

The Impact of Education Funding on the Ratio of General Education and Vocational Education in the Middle School Entrance Examination

Cheng Yan

School of Foreign Languages, Tianjin Chengjian University, Tianjin, 300380, China

1910741108@mail.sit.edu.cn

Abstract. The issue of the separation of general education and vocational education (GE&VE) in the middle school entrance examination is one of the key research topics in China's education circles. It is still controversial that in what range will the ratio of GE&VE be able to make education development more effective. Researchers have made great progress in the study of the separation of GE&VE in the middle school entrance examination, but there is still a lack of unified explanation for the research on the key factors of the ratio of GE&VE. This study aims to examine how education funding influences the ratio of GE&VE, and analyzes per capita disposable income (PCDI) as a supplementary factor. Thus, this paper gathers information about enrollment in both regular high schools and secondary vocational schools, the education funding of 31 provinces in China, and the national PCDI, then divides the enrollment of ordinary high schools by the enrollment of secondary vocational schools to obtain the data of the ratio of GE&VE. The F-test and hausman test are used to determine that the data model of the study is fixed effects model. The results indicate that education funding and the ratio of GE&VE are not positively related, but there is a positive correlation between the PCDI and the ratio of GE&VE. Investing to support the development of VE is not the only way to optimize the ratio of GE&VE. Gradual changes in thinking and outlook on career choices should also be made by individual citizens.

Keywords: The ratio of general education and vocational education, education funding, per capita disposable income, the separation of general education and vocational education in the middle school entrance examination.

1. Introduction

Education is the cornerstone and guarantee of social development, and China's annual investment in education has accounted for more than 4% of GDP in the past decade. The party and the state have released numerous documents to support the high-quality development of vocational education (VE) due to their gradual attention towards it. Although China has also adopted a model of the separation of general education and vocational education (GE&VE), the effect is very different from that of Germany. Despite China's investment in VE development, the vast majority of parents and students in China still have a negative attitude towards VE. In the 1970s, China began to focus on economic construction and economic development needs. knowledge-based talents and a large number of technical talents were cultivated during this period. Theoretically, professional skills training for more than half of Chinese students annually is necessary to meet social development needs, but the reality is that Chinese high-quality technical personnel are in short supply every year. Studying the relationship between education funding and the ratio of GE&VE can explore the best way to cultivate knowledge-based and technical talents in China, so as to make the education system sounder. By continuously adjusting the allocation of education funding, the ratio of GE&VE will be closer to the demand for talents in Chinese society, the supply of labor will be guaranteed, the advantages of the demographic dividend will be seized, and the labor structure will be optimized, so that the policy of the separation of GE&VE in the middle school entrance examination can better optimize China's talent structure, enhance the overall quality of talent training, and promote the completion of a modern economic system [1]. At the same time, it also makes Chinese education more equitable, and conducts different education according to the personality and quality of students [2].

2. Literature Review

Secondary vocational education and its influence began to receive attention in the 70s of the 20th centuries [3]. Since 1985, when China began to promulgate the policy of "the separation of GE&VE", the debate over the separation of general jobs has never stopped [4]. Some scholars believe that GE&VE should not be diverted, and that they should be integrated and developed in order to better cultivate talents for China. There are also some scholars who believe that it is too early to be diverted after the middle school entrance examination, and the best time to divide is after the college entrance examination. The three stages of free diversion, induced diversion, and forced diversion are the main stages of the separation of GE&VE for junior high school students in China after graduation [5]. Policy is the embodiment of the will of the country, and through the policy, we can better see the government's attitude towards the separation of GE&VE. Therefore, most scholars usually combine the background of the times and the current policies when describing the development process of China's separation of GE&VE. There are also some scholars who believe that Confucianism is largely responsible for the unbalanced development of GE&VE in China [6]. The purpose of the separation of GE&VE is people oriented, but in fact VE is regarded as inferior to GE, which is significantly different from the original plan to achieve the coordinated development of GE&VE. [7]. In the survey of junior high school students' diversion intention after graduation, an interesting can be found that parents even play a decisive role in students' diversion choice through Logistic regression analysis [8].

At present, the academic community has paid attention to some problems caused by the ecological balance and coordinated development of GE&VE after the compulsory stage, and emphasized that the characteristics of the coordinated development of general education and vocational education should be symbiosis and sharing [9]. Some scholars have shown the imbalance between general high schools and vocational high schools after the separation of GE&VE, by analyzing the number of students, and financial resources [10]. The requirements of the separation of GE&VE under the niche theory should be based on the individual differences of students, highlight the diversified development, and provide the most suitable niche development space according to the differences, so that each student can have a specific niche with unique functions and values [11]. At present, most of the research methods are used to collate, read and analyze the relevant literature by means of literature analysis, historical investigation and comparative investigation. Scholars gather information through interviews with teachers and students, as well as questionnaires. However, in terms of research, there are still many shortcomings in the current survey. The study lacks some typical cases and the analysis of the cases is not in-depth. There are many factors involved in the main body of the separation of GE&VE, and many studies do not include all the factors in the actual investigation, so that there are omissions in the subsequent analysis and summary [12]. From the perspective of cultivating high-quality technical talents, China's development needs require a reasonable separation of GE&VE policies. How to find a suitable ratio of GE&VE for China's development has become a difficult problem at present. Although some scholars have studied the factors that affect the ratio of GE&VE, few scholars have studied the impact of education funding on the ratio of GE&VE.

3. Research Hypotheses

Education funding is a term used to describe the actual spending on education in the budgets of the central and local financial departments, including education expenses and investment in educational infrastructure. Education diversion refers to dividing students into different categories according to different training standards, allowing them to enter different categories of schools to study and explaining corresponding teaching knowledge according to the different levels of students, so as to cultivate talents who meet different social needs. Therefore, the definition of the separation of GE&VE is defined as the ratio of enrollment between the two types of schools, that is, the ratio of the number of fresh graduates enrolled in ordinary high schools to the number of students enrolled in secondary vocational schools each year. PCDI is the disposable income available to each resident. In

summary, this paper proposes hypothesis 1: there is a positive correlation between education funding and the ratio of GE&VE; hypothesis 2: there is a positive correlation between PCDI and the ratio of GE&VE.

4. Research Design

The analysis and processing of the data is done using Stata16 statistical software based on macro data. The study data comes from the National Bureau of Statistics of China, which collects three types of data from 31 provinces in China: education funding, general high school enrollment and secondary vocational school enrollment. The ratio of GE&VE in the middle school entrance examination in each province is calculated by the number of students enrolled in ordinary high schools and the number of students enrolled in secondary vocational schools, that is, the ratio obtained by dividing the number of students enrolled in ordinary high schools by the number of students enrolled in secondary vocational schools. According to the data and variable requirements used in this study, the relationship between education funding and the ratio of GE&VE is analyzed in two ways: scatter plot and fixed effect. Among them, the dependent variable is the ratio of GE&VE, and the independent variable is the education funding. In addition, considering that it is not only education funding that may have an impact on the ratio of GE&VE, other factors that include PCDI as an independent variable are added to the fixed effect. The following table shows the abbreviations of each variable (See Table 1).

Table 1. Variable pronouns

variable	Pronouns
the ratio of general education and vocational education	y
education funding	edu
Per capita disposable income	pcdi

5. Analysis

Table 2. Descriptive statistics of variables

Variable	Obs	Mean	Std.Dev.	Min	Max
y	248	1.896	0.55	0.981	4.079
edu	248	0.121	0.081	0.012	0.539
pcdi	248	2.511	1.123	0.974	7.223

From Table 2, the author can see the sample size, mean, standard deviation and extreme values of the ratio of GE&VE, education funding and PCDI. This table helps the author to better understand the data and form a preliminary understanding of the research.

(1) Scatter plot analysis

To gain a better understanding of the relationship between education funding and the ratio of GE&VE more intuitively, a scatter plot is drawn below.

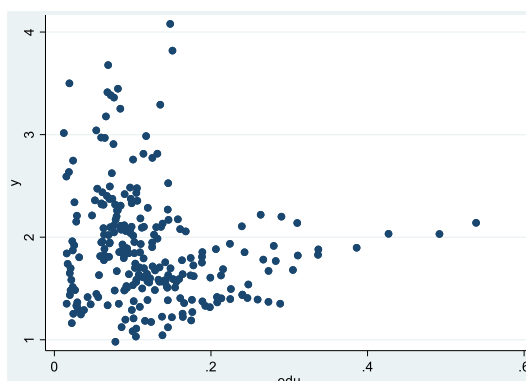


Figure 1. Scatter plot of the ratio of GE&VE to education funding

Through the scatter plot, the author can understand a general distribution trend of the ratio of GE&VE to education funding, that is, the value of the ratio of GE&VE is higher when the value of education funding is small, and the ratio of GE&VE is smaller with the increase of education funding.

(2) Select the model

First, the F-test and the Hausman test are performed, and the following table contains the statistics and p-values of the two tests (see Table 3). Since the p-value of both test models is 0, the appropriate model of this study is selected from the ordinary least squares method, fixed effect, and random effect, that is, the fixed effect model.

Table 3. F-test and Hausman Test

test	Statistics	p-value
F-test	30.12	0.0000
Hausman test	21.72	0.0000

(3) Fixed effect

Hypotheses 1 and 2 can be tested by a fixed-effect model. The test results can be shown in the table 4 below.

Table 4. Fixed-effect Model

variable	y
edu	-2.0968* (1.068)
pcdi	0.3549*** (0.057)
Constant	1.2538*** (0.081)
Observations	248
Number of id	31
R-squared	0.253

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The test results of hypothesis 1 in Table Fixed-effect Model reject hypothesis 1, and there is actually a negative relationship between education funding and the ratio of GE&VE. The coefficient is 2.0968. The test results of Hypothesis 2 in Table Fixed-effect Model show a positive correlation between PCDI and the ratio of GE&VE, and hypothesis 2 is confirmed.

6. Results

The statistical analysis results above can be used to obtain the following results.

(1) The ratio of GE and VE can be optimized by education funding. First of all, in view of the actual situation of China's current development, the country has a large demand for high-end technical talents, so the smaller the value of the ratio of GE&VE, the more in line with the actual needs of China's vocational and technical personnel training strategy. The ratio of GE&VE is negative in relation to education funding. This shows that the development of vocational education schools is inseparable from the strong support and investment of the state, and they are highly dependent on the national education financial allocation. At present, due to the scarcity of educational resources and the lack of financial capacity, it is possible to maximize the use of educational resources by improving the efficiency of spending and using secondary education.

(2) There is a positive correlation between PCDI and the ratio of GE&VE, which indicates that the higher the disposable income, the greater the possibility that students will enter ordinary high schools. This is due to the traditional Chinese mentality. Parents want their children to enter a normal high school to learn professional knowledge, so that they can get a good score in the college entrance examination and enter a good university, which can guarantee a decent job in the future, rather than a more mechanical and complex technical job. Therefore, in addition to the financial investment and

support of the state, it is also extremely important to change the residents' perception and attitude towards vocational schools.

7. Limitation and Future Prospects

Clearly, it is not just education funding that has an impact on the ratio of GE&VE, but many other factors. This paper only takes into account one factor and makes the main analysis, and a combination of factors is required for scholars to find a ratio of GE&VE that meets the needs of social development. If scholars want to explore the impact of education funding on the ratio of GE&VE, scholars should continue to look for other function models for further analysis, explore the relationship between the two from multiple dimensions and perspectives, and improve the matching degree between functions and data. In order to solve the shortcomings, some feasible solutions are proposed: increase the study of papers, explore other factors, and at the same time select a functional model that better matches the data and variables for calculation.

8. Conclusion

Education funding is negatively linked to the ratio of GE&VE. The ratio of GE&VE has a positive correlation with PCDI. This shows that different factors have different effects on the ratio of GE&VE. Through research, this paper finds that education funding can have a greater impact on the ratio of GE&VE. General high school education learns different scientific and cultural knowledge, which is more theoretical. VE means that students should focus on a specific career field from high school, and the course content is closely related to vocational skills. To support vocational education schools in terms of policy, the state should invest more in education and constantly strengthen vocational school infrastructure & teaching conditions. In addition to national efforts, there should also be corresponding efforts by society and individuals. In terms of public opinion, the Chinese government should regulate media coverage, create a good image of VE, and change the people's prejudiced perception of VE. Citizens themselves should establish a pluralistic outlook on occupations, gradually change their understanding of VE, and increase their understanding of VE. This study can serve as a reference for other scholars to examine the factors that influence the ratio of GE&VE, and fill the gap in the research on the factors that affect the ratio of GE&VE.

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