

# *Inter Provincial Differences (IPD) in the Impact of Basic Education (BE) on Economic Development*

Zhaojun Pang\*

*Xi'an Fanyi University, Xi'an, 710105, Shaanxi, China*

*79738961@qq.com*

*\*Corresponding author*

**Keywords:** Basic Education, Economic Development, Development Impact, Inter Provincial Differences

**Abstract:** The investment scale and quality of BE have improved rapidly, but the inter provincial investment difference in BE is still obvious, the unreasonable hierarchical structure of BE is still prominent, and the task of reasonably promoting the contribution of BE to economic growth is still severe. Based on this consideration, this paper studies the relationship between BE and economic growth and IPD, analyzes the IPD of BE in detail, and puts forward countermeasures and suggestions to improve the economic development (ED) of BE; taking the province A as an example, this paper analyzes the distribution of urban and rural educational resources and the gap between urban and rural ED in province a through statistical data. The statistical data show that, compared with cities and towns, the economic living standards of urban and rural residents are gradually improving, but the urban development is relatively fast, while the rural development is very slow, resulting in an increasing gap between urban and rural ED and increasingly serious polarization.

## 1. Introduction

The steady growth of the national economy provides favorable conditions for the expenditure of BE, and the convenient policy system provides a strong guarantee for the development of BE. How to allocate RESOURCES more effectively and effectively improve the role of BE in promoting ED has become an urgent problem to be solved in the development of BE.

Many scholars at home and abroad have studied the IPD in the impact of BE on ED. Aggarwalhk explored the knowledge of CKD patients by using the mkaq and mmsa-8 questionnaire and evaluated the impact of disease ON knowledge and treatment compliance. The results show that patients with higher socio-economic status and higher BE have more understanding of their disease and management, and have higher compliance with prescription treatment. The most common reason for non-compliance is the high cost of drugs. Conclusion: poor compliance and poor drug knowledge are still the main obstacles to the effective treatment of CKD patients [1]. Faiziw aims to analyze the different methods used in preschool education in developing countries and understand how to improve the quality of education by integrating these methods. It relies on qualitative research methods and is basically based on secondary data. Quality education is one of the key indicators of a country's ED. We should not only provide education, but also make education a

basic right of everyone [2].

In theory, there is a dialectical relationship between education and economy. This paper studies the IPD in the impact of BE on ED. Using statistics, econometrics, and other tools, this paper studies the impact of education on ED in a province from different levels such as regional differences in education, urban-rural differences and investment efficiency differences, and tries to reveal the relationship between education differences and ED from multiple angles and levels, provide some theoretical basis for the study of educational differences and coordinated ED in other regions [3].

## **2. Research on the IPD of the impact of BE on ED**

### **2.1 Analysis of IPD in BE**

Differences in Teachers' strengths: Teachers' strength only includes the proportion of teachers with bachelor degree or above, which can reflect the overall level of teachers in a region; differences in teaching places: the IPD in the area of gymnasiums per student in China show a decreasing trend year by year, but the differences are still very obvious. On the whole, the resource allocation of this index is unfair; the inter provincial difference between the average school building area and the average classroom area in China is small, and the degree of difference is small. On the whole, the resource allocation of these two indicators is very fair; from the change of McLaren index, the inter provincial difference between regions with low per student gymnasium area in China has narrowed slightly, but this difference is still very obvious; the inter provincial difference between the areas with low average student school building area and classroom area in China is small, and the degree of difference is small [4-5].

Differences in teaching supplies: teaching supplies include the number of books per student, the number of computers per student, and the assets of teaching instruments and equipment per student. These indicators can reflect whether the number of teaching supplies in a region is sufficient. The inter provincial difference in the number of books per student in China is slightly smaller, and the degree of difference is small. The resource allocation of this index has entered a relatively fair state; The IPD of teaching instruments and equipment assets per student in China generally shows a decreasing trend, but the degree of difference is still obvious. The IPD between regions with low book copies per student, computers per student and teaching instrument and equipment assets per student in China changes very little, and the degree of difference is small, but the difference of teaching instrument and equipment assets per student is still obvious, that is, there are still some IPDS between regions with sufficient assets of teaching instruments and equipment. Differences in education funds: the IPD between regions with low public funds in the average student budget in China show changes of first increasing and then decreasing; from the change of the worstgen index, the IPD among regions with higher per student education expenditure, education utilities within the per student budget and public funds within the per student budget in China have slowly narrowed, but there are still some differences [6].

### **2.2 Countermeasures and Suggestions for Improving the ED of BE**

From the perspective of the horizontal structure of education investment, we should first increase the public investment in education, especially the construction of BE and educational infrastructure in underdeveloped areas. Because in terms of capital stock and population density, China's coastal areas have absolute advantages, so in terms of education quality, coastal areas are better than other areas. The marginal output of education in China is on the rise on the whole. Therefore, the increase of the proportion of public investment in education in these areas can make up for the gap of

regional ED to a certain extent. Whether in terms of improving population quality, optimizing industrial structure, cultivating reserve labor force, or improving regional cultural accumulation, education is a good medicine to promote the overall development of the region. Moreover, the construction of educational infrastructure and the popularization rate of compulsory education (primary and secondary schools) in China's underdeveloped areas are relatively backward, and due to the relative lag of ED, local governments can't afford this part of education expenses. Therefore, our country's investment in education in underdeveloped areas is biased to ensure the perfection of these systems.

In addition, we should set up and develop supporting educational undertakings according to the economic characteristics of economically underdeveloped areas, to make the education and economy in these areas in a state of mutual promotion. The imbalance of regional development in China is also reflected in the excessive concentration of various industries in the eastern coastal areas. For example, science and technology, industry, energy, finance, culture and high-tech industrial circles are almost concentrated in the four cities of "north, Shanghai, Guangzhou and Shenzhen". Breaking such a strange circle pattern will be of epoch-making significance to China's overall development.

There is such a model in the western region of China: because China's aerospace industry is very developed, which is conducive to the development of education in the aerospace field, almost all universities with developed aerospace disciplines in China are concentrated in the western region, and have formed an interactive industrial model [7-8]. However, such educational production is very scarce in our country, and almost all systems were built before the reform and opened up. Even after the reform and opening up, such educational industry interaction has become farther and farther away.

The mode of education serving industry and industry promoting ED is very few in underdeveloped areas of our country. China's current development can learn from the idea after the American Westward Movement: establish industrial parks in the West and support corresponding colleges and universities to promote each other. The interactive mode of "education industry" will drive the development of regional economy and narrow the imbalance of regional gaps. In terms of the vertical structure of public investment in education, we should first increase the investment in compulsory education and vocational education, improve the construction of BE and higher vocational and technical education, and focus on the cultivation of basic cultural quality and the enhancement of professional skills. The exact idea is that China's education investment model is to invest limited educational resources in the expansion of BE, including "junior college to undergraduate", discipline ranking, master's degree application, and other projects [9]. The expansion of these fields takes up a lot of educational input resources, but it does not make much contribution to the long-term output, which leads to the reduction of the marginal output of education. Moreover, the more underdeveloped regions, the more serious this situation will be, which also leads to the lack of human capital accumulation in other regions. It is bound to widen the gap of regional ED on the basis of unbalanced capital stock. Therefore, based on the increase of public investment in education, China will increase investment in the field of BE and vocational education, especially in economically underdeveloped areas.

China's investment in economically underdeveloped areas should refer to the models of Germany and Japan, do not be eager for success, and adhere to the long-term education policy of "ten years of trees and a hundred years of people", to lay a solid foundation for future development in the period of economic transformation. In addition, we should pay more attention to improving the quality of BE, which is also the future of China's education. The quality of education in colleges and universities will play a vital role in China's future mainstream culture. Because college graduates will be the backbone and leader of China's various undertakings in the coming decades, and will be

passed down without generations [10-11]. Due to the current incentive system of colleges and universities in China, colleges and universities put more energy on the subject ranking and the publication of professional journal papers, which have little impact on the growth of teaching quality. At the teaching level, the cultivation of students' autonomous learning and research ability is greatly insufficient. This has also led to the expansion of BE, but the proportion of successful students is getting lower and lower. Therefore, the focus of improving the quality of BE is to increase the encouragement of independent innovation ability and investment in intellectual property protection; increase the investment in students' quality management, teachers' teaching level, hardware facilities and scientific research incentives. We will improve the efficiency of the use of funds for BE, focus on improving the quality of education and accelerating educational innovation, improve the development level of BE, and promote the coordinated development of education and economy. Improve the stock of human capital and accelerate the transformation of human capital [12].

### 3. Establishment of Government Investment Benefit Model

This paper uses the production function under the assumption of neoclassical economics to explain the economic value of education. Educational investment creates economic benefits by improving the quality of labor force, that is, investing in capital stock. Assume that the production function is:

$$W = XL^{1-\eta}H^\eta \quad (1)$$

Here, W is the total output, X is the technical state index of ED, L is the stock of educated labor force, and H is the stock of physical capital. Then the production function of knowledge and skilled labor force:

$$W = XN^{(1-\eta)*(1-\sigma)}E^{(1-\eta)*\sigma}H^\eta \quad (2)$$

Among them,  $\eta$  and  $1-\eta$ , are the output elasticity of material capital and labor force of human capital. The proportion of output income brought by original labor input and education investment in total output is  $(1-\eta)$  and  $(1-\eta)*\sigma$ .

For multiple linear regression analysis, let  $F_0 = \ln X$  ( $1/\rho$ ),  $F_1 = (1-\eta)*\sigma/\rho$ ,  $F_2 = \eta/\rho$ , Then the calculation formula is:

$$\ln(W/N) = F_0 + F_1 * \ln(E/W) + F_2 * \ln(H/W) \quad (3)$$

W is the annual total national economy adjusted by the price index, n is the number of social workers in the year, and E is the annual public education capital stock adjusted by the price index and depreciated. Since the public education capital stock cannot be obtained directly, the public education capital stock is replaced by the education expenditure in the national financial expenditure.

## 4. Analysis of the impact of BE on ED

### 4.1 Distribution of Urban and Rural Educational Resources

To study and analyze the impact of China's ON ED, this paper randomly selects a province (province a) to analyze and analyze the data of rural and urban education hardware environment in the province A. The data comparison is shown in Table 1 and Figure 1.

Table 1: Comparison of hardware environment of BE in a province

	primary school		junior high school		high school	
	countryside	town	countryside	town	countryside	town
School building construction area (m <sup>2</sup> )	5567833	2648757	3575479	1647896	985379	5284243
Playground area (m <sup>2</sup> )	17086432	3479521	8374321	1964375	1526785	4045732
Total value of instruments and equipment	24903.14	15173.56	23289.05	10844.56	8594.92	34567.64
fixed assets	352854.53	196533.45	213567.64	114764.58	61350.43	396543.76

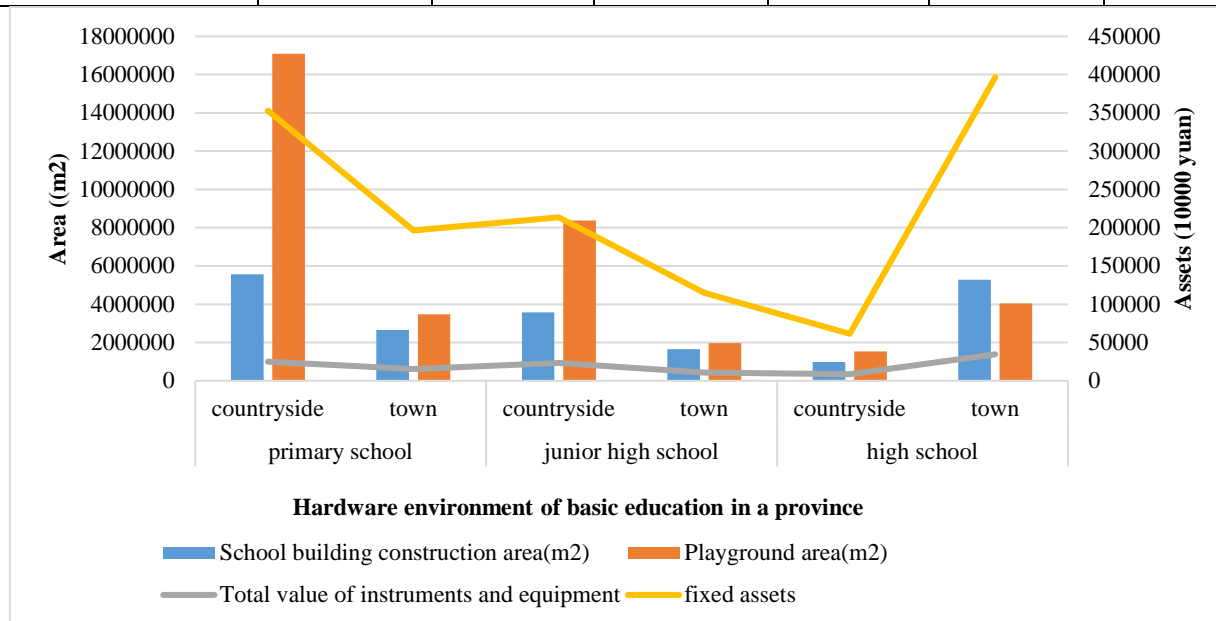


Figure 1: Hardware environment to BE in a province

The data in the above chart shows that, compared with cities and towns, the hardware environment such as teaching facilities is very different. Especially in the stage of high school education, on the premise that rural students are significantly more than urban students, the hardware conditions in rural areas are far behind those in urban areas. From the perspective of teaching infrastructure, urban schools have complete education and teaching equipment. The vast majority of schools have begun to use modern education and teaching means and have established a series of teaching facilities, including computer rooms, laboratories, voice room, and so on. Schools in rural areas only have a few computers, and most of them are eliminated from urban schools. In some places, teachers and students are still taking classes in dilapidated buildings, so it is impossible to use modern teaching facilities at all.

#### 4.2 Analysis on the Gap between Urban and Rural ED

With the reform and opening up and ED, the living standards of urban and rural residents in the province A have been greatly improved. However, due to the continuous changes in the income distribution pattern of urban and rural residents and the continuous widening of income channels, the income gap between urban and rural residents, the per capita income of urban residents is the per capita disposable income, and the per capita net income of rural residents is the per capita net

income of farmers. The empirical research on the impact of education differences on ED in a province is expanding, and the concentration of income distribution is higher and higher. This paper selects the indicators such as per capita income, per capita living consumption expenditure, Engel coefficient, and per capita consumption expenditure of culture, education, and entertainment in the main years, and draws the ED of urban and rural residents into Figure 2. The data comes from the survey yearbook of a province.

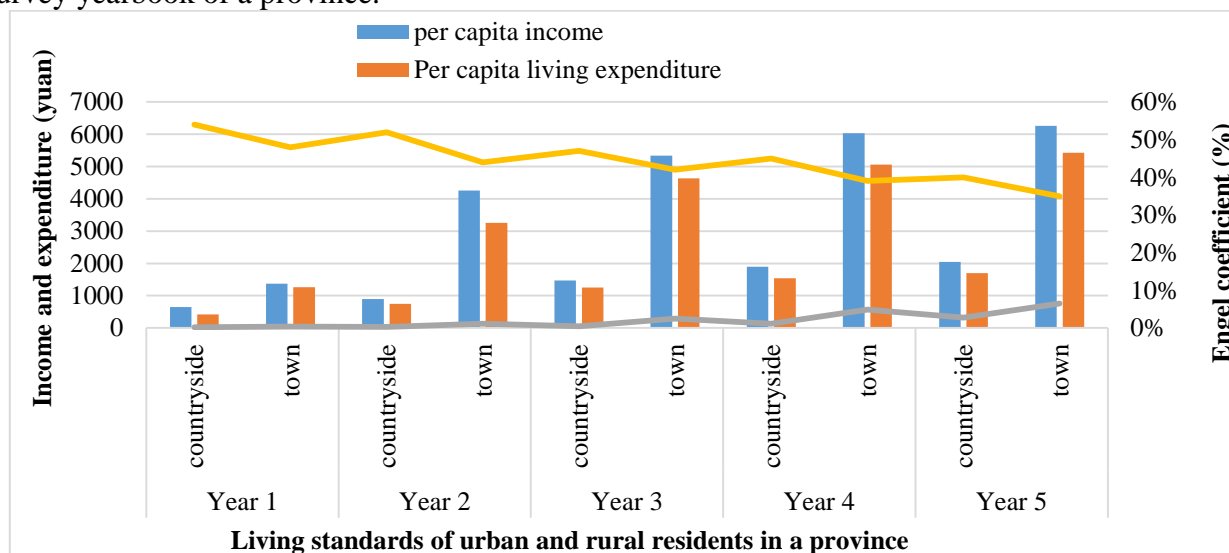


Figure 2: Living standards of urban and rural residents in the province

According to the yearbook data, the per capita income of urban residents in the province A was 1376 yuan in the first year, while it reached 6264 yuan in five years. The per capita living consumption expenditure also increased from 1264 yuan in the first year to 5432 yuan in the fifth year. The per capita entertainment consumption expenditure was only 45 yuan in the first year and increased to 753 yuan in the fifth year. The Engel coefficient decreased from 48% in the first year to 35% in the fifth year. At the same time, the per capita income in rural areas of the province is 647 yuan and 2043 yuan, respectively, the per capita living consumption expenditure is 423 yuan and 1697 yuan, respectively, the per capita entertainment consumption expenditure is 23 yuan and 178 yuan respectively, and the Engel coefficient is 54% and 40% respectively. As can be seen from the above figure, the economic living standards of urban and rural residents are gradually improving, but the urban development is relatively fast, while the rural development is very slow, resulting in an increasing gap between urban and rural ED and more serious polarization.

Therefore, the government should increase the investment in public education as soon as possible, especially to meet the needs of individuals in the future. Expanding the base of human capital stock growth is a prerequisite for achieving sustainable economic growth.

## 5. Conclusions

Based on the existing research, this paper analyzes the impact of DIFFERENCES on ED in a province from various levels such as regional differences, urban-rural differences, and investment benefit differences, and puts forward corresponding countermeasures and suggestions according to the research results, to provide a scientific basis for the government to formulate guiding policies. However, there are also deficiencies. Due to the limitations of data collection, there are few indicators representing the development of local education, which may not fully and thoroughly reflect the development level of BE, so there may be deviations. In addition, the indicator number of graduates per 10000 people can not fully reflect the level of education, which will have a certain

impact on the reflection of regional education differences. In view of the limited time and energy, this paper does not analyze the impact of vocational education on the economy, and the positive impact on BE needs to be further studied.

## Acknowledgements

Source of Funding: This work was supported by the research team of Xi'an Fanyi University Project No. XFU20KYTDC01

Research Project on Teaching Reform of Higher Education in Shaanxi Province, Project No. 21ZZ015

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