

The Role of We-Media Development in Female Employment in China

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Abstract. In the context of the widening gender employment gap in China, this paper discusses whether the use of we-media can improve the employment rate of women. Closing the gender wage gap provides new impetus and is critical to achieving gender equality in China's labor market. Based on China provincial panel data from 2000 to 2020 and using 2015 as a time point, this paper establishes a multiple regression model to analyze the relationship between female employment and we-media. The paper also uses Variance Inflation Factor, F-test and Hausman test to identify the regression model. The result shows that we-media have some negative effect on female employment and developed cities are less affected than under-developed cities. The regression result has been influenced by statistical limitations in employment rates, the small sample of years and the COVID-19 pandemic. In this situation, more data will be used in the future to assist further analysis to reveal the true relationship.

Keywords: Female employment; we-media; equality.

1. Introduction

We-media refers to the method by which regular individuals disseminate their own information and news to the wider public using the internet and other mediums. It serves as a platform for ordinary people to contribute and distribute their own factual content and news by engaging with the global knowledge system through digital technology. It encompasses various forms of new media that are personalized, widely accessible, and independent channels for conveying both conventional and unconventional information to either a large audience or specific individuals [1].

In today's society, China exhibits employment inequality and women are still at a disadvantage in the job market [1]. In 2022, the average wage growth for Chinese women amounted to 5% compared to the same period in 2021, marginally surpassing the salary increase of their male counterparts in the workforce [2]. However, the employment rate of women remains lower than that of men, and the gender disparity persists [3]. The gender parity rate is still below its 2009 peak of 69% [4]. All of these data mean that parity in the labour-force participation is still a big problem and needs to be solved. In addition, from the perspective of China, adhering to the basic national policy of gender equality and promoting full employment are also requirements of the "14th Five-Year Plan" and the 2035 vision goal proposal. As a result, encouraging female employment not only benefit female themselves, but also can urge Chinese economy development.

As rapid development of technology, the gap between men and women in physical strength is narrowing and the digital economy has fostered an egalitarian view of gender, which means personal ability is more important in choosing who can be employed [5]. We-media, as a way that public people can use to share their opinion or life and even earn money, has become more and more popular. In addition, we-media through the internet is freer and easier for woman to do as their part-time or full-time jobs because it has low entry threshold and high randomness, suffering less gender discrimination. What's more, it can help them solve their worry about could not find a job or have a low wage.

There is some research about female employment and gender employment gap. Some scholars studied factors of women's employment from a macro and overall perspective, and they found that the concept of gender inequality has a great impact on women themselves and the overall female employment status in this region [6]. Other scholars also point out that women's education has

improved. However, it is also hard for them to get a job and their wages is lower than men, which means that the gender gap has improved, but the perception of gender inequality still has the potential to affect women's employment [7]. In addition, some scholars did some research about the relationship between foreign direct investment and women employment, from which they found that the use of foreign investment can increase the employment rate of women and narrow the employment gap [8]. While artificial intelligence would increase female employment threshold, it can also improve female employment status in the aspect of emotion and communication [9].

Another type of literature is about we-media. Under the development of new industries such as the internet, industrial integration has deepened, and the development of we-media has also promoted the development of a series of industries such as rural tourism [10]. What is more, we-media can also help people to replenish knowledge of the unknown and promote employment, which means that we-media is a good tool for both employers and social development [11]. There are lots of research about how to use we-media to improve economy and how to solve the negative effect of it about undergraduate physical and mental health. However, there is little research on whether we-media can be used as a tool to promote female employment.

The aim of this research is to find the role of we-media in promoting female employment. It will help to solve the problem of gender inequality in employment and promote further social and economic development.

2. Methodology

2.1. Data Sources

The present study encompasses empirical data from 30 provinces (including autonomous regions and municipalities) across China, spanning the years 2000 to 2023. The primary sources of this data are the China Statistical Yearbook, China Labor Statistics Yearbook, China Population and Employment Statistics Yearbook, and the World Bank. In order to find the influence of we-media, 2015 is used as a time point for dummy variable in this model. Moreover, Variance Inflation Factor (VIF) will be used to help determine whether there is multicollinearity and F-test and Hausman test will be used to help the model choose.

2.2. Model Selection

Female employment is influenced by age, education level and marriage, so the model is shown as below.

$$\text{Erate}_{it} = \alpha_0 + \alpha_1 \text{Digital}_{it} + \alpha_2 \text{Education}_{it} + \alpha_3 \text{Marriage}_{it} + \mu_{it} \quad (1)$$

The subscripts i and t represent provinces and years, respectively. The explanatory variable Erate_{it} is the female employment rate of Province in Year t , and the core explanatory variable Digital_{it} is whether there is we-media application in Province in year t . Marriage_{it} means a woman's marital status and Education_{it} means a woman's degree of education. In addition, if Year is more than 2015, Digital_{it} is 1, otherwise 0. If the woman has married, Marriage_{it} is 1, otherwise 0.

This paper selects 20 years of provincial data from 2000 to 2020 for analysis, with a total of 651 samples. The mean of the female employment rate is 43.196%, which is less than half of all labour force. Owing to different education level female has been employed, this paper chooses four different degrees female as the sample to analyze, which are high school education (Education H), junior college (Education Z), undergraduate (Education U) and graduate (Education G). Although COVID-19 might also affect female employment, as it just spanned over 2 years, the impact was not considered in this model [12].

3. Results

The outcome of the pairwise correlation analysis indicates that the primary explanatory variable, digital, demonstrates a significant negative correlation with Erate, which runs counter to the anticipated hypothesis, as illustrated in Table 1. Furthermore, education and marriage exhibit a significant correlation with Erate at a minimum significance level of 1% across all control variables. Given that the correlation coefficient matrix solely captures the relationship between two variables and does not account for the potential interference of control variables and other variables, the results should be regarded as preliminary and necessitate further regression analysis to determine the specific relationship. Additionally, by assessing whether the absolute value of the correlation coefficient between the explanatory variables surpasses 0.9, the likelihood of collinear variables can be preliminarily ruled out. From the result of mean VIF in Table 2, it is easy to find that 7.22 is less than 10 and more than 0, which means that there is no multicollinearity.

Table 1. Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Digital	1.000						
(2) Erate	-0.168* (0.000)	1.000					
(3) Education H	0.094* (0.017)	-0.522* (0.000)	1.000				
(4) Education Z	0.521* (0.000)	-0.461* (0.000)	0.559* (0.000)	1.000			
(5) Education U	0.614* (0.000)	-0.357* (0.000)	0.336* (0.000)	0.899* (0.000)	1.000		
(6) Education G	0.583* (0.000)	-0.254* (0.000)	0.249* (0.000)	0.704* (0.000)	0.889* (0.000)	1.000	
(7) Marriage	-0.086* (0.029)	0.057 (0.149)	-0.077* (0.049)	-0.166* (0.000)	-0.151* (0.000)	-0.094* (0.017)	1.000
***p<0.01, **p<0.05, *p<0.1							

Table 2. Variance inflation factor

Variable	VIF	1/VIF
Education U	20.48	0.048831
Education Z	11.54	0.086675
Education G	6.58	0.152048
Education H	2.23	0.449173
Erate	1.47	0.681727
Marriage	1.03	0.968185
Mean VIF	7.22	

For the analysis of panel data, the primary consideration is to identify the most appropriate model. Typically, panel data may adopt a mixed effect model, a fixed effect model, or a random effect model. The Hausman test is employed to ascertain whether a random effect model or a fixed effect model is more suitable. The F test, on the other hand, helps determine whether a fixed effect model or a mixed effect model is preferred. This study predominantly utilizes the Hausman test and the F test to assess the suitability of various models for analyzing the data presented. As illustrated in Table 3, both the Hausmann test and the F test reject the null hypothesis, indicating that the fixed effect model should be selected.

Table 3. Hausman test and F test

Hausman test			F test		
Chi ² statistic	P value	Result	Chi ² statistic	P value	Result
43.75	0.0000	Reject	46.43	0.0000	Reject

Table 4 presents the regression analysis outcomes for each variable, inclusive of the t-statistics values. In Column 1, education and marriage exhibit a positive correlation with Erate, reaching a significance level of 1%. This suggests a significant positive correlation between the level of education and marriage, and the female employment rate across various provinces and cities, spanning from 2000 to 2020. In Column 2, the key explanatory variable, digital, demonstrates a negative correlation with the dependent variable Erate, also at a significance level of 1%. With a coefficient size of -0.351, this implies that an increase of 1% in digital leads to an average decrease of 0.351 units in Erate, under conditions remaining constant. Furthermore, the R-squared value of the equation is within the range of 0 to 1, indicating a satisfactory model fitting efficiency and strong explanatory power. This further validates the notion that the progression of we-media will indeed have a discernible impact on the female employment rate.

Table 4. Benchmark regression

	(1)	(2)
	Erate	Erate
Digital		-0.351***
		(-4.983)
Education H	0.009	0.012
	(0.511)	(0.687)
Education Z	-0.011	-0.018
	(-0.263)	(-0.454)
Education U	-0.070*	-0.025
	(-1.790)	(-0.629)
Education G	0.493***	0.459***
	(4.375)	(4.147)
Marriage	-0.000	-0.000
	(-0.369)	(-0.336)
N	651	651
R ²	0.045	0.082
F	5.803	9.161
***p<0.01, **p<0.05, *p<0.10		

The negative relationship is not as expected. One reason could be that the influence of we-media is also limited by different cities. The result is that those developed cities have more job chances for women and those cities influenced by the idea of equality between men and women. From the aspect of education, higher education is more conducive for women to find jobs while marriage have negative effect for women to find jobs.

In order to explore the possible performance differences of the relationship between independent variables and dependent variables in samples from different regions, this paper adopts the grouping regression method. From Table 5, it is easier to find that although both development city and under-developed city are negatively correlated with the dependent variable at the significance level of 1%, and developed cities have less effect. The reason is that these cities like Beijing, Shanghai and Guangzhou have more employment chance and female has less discriminated. What's more, those development cities female have more open-minded, and they have more aspiration to do some we-media work.

Table 5. Heterogeneity test

Numble	Developed	Under-developed
	Erate	Erate
Digital	-0.879***	-1.731***
	(-4.511)	(-7.519)
Education H	0.016	0.073***
	(1.241)	(3.000)
Education Z	0.016	-0.126**
	(0.493)	(-2.385)
Education U	-0.029	0.046
	(-0.782)	(0.811)
Ecucation G	0.462***	1.446***
	(4.982)	(4.096)
Marriage	-0.000	-0.000
	(-0.452)	(0.138)
N	457	457
R ²	0.154	0.168
F	12.864	14.345
***p<0.01, **p<0.05, *p<0.10		

4. Conclusion

At the beginning of the paper, the hypothesis hopes that we-media development can improve female employment rate. The reason is that intelligent development can narrow the employment gap between men and women, and we media, as an occupation produced under the background of intelligence, which should also play a role in promoting it.

However, the data analysis and hypothesis have some contradiction. To a certain degree, we-media really has some impact on employment rate, because we-media as a free-lance job may be ignored when counting for employment rate. Furthermore, the data after 2015 is not sufficient enough and it may also be impacted by the COVID-19, which shocks had particularly affected women due to their household responsibilities and labor market characteristics. As a result, female employment rate especially after 2019 may be influenced a lot and could not fully reflect the relationship as anticipated.

There are also other limitations about this study. Most of the data in China is about overall employment rate and there is little about female's rate, so it is hard to obtain detailed data, which makes the research results been limited. In this situation, though Autoregressive Integrated Moving Average (ARIMA) could be applied to vacancy filling the data, it may also lead to inaccurate result. Besides, from the aspect of literature, there are little research about we-media data to refer to.

Above all, the result of analysis has some discrepancies with the hypothesis. In order to find more accuracy research result, we-media development data still needs to be collected at least for the next10 years. What's more, future research could take into account surveys and interviews among we-media workers and we-media platforms in order to collect sufficient data ready for analysis. Through all of these works, future work may be consistent with the hypothesis that we-media development can improve female employment.

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