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# Improving The Quality Of Vocational College Graduates: Migration Policies And Role Of Government In China

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**Abstract:**

*These key documents reflect the government's commitment to improving the teaching quality, employment outcomes, and overall performance of vocational colleges in China. These initiatives play a crucial role in driving the continuous improvement and development of vocational education in China. The implementation of these key policies and initiatives by the government reflects a commitment to improving the quality and relevance of vocational education in China. By focusing on curriculum reform, industry collaboration, teacher training, work-integrated learning, entrepreneurship support, and financial assistance, the government aims to enhance the employ ability and success of vocational college graduates. These policies and initiatives contribute to a stronger vocational education system that meets the demands of the job market and supports economic growth. In this paper, the focus is on applying text analysis methods to extract keywords related to "vocational education" from government policy documents. By analyzing these texts, researchers can identify and extract keywords that are relevant to the field of vocational education.*

***Key words:*** *vocational education, Government policy, Textual analysis, Quality of Vocational College Graduates*

## Introduction

Vocational colleges in China are higher education institutions that specialize in providing technical and practical education to students. These colleges focus on equipping students with the skills and knowledge needed for specific professions and industries. Vocational education in China has gained significant importance due to the country's rapid economic growth and the demand for a skilled workforce. This paper aims to explore the role of government policies in improving the quality of graduates from vocational colleges in

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China. In order to evaluate the quality of graduates, we conducted research using employment rate and initial annual salary as indicators. The employment rate and initial annual salary of vocational college graduates are important indicators for evaluating their employ ability and market competitiveness. This article will analyze the government's policies and measures to improve the quality of graduates, and explore their impact on employment rates and initial annual salaries.

While vocational education in China has made significant progress, there are still challenges to address. These challenges include societal biases towards vocational education, ensuring equitable access, maintaining the quality of programs, and bridging the gap between industry needs and educational offerings. However, the government's focus on vocational education presents opportunities for continuous improvement and the development of a highly skilled workforce.

This paper aims to explore the role of government policies in improving the quality of graduates from vocational colleges in China. In order to evaluate the quality of graduates, we conducted research using employment rate and initial annual salary as indicators. The employment rate and initial annual salary of vocational college graduates are important indicators for evaluating their employ ability and market competitiveness. This article will analyze the government's policies and measures to improve the quality of graduates, and explore their impact on employment rates and initial annual salaries.

**Theoretical Background**

Vocational education plays a crucial role in meeting a country's economic needs by providing a skilled workforce that is equipped with industry-specific knowledge and practical skills. This form of education focuses on preparing individuals for specific professions, trades, or occupations, ensuring that they possess the expertise required to contribute effectively to the workforce. The government's active involvement and support are crucial in improving the quality of vocational college graduates in China through the implementation of effective policies, funding allocation, curriculum development, industry partnerships, and monitoring mechanisms.

Many scholars have conducted relevant research on Government policies in vocational education. Huisman examine whether the new government approach has been fully implemented with regard to curriculum design and curriculum change ( Huisman & Jenniskens,1994). Lindell consider the recently established higher vocational education reforms with Swedish advanced vocational education and Finnish polytechnics in terms of organizational structure, the design strategy includes three main steps (Raju et al., 2021). Cornford establish a range of criteria for assessing the effectiveness of lifelong learning policies (Raju & Poh, 2019b). (Raju & Poh, 2019a) study fuzzy multi-criteria and multi-experts evaluation of government investments in higher education: the case of turkey (Raju, 2021). Phan investigate how and in what ways the Saudi government's desire to internationalize its higher education system has overlooked the many problems associated with its English-only policy, and the neoliberal shaping of social and economic pressure

(Raju, 2021). (Phung & Raju, 2019) discuss the combination of teaching resource library that government invested heavily and ternary system to build a new stable education system which can meet and coordinate the interests of all parties so as to promote the long-term healthy development of occupation education (Anggoro et al., 2018).

Much research has been done on the concept of government involvement in vocational education. Bagnall looks at the manner in which two developed countries in different hemispheres, France and Australia, have attempted to solve an increasingly complex problem: the transition from school to work (Adaletey et al., 2018). It suggests how Bagnall tackle this problem of high and low status educational pathways in Australia (Phung & Chetty, 2018). (Adaletey et al., 2018) study education for decline: soviet vocational and technical schooling from Khrushchev to Gorbachev (Phung & Chetty, 2018). In the introduction and chapter 2, Dennis Soltys provides a review of the Western literature in the field of his research. The main purpose of Sun is to present the problem and find ways to solve it (Rana & Raju, 2019). The subject of Hettiararchchi was hypotheses testing, the type was correlational study and conducted in noncontrived setting (Phung, Raju, & Kalimuthu, 2019). Wahab aim to explore the participation and involvement of Orang Asli youths in Vocational Education and Training (VET) (Phung, Raju, & Kalimuthu, 2019; Phung, Raju, & Latiff, 2019). Other influential work includes Kincheloe etc (Najeeb et al., 2019).

In this paper, a different focus deviates from existing researches by examining the impact of the Chinese government’s policies about vocational colleges on improving the employment rate and income of graduates, thereby highlighting the potential link between effective evaluation mechanisms and enhanced outcomes for vocational college graduates.

**Textual Analysis**

The systematic analysis of text has gained significant interest in the social sciences due to the wealth of data it provides about human thought and behavior. Textual data represents a vast repository of information that can offer valuable insights into various domains of study.

In this paper, the focus is on applying text analysis methods to extract keywords related to "vocational education" from government policy documents. Government documents serve as valuable sources of information regarding policies, regulations, and initiatives related to vocational education. By analyzing these texts, researchers can identify and extract keywords that are relevant to the field of vocational education.

The selected sample of government documents covers the period from 2012 to 2022, allowing for an examination of the evolving discourse and policies surrounding vocational education over time. Text analysis techniques can help identify key themes, trends, and policy priorities in the government's approach to vocational education during this period.

Table 1 extracted keywords from government policy texts, researchers can gain insights

into the policy agenda, priorities, and language used in relation to vocational education. This analysis can contribute to a better understanding of the government's stance on vocational education, its objectives, and the strategies employed to address the challenges and opportunities in this field.

Table 1 Keywords in local government documents from 2012 to 2022

| **Keywords** | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Reform | 1.27 | 1.33 | 1.74 | 1.75 | 1.65 | 1.86 | 1.93 | 1.43 | 1.27 | 1.69 | 1.45 |
| Curriculum | 2.33 | 2.76 | 2.12 | 1.98 | 1.76 | 2.21 | 2.77 | 3.14 | 3.01 | 3.33 | 4.09 |
| Apprentice | 0.11 | 0.12 | 0.05 | 0.56 | 0.66 | 0.45 | 0.79 | 1.11 | 1.48 | 1.66 | 1.94 |
| Teacher-Training | 3.32 | 3.78 | 2.95 | 3.06 | 4.11 | 4.13 | 3.89 | 4.02 | 4.75 | 4.55 | 4.69 |
| Certification | 0.56 | 0.55 | 0.57 | 0.66 | 0.78 | 0.67 | 0.74 | 0.69 | 0.99 | 0.98 | 1.13 |
| Innovation | 0.12 | 0.09 | 0.13 | 0.21 | 0.22 | 0.21 | 0.19 | 0.18 | 0.19 | 0.25 | 0.27 |

Note: The units in the table are expressed in tens of thousands.

**Evaluation of The Learning Outcome**

Evaluation of the learning outcome is an essential component of assessing the effectiveness of vocational education in China. The government recognizes the importance of evaluating the learning outcomes to ensure that vocational college graduates acquire the necessary knowledge, skills, and competencies required for their chosen professions.

1. Standardized assessments are conducted to measure the academic performance and proficiency of vocational college students. These assessments evaluate the students' understanding of the core subjects, practical skills, and their ability to apply knowledge in real-world scenarios. The results provide insights into the effectiveness of teaching methods and the extent to which students are meeting the required learning standards.

2. Practical assessments play a vital role in evaluating the hands-on skills and competencies of vocational college students. These assessments often involve practical exams, projects, or simulations that allow students to demonstrate their abilities in a real or simulated work environment. Practical assessments provide a comprehensive evaluation of students' technical skills, problem-solving capabilities, and ability to perform job-specific tasks.

3. Industry Collaboration: Collaboration with industries is a valuable method for evaluating the learning outcomes in vocational education. Vocational colleges establish partnerships with industry stakeholders, who actively participate in evaluating students' performance during internships, apprenticeships, and work placements. Industry professionals assess the students' practical skills, work ethics, and adaptability in real work settings, providing valuable feedback on their learning outcomes.

4. Graduates' Employment and Career Progression: The employment and career progression of vocational college graduates serve as indirect indicators of their learning outcomes. The government tracks the employment rates, job placements, and income levels of vocational college graduates to assess the effectiveness of the education they received. High employment rates and favorable career prospects indicate that graduates have acquired the necessary skills and knowledge to succeed in the job market.

By employing these evaluation methods, the government can gauge the effectiveness of vocational education in China, identify areas of improvement, and make informed decisions to enhance the learning outcomes of vocational college students. Continuous evaluation and feedback mechanisms contribute to the ongoing improvement of vocational education programs, ensuring that graduates are well-prepared for the demands of the job market.

**Creation and Validation Process**

This paper uses data from two sources: (1) The China's Education Policy Database (CEPD). The construction of CEPD took ten years (2012-2022), with a database covering over 130000 policy documents. (2) The Educational statistics yearbook of China (ESYC) (1994-2022) provides grassroots statistical survey data of schools reported by the education departments of various provinces, autonomous regions, and municipalities in China.

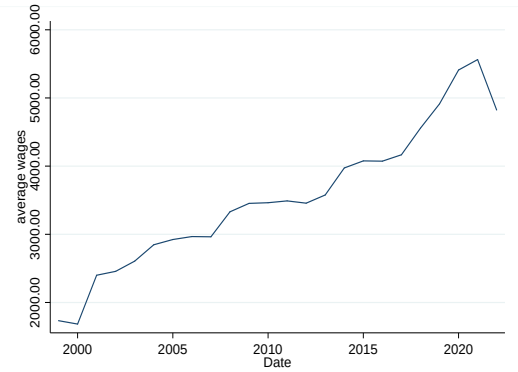
Table 2: Descriptive Statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Unrates | 1300 | 0.1610 | 0.19125 | 0.0095 | 0.1927 |
| Wages | 1300 | 23799 | 8.46518 | 1756 | 75678 |
| Enrolls | 1300 | 0.1562 | 0.9962 | 0.0048 | 0.348 |
| Graduation rates | 1300 | 0.8037 | 0.2756 | 0.0715 | 0.9561 |
| Student satisfaction levels | 1300 | 0.6344 | 0.3206 | 0.0953 | 0.9124 |
| Promotion | 1300 | 0.4837 | 0.2090 | 0.0625 | 0.7186 |
| Student-teacher ratio | 1300 | 0.7566 | 1.037 | 0.1626 | 0.9419 |
| Teacher qualifications | 1300 | 52.778 | 53.494 | 9.038 | 230.269 |

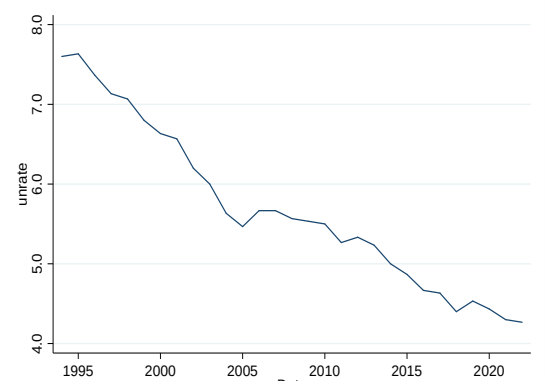
Note: Unrates represents the unemployment rate of vocational college graduates; Wages represents the average starting salary of vocational college graduates; Enrolls represents the number of students in the school; Graduation rate means the percentage of students who successfully complete their vocational education program. A higher graduation rate could be seen as an indicator of better-quality training; Student satisfaction levels measure students' satisfaction with the school, with 1 indicating satisfaction and 0 indicating dissatisfaction; Promotion represents the rate of promotion or career advancement among graduates; Student-teacher ratio represents the ratio of students to teachers can affect the quality of education. A lower student-teacher ratio can lead to more individualized attention

and better learning outcomes (Polas et al., 2019). This variable can be included in the regression model to analyze its impact on education quality; Teacher qualifications Indicates the proportion of teachers with qualifications.

Figure 1 presents a visual representation of the trend in starting salaries for vocational college graduates. This upward trajectory suggests that the education and skills obtained through vocational education are increasingly valued by employers. Figure 2 presents a downward trend in the unemployment rate among vocational college graduates over time. This decline in the unemployment rate indicates a positive labor market outcome for vocational college.



graph1:Average income of vocational college graduates



graph2:unrate of Vocational college graduates

## Model Research Design

To test the impact of local government policies on the quality of vocational college graduates, an econometric model is established. This model aims to analyze the relationship between specific policy variables and indicators of graduate quality. The model takes into account various factors that may influence graduate quality, such as demographic characteristics, educational inputs, and economic conditions. The econometric model can be expressed as follows:

$$\text{unrates}_i = \alpha_0 + \sum_j \alpha_j \, \text{Policy}_j + \gamma X_i + \varepsilon_i \quad (1)$$

$$\text{wages}_i = \beta_0 + \sum_j \beta_j \, \text{Policy}_j + \delta X_i + \mu_i \quad (2)$$

Where Unrates represents the unemployment rate of vocational college graduates; Wages represents the average starting salary of vocational college graduates; Policies can be Classified as in Table 1: Reform，Curriculum，Apprentice，Teacher-Training，Certification and Innovation. X represent the individual characteristics in Table 2.

Table 3: Regression results of equations (1) and (2)

| | Unrates | Wages |
|---|---|---|
| Reform | -0.203*** | 0.63*** |
| | (3.34) | (2.33) |
| Curriculum | -0.33 | 0.727 |
| | (1.47) | (0.47) |
| Apprentice | -1.06*** | 0.76** |
| | (3.47) | (1.99) |
| Teacher-Training | 0.65 | 0.11 |
| | (0.45) | (0.04) |
| Certification | 1.09 | 2.4** |
| | (0.78) | (1.97) |
| Innovation | -1.21*** | 7.17*** |
| | (3.44) | (4.11) |

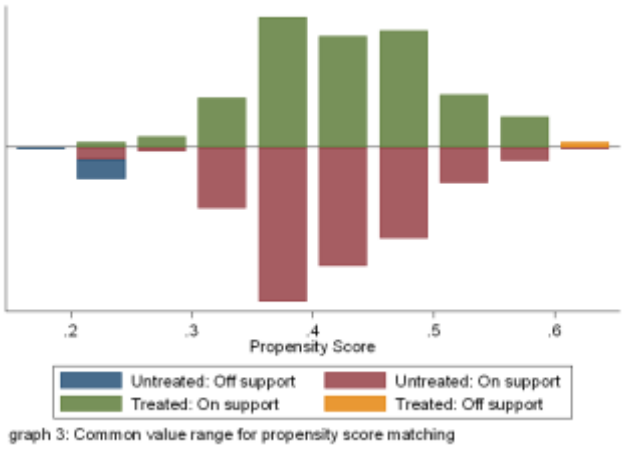
Note: 1. The parentheses in the table indicate the T-statistic; 2. *** represent a confidence level of 0.01, ** represent a confidence level of 0.05, * represent a confidence level of 0.1.

Table 3 presents the regression results that examine the impact of specific policies on the unemployment rate and wages of vocational college graduates. The results reveal that the Vocational Education Reform, Apprenticeships, and Innovation Support policies have a significant effect on these outcomes. Firstly, the Vocational Education Reform policy demonstrates a noteworthy reduction in the unemployment rate of graduates. This policy likely includes reforms aimed at improving the quality and relevance of vocational education programs, enhancing graduates' skills and employ ability. The statistically significant coefficient indicates that the implementation of vocational education reforms is associated with a decrease in the unemployment rate among vocational college graduates. Secondly, the Apprenticeships policy shows a significant impact on both the unemployment rate and wages of graduates. The provision of apprenticeship opportunities enables students to gain practical experience and develop industry-specific skills, making them more attractive to employers. The results suggest that graduates who have access to apprenticeship programs are more likely to secure employment and potentially receive higher wages compared to those without such opportunities. Lastly, the Innovation Support policy demonstrates a positive influence on graduates' wages. This policy likely encompasses initiatives aimed at fostering innovation and entrepreneurship among

vocational college graduates. By promoting innovation and providing support for entrepreneurial endeavors, graduates may have greater opportunities to create and benefit from innovative enterprises, resulting in higher wages. The statistically significant coefficients associated with these policies indicate their significant impact on reducing the unemployment rate and increasing wages among vocational college graduates. These findings suggest that effective implementation of the Vocational Education Reform, Apprenticeships, and Innovation Support policies can contribute to better labor market outcomes for graduates.

**Causal Analysis of Government Policies**

Over the past ten years, 331 vocational colleges in 11 provinces have been pilot evaluated, and we have designated them as experimental groups (policy=0). Additionally, 980 vocational colleges have not been evaluated, and we have designated them as control groups (policy=1). taking 2014 as the time point for evaluating the implementation of the policy, we use T=0 to indicate before the policy and T=1 to indicate after the policy.




graph 3: Common value range for propensity score matching

To ensure the accuracy and reliability of propensity score matching results, the matching balance test will be conducted on each variable, as shown in Table 3. The absolute standard deviation values of the data after matching each variable significantly decreased, and were all less than 10%. From the results of the t-test, it can be seen that except for the Tractorq variable t-test, which has an accompanying probability greater than 5%, all other variables have an accompanying probability greater than 10%, indicating that after matching the data of each variable, the treatment group is relatively close to the mean of the control group and there is no significant difference, that is, it satisfies the hypothesis of balance. From this, it can be considered that the matching effect is good, the covariates selected in the matching are appropriate, and the matching method is appropriate. From the common value range of propensity score matching in Graph 3, it can be seen that only 5 samples have observed values that are not within the common value range, with 3 in the control group and 2 in the processing group. Therefore, only a small amount of sample data will be lost after propensity score matching.

Table 4: difference-in-difference estimation result

| Outcome var. | Unrates | S. Err. | T | P>t |
|---|---|---|---|---|
| After | | | | |
| Control | 20.04 | | | |
| Treated | 17.065 | | | |
| Diff (T-C) | -2.975 | 0.943 | -3.16 | 0.002*** |
| Before | | | | |
| Control | 17.449 | | | |
| Treated | 17.499 | | | |
| Diff (T-C) | 0.05 | 0.015 | 3.33 | 0.001*** |
| Diff-in-Diff | -3.026 | 1.342 | -2.25 | 0.024** |

Table 5: difference-in-difference estimation result

| Outcome var. | Wages | S. Err. | T | P>t |
|---|---|---|---|---|
| After | | | | |
| Control | 50041 | | | |
| Treated | 57065 | | | |
| Diff (T-C) | 7024 | 3516.5 | 1.998 | 0.028*** |
| Before | | | | |
| Control | 33441 | | | |
| Treated | 35887 | | | |
| Diff (T-C) | 2446 | 1637 | 1.494 | 0.174 |
| Diff-in-Diff | 4578 | 2335 | 1.961 | 0.044** |

Tables 4 and 5 indicate that the treatment effect of government evaluation policies on the unemployment rate of vocational college graduates is -3.026, with a T-test value of -2.25. It can be seen that the government's evaluation policies have effectively reduced the unemployment rate of vocational college graduates. The effect of government evaluation policies on the initial employment salary of vocational college graduates is 4578, with a T-test value of 1.961. It is not difficult to see that the government's evaluation policies have effectively increased the initial employment wages of vocational college graduates.

**Conclusion and Policy Recommendations**

In conclusion, the Chinese government's evaluation policies have had a positive impact on reducing the unemployment rate of vocational college graduates and increasing their initial employment wages. By encouraging vocational colleges to focus on improving the quality of education and training they provide, the government has helped to produce graduates with better skills and competencies, making them more attractive to employers. Additionally, the government has implemented policies to encourage employment among vocational college graduates, such as subsidies for companies that hire them and vocational training and job placement services. As a result, the overall employment rate of vocational college graduates in China has remained stable at around 90%, and many graduates are able to secure jobs with higher initial wages than in the past. While there are still challenges to

be addressed, such as the issue of skills mismatches, the government's evaluation policies have played an important role in improving the employment prospects of vocational college graduates in China. By implementing these policy recommendations, the Chinese government can further enhance the effectiveness of its evaluation policies and improve the employment prospects of vocational college graduates.

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