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EXCHANGE RATE POLICY, GROWTH, AND FOREIGN TRADE IN CHINA

ABSTRACT: *This paper analyzes a hot topic: the influence of an undervalued currency on macroeconomic variables – primarily on the economic growth and trade balance of a country, but also on employment, foreign exchange reserves, competition, and living standards. It also reviews and explains the consequences of yuan undervaluation, points out the need for its appreciation, and states the negative effects that stem from this measure. Special attention is given to the problematic bilateral relations between China and the USA and the reasons why Americans are worried about the exchange rate policy that China implements. Although yuan appreciation would decrease the American foreign trade deficit, it also raises the question of further financing of the American deficit. There*

are also other problems that the possible appreciation would cause for the American economy, due to the effect of J-curve, pass-through, larger costs of input imported from China, etc. Therefore, Chinese foreign exchange policy is an important subject, but it is not the solution to the problems of the global economy – which have deeper roots than that. However, there is no excuse for China implementing unfair exchange rate policies, or replacing such policies with controversial protectionist policies (as some authors have suggested).

KEY WORDS: *undervalued yuan, appreciation, economic growth, foreign trade balance, bilateral relations between China and the USA*

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1. ECONOMIC POLICY (POLICY MIX) IMPLEMENTED BY CHINA

China has achieved exceptional growth in the last thirty years using a growth strategy based on exports. Since 1994 (when the country abolished its dual exchange rate regime) the exchange rate regime in China has been mostly fixed. Even during the periods of a managed floating exchange rate regime, the range of allowed daily oscillation was narrowly set (particularly between 1994 and 1997: between 2005 and 2008 it was $\pm 0.3\%$, and after that $\pm 0.5\%$). Still, during that period the Chinese Central Bank (People's Bank of China – PBoC) has actively implemented its monetary policy, using instruments to influence the supply of domestic credits and has successfully maintained the price stability. After 1994, as foreign capital inflow increased and was accompanied by a fixed exchange rate, the government became increasingly unwilling to change the exchange rate regime towards bigger fluctuation¹, in order to prevent the appreciation of the yuan. Along with a fixed nominal exchange rate, the real exchange rate would thus also appreciate, which would have resulted in inflation, had the PBoC not performed sterilization.

Since after foreign capital sterilization the money supply stays relatively stable despite capital inflow, sterilization is best visible in the Central Bank's balance sheet (Table 1). Foreign capital inflow in China would have led to an assets increase, which would have been reflected in an increase in the supply of high-powered money on the liabilities side, had it not been for the sterilization – the sale of Central Bank's other assets or increase of other liabilities.

Table 1. Chinese Central Bank balance sheet

Assets	1999	2008	Liabilities	1999	2008
RMB billion					
Foreign assets	1400	16300	Currency issue	1500	3700
Claims on financial entities	1900	2000	Deposit reserves	1400	9200
Claims on government	200	1600	Bond issue	0	4600
Other assets	0	800	Other liabilities	600	3100
Total Assets	3500	20700	Total Liabilities	3500	20700

Source: Ljungwall, Xiong and Yutong (2009, p. 5).

¹ Ljungwall, Xiong and Yutong (2009, p. 22)

The PBoC used two instruments intensively in order to sterilize the capital inflow: open market operations and a deposit reserve requirement.

Since 2002 the Chinese Central Bank has been issuing and trading with short- and medium-term notes² in order to absorb the capital inflow (Ljungwall, Xiong and Yutong, 2009, p. 9). The interest rate on these notes depends on the market interest rate on notes in general.

The PBoC started the intensive use of a deposit reserve requirement as an instrument in 2006. More precisely, in 2006 the deposit reserve requirement was 6%, then after a gradual increase by the PBoC it reached its maximum of 17.5% in July 2008, and since then it has been slightly lowered to 16%³ due to the global economic crisis.

Besides sterilization, the PBoC also had to use instruments in the domestic credit market in order to prevent inflation: interest rates and setting loan caps to commercial banks (Ljungwall, Xiong, and Yutong, 2009).

By setting price caps on deposit interest rates, as well as price floors on loan rates, the PBoC controlled the supply of money through the banking system. In 1994 China, as a relatively closed economy with international reserves 50 times lower than now, had high deposit interest rates (which in 1994 exceeded 10%) in order to lower the inflation rate. Because international reserves have been growing rapidly, lately the PBoC has been keeping deposit interest rates low, thus ensuring low interest rates on its central bank notes and deposit reserves.

It has been noted (Ljungwall, Xiong and Yutong, 2009, p. 10) that owing to this measure that the PBoC applies, the banks usually set a maximum interest rate on the deposits because of competition, and that mainly large companies have access to loans with the lowest interest rate. Thus large companies are favoured at the expense of small companies and individuals (Thorbecke, 2010 and Ljungwall, Xiong and Yutong, 2009). Also, even though it has not been publicly announced or confirmed, it is said that the PBoC sets credit caps (the total amount of loans that banks can give out annually)⁴.

2 Mainly with the maturity date of up to a year, with possible issue of three-year notes if needed (Ljungwall, Xiong and Yutong, 2009, p. 9).

3 For details see Ljungwall, Xiong and Yutong (2009, pp. 9-10)

4 Ljungwall, Xiong and Yutong (2009, p. 10).

Such a combination of instruments applied by the PBoC, although successful, has certain negative consequences. The high deposit reserve requirement decreases the profitability of commercial banks, whereas interest rates on deposits and loans, as well as possible limits to their sum, prevent free price forming in the market (due to supply and demand disruption)⁵.

Using econometric analysis, Ljungwall, Xiong, and Yutong (2009) proved that for now the PBoC is profitable, despite its considerable interventions. With its strategy (primarily setting interest rates on deposits and possibly setting a relatively high deposit reserve requirement⁶), the PBoC has successfully avoided inflation and kept sterilization costs low in the observed period after reforms in 1994. However, the authors (Ljungwall, Xiong, and Yutong, 2009) warn that further development of the financial market will result in limited opportunities for the use of a deposit reserve requirement – as a powerful instrument, which will significantly increase the costs of sterilization – and thus considerably limit further sterilization.

2. CHINESE EXCHANGE RATE POLICY

At the beginning of the 1980s China introduced the dual exchange rate system^{7,8}. Two exchange rate systems functioned simultaneously until 1994 and they were significantly different (Table 2). On the one hand, there was an official exchange rate – which in 1993 was used in only one fifth of all transactions – and on the other there was a market exchange rate – used in the large majority of transactions (about 80%). The official exchange rate was significantly lower than the market exchange rate, which increased the pressure on the official exchange rate to devalue gradually⁹. Thus the official exchange rate devalued several times up to 1994, when the single currency was introduced. Exchange rate policy was subject to criticism during the dual regime as well, because the system significantly limited the supply of foreign currencies and thus impeded imports¹⁰.

5 For more about negative implications of foreign exchange increase and sterilization see: Thorbecke (2010, p. 6)

6 For details see Ljungwall, Xiong and Yutong (2009, p. 20).

7 People's Bank of China, <http://www.bis.org/publ/bppdf/bispap44h.pdf?frames=0>

8 Gang (2008), <http://www.bis.org/publ/bppdf/bispap44h.pdf?frames=0>

9 DaCosta (2004, p. 4).

10 Morrison and Labonte (2011, p. 2).

When China abolished the dual exchange rate system in 1994 (Table 2), the initial value of yuan was 8.70 yuan to the dollar. Between 1994 and 1996 China implemented a managed floating exchange rate regime. During this period the nominal exchange rate appreciated by 4.8%. From 1997 to July 2005 China's currency was pegged to the dollar at the rate of 8.28 yuan to the dollar. The Chinese Central Bank bought or sold its foreign reserves in dollars in order to neutralize the excess of supply or demand of the yuan. In this way the yuan was stable regardless of the changes in economic factors, which would otherwise have resulted in a change of rate between the two currencies.

The exchange rate policy was changed once more in July 2005 (more precisely on July 21st when the yuan appreciated by 2.1% - from 8.28 to 8.11 yuan to the dollar). China officially abandoned the fixed exchange rate regime and allowed floating with daily oscillations of $\pm 0.3\%$ (later $\pm 0.5\%$) to the basket of currencies, so from 2005 onwards China officially implemented a managed floating exchange rate regime¹¹ (Table 2 and Graph 1). In July 2008, at the start of global economic crisis, China decided to maintain the same level of exchange rate to the dollar, and then finally, in June 2010, China announced another increase of the currency fluctuation¹².

Table 2. Exchange rate in China, 1979 - 2010

1979-1985	Internal dual rates, fixed
1985-1993	Dual exchange rate regimes with crawling peg and free float - Crawling peg rate as official rate - Free float in the retention market
1994-1997	Unified exchange rate - managed floating exchange rate
1997-2005	Fixed exchange rate
2005-2008	Managed floating exchange rate regime
2008-2010	Relatively the same level of exchange rate against the dollar
2010-	PBoC announced further reform of the exchange rate regime, to enhance RMB exchange rate flexibility

Source: People's Bank of China: <http://www.bis.org/publ/bppdf/bispap44h.pdf?frames=0>, p. 150 and <http://www.pbc.gov.cn/publish/english/3511/index.html>

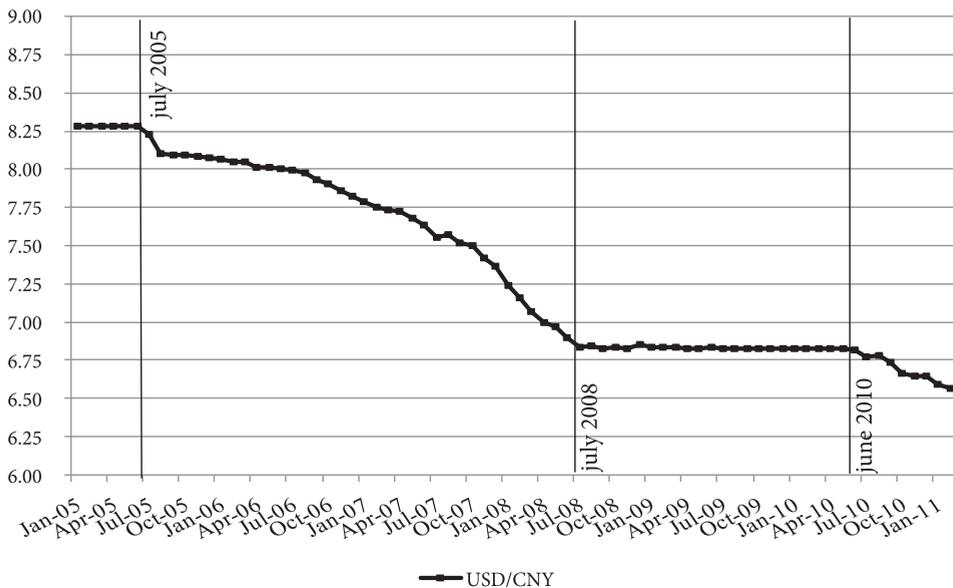
The Yuan appreciated after China introduced reforms in July 2005 as well as in the year marking the beginning of global economic crisis (more precisely until July 2008) by a total of 20.8%. When the crisis began this appreciation trend was

¹¹ People's Bank of China, <http://www.bis.org/publ/bppdf/bispap44h.pdf?frames=0>

¹² People's Bank of China, http://www.pbc.gov.cn/image_public/UserFiles/english/upload/File/Appendix%201.pdf, p. 1

stopped. From the onset of the crisis until June 2010 the value of the yuan was approximately 6.83 to the dollar. From mid 2010 the yuan has been gradually appreciating¹³ (by a total of 2.9% until December 2010), but many experts think this appreciation was modest and not fast enough. During 2011 the yuan appreciated further (Graph 1).

Graph 1. Value of the yuan against the dollar, January 2005 - February¹ 2011



¹ Value for February is a 9-day average of daily values of the yuan.

Source: Author's own calculation based on data from webpage <http://www.x-rates.com/d/CNY/USD/hist2011.html>

The real exchange rate of the yuan against the dollar appreciated from mid-2010 to the end of January 2011 by about 10-12% annually (the nominal exchange rate appreciated by 3.7%, which, along with the estimated inflation rate for said period, would mean real appreciation of at least 5%; that is - no less than 10% year-on-year). If this trend of real appreciation continues, it is estimated that in two or three years China will sufficiently raise the value of the yuan by the required 20-30%¹⁴.

¹³ In June 2010, China announced it would gradually increase the value of the yuan, see Reports of PBoC from 2010 at: <http://www.pbc.gov.cn/publish/english/3511/index.html>

¹⁴ According to Bergsten, <http://www.iie.com/blogs/?p=2012>

The real effective exchange rate¹⁵ has been moving somewhat differently from the nominal and real exchange rates of the yuan against the dollar. Its movement is particularly important because it is formed against the basket of currencies, and therefore it reflects real changes in the global competitiveness of Chinese products¹⁶. Considering the fact that the yuan has again been relatively pegged to the dollar since the start of the global crisis, dollar fluctuation against other currencies has first resulted in the appreciation, and then the depreciation, of the real effective exchange rate in China during 2009, but from the start of 2010 there was another bout of appreciation (primarily because of the euro's strong depreciation against the dollar)¹⁷. From mid-2010 the appreciation of the real effective exchange rate was significantly weaker than the nominal appreciation and real appreciation against the dollar (because of the dollar's fall against other currencies).

3. DETERMINING THE EQUILIBRIUM LEVEL OF THE CURRENCY AND THE ESTIMATE OF THE YUAN'S DEVIATION FROM THE EQUILIBRIUM VALUE

3.1. Determining the equilibrium level of the currency

There is no unique methodology for determining the equilibrium level of the exchange rate. This leads to many problems in estimating the optimal value and the extent to which the existing value deviates from it. Therefore many economists (e.g., Isard 2007, Cline and Williamson 2008, 2009, 2010) emphasise the need to find the best way to assess the equilibrium exchange rate and suggest methods which would, in their opinion, produce the most correct results. The importance of this subject, emphasised by both these and other economists, lies above all in the influence the exchange rate has on prices and GDP growth, or rather in the number of negative consequences that can result from its deviation from the equilibrium.

A large number of methodologies for assessing the currency equilibrium value have been developed. All of these methodologies contain different simplifications

15 Real – adjusted to inflation and effective – weighted exchange rate, where weights are shares in China's trade with 57 relevant countries. According to: Morrison and Labonte (2011, p. 3).

16 Real change in China's competitiveness should be traced through changes in the real effective exchange rate, which is often not the case, mostly because of its more complicated calculation.

17 According to Morrison and Labonte (2011, p. 3), the total appreciation of real effective exchange rate (REER-where importance factors are shares in China's trade with 57 countries) was 9% from July 2008 to mid-2010.

and assumptions, which lead to approximate evaluations and therefore arbitrary conclusions. Implementation of different methodologies often leads to different results¹⁸.

International Monetary Fund economist Peter Isard (Isard 2007) has analyzed six different methodologies for assessing a currency's equilibrium value. Here we will single out the most important details of each method¹⁹:

1) Purchasing power parity approach

According to the purchasing power parity approach (PPP), real exchange rate should be constant through time, whereas nominal exchange rate should move in such a way that it covers changes in domestic and foreign prices. By observing the movement of nominal exchange rate and the price index, it is possible to determine the equilibrium level of the real exchange rate – as its historical average during a “moderately long” time period.

However, this approach has a serious flaw. The long-term relationship between nominal exchange rate and the price level exists regardless of which price index is applied (consumer price index, GDP deflator, export price index, wholesale price index, etc.), but the obtained results can be very different values of equilibrium exchange rate.

2) PPP adjusted to Balassa-Samuelson effect and “Penn” effect

The PPP approach has been further modified, and now it takes into consideration the results of studies which indicate that the price ratio of tradable and non-tradable goods is lower in countries with lower income and higher in countries with higher income, whereas national income expressed in the same currency at the market exchange rate is undervalued in the countries with lower income and overvalued in the countries with higher income (“Penn” effect)²⁰. Additionally, with time the real exchange rate (which contains aggregate price indices of countries' tradable and non-tradable goods) tends to appreciate in countries with faster growth and to depreciate in countries with slower growth. Balassa and Samuelson explained this phenomenon: development of a country brings

¹⁸ Isard (2007, p. 3).

¹⁹ For details see Isard (2007).

²⁰ The result (which Samuelson called the “Penn” effect) was derived from the study *International Comparisons Program* (ICP), financed by the United Nations and mostly conducted by economists from The University of Pennsylvania, according to Isard (2007).

about a faster productivity growth in the tradable goods sector than in the non-tradable goods sector. It then leads to higher prices of non-tradable goods, and consequently to the growth of relative prices and real appreciation of the currency (Balassa-Samuelson effect)²¹.

Although empirical proof of the Balassa-Samuelson effect is weak, econometrical analysis of contrasted data has proved that there is an empirical relationship between the value of real exchange rate and GDP per capita²². Values on the acquired regression line are interpreted as equilibrium currency values depending on the income of the country, whereas residuals of this regression show overvalued or undervalued currency. Also, the resulting regression can be of benefit to countries, which can evaluate how high a real appreciation they can expect with time depending on the expected GDP per capita growth.

3) Macroeconomic balance framework

Macroeconomic balance (MB) framework implies a demand for simultaneous internal and external balances. This system consists of three basic parts: first, current account balance on one side; second, assessment of equilibrium value of factors on the other side of equation (assuming they are independent from the real exchange rate); and third, the relation between current account, real exchange rate, and the size of the (domestic and foreign) gap in the output²³.

By the mid 1990s the approach was based on the following equation:

$$CUR = CAP$$

where *CUR* is current account balance, and *CAP* is the net flow of private and official capital.

Lately the following equation has been used:

$$CUR = S - I$$

where *S* is domestic savings, and *I* domestic investments.

²¹ For a more detailed explanation of the Balassa-Samuelson effect, see Burda and Viproš (2004, pp. 164-165).

²² According to Isard (2007, p. 13).

²³ Isard (2007, p. 14).

Two methods are used for assessing the equilibrium value $S - I$.

- The first method is based on the econometric assessment of the equation, in which independent variable-balance $S - I$ is on the left side, whereas a series of explanatory variables (which are assumed to be in equilibrium) is on the right.
- The second method is based on an assumption about the equilibrium level and the structure of net foreign assets (liabilities), and so defines the equilibrium position $S - I$ as the balance between the related inflow of investment income and capital gains and losses²⁴. This method is very good for the assessment of exchange rate deviation from its equilibrium value in countries with medium to high net foreign debt.

In this approach it is also important to define the underlying current account position (*UCUR*), that is, the current account value at the current real exchange rate, providing all countries have full employment or potential output (internal balance) and that the effects of past exchange rate changes have become completely apparent²⁵. The calculation of *UCUR* is based on the model of net export: it is assumed that import is a function of domestic economic activity (measured by GDP), whereas export is a function of foreign countries' weighted economic activity and past values of the exchange rate. By assessing \bar{M} and \bar{X} as fundamental values of import and export, we obtain the net export value which would be valid under the said assumptions of full employment and completeness of the effects of currency value changes on import and export demand.

This approach is only the medium-term assessment of equilibrium exchange rate – since it includes an estimate of the balance of payments in the medium term – that is, it takes into consideration the time needed for the change of the exchange rate to influence the change in the quantity and value of exports and imports. Additionally, the MB approach is not appropriate for countries with high growth rates and simultaneous fast balance-of-payments deficit growth. In the case of these countries, the degree to which capital inflows support productive investment and how much they contribute to the change in the current account position should also be taken into consideration, among other things (Isard, 2007).

²⁴ For details see Isard (2007).

²⁵ Considering the fact that a period of time is necessary for the exchange rate change to cause a change in import and export prices, immediately after currency value changes the J-curve effect appears as a consequence. See e.g., Caves, Frankel and Jones (2001), as well as Petrović and Gligorić (2010).

4) Estimate of the tradable goods sector's competitiveness

The approach of the tradable goods sector's competitiveness estimate is a narrower concept than the MB framework, and focuses on the tradable goods sector's competitiveness at the current exchange rate. Although the tradable goods sector and competitiveness can be defined in different ways, it is best to observe the relevant indicators and use the information from all relevant available data. The industrial sector and its performance are often used as an approximation for the tradable goods sector, whereas profitability (mainly derived from unit labour costs or added value deflators), trends in the export volume or share in global exports, import penetration rate, etc., are seen as general measures of competitiveness.

5) Assessments based on assessed exchange rate equations

The estimate of the equilibrium exchange rate, according to this approach, is based on the reduced form of exchange rate equations. Models of the reduced form, as in the case of the PPP hypothesis, are more reliable in the medium and long term. Advances in econometrics – analysis of time series and the cointegration by Engle and Granger – have contributed to a better rating of the long-term equilibrium relation between exchange rate and other economic variables. For example, the IMF noted in 2006 that the long-term exchange rate equation as an explanatory variable includes the net foreign assets position (as average export and import ratio), the difference between productivity (output per worker) in the tradable and non-tradable goods sector in relation to foreign trade partners, the measure of the commodity terms of trade, the level of government consumption, trade restrictions index, and the measure of the extent of price control²⁶.

Regression exchange rate equations, particularly if they are well specified, can be an excellent way to assess its equilibrium level. Because of this many central banks and market participants often use this approach in analyzing exchange rate issues.

Still, it is very important to verify the reliability of results obtained through the relevant econometric tests and, of course, the economic logic of the obtained parameter assessments (for example, if the parameters are of adequate size, of a correct sign, and so on). Also, assumptions about equilibrium value of independent variables in a model can be questioned, which in many cases limits the use of this approach.

²⁶ IMF (2006): International Monetary Fund, 2006, "Methodology for CGER Exchange Rate Assessments". According to Isard (2007), for details see p. 21.

6) Assessments based on general equilibrium models

The estimate of the exchange rate equilibrium value obtained through this approach is considered to be better than assessments obtained through anterior approaches. Although only a small number of general equilibrium model simulations have been performed, they clearly point out the limitations and incompleteness of other approaches and the assumptions they are based on²⁷.

Still, even the estimate based on general equilibrium models has some limitations. First of all, complete macroeconomic models are only available for some countries. Also, these are often models that include short-term predictions and are not clear when it comes to long-term characteristics. Finally, like other approaches, this one also requires the introduction of a series of assumptions in determining the exchange rate equilibrium level, which makes it harder to obtain the results and limits their reliability.

3.2. How undervalued is the Chinese currency?

Peterson Institute economists William Cline and John Williamson gave an assessment of the Fundamental Equilibrium Exchange Rate (FEER) in their publications (2008, 2009, and 2010).

Cline and Williamson (2008, 2009, 2010) define the Fundamental Equilibrium Exchange Rate as an exchange rate that is expected to be stable on the basis of existing policies during an unlimited time period. It is expected that this exchange rate will result in the equivalence between current account deficit or surplus and the basic capital flow during the observed period, assuming that the country aims for inner equilibrium and that it can practice free trade²⁸. FEER is defined as real exchange rate – adjusted to inflation as well as effective exchange rate – weighted bilateral exchange rate average, where weighting factors are calculated on the basis of a share of certain countries with which the observed country trades, in the total foreign trade of the said country.

The authors started with an assumption that external disbalance does not exceed 3% of GDP. Still, they allowed for the surplus or deficit to exceed 3% of GDP in their analysis, but only if it is consistent with the absence of possibility of an increase of net foreign assets ratio in GDP.

²⁷ Isard (2007, p. 21).

²⁸ see Cline and Williamson (2009, p. 2).

Next, the authors primarily use IMF assessments of existing current account imbalances (as a percentage of GDP) in the year which is analyzed (so, for example, in the study from 2008 the authors use IMF assessments for that year). The current account forecast taken into consideration (first in US dollars and then as a percentage of GDP) covers a three year period (forecasts for 2011, 2012, and 2013 are in the publications from 2008, 2009, and 2010, respectively). The current account forecast is then modified to include the assumption that Cline (2009) takes into account: an estimate of higher American deficit²⁹ and higher global oil prices than the IMF forecasts.

Then, after the authors estimated the value of the current account deficit/surplus which would cause a constant level of net foreign assets in the gross domestic product (NFA/GDP), they adjusted it so that there would be no change of aggregate (global) current account level.

The model is based on two relationships, economic and algebraic:

- The economic relationship takes into account the dependence of the current account on the real effective exchange rate. According to the economic relationship, changes in the current account will be equal to the product of exchange rate change and influence parameters of a certain country³⁰. In this analysis the authors obtained the impact parameters of a country in the range between 0.15 (in relatively closed countries) and 0.5 (in highly open countries). This indicates that an exchange rate change of 1% would result in a change of current account in GDP of 0.15% and 0.5%. In this way the authors calculate a necessary change in the exchange rate value by simply dividing desirable adjustments in the current account balance (which represents the difference between current value and aimed current account imbalance) by the influence parameter of the country. The values of needed currency appreciation or depreciation by country are shown in Table 2, column 4, page 12, of the publications of these authors from 2008, 2009, and 2010.
- The algebraic relationship takes into account the influence that the change in each country's effective exchange rate has on all bilateral exchange rate values of the said countries in the process of calculating the value of the FEER. In

²⁹ According to Cline and Williamson (2009, p. 5).

³⁰ A country's impact parameter is calculated as a product of export prices' elasticity and the share of exports in GDP (for details see Cline and Williamson 2009, p. 6). Cline and Williamson assumed that the export prices' elasticity is equal to one in cases of relatively closed economies (e.g., where the share of exports in GDP is up to 10%), whereas it is equal to 0.5 in highly open economies (where exports equal 100 % of GDP and over).

this part of the analysis the authors apply the Symmetric Matrix Inversion Method (SMIM) model, developed by Cline³¹, in order to obtain the needed appreciation or depreciation of a single currency against the dollar, so the exchange rate equilibrium level of 35 observed countries can be obtained.

Using this method Cline and Williamson proved that in 2008 China's real effective exchange rate was undervalued by 19.2%, whereas the yuan was undervalued by 31.5% against the dollar. The authors estimate that in 2009 the real effective exchange rate was 21.4% lower than its equilibrium value and that the value of yuan against the dollar was 40.2% lower than the equilibrium. Finally, in 2010, the real effective exchange rate in China should, according to the authors' estimate, appreciate by 13.5% in order to achieve the equilibrium level; that is, the yuan should appreciate against the dollar by 24.2%.

Most economists around the world agree that the Chinese yuan is undervalued against the dollar. IMF economists have in the last several years claimed that the value of the yuan is lower than its equilibrium value, but it was not until February 2010, in a letter prepared for the G20 summit in Seoul, that it was said that the Chinese currency was "substantially undervalued from a medium term perspective"³².

Though economists agree that the yuan is undervalued, opinions vary as to the degree of undervaluation. Reisen has estimated that the Renminbi (RMB) is 12% lower than its equilibrium level³³. Rodrik said in his work³⁴ (based on price-level comparisons with adjustments for the Balassa Samuelson effect) that the Chinese currency is undervalued by about 25%. Subramanian said that the yuan was 30% lower³⁵ and Ferguson and Schularick proved that it was as much as 50% lower than its real value³⁶. According to Bergster, necessary correction of the value of yuan to the dollar is 20 to 30%³⁷

³¹ According to Cline and Williamson (2009).

³² IMF, G20 Summit (2010, p. 7).

³³ Reisen (2009).

³⁴ Rodrik (2009).

³⁵ Subramanian (2010).

³⁶ Ferguson and Schularick (2009).

³⁷ Bergsten, <http://www.iie.com/blogs/?p=2012>

4. IMPLICATIONS OF CHINA'S EXCHANGE RATE POLICY

The fact that the yuan is undervalued has broad consequences for China's economic growth, the state of its trade balance, and its relations in the global economy.

4.1. Implications of exchange rate policy on economic growth

Exchange rate and growth

According to the economic literature³⁸, economic growth can be influenced by a currency's level and its volatility.

The exchange rate can be high to a point at which it stimulates the manufacturing of export products. Particularly in the case of export products, stimulating industrial product output leads to faster growth³⁹ - considering that the current conditions for achieving higher productivity are better in industry than in agriculture⁴⁰. The idea that the exchange rate can be used as a political instrument was first confirmed by the examples of Japan, Hong Kong, Singapore, South Korea, Taiwan, and later China, and also by the fact that it is unlikely for a developing country to have sustained economic growth and overvalued currency at the same time (Eichengreen, 2008). Also, much empirical research (e.g., Hausmann, Pritchett, and Rodrik 2009) has confirmed the significant influence of real depreciation on economic growth acceleration. Additionally, Rodrik explained in his work (Rodrik 2008) the entire mechanism of how undervalued currency (high real exchange rate) stimulates growth in developing countries. However, the consequences of using this instrument can be negative, both in the external environment and in the country which applies the policy of an undervalued exchange rate for a long period of time (Eichengreen, 2008).

An unstable exchange rate can have serious negative consequences for economic growth. A volatile exchange rate can negatively influence foreign trade and investments, as well as the stability of the financial system. Additionally, currency crises are characterized by currency volatility. Therefore, either a relatively stable currency value or a well-developed financial market – which provides different possibilities of protection against currency risks – makes favourable circumstances for a country to achieve economic growth (Eichengreen, 2008).

³⁸ E.g. Eichengreen (2008).

³⁹ For details see Rodrik (2008).

⁴⁰ Condition known as “domestic distortions”, according to Eichengreen (2008, p. 2).

China's economic growth

China's growth is one of the biggest economic successes of the modern age.

When it comes to the volume of gross domestic product, China overtook Japan in 2010 and became the second largest global economy after the USA. From 1979 (when economic reforms were first introduced) until 2009, the average annual growth rate in China was 11.8%. At the same time, Chinese gross domestic product (current prices, US dollars) increased 28-fold, whereas real GDP (GDP according to constant prices from 2000, see Table 3) grew 17-fold. Table 3 shows how GDP moved from 1995 to 2009. During this period only, China's nominal GDP increased sevenfold, whereas the average annual growth rate was 14.7%.

Although China is the second most powerful country in the world when it comes to overall GDP, GDP per capita indicates a somewhat slower growth. From 1979 to 2009 nominal GDP per capita increased 20-fold, while real GDP grew 12-fold. From 1995 to 2009 GDP per capita grew at an average annual rate of 14%, although constant prices show that living standards increased by a significantly more modest rate of 9% per year on average. Despite the fact that GDP per capita growth was significant and fast, when it comes to this particular indicator China is still below the global average (GDP per capita PPP: \$6.828, Table 3).

Table 3. Overview of chosen macroeconomic indicators for China, 1995-2009

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	in dollars														
GDP per capita	604.2	703.1	774.5	820.9	864.7	949.2	1,041.6	1,135.4	1,273.6	1,490.4	1,731.1	2,069.3	2,651.3	3,413.6	3,744.4
Real GDP per capita ¹⁾	658.0	716.2	774.9	827.4	882.6	949.2	1,020.5	1,106.0	1,209.0	1,323.2	1,464.1	1,640.9	1,864.1	2,032.6	2,206.3
GDP per capita PPP	1,507.4	1,672.2	1,841.2	1,988.1	2,151.9	2,364.4	2,599.7	2,863.1	3,197.4	3,598.6	4,114.6	4,761.3	5,594.4	6,233.5	6,828.0
	in billions of dollars														
GDP	728.0	856.1	952.7	1,019.5	1,083.3	1,198.5	1,324.8	1,453.8	1,641.0	1,931.6	2,256.9	2,713.0	3,494.1	4,521.8	4,985.5
Real GDP ¹⁾	792.8	872.1	953.2	1,027.5	1,105.6	1,198.5	1,298.0	1,416.1	1,557.7	1,715.0	1,908.8	2,151.2	2,456.7	2,692.5	2,937.5
GDP PPP	1,816.2	2,036.0	2,264.8	2,469.1	2,695.7	2,985.4	3,306.5	3,666.0	4,119.5	4,664.1	5,364.3	6,242.1	7,372.8	8,257.2	9,091.1
Export	147.2	171.7	207.2	207.4	218.5	279.6	299.4	365.4	485.0	655.8	836.9	1,061.7	1,342.2	1,581.7	1,333.3
Import	135.3	154.1	164.4	163.6	189.8	250.7	271.3	328.0	448.9	606.5	712.1	852.8	1,034.7	1,232.8	1,113.2
Current account	1.6	7.2	37.0	31.5	21.1	20.5	17.4	35.4	45.9	68.7	160.8	253.3	371.8	436.1	297.1
Net SDI	35.8	40.2	44.2	43.8	38.8	38.4	44.2	49.3	47.1	54.9	79.1	78.1	138.4	147.8	78.2
	in % of GDP														
Export	20.2	20.1	21.8	20.3	20.2	23.3	22.6	25.1	29.6	34.0	37.1	39.1	38.4	35.0	26.7
Import	18.6	18.0	17.3	16.0	17.5	20.9	20.5	22.6	27.4	31.4	31.6	31.4	29.6	27.3	22.3
Current account	0.2	0.8	3.9	3.1	1.9	1.7	1.3	2.4	2.8	3.6	7.1	9.3	10.6	9.6	6.0
Net SDI	4.9	4.7	4.6	4.3	3.6	3.2	3.3	3.4	2.9	2.8	3.5	2.9	4.0	3.3	1.6
	in millions														
Number of employed	687.5	695.2	703.3	710.8	718.6	726.0	734.0	741.7	748.4	754.5	760.6	766.5	771.1	776.9	...
	in %														
Unemployment ²⁾	2.9	3.0	3.1	3.1	3.1	3.1	3.6	4.0	4.3	4.2	4.2	4.1	4.0	4.2	...
Inflation ³⁾	16.9	8.3	2.8	-0.8	-1.4	0.3	0.7	-0.8	1.2	3.9	1.8	1.5	4.8	5.9	-0.7

Note: Numbers in dollars – current prices, unless otherwise stated.

¹⁾ Constant prices, 2000 base year.

²⁾ Number of unemployed in relation to the number of employed.

³⁾ Consumer Price index.

Source: World Bank.

If we take a look at the GDP structure, we can see (Table 4) that most of it is generated by industry (industrial production has a 45% to 48% share of GDP). Also, an important part of China's gross domestic product is generated by the service industry. We can see that the service sector share grew quickly in the observed period, by 10 percentage points between 1995 and 2009 (from 33% to 43% of GDP, Table 4). This table also shows the decreasing influence of agricultural production in income creation: in 1995 agriculture generated one fifth of GDP, but that share fell to one tenth in 2009. Interestingly the share of agricultural production in GDP in 1979 was 31.3%, which demonstrates the restructuring of the Chinese economy in the observed period away from agricultural production towards industry and the service sector. The value of agricultural and industrial production is bigger in China than in the US, whereas China occupies the second place in the world (after the USA) when it comes to the value of services⁴¹.

Table 4. Chinese GDP structure, 1995-2009

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
in billions of dollars															
GDP	728.0	856.1	952.7	1019.5	1083.3	1198.5	1324.8	1453.8	1641.0	1931.6	2256.9	2713.0	3494.1	4521.8	4985.5
Agriculture	145.3	168.6	174.2	179.0	178.4	180.5	190.7	199.8	210.0	258.7	273.6	301.5	376.3	485.3	515.8
Industry	343.4	407.0	452.9	471.1	495.7	550.3	598.2	651.2	754.3	892.9	1069.0	1300.8	1654.0	2145.4	2308.0
Services	239.2	280.6	325.6	369.4	409.2	467.7	536.0	602.9	676.6	780.0	914.3	1110.6	1463.7	1891.1	2161.7
in % of GDP															
Agriculture	20.0	19.7	18.3	17.6	16.5	15.1	14.4	13.7	12.8	13.4	12.1	11.1	10.8	10.7	10.3
Industry	47.2	47.5	47.5	46.2	45.8	45.9	45.2	44.8	46.0	46.2	47.4	47.9	47.3	47.4	46.3
Services	32.9	32.8	34.2	36.2	37.8	39.0	40.5	41.5	41.2	40.4	40.5	40.9	41.9	41.8	43.4

Source: World Bank.

Inflation was very high in the mid 1990s, but the authorities then applied adequate measures and managed to lower it, so between 1997 and 2007 it was successfully kept under control (for details about the economic policy that China implemented in this period see Part 1 of this paper). However inflation was significantly higher in 2008 and 2009, at 5% and 6% respectively (Table 3). Although recession caused deflation in China in 2009, it was again a problem in 2010, when it was estimated at 5% and higher than the target inflation of 3%⁴². It is expected that keeping inflation under control will also be a big challenge for Chinese economic policy in 2011.

Foreign trade was a very important part of the achieved economic growth. The opening of the Chinese economy after reforms in the late 1970s, and particularly

⁴¹ <https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html>

⁴² <https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html>

after the country became a member of the WTO in 2001, was very beneficial and contributed significantly to China's economic growth and its influence in the world.

Table 3 shows that in 2008 (after a fall in 2009 due to global recession) Chinese exports were valued at 1,581.7 billion dollars, that is, 35% of GDP. Imports in 2008 were valued at 1,232.8 billion dollars and were equal to 27.3% of GDP. The export and import increase rate from 1980 onwards is shown in Table 5. Data in this table show the importance that imports and exports have had in the development of the Chinese economy in the last thirty years, and particularly in the last decade, due to membership in the WTO. The contribution of Chinese exports is particularly important, considering the export orientation strategy that China has started to implement since the implementation of reforms.

Table 5. Annual growth rates of gross domestic product, export and import of goods and services in China, 1980-2009

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
	in %														
GDP	7.8	5.2	9.1	10.9	15.2	13.5	8.8	11.6	11.3	4.1	3.8	9.2	14.2	14.0	13.1
Export	6.8	15.4	-4.1	-3.1	11.1	1.3	-8.4	12.0	4.5	-3.2	5.0	10.7	12.4	12.9	28.8
Import	-0.9	8.1	-18.9	10.0	27.1	50.0	-13.3	-6.9	19.8	-0.4	-20.3	14.6	33.6	33.5	10.0
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	in %														
GDP	10.9	10.0	9.3	7.8	7.6	8.4	8.3	9.1	10.0	10.1	11.3	12.7	14.2	9.6	9.1
Export	8.9	12.7	22.9	7.2	13.9	32.0	10.1	28.1	27.6	27.3	23.7	23.9	19.8	8.4	-10.3
Import	13.0	14.4	11.1	9.6	16.1	24.8	12.7	15.6	31.2	29.9	13.4	16.0	13.9	3.8	4.1

Source: World Bank.

Table 6 shows the overview of GDP share of foreign trade in goods and services. It is noticeable that service trade is of relatively small importance in China's overall foreign trade. It is interesting that in 2009 the share of industrial products in overall exports was 95%, whereas the share of primary products was only 5%. On the other hand, that same year 70% of industrial and 30% of primary products were imported⁴³.

43 Source: China Statistical Yearbook, 2010. Data from Webpage: http://www.chinabookshop.net/china-statistical-yearbook-2010-p-8699.html?gclid=CIXJ6s_uzqcCFRQv3wod2gVSDw

Table 6. Share of foreign trade in goods and services in the GDP in China

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	in % of GDP														
Goods	38.6	33.9	34.1	31.8	33.3	39.6	38.5	42.7	51.9	59.8	63.0	64.9	62.3	56.7	44.3
Services	6.1	5.0	5.5	5.0	5.3	5.5	5.5	5.9	6.2	7.0	7.0	7.1	7.2	6.8	5.8

Source: World Bank.

Table 7 shows the structure of employment by sectors. It is noticeable that currently the smallest percentage of the work force is employed in industry, despite the fact that the biggest share in GDP is generated by industry, whereas the share of people employed in the agricultural sector was the largest every year. It is very important to point out the change in the employment structure in all the observed years. In the first observed year (1978) the agricultural population had a 71% share in the overall work force, whereas the percentage of people employed in industry was significantly lower (17%) and in the service sector even lower (12%). In 2009 the share of people employed in agriculture fell to 38%, while the importance of the service sector grew to employ 34% of the work force. The number of people employed in industry in 2009 was equal to 27% of the overall number of employed people in China.

Table 7. Employment structure in China

	1978	1990	2000	2009
	in %			
Agriculture	70.5	60.1	50.0	38.1
Industry	17.3	21.4	22.5	27.8
Services	12.2	18.5	27.5	34.1

Source: China Statistical Yearbook, 2010. Data from Webpage: http://www.chinabookshop.net/china-statistical-yearbook-2010-p-8699.html?gclid=CIXJ6s_uzqcCFRQv3wod2gVSDw

China: Exchange rate and economic growth

As we previously said, economic theory states that one of the most important consequences of undervalued currency in a country is its correlation with the economic growth rate. Consequently, many authors (see Rodrik, 2008) believe that the value of the yuan is largely the reason behind China's spectacular economic growth.

In his work (Rodrik 2008) Rodrik originally evaluated the economic growth equation through the econometric analysis of panel data based on the overview of 184 countries and 11 five-year intervals:

$$growth_{it} = \alpha + \beta \ln RGDPCH_{it-1} + \delta \ln UNDERVAL_{it} + f_i + f_t + u_{it} \quad (1)$$

where $RGDPCH_{it-1}$ shows the initial level of income per capita, f_i and f_t are individual and time effects, and $UNDERVAL_{it}$ is the measure of the currency's undervaluation according to the author's estimate⁴⁴.

Rodrik calculated the currency undervaluation index ($UNDERVAL_{it}$) as the difference [(3)-(2)]:

- rated RER (of "real" exchange rate):

$$\ln RER_{it} = \ln (XRAT_{it} / PPP_{it}) \quad (2)$$

- and RER calculated on the basis of PPP approach adjusted for Balassa-Samuelson effect:

$$\ln RER_{it} = \alpha + \beta \ln RGDPCH_{it} + f_t + u_{it} \quad (3)$$

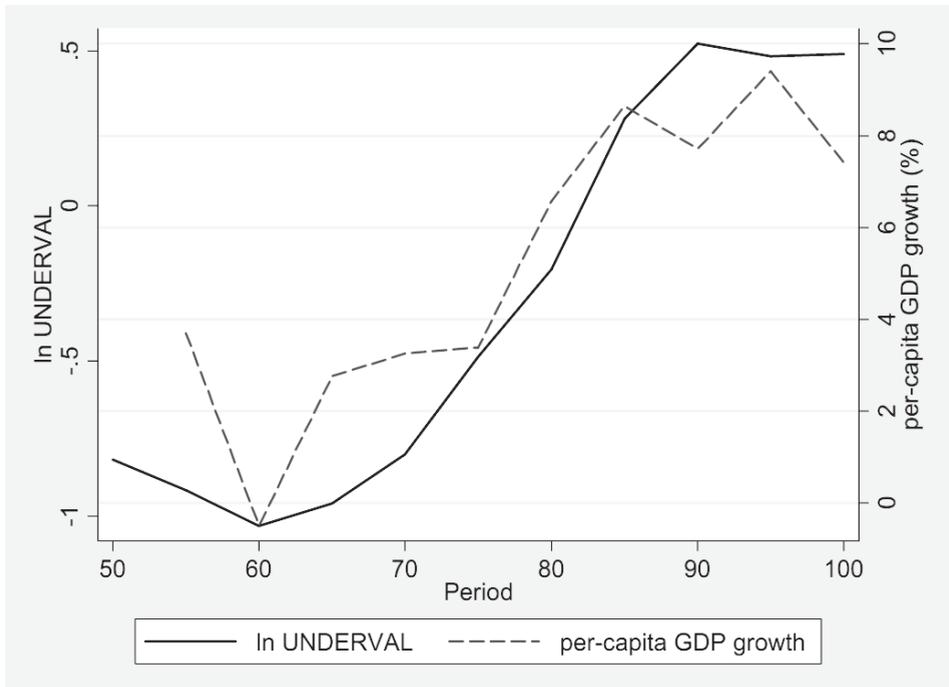
Based on the said equation (1) the author obtained the grade $\hat{\delta}$ of 0.017 for all the countries, which is highly statistically important. Still, further analysis shows that the effect of a currency's value on economic growth is considerable only in developing countries, whereas in developed countries that is not the case. Thus it is concluded that in developing countries the parameter δ is statistically important and equal to 0.026. This means that in these countries the exchange rate undervaluation of 50% (which is a standard deviation of the currency undervaluation measure $UNDERVAL_{it}$) results in an economic growth rate of 1.3 percentage points annually in the same five-year interval. In this analysis Rodrik estimated that the appreciation of the yuan by 10% would slow down Chinese economic growth by 0.86 percentage points.

Graph 2 shows precisely the compatibility degree of the index that measures the level of undervaluation in China and the country's growth rate in the period from 1950 to 2004. Values on the y-axis show the level of undervaluation ($UNDERVAL_{it}$) – thus the value of 0.5 indicates an exchange rate undervaluation of 50%, whereas the value of -1 indicates an overvaluation of 100%. The acceleration of economic growth, which started in the second half of the 1970s,

⁴⁴ For details see Rodrik (2008, p. 5).

was followed by an increase in the currency undervaluation index. The yuan was at first overvalued by almost 100%, but at the end of the observed period it was about 50% lower than its equilibrium value. From 2000 onwards, according to these data, the undervaluation index shows that the Chinese currency had the lowest value in 2001 and that it has been growing since. Many authors focused on the connection between the exchange rate and foreign trade and current account surplus, thus neglecting the importance that the value of the yuan had on China's economic growth (Graph 2).

Graph 2. Currency undervaluation level and growth of GDP per capita in China, 1950-2004



Source: Rodrik, D. (2008, p. 47).

4.2. China: exchange rate and foreign trade

In 1979 China's foreign trade volume was the 27th biggest in the world, but by 2006 it had climbed to 3rd place.

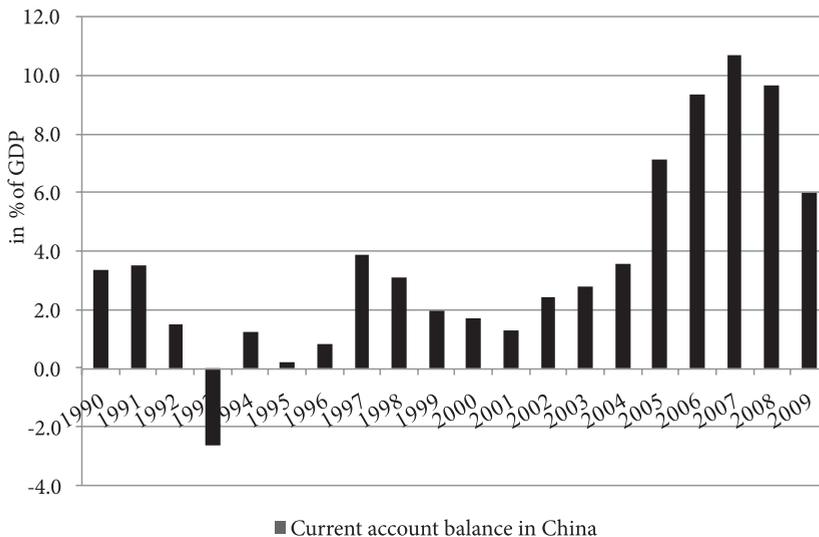
In 2009 China overtook Germany and became the biggest global exporter. The share of goods and services exports in China's gross domestic product was almost

negligible during the 1960s, but had increased to 37% by 2005. In 2009 exports had a 27% share of GDP⁴⁵. Besides the US, European Union (EU) countries and particularly Central and Eastern European countries are very important export markets for China⁴⁶.

Economists and politicians around the world accuse China of keeping its currency undervalued to maintain its high foreign trade surplus. China's foreign trade surplus is the biggest in the world⁴⁷.

China did not always have such an imbalance in its foreign trade account. During the 1990s China's foreign trade surplus was the biggest just before the Asian financial crisis started, when it was close to 4% of GDP. The surplus began to decrease at the start of the 2000s. It fell to its lowest level in 2001 and then started increasing rapidly, so that, according to World Bank data, it reached 11% and 10% of GDP in 2007 and 2008 respectively, and then, due to the crisis, fell to 6% in 2009 (Graph 3).

Graph 3. China's current account balance, 1990-2009



Source: Author's own calculation based on World Bank data.

⁴⁵ Data from World Bank Webpage: <http://data.worldbank.org/indicator/TX.VAL.MRCH.CD.WT> i <http://data.worldbank.org/indicator/NE.EXP.GNFS.ZS>

⁴⁶ According to Belke, Dreger and Erber (2010, p. 223).

⁴⁷ Belke, Dreger and Erber (2010, p. 223).

Interestingly, the same year, 2001, that China began to experience a growing foreign trade account surplus and the undervaluation of yuan started to increase, the country joined the World Trade Organization (WTO). This means that China, unable to apply highly protectionist measures until then (high import duties, export subsidies, investment incentives, different demands for foreign companies, etc.), replaced these measures with protection through exchange rate policy. Therefore, according to Belke and others⁴⁸, China succeeded in the world market owing to its undervalued currency.

4.3. IMPLICATIONS OF THE UNDERVALUED YUAN AND ITS APPRECIATION IN THE WORLD ECONOMY

Significant undervaluation of the yuan led to a fast foreign reserves growth rate. China’s foreign reserves increased from 403 billion dollars in 2003 to 2,450 billion dollars in 2010, placing the country at number one in the world (Table 8).

Table 8. China’s foreign reserves, 2003-2010

	2003	2004	2005	2006	2007	2008	2009	2010
in billions of dollars								
China’s foreign reserves	403,251	609,932	818,872	1,066,344	1,528,249	1,946,030	2,399,152	2,454,275

Source: State Administration of Foreign Exchange, People’s Republic of China, http://www.safe.gov.cn/model_safe_en/tjsj_en/tjsj_list_en.jsp?id=4.

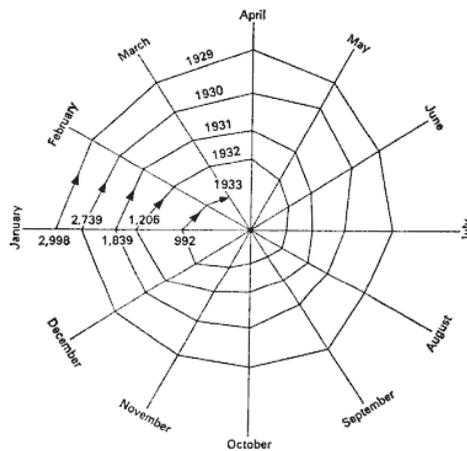
Until now China has refused to allow the appreciation of its currency, which has caused tensions. First of all, if the yuan appreciated, the price competitiveness that Chinese products have in the global market would fall significantly, resulting in a large loss for China.

The criticism of Chinese exchange rate policy goes even further: it is accused of hindering global recovery (Morrison and Labonte, 2011). In order for their goods to be competitive in relation to Chinese goods, many countries (e.g., East Asian countries) keep the value of their currencies low, which disrupts world trade and results in imbalances in the global market, but also prevents the depreciation of the dollar against East Asian currencies. Concerns are raised that these “actions” might considerably hinder world trade. The mechanism that corroborates this claim is presented in Picture 1, which shows a large fall in foreign trade during the

⁴⁸ Belke, Dreger and Erber (2010, p. 223).

Great Depression. In fact the frequent and alternating competitive devaluations that countries implemented during the Great Depression, in order to increase their competitiveness and thus “export” their recession, only worsened their position. After that, in order to revive their manufacturing sector, the countries started to apply protectionist measures. But high import barriers, apart from decreasing imports, also resulted in the fall of exports, so the final effect was disastrous for global foreign trade.

Picture 1. Kindelberger spiral



Source: <http://www.google.com/images?um=1&hl=en&biw=1344&bih=511&tbs=isch%3A1&sa=1&q=the+contracting+spiral+of+world+trade+kindelberger&aq=f&aqi=&aql=&oq=>

There are also opinions that the undervalued yuan slows down global GDP growth⁴⁹. Krugman states that, due to the global economic crisis, large countries are stuck in the “liquidity trap” – in a deep economic depression without the possibility of supporting the recovery by lowering interest rates (which are lowered almost to a minimum, having in mind that key interest rates are lowered close to zero). Therefore, Krugman points out that China’s unjustifiably high surplus⁵⁰ actually acts like an anti-stimulus for these economies, which they cannot avoid. Krugman sees the Chinese current account surplus as a negative shock for

⁴⁹ Paul Krugman (see <http://www.nytimes.com/2010/03/15/opinion/15krugman.html>, The New York Times, March 2010 and <http://www.nytimes.com/2010/01/01/opinion/01krugman.html>, 31st December 2009).

⁵⁰ According to Krugman, China implements mercantilist policy since it keeps the yuan weak, at the same time applying capital control and interventions, and therefore it has a foreign trade surplus and capital export (though China could be a capital importer), <http://krugman.blogs.nytimes.com/2009/12/31/macroeconomic-effects-of-chinese-mercantilism/>.

the net exports of the rest of the world. The author estimates that the policy of the undervalued yuan and China's unjustifiably high surplus decreases global GDP by 1.4%⁵¹. The claim by some analysts⁵² that China implements a "beggarthy-neighbour policy" even during the recession is confirmed by the country's commitment to keeping the yuan at the same level against the dollar, which led to a high growth of its economy even during the period between 2008 and 2010 when the majority of other countries experienced stagnation or negative growth.

Yuan appreciation would slow down China's economic growth (as we said before, Rodik says in his work from 2008 that yuan appreciation by 10% would slow down the country's economic growth by 0.86 percentage points)⁵³ and decrease the competitiveness of Chinese goods in the global market (and thus result in a significant foreign trade surplus), decrease the foreign reserves or slow down its growth, and increase unemployment. Yuan appreciation would also result in higher prices for Chinese goods for consumers around the world and for producers who use these goods as inputs.

5. CHINA – US RELATIONS: CURRENT ISSUES

On one hand, Western countries state that China refuses to admit to purposely applying low exchange rate policy⁵⁴ for its own benefit, to being a currency manipulator⁵⁵, and that its currency policy is unjust towards other countries⁵⁶.

On the other hand, Chinese leaders think that the pressure coming from the West is unfair (particularly having in mind the protectionist measures that some countries have started implementing recently). Chinese officials repeatedly state

51 <http://krugman.blogs.nytimes.com/2009/12/31/macroeconomic-effects-of-chinese-mercantilism/>

52 Articles in the media, e.g.: http://www.economist.com/node/13059709?story_id=13059709, *Economist*, February 2009.

53 For more detailed explanation see *China: Exchange rate and economic growth* in this paper, p. 122.

54 E.g., Belke, Dreger, and Erber (2010), as well as in articles in the media; comments that were additionally prompted by the relative pegging of yuan to the dollar since the start of the current recession.

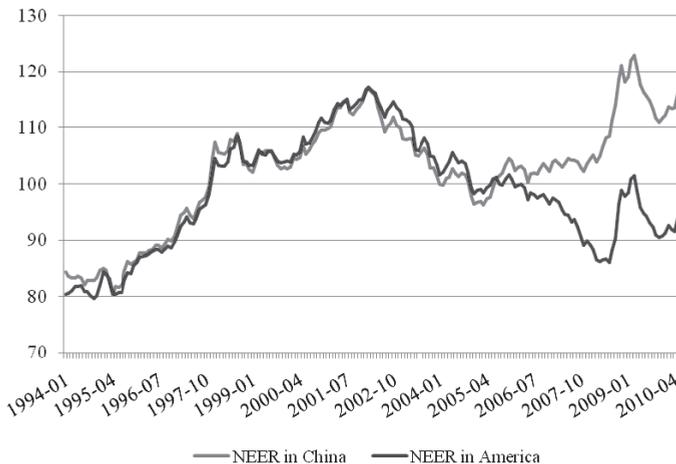
55 China has been called a currency manipulator several times. See Belke, A., Dreger, C. and G. Erber (2010), p. 226, Morrison and Labonte (2011, p. 8), <http://news.bbc.co.uk/2/hi/8563083.stm> and other articles in the media.

56 <http://www.seebiz.eu/sr/valute-i-robe/timothy-geithner-valutna-politika-kine-nepravedna-prema-trgovinskim-partnerima,95543.html>

that they will not pay attention to the pressure coming from other countries⁵⁷ and that they will make independent decisions on the appreciation of their currency⁵⁸.

Chinese economists and politicians put forward arguments contesting the accusations from other countries⁵⁹. Also, the PBoC has said in its reports that from July 2005 it has been applying a managed floating exchange rate regime, and that, after “the floating range of the RMB exchange rate was narrowed to address the adverse impact of the global financial crisis”⁶⁰ in June 2010, it continued to apply the policy with the aim of increasing the fluctuation of the yuan. Indeed, we should bear in mind that between 1997 and 2005 the yuan was pegged to the dollar, and after reforms implemented in 2005 the currency started to appreciate (Graph 4).

Graph 4. The movement of the nominal effective exchange rate index¹ in China and the US, 1994-2010



¹So-called wide nominal effective exchange rate index – calculated on the basis of data for 58 countries.

Source: BIS, <http://www.bis.org/statistics/eer/index.htm>

⁵⁷ <http://www.nytimes.com/2010/02/05/world/asia/05diplo.html>.

⁵⁸ Chinese Central Bank deputy governor But Su Nning, published in March 2010, e.g., see <http://news.bbc.co.uk/2/hi/8563083.stm> and Chinese Central Bank governor Zhou Xiaochuan, published on 18th February 2011 <http://english.people.com.cn/90001/90778/90862/7292443.html>.

⁵⁹ See, for example, the previous two footnotes (57, 58), as well as Gang (2008).

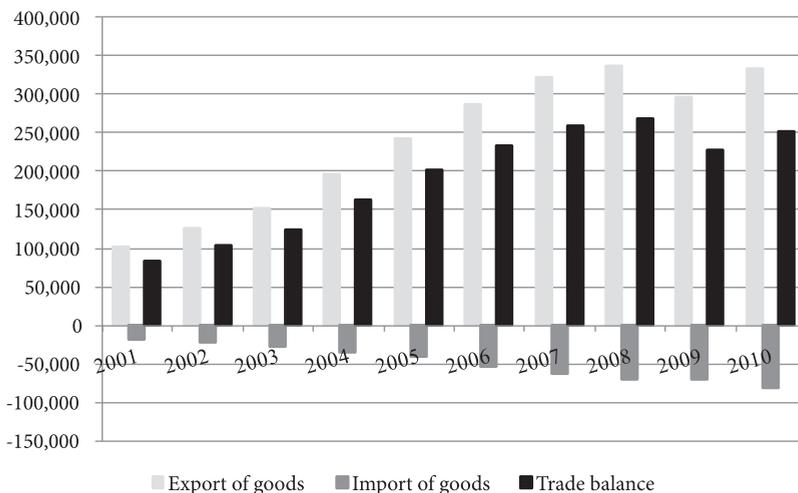
⁶⁰ People’s Bank of China, http://www.pbc.gov.cn/image_public/UserFiles/english/upload/File/China%20Monetary%20Policy%20Report%20Quarter%20Two,%202010%20.pdf, p. 18.

As we said before (see Part 1 of this work), Chinese government policy since 1994 has been one of limiting or inhibiting the appreciation of the yuan against the dollar and other currencies.

Many consider that this led to China's trade surplus with other countries, particularly the USA, owing to the undervalued Chinese currency, which made Chinese exports cheaper in foreign markets and the import of American goods to China more expensive. Therefore it is stated that the yuan is the main reason for the high annual deficit in US foreign balance of payments.

Foreign trade between China and the USA has grown between 2001 and 2008 from 121.5 to 415.9 billion dollars. China is the second largest trade partner of the USA. The geographic structure of foreign trade indicates that among the countries ranked according to the value of foreign trade with the USA, China is the fourth largest market for exports and the second largest according to the value of imported goods. China's trade surplus with the USA was 268 billion dollars in 2008, or twice as big as the surplus from 2002⁶¹ (Graph 5). Such a rapid increase of China's trade surplus with the USA is particularly obvious bearing in mind the fact that in 1990 it was only 10.4 billion dollars. Still, the floating exchange rate regime that China has been applying since mid-2010 will cause a significant decrease of foreign reserves and a surplus with the USA.

Graph 5. China's imports, exports, and trade balance of goods with the USA



Source: Author's own calculation based on data from the US Census Bureau.

⁶¹ Belke, Dreger and Erber (2010).

The problem of yuan undervaluation is very important for the USA, particularly bearing in mind the slow recovery of its economy and the increase in unemployment, which will certainly stay at the current level for some time. The USA is thinking about introducing import tariffs on Chinese goods. This measure has lately been mentioned many times in the USA, not only by producers' associations and other tradesmen⁶² but also by politicians⁶³ and economists⁶⁴.

Many think that the undervalued yuan is the reason for the fall of employment in American industry (Krugman estimated that China's exchange rate policy has resulted in the increase of unemployment in the USA by 1.4 million). According to Bergsten (2010), if China established an equilibrium exchange rate against the dollar, this currency would significantly depreciate against the yuan, which would increase American exports and result in the employment of about half a million people⁶⁵. (The author also estimates that if East Asian countries other than China balanced the value of their currency against the dollar, 600,000 to 1,200,000 people would be employed). Bergsten also states that bringing the yuan up to the equilibrium level would decrease the American deficit by 100 to 150 billion dollars a year, through larger competitiveness of American export products. Bergsten points out that, by applying an exchange rate policy that does not conform to relevant international norms, China violates Article IV of the Articles of Agreement of the International Monetary Fund (IMF)^{66,67}.

However we need to be cautious with the estimates of how positively the appreciation of the yuan would influence the American economy, bearing in mind the following:

- 1) First, yuan appreciation would result in price hikes for local consumers in the USA, because Chinese goods would become more expensive, and the

62 E.g., Alliance of American Manufacturing, according to: Belke, Dreger and Erber (2010, p. 226).

63 For details of the US Congress initiative for the introduction of import duties on Chinese goods, including the passing of a bill by the US House of Representatives which would enable the introduction of tariffs on Chinese goods (but which was not passed in the Senate), see Morrison and Labonte (2011).

64 For example, Paul Krugman suggests that the USA introduce import tariffs for Chinese goods of at least 25% (see <http://www.nytimes.com/2010/03/15/opinion/15krugman.html>, The New York Times, March 2010) and Bergsten.

65 E.g. see Bergsten (2010, p. 1).

66 Bergsten, <http://www.iie.com/publications/testimony/testimony.cfm?ResearchID=1523>.

67 <http://www.imf.org/external/pubs/ft/aa/aa04.htm>

- companies that import inputs from China would face higher costs, which would make them less competitive.
- 2) Second, of all U.S. Treasury bonds owned by foreign countries, China holds one fifth⁶⁸. Many think (Elwell, Labonte and Morrison 2007, as well as Morrison and Labonte 2011, p. 19) that yuan appreciation would lead to China decreasing its holdings of US securities, which certainly does not suit the US, because it would result in an interest rate hike. It could then destabilize the American financial market and compromise the possibility of leading sustainable fiscal policy.
 - 3) It is unknown to what extent yuan appreciation would decrease the US trade deficit with China, bearing in mind that the deficit significantly increased (by 30%) between 2005 and 2008, despite the fact that the yuan appreciated by 21%.
 - 4) There is also a J-curve effect, which can very quickly lead to an even larger US trade deficit with China.
 - 5) Pass-through to consumer prices in the US is partial⁶⁹. Therefore, the effects that yuan appreciation would have in the US – the higher price of Chinese goods and a consequent lower demand of these products – would probably not be as significant as expected.
 - 6) Considering that the majority of product input manufactured in China is imported, it is thought that yuan appreciation would either have little effect on the price of Chinese goods or result in outsourcing of the production to other countries with lower production costs, so that the US trade deficit with China would transform into US trade deficit with other countries⁷⁰.

6. INDUSTRIAL POLICY AS A SOLUTION?

Most economic experts think that China should appreciate its currency, although they are aware of the fact that it would lead to Chinese goods becoming less competitive in the world market, which would decrease exports and employment in export sectors, as well as slow down Chinese economic growth. Some of them, like Rodrik (2009), see the solution for the Chinese problem in decreasing savings

⁶⁸ Belke, Dreger and Erber (2010, p. 225), Table 2.

⁶⁹ E.g. Morrison and Labonte (2011, p. 16) say that between July 2005 and July 2008, the price index of American imports from China increased by 5.2%, whereas overall import prices grew by 13.2% in that period, although the yuan appreciated (for the details on the appreciation of the yuan in the said period see p.107, Part 2, of this work).

⁷⁰ According to Morrison and Labonte (2011, p. 16).

and increasing domestic consumption⁷¹; that is, replacing foreign demand by domestic demand⁷². Additionally, Rodrik states that further consequences are: maintaining the level of employment (the excess work force from the export sector would be absorbed by production for growing local needs), balancing the foreign trade balance, and maintaining growth. This was partly confirmed in 2009, when China's economic growth continued, despite the fact that American demand fell that year (see Graph 5).

In his work (2009) Rodrik says that tradable goods are the ones that stimulate economic growth, and that the output of non-tradable tradable goods is particularly important for countries' economic growth. In this context consumption growth in China, along with yuan appreciation, would cause the restructuring of the economy towards non-tradable goods, and thus slow down economic growth, or even put social and political stability at risk (Rodrik, 2009, p. 1). Therefore, Rodrik says, domestic consumption increase and the production of modern tradables through stimulation measures implemented by the state is the solution for maintaining current growth rates. In other words, China should introduce complementary economic policies to directly support the production of tradable goods, which would at the same time mean working on the external sector balance (by appreciating the value of the yuan) and maintaining economic growth (by structural economic changes towards tradable goods production and simultaneous domestic demand growth).

As Rodrik (see Rodrik, 2009) wrote: "An important implication, therefore, is that the external policy environment will have to be more tolerant of such policies, as long as the effects on the trade balance are neutralized through appropriate adjustments in the real exchange rate. Permissiveness on industrial policies is the "price" to be paid for greater discipline on currency practices and external imbalances. ...

...If we want greater international oversight on currency practices, as I think we should, we will need to substantially relax discipline over industrial subsidies."

He suggests that investing in the infrastructure is one of the solutions for economic policy, because it would reduce the costs of non-tradable inputs. The

⁷¹ Which China already did in 2009; and experienced economic growth despite the recession.

⁷² An interesting article about Chinese savings and growth:
<http://trzisnoresenje.blogspot.com/2010/12/kineski-rast.html>. There was also an interesting comment about the suggestion of a reversed scenario for Serbia at the start of 2010: <http://www.politika.rs/pogledi/Danica-Popovic/KINESKI-SCENARIO-ZA-JADNE-SRBE.lt.html>

second solution, according to Rodrik, is directing resources into the production of tradables by the state. More sophisticated products would primarily be produced with the support of state subsidies. Rodrik justifies industrial policy implementation by the fact that many countries that are now developed used to implement them. The author also states that the slowdown of Chinese economic growth should not be allowed because the country is still very poor (having in mind that its income is barely equal to one tenth of American income), because it still has a huge excess work force in rural areas and because it waived a large number of policies when it joined the WTO (whereas countries like Japan, Germany, and South Korea, which based their growth on exports, eventually had to appreciate their currency, without waiving their industrial policies as well – before they joined WTO⁷³).

These suggestions would mean that the current controversial economic policy would simply be replaced by another also controversial policy. Industrial policy implementation would jeopardize the existence of the WTO Agreement on Subsidies⁷⁴, and it would mean advocating the validity of industrial policy. It would also mean “regressing to a previous state”, because in the late 1980s and early 1990s China was one of the countries with significant exports and local subsidies and one of the highest import tariffs in the world. If these “ideas” were applied in China it would lead other countries to do the same, particularly if these measures proved to be efficient. That would cause even worse imbalances in the global market and impede supply and demand being freely formed in the world market.

Additionally, if China increased the production of highly sophisticated goods in this way, the question would arise as to whether it would worsen the current position of other countries, bearing in mind that the competitiveness of Chinese exports would increase. Therefore, not only maintaining this status, but also an increase in superior production could be the effect of these measures, achieved again through “unjustified” economic policy; and again it would be done at the expense of other countries.

⁷³ See Rodrik (2009, p. 7).

⁷⁴ See Rodrik (2009, p. 12).

7. CONCLUSIONS

Though economists agree that the yuan is undervalued, opinions vary as to the extent. Different estimates indicate that the yuan is 12% to 50% below its equilibrium value. Economic theory states that the most important consequence of a country's undervalued currency is its correlation with the economic growth rate. Economists and politicians around the world accuse China of undervaluing its currency in order to maintain its high foreign trade surplus.

The criticism of Chinese exchange rate policy goes even further: it is accused of hindering global recovery because many countries (e.g., East Asian countries) keep their currencies low in order for their products to be competitive with Chinese goods, which results in world trade disruption and imbalances in the global market and prevents the dollar from depreciating against East Asian currencies. There are concerns that these "actions" can significantly disrupt global trade. Therefore, it is often stressed that China needs to appreciate its currency. It is mainly the USA that insists on this, because for this country yuan undervaluation is of great importance, bearing in mind the slow recovery of the American economy and the unemployment rate growth, which will certainly stay high for some time.

Since mid-2010 the Chinese currency has been gradually appreciating (by 2.9% through December 2010). Yuan appreciation can have a big impact on the future growth and the state of the Chinese, American, and other economies. This impact can be positive or negative, so China's exchange rate policy in the near future should be well conceived and, above all, optimal from the international point of view.

China is nevertheless a country with a high rate of savings, which is an important reason for its high surplus and economic growth. Also, from the start of the 2000s, the increase in productivity and certain institutional reforms have resulted in the need for the appreciation of the yuan, because until then the exchange rate was close to equilibrium. China's exchange rate certainly causes imbalances in foreign trade, but the relation between savings and investments, and productivity and institutional reforms, are of key importance to Chinese economic progress. The USA first of all needs to significantly increase savings in order to decrease its trade deficit with China and other countries. Therefore China's exchange rate policy is an important issue, but not the solution to the existing problems in the global economy – which have deeper roots.

Still, that does not give China an excuse to implement an unfair exchange rate policy or to replace such a policy with other unjustified international policies (as some authors suggest). Considering the importance of the exchange rate for current problems in the relations between countries, China should base its growth on internationally acceptable economic policies so as not to disturb international relations, which automatically excludes state subsidies.

Real appreciation of the yuan against the dollar, which has been going on since mid-2010, was around 10% year-on-year until the end of February, and if this trend continues the exchange rate will approach the equilibrium level in two to three years. Pressure applied by the US, other countries, and the state of the Chinese economy (e.g., a high inflation rate (see ‘China’s economic growth’ in Section 4.1), rapid economic growth in spite of appreciation, orientation towards capital investment) have resulted in the Chinese authorities deciding since mid-2010, and particularly since the start of 2011, to allow a gradual exchange rate growth. However, although this policy is now being implemented (see Chapter 2), it is difficult to predict to what extent China will give up its “powerful tool”, or even whether it will continue its intention of basing its economic growth on the increase of domestic consumption, which it has agreed on.

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