A Research of Fiscal Expenditure Efficiency Under the Guidance of Targeted Measures in Poverty Alleviation: Enshi in Hubei Province as an Example

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Abstract. Since the implementation of reform and opening up, China's implementation of the poverty alleviation policy has let more than 600 million people out of poverty, but the problem of poverty still cannot be ignored. With the constant implementation and advancement of the poverty relief policy in our country, the reform of the financial system has been deepened, and the fiscal expenditure has become a necessary way for the government to carry out targeted poverty alleviation. In this paper, targeted poverty alleviation oriented fiscal expenditure is taken as the breakthrough point. Based on the data of 8 poverty counties in Enshi, Hubei, this paper makes an empirical study by establishing panel data model. The analysis concludes that the expenditure of education in fiscal expenditure has the most significant effect on the per capita disposable income of rural residents, with the maximum elastic coefficient value. The positive effects of the two items of social security and employment expenditure and medical expenditure are smaller than those of education expenditure, while the expenditure of agriculture, forestry and water affairs has a negative effect on increasing disposable income.

Introduction

Poverty is a long-standing problem in the process of development of our society. Poverty alleviation and development in our country began in the mid-1980s. For a long time, the poor people still occupy a majority. The number of the poor is unclear and the situation is unknown. The poverty alleviation funds and projects are not in the right direction, and the quality and efficiency of poverty alleviation are low. These problems are wide-spread. In the new period, the economy of all countries in the world is developing rapidly. At this stage, China should not only continue to accelerate the development of economy, but also attain the grand goal of completing the building of a moderately prosperous society, and the first thing to solve is poverty.

In the 21st century, the Chinese government has promulgated the outline of China's rural poverty alleviation and development (2001-2010) and the outline of China's rural poverty alleviation and development (2011-2020) to solve the poverty problem in the new period. In 2013, during the inspection in Xiangxi, Hunan, general secretary Xi Jinping proposed that "poverty alleviation should be practical and realistic and suit measures to local conditions", and in 2014, the establishment of the targeted poverty alleviation mechanism was officially put forward. The so-called precision poverty alleviation, focusing on the word "precision", is manifested in the following six aspects: support objects, project arrangements, funds use, measures to households, sent by village, poverty alleviation results. Rural poverty is a long-standing problem in the process of social development in China. Fiscal expenditure for poverty alleviation is an important policy tool to solve poverty. Effective fiscal expenditure policy can alleviate the deepening poverty contradiction.

Literature Review and the Innovation Point of This Paper

Poverty alleviation has always been the focus of world attention. As the main force of targeted
poverty alleviation, the fiscal expenditure policy plays an important role in increasing income and reducing poverty. The efficiency of fiscal expenditure has been the focus of academic research both at home and abroad. Fan (2002) established a simultaneous equation model by using China's provincial panel data from 1970 to 1997, and the conclusions were as follows: Government expenditure on education, the development of agricultural technology and rural infrastructure etc. will play important roles in reducing rural poverty and promoting economic growth, but different fiscal inputs will have significant differences due to regional differences[1]. Park and Wang (2010) conducted a research by using Chinese village level and household survey data from 2001 to 2004, and found that the tendency of poverty alleviation policies will improve the region richer household income and consumption, and poorer households income and consumption levels are not significantly changed[2]. Li (2012) further studied from an empirical point of view to analyze the effect of fiscal expenditure on Farmers' income and narrowing the urban-rural income gap. Keeping the influence of other factors unchanged, financial support for agriculture can really increase the income of farmers, while the role of narrowing the income gap between urban and rural areas is relatively weak[3]. Zhang (2014), taking the key counties of poverty alleviation work from 2003 to 2010 as the object of study, analyzed the performance of public expenditure on poverty alleviation, and found that expenditure performance basically showed an upward trend[4]. Deng (2015) took Jiangxi Province as the object of study and found the following conclusions by analysis. The expenditure of education and the incidence of poverty have spatial dependence, and show remarkable agglomeration. The poverty alleviation elasticity of education expenditure is lower than that of financial support for agriculture, possibly because of the lagging effect. In the process of poverty reduction, the intensity of educational expenditure changes in the same direction as the poverty alleviation elasticity, while it varies inversely with the degree of regional economic development. In the people's livelihood expenditure, compared with other expenditures, the effect of education expenditure on poverty alleviation in poor areas is significant, but there is a lagging effect[5]. Zhu (2015) analyzed the China's provincial fiscal expenditure from 2002 to 2013 by establishing panel data model and found that different types of fiscal expenditure will have different effects on narrowing the income gap between urban and rural areas. The forestry and water affairs and transportation spending effect is remarkable, but the health, science, technology and public safety and other expenditures tend to improve city regional income, thus widening the income gap between urban and rural areas[6].

The innovation points of this paper are mainly reflected in two aspects. The first is to select the current social hot issues "precision poverty alleviation" oriented fiscal expenditure efficiency as the breakthrough point, and carry out empirical research. This paper selects 8 poverty-stricken counties' data in Enshi, Hubei. Based on the panel data model, this paper expounds the influence of the government's different types of fiscal expenditure on the per capita disposable income of rural residents under the guidance of the policy of "precision poverty alleviation". The second is to analyze the influence of all kinds of fiscal expenditure on rural residents per capita disposable income, introduce economic growth as the explanatory variable to make the conclusions more objective and actual, and give corresponding policy suggestions. Through a lot of related literature at home and abroad, the author found that the research on the problem of poverty, especially the research on the problem of poverty alleviation effect is less. It is necessary for the government to make precise and accurate investment in financial funds and make great efforts to improve the living standard of the poor people in the poverty-stricken areas, and to help the poor people get rid of poverty, and then achieve common prosperity. In a word, the research of this paper can provide some references for the further development of poverty alleviation in China.

**Measurement Model Setting and Data Selection**

**Establish Econometric Model**

The purpose of establishing econometric model is to study the effect of various fiscal expenditure on poverty alleviation work. This paper selects four fiscal expenditure as the explanatory variable
and the per capita disposable income of rural residents as explanatory variables. At the same time, considering the impact of economic development, this paper introduces GDP as the control variable, and the model is expressed as:

\[
\ln Y_{it} = \alpha_i + \beta' \ln X'_{it} + \mu_{it} \quad (i = 1,2,..., N ; t = 1,2,..., T)
\]  

In this formula, \( Y_{it} \) represents the per capita disposable income of rural residents in the \( i \)-th counties (cities) in \( t \), \( \beta' (\beta_1, \beta_2, \beta_3... \beta_k) \) represents the parameter vector of the \( K \) explanatory variables, \( X'_it (X'_{1it},X'_{2it},X'_{3it}...X'_{Kit}) \) is the explanatory variable vector, \( X_{Kit} \) represents the expenditure of the \( K \) variable in the \( i \)-th counties (cities) in the \( t \) period, \( \alpha_i \) indicates the intercept of the \( i \)-th counties (cities), reflecting individual differences in the model, \( \mu_{it} \) represents the influence of other factors that vary simultaneously with the time series.

**Data Description and Pretreatment**

Enshi, Hubei as the research object, this paper uses the panel data from the counties (cities) of 8 poor counties in Enshi, Hubei from 2005 to 2015. The data is collected through 2005 - 2015 "Enshi Statistical Yearbook" and the "Enshi people's government work report", "financial revenue and expenditure budget and final accounts" program data. In order to eliminate the influence of magnitude, the data collected from the original collation is processed by logarithms.

**Empirical Process and Result Analysis**

The results are shown in table 1 through the panel data regression analysis of the fiscal expenditure and the per capita disposable income of rural residents in Enshi, Hubei from 2005 to 2015. At the 1% significance level, the parameter estimate \( \beta \) of \( \ln X_1, \ln X_2, \ln X_3 \) and \( \ln X_5 \) are all passed t-test, and all of them are positive. However, the parameter estimate \( \beta \) of \( \ln X_4 \) is significantly negative. The value of model F-test is 266.4468, the coefficient \( R^2 \) and the adjusted coefficient \( R^2 \) are 0.9771 and 0.9734 respectively, which shows that the overall fitting effect of the model is very good.

<table>
<thead>
<tr>
<th>variable</th>
<th>parameter</th>
<th>coefficient</th>
<th>Standard error</th>
<th>T value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>C</td>
<td>-1.5833</td>
<td>0.4960</td>
<td>-3.1921</td>
<td>0.0021</td>
</tr>
<tr>
<td>lnX_1</td>
<td>( \beta_1 )</td>
<td>0.1451</td>
<td>0.0308</td>
<td>4.7124</td>
<td>0.0000</td>
</tr>
<tr>
<td>lnX_2</td>
<td>( \beta_2 )</td>
<td>0.5575</td>
<td>0.0668</td>
<td>8.3406</td>
<td>0.0000</td>
</tr>
<tr>
<td>lnX_3</td>
<td>( \beta_3 )</td>
<td>0.1587</td>
<td>0.0531</td>
<td>2.9893</td>
<td>0.0038</td>
</tr>
<tr>
<td>lnX_4</td>
<td>( \beta_4 )</td>
<td>-0.2882</td>
<td>0.0412</td>
<td>-6.9907</td>
<td>0.0000</td>
</tr>
<tr>
<td>lnX_5</td>
<td>( \beta_5 )</td>
<td>0.3202</td>
<td>0.0641</td>
<td>4.9981</td>
<td>0.0000</td>
</tr>
<tr>
<td>( R^2 )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.9771</td>
</tr>
<tr>
<td>Adjusted ( R^2 )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.9734</td>
</tr>
<tr>
<td>F value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>266.4468</td>
</tr>
</tbody>
</table>

As shown in Table 2, through the likelihood ratio test of model fixed effects, we find that the concomitant probability prob is 0, and the original hypothesis is rejected at 5% confidence level, which shows that the introduction of fixed effects is appropriate.

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**Table 2. Fixed effects test results.**

<table>
<thead>
<tr>
<th>Effects Test</th>
<th>Statistic</th>
<th>d.f.</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section F</td>
<td>56.432290</td>
<td>(7.75)</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

According to the regression results of panel data and the estimated values of intercepts in Table 3, the panel data model of the per capita disposable income and the amount of financial expenditure of rural residents in Lichuan(LC) can be expressed as:

\[
\ln Y_{LC} = ( -1.5833 - 0.4355 ) + 0.1451 \ln X_{1_{LC}} + 0.5575 \ln X_{2_{LC}} + ... + 0.3202 \ln X_{5_{LC}} \]  

Other county (city) panel data models are all alike.
Table 3. Regional intercept estimates.

<table>
<thead>
<tr>
<th>Section</th>
<th>Intercept estimation</th>
<th>Section</th>
<th>Intercept estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>_LC--C</td>
<td>-0.4355</td>
<td>_XE--C</td>
<td>0.3180</td>
</tr>
<tr>
<td>_JS--C</td>
<td>-0.1398</td>
<td>_LF--C</td>
<td>0.2596</td>
</tr>
<tr>
<td>_BD--C</td>
<td>-0.1516</td>
<td>_XF--C</td>
<td>0.1419</td>
</tr>
<tr>
<td>_ES--C</td>
<td>-0.5641</td>
<td>_HF--C</td>
<td>0.5715</td>
</tr>
</tbody>
</table>

From the regression results, the parameter estimation value indicates the elasticity coefficient of the per capita disposable income of rural residents to the amount of financial expenditure. The greater the estimate, the greater the coefficient of elasticity will be. The estimated value of education expenditure is the largest, reaching 0.5575, which shows that the elasticity coefficient of per capita disposable income of rural residents to education expenditure is 0.5575. It is bigger than social security and employment expenditure elasticity coefficient, medical and health expenditure elasticity coefficient and GDP elasticity coefficient. Rural residents per capita disposable income of forestry and water affairs elasticity expenditure is obviously negative, which shows that every one percent increase of forestry and water affairs expenditure will cause the per capita disposable income of rural residents by 28.82%. This shows that the direct financial expenditure of rural areas in poverty-stricken counties cannot fundamentally increase their disposable income. The effects of social security and employment expenditure as well as medical and health expenditure on the per capita disposable income of rural residents are not very different, and the regression coefficients are 0.1451 and 0.1587 respectively. In addition to the fiscal expenditure in the explanatory variable, this paper also introduces regional GDP as explanatory variable. The regression analysis shows that the elasticity coefficient of per capita disposable income of rural residents to regional GDP is 0.2373 smaller than that of educational expenditure and greater than that of Social security and employment expenditure and medical and health expenditure. It shows that the speed of regional economic development will lead to the same direction change of per capita disposable income of rural residents.

Conclusions and Policy Recommendations

The efficiency of fiscal expenditure is closely related to the effect of poverty alleviation. Based on the data of 8 poor counties in Enshi, Hubei, a panel data model is set up in this paper. The empirical results show that education expenditure has the most significant influence on the per capita disposable income of rural residents, and the elasticity coefficient is the largest. This shows that education expenditure plays an obvious role in increasing the income of farmers and effectively alleviating the rural poverty contradiction, and improving the cultural level of the countryside is better than the direct poverty alleviation. The positive effects of the two items of social security, employment and medical care are smaller than those of education expenditure, while the expenditure of agriculture, forestry and water affairs have negative effects on the increase of disposable income. This shows that the increase of social security and employment expenditure and medical and health expenditure can produce direct income increasing effect to poor areas. Increasing the proportion of expenditure on agriculture, forestry and water affairs will not directly increase the per capita disposable income of rural residents.

Therefore, the following policy recommendations are proposed. First of all, we should build a support mechanism so that the financial poverty relief funds can be brought to the village. To achieve precision poverty alleviation, we should accurately identify the object of poverty alleviation through effective and reasonable procedures, and constantly improve the big data platform for precision poverty alleviation. On this basis, we should build the support mechanism so that the financial poverty relief funds can be brought to the village, and support the poverty alleviation measures with financial aid funds so as to make them more effective in implementation. Secondly, we should improve and perfect the financial management system for poverty alleviation funds and
strengthen the financial information disclosure in the poverty alleviation areas, so as to make poverty relief funds effective. Finally, in the “13th Five-Year” period of poverty alleviation and development stage, we should accelerate the construction of rule of law and establish a perfect performance evaluation and supervision and inspection mechanism of financial aid funds. On the one hand, we should take the construction of rule of law as the breakthrough point, and enhance the status and authority of the financial supervision body of poverty alleviation funds. From the legislative level, we should make a comprehensive and clear provision on the functions, division of labor, supervision tasks and supervision methods of the financial aid funds for poverty alleviation to formulate and improve the legal system of financial supervision, so as to standardize the supervision of the financial aid for the poor. On the other hand, the performance evaluation mechanism of financial poverty alleviation fund should be constructed to ensure the effectiveness of financial supervision.

References


