



Research on the impact of industrial structure upgrade on the employment migration of college graduates

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Abstract. This paper constructs a mechanism model of the impact of industrial structure upgrading on the employment mobility of college graduates. This paper improves the indicators for industrial structure upgrading and employment mobility of college graduates. The theoretical basis of this paper is the theory of industrial structure change and the theory of labor mobility. Based on this theoretical foundation, this paper empirically tests the degree and mechanism of the impact of industrial structure upgrading on the employment mobility of college graduates, and proposes policy recommendations.

Keywords: Industrial structure upgrade, Employment migration, College graduates

1 Introduction

The demographic dividend has vanished as a result of China's labor scarcity and wage hikes, which have driven economic growth to the "Lewis turning point." The development of China's industrial structure no longer relies on the number of labor force, but rely on grasping high-tech high-quality talents [1]. In various regions, there have been "Wars Grabbing" in recent years, and college graduates have become prey to a scramble. To encourage good economic growth, the government needs to come up with a good plan for helping college graduates find jobs. One way to do this is to look into how changing the structure of industries changes the job migration of college graduates. Based on this theory, this paper verifies the impact mechanism of industrial structure upgrading on the employment mobility of college graduates.

2 Research Hypothesis

Increasingly, high-quality talents are essential for the upgrading of China's industrial structure. Highly educated people have a stronger desire for improving the status quo, more sensitive to the information of the workforce market, the return of high-education people in the labor market is more significant, and the benefits of immigrants are more [2]. There are several factors that may contribute to changing labor demand, including

changes in the structure of industrial internal structure, industrial geographical distribution, industrial scale, and industrial technology level.

A significant portion of the excess rural population will move to towns as a result of the adjustment of my country's industrial structure, resulting in a gradual decrease in labor demand based on agriculture as the leading primary industry. There will be a large number of rural workers absorbed by the secondary industry, which is dominated by manufacturing. With the rise in labor prices, enterprises have gradually transformed into high-technology production, alleviating the problem of excessive labor costs [3]. The demand for high-quality labor will increase in tertiary industries that are focused on providing services. The tertiary industry is the main channel for college students to employment. Labor migration is primarily caused by economic factors [4]. The migration of college employees is significantly influenced by a variety of factors, including education, scientific and technological aspects, public service, and economic indicators [5]. Based on the results of previous research and the characteristics of the employment of college graduates, this paper has established the theoretical analysis framework for industrial structure upgrades that affect the employment migration of college graduates.

An employment mobile database of college graduates is established based on statistics from the employment quality report of universities and colleges in 26 provinces in 2014-2020. This study applies the trailing phase of the employment migration data of college graduates and the industrial structure upgrading index for empirical research due to changes in the employment structure behind the changes in the industrial structure.

In summary, this paper verifies the following assumptions:

Assuming H1: The rationalization of the industrial structure has a significant positive impact on the employment migration of college graduates.

Assuming H2: The advanced industrial structure has a significant positive impact on the employment migration of college graduates.

Assuming H3: The upgrading of high-tech industrial structure has a significant positive impact on the employment migration of college graduates.

Assuming H4: The upgrading of the industrial structure of the productive service industry is significantly positive for the employment migration of college graduates.

3 Empirical Model and Variable Description

3.1 Model Construction

An empirical study of the enforcement of industrial structure upgrades to the employment of college graduates is presented in this paper using panel data from 2014-2020. The use of a fixed effect model is justified for analyzing the mechanism of the employment migration of college graduates on the upgrading of the industrial structure.

$$\ln Y_{i,t} = \gamma + \gamma_0 \ln S_{i,t} + \gamma_1 \ln G_{i,t} + \gamma_2 \ln W_{i,t} + \gamma_3 \ln H_{i,t} + \gamma_4 \ln T_{i,t} + \gamma_5 \ln C_{i,t} + \gamma_6 \ln P_{i,t} + \delta_{i,t} + R_{i,t} \quad (1)$$

In the formula (1), i represents the province, t represents the year, r is the constant item. $\ln G_{i,t}$ represents the logarithm of per capita GDP. $\ln W_{i,t}$ represents the logarithm of the average salary, and the data is based on the average salary of urban employees. $\ln H_{i,t}$ represents the logarithm of the average housing price, and the data is based on the average selling price of commercial housing. $\ln T_{i,t}$ represents technological innovation, and the data is based on local financial science and technology expenditures. $\ln C_{i,t}$ denotes the degree of education, with statistics drawn from the total number of regular higher education institutions and regular primary schools. $\ln P_{i,t}$ pertains to the standard of public services, with the data encompassing per capita urban road area, the quantity of beds in hospital and health facilities, and the number of Internet broadband access users. $R_{i,t}$ is the error term; $\delta_{i,t}$ represents the fixed effects of a city, including unobservable factors such as its customs, historical features, and ecological environment.

3.2 Empirical Research Results

Model (1) in Table 1 is the regression result of the rationalization of industrial structure on the employment migration of college graduates, and the regression coefficient is significantly negative at the 1% level. The regression results indicate that the larger the Theil index of industrial structure, the smaller the employment migration of college graduates. The smaller the Theil index of the industry, the greater the employment migration of college graduates. This means that the rationalization of industrial structure will promote the employment migration of college graduates. Model (2) shows the regression results of the effect of advanced industrial structure on the employment mobility of college graduates, and its regression coefficient is significantly positive at the 1% level. This also means that the upgrading of industrial structure will have a positive impact on the employment mobility of college graduates. Model (3) shows the regression result of the impact of high-tech industrial structure upgrading on the employment mobility of college graduates, with a positive regression coefficient but not significant. This indicates that the upgrading of high-tech industrial structure does not have a significant impact on the employment mobility of college graduates. Model (4) shows the regression results of the upgrading of the industrial structure of productive service industry on the employment mobility of college graduates, and its regression coefficient is significantly positive at the 1% level. This also means that the upgrading of the industrial structure of productive service industries has a positive effect on the employment mobility of college graduates. In summary, the rationalization index of industrial structure, the upgrading index of industrial structure, and the upgrading index of productive service industry structure have a positive impact on the employment mobility of college graduates, while the upgrading index of high-tech industrial structure does not have a significant impact on the employment mobility of college graduates. This conclusion validates hypotheses H1, H2, and H4. Therefore, it is evident that rationalizing and upgrading the industrial structure, as well as upgrading the structure of the

productive service industries, will result in an increase in college graduates' employment mobility.

Table 1. Results of baseline regression linear test

Dependent Variable	Model (1)	Model (2)	Model (3)	Model (4)
	Mobility	Mobility	Mobility	Mobility
lnSR	-0.0142*** (-2.87)			
lnSA		4.8204*** (7.15)		
lnST			0.0482 (0.70)	
lnSP				0.4274*** (5.69)
lnPergdp	0.0363* (0.20)	0.1422 (0.32)	2.8055* (1.83)	1.5639* (0.74)
lnWage	0.0764* (0.65)	0.0975 (0.37)	0.4577 (0.31)	0.7531 (0.63)
lnHouse	0.0053 (0.20)	1.2709 (0.97)	-1.2683 (-1.29)	1.1432 (0.75)
lnTech'	-0.1336 (-1.05)	0.3531 (1.19)	0.1215 (0.56)	0.4595 (1.85)
lnColle	0.4981** (1.35)	0.2415*** (3.69)	2.3227** (2.37)	1.6398** (2.41)
lnPrim	-0.1357** (-1.58)	-0.0152 (-0.39)	-1.0944*** (-2.70)	-1.6283*** (-1.39)
lnRoad	-0.0109 (-0.97)	-0.4758* (-1.80)	-0.3731 (-0.74)	-0.5279 (-1.36)
lnHealth'	-0.2659 (-0.92)	0.5755** (2.60)	-1.2901 (-0.96)	-0.53125 (-1.76)
lnNet	-0.9564 (-0.67)	-0.0633 (-0.79)	-0.7672* (-1.84)	-0.07347* (-1.92)
Constant	8.6724 (1.57)	5.7421 (1.80)	8.3677 (0.80)	6.468*** (1.75)
N	182	182	182	182
R ²	0.8742	0.6421	0.7398	0.8367

Note: *, **, *** mean significant at the levels of 10%, 5%, and 1% respectively, and the number in parentheses is the "t" value of the estimated coefficient.

3.3 Endogenous Analysis

Table 2 shows the regression results of endogeneity test. The regression coefficient of the industrial structure rationalization index on the employment migration of college graduates is significantly negative at the 1% statistical level. The regression coefficient

of the first-order lag of industrial structure upgrading on the employment migration of college graduates is significantly positive at the 1% statistical level. The regression results of the first-order lag term are consistent with the baseline regression, so we can discuss the correlation based on this regression result.

Table 2. Results of endogeneity test regression

Dependent Variable	Model (1)	Model (2)	Model (3)	Model (4)
	Mobility	Mobility	Mobility	Mobility
lnSR _{t-1}	-0.1467*** (-1.36)			
lnSA _{t-1}		2.7321*** (0.36)		
lnST _{t-1}			0.7335 (1.62)	
lnSP _{t-1}				0.5213*** (4.23)
lnPergdp	1.5378** (2.05)	1.3487** (1.87)	0.9864** (0.35)	0.2346** (1.38)
lnWage	0.3689 (2.83)	0.1253 (1.45)	0.2753 (1.16)	0.4825 (0.45)
lnHouse	-0.1153 (-0.32)	-0.3715 (-0.35)	-0.3167 (-0.48)	-0.2651 (-0.64)
lnTech	0.4261 (0.87)	0.3426** (1.36)	0.5251 (1.39)	0.3569*** (2.14)
lnColle	2.8731*** (5.16)	-1.3256 (-0.37)	1.3216*** (1.93)	-0.2618 (-1.53)
lnPrim	-0.4790*** (-2.39)	0.1568 (0.19)	-0.3857** (-1.39)	0.1794 (0.82)
lnRoad	-0.2821 (-1.32)	-0.7432** (-2.57)	-0.5828 (-1.37)	-0.2859** (-1.17)
lnHealth	-0.5378 (-1.74)	0.8227*** (3.18)	-0.4321 (-0.38)	0.1689*** (1.83)
lnNet	-0.4628*** (-1.47)	-0.2689*** (-2.64)	-0.3289*** (-3.86)	-0.2857*** (-3.67)
Constant	8.5789 (2.57)	1.6896 (1.63)	6.4789 (2.63)	2.3789 (1.84)
N	156	156	156	156
R ²	0.7643	0.4578	0.2731	0.3585

3.4 Robustness Test

From the FGLS regression results in Table 3, it can be seen that the regression results of the rationalization of industrial structure, the upgrading of industrial structure, the

upgrading of high-tech industrial structure, and the upgrading of productive service industry structure on the employment migration of college graduates are consistent with the benchmark regression models of Models (1), (2), (3), and (4) in Table 3. This result confirms that the original regression model has good robustness.

Table 3. FGLS Regression Results

Dependent Variable	Model (1)	Model (2)	Model (3)	Model (4)
	Mobility	Mobility	Mobility	Mobility
lnSR	-0.3818*** (-3.27)			
lnSA		0.0129** (0.04)		
lnST			0.1224 (1.35)	
lnSP				0.3649** (2.15)
lnPergdp	0.8294*** (4.37)	0.2546** (0.33)	0.6324*** (4.98)	1.1390*** (4.48)
lnWage	0.3379*** (3.66)	-0.2085 (-0.85)	0.2310*** (3.04)	-0.3121** (-2.38)
lnHouse	0.0048 (0.26)	-0.0775** (-1.32)	0.0158 (1.48)	0.0159 (0.61)
lnTech'	0.0758 (1.32)	0.3790 (1.55)	0.0557 (1.44)	0.0618* (1.57)
lnColle	0.0561 (0.48)	-0.3787 (-1.06)	0.8975*** (5.05)	0.1406** (2.45)
lnPrim	-0.1453** (-1.45)	-0.1868 (-0.67)	-0.8743*** (-1.75)	-1.3585*** (-1.68)
lnRoad	-1.6743 (-0.64)	-0.8643* (-1.37)	-0.2457 (-0.58)	-0.4267 (-1.07)
lnHealth'	-0.1764 (-0.64)	0.3864** (1.97)	-1.0854 (-0.58)	-0.4386 (-1.36)
lnNet	-0.7543 (-0.47)	-0.0437 (-0.37)	-0.4792* (-1.04)	-0.0676* (-1.18)
Constant	1.2682*** (5.66)	3.1937 (4.34)	4.3636*** (6.99)	2.9764*** (4.94)
N	182	182	182	182
R2	0.6890	0.7349	0.4791	0.6832

4 Conclusions

The upgrading of industrial structure can promote the employment mobility of college graduates in the three major regions of East, Central, and West. The upgrading of high-tech industrial structure plays a driving role in the employment mobility of college

graduates in the central region, but has no significant impact on the employment mobility of college graduates in the eastern and central regions. Based on the above conclusions, the following suggestions are given on how to improve the attractiveness of various provinces to high-quality talents: Firstly, raise the wage level to cope with the "crowding out effect" of housing prices. Excessive housing prices are not conducive to attracting high-quality talents to flow in [6]. Secondly, strengthen fiscal technology expenditures and enhance technological innovation capabilities. While improving technological innovation capabilities, we aim to increase employment opportunities in high-tech industries. Thirdly, distribute educational resources reasonably and improve the level of education.

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