

# ***Analysis of Female Employment Situation Based on Data from Jilin Province in China***

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**Abstract:** In recent years, China's GDP has continued to grow, yet the labor share has not increased in a consistent manner. This paper employs an empirical analysis based on data from Jilin Province, China. It uses questionnaires and econometric modeling methods to investigate the role of gender in economic life and the role of other factors (such as employment pressure, the role of unions, etc.) in this process. The questionnaire survey examines the current state of gender employment discrimination in China, focusing on the existence, causes, and influencing factors of employment discrimination. In constructing the econometric model, this paper assumes a negative relationship between the proportion of female employees and the labor share, while there is a positive relationship between female education level and the labor income share. The two hypotheses, based on common sense and literature, are then tested by an econometric model. The results indicate that the proportion of female employees is indeed negatively correlated with the share of labor income, suggesting that women face more significant employment challenges.

**Keywords:** Gender Discrimination, Economic Growth, Gender Dividend, Female Employment

## **1. Introduction**

Much of the previous material attributes women's lack of dominance in the workplace to gender stereotypes. Elizabeth H. Gorman proposed that gender stereotypes in selection criteria and decision makers' same-sex preferences exacerbate gender inequality in employment [1]. SHILIANG TANG et al. claimed that there is a strong gender bias in job listings, but that bias has decreased dramatically over the last decade, particularly in some specialized professional fields, which are now more feminine [2]. Nicole Parcheta et al. argue that while women have achieved significant advances in education and careers, they still do not receive equal pay and advancement in the workplace [3]. Women are known to earn less than men. These studies also indicate that gender discrimination in the workplace is likely to be harmful to the economy. China's economy is currently undergoing high-quality development. As a result, Zhilei Shi et al. argued that the gender dividend is not only a significant boost to future economic growth, but also plays an important role in poverty alleviation [4]. The above literature examines the influencing variables and critical roles of women's employment from many perspectives. Employment is merely a general labor problem, whereas female employment is both a labor problem and a problem of gender discrimination in the job market. Many studies on female employment discrimination and economic development now

rely on mature labor markets in foreign nations. However, because China's labor market is still developing, relevant research from other countries is important but does not fully reflect Chinese conditions. Therefore, this paper does empirical research using pertinent data from China, namely Jilin Province.

## **2. Methodology**

The methodology and underlying assumptions of this paper are presented. Through the questionnaire method and econometric modeling, it aims to comprehensively analyze the phenomenon of gender discrimination encountered by women in employment, which can provide a reliable research basis and in-depth analysis.

### **2.1. Method**

#### **2.1.1. Questionnaire Survey Method**

This paper focuses on the topic of gender discrimination encountered by women in employment, investigating the specific manifestations and causes of gender discrimination encountered by women in employment. The questionnaire requires the respondents to give independent answers in an anonymous way, and then the survey results are preliminarily classified and sorted out. Finally EXCEL software is used for statistical analysis to obtain the analysis data.

#### **2.1.2. Econometric Model Method**

This paper takes Jilin Province in China as an example, based on relevant population and employment data of Jilin Province, and establishes a multiple linear regression model after data processing to test the causal relationship between gender discrimination and economic development, analyzing and evaluating the results. Finally, the robustness of the empirical results is tested to obtain a relatively reliable empirical conclusion.

### **2.2. Hypotheses**

The term "gender dividend" was first coined by Carmen Pages and Claudia Piras in 2010. It is defined as the contribution of women to society and the family, and the potential for increasing women's employment opportunities to contribute to current economic growth and poverty eradication. This paper posits that the improvement of female labor participation and social participation rates, brought about by the promotion of women's status, is conducive to the improvement of women's individual quality and comprehensive development, as well as the development of the social economy on a macro level. In light of the reality of Jilin Province, this paper assumes:

H1: There is a negative relationship between the proportion of female employees and the share of labor income.

At the same time, since education is the foundation of a country, generally speaking, the higher a person's education level, the more competitive the job market and the higher the income. So suppose:

H2: The more educated women are, the greater the labor share is.

## **3. Gender Inequality in China's Labor Market**

In this survey, online questionnaires were distributed, and 251 questionnaires were collected. Ten cases were interviewed, thus providing sufficient evidence to support the reliability of the sample.

Questionnaires were distributed on various social platforms and conducted at random. In terms of the gender ratio of the respondents, women accounted for a large proportion, representing 78% of the sample, while men accounted for 22%. Gender discrimination in employment is a form of discrimination against gender, which can be attributed to multiple reasons. A review of the survey and literature reveals that the current employment discrimination faced by women encompasses the following aspects:

### 3.1. Discrimination in Different Industries

In terms of industry discrimination, the IT industry exhibited the most pronounced gender discrimination, as evidenced by the results of the sample analysis. Figure 1 illustrates that 178 respondents identified the IT industry as the most discriminatory, representing 70.92% of the total respondents. The construction industry (153 respondents) and the manufacturing industry (138 respondents) were the next most discriminatory, accounting for 54.98% and 50.2% of the total respondents, respectively. A minority of respondents indicated that women in education and service industries were severely discriminated against, accounting for 17.13% and 15.94% respectively. It can be observed that in industries such as manufacturing, IT, and finance, despite societal emphasis on gender equality, in many cases employers prioritize hiring men.

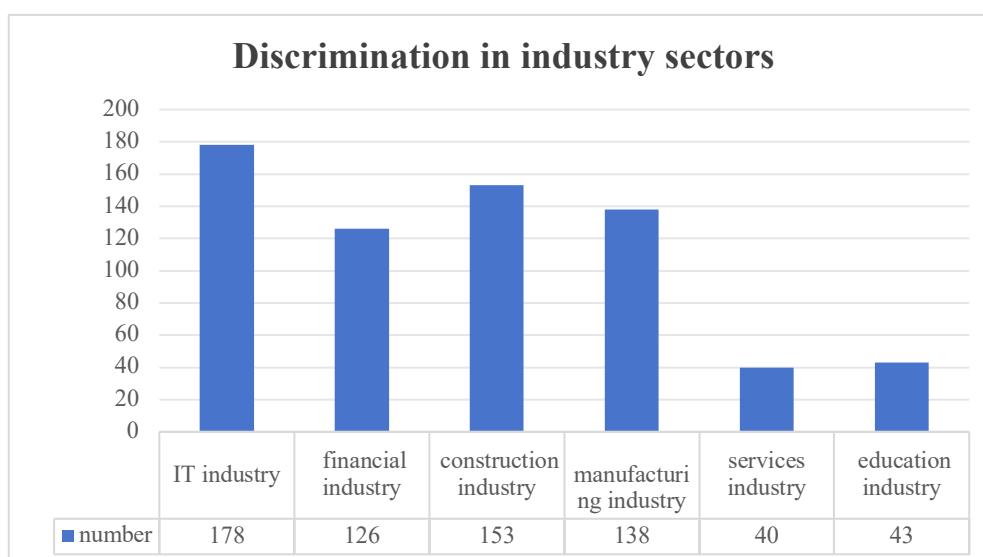


Figure 1: Discrimination in industry sectors

### 3.2. Discrimination in Industry Access

As illustrated in Figure 2, among the 251 respondents to the survey, 198 indicated that women have been subjected to discrimination in employment since the resume screening stage. It is noteworthy that 234 respondents perceived that it is more challenging for women to secure employment than for men, representing 93% of the total respondents. The 186 respondents indicated that the prevalence of male-preferred or male-only positions has constrained women's access to employment. As evidenced by the survey results, the current state of affairs is that women have already been subjected to gender discrimination in the employment access stage. Consequently, the employment threshold for women is higher than that for men, resulting in a waste of human resources and a considerable number of women experiencing difficulty in realizing their social value.

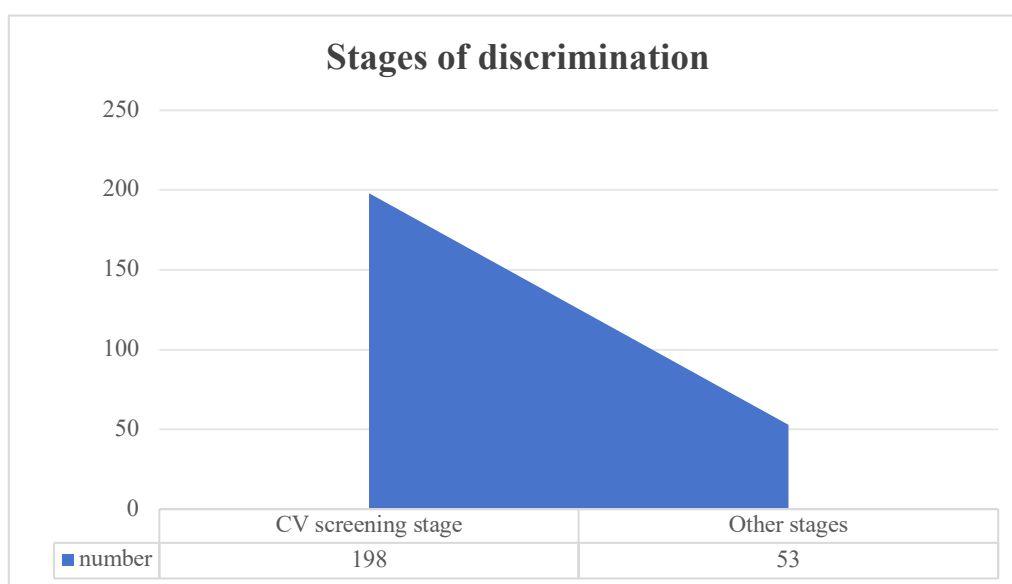


Figure 2: Stages of discrimination

### 3.3. Discrimination of Female Biological Factors

The survey revealed that a significant number of companies engage in discriminatory practices against women due to their physiological conditions, including, but not limited to, menstrual periods, pregnancy, and special physical conditions of women during the perinatal period. Currently, the 20s represent a period of high fertility for women, yet it is also a time when a considerable number of women are actively seeking employment. Consequently, for employers, many female employees will enter into marriage and childbirth after entering the workforce, resulting in maternity leave and other leave, which increases the employer's employment cost. For cost reasons, employers are certainly unwilling to pay for this part of the cost. From the questionnaire, 85% of respondents believe that only women are asked about their marriage and romantic relationships, which is evidence of discrimination against women in employment.

### 3.4. Welfare Discrimination

In the survey analysis of the sample, 136 respondents believe that there is still a phenomenon of unequal pay for the same work. That is to say, when men and women have the same education, ability and position, the welfare of male employees is better than that of women. In terms of development opportunities, many respondents also said that women do not get the same personal development opportunities as their male counterparts, most senior leadership positions are held by men, and women are promoted much more harshly than men.

### 3.5. Implicit discrimination

Among many phenomena of discrimination against women, implicit discrimination has caused the biggest repercussion. A total of 221 respondents, or 88%, considered this to be a form of employment discrimination against women. Implicit discrimination means that employers do not announce that they only need male employees recruiting, but exclude women from the employment list under the pretext of "poor workplace conditions" and "high work intensity" in the specific employment process. It is also employment discrimination against women.

## 4. Empirical design

### 4.1. Description of Variables

In order to study the impact of the proportion of female employment on the labor share, the following econometric model was constructed with reference to the practice of Jiang Lei et al. [5]:

$$LS_t = a_1 + b_1 FER_t + b_2 WED_t + b_3 UN_t + b_4 UE_t + b_5 IS_t + b_6 urbic_t + b_7 RA_t + \varepsilon_t \quad (1)$$

In this model,  $t$  represents different periods ( $t=1,2,\dots T$ ).  $a_1$  is the total average intercept term, and  $b_1, b_2, b_3, b_4, b_5, b_6, b_7$  are the parameter vectors to be estimated.  $LS$  is the labor share, which is the explained variable of the model.  $FER$  is the proportion of female employees in the total number of employees;  $WED$  is the educational level of women. These two are the explanatory variables of the model.  $UN$  is the role played by labour unions in the process of protecting workers' rights and interests;  $UE$  is the employment pressure,  $IS$  is the industrial structure,  $urbic$  is the per capita disposable income of urban residents;  $RA$  is the gender ratio. These five variables are the control variables of the model.  $\varepsilon$  is the model error term.

The gross regional product (GRP) calculated by the income method includes such issues as laborers' remuneration, net production tax, depreciation of fixed assets and operating surplus, among which laborers' remuneration refers to the total remuneration obtained by laborers engaged in production activities. The labor share refers to the proportion of workers' compensation to the gross regional product.

Since the proportion of female employees in provincial units is not included in China Labor Statistics Yearbook and Jilin Statistical Yearbook, the proportion of female employees in all employed persons is measured by that in urban units. So there is a defect, that is, ignoring township enterprises and private enterprises.

The level of female education is measured by the average number of years of schooling for women. The formula for calculating the average years of schooling in this paper is:

$$EDU = (0n_1 + 6n_2 + 9n_3 + 12n_4 + 16n_5) / (n_1 + n_2 + n_3 + n_4 + n_5) \quad (2)$$

where  $n_i$  ( $i=1,2,3,4,5$ ) represents the number of female above the age of 6 who have not attended school, finished primary school, finished middle school, finished high school or finished college. The original data comes from China Labor Statistics Yearbook.

The role of labour unions is measured by the number of union members in state-owned enterprises in Jilin Province. The employment pressure indicator is expressed by the unemployment rate. In theory, the higher the unemployment rate, the greater the pressure on employment. This paper uses the urban registered unemployment rate of Jilin Province. Considering that surplus agricultural labor will flow to cities and towns to seek employment opportunities, which makes the urban registered unemployment rate rise, it is believed that the urban registered unemployment rate can also reflect the employment pressure of towns and villages to a certain extent. Based on the above reasons, this paper chooses the urban registered unemployment rate to measure the employment pressure.

This paper assumes that the modern sector is the secondary industry and the tertiary industry. The development level of the industrial structure can be measured by the proportion of the number of employees in the secondary industry and the tertiary industry in the total number of employees. The per capita disposable income and gender ratio of urban residents are directly derived from the China Statistical Yearbook.

The original data came from China Statistical Yearbook, China Labor Statistics Yearbook, Jilin Statistical Yearbook and National Bureau of Statistics. It should be noted that the data of female education and sex ratio in Jilin Province in 2010 are missing, which is supplemented by linear interpolation method in this paper.

## 4.2. Measurement results and interpretation

### 4.2.1. Basic regression

The model shows that the explanatory variable FER of the proportion of female employed personnel is significant at the level of 5%, and the number of female education years WED is significant at the level of 10%. In addition, the role of trade unions (UN) and the gender ratio (RA) are also significant at at least 10%. The remaining control variables of per capita disposable income, employment pressure UE and industrial structure IS did not reach significant level. After the overall adjustment of the model,  $R^2=91.08\%$ , indicating that these independent variables have great explanatory power to the dependent variables as shown in table 1.

Table 1: outcome of basic regression

VARIABLES	LS
FER	-3.228** (-4.69)
WED	-0.193* (-3.24)
UN	0.000** (4.33)
UE	0.019 (1.06)
IS	0.512 (2.70)
urbic	0.000 (2.04)
RA	-0.013* (-4.27)
Constant	4.033* (3.98)
Observations	10
R-squared	0.980
F test	0.0677
$r^2_a$	0.911
F	14.12

t-statistics in parentheses

\*\*\*  $p<0.01$ , \*\*  $p<0.05$ , \*  $p<0.1$

According to the results, hypothesis 1 is valid, that is, the proportion of female employees has a negative impact on the labor income share. This study verifies the research of Jiang Lei that the decline in the proportion of female employees in central and western regions is conducive to increasing the share of labor income [5].

Hypothesis 2 is not valid, which does not correspond to reality. First, considering the lack of data on female education in Jilin in 2010, the linear interpolation method is used to supplement, which is

not completely true data. On the other hand, the population corresponding to the data sample is the female above 6 years old rather than the working female group, among which a large number of female children and adolescents are not employed, so it is difficult to measure their labor remuneration. As a result, the data used in this paper are generally short in terms of years of education compared with the real employed women, and the results are inaccurate.

There is a significant positive effect between the role of unions and the share of labor income, which is consistent with economic reality. In the process of economic and social development, labour unions have played an important role. As the representative and defender of workers' interests, labour unions in China are conducive to coordinating the relationship between employees and enterprises, making important contributions to promoting economic growth and building a harmonious society and enabling workers to fulfill their duties and abilities, which plays a role in improving workers' earnings.

Other control variables can also provide some reference value. The industrial structure shows obvious positive effect, which accords with the economic reality. The overall proportion of the secondary and tertiary industries in Jilin's GDP has gradually increased, of which the tertiary industry has contributed the most.

The reason why the employment pressure has not reached a significant level may be that the quantity of agricultural surplus labor force in Jilin Province is huge, so the use of urban registered unemployment rate to measure its employment pressure has obvious defects.

#### 4.2.2. Robustness test

In order to further test the analysis results of the paper, the robustness test is carried out by the supplementary variable method.

Table 2: outcome of robustness test

VARIABLES	LS
FER	-4.084* (-8.61)
WED	-0.253* (-6.72)
UN	0.000* (8.90)
UE	0.012 (1.21)
IS	0.485 (5.08)
urbic	0.000 (4.84)
RA	-0.018* (-7.65)
TL	-0.178 (-2.63)
Constant	5.462* (7.34)
Observations	10
R-squared	0.997
F test	0.109



Table 2: (continued).

$r^2_a$	0.977
F	49.87

t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

In addition to the factors involved in the model, there are still many factors affecting women's employment in reality, such as the level of technological development. Given that technological development helps to narrow the physical strength gap between men and women, it is expected that the higher the technology level, the higher the labor share. The technology level (TL) is measured by the proportion of invention patent and utility model patent in Jilin Province. The results in table 2 showed that technical level TL was not significant, which reject the hypothesis, and other results were basically unchanged, indicating that the regression results were relatively robust.

This paper posits that there are two reasons why the level of technology is insignificant. On the one hand, there are errors in the measurement method, and on the other hand, the reality that the technological development level of Jilin Province is not high should be considered.

## 5. Solutions

### 5.1. Employment Policy

Firstly, the government should implement legislative reforms and enhance social security policies. Secondly, it should reinforce supervision and address issues such as gender discrimination in the workplace. Thirdly, the government should leverage its organizational advantages, integrate resources, and conduct targeted recruitment initiatives to facilitate women's employment. Additionally, it should disseminate information about the employment concept and gender equality, and advocate for the diversification of social division of labor.

### 5.2. Education Policy

It can be argued that universities and colleges can play a role in reducing gender inequality and enhancing women's sense of self-worth by adjusting the content of school education. Anyalebechi proposes that equality between men and women can only be achieved if all women are aware of their dignity as human beings and no longer succumb to their lowly status [6]. In addition, schools should provide comprehensive gender education for teachers. This case can subtly alter students' perceptions of gender inequality in education, thereby increasing women's awareness of their personal dignity. Only when the majority of women in society recognize their intrinsic value and begin to reject inequality can they effectively challenge gender inequality in society.

## 6. Conclusion

The empirical analysis of the sample data indicates a significant negative correlation between the proportion of female employees and the share of labor income in Jilin Province. Despite Jilin's historical adherence to China's family planning policy and relatively balanced gender ratio, women account for a greater proportion of illiterate individuals than men. These findings highlight the challenging employment landscape for women in the context of China's economic development. China is still a developing country, and women are facing significant challenges in the process of China's economic development and transition. If these challenges are not addressed, they will have a negative impact on the development of women as individuals, intensifying social inequity, hindering social stability, and causing China to lose the advantage of low labor costs. Conversely, if



these challenges are improved, female employment could generate a gender dividend to compensate for the diminishing demographic dividend.

This study is not without limitations. The absence of certain data, which has not been disclosed, has necessitated the use of indirect means to obtain data, which may differ from the actual data to some extent. This has the potential to introduce inaccuracies into the study, affecting its rigor. To address this, future studies could analyze more years and regions to mitigate the impact of missing data.

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