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The empirical research of the wealth effect of Chinese real estate based on regional differences

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ABSTRACT

Real estate is a special market and the regional difference of which is obvious. There is a large difference between the Chinese real estate markets and the Western real estate markets. Many scholars study the wealth effect of the real estate by the quantitative analysis, but their study has a lot of controversy and it is difficult to get a consistent conclusion. Based on the empirical analysis of a large number of data, this paper compares and studies the wealth effects in different province. And the result shows that direct wealth effect in most of the real estate markets of China hasn't appeared, while indirect wealth exists. Finally, the paper gives a corresponding explanation of it and puts forward suggestions according to China's current situation. © 2013 Trade Science Inc. - INDIA

KEYWORDS

Real estate;
Wealth effect;
Crowding-out effect;
Policy suggestion.

INTRODUCTION

In China, the history of the development of the real estate market and the study of the wealth effect is not long while some earlier studies of the wealth effect is generally based on qualitative research. In the new century, Chinese scholars began to study the wealth effect of the real estate by the quantitative analysis, but their study has a lot of controversy and it is difficult to get a consistent conclusion. From the research, we can find that the research on the wealth effect of the real estate has the following main views: (1) The wealth effect of the real estate exists. The analysis of the Case (1992) shows that compared with the wealth effect brought by the stock market, the effect of housing prices is more obvious in promoting consumption. Zheng Sheng, Gu Qiao, and Ma Yongkai (2011) show through empirical

research that in long term the real estate market has obvious wealth effect but negative impact on consumers' spending in China. Based on the analysis of the data from 1998 to 2006 data, Song Bo (2007) believes that in the short term the rising housing prices will increase residents' consumption and has the same result in the long-term. (2) The wealth effect of the real estate does not exist and only has substitution effect. Levin (1998) thinks that residential property price changes have little effect on the change in consumption. Through the empirical analysis, Yao Zhenling and Liu Dan (2007) holds that the real estate wealth effect is not good for the consumer spending, but simply the "crowding-out effect". Based on the data from 1987 to 2005, Zhang Cuntao (2007) concluded that increasing real estate prices has a negative effect on retail goods consumption. (3) The wealth effect of the real estate is

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not deterministic. Skeiner (1995) believes that the rise in the housing price will prompt the home owners to increase their consumption. But those renters and would-be home buyers will increase their savings and reducing consumption because of the rising price, thus they offset each other. By comparing and analyzing the wealth effect of the real estate in the five big cities in China, Li Mingya and Tong Lencheng (2007) both find that there are large differences between the cities.

It is hard to determine the cashed wealth effect, the uncashed wealth effect, the budget constraint effect, the liquidity constraints effect, and the substitution effect sizes in different periods and different economies. In view of this, further research in China's real estate wealth effect should be done. At the same time, as China is in the sensitive period of the regulation of the real estate market, the development of the real estate in the small and middle cities takes on various forms and different patterns among the provinces. Then does the wealth effect of the real estate market in China exist? Can it stimulate consumption or just cause "crowding-out effect"? Are there any differences in the wealth effect between different cities in China? What are the social and economic factors that influence the wealth effect? These are the problems we need to solve before we make further policy in the future. Therefore, it is of great theoretical and practical significance to study the inter-provincial differences of the wealth effect of the real estate.

EMPIRICAL ANALYSIS OF THE DIRECT WEALTH EFFECT OF THE REGIONAL REAL ESTATE MARKETS

Model selection

The precautionary saving model of Zeldes (1989) has great influence on the study of the direct real estate wealth effect. Zeldes supposed in the model — as the life cycle hypothesis, he can have more than one life cycles and maximize the lifetime, assuming that the income could be divided into two parts: the temporary income and persistence income. The utility equation of consumers should take into account a constant relative risk aversion, assuming that it faces multi-period choices and the consumers can choose the optimal current con-

sumption and have the contingency plans for the future consumption, so as to maximize divisible expected value of his lifetime. Exogenous future labor income and asset price changes are sources of uncertainty, while there is no way to resist the uncertainty of market transactions. In each period t ($t = 1, 2, \dots, T, T < \infty$), consumers choose C_t to maximize its effectiveness. That is:

$$\text{Max} E_t \sum_{i=0}^{T-1} (1 + \delta)^{-i} u(C_{t+i}) \quad (1)$$

The constraint conditions:

$$\begin{cases} W_{t+1} = (W_t - C_t)(1 + r) + Y_{t+1} \\ W_t \geq C_t \\ C_t \geq 0 \\ T < \infty \end{cases} \quad (2)$$

Among them, C_t is consumption of t period, W_t is the wealth of t period, δ is the utility discount rate, r is the real interest rate between t period and $t + 1$ period, Y_{t+1} is $t + 1$ the period of labor income is not random, T is the non-randomized date of death, E_t is the expectation based on the information in t period

Here, taking into account the relationship between the assets and the consumption, we can put the constraint condition for further evolution:

$$\begin{cases} \sum_{i=0}^{T-t} (1 + r)^i (y_{t+i} - C_{t+i}) = W_t \\ y_{t+i} \geq C_{t+i} \\ C_{t+i} \geq 0 \\ T < \infty \end{cases} \quad (3)$$

Establishing the Lagrange equation for first order derivative of the consumer utility maximization and simplifying the wealth effect, then the equation is:

$$C_t = \alpha W_t + \beta y_t \quad (4)$$

This equation was also used by Ludwig and Slok (2003) in estimating the wealth effect. Its meaning is that the consumer spending is a function of household wealth and current labor income. Wealth includes savings, stocks, bonds, real estate. As this paper mainly discusses the wealth effect of the real estate, so the hypothesis of wealth in real estate here (W_t) is variable,

the rest (W_0) are wealth constant.

The selection of data

The monetization of the housing reform began in 1998, so the study of this paper is based on the data from 1998 to 2011. The statistical data of the real estate wealth W are not published in our country Yearbook, so we can only estimate the real estate wealth by other means. This paper thinks that the real estate wealth (W) = the urban stock real estate area of last year \times house prices growth index + the new value of real estate of this year. But, the statistical data of the urban real estate stock of last year are also not published, so this paper estimates

by the quotation: the urban real estate stock area of last year = urban per capita housing area \times urban population. Y_i for the labor remuneration of the urban residents. And we also can't find the wage income of the urban residents from the statistical data, so it has to be calculated by the quotation: The wage income of urban residents income = residents pay – the average annual wage income of the rural residents \times rural population.

The empirical results analysis

This paper adopts SPSS17.0 software to make a regression estimation on the wealth effect of real estate market and we get the following results:

TABLE 1 : Direct real estate wealth effect empirical results

Regions	C	P Value	α	P Value	β	P Value	F Value
Beijing	-68.099	0.62	0.002	0.874	0.687	0.011	208.313
Tianjing	-99.951	0.341	0.025	0.107	0.625	0.991	275.706
Hebei	-314.252	0.005	0.082	0.019	0.352	0.01	367.542
Shanxi	45.582	0.404	0.018	0.705	0.685	0.022	174.998
Neimenggu	45.081	0.523	0.079	0.103	0.303	0.121	103.037
Liaoning	453.591	0.018	0.116	0.099	-1.121	0.765	139.929
Julin	150.276	0.032	0.039	0.382	0.439	0.038	132.112
Heilongjiang	520.799	0	-0.001	0.983	0.524	0.017	73.281
Shanghai	-423.117	0.002	-0.025	0.294	1.344	0	700.759
Jiangsu	-392.723	0.052	0.001	0.925	0.652	0.001	582.586
Zhejiang	-254.382	0.464	0.063	0.03	0.064	0.831	184.544
Anhui	7.742	0.953	0.005	0.938	0.761	0.117	161.374
Fujian	-530.785	0.026	0.035	0.243	0.516	0.079	93.34
Jiangxi	-15.635	0.894	-0.104	0.619	1.124	0.298	33.292
Shandong	-485.152	0.105	0.071	0.145	0.389	0.121	142.823
Henan	-92.337	0.22	-0.016	0.62	0.649	0.001	609.514
Hubei	-256.512	0.457	0.024	0.177	0.649	0.033	96.378
Hunan	-353.047	0.039	0.087	0.269	0.42	0.242	107.422
Guangdong	-1422.18	0.003	0.042	0.167	0.696	0.015	509.28
Guangxi	-5.016	0.97	-0.104	0.206	1.14	0.007	160.566
Hainan	0.188	0.991	0.07	0	0.061	0.597	238.033
Chongqing	-197.183	0.016	-0.083	0.06	1.507	0.001	190.79
Sichuan	59.074	0.36	0.022	0.305	0.527	0.006	547.632
Guizhou	16.508	0.911	-0.048	-0.812	1.258	0.252	63.836
Yunnan	363.799	0.274	-0.105	0.387	0.899	0.036	98.746
Tibet	16.395	0.203	-0.009	0.864	0.245	0.316	4.201
Shanxi	-90.829	0.443	0.126	0.362	0.01	0.99	41.826
Gansu	19.255	0.642	0.093	0.015	0.336	0.003	147.314
Qinghai	8.268	0.186	0.021	0.424	0.467	0.003	387.54
Ningxia	-4.475	0.77	-0.041	0.56	0.92	0.01	215.522
Xinjiang	91.117	0.02	0.184	0.003	-0.177	0.174	135.23

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The empirical results show that there are great differences between the wealth effect caused by the change in the stock of wealth and the income effect caused by the change in the income. From the F value of the empirical results, the constant term shows great diversity. From the whole models of the provinces, except Tibet, the real estate wealth and the employment income have a significant effect on the consumption expenditure of their urban residents.

At 5% confidence level, among the 31 provinces, only five provinces including Hainan, Xinjiang, Gansu, Hebei, Zhejiang have a high level of statistical significance for the wealth effect in the real estate, and Chongqing and Liaoning show it under 10%. Among these provinces, the wealth effect is the most obvious in Xinjiang, the smallest in Zhejiang. It indicates that in most areas of China, the real estate wealth effect is not evident and the rising property prices have not caused the increase in consumption expenditure of the urban residents.

Now considering the income effect, in the seventeen provinces including Chongqing, Henan, Jiangsu, Gansu, Qinghai, Sichuan, Guangxi, Hebei, Ningxia, Beijing, Guangdong, Heilongjiang, Shanxi, Hubei, Yunnan, Jilin, the employment income of the urban residents has a significant influence on their consumption expenditure under 5% confidence level while in Fujian, it is obvious under 10% confidence level. And seven more provinces have been obviously influenced at the 70 percent. This shows that in most areas of our country, the consumption expenditure of the urban residents depends largely on their labor remuneration. The growth in the consumer spending is mainly due to the increase of labor remuneration and the increase in the real estate wealth has little effect.

THE EMPIRICAL ANALYSIS OF THE INDIRECT WEALTH EFFECT OF THE REAL ESTATE MARKET

The previous part of the paper focuses on the indirect wealth effect of the real estate market, that is the rising prices will directly affect consumption through the channels, thus influence the development of the national economy. Then a closer analysis of the wealth effect of the real estate market will be undertaken from the point

of the indirect transmission mechanism, namely exploring the a link between the real estate boom index and consumer confidence index. The experience of the developed countries shows that consumer confidence has a great contribution to the increase in consumer spending, but if we can prove that the change in the real estate market boom also has influence on the Chinese family consumer confidence by demonstration data, then the social influence brought about by rising property prices after the housing reform in 1998 will be more extensive and profound.

Analysis of the existing indirect wealth effect

Indirect wealth effect is mainly displayed by the influence of the consumer confidence on spending. So the indirect wealth effect of the real estate market is that the rising property prices bring about people's expectations of the improved economic development and the increasing consumer confidence, thus expanding the consumption expenditure. Researchers found that the indirect wealth effect of the real estate industry is realized through "confidence channels". This mainly displays in: first, high prices mean real estate owners have more wealth and are more psychologically satisfied and more emotionally optimistic. Second, the rising property price also indicates a better development of the future economy and the stronger consumption desire. Chinese scholars have found the existence of the indirect wealth effect brought by the stock market through the empirical studies, but they pay little attention to the indirect wealth effect of the real estate market. In the following, the paper will prove that such indirect wealth effect also exists in the real estate market, ie. demonstrating the relationship between real estate boom degree and consumer confidence.

An empirical analysis of indirect wealth effect

The collection of monthly data of The real estate boom index (REBI) and the consumer confidence index (CCI) was from January, 1999 to July, 2011, as it is not long for China's official compilation of the consumer confidence index (CCI) and no The real estate boom index (REBI) can be publicly available throughout the whole country, so it's difficult for the paper to investigate the indirect wealth effect of the regional real estate market of all the cities. However, with the integration of the provincial economy development, the in-

creasing frequency of the population flow and the development of the information technology is narrowing the psychological differences between the different regions. So the study of the indirect wealth effect of the

national real estate has certain guiding significance. The sequence diagram of The real estate boom index (REBI) and the consumer confidence index (CCI) is drawn by SPSS17.0, as follows:

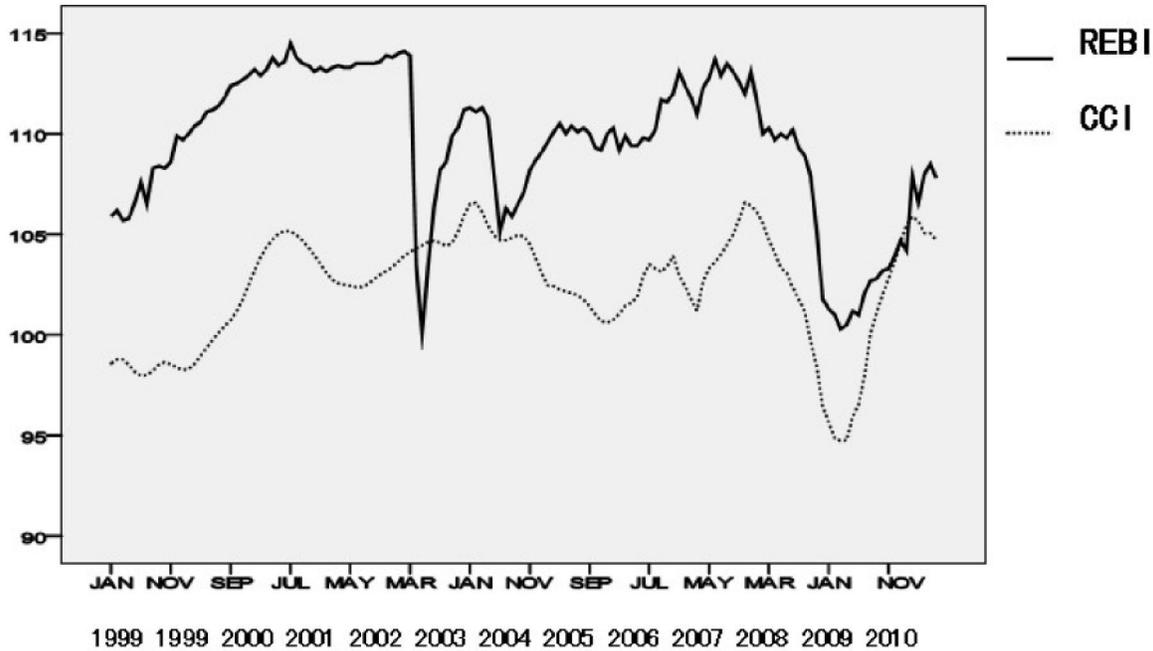


Figure 1 : The sequence figure of the the real estate boom index and the consumer confidence index.

From the sequence figure we can see that the real estate boom index and the consumer confidence index are all of non-stationary time series, showing a certain trend. In this paper, the author carries on the Grainger

causality test by EViews6 after the stationary processing through the difference. In the case of a lag phase 1, the results are as following:

We can see that the results denied the hypothesis

TABLE 2 : Grainger causality test results

The original hypothesis	Observation	F Statistics	Probability
The real estate boom index is not the Granger cause of the consumer confidence index	136	4.02954	0.04672
The consumer confidence index is not the Granger cause of The real estate boom index		0.00515	0.94289

that the real estate boom index is not the Granger cause of the consumer confidence index, suggesting that increased The real estate boom index will lead to the rising consumer confidence. And the statistical indicators are the most significant in the case of a lag phase 1. So, it takes about one month before the variation in the real estate boom begins to influence the consumer confidence. The test results accepted the theory that the consumer confidence index is not the Granger cause of the real estate boom index, showing an increase in consumer confidence will not enhance the real estate market boom.

CONCLUSION

Empirical results show that the direct wealth effect in most parts of China’s real estate has not appeared. the consumption expenditure of the urban residents depends largely on their labor remuneration. The growth in the consumer spending is mainly due to the increase of labor remuneration and the increase in the real estate wealth has little effect. Indirect wealth effect really exists in most areas of China, The real estate boom index and the consumer confidence index are all of non-sta-

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tionary time series, showing a certain trend. Increasing the real estate boom index will lead to the rising consumer confidence.

To promote the generation of real estate wealth effect in most regions, measures must be taken to solve the problems existing in the real estate market. Chinese government Take a variety of measures, guaranteeing and improving the urban residents' property income. The wealth effect of the real estate industry is based on the ensurance that urban residents' real properties can be turned into cash. In our country, a good system of credit consumption has not been established, so only with the value-added cash income from the real properties, can the residents change it into effective demand. Therefore, we should take measures to guarantee and improve the urban residents' property income. Government Curb the rapid rise in prices and promoting the healthy development of the real estate market. Government Speed up the real estate tax levy and raising the cost of real estate speculation. Speculative factors are the main reasons for the rapid increase in housing prices in recent years. The central regulation of real estate market aims mainly at the speculative demand. This value-added part of the speculative demand has not been turned into effective consumption. On the contrary, it raises the housing prices, affects the consumption of the low-income families and restricts the wealth effect.. The advancement of property tax will also contribute to the wealth effect of the real estate industry.

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