Research on the financing efficiency of urbanization construction in Guizhou Province

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Abstract. Researching on urbanization construction financing efficiency in Guizhou Province is benefit to improve the financing efficiency, and enhance the level of urbanization. In this paper, Using correlation analysis and multiple regression model, this paper empirically analyzes the urbanization construction financing efficiency in Guizhou Province. The empirical results show that the financing efficiency of government financing, financial institutions, and foreign capital utilization is significantly positive correlated with the urbanization construction level in Guizhou Province. Government financing efficiency, financial institution financing efficiency, and foreign capital utilization financing efficiency have positive influence on the urbanization level in Guizhou Province.

Introduction

Urbanization construction is a complicated and huge engineering system, it need a lot of money to support. Guizhou Province should accelerate the economic development during the period of "China's 13th plan of five - year national development",there are many contradictions and problems to be solved. Among them, the slow process of urbanization is one of the many contradictions and problems. The Province of Guizhou's urbanization construction financing channel is not perfect, financing channel is narrow. Therefore, the research of the financing channels and financing efficiency of urbanization in Guizhou ,it on how to broaden the financing channels of urbanization, improve the financing efficiency of urbanization, speed up the urbanization construction in Guizhou Province has important practical significance.

Literature review

Many scholars study the financing efficiency's construction of the urbanization ,and they   got a number of research results. Li and Wang (2005) analyzed the financing efficiency of urban infrastructure in the west, the analysis results show that the western urban infrastructure construction investment and financing main body is mainly the government, the efficiency of the state-owned economy is lower than the similar private economy, construction funds into a "trap" low efficiency. Guo and Zhou (2014), based on the Province of Liaoning's international panel data, using multiple regression model, study the new government financing in the process of urbanization pattern innovation and efficiency.The empirical results found that Dalian, Benxi, Yingkou and so on is the higher level city of financing efficiency , Shenyang, Anshan, Fushun Dandong, and Jinzhou's financing efficiency belongs to medium, Panjin and Huludao city belongs to the low level of financing efficiency. Wang and Zhu (2014) uses the analytic hierarchy process (AHP), they build the evaluation model, studies the different types of public housing financing model of financing efficiency, and the results showed that the local government funding financing efficiency is highest, it is the first choice for public housing financing channels.Zhao (2014) think the financing efficiency can be divided into fiscal, financial and foreign, he analyzed the icefficiency of fiscal financing, financial financing and foreign financing efficiency. The analysis results show that the fiscal financing efficiency in recent years, Sichuan Province has a more substantial increase, financial financing efficiency is good, foreign capital financing efficiency is not ideal.

Based on the above scholars research achievements, this paper studies the government financing of Guizhou Province, financial institutions, financing efficiency and utilization of the foreign

financing efficiency.This paper uses the correlation analysis method, analysis of urbanization construction financing efficiency and the relationship between the urbanization level and urbanization construction financing efficiency in Guizhou. Using a multivariate regression model, the empirical analysis in Guizhou Province urbanization construction financing efficiency effect on urbanization level and degree of size and influence.

Empirical analysis of urbanization construction financing efficiency in Guizhou Province

Generally speaking, the urbanization construction of financing efficiency will affect the level of urbanization, the positive correlation are both exist , improve the efficiency of urbanization construction financing will enhance the level of urbanization.Correlation analysis and multiple regression analysis is adopted in this chapter to analysis of Guizhou urban construction financing efficiency.

Variables selection

(1) Dependent variable

This chapter choose the urbanization level of Guizhou Province as the dependent variable. Guizhou Province's urbanization level using the following formula:

$$URB = \frac{Urban \quad population}{Total \quad population}$$

(2) Independent variables

The independent variable of this chapter is the financing efficiency of urban construction in Guizhou Province, including the analysis of the three kinds of financing efficiency above,such as the efficiency of government financing, financial institutions, financing efficiency and utilization of foreign capital financing efficiency.Government financing efficiency (GOV) to measure public finances.Financial institutions financing efficiency (FIN) to depict the balance of the deposit and lending of financial institutions.Utilization of foreign capital financing efficiency (FCA) the total amount to reflect the use of foreign capital financing.

Model construction

For empirical research urban construction financing efficiency of Guizhou Province , this chapter build multivariate regression model, empirical analysis the relationship between Guizhou Province urbanization construction financing efficiency and the level of urbanization, Analysis of the financing efficiency of the level of urbanization in Guizhou. Multiple regression model is as follows:

$$URB_t = \alpha + \beta_1 GOV_t + \beta_2 FIN_t + \beta_3 FCA_t + \mu$$

Among them, "α" is the constant term. "β_1","β_2", "β_3" respectively for the variable coefficient, respectively, indicating the efficiency of government financing, financing efficiency of financial institutions and the use of foreign capital financing efficiency influence on the level of urbanization size and impact. "μ" for the model of the error term.

Data sources and processing

The data in this chapter comes from Guizhou Province bureau of statistics web site （http://www.gz.stats.gov.cn/Web62/ ）.This paper selects the time interval for 2000-2014 years .The empirical data in this chapter are shown in Table 1.

In order to reduce the variance of the data, the data of each variable is processed by logarithm. After the logarithm of the data, the empirical data are shown in Table 2.

Table 1 Empirical data

Year	urbanization	Government spending (one hundred million yuan)	The loan balance (one hundred million yuan)	Utilization of foreign capital amount ($)
2000	23.87%	201.57	1064.82	19545
2001	23.96%	275.2	1212.23	14010
2002	24.29%	316.67	1403.92	9383
2003	24.77%	332.35	1714.04	13191
2004	26.28%	418.42	2020.04	13932
2005	26.87%	520.73	2303.93	19568
2006	27.46%	610.64	2696.11	18413
2007	28.24%	795.4	3128.63	15333
2008	29.11%	1055.39	3569.27	17379
2009	29.89%	1372.27	4656.5	18027
2010	33.81%	1631.48	5747.53	34026
2011	34.96%	2249.4	6841.92	71674
2012	36.41%	2755.68	8274.78	109805
2013	37.83%	3082.66	10104.3	157415
2014	40.01%	3542.8	12368.3	213053

Table 2 Empirical data after log treatment

year	lnurb	lngov	lnfin	lnfca
2000	-1.4325	5.3061	6.9706	9.8805
2001	-1.4288	5.6175	7.1002	9.5475
2002	-1.4151	5.7579	7.2470	9.1467
2003	-1.3955	5.8062	7.4466	9.4873
2004	-1.3364	6.0365	7.6109	9.5419
2005	-1.3142	6.2552	7.7424	9.8817
2006	-1.2924	6.4145	7.8996	9.8208
2007	-1.2644	6.6788	8.0484	9.6378
2008	-1.2341	6.9617	8.1801	9.7630
2009	-1.2076	7.2242	8.4460	9.7996
2010	-1.0844	7.3972	8.6565	10.4349
2011	-1.0510	7.7184	8.8308	11.1799
2012	-1.0103	7.9214	9.0210	11.6065
2013	-0.9721	8.0335	9.2207	11.9666
2014	-0.9160	8.1727	9.4229	12.2693

Table 3 Unit root test results

The sequence	ADF inspection		PP inspection		Conclusion
	T statistic	Prob	T statistic	Prob	
LNURB	1.3484	0.9972	2.5821	0.9999	non-stationary
LNGOV	-0.3136	0.8999	-0.3132	0.8999	non-stationary
LNFIN	2.0270	0.9995	6.3081	0.9999	non-stationary
LNFCA	1.2817	0.9968	1.2817	0.9968	non-stationary
DLNURB	-3.5104	0.0257	-3.5170	0.0254	stationary
DLNGOV	-3.2160	0.0425	-3.2351	0.0412	stationary
DLNFIN	-2.8504	0.0484	-2.8207	0.0423	stationary
DLNFCA	-2.3482	0.0429	-2.3019	0.0452	stationary

Unit root test

Using the time sequence data to modeling, "spurious regression" phenomenon may occur.In order to avoid "false return" phenomenon,the time series unit root test is needed.This paper adopts

two inspection methods commonly used, ADF test and PP test of each variable time series data unit root test.Each variable time series data of unit root test results as shown in table 3.

From the unit root test results can be seen, the variables of the original time series are non-stationary time series, the direct modeling may be "spurious regression phenomenon will occur. Therefore, not the original time series modeling directly. However, the first order difference time series of the variables are stationary time series, can be modeled that the won't appear "spurious regression" phenomenon.

Correlation analysis

In this paper, the linear correlation analysis on the correlation between Guizhou Province's urbanization construction financing efficiency and the level of urbanization. Linear correlation analysis results are shown in Table 4 .From table 4 we can see that, this chapter analyzes the three kinds urbanization financing efficiency，they are government financing efficiency, financing efficiency and financial institutions of Guizhou Province , the use of foreign capital financing efficiency and the level of urbanization are significantly positive correlation. Therefore, improve the Guizhou Province's urban construction financing efficiency can enhance the level of urbanization.

Table 4 Correlation analysis results

Correlation t-Statistic Probability Observations	LNFCA	LNFIN	LNGOV	LNURB
LNFCA	1.0000			
	--			
	--			
	15			
LNFIN	0.8759	1.0000		
	6.5457	--		
	0.0000	--		
	15	15		
LNGOV	0.8565	0.9953	1.0000	
	5.9829	37.0773	--	
	0.0000	0.0000	--	
	15	15	15	
LNURB	0.9237	0.9894	0.9829	1.0000
	8.6908	24.6112	19.2624	--
	0.0000	0.0000	0.0000	--
	15	15	15	15

Regression results analysis

In order to get the further analysis of the relationship between Guizhou Province urbanization construction financing efficiency and the urbanization level, we use ordinary least squares (OLS) to estimate parameters of the model (2),the results of estimate is be showed   in table 5. It is can be seen from the estimated results, Adjusted R - squared value of 0.9916, it shows that the model has a good fitting effect. F - statistic value of 549.6224, and its adjoint probability is 0.0000,it is illustrated that the regression results are significant, the linear relationship between the financing efficiency and the urbanization level of the urbanization in Guizhou Province is significant,the impact of urbanization construction financing efficiency on the level of urbanization in Guizhou Province is significant.Durbin - Watson statistic value of 2.0994, shows that there is no multicollinearity between the variables of the model.

Table 5 Regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.9507	0.1547	-19.0748	0.0000
LNGOV	0.0414	0.0494	0.8395	0.4191
LNFIN	0.1201	0.0642	1.8724	0.0880
LNFCA	0.0459	0.0095	4.8229	0.0005
R-squared	0.9934	Mean dependent var	-1.2237	
Adjusted R-squared	0.9916	S.D. dependent var	0.1757	
S.E. of regression	0.0161	Akaike info criterion	-5.1923	
Sum squared resid	0.0029	Schwarz criterion	-5.0035	
Log likelihood	42.9422	Hannan-Quinn criter.	-5.1943	
F-statistic	549.6224	Durbin-Watson stat	2.0994	
Prob(F-statistic)	0.0000			

From the coefficients of the financing efficiency variables,we can see the efficiency of government financing coefficient is 0.0414, the   probability of its adjoint is 0.4191,illustrating the Guizhou Province government financing efficiency has a positive influence on the urbanization level,when the total amount of government financing increased by one hundred million , the level of urbanization in Guizhou Province will increase 0.0414%, but the Guizhou government financing efficiency has no significant impact on the level of urbanization.Financial institutions financing efficiency coefficient is 0.1201, and its adjoint probability is 0.0880, it shows that financial institutions financing efficiency in Guizhou has a positive influence on the urbanization level,when the total amount of financing for the financial institutions increased by one hundred million,the level of urbanization in Guizhou Province will be increased 0.1201%, and the financing efficiency of the financial institutions in Guizhou Province has a significant impact on the level of urbanization.Utilization of foreign capital financing efficiency coefficient is 0.0459, and its adjoint probability is 0.0005, shows that financial institutions financing efficiency of has promoting effect on urbanization level in Guizhou ,Utilization of foreign capital financing amount per an increase of 100 million , the urbanization level will rise by 0.0459%, and the utilization of foreign capital financing efficiency has significant effect on the level of urbanization.

Conclusions

In this paper, we studied Guizhou Province urbanization construction financing channels and financing efficiency .This paper uses the correlation analysis method, analyzing the relationship between urbanization construction in Guizhou financing efficiency and the urbanization level;Using a multivariate regression model, The influence of financing efficiency of urbanization in Guizhou Province on the level of urbanization is analyzed.The empirical analysis found that:

Firstly, the urbanization construction government financing efficiency, financial institutions financing efficiency, utilization of foreign capital financing efficiency in Guizhou .they all have a significant positive correlation with the level of urbanization.Therefore, improving the efficiency of Guizhou Province urbanization construction financing efficiency can enhance the level of urbanization.

Secondly, the urbanization construction government financing efficiency, financial institutions financing efficiency, utilization of foreign capital financing efficiency in Guizhou have a positive influence on the urbanization level.Government financing efficiency of urbanization level was not significant, but the influence of financial institutions financing efficiency, utilization of foreign capital financing efficiency are significant to the influence of urbanization level.

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