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Course Group Project

Effects of CNY Revaluation on Mongolian Economy

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I. Introduction

Undervalued or not undervalued? This question regarding the Chinese currency (CNY) has been a center of heated argument among economists, experts, and investors for some period of time, yet it seems there is no clear answer to that. G-7 is pressuring the Chinese government to reevaluate its currency, some saying keeping the currency undervalued will have a threatening effect on Chinese and world economy, especially on developing countries. Yet, again, Chinese government still has its currency pegged and it is not certain whether they will reevaluate the currency by an appropriate amount, not even mentioning the possibility of adopting the managed floating regime. However, in this paper, we are taking the common notion of CNY being undervalued and we wanted to analyze what will be the effect of CNY revaluation, if Chinese government decides to do so, on economy of a developing country: its neighbor Mongolia.

Geographically, Mongolia is landlocked country located between China and Russia. Prior to 1990, Mongolian economy was centrally planned and highly dependent on Russia. Its major trade partner was, of course, Russia and other smaller players would include former Soviet Republics. In 1990, Mongolia has embarked on a transition to democracy and free market economy. During the time of transition, it had experienced hyperinflation, low economic growth, financial sector crisis, and other economic and social difficulties; yet, the country was able to recover from transition crisis in relatively short period of time and by the end of 1990's, economy has been stabilized. As of the end of 2004, inflation rate was 11 percent and economic growth has reached to 10.6 percent, the highest since 1990. All the other macro economic indicators are looking up as well.

Furthermore, after the transition to free market economy, Mongolia has implemented open trade regime and floating exchange rate system, and expanded its foreign trade relations extensively and China has become the major trading partner. As shown in the Table 1, trade with China has been on steady growth, and as of 1999-2004, 33.6 percent of the total trade has been done with China; 47.4 percent of Mongolian export was to and 22.5 percent of import was from China.

Mongolian major export products to China are copper, gold, cashmere, and textile and clothing products. Copper and copper products accounted for about 40 percent of the total export in 2003; and as for the buyer, main importer of Mongolian products is China, whose main import products from Mongolia are copper and copper products, and raw and de-haired cashmere. Chinese imports weigh about 25 percent in total imports. Major goods from China are equipments, manufactured goods, agricultural goods, garments, and other consumer goods.

If the Chinese government were to reevaluate their currency, CNY, then theoretically, Mongolians should see current account improvements as its export will be relatively cheaper. But, will it be really this simple and this good?

II. Is CNY Undervalued?

Chinese government has been claiming it has "adopted" managed floating exchange rate regime since 1994; however, it is evident that it has virtually fixed its exchange rate by

pegging it to the USD. (Figure 1) Accordingly, although recently most currencies continued to appreciate against weak USD, the CNY still moves around the targeted level, which causes other countries to believe that the CNY is undervalued relative to their currencies.

Foreign exchange rates are determined by numerous economic factors: interest rate differentials, price differentials, inflation differentials, current account balances, etc. While flexible exchange rate system allows markets to immediately reflect the shocks by those factors, fixed exchange rate system restricts the rates' movement within predetermined ranges.

Model Analysis: the AA-DD Approach

As China's trade surplus against its major trading partners has dramatically expanded since 2004, accompanied by high capital inflows, the nation's foreign exchange reserves has increased steadily and reached to USD 818.9 billion as of the end of 2005. (Figure 2) Furthermore, during last years, Chinese economy has been growing rapidly, and although exchange rate appreciation is usually expected with such a growth, CNY/USD rate has been almost constant throughout the years.

Applying the AA-DD model as shown in Figure 3 to this case, one can find that the DD curve shifts outward ($DD_0 \rightarrow DD_1$) as Chinese economy grows. Hence, if flexible exchange rate system were in effect, the exchange rate should have appreciated from S_0 to S_1 as the output increases to Y_1 . However, under the fixed exchange rate regime, the rate is not allowed to deviate from its target level; thus, it has to be maintained at S_0 . Consequently, the monetary authority has to implement expansionary monetary policy, thus shifting the AA_0 curve outward to AA_1 , to bring back the exchange rate to its initial level and as a result, output increases further to Y_2 . As a result, given the current economic circumstances, Chinese fixed exchange rate regime may not only lead to overheating of the economy, but also make the CNY undervalued. Actually, using the Economist's Big Mac Index, informal way of measuring and comparing purchasing powers parities of developed and developing countries, one can easily find that the CNY is undervalued by 59% against USD as of January 2006. (Table 2)

Trade Analysis

Coincided with the model's anticipation, recently the United States and Japan have jointly pressed China to increase the value of its currency. Lots of countries are seriously concerned that their trade deficit against China has increased, which is partly caused by the undervalued CNY. On July 21, 2005 China had announced that they would give up its direct peg of the CNY to the USD and would instead tie it to a basket of currencies; and has revaluated CNY only by 2 percent on the next day. However, no significant 'revaluation' measure has been taken since. Consequently, in spite of the historic move, the majority of countries still believe that the current CNY value is artificially maintained at low level for China's export price competitiveness.

On the other hand, while the International Monetary Fund does not suspect that the undervalued CNY could be the main reason for the huge amount of US trade deficit, it also suggests to China that transferring to more flexible exchange rate regime would indeed be crucial for its further economic prosperity.

In response to these pressures from abroad, China's government officials has been reiterating their traditional stance that a stable CNY will actually help the world financial stability and the trade growth. But since they are well aware of the necessity to move towards the floating exchange rate regime, the CNY revaluation will be realized; however, not so soon enough.

III. Expected effect of CNY revaluation on Mongolian economy

In the last section, we saw that the AA-DD model and the political situation indicate CNY is likely to be revalued. Then, what is the effect of the CNY revaluation on Mongolian economy? Theoretically, when home currency appreciates, it makes domestic products relatively expensive; thus, less competitive at the world market and hurts the current account balance of the home country and improves that of foreign country. In our case, revaluation of CNY will be reflected as depreciation of the MNT, and if we apply the above argument, it should improve the current account of Mongolia as it will decrease its imports from China. However, effect of CNY revaluation on exports of Mongolia is not quite clear as its exports depend on exchange rate and Chinese GDP. In order to determine the changes more clearly, we utilized HH-FF model analysis.

Effect on Mongolian GDP: AA-DD and HH-FF Approach

Expected effect on Chinese economy: AA-DD Approach

If Chinese government decides to revalue CNY, they will have to contract the money supply. Applying AA-DD model (Figure 4) to this case with assumption that the other things being equal, we can see the money supply contraction shifts the AA_0 curve inward to AA_1 and leads to Chinese GDP deterioration ($Y_0 \rightarrow Y_1$) as well as CNY appreciation ($S_0 \rightarrow S_1$).

Expected effect on Mongolian economy: HH-FF Approach

Both the CNY revaluation against MNT and the decrease in Chinese GDP will affect Mongolian GDP significantly. The HH-FF analysis is the best way to define the effect of both the appreciation of CNY and the decrease in Chinese GDP on Mongolian economy. Applying the HH-FF model (Figure 5) to this case again with the assumption that the other things being equal, we can find that the appreciation of CNY shifts the FF curve inward and the decrease in Chinese GDP shifts the HH curve inward. General result usually implies that Chinese GDP decreases, but Mongolian GDP change is ambiguous. However, in the case of Mongolia, we could conclude that HH shift dominates FF shift; therefore, GDP will actually decline. While doing HH-FF model analysis, we have to consider two main factors: income effect and substitution effect.

Income Effect

When Chinese GDP decreases, it means less income for Chinese consumers, so there will be decrease in demand for Mongolian goods. The difference in scale of economy makes the Chinese income effect larger. The Chinese GDP (PPP, 2005 estimation) is about 1,300 times as big as the Mongolian GDP (PPP, 2005 estimation). This means that the change in Chinese economy has significant effect on the Mongolian economy while the change in Mongolian economy does not affect Chinese economy so much. Therefore, this difference in economy scale makes both the HH curve and the FF curve steeper and thus income effect larger.

Substitution Effect

On the other hand, when CNY is revalued, it will make Chinese goods more expensive. Therefore, it will encourage Mongolian consumers to buy more of domestically produced

goods and decrease the demand for the imports from China. Although Mongolian economy has been performing well in recent years, it still has low production capacity, especially in its typical import goods such as equipment, manufactured goods, and agricultural products. In other words, Mongolian producers will not be able to effectively compete with Chinese producers at these markets, at least in the short run. The limitation of domestic production ability makes the substitution effect smaller. This means that Mongolian people have to import from China even if the CNY appreciation makes Chinese goods more expensive. As a result, it will make the shift of FF curve smaller and the substitution effect smaller.

In sum, according to the AA-DD model and the HH-FF model analysis, it is suggested that the Mongolian economy might end up hurting from the CNY revaluation because income effect dominates the substitution effect, thus, reduces the Mongolian GDP.

Expected effect on Mongolian trade balance

International financial theory will tell us more about Mongolian trade balance. In previous part, we saw that the current account of Mongolia will worsen because of large income effect and small substitution effect. Here, there is another bad news for Mongolian trade balance: J-Curve effect could also be expected after the CNY revaluation.

According to “Foreign Trade Statistics of Mongolia, 2004,” 51.1% of the total exports to China were settled in USD, 0.19% of the total exports to China were settled in CNY, 11.8 % of the total imports from China were settled in USD and 13.1 % of the total imports from China were settled in CNY. Since CNY is the most popular settlement currency for imports, the payment to China in terms of MNT will increase while the income from exports in terms of MNT will not change. Therefore, in short run, the current account of Mongolia will worsen more than previously expected (Figure 6).

IV. Policy Recommendations

The major possible threat from CNY revaluation is fall in the output. As we have seen in HH-FF model analysis, the output decline was due to the fact that income effect dominated the substitution effect. Therefore, policy measures shall be aimed at maintaining a steady economic growth shall be implemented.

Mongolia should diversify its trading partners. If Mongolia has sufficient number of trading partners, then fall in the Chinese demand for Mongolian goods will have less significant impact. Furthermore, due to lack of diversification caused Mongolians to still import from China although their goods are relatively more expensive. Therefore, diversification should in one hand, decrease income effect and in the other hand, should able Mongolians to divert from Chinese imports to cheaper imports from somewhere else. Another policy measure could be towards promoting domestic production of, at least, consumer goods. This would, for certain, reduce reliance on Chinese manufactured goods, garments, and agricultural products; thus, substitution effect will be larger. In sum, combination of trade diversification and increase in domestic production can be expected to prevent from or at least minimize the fall in the output.

Other policy measures towards stabilizing the current account and increasing output can be adopting fixed exchange rate regime and expanding government expenditure. However, both policy measures are not recommended in the case of Mongolia. Implementation of former

policy could make MNT as a target of speculation because of insufficient amount of foreign reserve and may lead to financial crisis. As for the latter policy measure, expanding government expenditure is not very well attainable just as it is the case in most developing countries because of limited financing options.

Appendix

Table 1.: Trade statistics with China (in millions of USD)

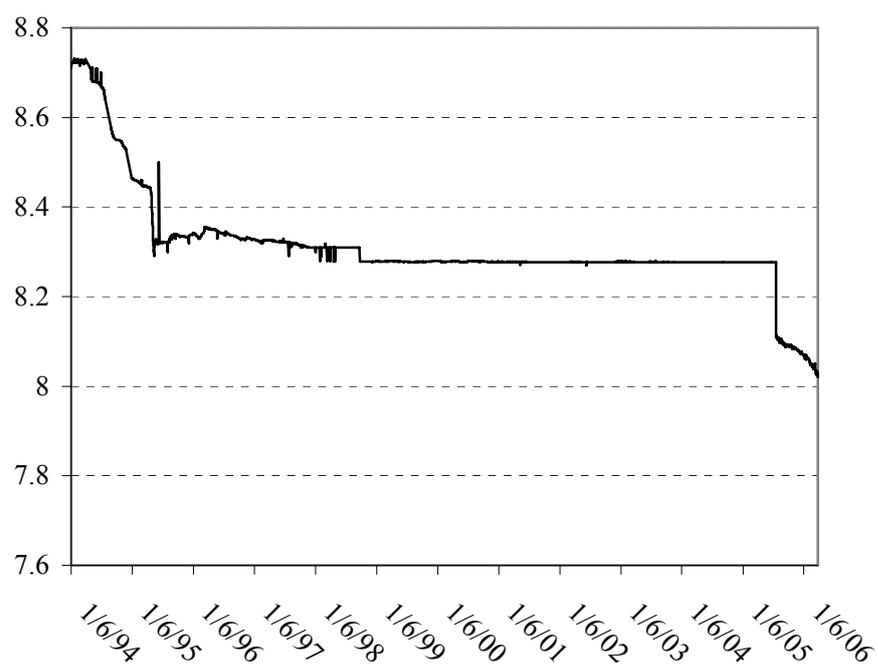
Year	Total Turnover	Turnover with China		Total Export	Export to China		Total Import	Import from China	
		Qty.	Share		Qty.	Share		Qty.	Share
1989	1684.5	24.1	1.4%	721.5	4.2	0.6%	963.0	19.9	2.1%
1990	1584.7	33.6	2.1%	660.7	11.3	1.7%	924.0	22.3	2.4%
1991	708.9	69.1	9.8%	348.0	52.8	15.2%	360.9	16.3	4.5%
1992	806.7	127.0	15.7%	388.4	69.4	17.9%	418.3	57.6	13.8%
1993	761.6	186.1	24.4%	382.6	120.2	31.4%	379.0	65.9	17.4%
1994	614.5	97.1	15.8%	356.1	73.2	20.6%	258.4	23.9	9.3%
1995	888.6	122.3	13.8%	473.3	77.8	16.4%	415.3	44.5	10.7%
1996	875.2	147.0	16.8%	424.3	81.0	19.1%	450.9	66.0	14.6%
1997	1036.8	164.9	15.9%	568.5	101.6	17.9%	468.3	63.3	13.5%
1998	965.6	176.7	18.3%	462.3	110.1	23.8%	503.3	66.6	13.2%
1999	967.0	285.7	29.5%	454.2	208.2	45.8%	512.8	77.6	15.1%
2000	1150.3	400.1	34.8%	535.8	274.3	51.2%	614.5	125.8	20.5%
2001	1159.2	374.5	32.3%	521.5	238.3	45.7%	637.7	136.2	21.4%
2002	1214.8	388.2	32.0%	524.0	220.5	42.1%	690.8	167.7	24.3%
2003	1416.9	483.3	34.1%	615.9	287.0	46.6%	801.0	196.3	24.5%
2004	1493.4	557.8	37.4%	649.5	337.3	51.9%	843.9	220.5	26.1%

Source: Foreign Trade Statistics of Mongolia, 2004

Table 2. : The Economist's Big Mac Index

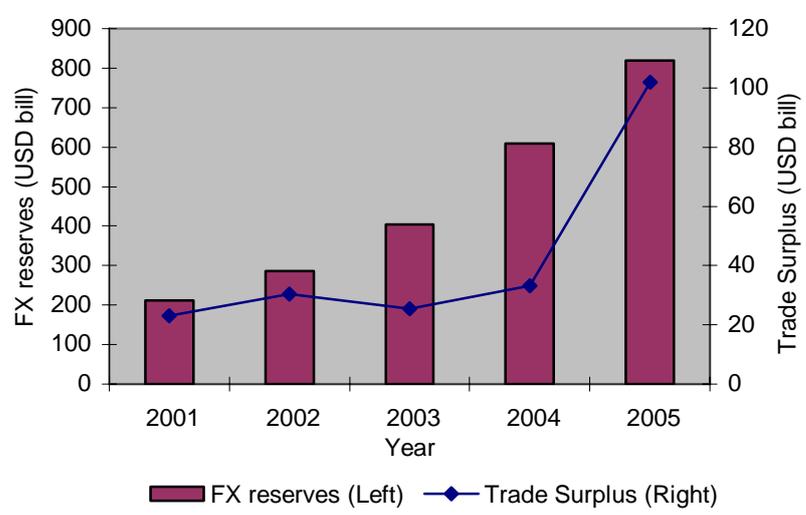


Figure 1. :The exchange rate of CNY/USD



Source: Federal Reserve Bank of New York

Figure 2. : China's foreign exchange reserves* and trade surplus



* based on the end of year figure
 Source: Bank of Korea

Figure 3. : AA-DD analysis on China

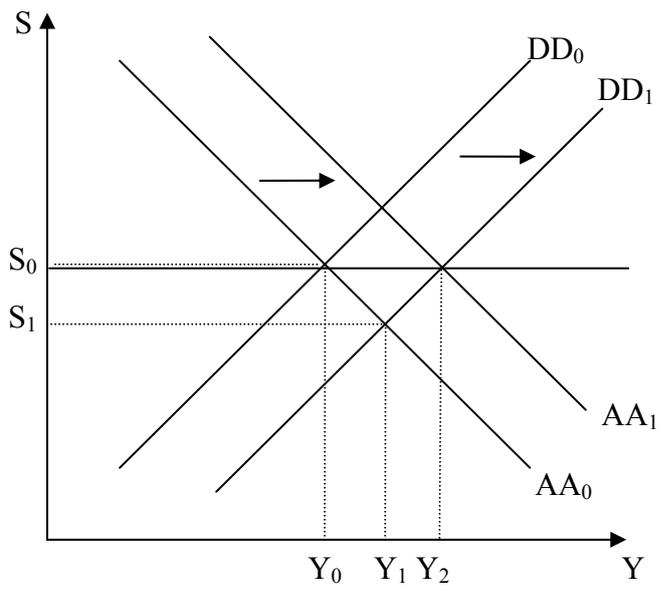


Figure 4. : The effect of CNY revaluation on Chinese GDP

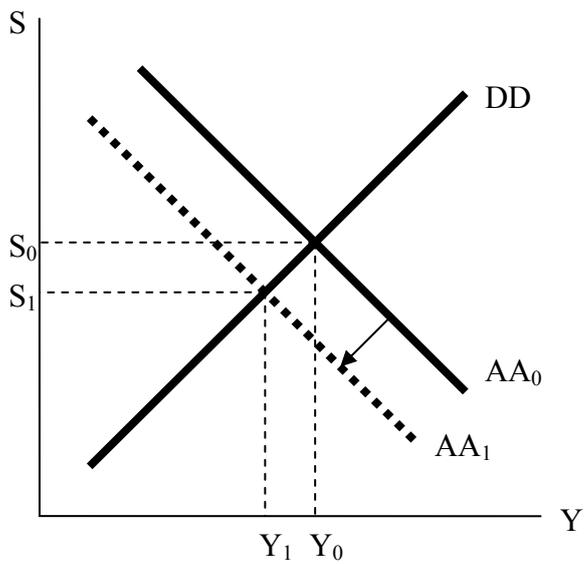
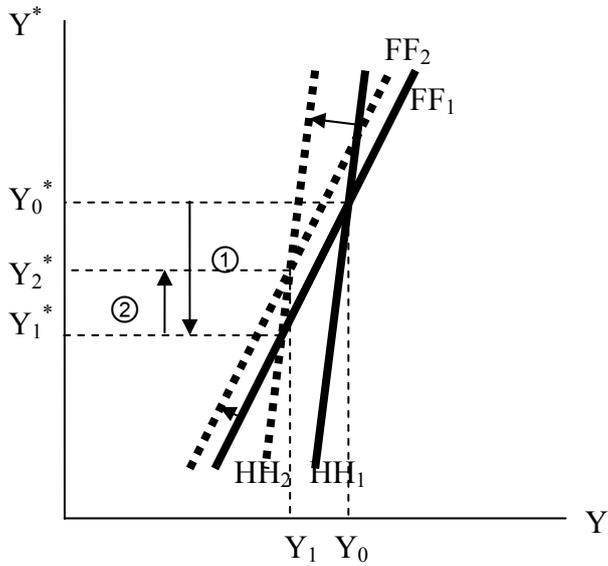


Figure 5. : The effect of CNY revaluation on Chinese GDP and Mongolian GDP



①income effect

②substitution effect

Figure 6. : J-curve effect in Mongolia

Current Account (in terms of MNT)

