An Empirical Analysis on the Relationship Among Fiscal Expansion, Credit, and the New Urbanization

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Abstract

At present, China's new urbanization is in rapid development stage. Infrastructure construction and the construction of social medical security system need a lot of money. Thus, the financing problem becomes the bottleneck of the development of the new urbanization. Fiscal expenditure and credit is the main source of funds of the new urbanization. So, this paper uses the time series data of 1952-2012 to analyze the relationship among fiscal expansion, credit and the new urbanization. The result shows that there is a long-term and stable relationship among fiscal expansion, credit, and the new urbanization. In addition, fiscal expansion is the granger causality of the new urbanization, and the new urbanization is the granger causality of credit. It indicates that fiscal expansion has played a positive role on the development of the new urbanization, while credit is still in demand following.

**Key words:** The new urbanization; Fiscal expansion; Credit

INTRODUCTION

Urbanization is an objective law in the process of economic development. With the escalation of industrial structure, a large number of rural surplus labor transfer to the second and tertiary industry. According to the research of Hu (2003), it shows that the rural surplus labor cause the opportunity cost of output equal to 20% to 30% of GDP and the opportunity cost of consumption equal to 2% to 10%. Therefore, the urbanization does not only transfer the rural surplus labor to urban, but also brings huge benefits to China's economy, and realizes the sustainable development of economy. According to national statistics, China's urbanization rate reached 52.57% in 2012. Northam (1975) put forward the "S" curve of urbanization development. It is the acceleration stage of urbanization when the urbanization rate is during 30% to 70%. The typical feature of this stage is that a large number of rural population pour into cities and a lot of urban infrastructure construction is needed. The problem of social medical insurance and education of rural population, the development of small and medium-sized enterprises and so on all need a lot of financial support. Now, China's urbanization is at this stage, the financing problem becomes the bottleneck of the development of the new urbanization. The Central Economic Conference in 2012 officially proposed that the government shall integrate the principle of the ecological civilization into the whole process of urbanization and create intensive, intelligent and green, low carbon path of the new urbanization. The new urbanization is a highly efficient, inclusive and sustainable development model of urbanization. The Urbanization Work Conference held in December 2013 pointed out that the government should establish sustainable funding guarantee mechanism, improve the system of local tax and local government debt issue and promote the reform of policy-based financial institutions.

Since China's reform and opening up, the resources of funds of urbanization has transferred from the

government into the combination of the government, private and foreign investment. The central government also has paid high attention to the financing problem of the new urbanization. The Third Plenary Session of the Eighteenth Party Congress pointed called to insist on a new path of urbanization with Chinese characteristics and establish a transparent investment and financing mechanism of the new urbanization. From the standpoint of financial institutions "The Chinese Bankers' Survey

Report" in 2013 also pointed out that the attention of new urbanization of the bankers also improved significantly. 72.1% of bankers believe regulators should clear direction to support new urbanization, 67.8% of bankers choose to expand their business to the developed areas of small and medium-sized cities. So, the analysis on the relationship among fiscal expansion, credit, and the new urbanization has great significance for promoting the capital structure optimization.
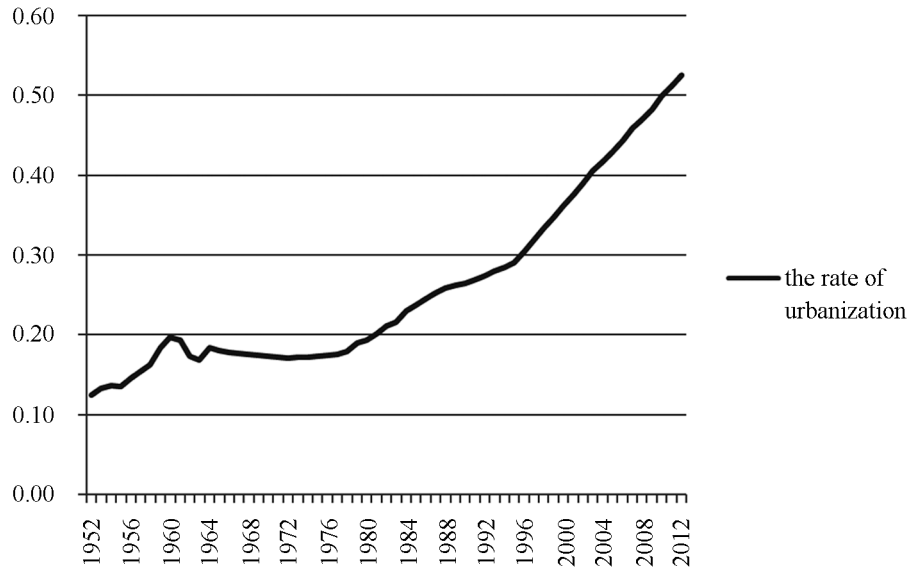
Figure1
The Rate of Urbanization

1. LITERATURE REVIEW

Chinese scholars did a lot of research on the development of the new urbanization. Shan (2013) defined the concept of the new urbanization and interpreted the connotation from various angles. Zhang (2014) and Jing (2013) pointed out that the new urbanization is the main power to stimulate domestic demand and restructure China's economic. Ni (2013) argued that the government should provide the infrastructure and public services, improve the system and policy, strengthen the supervision and management so as to promote the development of the new urbanization. In the background of the investment demand of the new urbanization, Liu (2013) pointed that the government should promote the sustainable development of the investment and financing. In order to meet the construction of the new urbanization, Ding (2013) and Shi (2013) argued that the government should build the diversified financing model. The new urbanization is efficient, inclusive, sustainable urbanization. The promotion of the development of the new urbanization needs a lot of money, and fiscal and credit policy is the main source.

From the aspects of financial policy, Goldsmith (1969) put forward the measure of financial development—Financial Interrelations Ratio (FIR), and sums up the laws between the financial development and economic growth. McKinnon and Shaw (1973), on the basis of the

goldsmith, put forward "financial deepening theory" and "financial repression theory" by studying the developing countries. Herman, Murdoch, and Stiglitz (1997) summed up the predecessors' theory, and put forward the theory of "financial constraints", they believed that the appropriate government intervention and financial regulation is necessary. Thorsten et al. (2000) argued that the financial support has a positive effect on the growth of Total Factor Productivity; thereby it would promote economic growth and capital accumulation. David (2011) thought that urbanization has a promoting effect on economic growth; therefore it should be executed as a long-term economic development policy. Fan (2004) insisted that the slow process of financial development has seriously restricted the Guangdong's urbanization. Liu (2010) argued that it is necessary to establish suitable financial institutional arrangement for urbanization, its core mechanism is the screening function of the risk of microfinance, and the path can be the legalization of private finance. Fan (2010) thought that the lack of financial support to rural urbanization seriously hindered the development of urbanization. Guo (2013) found that the credit support and urbanization are directly related by using VAR model and granger causality test. Yuan (2013) argued that the construction of the new urbanization needs to establish an effective safeguard mechanism of financial funds.

From the aspects of fiscal policy, Kelly (1976) found that the urban and rural population distribution has a significant impact on fiscal spending. Johannes (1982) points out that the fiscal and financial expenditure is the main sources of funds for the urbanization. Engen (1992) put forward effective fiscal policy could promote economic growth. Xu (2009) pointed out that the power of the evolution of urbanization in the Pearl River Delta transfer from the original foreign direct investment in a government-led investment in infrastructure. Sun (2013) argues that the government should deepen the reform of the public finance system, optimize the financial management system pattern, expand fiscal capital source, and strengthen fiscal risk regulation of the new urbanization.

The study reveals that the credit and fiscal support is necessary in the process of the new urbanization. In terms of empirical analysis, most scholars used VAR model, JJ co-integration test and granger causality test to analyze it. But the focus of the research is in financial or fiscal support. The literatures that study both financial and fiscal support are rare. Thus, on the basis of the above research results, this paper uses VAR model to analyze the relationship among fiscal expansion, credit, and the new urbanization.

2. METHODOLOGY

2.1 Model Specification

The traditional econometric method is based on economic theory to describe the relationships between variables. A basic assumption of the average OLS is that the variables are stationary; however, almost all macroeconomic variables are non-stationary. Directly to making OLS to the non-stationary variables might appear the phenomenon of "Spurious regression". Besides, endogenous variable can appear both in the left side of the equation and the right side, making estimation and inference become more complex. VAR model does not need to consider the exogenous or endogenous variable problem. Compared with the single equation, it is more reliability. And, when there are non-stationary variables, we can take a co-integration test that based on VAR model. Therefore, this paper uses VAR model to analyze the relationship among fiscal expansion, credit, and the new urbanization.

URB denotes the rate of urbanization; it can be broadly divided into two kinds: the population of permanent residents in cities and census register population proportion. There are many urban residents without urban Hukou, it's easy to cause the low estimate. So, in this paper the URB is defined by the ratio of the permanent urban population to the total population. CZ denotes the fiscal expand, the fiscal expenditure can be divided into various spending, in order to comprehensive evaluate the fiscal expenditure on the impact of the new urbanization; CZ is defined by the ratio of the national fiscal expenditure to GDP. XD denotes the credit; it is defined by the ratio of the Loan Balance of Financial Institutions to GDP.

2.2 Data Type and Sources

This paper uses the time series data of 1952-2012. The data is mainly taken from the China statistical yearbook. And the date of credit is taken from the China financial yearbook. The others are taken from the new China statistics 55 years assembly.

3. EMPIRICAL RESULTS

3.1 Unit Root Test

This paper uses the time series data, but almost all macroeconomic variables are non-stationary. In order to avoid spurious regression phenomenon, we will make unit root test. This paper uses the ADF unit root test method. According to the trend chart of the level variables and the first-order differential variables, the test model can be selected. And then, through the information criteria provided by the eviews 6.0, this paper determines the lag order number. As the table1 shows, all variables can't reject the null hypothesis of unit root under the significance level of 5%, namely the three variables are non-stationary. And the first-order differential variables can reject the null hypothesis under 1% significance level, namely the three variables are the Integrated of order one.
Table1

Unit Root Test

Variables	Test model(C,T,P)	ADF	Significance level of 5%	Significance level of 1%	Conclusion
URB	(C,T,0)	0.976480	-3.486509	-4.118444	non-stationary
$\triangle URB$	(C,T,0)	-6.814799	-3.487845	-4.121303	stationary
CZ	(C,T,0)	-2.323568	-3.486509	-4.118444	non-stationary
$\triangle cz$	(C,T,1)	-7.166249	-3.489228	-4.124265	stationary
XD	(C,T,5)	-0.320975	-3.493609	-4.133838	non-stationary
$\triangle xd$	(C,T,1)	-6.069400	-3.489228	-4.124265	stationary

Note. In the test model(c, t, p), c denotes constant term, t denotes trend, p denotes lag order number. And the lag order number is defined by the Schwarz criteria information.

3.2 Co-Integration Test

The co-integration theory was proposed by Engle and Granger in 1987, it is applied to analyze the long-term stable relationship between non-stationary variables of time series. According to the unit root test, it can be concluded that the three variables are the integrated

of order one. In order to determine whether there is a long-term and stable relationship between them, the authors take the co-integration test. This paper uses the Johansen co-integration test; it is based on the VAR model. Thus, the authors establish the VAR model so as to determine the optimal lag order number. In the process of selection, we mainly refer to the LR statistic and AIC, SC information criteria. The results of the analysis are shown in Table 2. As can be seen from the table, when the lag order number is 2, the value of the LR, AIC, SC is optimal. Co-integration test results as shown in table 3, according to the value of the trace Statistic, it can be concluded that there is a co-integration relationship. And the co-integration equation is URB=0.157CZ+0.236XD, it indicates that there is a long-term stable positive correlation relationship among fiscal expansion, credit, and the new urbanization.

Table 2
The Optimal Lag Order Number

Lag	Log*L*	LR	FPE	AIC	SC	HQ
1	394.7082	373.0121	1.82E-10	-13.91666	-13.4787	-13.7473
2	412.8615	31.68579*	1.31e-10*	-14.24951*	-13.48307*	-13.95312*
3	419.9661	11.62565	1.41E-10	-14.18059	-13.08568	-13.75718
4	425.1823	7.966569	1.64E-10	-14.04299	-12.61961	-13.49256
5	431.4578	8.899781	1.86E-10	-13.94392	-12.19207	-13.26646
6	439.4022	10.39988	2.00E-10	-13.90553	-11.82521	-13.10105

Table 3
Co-Integration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace statistic	0.05 Critical value	Prob.**
None *	0.279988	31.37036	29.79707	0.0327
At most 1	0.191343	12.31809	15.49471	0.1423
At most 2	8.68E-07	5.03E-05	3.841466	0.9967

3.3 Granger Causality Test

According to the co-integration test, it can be found that there is a long-term stable positive correlation relationship among fiscal expansion, credit, and the new urbanization. But because the co-integration test cannot determine the direction of the interaction among the three, so it needs to determine by granger causality test. The test results are shown in Table 4, the fiscal expansion is the granger causality of the new urbanization under the level of 5% significance, and the new urbanization is the granger causality of credit.

Table4
Granger Causality Test

Null hypothesis	Obs	*F*-statistic	Prob.
CZ does not Granger cause URB	59	7.7691	0.0011
URB does not Granger cause CZ		0.56002	0.5745
XD does not Granger cause URB	59	1.35414	0.2668
URB does not Granger cause XD		10.9372	0.0001

CONCLUSION

This paper uses VAR model to analyze the relationship among fiscal expansion, credit, and the new urbanization. And the results show that there is a long-term stable positive correlation relationship among fiscal expansion, credit, and the new urbanization. In addition, fiscal expansion is the granger causality of the new urbanization, suggesting that fiscal expansion has positive effects on the construction of the new urbanization. The new urbanization is the granger causality of credit, and credit is not the granger causality of the new urbanization, namely it can't come to the conclusion that credit is a driving factor of the new urbanization. This result may due to the relationship between credit and the new urbanization is demand following. Demand following refers to the increase of the loan is due to the demand for credit of investors and relevant departments in the process of the new urbanization. In view of the above analysis conclusion, this paper puts forward the following suggestions:

1) Fiscal expansion has positive effects on the construction of the new urbanization. The government should strengthen the financial support for the construction of the new urbanization. It's important to meet the demand of the public in the process of the new urbanization by improving the public finance system and the construction of urban infrastructure. On the one hand, the government should optimize the structure of regional investment of financial fund, increase support for western poverty-stricken areas and realize the regional harmonious development, reduce level of basic public services gap between regions. On the other hand, it should pay attention to the agricultural investment and improve agricultural productivity, so that the surplus rural labor flows to urban so as to promote the urbanization of rural population.

2) The government should promote the reform of the fiscal and taxation system, divide the financial power of central and local government. The construction of the new urbanization need huge investment and the local government plays the main role on it. Under the existing

system of tax allocation, local governments do not have enough revenue sources; it's difficult to provide stability and adequate financial support for the new urbanization. This requires the government reform the current fiscal and taxation policies, providing guarantee funds for the new urbanization. First of all, it should strictly differentiate central tax and local tax structure so as to optimize the structure of different levels of fiscal revenue. Then, to foster the main taxes of local government, such as the real estate tax, resource tax and so on. Get rid of the dependence on land finance.

3) Since the reform and opening up, China's financial development got rapid progress, but compared with developed countries, the gap is still large. It's necessary to improve financial service system and guide financial institutions to excavate the market of urbanization so as to mobilize the enthusiasm and strengthen the support of the construction of the new urbanization. The central bank should play a guiding role in the support of the construction of the new urbanization and guide financial institutions to support the urbanization construction market through the window guidance. Commercial Banks should solve the layout problems, increase the branch in the township and provide comprehensive financial services for the new urbanization. As a rural financial institution, rural credit cooperatives should use its location advantage that close to the villages and towns, update the management idea and support the construction of the new urbanization.

4) The financial institutions should improve credit management system. Due to the nature of the finance, financial institutions tend to be more willing to provide funding for the construction of large and medium-sized cities, while ignoring the financial needs of the construction of small towns. The direct reason of imbalance of financial support is due to the financial institutions believe that the construction project of the small town is big risk and high cost. But the primary cause is that the credit management system of financial institutions is not perfect. Therefore, in order to promote the development of the new urbanization, financial institutions should reform the existing system of credit management, create a suitable credit management mode for the construction project of the small town and reasonably down pass the power and authority in approving loans.

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