The Effect of the Spouse's Income on Employment Decisions - a Study Based on Gender Disparities Perspective

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Abstract

This research employs the Probit model and mediating effect models to investigate the effects and mechanism of the spouse's income on individual employment decisions from the perspective of gender disparities, drawing on data from the 2010-2018 China Household Tracking Survey (CFPS). Findings suggest that the impact of absolute spouse's income on employment decisions varies by gender, with higher husband income inhibiting the wife's labor force participation and vice versa.

In terms of the mechanism of influence, the time spent on doing housework and wife's socioeconomic status can explain the cause. It is also discovered that the "independent side" of the family has a negative impact on the labor force participation rate of the "dependent" side, regardless of gender. Thus, the emphasis on narrowing the income gap among genders in the labor market is crucial to increase its labor force participation rate and promoting labor market equity in China.

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1. Introduction

We should continue to adhere to the basic state policy of equality between men and women, thoroughly implement the Women's Development Program, continuously improve the environment for women's development, promote women's equal exercise of rights, participate in economic and social development and share the development in accordance with the law, as stated clearly in the outline of China's 14th Five-Year Plan and 2035 Vision Plan. With the deepening reform of the economic system, although inhabitants in China are seeing increases in their income, the country is also seeing a widening income gap as its economy rapidly develops. According to the World Bank, China's labor force participation rate fell by 10.56% for men and 11.21% for women during the 30 years from 1990 to 2020，which indicates that the gender disparities in labor force participation in China are obvious, and the withdrawal of female from the labor market is an important reason for the decline in labor force participation rate in China. Thus, which factors contribute to the existence of the gender gap?

Overseas research on gender disparities in the labor market has advanced along the economic efficiency to institutional culture direction. The focus of analysis has evolved from micro concerns like labor supply and intra-household efficiency maximization to macro issues like social policy and religious culture (Davis and Robinson, 1988). To maximize the utility of household resources, the more productive market party does more market labor and the more productive household party does more housework, so goes the classical household economics theory. Becker pointed out that the higher wage level of men is the primary factor in the rise of the "male-inside dominated, female-outside dominated" model (Becker, 1991). Bernasco found that the spouse's wealth resources hinder the wife's or husband's labor engagement and occupational achievement, while the spouse's human resources promote the wife's or husband's labor participation and occupational achievement (Bernasco, 1998). Domestic scholars have primarily explained gender inequalities at two levels: institutional and conceptual. Firstly, at the institutional level, economic system reform promotes the development of private enterprises, resulting in a more competitive labor market (Chen et al. 2016, Luo et al. 2019), while market-oriented reform also brings changes in the child care system, with child care gradually shifting from state or unit provision to market provision, both of which reduce female labor force participation to some extent (Du and Dong, 2010). Secondly, at the conceptual level, as a country with thousands of years of agrarian civilization and influence by Confucianism, traditional gender division of labor patterns and ideas have been deeply rooted, which may further reinforce the division of roles in which women withdraw from the labor market and engage in household production (Guo, 2012 and Zhao, 2019).

Existing research has, in general, examined the factors that led to the development of conventional divisions of labor and analyzed the reasons for the declining female labor force participation rate in the context of China's current situation. However, two limitations remain in the existing research. First, present research on gender

disparities mostly focuses on causes at the macro level, such as gender discrimination in the labor market and regional economic development. Few studies have analyzed it in the context of the micro household level, which is the basic unit of social composition and plays an important role in individual labor participation decisions. Many family decisions, including those involving labor supply and the professional advancement of both spouses, are made together rather than unilaterally (Duan, 2019). Hence, studies comparing men and women in the labor market should take the impact of spouses in the family into consideration. Second, in terms of individual employment decisions, existing studies on the influencing factors of employment decisions are mainly analyzed from the perspectives of human capital, social security, number of children, and intergenerational relationships; instead, papers studied the influence of spouses on employment decisions are scant. Although some studies have included the influence of the spouse in the consideration of employment choices (Bernasco 1998 and Zhao 2019), the spouse's income is singularly set as the absolute income of the spouse for analysis and consistent research findings have not been achieved, meanwhile, the mechanism of the spouse's income influence on employment decisions is still unclear. In response to these two deficiencies, this research seeks to answer two key questions.

Based on these two shortcomings, this paper addresses two main questions. First, what are the differences in the direction and magnitude of the influence of absolute and relative spouse's income on individual employment decisions for different gender groups? Second, what is the mechanism of the influence of the spouse's income on individual employment decisions?

2. Theoretical basis and research hypothesis

There are currently two academic views on the influence of the spouse's income on employment decisions. The first is the "spousal disincentive theory," which argues that factors such as a spouse's wealth and status negatively impact individual employment decisions (Yao and Tan, 2005). The second is the "spousal facilitation theory," which suggests that the spouse's socioeconomic status can expand the social network shared by the couple and therefore has a facilitating effect on individual labor participation (Duan, 2019).

Research supporting the "spousal disincentive theory" has focused on both the comparative advantage theory and the traditional division of labor in the family. First, according to the comparative advantage theory, because men are more productive in terms of their ability to earn economic income in the labor market, and women have a natural advantage in childbearing and child care, as well as being more efficient in household production, women devote more time to household production to maximize household income and utility (Yamaguchi and Wang, 2002 and Zhao, 2019). After assessing their relative advantages, most wives will forego their careers and devote themselves to family care in the overall interests of the family (Li, 2014). As a result, the more prominent the husband's competence in the

Labor market, the less likely women are to participate in the labor force. Second, perceptions also influence human behavior. Our conventional patriarchal system, which emphasizes the subordination of women to male dominance and the lower status of women in the household, is the main reason for preserving and expanding gender disparity. According to some experts, male control over women is not only coercive through power, resource distribution, and dominance in the division of labor, but also conventional gender notions and consciousness also cause women to accept the system voluntarily (Liu, 2009 and Zhou, 2009). As a result, the low family status of women, influenced by traditional notions, has a strong negative impact on women's participation in the labor force and the construction of career paths. This leads to the first hypothesis in this paper.

Hypothesis 1: The higher income of the husband, the lower the labor force participation rate of the wife.

The mechanism of the "spousal disincentive theory" in China remains unclear. According to the specialization hypothesis, to maximize family benefits, the time and wealth of the couple will be redistributed within the family. In common, Women will take on more housework while men will focus on their careers, and the difference in housework burden will affect women's market labor time and energy, then spontaneously reduce the labor participation rate of married women (Maani and Cruickshank, 2010). Due to the limited energy and time of humans, the spouse may invest less in the labor market and dedicate more time and effort to the family if the other spouse has a higher financial position and reward in the labor market. (Hersch and Stratton, 2002). This brings us to the second hypothesis.

Hypothesis 2: Housework has a negative effect on individual labor force participation and plays a mediating role in the influence of the spouse's income on individual employment decisions.

The arguments in favor of the "spousal facilitation theory" can be analyzed from two perspectives: gender perceptions and social capital. According to the "neutralization theory of gender deviance", when wives and husbands' socioeconomic status deviates from the traditional gender image, they will take the initiative to construct the traditional gender image in the family division of labor to compensate for it and thus maintain their gender identity (Bittman et al., 2003). Couples who deviate from the traditional gender image in patriarchal societies and traditionalist conceptions of gender will protect and enhance their masculine identity by actively changing the household division of labor, with women taking on more housework, enabling them to conform to social expectations of femininity and to maintain their gender identity; men protect and enhance their masculine identity by working outside the home (West and Zimmerman, 1987). Therefore, as the wife's income increases, the wife's time spent caring for the family relatively decreases, and the husband may take care more of the family, resulting in a

deviation from the traditional gender image in the division of labor, which may motivate the husband to seek employment outside the home as a means of resolving the couple's gender identity crisis. This leads to the third hypothesis in this paper.

Hypothesis 3: An increase in the wife's income will increase the husband's labor force participation rate.

According to the literature on the effects of social capital on labor force participation, the individual's network scale, economic and social status are positively associated with the individual labor force participation rate and career advancement (Duncan, 1961, Bian and Zhang, 2001, Liu, 2014). Bernasco contends that an individual career decision is positively influenced by the social resources and professional achievement of their spouse since the spouse is part of a social network that has a "strong link" with the individual (Bernasco et al., 1998). The higher the social status and the wider the social network boundaries of the spouse, the more employment resources and channels are available to the wife or husband, and since both spouses can share social network resources, this has a significant effect on the employment decisions of individuals (Bian et al., 2005). This leads to the fourth hypothesis in this paper.

Hypothesis 4: The spouse's socioeconomic status mediates the effect of the spouse's income on the promotion of individual labor force participation.

3. Model Design

3.1 Models and Methods

According to the theoretical model of employment decisions, individuals choose to enter or exit the labor market depending on the comparison between the market wage and the reservation wage. First, individuals choose to enter the labor market when the market wage is higher than the reservation wage, and they choose to leave the labor market when the market wage is lower than the reservation wage. Second, the market wage of an individual is determined by the individual human capital, while the individual reservation wage is mainly influenced by a combination of personal and family factors.

The determining equation for calculating the market wage is more specifically described as:

$$s_m = N_1\beta + \varepsilon_1 \tag{1}$$

s_m is the market wage. N_1 is the factor that determines the market wage, mainly including individual age, years of education, health status, and other factors.

The determining equation used to calculate the reservation wage is:

$$s_r = N_2\gamma + \varepsilon_2 \tag{2}$$

s_r is the reservation wage. N_2 is the factor that determines the reservation wage, including not only personal factors such as an individual age, years of education and health, but also factors such as the number of children and whether they need to care for their parents or not.

Whether an individual enters or exits the labor market will be determined by equation (3).

$$W_i = s_m - s_r = N_1\beta - N_2\gamma + \varepsilon_1 - \varepsilon_2 \tag{3}$$

When $W_i > 0$, the individual chooses to enter the labor market, at which point $Y_i = 1$; conversely, when $W_i < 0$, the individual chooses to exit the labor market, at which point $Y_i = 0$. Assuming that ε_i obey the normal distribution with zero mean constant variance, set $v = \varepsilon_1 - \varepsilon_2$, then v_1 also obeys the normal distribution with zero mean constant variance, and set $\omega = N_1\beta - N_2\gamma$.

The impact of N_1 on labor participation decisions can be further concluded as equation (4).

$$P(Y_i = 1) = P(W_i > 0) = P(v > -w) = 1 - F(w) \tag{4}$$

F is the cumulative distribution function and the probability of individual participation in market labor is jointly determined by N_1 and N_2, assuming that ω obeys the normal distribution, and the Probit model is used for estimation. The specific model is set as follows.

$$Work = (\beta_0 + \beta_1 income + \beta_{2i} Z_i + \varepsilon_i)$$

$Work$ means individual labor supply decisions. $income$ is on behalf of the spouse's income. Z_i is control variables, including the variables years of education, age, nature of household registration, health status, number of children, Whether the parents live together, and social security. ε_i is the error term.

3.2   Data sources

The China Family Tracking Survey (CFPS) was conducted by the China Social Science Survey Center (ISSS) of Peking University in 2010 and covered 25 provinces/municipalities/autonomous areas in China with a sample size of 16,000 households, which tracked data at the individual, household, and community levels, covering many keynotes such as family relationships, economic activity, and personal perspectives. It has a high level of national representation. The data from

2010, 2014 and 2018 are selected and the married groups are set as the research object, the family relationship variable in CFPS data is applied to match all couples, except for school students, retired, incapable of working and military service families. Then, this paper selects women aged 20-55 and men aged 22-60 in terms of age factor. The final valid household data for 2010, 2014 and 2018 were obtained as 12,472, 10,681 and 7,053 respectively.

To further investigate the trend of the effect of the spouse's income on individual employment as time goes, the data were combined in this paper to create a panel data for 2010-2018.

3.3   Variable description

Table 1: Names and definitions of variables

Category	Variable Name	Variable Meaning and Assignment
explanatory variable	employment decisions *(ED)*	1 = working, otherwise 0
Core explanatory variables	The spouse's income *(SI)*	Continuous variables
	total personal income *(TPI）*	Continuous variables
Individual characteristics variables	Age*(age)*	Continuous variables
	Years of education *(YE)*	Continuous variables
	Education level (EL)	Continuous variables
	nature of household registration *(NHR)*	1=urban, 0=rural
	Health status *(HS)*	Unhealthy = 0, fair health = 1, very healthy = 2
Household characteristics variables	Number of children *(NC)*	Continuous variables
	Number of underage children *(NUC)*	Continuous variables
	Whether the parents live together *(PL)*	1=yes, otherwise 0
Social characteristics variables	Social Security *(SS)*	1= Access to at least one of public medical care, work injury insurance, minimum living security, housing fund, unemployment insurance, urban basic pension insurance, otherwise 0

The labor force participation rate, which is obtained from answers to the question about "current work status" in the questionnaire, serves as the explanatory variable. The sample of retired, retired, and incapacitated workers was excluded according to the "reason for not working" option, and the sample of full-time students was excluded according to the "current schooling status" option. The core explanatory variable is the spouse's income, and the absolute income of the spouse is defined using the "total personal income of the spouse in the past year" in the questionnaire. To facilitate income comparisons, the spouse's income was converted to actual income based on the price index from 2010 to 2018, and the spouse's total personal income in the questionnaire was logarithmized. The control variables were divided into three categories: (1) Individual characteristic variables such as age, years of education, nature of household registration, and health status; (2) Household characteristic variables, such as the number of underage children, whether live with the elderly or not; (3) Social characteristic variables, as social security status. The names and definitions of the variables are shown in Table 1.

Table 2: Descriptive statistics of the variables

	2010		**2014**		**2018**	
	Average value	**Standard deviation**	**Average value**	**Standard deviation**	**Average value**	**Standard deviation**
HWD	0.712	0.453	0.943	0.231	0.955	0.207
WED	0.538	0.499	0.777	0.416	0.807	0.394
HTPI	16324.15	25033.87	16902.96	25074.74	24048.46	353275.44
WTPI	6665.85	13185.07	7685.801	16220.93	11806.17	23249.23
H age	41.094	9.410	40.363	9.360	42.219	9.268
W age	39.105	9.279	38.556	9.238	40.438	9.212
HYE	8.219	4.174	8.314	4.165	8.712	4.233
WYE	6.915	4.649	7.064	4.695	7.598	4.887
HNHR	0.288	0.453	0.238	0.426	0.226	0.418
WNHR	0.256	0.436	0.222	0.416	0.212	0.409
HHS	1.431	0.682	1.232	0.757	1.108	0.746
WHS	1.309	0.725	1.083	0.794	1.017	0.765
NC	1.616	0.892	1.545	0.849	1.714	0.831
NUC	0.749	0.997	1.209	1.214	1.454	1.320
PL	0.364	0.481	0.631	0.850	0.372	0.483
HSS	0.871	0.335	0.918	0.275	0.929	0.255
WSS	0.843	0.364	0.918	0.275	0.927	0.261

Note: Husband's in this table is abbreviated as H; Wife's in this table is abbreviated as W, and the same as later.
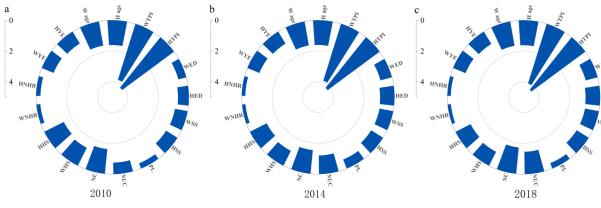
Figure 1: Descriptive statistics results

The results of descriptive statistics show that the labor force participation rate and income level of both men and women have gradually increased, with the average income of men increasing more and the relative income gap between men and women widening as well, indicating the existence of obvious gender differences. In addition, as the income keeps increasing, the standard deviation of income also tends to increase, indicating that as economies expand, the income gap keeps widening and the gap between rich and poor becomes more obvious. Men have more accumulated human capital and are higher than women in terms of age, years of education, and health status when it comes to individual characteristics. In terms of household characteristics, the number of children declined in 2014 but increased in 2018, while the proportion of people living with the elderly remained the same and at a lower level. The participation rates in social security increased year over year with a small standard deviation for both men and women, indicating that social security coverage is more extensive and essentially without gender difference.

Since individuals have different labor force participation rates at different human capital accumulation as well as life course stages, this paper combines the data from 2010–2018 into a panel data and counts the labor force participation of men and women separately by age, education, economic status, and family structure. The results are shown in Table 3.

Table 3: Descriptive statistics for the labor supply subsample

	Male			Female		
age	Under 30	31-45	45-60	Under 30	31-45	45-55
ED	88.54%	89.59%	83.73%	59.46%	69.64%	69.59%
EL	Middle school and below	High School/Junior College	College and above	Middle school and below	High School/Junior College	College and above
ED	85.53%	85.78%	89.52%	68.77%	65.21%	84.20%
SIL	Low	Middle	High	Low	Middle	High
ED	74.59%	78.55%	88.76%	60.57%	61.16%	74.05%
NC	0	1	$\geqq 2$	0	1	$\geqq 2$
LFPR	86.83%	88.68%	94.01%	75.30%	75.93%	71.95%

Age is the main factor affecting individual labor force participation. As age increases, human capital accumulation and labor force participation rate increase, while physical strength and energy gradually decrease. The results of descriptive statistics show that there is no significant gender difference in the labor force participation rate with age, and the labor force participation rate increases and then decreases with age for both males and females, but there is a significant difference between the corresponding labor force participation rates of males and females in the same age, with the largest gender difference in the labor force participation rate for the 32-45 age group. The reason may be that the physical strength of men in this age group is much higher than that of women, and they are significantly more competitive in the labor market. Women are more likely to leave the labor market due to the increased pressure of childbirth and family care.

Education level is an important indicator of labor market competitiveness. As shown in the above table, with the promotion of education level, the labor force participation rate of both men and women increases significantly and the gap between men's and women's labor force participation rate is narrowing, for example, the gap between men's and women's labor force participation rate with middle school education level and below is 16.76% while the gap between men's and women's labor force participation rate with college education level and above is 5.32%, with the promotion of education, the gap is narrowed by 11.44%. Improving education levels can promote employment and alleviate labor shortages, and paying attention to improving women's education levels can significantly increase women's labor force participation rate and effectively reduce gender disparities.

Family economic status and structure are important factors affecting the labor force participation of married groups. This paper follows Juhn & Murphy's approach to classifying the household's economic status into low, medium and high based on the spouse's income (Juhn and Murphy, 1997). Households with the spouse's income in the bottom 20% of the income distribution curve are defined as low spouse's income households; those with the spouse's income levels between 40% and 60% are classified as medium spouse's income households; and those in the top 20% are classified as high spouse's income households.

The results show that the labor force participation rate increases with increasing the spouse's income for both men and women. This may be because as the household income increases, the social resources of the household also increase, resulting in more employment opportunities and higher labor force participation rates. In terms of family structure, the labor force participation rate of men increases as the number of children increases, while the labor force participation rate of women increases and then decreases as the number of children increases. Combining the "income effect" and "substitution effect", can be analyzed the reasons as follows: when there is no children or only one child, the time spent on family care is relatively less, and more women choose to enter the labor market to relieve the economic pressure of the family, the "income effect" is greater than the "substitution effect" then; When there are more than two children, the time spent on family care increases significantly and women cannot balance family care and work, so some women choose to withdraw from the labor market, at this time, the "substitution effect" is greater than the "income effect".

4. Empirical Results and Analysis

4.1 Baseline regression analysis

This paper applies the Probit model to test the effect of the spouse's income on individual employment decisions, and the regression results for 2010, 2014, and 2018 are shown in Table 4.

Table 4: Effect of absolute spouse's income on individual employment decisions

	2010		2014		2018	
	HED	**WED**	**HED**	**WED**	**HED**	**WED**
SI	0.081***	-0.025**	0.083*	-0.109***	0.021	-0.019
	(0.012)	(0.014)	(0.037)	(0.28)	(0.697)	(0.020)
YE	0.032***	0.036***	0.012**	0.017**	0.029**	0.037***
	(0.005)	(0.004)	(0.011)	(0.005)	(0.013)	(0.001)
age	0.005***	0.152***	0.138***	0.308***	0.073**	0.035***
	(0.496)	(0.148)	(0.036)	(0.021)	(0.134)	(0.027)
NHR	-0.128**	-0.189***	-0.059	-0.279***	-0.172**	-0.162**
	(0.048)	(0.041)	(0.093)	(0.051)	(0.107)	(0.062)
HS	0.100**	0.064**	0.258***	0.112***	0.288***	0.076**
	(0.029)	(0.022)	(0.003)	(0.028)	(0.064)	(0.034)
age^2	-0.001	-0.002***	-0.002***	-0.004***	-0.001*	-0.004***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
PL	-0.079**	-0.011	-0.062	0.021	-0.049	0.144**
	(0.047)	(0.036)	(0.048)	(0.026)	(0.099)	(0.004)
NC	-0.010	-0.062**	0.013	-0.087**	0.029	-0.159***
	(0.028)	(0.022)	(0.052)	(0.027)	(0.052)	(0.030)
SS	0.621***	0.553***	0.279**	0.034***	0.040**	0.198**
	(0.055)	(0.042)	(0.116)	(0.069)	(0.138)	(0.089)
Observations	5029	7068	2913	4482	2357	3395

Note: Probit models report marginal effects; standard errors in parentheses, ***,**, and* indicate significance at the 1%, 5%, and 10% levels relatively, and the same later.

Controlling for personal, family, and social characteristics, the wife's income level has a facilitating effect on the husband's labor force participation; with the higher the wife's income level, the higher the husband's labor force participation rate; while the husband's income level has a significant inhibiting effect on the wife's labor force participation, with the higher the husband's income, the lower the wife's labor force participation rate. The possible reason is that, influenced by traditional gender consciousness, when the wife's income level increases, the division of labor within the household deviates from the traditional gender image, prompting the husband to work outside to maintain a traditional couple relationships and reduce the potential family conflict. For wives, as their husbands' income levels increase, they tend to withdraw from the labor market and choose to take care of the family because of less family financial pressure. Meanwhile, the significance of the spouse's influence on individual employment decisions is decreased over the years, probably because in recent years, China pays more attention to narrowing gender disparities, traditional gender concepts is weakened continuously, and women's employability is improved, so significance of women's influence by the husband's income gradually decreases. Overall, the husband's income level inhibits the wife's labor participation and the wife's income level promotes the husband's labor participation, hypotheses 1 and 3 are confirmed.

4.2   Mediating effect test
4.2.1   Testing the mediating effect of "spousal disincentives"

According to the specialization hypothesis, wives usually take on more housework and have less time on market labor, thus suffering low wages or dropping out of the labor market. Combined with the spouse's income analysis, as the husband's income increases, the household income level increases, the household financial pressure decreases, and the wife allocates more time to household labor. In this analysis, the increase in the husband's income affects to increase in the wife's housework time and thus inhibits the wife's labor force participation rate.

To test this hypothesis, this paper refers to the "mediating effect model" used by (Chen, 2019) to examine the mechanism of marital status on women's wages, and introduces "hours of housework in a week" as a mediating variable, with higher values indicating more child care. Using panel data from 2010 to 2018, the following model is constructed to determine whether the number of hours of housework plays a "mediating role" between the husband's income and the wife's employment decisions.

$$Y = \partial_1 + \beta_1 X + \varepsilon_1 \tag{5}$$

$$Y = \partial_2 + \beta_2 X + \varepsilon_2 \tag{6}$$

$$Y = \partial_3 + \beta_3 X + \beta_4 W + \varepsilon_3 \tag{7}$$

Where Y is the dependent variable, which is employment decisions, and X is the independent variable, the log of the spouse's income and other control variables are included, and W is the mediating variable, which is housework time (HW) here, and ∂ is the intercept, β denotes the regression coefficient, and ε denotes the error term. If the β_1 in equation (5) is significant, it indicates that there is a linear relationship between employment decisions and the spouse's income; if the β_2 is significant, it indicates that there is a linear relationship between child care and the spouse's income; if the β_4 is significant and β_3 is significantly smaller than β_1 in equation (5). If the above conditions are satisfied, then the effect of the spouse's income on employment decisions is partly direct and partly mediated by child care, indicating at least a partial mediating effect. If all of the above conditions are met but β_3 is insignificant, the effect of the spouse's income on employment decisions is entirely mediated through child care, and child care plays a full mediating effect. Based on the method proposed by Sobel to test for the presence of a mediating effect, constructing $Z = \beta_2\beta_4 \ / \sqrt{\beta_2^2\beta_{\beta_4}^2 + \beta_4^2\beta_{\beta_2}^2}$ to determine whether the mediating effect exists by testing whether the Z statistic is significant.

Table 5: Whether housework a mediating variable of husband's income to inhibit wife's labor participation: OLS regression

Variable Name	Dependent variable		
	WED	**HW**	**WED**
SI	-0.217***	3.96***	-0.206***
	(0.005)	(0.149)	(0.006)
HW			-0.007***
			(0.001)
YE	0.005***	-0.041*	0.006***
	(0.001)	(0.021)	(0.001)
age	0.005***	0.177*	0.005***
	(0.003)	(0.084)	(0.003)
NHR	-0.069***	-0.137	-0.074***
	(0.008)	(0.227)	(0.009)
HS	-0.005	1.953***	0.002
	(0.003)	(0.110)	(0.005)
age2	-0.001***	-0.005***	-0.001***
	(0.001)	(0.001)	(0.001)
PL	0.012**	-0.724***	0.003
	(0.004)	(0.121)	(0.005)
NC	0.009**	-2.923***	-0.014**
	(0.003)	(0.107)	(0.005)
SS	0.117***	-3.073***	0.116***
	(0.010)	(0.286)	(0.012)
Observations	20141	13771	13771

The results indicate that there is a significant positive effect of the husband's annual income on the wife's housework time, i.e., when all else is equal, women with higher husbands' income take on more housework. The regression coefficient of the husband's annual income in the fourth column is compared with the coefficient in the second column by adding both the variables of the husband's annual income and housework time, and it is found that the regression coefficient of the husband's annual income on wife's employment decisions decreases after adding housework time. It indicates that the higher the husband's income is, the longer the wife's housework time is, and more housework reduces women's labor force participation, so ignoring housework time would underestimate the positive effect of the spouse's income on women's employment. Sobel's Z-test shows that housework hours play a significant mediating role in the effect of the spouse's income on wife's employment decisions, with a mediating effect of about 11.63%, a Sobel test value of -0.027, and p value of 0, rejecting the original hypothesis $\beta_2 \beta_4 = 0$ so the mediating effect exists. Hypothesis 2 is proved.

4.2.2   Testing the mediating effect of "spousal facilitation"

The baseline regression results show that controlling for other variables, the wife's income level has a significant contribution to the husband's labor force participation, which is consistent with the "spousal contribution theory". To verify the influence mechanism of this view, this paper uses panel data from 2010 to 2018 to determine whether wife's socioeconomic status mediates the relationship between the wife's income and the husband's employment decisions by constructing a "mediating effect model". The wife's socioeconomic status was measured by using the "ISEI score of the wife's occupation" in the questionnaire and was introduced as a mediating variable, a higher value of ISEI score indicating a higher socioeconomic status of the wife. The regression results of the mediating effect model are shown in Table 6.

Table 6: Whether wife's socioeconomic status is a mediating variable of wife's income to facilitate husband's labor participation: OLS regression

Variable Name	Dependent variable		
	HED	**WISEI**	**HED**
SI	0.047***	2.42***	0.003***
	(0.002)	(0.198)	(0.047)
WISEI			0.025***
			(0.004)
YE	0.006***	0.576***	0.008***
	(0.001)	(0.082)	(0.002)
age	0.004	-0.042	-0.001
	(0.003)	(0.282)	(0.006)
NHR	-0.028**	1.334**	-0.027
	(0.008)	(0.737)	(0.015)
HS	-0.005	0.025	0.127***
	(0.001)	(1.265)	(0.026)
age2	-0.001	-0.001	-0.001***
	(0.001)	(0.003)	(0.001)
PL	-0.002	-1.331**	-0.012
	(0.002)	(0.436)	(0.001)
NC	0.023***	0.346	-0.008
	(0.003)	(0.423)	(0.009)
SS	0.144***	4.145***	0.188***
	(0.011)	(0.887)	(0.018)
Observations	8887	4554	4554

The results show that there is a significant positive correlation between the wife's income level and socioeconomic status, and comparing the coefficient of the effect of wife's income level on the husband's labor force participation in columns 2 and 4 reveals that the coefficient decreases from 0.0047 to 0.003 after adding the variable of the wife's socioeconomic status. This result can tentatively indicate that the spouse's socioeconomic status plays a role in the contribution of the spouse's income to individual labor force participation. This result may tentatively suggest that spouse's socioeconomic status mediates the effect of the spouse's income on individual labor force participation. Sobel's Z test shows that the wife's socioeconomic status partially mediates the model' with a mediating effect of about 27.86% and a Sobel test value of 0.010, with p value of 0. Hypothesis 4 is confirmed.

5. Heterogeneity analysis

5.1   Family income level

To further test the robustness of the results, this paper draws on Juhn and Murphy's (Juhn and Murphy, 1997) method to classify household income levels into three groups: low, middle and high, where households with income in the bottom 20% of the income distribution curve are defined as low-income households; those with income levels between 40% and 60% are classified as middle-income households; and those in the top 20% are classified as high-income households. The effect of the spouse's income on individual labor participation under different household economic conditions is examined and gender disparities are analyzed.

Table 7: Effect of the spouse's income on individual employment decisions with different household income levels

	Male			Female		
	Low income level	**Middle income level**	**High income level**	**Low income level**	**Middle income level**	**High income level**
SI	0.094*** (0.014)	0.191*** (0.011)	0.729 (1.011)	0.019 (0.020)	0.064*** (0.011)	-0.369** (0.133)
Control variables	Have	Have	Have	Have	Have	Have
Observations	4354	8887	1287	3978	12642	911

The results show that for low-income families, the wife's income level has a significant promotion effect on the husband's employment while the husband's income level does not have a significant effect on the wife's labor participation, probably because the low-income couples are not highly educated and the concept on traditional family division " male-inside dominated, female-outside dominated " is stronger; For middle-income families, the spouse's income level has a significant contribution to both husband and wife, indicating that the "income effect" is greater than the "substitution effect" at this time, and the economic pressure of the family is greater, so that despite the increase in the spouse's income, wife and husband still choose to work outside the home; for high-income families, the change in wife's income has no significant effect on the husband's labor force participation, and the increase in the husband's income at the 5% level significantly suppresses wife's labor force participation, indicating that high-income households have less economic pressure, the "substitution effect" is greater than the "income effect" at this time, and wives shift more time and energy to the family.

5.2 Human Capital

Education level is an important factor affecting employment decisions and income. In this paper, individuals with education at the high school level or below are classified as low-educated workers and those with college education or above are classified as high-educated workers, and the effect of the spouse's income on individual labor participation with different education is examined and gender differences are analyzed, the regression results are shown in Table 8.

Table 8: Effect of the spouse's income on individual employment decisions with different education levels

EL	Male		Women	
	Low-educated	**High- educated**	**Low-educated**	**High-educated**
SI	0.043^{***} (0.003)	0.007^{**} (0.004)	0.025^{***} (0.016)	0.016 (0.080)
Control variables	Have	Have	Have	Have
Observations	7412	1475	11135	1507

For men, the increase in the wife's income was a significant contributor to the labor force participation rate for both low- and high-educated husbands. For women, the increase in the husband's income is only a significant contributor to the labor force participation rate of wives with low education levels, and has no significant effect on the labor force participation rate of wives with high education levels, probably because women with high education have higher autonomy in labor force participation and therefore are not significantly influenced by their spouse's income.

5.3 Urban-rural differences

Influenced by the urban-rural dichotomy, there are certain differences in labor participation between urban and rural areas in China. This paper divides the sample into urban and rural samples according to the nature of household registration to examine the effect of the spouse's income on individual labor participation, and the regression results are shown in Table 9.

Table 9: Effect of the spouse's income on individual employment decisions with different household registration

NHR	Male		Women	
	Rural	**Urban**	**Rural**	**Urban**
SI	0.037^{***} (0.013)	0.032^{***} (0.024)	0.021^{***} (0.012)	0.034^{***} (0.021)
Control variables	Have	Have	Have	Have
Observations	5670	3217	8956	3686

The effect of wife's income on men's labor force participation rate in rural areas is greater, with 1% increase in wife's income increasing men's labor force participation rate in urban areas by 3.2%, while men's labor force participation rate in rural areas increased by 3.7%. It is possible that men in rural areas have greater labor force participation elasticity compared to that in urban areas, so labor force participation decisions are more sensitive to changes in wife's income. The marginal effect of the husband's income level on the labor force participation rate of women in urban areas is greater, with a 1% increase in the husband's income level increasing the labor force participation rate of women in rural areas by 2.1% and that of women in urban areas by 3.4%. It is possible that urban women's labor force participation decisions are more sensitive to changes in their husband's income because the social network is closer in urban areas and the higher socioeconomic status of men in urban areas will be more helpful for their wives to find jobs.

6. Further Research

Although the study found gender disparities in the effect of absolute spouse's income on individual employment decisions, women's economic contributions in the household are increasing as the development of women's education level, labor participation and social status in China. The increasingly insignificant negative effect of the husband on wife's labor participation in the baseline regression also shows that women's decision-making authority in the family is also increasing, and the influence of traditional perceptions on women's employment decisions is weakening. According to relative resource theory, the ability to get economic income in the labor market is an important basis for spousal authority within the household, and whoever is more profitable in the market is more likely to have greater decision-making authority. Sun defines the spouses involved in the division of labor as the "independent side" (the individual with higher relative income) and the "dependent side" (the individual with lower relative income) (Sun, 2018) as housework is often considered as unpaid labor and assigned as lower value (Bryan and Sevilla-Sanz, 2011), as a result, the "independent side" has more decision-making power in the household and can demand that the "dependent side" perform intra-household labor, and the "dependent side" gives more time to care for the household, thus the labor force participation rate decreases. This leads to the fifth hypothesis in this paper.

Hypothesis 5: The higher the income of the "independent side", whether husband or wife, the lower the labor force participation rate of the "dependent side".

In order to identify the " independent side " and "dependent side", this paper draws on the construction of economic dependence on previous studies (Sorensen and McLanahan, 1987, Brines, 1994, Greenstein, 2000), we define economic dependence on the spouse = (annual spouse's income - annual income of individual) / (annual individual income + annual spouse's income), and the value of economic

dependence ranges from -1 to 1. -1 means no economic dependence on the spouse at all, 0 means the same income of spouse and no economic dependence, and 1 means complete economic dependence on the spouse. Thus, we can determine that individuals who are financially dependent on their spouse > 0 is the "dependent side", and those who are financially dependent on their spouse < 0 is the "independent side". Figure 2 depicts the trend of the average dependence of individuals on their spouses in 2010, 2014 and 2018.
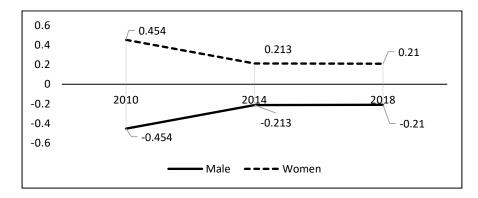

Figure 2: Trend of dependence on spouse economy

As shown in Figure 2, the husband's economic dependence on the wife has been negative, while the wife's economic dependence on the husband has been positive. It indicates that the husband plays an "independent role" in the household income and the wife is more financially dependent on her husband. In terms of values, the wife's economic dependence on her husband has been decreasing year by year, indicating that the wife has been decreasing her economic dependence on her husband and has become more financially independent in the family.

In the following, using panel data from 2010-2018, the Probit model is applied to explore the effect of relative spouse's income on individual employment decisions. Table 10 reports the regression results.

Table 10: Effect of economic dependence on individual employment decisions

	Male		Female	
	Independent side	**Dependent side**	**Independent side**	**Dependent side**
dependency	0.014	-0.057***	0.028*	-0.440***
	(0.029)	(0.081)	(0.080))	(0.042)
YE	0.009***	0.008***	0.010***	0.007***
	(0.004)	(0.008)	(0.008)	(0.003)
age	0.005*	0.007	0.037***	0.052***
	(0.015)	(0.026)	(0.029)	(0.012)
NHR	0.030***	-0.060***	0.002	-0.108***
	(0.043)	(0.072)	(0.078)	(0.035)
HS	-0.050***	-0.022	-0.005	-0.018***
	(0.057)	(0.083)	(0.041)	(0.018)
age^2	-0.001*	-0.001	-0.001***	-0.001***
	(0.001)	(0.001)	(0.001)	(0.002)
PL	-0.001	-0.005	0.013	0.012*
	(0.019)	(0.043)	(0.043)	(0.019)
NC	0.042***	0.048***	0.022**	0.022***
	(0.021)	(0.040)	(0.038)	(0.016)
SS	0.092***	0.128***	0.059***	0.143***
	(0.050)	(0.594)	(0.090)	(0.046)
Observations	10557	2937	2937	10557

The results show that for individuals on the "dependent side" in the family, either husband or wife, economic dependence on spouse has a significant negative effect on their labor force participation rate; for individuals on the "independent side" in the family, the spouse's income has no significant effect on husband, while the spouse's income at the 10% level significantly facilitate the wife. This regression result indicates that the labor supply decision of the household is mainly made by comparing the relative income of the two parties, and individuals with low relative income, both men and women, are more likely to withdraw from the labor market. Hypothesis 5 is confirmed.

Analyzing the effect of the spouse's income on employment decisions from the perspective of relative income can further understand the reasons for gender differences. Since men are mostly the "independent side" of the family, when the wife's income level is lower than the husband's income level, the effect of the wife's income on the husband's employment decisions is not significant. Since women are the "dependent side" in the household economy, when the husband's income increases, the economic pressure on the household decreases and the wife is less likely to choose to enter the labor market, and will return to the family due to the pressure of family care.

7. Conclusions and Recommendations

Based on CFPS data from 2010-2018, this paper uses the Probit and mediating effect models to explain the gender disparities in the effects of the spouse's income on individual labor force participation, and focuses on the influence mechanisms of "spousal facilitation theory" and "spousal disincentives theory". The study shows that there are gender disparities in the effects of the spouse's income on individual labor participation, and the effect of the husband's income on the wife's labor participation rate is consistent with the "spouse suppression theory", while the effect of the wife's income on the husband's labor participation rate is consistent with the "spouse facilitation theory". In terms of the influence mechanism, housework time is the mediating variable of the spouse's income suppressing individual labor participation, with a mediating effect of 11.63%; spouse's socioeconomic status is the mediating variable of the spouse's income promoting individual labor participation, with a mediating effect of 27.86%. At the same time, there is some heterogeneity in the effect of the spouse's income on individual labor force participation rate. According to household income level, the increase of the spouse's income has a significant positive effect on men at low- and middle-income levels and women at middle income levels, but has no significant effect on men at high income levels and women at low-income levels, and a significant negative effect on women at high income levels.

In terms of education level, the marginal effects of the spouse's income on men and women with low education level are 4.3% and 2.5% respectively, and the marginal effects of the spouse's income on men and women with high education levels are 0.7% and 1.6% respectively. In terms of the nature of the household registration the 1% increase in the wife's income increases the labor force participation rate by 3.2% for men in urban areas and 3.7% for men in rural areas; the 1% increase in the husband's income level increases the labor force participation rate by 2.1% for women in rural areas and 3.4% for women in the urban areas. It indicates that the labor force participation of low educated men in rural areas and low educated women in the urban areas is more sensitive to changes in the income level of their spouses. Further, it is found that the economic dependence on the spouse of the individual on the "dependent side" of the household, whether husbands or wives, has a significant negative effect on their labor force participation rates. This result empirically explains the gender disparities in the effect of the spouse's income on individual labor force participation.

Based on the analysis of the findings, focusing on incentivizing women to enter the labor market is an important means to alleviate the labor shortage and increase the labor force participation rate. At present, the low human capital level of women, the large gender income gap, the underage child care and elderly care systems all have a negative impact on the labor force participation rate of women. To mitigate the impact of these factors, on the one hand, the government needs to pay attention to women's education level and education quality, providing education and training for the low educated group, and improving women's competitiveness in the labor

market. On the other hand, in order to cope with the pressure of family care brought by the aging population and the two-child policy, the government should improve the public service system of preschool education, housekeeping service and elderly care systems as soon as possible, so as to alleviate the conflicting relationship between family care and work for women to a greater extent. Additionally, changing traditional gender discrimination concepts is an important measure to guarantee better access to the labor market for women.

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