

Analysis and Research on the Influencing Factors of Government Education Fiscal Expenditure

-- Taking Qinghai Province as an Example

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Abstract: Education is an important cornerstone of national development and social progress. Educational financial expenditures are not only the material basis for educational development. Paying attention to the influencing factors of education expenditures and conducting in-depth analysis are of great significance for building a long-term, stable and efficient education financial support mechanism. Through theoretical and current analysis, based on the relevant data of Qinghai Province from 1990 to 2020, this article uses empirical analysis and literature research methods to deeply explore the influencing factors of education expenditure in Qinghai Province, and puts forward corresponding policy suggestions. The research conclusion shows: First, there is a significant positive correlation between education expenditure and regional gross product (GDP) in Qinghai Province. Second, with the development of social economy and changes in population structure, educational needs are also changing. Third, there is a positive correlation between local government's general budget revenue and education expenditure. These conclusions provide useful reference and inspiration for education fiscal policies in Qinghai Province and other regions, and help promote the sustainable development of education.

Keywords: Education Expenditure; Economic Growth; Qinghai Province; Influencing Factors.

1. Introduction

Education is an important cornerstone of national development and social progress. Its importance is not only reflected in cultivating talents and promoting innovation, but also in promoting social equity and sustainable and healthy economic development. As the core support for educational development, the rationality, efficiency and impact of national fiscal education expenditure on education quality and education equity are key indicators for measuring the level of education development in a region. Education fiscal expenditure is not only the material basis for educational development, but also an important means to achieve social equity. However, the first condition for forming a reasonable scale of education fiscal expenditure is to identify which factors affect education expenditure. Paying attention to the factors affecting education expenditure and conducting in-depth analysis on them is of great significance for building a long-term, stable and efficient education fiscal support mechanism. As an important province in western China, the level of development of Qinghai Province's education is directly related to the social progress and economic development of the region. It is a question worth exploring to form an education fiscal expenditure model with Qinghai characteristics. Against the background of the importance of national fiscal education expenditure, the issue of education expenditure in Qinghai Province is particularly worthy of attention.

Overall, the economic development level of Qinghai Province is relatively lagging, which directly affects the scale and quality of education fiscal expenditure. There is a positive correlation between economic growth and education investment. The relative lag in economic development means that the financial resources available for education are limited, which directly affects the improvement of education quality

and the realization of educational equity. From the perspective of the region, there are large differences between different regions in Qinghai Province in terms of economic development, population structure, industrial layout, employment status, geographical environment, etc. These differences have led to the uneven distribution of education investment and education services among regions. Especially in some remote and poor areas, the shortage of educational resources and the low quality of education are more prominent. The long-term planning of education fiscal expenditure needs to be forward-looking and sustainable to meet the needs of educational development. Qinghai Province needs to make long-term planning of education fiscal expenditure in light of the actual situation in the region, taking into account the development of social economy and changes in population structure, as well as the educational needs of different groups. Therefore, exploring the influencing factors of education expenditure in Qinghai Province is of great significance for optimizing resource allocation and improving the balance and quality of education services. This paper deeply analyzes the current situation of education expenditure in Qinghai Province, empirically analyzes its influencing factors, and proposes corresponding optimization measures. It can not only provide theoretical support and practical guidance for the optimization of Qinghai Province's education fiscal expenditure, but also provide useful reference and inspiration for the sustainable development of Qinghai Province's education and the formulation of more scientific and reasonable education fiscal policies.

2. Analysis of the Current Situation of Education Expenditure in Qinghai Province

As an important province in western China, the relationship

between Qinghai Province's education expenditure and regional gross product (GDP) and local fiscal general budget revenue is of great significance for understanding the health of the province's education finance and formulating effective education policies. The following is an analysis of the relationship between Qinghai Province's GDP, local fiscal education expenditures and local fiscal general budget revenue from 1990 to 2022.

First of all, from the time series data, Qinghai Province's GDP increased from 5.88 billion yuan in 1990 to 361.01 billion yuan in 2022, showing a significant growth trend. This increase reflects the rapid economic development of Qinghai Province, providing more fiscal space for education spending. At the same time, local general budget revenue has also increased from 724 million yuan in 1990 to 32.91 billion yuan in 2022. The growth rate is huge, indicating that Qinghai Province's fiscal revenue capacity has been significantly improved.

However, the growth of local fiscal education expenditures is not completely synchronized with the growth of GDP and fiscal budget revenue. It can be seen from the data that education expenditure was 406 million yuan in 1990 and increased to 22.095 billion yuan in 2022. Although the absolute amount has increased significantly, its proportion in GDP and fiscal budget revenue has not increased simultaneously. For example, in 1990, education expenditures accounted for about 6.9% of GDP, while by 2022, this ratio had dropped to about 6.1%. This suggests that while the absolute amount of education spending is increasing, its relative importance in the overall economy and fiscal revenue has declined.

Further analysis, we can find that the relationship between education expenditures and GDP and fiscal budget revenue may be affected by a variety of factors. First, an increase in the level of economic development may increase government revenue, thereby providing more funds for education expenditures. However, the growth of education spending may also be affected by factors such as policy priorities, social needs, and changes in demographic structure. For example, if the government allocates more financial resources to infrastructure construction or other areas, the growth of education spending may be limited.

Secondly, as a multi-ethnic area inhabited by Qinghai Province, the fairness and efficiency of education expenditures are of great significance in promoting social stability and ethnic unity. Therefore, the government may need to balance education expenditures among different regions and different educational stages to ensure equitable distribution of educational resources.

In addition, the efficiency of education expenditure is also an important factor affecting its proportion in GDP and fiscal budget revenue. Improving the efficiency of the use of education funds and ensuring that every expenditure can produce maximum educational benefits is the key to improving the efficiency of education expenditures. This may require improving the management mechanisms of education finance, strengthening the planning and evaluation of education projects, and improving the quality and effectiveness of education services.

Finally, education expenditures in Qinghai Province should also take into account the needs of long-term human capital accumulation and social and economic development. Educational expenditures are not only related to the current quality and equity of education, but also to future economic

development and social progress. Therefore, education expenditure planning and decision-making should be forward-looking and strategic to adapt to future social and economic development trends.

To sum up, the relationship between Qinghai Province's education expenditure and GDP and local fiscal general budget revenue is complex and affected by a variety of factors. In order to improve the efficiency and fairness of education expenditures, Qinghai Province needs to comprehensively consider factors such as economic development level, policy priorities, social needs, demographic changes, etc., formulate scientific and reasonable education fiscal policies, and optimize the allocation and use of education funds to promote the sustained and healthy development of education. At the same time, Qinghai Province should also strengthen the supervision and evaluation of education finance, improve the efficiency of the use of education funds, and ensure that education expenditures can make greater contributions to the socio-economic development and national unity of Qinghai Province.

3. Analysis of Influencing Factors of Education Investment in Qinghai Province

3.1. Variable Selection

Explanatory variables: The explained variables in this paper are the education expenditure of each prefecture-level city (Y), with a unit of 10,000 yuan, and logarithmic processing has been performed.

Explanatory variables: This paper selects five influencing factors for analysis, namely, per capita GDP ($c1$), the proportion of added value of the tertiary industry in GDP ($c2$), annual average population ($c3$), local fiscal general budgetary revenue ($c4$), and employment rate ($c5$). Among them, per capita GDP ($c1$), annual average population ($c3$), and local fiscal general budgetary revenue ($c4$) have been logarithmized.

3.2. Model Construction

This paper constructs the following econometric model to analyze the influencing factors of education expenditure in Qinghai Province:

$$Y_{it} = \alpha + \beta_1 c1 + \beta_2 c2 + \beta_3 c3 + \beta_4 c4 + \beta_5 c5 + u_i + \varepsilon_{it} \quad (1)$$

Among them, i represents the prefecture-level city, t represents the year, α represents the constant term, u_i reflects the individual fixed effect, ε_{it} is the random disturbance term, and Y_{it} is the education expenditure. $c1$ - $c5$ represent a series of influencing factors, including per capita GDP ($c1$), the proportion of the added value of the tertiary industry in GDP ($c2$), the average annual population ($c3$), the general budgetary income of local finance ($c4$), and the employment rate ($c5$). Among them, per capita GDP ($c1$), the average annual population ($c3$), and the general budgetary income of local finance ($c4$) were logarithmized.

3.3. Data Source and Descriptive Statistical Analysis

Data source: The data in this article are from the Qinghai Provincial Statistical Yearbook, Xining City Statistical Yearbook and Haidong City Statistical Yearbook, and the data span is 1990-2020. For missing data, this article uses linear interpolation to interpolate.

Descriptive statistical analysis: Table 1 is the descriptive statistical analysis of this article. It can be seen that the data

in this article is a balanced panel, and all variable samples are 62.

Table 1. Descriptive statistical analysis

variable	N	mean	p50	sd	min	max
Y	62	11.27	11.32	1.37	7.91	13.28
c1	62	9.35	9.31	0.97	7.62	10.93
c2	62	36.05	41.92	14.69	10.96	66.09
c3	62	5.17	5.13	0.18	4.63	5.46
c4	62	11.93	11.82	0.93	10.30	14.10
c5	62	0.99	0.99	0.010	0.89	1.00

3.4. Empirical Analysis based on Panel Data of Prefecture-Level Cities in Qinghai Province

Table 2 shows the regression results of factors affecting education expenditure in Qinghai Province. Based on the special economic and social development situation of Qinghai Province, we can conduct the following detailed analysis of the regression results in Table 2:

Gross regional product per capita (c1): As a relatively backward province in the economy, Qinghai Province's gross regional product per capita has a particularly important impact on education expenditures. The data shows that the coefficient of c1 is positive and highly significant in all models, with values ranging from 1.033 to 1.414, indicating that as per capita regional GDP increases, education expenditures have a significant growth trend. This may reflect that Qinghai Province has gradually increased investment in education in the process of economic development to promote the improvement of human capital and sustainable economic and social development.

Proportion of the added value of the tertiary industry in GDP (c2): The industrial structure of Qinghai Province has a direct impact on education demand and fiscal expenditure decisions. The coefficient of c2 is significant in models (2), (3), and (4), indicating that the development of the tertiary

industry has a positive impact on education expenditures. This may mean that with the development of the tertiary industry, the employment structure and labor demand in Qinghai Province have changed, placing higher requirements on education and training.

Average annual population (c3): The population size and structure of Qinghai Province have a direct impact on its education expenditure. The coefficient of c3 is significant in models (3), (4), and (5), indicating that an increase in population will lead to an increase in education expenditures. This may be related to meeting basic education needs, improving population quality and promoting social equity.

Local fiscal general budget revenue (c4): Local fiscal revenue is the main source of funds for education expenditures. The coefficient of c4 is significant in models (4) and (5), indicating that an increase in fiscal revenue can promote the growth of education expenditures. This emphasizes the importance of raising fiscal revenue to increase investment in education, especially in relatively economically backward areas like Qinghai Province.

Employment rate (c5): The employment rate reflects the labor market conditions of Qinghai Province, and its impact on education expenditure is not significant in model (5). This may be because the relationship between employment rate and education expenditure in Qinghai Province is relatively complex and is affected by many factors, such as education quality, labor demand and economic development level.

Table 2. Regression results of factors affecting education expenditure in Qinghai Province

	(1)	(2)	(3)	(4)	(5)
	Y	Y	Y	Y	Y
c1	1.372*** (0.029)	1.414*** (0.038)	1.155*** (0.035)	1.031*** (0.062)	1.033*** (0.062)
c2		-0.007* (0.004)	0.007** (0.003)	0.011*** (0.003)	0.011*** (0.004)
c3			1.479*** (0.152)	1.445*** (0.147)	1.463*** (0.150)
c4				0.119** (0.050)	0.115** (0.050)
c5					-0.821 (1.337)
_cons	-1.554*** (0.274)	-1.694*** (0.281)	-7.420*** (0.613)	-7.668*** (0.598)	-6.895*** (1.395)
N	62	62	62	62	62
F	2210.405	1144.053	2030.580	1650.731	1305.963
Individual fixed effects	Yes	Yes	Yes	Yes	Yes
r2	0.974	0.975	0.991	0.992	0.992

Constant term ($_cons$): The constant term is negative and significant in all models, indicating a lower base level of education spending when controlling for other variables. This may be related to the economic foundation and financial situation of Qinghai Province.

Model fit (r^2): The r^2 values of all models are above 0.974, indicating that the model explains a high degree of variation in education expenditures and the model fits well.

Fixed effects and F statistics: All models include individual fixed effects, which control for the impact of time-invariant prefecture-level characteristics on education spending. The F statistics are high in all models, indicating that at least one explanatory variable in the model has significant explanatory power for the explained variable.

To sum up, education expenditure in Qinghai Province is affected by many factors, among which the level of economic development, industrial structure and population size are the main influencing factors. When formulating education fiscal policies, Qinghai Province should consider the province's special circumstances, such as the relatively lagging economic development level, the particularity of the industrial structure, and the characteristics of the population structure, in order to achieve the optimization of education expenditures and the reasonable allocation of education resources. At the same time, Qinghai Province should also strengthen the growth of fiscal revenue, improve the efficiency of the use of education funds, and promote the sustainable and healthy development of education.

4. Conclusion

Based on the relevant data of Qinghai Province from 1990 to 2020, this article draws the following conclusions:

First, there is a significant positive correlation between education expenditure and regional gross product (GDP) in Qinghai Province. Judging from the data from 1990 to 2020, the education expenditures of Xining City and Haidong City have shown a trend of increasing over time, and their growth rate even exceeds the growth rate of GDP, indicating the importance of education in the development strategy of local governments. This finding is consistent with human capital theory, which states that investment in education is a key factor in promoting economic growth, increasing economic value and social productivity by improving individual skills and knowledge levels.

Secondly, with the development of social economy and changes in population structure, educational needs are also changing. Therefore, optimizing the structure of education expenditure and improving the efficiency of fund use have become important issues to improve the quality of educational services and achieve educational equity. This requires policymakers to not only consider increasing investment in education when formulating education fiscal policies, but also

pay attention to how to rationally allocate educational resources to adapt to social changes and the diversity of educational needs.

Finally, through empirical analysis, it is found that there is a positive relationship between local government's general budget revenue and education expenditure, which supports the view of fiscal federalism theory. Local governments are closer to the people and can more accurately grasp local education needs, thereby making more effective education investments. However, fiscal decentralization may also lead to unequal educational services between regions. Therefore, provincial governments need to adjust fiscal imbalances between regions through appropriate transfer payments and other means, ensure a balanced distribution of educational financial resources, and promote equal educational opportunities. change.

In summary, the study on education expenditures in Qinghai Province has drawn three main conclusions: the close relationship between education expenditures and economic growth, the necessity of optimizing the structure of education expenditures, and the key role of policy formulation in improving the efficiency of education expenditures. These conclusions provide valuable reference and inspiration for education fiscal policies in Qinghai Province and other regions, and help promote the sustainable development of education.

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