

An Attempt to Demonstrate the Significant Role Played by Institutional Change in China's Sustained Economic Growth

-- Taking the Reform of the Renminbi Foreign Exchange Rate System as an Example

Zirou Huang^{1,*}

¹School of Economics and Trade, Guangdong University of Foreign Studies, Guangzhou, Guangdong Province, 510006, China

*Corresponding author's e-mail: hzrhzhzr@yeah.net

Abstract: During China's reform and opening, the Renminbi exchange rate mechanism has undergone several modifications. It has steadily moved from an early fixed exchange rate regime to a market-determined, managed floating exchange rate system. At various periods, each stage of reform has contributed to China's economic growth. The purpose of this study is to examine, from the perspective of the reform of the Renminbi exchange rate regime, whether the change in the Renminbi exchange rate regime has impacted China's sustained economic progress. Using the theoretical system of national income accounting and the multiple linear regression model, the information includes data on gross domestic product (GDP), the real effective exchange rate of the Renminbi, social fixed asset investment, population consumption level, and import/export balance from the China Statistical Yearbook 2006-2021. Then, it is concluded that this institutional change contributes significantly to China's sustained economic growth, and reform ideas for China's institutions are presented.

Keywords: Institutional change, Economic growth, Renminbi exchange rate system.

1. Introduction

The exchange rate system of a country is an important economic institution. The level of the exchange rate reflects the basic conditions of the country's macroeconomic performance, and the responses of macroeconomic variables to exchange rate fluctuations under different exchange rate regimes vary. Thus, the selection and adjustment of the exchange rate regime have a substantial impact on the nation's sustained economic growth.

Since the reform and opening up, the Renminbi exchange rate system has undergone several significant stages, including the dual exchange rate system from 1978 to 1993, the fixed exchange rate system following the exchange rate reform in 1994, and the floating exchange rate system following the exchange rate reform in 2005[1]. In recent years, economic globalization and international trade have accelerated, and the Renminbi exchange rate has played an important role in China's internal and external balance. Thus, it is crucial to determine if the impact of a change in the Renminbi exchange rate regime on Renminbi exchange rate movement is substantial for China's continued economic development. Based on the 2005 reform of the Renminbi

exchange rate regime, this study will illustrate that institutional change has played a crucial influence in China's sustained economic growth.

2. Theoretical Mechanism

The exchange rate reform of 2005 established an inquiry trading system and a regulated floating exchange rate system based on market supply and demand with reference to a

basket of currencies and no longer tied to the US dollar. After this reform, the Renminbi entered a period of long-term appreciation, which spurred a massive influx of international capital, which led to a spectacular increase in foreign exchange reserves and a trade surplus, therefore considerably contributing to the nation's economic growth.

Changes in the Renminbi exchange rate regime have a substantial impact on China's macro economy, including foreign exchange reserves, prices, employment, money supply, imports, exports, and international capital flows. Moreover, its scale is influenced by several cycles of Renminbi currency rate appreciation and depreciation[2]. In the case of the exchange rate reform of 2005, Figure 1 displays both the outcome and the mechanism of action.

As shown in Figure 1, a change in the policy governing the exchange rate of the Renminbi will affect import and export trade, the flow of capital, the consumption level of residents, the employment situation, etc., which in turn affects macroeconomic variables such as prices, social demand, economic growth, etc. The theoretical mechanism by which a change in the regime of the Renminbi's exchange rate effects China's economic development was explored previously. These many stages of exchange rate reform have, for the most part, stuck to this policy in order to influence the economic development of China. Thus, the subsequent empirical investigation of the shift in the regime of the Renminbi exchange rate in 2005, which facilitated the sustained development of China's economy over a specific period, would likewise adhere to the concept of the previously established theoretical process.

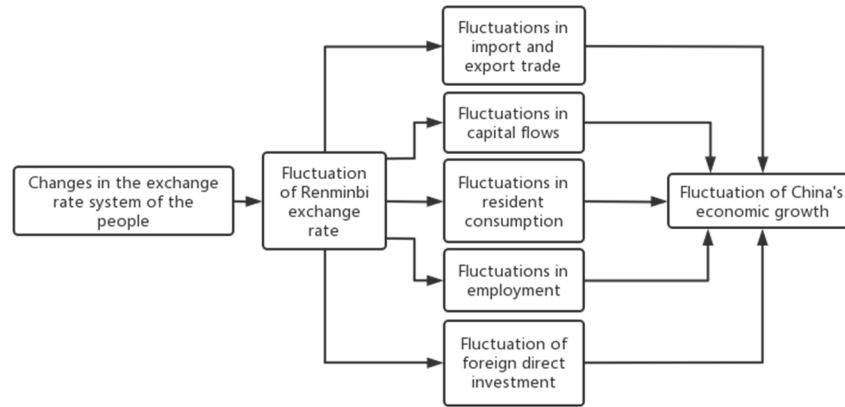


Figure 1. Flow Chart of Exchange Rate System Changes Affecting China's Economy

3. Model Argument

The Gross Domestic Product (GDP) is an essential indication of a nation's economic development through time. GDP is affected by investment, consumption, and the balance of imports and exports. Furthermore, the Renminbi exchange rate is one among the several factors that influence GDP. To quantify the impact of Renminbi exchange rate fluctuations on economic growth, we utilize regression analysis to create the regression equation between Renminbi exchange rate and GDP in order to gain a deeper understanding of the link between the two variables.

3.1. Modeling

In general, investment, consumption, government purchases, and the export-import balance comprise the Gross Domestic Product (GDP). However, in order to analyze the impact of the Renminbi exchange rate on economic growth, it is necessary to include the exchange rate as a factor and to simplify the government spending component. These indicators provide as a framework for conducting a regression study of GDP-influencing variables. Let:

$$GDP=C+I+NX+E \quad (1)$$

In order to avoid the influence of data-induced heteroskedasticity, a multiple regression model can be constructed by calculating the logarithms of each variable independently.

$$\ln GDP=\beta_1+\beta_2\ln E+\beta_3\ln I+\beta_4\ln C+\beta_5\ln NX+\mu \quad (2)$$

where μ is the random error term, E is the Renminbi real effective exchange rate, I is the social fixed asset investment, C is the level of consumption, NX is the import and export balance, and β is the regression coefficient.

3.2. Empirical analysis

The annual data (Table 1) of GDP (100 million yuan), Renminbi real effective exchange rate (100 dollars/yuan), social fixed assets investment (100 million yuan), level of consumption (yuan), import and export balance (yuan) from 2006 to 2021 are selected for regression analysis of the factors affecting China's economic growth. All data processing is completed by StataMP 16.

According to the regression results, the regression coefficients of the constants $\ln E$, $\ln I$, $\ln C$, and $\ln NX$ are -0.339, -0.029, 1.023, and -0.037, respectively, so the regression equation is obtained:

$$\ln GDP=6.332-0.339\ln E-0.029\ln I+1.023\ln C-0.037\ln NX \quad (3)$$

Table 1. Statistics of GDP, Renminbi Real Effective Exchange Rate, Social Fixed Asset Investment, Level of Consumption, Import and Export Balance From 2006-2021

Year	GDP	E	I	C	NX
2006	219438.5	797.18	97583.1	6319	14221.03
2007	270092.3	760.4	118323.2	7454	20330.2
2008	319244.6	694.51	144586.8	8504	20868.41
2009	348517.7	683.1	181760.4	9249	13411.32
2010	412119.3	676.95	218833.6	10575	12323.34
2011	487940.2	645.88	238782.1	12668	10079.16
2012	538580	631.25	281683.8	14074	14558.29
2013	592963.2	619.32	329318.3	15586	16093.98
2014	643563.1	614.28	373636.9	17220	23525.72
2015	688858.2	622.84	405927.7	18857	36830.73
2016	746395.1	664.23	434363.5	20801	33452.12
2017	832035.9	675.18	461283.7	22968	28519.6
2018	919281.1	661.74	488499.4	25245	23247.5
2019	986515.2	689.85	513608.3	27504	29119.9
2020	1013567	689.76	527270.3	27439	36342.4
2021	1143669.7	645.15	552884.2	31072	43653.1

3.3. Model Testing

R-squared is 0.999, which is astonishingly near to 1, suggesting that the model fits the data well based on the regression findings (Table 2). The initial hypothesis that the regression coefficient $\beta_1=\beta_2=\beta_3=\beta_4=0$ is rejected based on the findings of the F-test, which yield a significant P-value of 0.000***, indicating significance at the level. Hence, the

regression equation reveals a substantial linear association. It demonstrates that the variables 'Renminbi real effective exchange rate, social fixed asset investment, residents consumption level, and 'import/export balance' are positively correlated with one another. The variables' real effective exchange rate of the Renminbi, social fixed asset investment, consumption level, and import/export balance have a substantial influence on the GDP as a whole.

Table 2. Results of Linear Regression Analysis

Results of linear regression analysis n=16									
	Non-standardized coefficient		Standardization coefficient	t	P	VIF	R ²	Adjusted R ²	F
	B	Standard error	Beta						
Constants	6.332	1.183	-	5.35	0.000***	-	0.999	0.998	F=2299.692 P=0.000***
Natural logarithm(Ln) E	-0.339	0.144	-0.048	-2.353	0.038**	3.79			
Natural logarithm(Ln) I	-0.029	0.094	-0.032	-0.309	0.763	100.962			
Natural logarithm(Ln) C	1.023	0.098	1.028	10.446	0.000***	89.166			
Natural logarithm(Ln) NX	-0.037	0.019	-0.033	-1.979	0.073*	2.551			
Dependent variable: natural logarithm (Ln) GDP									
Note: ***, **, * represent 1%, 5%, 10% significance levels, respectively									

4. Conclusions and Recommendations

The regression coefficient β_2 of lnE is -0.339, according to the findings of the regression study. The regression coefficient is negative, showing that a decrease in the real effective exchange rate of the Renminbi (100 USD/yuan) has a positive effect on the growth of our economy. This conclusion may be obtained by combining the theoretical mechanisms discussed above. The currency exchange rate adjustment in 2005 led the Renminbi to persistently fall versus the US dollar, albeit briefly rising. The 2005 exchange rate reform demonstrated the critical role it played in China's sustained economic growth by attracting a large amount of foreign capital, increasing resident consumption, expanding employment, and increasing the volume of import and export trade, among other things, to promote the sustained growth of the Chinese economy over a specific time period.

Each adjustment in the exchange rate system during the course of the Renminbi exchange rate system reform incorporates the characteristics and experiences of previous exchange rate reforms. Then, they all try to accelerate the process of Renminbi marketization and internationalization in order to match China's exchange rate regime with the global market. Their goal is to allow China's exchange rate system to play a bigger role in international business and the global economy, driving China's economy toward long-term prosperity[3].

China should pay particular attention to the important role that institutional reform plays in the country's economic development and continuously summarize past experience and lessons. It is crucial to link the route of institutional reform with the contemporary Chinese context. Some key conclusions may be drawn from the history of the Renminbi's exchange rate mechanism revision[4,5]. The following will

offer an outline of China's experience with exchange rate reform:

- (i) Adopting a gradual model to significantly reduce the risk of reform.
- (ii) Selecting the exchange rate system arrangement in accordance with the economic development strategy and relevant policy objectives, and making adjustments in a timely manner
- (iii) Paying attention to coordination and expectation management among different reform measures when introducing reform programs
- (iv) Making necessary adjustments and corrections in a timely manner in case of unexpected shocks to the introduction of reform measures.

References

- [1] Weng Z.Q.(2019). The reform process and prospect of the RMB exchange rate system. *Financial Economy*(10),18-20.
- [2] Guan B.B.& Xia Y.X.(2018). Research on the impact of the reform of the RMB exchange rate system on macroeconomic development. *Journal of Nantong University (Social Science Edition)*(06),124-130.
- [3] Zhang M & Chen Y.M.(2022). The structural evolution of the reform of the RMB exchange rate system: historical review, experience summary and prospect. *Finance and Trade Economy*(12),15-31.
- [4] Zhang L.Q.(2021). Reform of RMB exchange rate formation mechanism: main experience and prospect. *China Foreign Exchange*(13),16-18.
- [5] Deng N.J.(2021). Research on the path of RMB internationalization under the international monetary system -- based on the perspective of RMB exchange rate system. *Chinese Business Theory*(21),91-93.