lower-paying roles.

In conclusion, the analysis reveals substantial heterogeneity in the gender wage gap across marital status and age groups in China. Marriage stands out as a critical life event significantly reshaping both the magnitude and structure of gender wage disparities. Married women consistently suffer more pronounced wage penalties, likely driven by career interruptions, reduced advancement opportunities, and limited access to better-paying positions. Furthermore, clear age-related differences emerge, with women increasingly disadvantaged starting in their mid-to-late twenties, indicating cumulative penalties over their working lives. Notably, education plays a minimal role in driving wage differences and even slightly reduces wage disparities across all subgroups. These findings underscore the importance of examining deeper structural and institutional factors beyond educational differences. Further research remains essential to pinpoint the precise causal mechanisms behind this observed heterogeneity in gender wage outcomes.

## 5 Theory and Policy Implications

The results presented in the preceding section provide clear evidence that marriage and age significantly influence the magnitude of the gender wage gap in China. Among unmarried workers, the gender wage disparity is relatively small, yet it expands dramatically upon marriage, increasing by more than fivefold. Similarly, the wage gap among younger workers under the age of 26 is modest but escalates markedly between ages 26 and 50, precisely aligning with the typical ages associated with marriage and childbirth. These findings highlight that marriage and related life-course transitions impose substantial constraints on women's economic outcomes, pointing toward deeper institutional barriers that extend beyond observable human capital and demographic differences.

To better contextualize these results and derive meaningful policy implications, Sen's capability approach offers a valuable analytical framework. Sen (1999) argues that development

should be assessed based on the actual freedoms or capabilities individuals can genuinely exercise, rather than solely on their resources or endowments. Robeyns (2005) further elaborates that resources become meaningful only when individuals can effectively convert them into valuable outcomes through personal, social, and institutional conversion factors. When such conversion factors are gendered, identical resources can lead to markedly unequal outcomes between men and women. Social institutions such as marital expectations and caregiving norms act as critical conversion barriers, significantly limiting women's ability to fully utilize their educational and occupational endowments (Robeyns 2003). Thus, marriage emerges not simply as a private event but as a pivotal institutional factor systematically constraining women's economic opportunities and capabilities.

Within the Chinese context, marriage imposes significant capability constraints on women. Women's disproportionate share of unpaid household and caregiving responsibilities substantially limits their opportunities to fully participate in paid employment and achieve professional advancement (Qi and Dong 2015). Empirical evidence consistently demonstrates that married women incur substantial wage penalties, while married men frequently benefit from wage premiums, thus perpetuating pronounced gender wage gaps, especially among middle-aged cohorts (Ma 2022). Additionally, employer biases and societal expectations surrounding fertility disproportionately disadvantage married women, reducing their returns on human capital at precisely the career stage when their accumulated experience and professional competencies should be enhancing earnings potential (Attané 2012; Song, Sicular, and Gustafsson 2017). Therefore, viewed through the capability lens, marriage operates as a critical institutional factor systematically restricting women's ability to convert their personal endowments into fair and equitable labor market outcomes.

Given these structural barriers, policy interventions that focus exclusively on enhancing women's education or training, the conventional "endowment" approaches, are insufficient for addressing the root causes of gender wage disparities. Instead, effective policy solutions must explicitly and comprehensively target the institutional conversion factors that limit women's economic capabilities following marriage and throughout their professional trajectories. For instance, establishing universal access to publicly funded childcare and elder-care services would directly reduce the disproportionately heavy caregiving burdens borne by women, thereby significantly increasing their freedom to fully participate in the labor market and advance professionally (Qi and Dong 2015). Furthermore, robust policies mandating equal parental leave, coupled with stringent anti-discrimination enforcement, are essential to mitigate employer biases and negative stereotypes regarding married women and mother-hood. Harmonizing statutory retirement ages for men and women, combined with targeted mid-career reskilling programs, would also substantially extend women's capacity to lever-

age their professional expertise and experience. Lastly, proactive policy measures aimed explicitly at reducing occupational segregation, including incentives for gender diversity in apprenticeship programs and in public-sector procurement contracts, would meaningfully broaden women's economic opportunities and strengthen their capabilities to achieve equitable labor-market outcomes.

Thus, a capability-oriented policy agenda explicitly targets the dismantling of these institutional barriers to significantly enhance women's substantive freedoms in pursuing valuable economic activities. Such an approach closely aligns with Sen (1999)'s foundational assertion that development initiatives must fundamentally prioritize the expansion of people's real opportunities and freedoms to achieve outcomes they genuinely value.

#### 6 Conclusion

This paper has demonstrated that China's gender wage gap is driven primarily by structural constraints associated with marriage and age, rather than by observable differences in human capital or demographic characteristics alone. The empirical analysis highlighted a substantial widening of wage disparities after marriage, underscoring marriage as a pivotal institutional barrier that significantly restricts women's opportunities to fully realize the economic value of their educational and professional investments. Furthermore, the pronounced increase in wage penalties among workers aged between 26 and 50 clearly aligns with critical lifecourse transitions such as marriage and childbirth, further reinforcing that these institutional constraints systematically disadvantage women throughout their careers.

From a capability perspective, these results imply that policy responses must shift away from conventional strategies focused merely on enhancing human capital. Instead, effective interventions should explicitly target the deeper, institutional barriers limiting women's economic capabilities after marriage and throughout their professional lives. Specifically, comprehensive policies, including universal publicly funded childcare and elder-care services, equal parental leave provisions, robust enforcement of anti-discrimination measures, harmonization of statutory retirement ages, and targeted measures to reduce occupational segregation—are crucial to dismantle these entrenched structural constraints. By directly addressing these institutional factors, policymakers can substantially expand women's substantive economic freedoms, thereby fostering a more equitable and inclusive labor market environment in China.

## 7 Appendix

Table 1: Summary Statistics

Variable	2013 Women	2013 Men	2018 Women	2018 Men
average wage	28045.37	34537.77	42363.10	53507.37
median wage	24000	30000	34800	43600
hours	2191.28	2110.95	2165.33	2183.36
average hourly wage	14.01	18.15	21.60	27.14
median hourly wage	11.11	14.55	15.63	20.51
urban	0.44	0.35	0.61	0.53
east	0.39	0.34	0.34	0.32
education years	10.05	9.67	10.31	10.03
non-education years	27.39	30.37	28.95	31.73
health	0.98	0.98	0.98	0.98
political identity	0.09	0.15	0.10	0.15
single child	0.13	0.14	0.12	0.14
han	0.95	0.95	0.94	0.95
contract	0.28	0.27	0.28	0.27
good job	0.18	0.16	0.14	0.21
state owned	0.49	0.49	0.51	0.47
foreign owned	0.25	0.24	0.22	0.21
secondary industry	0.32	0.47	0.25	0.41
tertiary industry	0.64	0.49	0.70	0.54
self-employed	0.11	0.12	0.13	0.14
family helper	0.02	0.00	0.02	0.01

Source: CHIP 2013 and 2018. Unit for wage is nominal yuan.

Table 2: Oaxaca-Blinder Decomposition for 2013 and 2018

Term	2013	2018
men	2.66*** (0.01)	3.00*** (0.01)
women	2.39***(0.01)	2.75*** (0.01)
difference	0.27****(0.01)	0.25***(0.01)
explained	0.00(0.00)	0.02***(0.00)
unexplained	0.27*** (0.01)	0.23*** (0.01)

Source: CHIP 2013 and 2018. Standard errors are in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 3: Oaxaca-Blinder Decomposition for 2018

Section	Term	Coefficient
Overall	men	2.995*** (0.006)
Overall	women	2.747*** (0.007)
Overall	difference	0.248*** (0.009)
Overall	explained	0.017*** (0.004)
Overall	unexplained	0.231****(0.009)
Explained	East region	-0.002*** (0.001)
Explained	Urban residence	-0.007*** (0.001)
Explained	Education years	-0.010*** (0.002)
Explained	Non-education years	-0.004*** (0.001)
Explained	Political identity	0.003*** (0.001)
Explained	Single child	-0.001** (0.000)
Explained	Has contract	-0.003** (0.001)
Explained	Good job	0.015****(0.001)
Explained	state-owned	0.003*** (0.001)
Explained	secondary industry	0.032***(0.005)
Explained	tertiary industry	-0.011*** (0.004)
Explained	Family helper	0.003***(0.001)
Unexplained	East region	-0.010* (0.006)
Unexplained	Urban residence	-0.032** (0.015)
Unexplained	Education years	-0.083** (0.039)
Unexplained	Political identity	-0.014*** (0.004)
Unexplained	Single child	-0.010*** (0.003)
Unexplained	Has contract	-0.011* (0.007)
Unexplained	Good job	-0.010** (0.004)
Unexplained	state-owned	0.030** (0.014)
Unexplained	secondary industry	0.059****(0.017)
Unexplained	tertiary industry	0.087***(0.034)
Unexplained	Self-employed	0.015***(0.004)
Unexplained	Family helper	-0.004*** (0.001)
Unexplained	Constant	$0.168 \ (0.109)$

Source: CHIP 2018. Standard errors are in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively. Only significant coefficients are reported.

Table 4: Regression Results for 2018

Variable	Pooled	Women	Men
East region	0.092*** (0.009)	0.119*** (0.014)	0.088*** (0.012)
Urban residence	0.060***(0.012)	0.120***(0.020)	0.065***(0.016)
Education years	0.037****(0.002)	0.038***(0.003)	0.030***(0.002)
Non-education years	-0.000 (0.000)	-0.001* (0.001)	-0.002*** (0.001)
Good health	0.073**(0.029)	$0.056 \ (0.047)$	0.084** (0.037)
Political identity	0.094***(0.014)	0.154***(0.024)	0.035** (0.017)
Single child	-0.011 (0.013)	$0.015 \ (0.021)$	-0.065*** (0.017)
Han ethnicity	-0.017 (0.019)	-0.045 (0.028)	-0.010 (0.024)
Has contract	0.259***(0.012)	0.290***(0.019)	0.251****(0.016)
Good job	0.242***(0.012)	0.257***(0.021)	0.197**** (0.014)
State-owned	-0.055*** (0.013)	-0.099*** (0.022)	-0.039** (0.017)
Foreign-owned	-0.058*** (0.016)	-0.067*** (0.026)	-0.061*** (0.021)
Secondary industry	0.238***(0.022)	0.061*(0.035)	0.258***(0.029)
Tertiary industry	0.074***(0.022)	-0.017 (0.033)	0.117**** (0.028)
Self-employed	0.058***(0.014)	-0.025 (0.021)	0.088***(0.017)
Family helper	-0.236*** (0.039)	-0.057 (0.046)	-0.399*** (0.068)
Constant	2.194*** (0.048)	2.194***(0.076)	2.362***(0.062)
R-squared	0.133	0.186	0.105
Adj R-squared	0.133	0.185	0.104
Root MSE	0.745	0.719	0.745
N	30128	11854	18274

Source: CHIP 2018. Standard errors are in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively. Only significant coefficients are reported.

Table 5: Summary Statistics by Marriage Status and Age

Group	Obs	Mean Age
Married men	15,630	44.28
Married women	10,435	41.12
Unmarried women	1,419	25.58
Unmarried men	2,644	26.83
Men, age 25	1,658	22.48
Women, age 25	1,234	22.66
Men, $25 < age 50$	11,807	38.18
Women, $25 < age 50$	8,837	38.11
Men, age $> 50$	4,809	57.20
Women, age $> 50$	1,783	56.42

Source: CHIP 2018.

Table 6: Oaxaca-Blinder Decomposition by Marriage Status for 2018

Section	Term	Unmarried	Married
Overall	men	2.907*** (0.014)	3.095*** (0.007)
Overall	women	2.845*** (0.019)	2.788***(0.009)
Overall	difference	0.062**(0.024)	0.307****(0.011)
Overall	explained	-0.040*** (0.011)	0.025***(0.005)
Overall	unexplained	0.102***(0.024)	0.282***(0.011)
Explained	East region	-0.002 (0.001)	-0.003*** (0.001)
Explained	Urban residence	0.008 (0.004)	-0.006*** (0.001)
Explained	Education years	-0.079*** (0.009)	-0.005** (0.002)
Explained	Non-education years	0.033***(0.006)	0.001*(0.001)
Explained	Political identity	-0.002 (0.002)	0.004***(0.001)
Explained	Has contract	-0.018*** (0.004)	-0.001 (0.002)
Explained	Good job	-0.001 (0.002)	0.019***(0.002)
Explained	state-owned	-0.000 (0.001)	0.002**(0.001)
Explained	secondary industry	$0.049 \ (0.026)$	0.029***(0.006)
Explained	tertiary industry	-0.027 (0.028)	-0.016*** (0.006)
Unexplained	Urban residence	-0.111*** (0.032)	-0.019 (0.020)
Unexplained	Non-education years	$0.004 \ (0.059)$	0.124***(0.043)
Unexplained	Political identity	-0.007 (0.007)	-0.010** (0.004)
Unexplained	Family helper	-0.001 (0.002)	-0.003** (0.001)
Unexplained	Constant	-0.376 (0.475)	0.122 (0.144)

Source: CHIP 2018. Standard errors are in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively. Only significant coefficients are reported. Workers aged 50 and older are excluded to avoid non-linearity in the sample.

The details of the pooled and separate regression for the married and unmarried decomposition are reported in Table 7 and Table 8, respectively.

Table 7: Regression Results for Unmarried Workers in 2018

Variable	Pooled	Women	Men
East region	0.082** (0.024)	0.127** (0.039)	0.065* (0.030)
Urban residence	-0.067* (0.030)	0.085 (0.051)	-0.136*** (0.038)
Education years	0.057****(0.005)	0.047***(0.008)	0.064***(0.006)
Non-education	0.016***(0.002)	0.014***(0.004)	0.015***(0.003)
years			
Good health	$0.186 \ (0.125)$	$0.003 \ (0.341)$	$0.214 \ (0.134)$
Political identity	0.067 (0.047)	$0.121\ (0.070)$	$0.018 \; (0.064)$
Single child	$0.005 \ (0.026)$	$0.022 \ (0.045)$	-0.026 (0.032)
Han ethnicity	$0.013 \ (0.044)$	$0.054 \ (0.073)$	-0.007 (0.055)
Has contract	0.225***(0.028)	0.260***(0.044)	0.212*** (0.036)
Good job	0.166***(0.028)	0.204***(0.047)	0.143***(0.035)
Foreign-owned	-0.077* (0.035)	-0.154** (0.059)	-0.039 (0.045)
Secondary industry	0.236*(0.101)	-0.019 (0.271)	0.265*(0.109)
Tertiary industry	0.108 (0.100)	$-0.054 \ (0.268)$	$0.143 \ (0.108)$
Self-employed	-0.083 (0.060)	0.137 (0.122)	-0.159* (0.069)
Family helper	-0.328** (0.117)	-0.297 (0.235)	-0.361** (0.137)
Constant	1.565***(0.177)	1.895*** (0.456)	1.519*** (0.197)
R-squared	0.113	0.135	0.117
Adj R-squared	0.110	0.125	0.111
Root MSE	0.686	0.675	0.688
N	3978	1401	2577

Source: CHIP 2018. Standard errors are in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively. Only significant coefficients are reported. Workers aged 50 and older are excluded to avoid non-linearity in the sample.

Table 8: Regression Results for Married Workers in 2018

Variable	Pooled	Women	Men
East region	0.121*** (0.011)	0.141*** (0.017)	0.120*** (0.015)
Urban residence	0.063***(0.016)	0.110****(0.025)	0.080***(0.021)
Education years	0.042***(0.002)	0.042***(0.003)	0.037***(0.003)
Non-education years	0.003***(0.001)	-0.001 (0.001)	0.004***(0.001)
Good health	0.101*(0.042)	$0.078 \ (0.060)$	0.112*(0.057)
Political identity	0.126***(0.017)	0.146***(0.027)	0.066**(0.022)
Single child	$0.020 \ (0.016)$	$0.031 \ (0.025)$	-0.032 (0.020)
Han ethnicity	$0.005 \ (0.023)$	-0.033 (0.032)	$0.010 \ (0.031)$
Has contract	0.222***(0.015)	0.272***(0.021)	0.187**** (0.020)
Good job	0.248***(0.014)	0.246***(0.023)	0.189***(0.017)
State-owned	-0.054** (0.017)	-0.083** (0.026)	-0.050* (0.022)
Foreign-owned	-0.065*** (0.021)	-0.044 (0.031)	-0.087*** (0.027)
Secondary industry	0.238***(0.032)	0.146**(0.047)	0.218***(0.044)
Tertiary industry	0.110****(0.032)	$0.052 \ (0.045)$	0.148***(0.043)
Self-employed	0.068***(0.016)	$0.013 \ (0.025)$	0.053*(0.021)
Family helper	-0.158** (0.052)	$0.027 \ (0.058)$	-0.352** (0.106)
Constant	2.003***(0.069)	2.028*** (0.100)	2.150***(0.093)
R-squared	0.139	0.190	0.102
Adj R-squared	0.138	0.188	0.101
Root MSE	0.718	0.700	0.705
N	18611	8316	10295

Source: CHIP 2018. Standard errors are in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively. Only significant coefficients are reported. Workers aged 50 and older are excluded to avoid non-linearity in the sample.

Table 9: Oaxaca-Blinder Decomposition by Age for 2018

Section	Term	14-25	26-50	above 50
Overall	group_1	2.846*** (0.017)	3.083*** (0.007)	2.820*** (0.013)
Overall	group_2	2.737*** (0.020)	2.800*** (0.008)	2.490*** (0.021)
Overall	difference	0.109***(0.027)	0.284***(0.011)	0.329***(0.024)
Overall	explained	-0.013 (0.011)	0.018***(0.005)	0.108***(0.012)
Overall	unexplained	0.122***(0.026)	0.266***(0.010)	0.221****(0.024)
Explained	East region	$0.000 \ (0.001)$	-0.003*** (0.001)	-0.002 (0.001)
Explained	Urban residence	$0.005 \ (0.003)$	-0.006*** (0.001)	-0.001 (0.001)
Explained	Education years	-0.055*** (0.010)	-0.008*** (0.002)	$0.006 \ (0.006)$
Explained	Non-education	0.018***(0.005)	0.001*(0.000)	$0.008 \; (0.004)$
	years			
Explained	Political identity	-0.001 (0.001)	0.003***(0.001)	-0.000 (0.003)
Explained	Has contract	-0.007* (0.004)	-0.003* (0.001)	0.028***(0.004)
Explained	Good job	$0.000 \ (0.002)$	0.017****(0.002)	0.022***(0.003)
Explained	State-owned	$0.000 \ (0.001)$	0.002**(0.001)	$0.005 \ (0.003)$
Explained	Collective-owned	$0.002 \ (0.002)$	0.001*(0.001)	-0.004 (0.003)
Explained	Secondary	$0.009 \ (0.030)$	0.032***(0.006)	0.028**(0.008)
	industry			
Explained	Tertiary industry	$0.016 \ (0.031)$	-0.019*** (0.006)	$0.009 \ (0.005)$
Explained	Family helper	-0.000 (0.001)	0.002*(0.001)	0.009*(0.004)
Unexplaine	dNon-education	$0.032\ (0.136)$	0.147***(0.040)	$0.050 \ (0.243)$
	years			
Unexplaine	dPolitical identity	-0.005 (0.005)	-0.010* (0.004)	-0.017 (0.009)
Unexplaine	dSingle child	$0.000 \ (0.016)$	-0.009* (0.004)	-0.002 (0.004)
Unexplaine	dHas contract	-0.020 (0.014)	-0.023** (0.008)	-0.007 (0.012)
Unexplaine	dGood job	-0.013 (0.012)	-0.013** (0.005)	-0.017* (0.008)
UnexplainedSecondary		$0.024\ (0.096)$	$0.032 \ (0.024)$	0.112****(0.024)
	industry			
Unexplaine	dTertiary industry	$0.060 \ (0.295)$	$0.069 \ (0.047)$	0.105*(0.047)
Unexplaine	dSelf-employed	$0.002 \ (0.007)$	$0.004 \ (0.005)$	0.056***(0.015)
Unexplaine	dFamily helper	$-0.003 \ (0.003)$	-0.004** (0.001)	-0.005 (0.005)
Unexplaine	dConstant	$-0.482 \ (0.520)$	0.095 (0.141)	-0.213 (0.341)

Source: CHIP 2018. Standard errors are in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively. Only significant coefficients are reported. The

details of the pooled and separate regression for the age-stratified decomposition are reported in Table 10, Table 11, and Table 12, respectively.

Table 10: Regression Results for Workers Below 14-25 in 2018

Variable	Pooled	Women	Men
East region	0.050 (0.028)	0.077 (0.044)	0.027 (0.037)
Urban residence	-0.066 (0.036)	$0.039 \ (0.057)$	-0.114* (0.046)
Education years	0.066*** (0.007)	0.060*** (0.011)	0.075***(0.009)
Non-education	0.028*** (0.006)	0.027**(0.010)	0.030***(0.008)
years			
Good health	-0.096 (0.205)	-0.315 (0.485)	-0.004 (0.225)
Political identity	$0.034 \ (0.071)$	$0.105 \ (0.100)$	-0.045 (0.101)
Single child	$0.003 \ (0.030)$	-0.014 (0.049)	-0.013 (0.039)
Han ethnicity	$0.051 \ (0.050)$	$0.037 \ (0.075)$	$0.051 \ (0.067)$
Has contract	0.218***(0.035)	0.270***(0.051)	0.180***(0.047)
Good job	0.167****(0.035)	0.203***(0.055)	0.130**(0.046)
Foreign-owned	-0.077 (0.035)	-0.160* (0.067)	$0.013 \ (0.057)$
Secondary industry	$0.059 \ (0.130)$	-0.028 (0.239)	$0.074 \ (0.155)$
Tertiary industry	-0.101 (0.129)	$-0.149 \ (0.235)$	-0.071 (0.153)
Self-employed	$0.008 \ (0.064)$	-0.035 (0.107)	$0.020 \ (0.081)$
Family helper	-0.011 (0.122)	$0.171 \ (0.219)$	-0.120 (0.146)
Constant	1.770***(0.277)	2.073*** (0.581)	1.591***(0.321)
R-squared	0.094	0.103	0.097
Adj R-squared	0.089	0.091	0.089
Root MSE	0.679	0.684	0.672
N	2892	1234	1658

Source: CHIP 2018. Standard errors are in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively. Only significant coefficients are reported.

Table 11: Regression Results for Workers 26-49 in 2018

Variable	Pooled	Women	Men
East region	0.122*** (0.011)	0.146*** (0.016)	0.117*** (0.015)
Urban residence	0.051**(0.016)	0.118*** (0.024)	0.057**(0.020)
Education years	0.041***(0.002)	0.040***(0.004)	0.039***(0.003)
Non-education years	0.003** (0.001)	-0.001 (0.001)	0.005***(0.001)
Good health	0.115**(0.041)	$0.078 \; (0.059)$	0.144***(0.054)
Political identity	0.123****(0.017)	0.143*** (0.026)	0.068*** (0.021)
Single child	$0.014\ (0.015)$	$0.038 \; (0.024)$	-0.040* (0.019)
Han ethnicity	-0.002 (0.022)	-0.029 (0.032)	-0.001 (0.030)
Has contract	0.223***(0.014)	0.269***(0.021)	0.196***(0.019)
Good job	0.241***(0.014)	0.243***(0.023)	0.185****(0.017)
Foreign-owned	-0.066*** (0.020)	-0.044 (0.030)	-0.088*** (0.025)
Secondary industry	0.243***(0.032)	0.139**(0.047)	0.239***(0.042)
Tertiary industry	0.121****(0.031)	$0.057 \ (0.045)$	0.168***(0.042)
Self-employed	0.057****(0.016)	$0.014\ (0.025)$	0.043*(0.021)
Family helper	-0.211*** (0.052)	$0.001 \ (0.058)$	-0.456*** (0.101)
Constant	2.015*** (0.068)	2.057****(0.101)	2.066*** (0.089)
R-squared	0.136	0.193	0.101
Adj R-squared	0.135	0.192	0.100
Root MSE	0.717	0.698	0.707
N	19697	8483	11214

Source: CHIP 2018. Standard errors are in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively. Only significant coefficients are reported.

Table 12: Regression Results for Workers Above 50 in 2018

Variable	Pooled	Women	Men
East region	0.040 (0.020)	0.034 (0.037)	0.061 (0.024)
Urban residence	$0.023 \ (0.026)$	0.111*(0.049)	$0.016 \ (0.030)$
Education years	0.015**(0.004)	$0.008 \; (0.008)$	$0.003 \ (0.005)$
Non-education years	-0.019*** (0.002)	-0.022*** (0.004)	-0.022*** (0.002)
Good health	$0.023 \ (0.045)$	$0.032 \ (0.084)$	$0.024 \ (0.053)$
Political identity	$0.021\ (0.028)$	0.141*(0.066)	-0.021 (0.031)
Single child	$0.014 \ (0.058)$	$0.048 \; (0.117)$	-0.012 (0.065)
Han ethnicity	-0.078 (0.044)	-0.186* (0.080)	-0.038 (0.051)
Has contract	0.334***(0.033)	0.350***(0.066)	0.336***(0.037)
Good job	0.265***(0.029)	0.439***(0.071)	0.206***(0.031)
Foreign-owned	-0.067* (0.028)	-0.153** (0.054)	-0.049 (0.032)
Other ownership	-0.040 (0.038)	-0.084 (0.074)	-0.036 (0.043)
Secondary industry	0.193***(0.036)	-0.163* (0.066)	0.233***(0.044)
Tertiary industry	-0.046 (0.034)	-0.162** (0.056)	-0.013 (0.042)
Self-employed	$0.023 \ (0.027)$	-0.153** (0.047)	0.105**(0.033)
Family helper	-0.300*** (0.068)	-0.170* (0.085)	-0.347** (0.114)
Constant	3.479***(0.131)	3.759***(0.247)	3.698*** (0.156)
R-squared	0.137	0.180	0.118
Adj R-squared	0.135	0.174	0.116
Root MSE	0.817	0.799	0.811
N	7539	2137	5402

Source: CHIP 2018. Standard errors are in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively. Only significant coefficients are reported.

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