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Fiscal Expenditure Structure, Income Level and Residents' Consumption

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Abstract: Under the background of building a new development pattern, it is of great theoretical and practical significance to study the dynamic relationship between fiscal expenditure structure and residents' consumption. The empirical results show that people's livelihood expenditure affects residents' consumption completely through the intermediary variable of residents' income, while non people's livelihood expenditure has direct and indirect effects; investment expenditure on people's livelihood and transfer expenditure on people's livelihood have crowding in effect on residents' consumption, and have regional heterogeneity; on the whole, people's livelihood expenditure has crowding in effect on residents' consumption, while non people's livelihood expenditure has inhibitory effect on residents' consumption.

1. Introduction

Under the background of building a new development pattern, it is of great theoretical and practical significance to study the dynamic relationship between fiscal expenditure structure and residents' consumption. Scholars at home and abroad have conducted useful research on this subject, but no unified conclusion has been formed. Some scholars believe that there is a complementary relationship between them(Athanasios Tagkalakis,2008; Hu Shudong ,2002; Chu Deyin and Yan Wei,2010), some scholars believe that there is a substitution relationship between them (Tsung Wu Ho,2001).Wang Yan et al. (2018) empirically studied the relationship between income structure, fiscal expenditure and residents' consumption structure. The research conclusion shows that fiscal expenditure can change consumption expenditure by affecting rural residents' household operating income. Li puliang et al. (2018) introduced the mediating variable of residents' disposable income, believing that residents' disposable income is an important mediating variable of financial expenditure on people's livelihood affecting residents' service consumption, but the mediating effect is different between urban and rural areas to a certain extent.

This paper attempts to establish an analysis framework that includes fiscal expenditure, residents' income level and consumption demand, and empirically analyzes the total effect of fiscal expenditure on residents' consumption and the intermediary effect of residents' income level on residents' consumption by constructing a panel data simultaneous equation model.

2. Research Design and Variable Selection

2.1 Empirical Model Setting

In order to test the effect of fiscal expenditure structure on residents' consumption, this paper sets the following model:

$$psr_{it}=\alpha_0+\alpha_1 pgdp_{it}+\alpha_2 edu_{it}+\alpha_3 mszc_{it}+\alpha_4 nomszc_{it}+\varepsilon_{it} \quad (1)$$

$$pxf_{it}=\beta_0+\beta_1 psr_{it}+\beta_2 mszc_{it}+\beta_3 nomszc_{it}+\beta_4 cpi_{it}+\beta_5 dhpjl_{it}+\varepsilon_{it} \quad (2)$$

Among them, pxf represents the consumption level of residents, expressed by the per capita consumption expenditure of each region; psr represents the income level of residents, expressed by the per capita disposable income of each region; mszc represents the government's expenditure on people's livelihood, which is expressed by the average of the population of each region; nomszc stands for the non livelihood expenditure of the government, which is expressed by the non livelihood expenditure calculated by the average population of each region; pgdp represents the level of economic development, expressed by the per capita GDP of each region; edu represents the human capital of each region, expressed by the average years of education in each region; cpi represents the price level; dhpjl stands for the network penetration rate, expressed by the mobile phone penetration rate of each region; ε represents the random disturbance term, i represents the province, t represents the year.

According to the existing research, people's livelihood expenditure can be divided into investment expenditure and transfer expenditure, and the impact path and effect of these two types of people's livelihood expenditure on residents' income level are inconsistent. In order to deeply analyze the impact of these two types of livelihood expenditure on residents' consumption, this paper further constructs the following regression model:

$$psr_{it}=\gamma_0+\gamma_1 pgdp_{it}+\gamma_2 edu_{it}+\gamma_3 tzmszc_{it}+\gamma_4 zymszc_{it}+\gamma_5 nomszc_{it}+\varepsilon_{it} \quad (3)$$

$$pxf_{it}=\lambda_0+\lambda_1 psr_{it}+\lambda_2 tzmszc_{it}+\lambda_3 zymszc_{it}+\lambda_4 nomszc_{it}+\lambda_5 cpi_{it}+\lambda_6 dhpjl_{it}+\varepsilon_{it} \quad (4)$$

Among them, tzmszc represents investment expenditure for people's livelihood, such as education, science and health expenditure, use the population of each region to find the average value; zymszc represents transfer expenditure of people's livelihood, such as social security expenditure and housing security expenditure, use the population of each region to find the average value.

2.2 Data Sources

This paper mainly uses the panel data of China's provinces except Tibet, Hong Kong, Macao and Taiwan from 2013 to 2018, and the variable data are all from China Statistical Yearbook. In order to eliminate the influence of price factors, this paper uses the consumer price index based on 2013 to adjust the price. At the same time, the adjusted index is logarithmically processed to avoid the influence of outliers. The descriptive statistical analysis results of each variable are shown in Table 1.

Table 1 Descriptive Statistical Analysis of Each Variable

Variable	Average Value	Standard Error	Minimum	Maximum	Variable	Average Value	Standard Error	Minimum	Maximum
pxf	4.1806	0.1394	3.9185	4.5872	zymszc	3.278	0.1757	2.8891	3.7031
psr	4.3193	0.1483	4.0396	4.7577	pgdp	4.6949	0.1717	4.3646	5.1072
mszc	3.7129	0.1384	3.4367	4.1261	edu	9.2403	0.8858	7.5138	12.555
nomszc	3.8047	0.1756	3.4788	4.2775	cpi	1.0448	0.032	1	1.1214
tzmszc	3.5062	0.1384	3.2621	3.967	dhpjl	0.9975	0.2345	0.6207	1.8942

3. Estimation Analysis

3.1 Empirical Results

In order to overcome the estimation error caused by the correlation of random disturbance terms among the equations, the regression model (1) and (2) is estimated by the three-stage least square method (3SLS), and the estimation results are shown in Table 2.

Table 2 Estimated Results Of Model (1) and (2)

Independent variable	Dependent variable					
	National sample		Eastern sample		Middle west sample	
	psr	pxf	psr	pxf	psr	pxf
mszc	0.5673*** (0.0866)	-0.0307 (0.046)	0.7018*** (0.1436)	-0.0184 (0.067)	0.5518*** (0.0963)	0.034 (0.0741)
nomszc	-0.4185*** (0.0679)	0.1209*** (0.0329)	-0.3232*** (0.1123)	0.0689 (0.0544)	-0.4289*** (0.0711)	0.1023** (0.0481)
psr		0.8468*** (0.0211)		0.9308*** (0.0499)		0.8569*** (0.0378)
control variable	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.8932	0.9756	0.8775	0.976	0.7434	0.9179

Note: (1) *, * *, * ** respectively represent the significance levels of 10%, 5% and 1%;(2) The values in brackets are standard errors.

The regression results show that the livelihood expenditure has a significant promoting effect on the level of residents' income, and this effect has regional heterogeneity. The non livelihood expenditure has a significant inhibitory effect on the income level of residents, and the inhibitory effect of the eastern region is weaker than that of the central and western regions. The crowding in effect of residents' income level on residents' consumption is very significant, and the crowding in effect in the eastern region is greater than that in the central and western regions.

According to the regression results in Table 2, we can further calculate the mediating effect of residents' income level on fiscal expenditure and residents' consumption level. The calculation results are shown in Table 3. For people's livelihood expenditure, the mediating effect is 0.4804. For non people's livelihood expenditure, the mediating effect is -0.3544, and the mediating effect has regional heterogeneity. People's livelihood expenditure affects the level of consumption indirectly through the intermediary variable of income level. Non livelihood expenditure indirectly suppresses residents' consumption through the intermediary variable of residents' income level, but it directly promotes the improvement of residents' consumption level. On the whole, people's livelihood expenditure has a crowding in effect on residents' consumption, while non people's livelihood expenditure has a restraining effect on residents' consumption.

Table 3 Comparison of Mediating Effects of Residents' Income Level in Different Regions

	National sample	Eastern sample	Middle west sample
the total effect of people's livelihood expenditure on residents' consumption	0.4804	0.6532	0.4728
people's livelihood expenditure→residents' income level→ residents' consumption	0.4804	0.6532	0.4728
the total effect of non livelihood expenditure on residents' consumption	-0.2335	-0.3	-0.2652
non natural expenditure → residents' income level → residents' consumption	-0.3544	-0.3	-0.3675

3.2 Further Analysis

Through the above analysis, we can see that people's livelihood expenditure affects the consumption level of residents through the intermediary effect of residents' income level. People's livelihood expenditure can be divided into investment expenditure and transfer expenditure, which have different influence paths and effects on residents' income. Therefore, it is necessary to further analyze the effects of investment expenditure and transfer expenditure on residents' consumption. In this paper, the regression model (3) and (4) is estimated by three-stage least square method (3SLS). The estimated results are shown in Table 4.

Table 4 Estimation Results Of Model (3) and (4)

Independent variable	Dependent variable					
	National sample		Eastern sample		Middle west sample	
	psr	pxf	psr	pxf	psr	pxf
tzmszc	0.4608*** (0.065)	-0.0837** (0.0359)	0.551*** (0.13)	-0.1209* (0.0724)	0.2754*** (0.0708)	-0.0825* (0.0482)
zymszc	0.1067*** (0.0414)	-0.0012 (0.0191)	0.201*** (0.0615)	-0.016 (0.0253)	0.2815*** (0.0724)	0.1266*** (0.0402)
nomszc	-0.3905*** (0.066)	0.1493*** (0.0322)	-0.3808*** (0.1233)	0.1442** (0.0651)	-0.4551*** (0.0776)	0.0711 (0.0458)
psr		0.8539*** (0.0221)		0.9445*** (0.05)		0.8289*** (0.0373)
control variable	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.8977	0.9761	0.8769	0.9765	0.7398	0.9269

Note: (1) *, * *, ** *respectively represent the significance levels of 10%, 5% and 1%;(2) The values in brackets are standard errors.

By comparing the regression results of Table 2 and Table 4, the core explanatory variables are consistent with the significance, which shows that the regression results of the model are robust. Both investment expenditure and transfer expenditure on people's livelihood can significantly promote the income level of residents, and the promotion effect of investment expenditure on people's livelihood is greater than that of transfer expenditure on people's livelihood in the whole country and the eastern region, and the promotion effect of transfer expenditure on people's livelihood is greater than that of investment expenditure on people's livelihood in the central and western regions. Investment expenditure on people's livelihood inhibits the increase of residents' consumption, while transfer expenditure on people's livelihood generally has no significant effect on residents' consumption, and the effect is regional heterogeneity.

Through the regression results in Table 4, we can further calculate the intermediary effect of residents' income level on fiscal expenditure and residents' consumption level. The calculation results are shown in Table 5. The mediating effect of investment expenditure on people's livelihood is 0.3935, and that of transfer expenditure on people's livelihood is 0.0911, and the mediating effect has regional heterogeneity. On the whole, investment expenditure and transfer expenditure on people's livelihood have crowding in effect on residents' consumption. In the whole country and the eastern region, the impact of investment expenditure on people's livelihood is greater than that of transfer expenditure, but in the central and western regions, increasing transfer expenditure on people's livelihood is more conducive to the growth of residents' consumption.

Table 5 Comparison of Intermediary Effects of Residents' Income Level in Different Regions

	National sample	Eastern sample	Middle west sample
the total effect of investment expenditure on people's livelihood on residents' consumption	0.3098	0.3995	0.1458
investment expenditure on people's livelihood→residents' income level→residents' consumption	0.3935	0.5204	0.2283
the total effect of transfer expenditure on people's livelihood on residents' consumption	0.0911	0.1898	0.3599
transfer expenditure on people's livelihood→ residents' income level→residents' consumption	0.0911	0.1898	0.2333

4. Conclusion

Under the background of building a new development pattern, it is of great theoretical and practical significance to study the dynamic relationship between fiscal expenditure structure and residents' consumption. The empirical results show that people's livelihood expenditure affects residents' consumption level through the intermediary variable of residents' income level, and non people's livelihood expenditure indirectly inhibits residents' consumption through the intermediary variable of residents' income level, but it directly promotes the improvement of residents' consumption level; investment expenditure on people's livelihood and transfer expenditure on people's livelihood have crowding in effect on residents' consumption, and have regional heterogeneity; on the whole, people's livelihood expenditure has crowding in effect on residents' consumption, while non people's livelihood expenditure has inhibitory effect on residents' consumption.

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