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Article

Research on Regional Economic Disparities, Employment Policy Supply and College Graduates' Spatial Employment Mobility Based on Computer Data Mining

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Abstract: Against the background of unbalanced regional economic development in China, this study adopts computer data preprocessing and big data statistical analysis technology to explore the impact mechanism of regional economic disparities and employment policy supply on college graduates' spatial employment mobility, and clarifies the boundary conditions of policy effectiveness. Based on the micro-survey data of 7,862 college graduates in 31 provinces (autonomous regions and municipalities directly under the Central Government) and macroeconomic and policy data from 2010 to 2022, a comprehensive evaluation index system of regional economic disparities and employment policy supply intensity is constructed. With the help of computer econometric software, Binary logistic regression, moderating effect model, threshold effect model and heterogeneity analysis are used for empirical testing. The results show that: (1) Regional economic disparities and employment policy supply have a significant positive impact on college graduates' spatial employment mobility. Every 1% increase in the comprehensive score of regional economic disparities and employment policy supply increases the probability of graduates' cross-regional employment by 0.823% and 0.498% respectively. (2) Employment policy supply plays a positive moderating role in the relationship between regional economic disparities and graduates' spatial mobility, and the moderating effect is more significant in central and western regions. (3) There is a single threshold effect of employment policy supply. When the policy supply intensity exceeds 0.52, the promoting effect of regional economic disparities on graduates' spatial mobility is significantly enhanced from 0.486 to 1.023. (4) The impact of regional economic disparities and employment policy supply on graduates' spatial mobility has significant heterogeneity. The impact on master and doctoral graduates is stronger than that on undergraduate graduates, and the impact on graduates in central and western regions is stronger than that in eastern regions. This study enriches the theoretical framework of labor mobility research and provides targeted policy recommendations for optimizing the spatial allocation of college graduates and promoting regional coordinated development.

Keywords: Regional economic disparities; Employment policy supply; College graduates; Spatial employment mobility; Big data analysis; Computer econometric modeling

1. Aims and Background

1.1. Research Context

In the context of global economic integration and China's regional coordinated development strategy, regional economic disparities have become a core issue affecting the optimal allocation of labor resources [1]. College graduates, as a high-quality labor force, their spatial employment mobility not only relates to personal career development but also affects regional talent structure optimization

and economic growth momentum [2]. Statistics show that the per capita GDP gap between China's eastern and western regions remains at 2.3 times, and the proportion of college graduates flowing to eastern coastal areas accounts for 68.2% of the total, while the central and western regions face a severe talent shortage [3]. Meanwhile, local governments have introduced a series of employment policies (such as talent subsidies, housing support, and entrepreneurial incentives) to attract college graduates, but the policy effect varies significantly due to differences in implementation intensity and matching degree [4].

Against this background, exploring the mechanism of regional economic disparities and employment policy supply on college graduates' spatial employment mobility is of great significance. On the one hand, it can clarify the key factors affecting graduates' mobility decisions, providing a theoretical basis for narrowing regional talent gaps; on the other hand, it can help local governments optimize employment policy design, improve policy effectiveness, and promote the balanced flow of high-quality labor resources.

1.2. Literature Review

1.2.1. Regional Economic Disparities and Spatial Mobility

Existing studies on the impact of regional economic disparities on labor mobility mainly focus on two perspectives: the "push-pull theory" and the "human capital theory". From the perspective of push-pull theory, Todaro [5] proposed that the income gap between regions is the core driving force of labor mobility, and the expected income difference determines the direction and scale of mobility. From the perspective of human capital theory, Schultz [6] believed that individuals will choose to migrate to regions with higher returns on human capital to maximize their interests. Empirical studies have also verified this conclusion: Chen et al. [7] found that every 1% increase in the per capita GDP gap between regions will lead to a 0.32% increase in the mobility rate of college graduates. However, these studies mostly focus on the impact of absolute economic indicators, ignoring the role of relative economic factors such as economic growth rate and industrial structure.

1.2.2. Employment Policy Supply and Spatial Mobility

Employment policies are an important means for governments to regulate labor mobility. Existing studies on employment policies mainly focus on policy types and implementation effects. For example, Li et al. [8] divided employment policies into three categories: economic incentives, institutional guarantees, and service support, and found that economic incentive policies have the most significant impact on graduates' mobility decisions. Zhang et al. [9] used the DID model to evaluate the effect of talent introduction policies in first-tier cities and found that policies such as housing subsidies can increase the local employment rate of graduates by 12.5%. However, existing studies have two deficiencies: first, they lack a quantitative evaluation system for policy supply intensity, and most use qualitative descriptions; second, they ignore the interaction between policies and regional economic conditions, making it difficult to reveal the heterogeneous effect of policies.

1.2.3. Research Gaps

Overall, previous studies have examined how regional economic disparities and employment policies affect college graduates' spatial employment mobility, yet several notable research gaps remain. First, most relevant studies measure regional economic disparities merely by single indicators such as GDP and residents' income, without constructing a comprehensive evaluation system for multi-dimensional economic gaps. Second, the quantification of employment policy supply intensity is imprecise, and policy effect evaluation fails to adopt a dynamic research perspective. Third, the interactive relationship between regional economic disparities and employment policy supply has not been fully clarified, so the effective boundary of relevant policies cannot be defined. Furthermore, existing research still relies heavily on manual data sorting and basic statistical methods. Computer technologies including data mining, intelligent computing and big data analytics are rarely applied in this field. The backward data processing and model analysis tools also limit the depth of empirical research and weaken the credibility of research conclusions.

1.3. Research Aims and Questions

1.3.1. Research Aims

This study aims to: (1) Construct a comprehensive evaluation index system of regional economic

disparities and employment policy supply intensity; (2) Quantitatively analyze the direct impact of regional economic disparities and employment policy supply on college graduates' spatial employment mobility; (3) Explore the interaction mechanism between regional economic disparities and employment policy supply, and clarify the regulatory role of policies in economic disparities; (4) Provide targeted policy recommendations for optimizing the spatial allocation of college graduates and promoting regional coordinated development.

1.3.2. Research Questions

(1) What is the impact of different dimensions of regional economic disparities (such as economic scale, industrial structure, and income level) on college graduates' spatial employment mobility?

(2) How does the intensity and structure of employment policy supply affect graduates' mobility decisions?

(3) Does employment policy supply have a regulatory effect on the relationship between regional economic disparities and graduates' spatial mobility? If so, what is the regulatory path?

1.4. Research Significance

1.4.1. Theoretical Significance

(1) Construct a comprehensive evaluation system of regional economic disparities, enriching the research perspective of regional economic disparity measurement;

(2) Establish a quantitative measurement method of employment policy supply intensity, improving the scientificity of policy effect evaluation;

(3) Reveal the interaction mechanism between regional economic disparities and employment policy supply, expanding the theoretical framework of labor mobility research.

1.4.2 Practical Significance

(1) Provide decision-making basis for local governments to formulate targeted employment policies, improving the effectiveness of talent introduction;

(2) Guide college graduates to make scientific mobility decisions, realizing the optimal matching between personal development and regional needs;

(3) Provide a path reference for narrowing regional talent gaps and promoting balanced regional economic development.

2. Experimental

2.1. Data Sources

This study uses a combination of macro and micro data. Macro data comes from the "China Statistical Yearbook", "China Labor Statistical Yearbook", and local government employment policy documents from 2010 to 2022; micro data comes from a questionnaire survey of college graduates in 31 provinces (autonomous regions and municipalities directly under the Central Government) in China. The questionnaire survey was conducted from March to June 2023, covering 120 universities of different types (comprehensive, science and engineering, liberal arts, medical, etc.), with a total of 8,500 questionnaires distributed and 7,862 valid questionnaires recovered, with an effective recovery rate of 92.5%.

All raw data is uniformly processed by computer: we use professional data processing software to complete data cleaning, missing value filling, abnormal value elimination and standardization conversion, which ensures the integrity and validity of the research data and lays a foundation for subsequent index calculation and econometric regression analysis.

2.2. Variable Definition

2.2.1. Dependent Variable: College Graduates' Spatial Employment Mobility (M)

Refer to the research of Wang et al. [10], the dependent variable is defined as whether college graduates choose to work in a region other than their place of origin or the region where their university is located. If they choose to work in a different region, it is assigned a value of 1; otherwise, it is assigned a value of 0. At the same time, the mobility distance (km) is used as an alternative indicator for robustness testing.

2.2.2. Independent Variable 1: Regional Economic Disparities (RED)

Construct a comprehensive evaluation index system of regional economic disparities from three dimensions: economic scale, industrial structure, and income level (Table 1). Use the entropy weight method to calculate the comprehensive score of regional economic disparities. The calculation steps are as follows:

Step 1: Standardize the indicator data to eliminate the impact of different dimensions. For positive indicators:

$$x_{ij}^{'} = \frac{x_{ij} - min(x_j)}{max(x_j) - min(x_j} \tag{1}$$

For negative indicators:

$$x_{ij}^{'} = \frac{max(x_j) - x_{ij}}{max(x_j) - min(x_j)} \tag{2}$$

Where x_{ij} is the original value of the j-th indicator in the i-th region, $max(x_j)$ and $min(x_j)$ are the maximum and minimum values of the j-th indicator, respectively.

Step 2: Calculate the weight of each indicator. The entropy value of the j-th indicator is:

$$e_j = -\frac{1}{\ln n}\sum_{i=1}^{n} p_{ij} \ln p_{ij} \tag{3}$$

Where $p_{ij} = \frac{x_{ij}^{'}}{\sum_{i=1}^{n} x_{ij}^{'}}$, and if $p_{ij} = 0, \ln p_{ij} = 0$.

The weight of the j-th indicator is:

$$w_j = \frac{1 - e_j}{\sum_{j=1}^{m}\left(1 - e_j\right)} \tag{4}$$

Where m is the number of indicators.

Step 3: Calculate the comprehensive score of regional economic disparities:

$$RED_i = \sum_{j=1}^{m} w_j x_{ij}^{'} \tag{5}$$

Table 1. Comprehensive evaluation index system of regional economic disparities

Target layer	Criterion layer	Indicator layer	Indicator type
Regional Economic Disparities (RED)	Economic scale	Per capita GDP (yuan)	Positive
		Total retail sales of consumer goods (100 million yuan)	Positive
		Fixed asset investment (100 million yuan)	Positive
	Industrial structure	Proportion of tertiary industry output value in GDP (%)	Positive
		Proportion of high-tech industry output value in GDP (%)	Positive
	Income levelPer capita disposable income of urban residents (yuan)	Average wage of employees in urban units (yuan)	Positive
			Positive

2.2.3. Independent Variable 2: Employment Policy Supply (EPS)

Refer to the research of Liu et al. [11], the employment policy supply is measured from three dimensions: policy intensity, policy coverage, and policy implementation. The specific indicators and measurement methods are shown in Table 2. Use the analytic hierarchy process (AHP) to determine the

weight of each indicator, and calculate the comprehensive score of employment policy supply.

Table 2. Measurement index system of employment policy supply

Target layer	Criterion layer	Indicator layer	Measurement method	Weight
Employment Policy Supply (EPS)	Policy intensity	Talent subsidy standard (yuan/person/year)	Direct value	0.35
		Housing subsidy standard (yuan/person/year)	Direct value	0.25
	Policy coverage	Proportion of graduates covered by policies (%)	Survey data	0.2
	Policy implementation	Policy implementation rate (%)	Survey data	0.2

2.2.4. Control Variables

To eliminate the impact of other factors on the dependent variable, the following control variables are selected:

(1) Individual characteristics: gender (Gender, male=1, female=0), educational background (Edu, undergraduate =1, master=2, doctoral=3), major type (Major, science and engineering=1, liberal arts=2, medical = 3, others = 4).

(2) Family characteristics: family economic status (Family, high=3, medium=2, low=1), parental education level (ParEdu, average years of education of parents).

(3) Regional characteristics: regional population density (PopDensity, people/km²), regional infrastructure level (Infra, comprehensive score of transportation, communication, and medical infrastructure).

2.3. Model Construction

2.3.1. Benchmark Regression Model

To analyze the impact of regional economic disparities and employment policy supply on college graduates' spatial employment mobility, a binary logistic regression model is constructed:

$$\ln\left(\frac{P(M_{it}=1)}{1-P(M_{it}=1)}\right)=\beta_0+\beta_1 RED_{it}+\beta_2 EPS_{it}+\sum_{k=3}^{n}\beta_k Control_{kit}+\mu_i+\varepsilon_{it} \quad (6)$$

Where M_{it} is the spatial employment mobility status of the i-th graduate in the t-th region; RED_{it} is the regional economic disparity score of the t-th region. EPS_{it} is the employment policy supply score of the t-th region; $Control_{kit}$ is the k-th control variable. β_0 is the constant term. $\beta_1,\beta_2,\ldots,\beta_n$ are the regression coefficients. μ_i is the individual fixed effect; ε_{it} is the random error term.

2.3.2. Moderating Effect Model

To explore the regulatory role of employment policy supply in the impact of regional economic disparities on graduates' spatial mobility, an interaction term between regional economic disparities and employment policy supply is introduced into the benchmark model:

$$\ln\left(\frac{P(M_{it}=1)}{1-P(M_{it}=1)}\right)=\beta_0+\beta_1 RED_{it}+k\beta_2 EPS_{it}+\beta_3 RED_{it}\times EPS_{it}+\sum_{k=4}^{n}\beta_k Control_{kit}+\mu_i+\varepsilon_{it} \quad (7)$$

Where $RED_{it}\times EPS_{it}$ is the interaction term between regional economic disparities and employment policy supply. β_3 is the regression coefficient of the interaction term, which reflects the regulatory effect of employment policy supply.

2.3.3. Threshold Effect Model

To further explore the non-linear relationship between regional economic disparities and graduates'

spatial mobility, and clarify the threshold value of employment policy supply, a threshold regression model is constructed with employment policy supply as the threshold variable:

$$\ln\left(\frac{P(M_{it}=1)}{1-P(M_{it}=1)}\right)=\beta_0+\beta_1 RED_{it} I\left(EPS_{it}\le\gamma\right)+\beta_2 RED_{it} I\left(EPS_{it}>\gamma\right)+\sum_{k=3}^{n}\beta_k Control_{kit}+\mu_i+\varepsilon_{it} \quad (8)$$

Where γ is the threshold value. $I(\bullet)$ is the indicator function. β_1 and β_2 are the regression coefficients of regional economic disparities under different threshold intervals.

2.4. Descriptive Statistics

Table 3 shows the descriptive statistical results of the main variables. It can be seen that the average value of college graduates' spatial employment mobility (M) is 0.42, indicating that 42% of college graduates choose to work in other regions; the average value of regional economic disparities (RED) is 0.58, with a standard deviation of 0.23, indicating significant differences in economic development levels between regions; the average value of employment policy supply (EPS) is 0.45, with a standard deviation of 0.18, indicating that there are differences in the intensity and effectiveness of employment policies between regions.

Table 3. Descriptive statistics of main variables

Variable	Observation	Mean	Std. Dev.	Min	Max
Spatial employment mobility (M)	7862	0.42	0.49	0	1
Regional economic disparities (RED)	7862	0.58	0.23	0.12	0.95
Employment policy supply (EPS)	7862	0.45	0.18	0.1	0.85
Gender (Gender)	7862	0.51	0.5	0	1
Educational background (Edu)	7862	1.35	0.58	1	3
Major type (Major)	7862	1.68	0.87	1	4
Family economic status (Family)	7862	2.12	0.65	1	3
Parental education level (ParEdu)	7862	10.25	2.36	6	18
Regional population density (PopDensity)	7862	586.32	325.18	85.23	2865.47
Regional infrastructure level (Infra)	7862	0.62	0.21	0.15	0.92

3. Results and Discussion

3.1. Benchmark Regression Results

Column (1) only includes the core independent variables, and the results show that the regression coefficient of regional economic disparities (RED) is 0.876, which is significant at the 1% level, indicating that regional economic disparities have a significant positive impact on graduates' spatial employment mobility. Specifically, every 1% increase in the regional economic disparity score will increase the probability of graduates' cross-regional employment by 0.876%. The regression coefficient of employment policy supply (EPS) is 0.542, which is significant at the 1% level, indicating that the improvement of employment policy supply intensity can significantly promote graduates' spatial employment mobility.

Column (2) adds individual characteristic control variables, and the results show that the regression coefficients of RED and EPS are still significantly positive, with little change in the coefficient values, indicating that the impact of regional economic disparities and employment policy supply on graduates' spatial mobility is robust. Among the individual characteristics, the regression coefficient of educational background (Edu) is 0.321, which is significant at the 1% level, indicating that graduates with higher educational backgrounds are more likely to choose cross-regional employment; the regression coefficient of major type (Major) shows that science and engineering graduates are more likely to move than liberal arts and medical graduates.

Column (3) adds family characteristic and regional characteristic control variables, and the results show that the regression coefficient of RED is 0.823 ($p<0.01$), and the regression coefficient of EPS is 0.498 ($p<0.01$), which is still significant. Among the family characteristics, the regression coefficient of family economic status (Family) is 0.215 ($p<0.01$), indicating that graduates from higher family economic status are more likely to choose cross-regional employment; among the regional characteristics, the regression coefficient of regional infrastructure level (Infra) is 0.356 ($p<0.01$), indicating that regions with better infrastructure are more attractive to graduates.

The benchmark regression results demonstrate that both regional economic disparities (RED) and employment policy supply (EPS) exert a significantly positive impact on the spatial employment mobility of college graduates, and this impact remains robust with the gradual inclusion of control variables. The regression results incorporating only the core explanatory variables (Column 1) show that the regression coefficient of RED is 0.876 ($p < 0.01$), indicating that for every 1% increase in the comprehensive score of regional economic disparities, the probability of graduates engaging in cross-regional employment increases by 0.876%. The regression coefficient of EPS is 0.542 ($p < 0.01$), suggesting that the enhancement of employment policy supply intensity also significantly promotes the spatial mobility of graduates. After adding individual characteristic control variables such as gender, educational background, and major type (Column 2), the regression coefficients of RED and EPS slightly decrease to 0.854 ($p < 0.01$) and 0.518 ($p < 0.01$), respectively, with a small magnitude of change, verifying the stability of the impact of the core explanatory variables. Among these, the regression coefficient of educational background (Edu) is 0.321 ($p < 0.01$), indicating that graduates with higher educational backgrounds are more inclined to pursue cross-regional employment, and graduates majoring in science and engineering also exhibit a significantly stronger willingness to migrate compared to those in liberal arts and medical fields. When further incorporating family characteristics such as family economic status and parental education level, as well as regional characteristic control variables including regional population density and infrastructure level (Column 3), the regression coefficient of RED is 0.823 ($p < 0.01$) and that of EPS is 0.498 ($p < 0.01$), both remaining significantly positive at the 1% level. The regression coefficient of family economic status (Family) is 0.215 ($p < 0.01$), implying that graduates from families with better economic conditions have a higher probability of cross-regional employment. The regression coefficient of regional infrastructure level (Infra) is 0.356 ($p < 0.01$), indicating that regions with improved infrastructure have a stronger attractiveness to graduates. The sample size for all three columns of regression is 7,862, and the adjusted R^2 gradually increases from 0.187 to 0.289, demonstrating that the model's fitting effect continuously improves with the inclusion of control variables, and the overall regression results are statistically significant.

3.2. Moderating Effect Results

Column (1) is the benchmark model, and Column (2) adds the interaction term between regional economic disparities and employment policy supply (RED × EPS). The results show that the regression coefficient of the interaction term is 0.326, which is significant at the 1% level, indicating that employment policy supply has a positive moderating effect on the relationship between regional economic disparities and college graduates' spatial employment mobility. That is, the higher the intensity of employment policy supply, the stronger the promoting effect of regional economic disparities on graduates' spatial mobility.

To further clarify the moderating effect, this study divides employment policy supply into high and low groups according to the median value, and conducts group regression. The results are shown in Columns (3) and (4). In the high employment policy supply group, the regression coefficient of RED is 1.058 ($p < 0.01$); in the low employment policy supply group, the regression coefficient of RED is 0.542 ($p < 0.01$). The difference between the two coefficients is significant, which further verifies that employment policy supply can enhance the promoting effect of regional economic disparities on graduates' spatial mobility.

The moderating effect regression results illustrate how employment policy supply (EPS) regulates the relationship between regional economic disparities (RED) and college graduates' spatial employment mobility. First, the benchmark model (corresponding to the first set of results) reconfirms the findings from the benchmark regression: both RED and EPS exert a significantly positive impact on graduates' spatial mobility, laying the foundation for analyzing the moderating effect. When the interaction term of regional economic disparities and employment policy supply (RED × EPS) is introduced into the benchmark model, the regression coefficient of this interaction term is 0.326, which is statistically significant at the 1% level. This result clearly indicates that employment policy supply plays a positive moderating role in the aforementioned relationship—specifically, as the intensity of employment policy supply increases, the promoting effect of regional economic disparities on college graduates' spatial employment mobility becomes more pronounced. To further verify the robustness of this moderating effect, the research sample is divided into two groups: a high employment policy supply group and a low employment policy supply group, based on the median value of EPS, and group regression is conducted separately. In the high employment policy supply group, the regression

coefficient of RED is 1.058, which is significant at the 1% level; in contrast, the regression coefficient of RED in the low employment policy supply group is 0.542, also significant at the 1% level. The substantial and statistically significant difference between these two coefficients further validates that employment policy supply can effectively amplify the promoting effect of regional economic disparities on graduates' spatial mobility. All regression analyses include the full set of control variables consistent with previous models to eliminate potential confounding effects. The total sample size for each regression is 7,862, with 3,931 observations in both the high and low EPS groups. The adjusted R^2 values for the four sets of regression results are 0.289, 0.312, 0.356, and 0.245 respectively. The increase in adjusted R^2 after introducing the interaction term, as well as the reasonable R^2 values in the group regressions, demonstrate that the models have good explanatory power, and the empirical results are statistically reliable.

3.3. Threshold Effect Results

Table 4 shows the threshold value test results of the employment policy supply. The F-statistic of the single threshold is 28.76, which is significant at the 1% level; the F-statistic of the double threshold is 12.34, which is not significant. Therefore, it can be determined that there is a single threshold value of employment policy supply, and the threshold value is 0.52.

Table 4. Threshold value test results

Threshold type	F-statistic	P-value	Critical value (1%)	Critical value (5%)	Critical value (10%)
Single threshold	28.76	0.002	25.67	20.34	17.89
Double threshold	12.34	0.156	22.45	18.76	15.67

The threshold regression results confirm a single threshold effect of employment policy supply (EPS) with the threshold value of 0.52. When $EPS \le 0.52$ (4,231 observations), the regression coefficient of regional economic disparities (RED) is 0.486 ($p < 0.01,\ t = 6.78$), indicating a relatively weak promoting effect on graduates' spatial mobility; when EPS > 0.52 (3,631 observations), the coefficient of RED rises significantly to 1.023 ($p < 0.01,\ t = 13.45$), showing a markedly enhanced promoting effect. Both regression models include control variables, with adjusted R^2 values of 0.225 and 0.389 respectively, confirming good model fit.

3.4. Robustness Test

Two robustness tests are conducted to validate the results. First, replacing the dependent variable with mobility distance (km) and using OLS regression, the coefficients of RED and EPS are 156.32 ($p < 0.01,\ t = 10.87$) and 102.45 ($p < 0.01,\ t = 7.65$) respectively, indicating they significantly promote mobility distance. Second, adopting the instrumental variable method (2SLS) with lagged per capita GDP (2000) and the number of previous-year policy documents as instruments, the coefficients of RED and EPS remain significantly positive (0.798, $p < 0.01,\ t = 9.65$, $p < 0.01,\ t = 6.89$). The Cragg-Donald F-statistic confirms instrument validity, and both tests ($N = 7,862$, adjusted $R^2 = 0.256$ and 0.278) verify the robustness of the findings.

3.5. Heterogeneity Analysis

Heterogeneity analysis reveals two key patterns. By educational background: for undergraduate graduates (5,621 observations), the coefficients of RED and EPS are 0.723 ($p < 0.01,\ t = 9.87$) and 0.412 ($p < 0.01,\ t = 6.78$); for master and doctoral graduates (2,241 observations), the coefficients increase to 1.056 ($p < 0.01,\ t = 12.45$) and 0.634 ($p < 0.01,\ t = 8.90$), reflecting stronger impacts on high-educated groups. By regional type: in eastern regions (4,123 observations), RED and EPS have coefficients of 0.654 ($p < 0.01,\ t = 8.76$) and 0.387 ($p < 0.01,\ t = 5.67$); in central and western regions (3,739 observations), the coefficients rise to 0.987 ($p < 0.01,\ t = 11.89$) and 0.598 ($p < 0.01,\ t = 8.23$), indicating more pronounced effects in less developed regions. All models include control variables, with adjusted R^2 ranging from 0.234 to 0.367, ensuring reliability.

4. Conclusions

(1) Regional economic disparities have a significant positive impact on college graduates' spatial employment mobility. Every 1% increase in the regional economic disparity score will increase the probability of graduates' cross-regional employment by 0.823%. This indicates that regional economic development level is an important factor affecting graduates' mobility decisions.

(2) Employment policy supply has a significant positive impact on college graduates' spatial employment mobility. The regression coefficient of employment policy supply is 0.498, which is significant at the 1% level. This shows that improving the intensity and effectiveness of employment policies can effectively attract graduates to flow in.

(3) Employment policy supply has a positive moderating effect on the relationship between regional economic disparities and graduates' spatial mobility. The regression coefficient of the interaction term is 0.326, which is significant at the 1% level. That is, the higher the intensity of employment policy supply, the stronger the promoting effect of regional economic disparities on graduates' spatial mobility.

(4) There is a single threshold effect of employment policy supply. When the employment policy supply intensity is less than or equal to 0.52, the regression coefficient of regional economic disparities is 0.486; when it is greater than 0.52, the regression coefficient is 1.023. This indicates that the impact of regional economic disparities on graduates' mobility shows a significant increase after the employment policy supply exceeds the threshold value.

(5) The impact of regional economic disparities and employment policy supply on graduates' spatial mobility has significant heterogeneity. The impact on master and doctoral graduates is stronger than that on undergraduate graduates, and the impact on graduates in central and western regions is stronger than that in eastern regions.

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