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Causes and Remedies of China's External Imbalances

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[Abstract] China's large current account surpluses not only destabilize its macroeconomic conditions but also are at the center of global rebalancing. The literature offered five explanations for such surpluses, most of which are important but fail to account for the recent surge and/or offer actionable policy responses. In this study, we propose an alternative hypothesis for China's large current account surpluses: asymmetric market liberalization and associated cost distortions. This unique reform approach was the fundamental cause of both extraordinary growth performance and growing structural imbalances during the reform period. Indeed, estimates of cost distortions provide good fits of the current account. Estimated cost distortions rose after 2004 but peaked in 2006 at 12.2 percent of GDP. The worst of the external imbalance problem may be already behind us. We argue that, for rebalancing its economy, China needs a comprehensive package focusing on further liberalization of factor markets. Exchange rate policy should be an important part, but exclusive focus on the currency could be counter-productive.

Key words: China, current account surplus, imbalance, exchange rate, asymmetric market liberalization, cost distortion

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Causes and Remedies of China's External Imbalances

Introduction

China's current account surplus has been a subject of contentious international economic policy debate for the past years (Goldstein and Lardy 2008). Politicians in the United States and Western Europe often criticize China's rigid exchange rate regime. Their real focus, however, was probably not the exchange rate policy *per se* but China's growing trade and current account surpluses. It was argued that, by artificially depressing the value of renminbi (RMB), China probably took jobs away from its trading partners (Krugman 2010).

Recently, some American policymakers again blamed China for helping cause the subprime crisis in the U.S. The argument was that China's large current account surplus lowered cost of capital and fueled housing bubble in the U.S. This accusation was rejected strongly by Chinese policymakers.

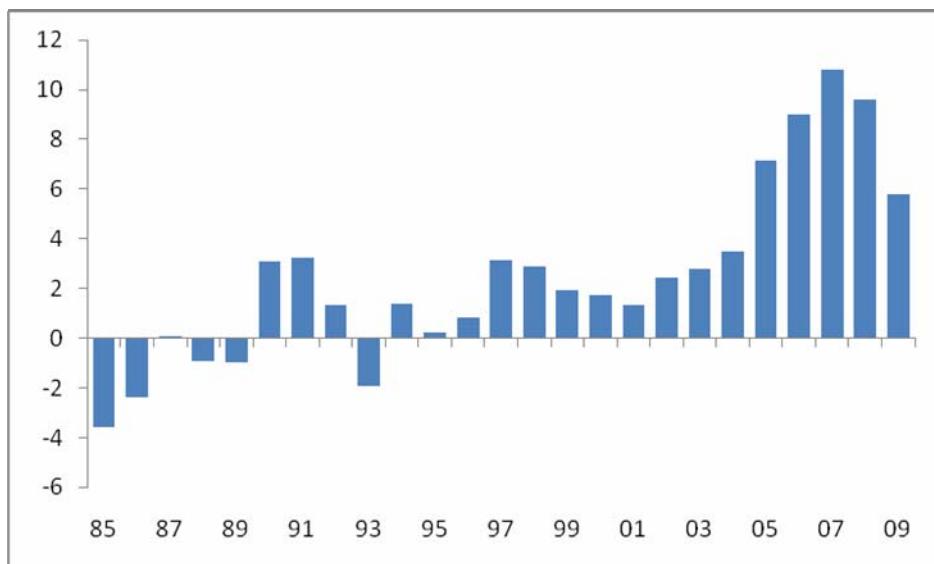
But Chinese economists and government officials have also grown uneasy about the rapidly expanding external sector imbalances. Yu Yongding identified a number of reasons why the growing imbalances were not in the interest of China (Yu 2007). He pointed out that persistent current account surplus meant that China as a low-income economy exported capital to rich countries. Rising external surpluses often worsened China's trading relations with its major trading partners. And, finally, rapid accumulation of foreign exchange reserves also made China vulnerable in face of U.S. dollar adjustment.

At least for the past several years, the Chinese government has made improving quality of growth a top policy priority (see, for instance, Wen 2006). It made various efforts to limit export growth and narrow current account surplus, by lowering export tax rebates, liberalizing import barriers and increasing exchange rate flexibility, among others.

Rapid growth of China's current account surplus is, in fact, a relatively recent phenomenon. During the second half of the 1980s, China had persistent trade and current account deficits (see Chart 1). This was probably because at that time, while imports started to expand as a result of domestic economic reform, the export sector was yet to boom. In 1990-92, the current account recorded surprising surpluses, due to sharp downturn in domestic demand following the Tiananmen incident.

After Deng Xiaoping's Southern China tour in 1992, the current account turned to red again in 1993, as acceleration of domestic investment boosted import demand, before returning to surplus positions in the following years. The sharpest rise in current account surplus occurred after 2004. With three years, the surpluses jumped from 3.5 percent of GDP in 2004 to 10.8 percent in 2007. In 2008 and 2009, external demand was seriously dampened by the global crisis. As a result, China's current account surpluses moderated, but only modestly.

Chart 1. China's Current Account Balances, 1986-2009 (% GDP)



Source: CEIC Data Company.

The latest development is at least indicative that the Chinese government's policy efforts containing growing surpluses after 2003 have not been effective. The external imbalances continued to deteriorate, although it might be argued that the situation could be worse without the policy efforts. Bottom line is that either the government has not been aggressive enough or it has not yet get to the root cause of the problem.

What are the fundamental factors contributing to China's growing current account surpluses? The literature already offered a long list of explanations why China's external surpluses grew rapidly during the past years, which may be grouped into five broad categories:

- *Measurement errors:* The so-called "hot money" inflows disguised in forms of export revenues or income transfers probably exaggerate the current account surplus;
- *Saving and investment gap:* The extraordinarily high saving rate, which is determined by various economic and cultural factors, results in large saving-investment gap and, therefore, massive current account surplus;
- *Industry relocation:* Relocation of industries from other East Asian economies to China in recent years also transfers trade surpluses from these economies to China;
- *By-product of policies promoting growth:* The government policies promoting exports and GDP growth and pursuing full employment boost domestic production and external surpluses; and
- *Exchange rate distortion:* An undervalued currency raises exports and depresses imports, and thus inflates China's trade surplus.

It should be noted that these explanations are not necessarily mutually exclusive. For instance, the perceived exchange rate distortion might be applied as a part of the general policy supporting growth.

All these explanations are helpful for understanding China's growing external imbalance problem. However, the saving and investment gap hypothesis is really an identity and does not really offer insights on how the problem developed. The by-product hypothesis and the industry relocation hypothesis are not easy to generate actionable policy prescriptions to remedy the problem. And, finally, the exchange rate hypothesis, while not controversial, could lead to superficial policy implications.

In this paper, we offer an alternative hypothesis: factor market distortion and associated producer subsidy equivalent as a result of China's asymmetric market liberalization approach. During the reform period, the Chinese government almost completely liberalized the goods markets. But the factor markets remain heavily distorted. These distortions have a general tendency of depressing factor prices and lowering production costs. They artificially increase producer incentives, raise investment returns and improve international competitiveness of the Chinese products. All these boost China's exports. In addition, they also distort the broad income distribution pattern, in favor of the government and the corporate sector but at the expense of household income. This weakens consumption and further boosts external sector surplus (Huang 2010).

This paper is organized as follows. The next section reviews evolution and composition of the current account balances during the reform period and then offers a survey of the literature and a critical assessment of the five hypotheses proposed in previous studies. Section three presents an alternative hypothesis that China's growing current account surplus has been mainly contributed by factor market distortions. Section four discusses options for China to effectively deal with the external imbalance problem. And the final section concludes the paper.

China's Current Account Surpluses and Explanations by the Literature

Evolution of China's current account imbalances

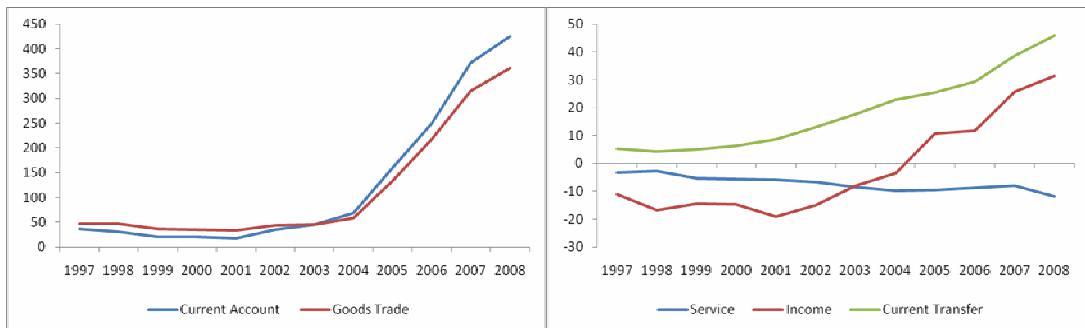
During the reform period of more than 30 years, China incurred current account deficits in only about half dozen years. It is, therefore, true that the Chinese economic system does show a tendency of preferring current account surpluses. Until recently, however, those surpluses remained small relative to GDP. Rapid surge of Chinese external surpluses was a recent phenomenon, especially from 2004 (see Chart 1). During the five years between 2003 and 2008, the surplus increased from \$45.9 billion to \$426.1 billion, rising by more than 800 percent.

This is important for understanding the true causes of the global imbalances. True, in 2007, China's current account surplus already amounted to more than 50 percent of the U.S. current account deficits. Therefore, any successful adjustment of the U.S. external imbalances would probably require coordination with Chinese efforts. But historical data suggest that it is a big stretch to argue that China's surplus was the original cause of the U.S. deficit. U.S. current account deficits first surged from 1.7 percent of GDP 1997 to 4.3 percent in 2000. During the same period, China's current account surpluses narrowed from 3.8 percent to 1.7 percent. One possible implication is that, while the U.S. needs China's cooperation in rebalancing its own economy, perhaps it should also focus on its own structural reforms to remove the distortions.

China's current account surpluses have always been dominated by goods trade surpluses (see Chart 2). Before 2003, merchandised trade surpluses were greater than the overall

current account surpluses. The relationship reversed after that because the combination of the remaining current account items also turned positive. These suggest that any effective policy efforts dealing with the external imbalance problem would have to address merchandise trade imbalances.

Chart 2. China's Current Account Balances by Categories, 1997-2008 (US\$ Billion)

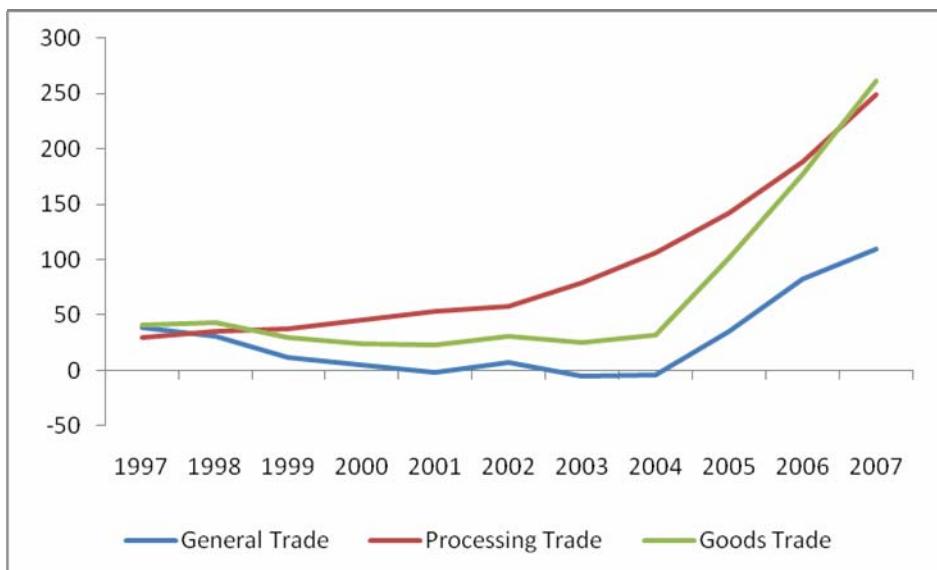


Source: Economic Information Network Data Co., Ltd.

Current transfer stayed in surplus during the past decade and rose from \$5.1 billion in 1997 to \$45.8 billion in 2008 (see Chart 2). But even in its peak year, it only account for slightly above 10 percent of overall current account surplus. Service trade remained in deficits, which widened from \$3.4 billion in 1997 to \$11.8 billion in 2008.

More interestingly, of goods trade imbalance, processing trade contributes almost 100 percent of the total surplus (see Chart 3). General trade was more or less in balance during the past decade. This sheds light on sustainability of China's external surplus. Processing trade is mainly based on China's cost advantages, particularly labor cost advantage. If such advantages disappear sometime in the future, then all the surpluses might also evaporate. This has important implications for what the government should do in dealing with the current imbalance problems.

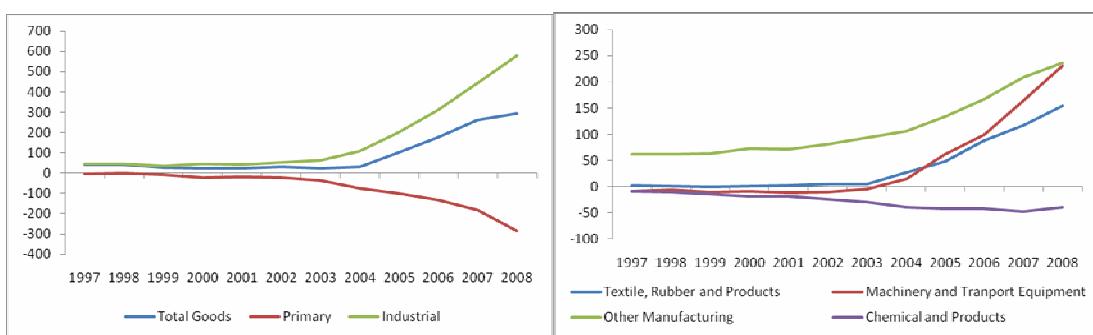
Chart 3. China Goods Trade Surplus by Categories, 1997-2007 (US\$ Billion)



Source: Economic Information Network Data Co., Ltd.

We can further decompose goods trade surpluses by sectors. The first finding is that China's goods trade surplus came entirely from industrial products (see Chart 4). Primary goods trade has been in deficit for at least the past decade, with aggregate deficits rising from \$4.7 billion in 1997 to \$284.9 billion in 2008. This was most clearly evidenced by China's increasing imports of commodities and its growing influences in global commodity markets.

Chart 4. China's Current Account Balances by Categories, 1997-2008 (US\$ Billion)

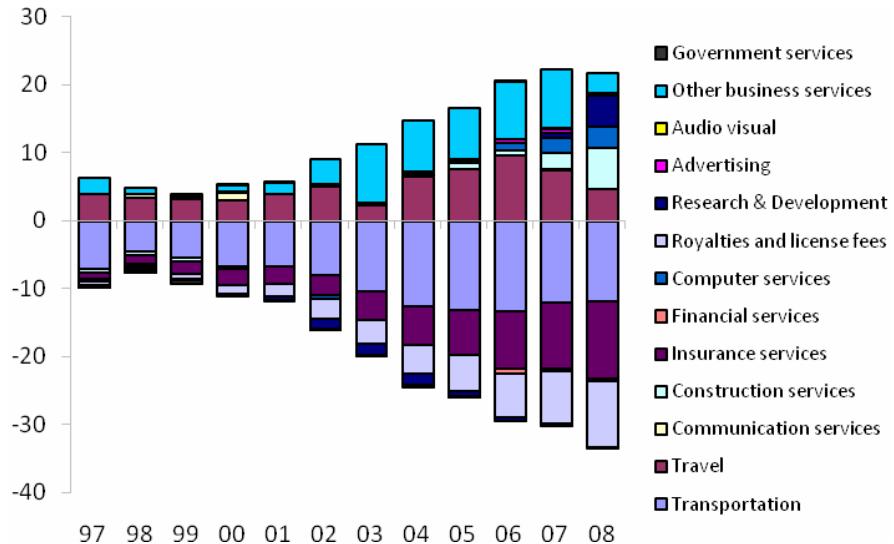


Source: Economic Information Network Data Co., Ltd.

A further look at the disaggregated industrial product trade data suggests that most dramatic increase in trade surplus occurred in the machinery and transport equipment category (see Chart 4). Within five years between 2003 and 2008, this sector's trade balance improved from a small deficit to a huge surplus of \$231 billion, which was about 80 percent of total merchandise trade surplus. Textile, rubber and products have been a strong export sector, but its surplus also picked recently. Chemical is the only major sector which not only continued to experience trade deficits but the deficits also widened in recent years.

Service trade deficits were only a small part of the current account picture. But the deficits were persistent and growing during the past ten years. Disaggregation of service trade data, however, also reveals very different stories for different components (see Chart 5). For instances, travel and other business services have always been in surpluses, while transportation, insurance services and royalties and licenses have been the major deficit items.

Chart 5. China's Service Trade Balance by Categories, 1997-2007 (US\$ Billion)



Source: WIND Data Company.

A critical review of the literature

China's external imbalances have been a hot topic for both economic analyses and policy debate (Yu 2007; Goldstein and Lardy 2009). Importance of this issue has been further underscored in the wake of the U.S. financial crisis, especially in discussions of global rebalancing after the crisis (Kawai and Zhai 2009).

Before examining possible remedies, we need understand the fundamental causes of China's current account surplus. The literature has produced a long list of explanations, which may be broadly grouped into five categories: measurement error, saving and investment gap, industrial relocation, by-product of promoting strong economic growth and exchange rate distortion. We first review these hypotheses put forward by the existing literature in this section and then turn to an alternative hypothesis in the next section.

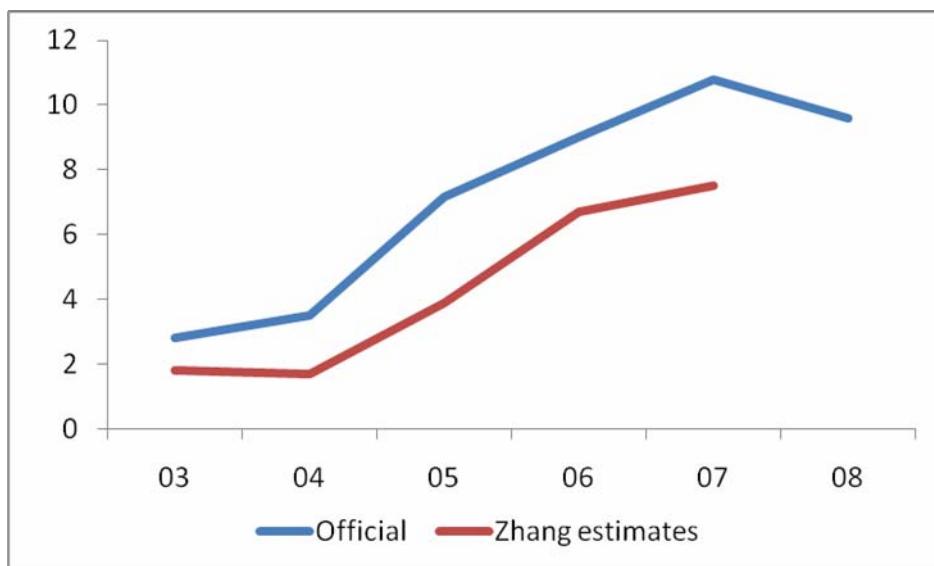
(1) Measurement error

Quality of Chinese statistics has been a widely discussed issue among economists, although the main focus was on GDP data. In a recent paper, however, Zhang Zhiwei identified another possible measurement error: overestimation of China's current account surpluses in recent year (Zhang 2009). His key proposition was that there were capital inflows, which would otherwise be prohibited given capital account controls, disguised in forms of export revenues or income transfers.

Indeed, surge of current account surplus after 2004, coincided with reform of RMB exchange rate policy in mid-2005. Data on non-deliverable forward market (NDF) confirmed that expectations for RMB appreciation increased from 2005. This probably led to increases in disguised capital inflows from then on.

By regressing current account surpluses on NDF market's expectation for RMB appreciation, Zhang computed a portion of current account surpluses that could be explained by currency expectation. By assuming this portion as disguised capital inflows, Zhang calculated the "actual" current account surpluses for the period 2003-07, by stripping the disguised capital inflows from the official data (see Chart 6).

Chart 6. Current Account Surpluses: Official and Adjusted, 2003-08 (% GDP)



Source: CEIC Data Company and Zhang (2009).

Zhang's estimates suggest that the official data on current account surpluses were over-reported by 2-3 percentage points in recent years. For instance, according to the official data, the current account surplus was 10.8% of GDP in 2007. But according to Zhang's estimation, the actual surplus was probably only around 7.5%.

Identification of possible measurement error in current account data was a very important step forward in gaining correct understanding of the problem. The techniques applied for stripping non-current account items, especially their reliability and accuracy, might be subject to criticisms. But the logic behind such exercises is sound. Given China's capital account controls, "hot money" flows always existed and were, at times, large and volatile. Anecdotal evidences confirmed that "disguised" capital inflows to China accelerated after its exchange rate policy reform in mid-2005, until mid-2008 when the economy was badly hit by the global crisis.

However, data adjustments still do not change the fact that China's "actual" current account surpluses are large compared to other large country economies. And it does not change the trend of the growing imbalances. Therefore, we still need to find satisfactory explanations for this unusual phenomenon and, better yet, to find effective policy solutions.

(2) Saving and investment gap

Since the current account imbalance is, by definition, the difference between saving and investment, some economists sought to explain China's large external surplus by examining the structural factors behind its saving and investment behavior.

Bob Feenstra and his co-authors concur that the major cause of China's current account surplus was its high household saving rate (Feenstra, Hai, Woo and Yao, 1999). They argued that the high saving rate was, in turn, generated by China's demographic profile, the absence of social insurance for the bulk of the population, and the post-1978 appearance of investment-motivated saving in response to scarcity of formal financial intermediation to finance investment in the non-state sector. They suggested that import liberalization would reduce China's current account surplus.

Ben Bernanke attempted to explain the U.S. current account deficits by focusing on the "savings glut" in emerging Asia and oil-producing countries (Bernanke 2007). Specifically, he pointed that during 1996-2004, rates of both saving and investment rose in China, but saving rate increased faster, which led to an increase in its current account surplus by \$60 billion. Bernanke's policy prescriptions were greater financial and institutional development in the long run.

Menzie Chinn and Hiro Ito put this last proposition of Bernanke to empirical test by applying a computable model controlling for institutional factors (Chinn and Ito 2007). According to their study, China experienced an amazing 32.4 percentage point increase in private credit creation (net of change in the weighted world average) between 1996 and 2004. This financial development alone led to an increase in national saving by 1.7 percentage points, but also an increase in investment by 2.4 percentage points. Therefore, financial development had a negative effect on net saving, operating not through a reduction in saving, but through a faster increase in investment than in saving.

Zhou Xiaochuan explained that China's high gross saving rate is related to its unique income distribution pattern (Zhou 2009). Household savings as a share of GDP was stable at around 20% over the period 1992-2007. But corporate savings were about 22.9% of GDP in 2007, roughly doubling their share in 1992. Zhou suggested that, given the current income distribution pattern, China should increase the investment rate, in addition to lowering the saving rate, in order to reduce its current account surplus.

Max Corden developed the so-called "parking theory" to explain large current account surpluses in high saving developing economies (Corden 2006). He argued that it is perfectly rational to invest some of the extra savings abroad given the inefficiency of both the financial system and the public sector at home. These savings are parked overseas until domestic investment allocation improves.

The saving-investment gap explanation is really a re-statement of an identity in economics textbooks and therefore, is of little dispute. But the common belief that Chinese households save too much is plainly wrong. The household saving rate has been very stable for the past fifteen years, fluctuating slightly around 30%. This rate is certainly high compared to those in industrialized economies. But it is not unusual compared with China's East Asian neighbors. The fact that the saving rate has changed little for more than ten years also suggests that household saving was probably not the key cause of growing current account surplus in recent years.

Zhou was right in pointing out the unique corporate saving behavior and its importance to the macroeconomic picture. His policy prescription was to increase investment rate. That can certainly be effective in reducing the current account imbalance. The only problem is that China's investment share of GDP is already close to 45%, an unusually high level even in East Asian context. China probably has limited room now to further raise the investment rate.

Finally, applicability of the "parking theory" to China is also questionable. The investment returns, on average, are much higher in China than in the rest of the world. Otherwise it would be difficult to understand the massive inflows of foreign investment into China during the past decades. The funds parked overseas are held by the central bank, not the private sector. Retaining higher return was never a key priority for the central bank' management of funds parked overseas. Therefore, while the "parking theory" could be applicable to many developing economies, it does not appear to be relevant to the Chinese situation.

(3) Industry relocation

A new economic trend emerged in Asia is increasing relocation of industries to China. This process started in the textile and clothing industries in the 1980s, continued in the white goods sectors in the 1990s and is now occurring in information technology, pharmaceutical and other more sophisticated industries. Industry relocation accelerated after China's WTO accession in late 2001. Many economists argued that industry relocation was one of the key factors behind China's growing current account surpluses.

In as early as 1994, Nick Lardy spotted that increase in China's trade surplus with the U.S. was, to large extent, accompanied by decrease in other East Asian economies' trade surplus (Lardy 1994). Later, he further argued that the U.S.-China bilateral trade deficits were a global issue (Lardy 2006). In the processing industries usually 60-70% of the value of manufactured products was imported content. As an assembler, China is the last stage of the international supply chain.

Alan Greenspan associated the U.S. current account deficits with corresponding widening of external surpluses in some of its major trading partners (Greenspan 2005). Because the last processing and export procedures increasingly concentrated in China, the U.S. deficits with China replaced deficits with other Asian economies.

Li Daokui and Li Danning looked at the industry relocation issue from a broader perspective (Li and Li 2006). They argued that, over the years, China's industries evolved from agriculture to manufactured sectors, benefiting from cheap labor and influx of foreign investment. Transfer of production facilities, alongside inflows of foreign direct investment, contributed to China's growing current account surplus.

Relocation of industries and associated migration to trade surplus from other Asian economies to China is, again, a reasonable explanation of China's growing external sector imbalances. But this hypothesis failed to explain why China became the global manufacturing center so quickly. Were there unique factors behind China's unusual cost advantage and industrial competitiveness? The relocation hypothesis also does not yield practical policy recommendations for dealing with the imbalance problem.

(4) By-product of policies promoting strong growth

The Chinese government's policy bias in favor of strong economic growth is well known. Therefore, the policymakers naturally pay closer attention to production than anything else. Some economists claim that the large external sector surplus was a by-product of the policies supporting growth.

Fan Gang argued that a key challenge facing the Chinese government is the employment pressure, since China still has huge surplus labor in the countryside and at the same time does not have well-developed social welfare systems (Fan 2008). Job creation is a top priority since it is the basis for social security. The widely accepted 8% growth target, for instance, was formulated based on needed job creation. Therefore, the government sometimes boosts production at whatever costs.

Max Corden argued that the Chinese current account surplus and especially the big soar in them since 2005 were, in fact, by-products of various developments, such as productivity improvements, and a variety of policies, such as exchange rate policy (Corden 2009). He argued that there were two parts to Chinese exchange rate policy, one part is exchange rate protection for the export sector by currency undervaluation, and the other part is to maintain a stable exchange rate. Another policy orientation is to build up foreign exchange reserves as a form of self-insurance, especially after Asian financial crisis in 1997-98. These inevitably led to large current account surpluses as a by-product.

Yu Yongding identified the government's export-promotion policy, which includes the so-called self-balancing regulation, exchange rate policy and tax rebate, as a contributing factor to the current account surplus (Yu 2007). For instance, for a long time, the government demanded foreign investors to guarantee the self-balancing of foreign exchange for important investment projects. Therefore, foreign direct investment (FDI) must be export-oriented. As a result, when FDI was introduced, corresponding deficits were minimized.

This hypothesis itself is probably not controversial. The government has room to narrow external surplus by reducing policy measures supporting exports and economic growth. The question is how realistic it is for the Chinese government to give up its policy emphasis on growth.

(5) Exchange rate policy

The exchange rate policy has been most frequently referenced in public debate about China's external imbalances. An undervalued currency is often associated with higher exports and lower imports, which then lead to large trade surplus or current account surplus. This was probably the most obvious logic behind foreign politicians' criticisms about China's exchange rate policy.

Morris Goldstein and Nick Lardy applied the "underlying balance" approach to evaluate the misalignment of RMB (Goldstein and Lardy 2006). The essence of their approach was to calculate the needed adjustments in RMB's real effective exchange rate (REER) in order to retain a "normal" current account balance. They concluded that China's undervalued currency had contributed to growing trade surplus and, at least in some years, to very large portfolio capital inflows, which appeared motivated by an expectation of appreciation.

It must be pointed out that the methodology applied by Goldstein and Lardy does not reveal how the exchange rate policy caused current account surpluses. Instead, they inferred currency undervaluation from current account imbalances.

Lu Xiangqian and Dai Guoqiang partly filled this gap by examining the long-run relationship between China's international trade and RMB's REER, applying data for the period 1994-2003 (Lu and Dai 2005). Results of their co-integrated vector auto regression (VAR) model suggested that RMB's REER had expected significant impacts on China's exports and imports. These confirmed that exchange rate indeed was an important determinant of the current account imbalances.

But findings of empirical studies are not uniform. For instance, Li Daokui and Li Danning discovered no statistically significant effect of either nominal exchange rate of RMB or its real exchange rate on China's exports to and imports from the U.S. (Li and Li 2006). Instead, they found that changes in FDI inflows had significant effect on exports to the U.S.

Exchange rate policy was probably the most reasonable explanation for China's current account surplus, at least on the surface. But the policy recommendations derived from it might not be as reasonable. A common policy prescription is that China should let the currency to rise by a certain margin in order to eliminate the external imbalances. But it is impossible to expect the Chinese government to let the currency to appreciate sharply in the near term. Many Chinese officials are concerned about negative consequences of sharp currency appreciation, given their own interpretation of Japanese economic stagnation following the Plaza Accord.

An alternative recommendation is for China to increase exchange rate flexibility. This is probably a good advice by itself. But can a more flexible exchange rate regime automatically eliminate current account imbalance? The answer may be negative, at least according to international experiences.

In a study applying a data set covering 170 countries over the period 1971-2005, Menzie Chinn and Wei Shang-jin found that there was no strong, robust or monotonic relationship between exchange rate regime flexibility and the rate of current account reversion, even after controlling the degree of economic development, the degree of trade and capital account openness (Chinn and Wei 2009). This conclusion can in fact be observed by simply surveying the data: there is no systemic relationship between a country's current account position and its exchange rate regime flexibility.

While strongly recommending increase in exchange rate flexibility, Yu Yongding also cautioned expectations of significant adjustments to the current account surplus as a result of the exchange rate policy reform.

So the notion that greater flexibility in a de facto nominal exchange rate regime implies speedier adjustment in the current account was just based on faith, which could not be supported by data. The reason behind the disconnection lied in the fact that what mattered for current account adjustment was the real, not nominal exchange rate. In theory, the government can artificially revalue the currency by a big margin in order to strengthen the real effective exchange rate substantially. But this is probably difficult for the government to adopt given corresponding structural adjustments the economy has to go through.

Factor Market Distortions: An Alternative Hypothesis

We now present an alternative hypothesis for China's large current account surplus – asymmetry liberalization of product and factor markets. We first formulated this theory when we attempted to explain the very unique macroeconomic phenomenon during China's reform period: combination of both extraordinary economic growth and deteriorating structural risks (Huang 2010).

The purpose of this exercise is not to replace the existing hypotheses. In a way, our hypothesis and the hypotheses presented in the literature may be supplementary and even overlapping from one another. But as we will elaborate later, the factor market distortion hypothesis not only offers a fundamental explanation about the external imbalance but also produces systemic policy prescription for curing the problem.

Asymmetric market liberalization

During the reform period, the government focused on reform of the product markets, including abandoning policy interventions in domestic markets and liberalizing trade of goods and services. Today, prices of more than 95 percent of products are determined by free markets.

In contrast, factor markets, including markets for labor, capital, land, energy and the environment, remain highly distorted. For instances, many employers of migrant workers still do not make social welfare contributions for their employees. Outside the property sector, land prices are artificially determined by the government. These distortions generally push factor prices and, therefore, production costs below levels otherwise would be in market environment.

Cost distortions in China are equivalent to production and investment subsidies. They artificially increase production profits, raise investment returns. Both Chinese and foreigners invest massively in China given cheap labor, cheap capital, cheap land and cheap energy. Producers enjoy extraordinary profits that do not exist in other countries.

Without a doubt, the fundamental reason why China achieved strong growth of exports, investment and production is the reform and open-door policy. But cost distortion, or subsidy equivalent, further lifts producers' profitability, investors' returns and international competitiveness of Chinese products to even higher levels. Perhaps this is why China's investment, production and investment are unusually strong during the reform period, particularly during the past years.

Meanwhile, these cost distortion are also equivalent to taxes on owners of these factors, mainly households. They reduce households' income and depress consumer spending. Boosted investment and depressed consumption imply imbalance between investment and consumption and lead to imbalance between domestic and external demand. Low factor prices also cause distorted industrial structure, such as outsized heavy industry as a result of cheap cost of capital, in addition to waste and inefficiency.

It is thus easy to predict that factor market distortion leads to unusually large external imbalances, especially large trade surplus and current account surplus. The cost distortion improves exporters' profitability and exports' competitiveness in the international markets. China exports more than otherwise would be the case in absence of the distortion. Depressed consumption also widens the saving and income gap and, therefore, further boosts external sector surpluses.

In retrospect, some distortions in factor markets, such as the government's controls over energy prices and land use fees for manufacturing investors, are deliberate policy measures to support economic growth. Other distortions, such as the household registration system limiting labor mobility and regulations of interest rates, are phenomena during economic transition. But they are in one way or another related to the government policy preference favoring strong growth.

Indeed, this is not the first time that the Chinese government adopted measures distorting production costs in order to achieve rapid economic growth. In the pre-reform period, for instance, the authorities devised a set of institutions to ensure rapid development of urban industries. When the government embarked on task of urban industrialization, it lacked reliable supply of funds. And agriculture was the largest economic sector at that time. The purpose of that set of policies was to deliver high profits in urban industries, which could be re-invested to accelerate urban industrialization.

This first step was to depress agricultural prices, which could reduce production costs in urban industries by lowering both input cost and labor cost. Therefore, the government introduced a "unified purchase and marketing system" for agricultural products. Under this system, the state purchased agricultural products from farmers at below-market prices. In order to ensure that farmers would sell their products to the state, the authorities took the second step by abolishing all free markets. To make sure that farmers would produce according to the central plans, the authorities took the third step of collectivizing agriculture, handing all agricultural decision power to production team leaders who were selected by the government. And in order to guarantee that farmers would participate in collective farming, the authorities took the fourth step to introduce the household registration system, effectively prohibiting farmers from leaving their villages.

This system of urban industrialization policy was, for a while, quite successful. But it failed in the end. Otherwise China would not have to start economic reforms in the late 1970s. There were two main reasons why the pre-reform policy system did not work. First, since there was no free market for products, resource allocation was inefficient. All factories produced according to the central plans. But in the end, the industry produced lots of heavy industry products which had no demand. At the same time, there was significant shortage of consumer goods. Second, since there was no autonomy and incentive at the firm or individual levels, production efficiency was quite low. Shirking was a common phenomenon in urban factories and rural collectives.

Both of these problems have been resolved since the beginning of economic reform. And that is why the new policy system has been much more successful in supporting economic growth. But the new system also gives rise to the structural risks, such as imbalances between investment and consumption, and between domestic and external demand.

It should have become clear by now that the factor market distortion hypothesis is related to some of the existing hypotheses reviewed earlier. For instance, depressing of domestic consumption also contributes to the saving and investment gap. Lowering of production costs accelerates relocation of industries to China. The cost distortion, intentionally or accidentally, is driven by the government's growth-centered policy strategy. And, finally, currency undervaluation is a form of underpriced capital.

Remaining distortions in factor markets

Introduction of free markets was the central theme of economic reforms during the past three decades. But prices of almost all factors, including labor, land, capital, energy and the environment, remain highly distorted.

Labor market. China is known for its abundant and cheap labor, which was a key factor behind China's success in labor-intensive manufacturing exports. But labor costs in China may be distorted, for two interrelated reasons – segmentation of rural and urban labor markets and under development of social welfare systems.

Labor market segmentation was largely a result of the household registration system (HRS) introduced in the pre-reform period. The policy requires that people, whether urban or rural, stay where they were born until they die. Migration is possible only if it is approved by the government. The effectiveness of this system weakened in recent years, evidenced by large number of migrant workers roaming the cities. Local authorities in Shandong, Henan and Hainan also experimented to do away with the restrictions on rural-urban migration.

But, by and large, the HRS still erects important barriers for labor mobility. Location of an individual's household registration makes a significant difference. Urban residents are entitled to the social welfare benefits, such as medical insurance, pension, unemployment support and compulsory education, although most of these systems are still underdeveloped. But migrant workers cannot access to any of them, even if they have been working in cities for years.

The most important area of underpay is social welfare contribution. Should urban employers make social welfare contributions for their migrant workers, their payrolls could rise by about 35-40 percent, which includes contribution to pension (20 percent of payroll), medical insurance (6 percent), unemployment benefit (2 percent), work injury insurance (1 percent), maternity benefit (0.8 percent) and housing entitlement (5-10 percent).¹

Capital market. Distortions in capital markets exist at two levels. Domestically, the financial system remains repressed, evidenced by highly regulated interest rates and state influences on credit allocation. Externally, capital account controls are more restrictive on outflows than on inflows. The currency is generally undervalued, at least during the past 15 years.

China's financial system, especially its banking sector, has gone through major transformation. But the financial intermediation remains overly dependent on banks, especially the large state-owned commercial banks (SOCBs). The government influences on lending decisions. Despite significant reforms during the past years, including introduction of foreign-strategic investors and public listing, most large banks are still majority-owned by the state and their top executives are still appointed by the government.

China still maintains interest rate regulation. Despite numerous reforms giving banks more flexibility in determining the actual rates, PBC still maintains floors for the lending rates and ceilings for the deposit rates, ensuring minimum interest spread in order to

¹ These estimates for a typical year were provided to the author by Zhai Fan, a former official of China's Ministry of Finance in 2002.

facilitate reforms of the commercial banks. In reality, however, the actual lending rates have always been very close to the benchmark rates.

The financial repressions likely reduced capital efficiency and therefore capital costs. A World Bank study suggested that financial liberalization in emerging market economies often would raise domestic interest rates by a couple of percentage points (Caprio, Atiyas and Hanson 1994).

Changes in the exchange rate policy offer another example of the cost distortion. Today, most economists believe that RMB is still undervalued, although they disagree on the degree of undervaluation (Goldstein and Lardy 2008).

The larger gap between nominal GDP growth potential and long-term government bond yields in China, relative to the gaps in other Asian economies, also suggest that China's capital is way too cheap. At the end of 2008, the difference was 10 percentage points in China, compared with 6.5 in India, 6.2 in Thailand, 5.7 in Malaysia, 2.6 in Korea.² Compared with other Asian economies, China's nominal growth potential was the highest but its Treasury yield was among the lowest.

Markets for land, energy and the environment. In China, land is owned by the state in the cities and by the collectives in the countryside. Recently, local governments began to sell use rights of land to property developers through negotiations and auctions. However, there is no market mechanism for determining land prices for industrial use. They are often set by the government departments through negotiation. In order to attract investment and promote growth, regional governments often offer land use rights to investors at discounted or even zero costs. Local governments sometimes compete with each other in offering preferential policies to attract investment. In recent years, the average fees collected from negotiated granting of land use rights were only about 16 percent of those collected through auctions.

Prices of key energy products, such as oil, gas and electricity, are also regulated by the state. Electricity tariffs are set by the National Development and Reform Commission (NDRC), although the authorities sometimes held public hearings to improving quality of decision-making. Tariffs are different for agricultural, industrial and residential uses. Electricity prices have been under pressure for upward adjustment in recent years as costs of oil and coal rose significantly.

In 1998, in an important step of oil price liberalization, the State Council announced a formula linking domestic prices to the weighted average of prices in New York, Singapore and Rotterdam. NDRC would adjust domestic prices, with a couple of months' delay, if the international weighted average moves by more than 8 percent. In 2000, NDRC raised oil prices 7 times in order to bring domestic prices closer to the international levels.

However, when international prices moved violently, NDRC became reluctant to follow for fear of disrupting economic growth. For instance, when international crude prices reached their recent peak, at close to \$150 per barrel in 2008, the equivalent domestic prices were only around \$80 per barrel. But oil price distortions are highly volatile, given the State Council's formula and fluctuations in the international markets.

² The difference is calculated by subtracting 5-year government bond yield from the economy's nominal GDP growth potential forecast, which was estimated by Citigroup economists.

China has introduced a series of environmental laws and regulations. Their enforcement, however, has been rather random, as the governments prioritize economic growth. Pollution has become the most visible negative by-product of China's rapid economic growth. Pollution of air, water and land has not only affected productivity of the economy but also generated serious health consequences. Environmental degradation in China contributed to global climate change, evidenced by rapid melting of the iceberg on Himalaya. It also led to regular drought in Northern China but frequent floods in Southern China.

According to a joint study by NBS and the State Agency for Environmental Protection (SAEP), an incomplete count of costs of environmental damage amounted to about 3.05 percent of GDP in 2004 (Huang 2007). Since producers do not always fully compensate their damages to the environment, it reduces the short-term production costs, at the expense of long-term development of the whole economy and society.

Crude estimation of producer subsidy equivalent

A critical question here is if cost distortions are good explanatory variable for the recent surge of current account surplus. Any reviews of policy changes would suggest that, despite slow progresses, factor market controls have gradually become less strict. Therefore, it might appear to contradict the fact that current account surpluses widened sharply in recent years.

In order to gauge significance of such factor market distortions, we intend to make some crude quantitative estimation. Huang (2010) made one of the first attempts in measurement and found the distortions totaling 2.1 trillion yuan in 2008, or about 7 percent of GDP. His estimation, however, was made only for one year, which is of limited use since we are trying to explain changes in current account surpluses in recent years. Therefore, we extend the estimation by both improving the methodologies and extend the period to include nine years from 2000 to 2008. Based on obtained estimates and other available information, we also made preliminary attempt to reckon a number for 2009, which is subject to revision in the future.

The estimation results are summarized in Table 1, with more detailed explanations of the estimation methods included in the Appendix at the end of the paper. These results reveal several important findings. First, of all the factor market distortions, capital market distortion was by far the most important single item. Capital PSEs would contribute about 40 percent of total PSEs on average. This explains the overinvestment problem persistent in China and also rapid development of capital-intensive industries despite continued job market pressures.

Table 1. Estimated PSEs of Factor Market Distortions in China, 2000-2009 (% GDP)

	Labor	Capital	Land	Energy	Environ	Total	C/A
2000	0.1	4.1	0.5	0.0	3.8	8.5	1.7
2001	0.2	3.9	0.5	0.0	3.5	8.1	1.3
2002	0.8	3.9	0.4	0.0	3.3	8.4	2.4
2003	1.0	3.8	1.1	0.0	3.3	9.2	2.8
2004	2.0	3.1	0.9	0.6	3.0	9.5	3.5
2005	2.4	3.0	1.3	1.7	3.0	11.4	7.2
2006	2.7	3.1	2.0	1.6	2.8	12.2	9.0
2007	3.2	3.6	1.2	1.6	2.4	12.0	10.8
2008	3.6	3.4	1.0	0.7	1.9	10.6	9.6
2009*	2.7	3.5	0.9	0.7	1.8	9.6	5.8

Note: C/A is current account balance. * Estimates for 2009 are very preliminary based on estimates for other years and available information for 2009 and are subject to major revision when new information is available. Source: Authors' estimation. Please refer to the Appendix for detailed estimation methods.

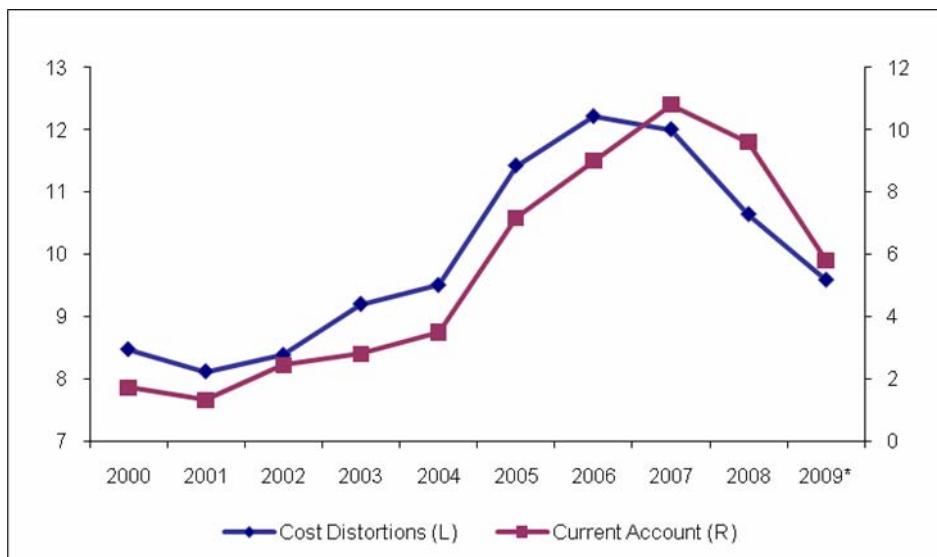
Second, labor market distortions actually picked up in recent years, despite the loosening of household registration system controls and increasing rural-urban migration. This was a result of both rising number of migrant workers and persistent, even widening, income gaps between migrant workers and urban workers. Indeed statistics show that while labor demand increased in recent years, migrant workers' pay did not keep pace with urban workers, especially when social welfare benefit contributions are included.

Third, energy cost distortion fluctuated widely across years, reflecting volatilities in international oil prices. China already adopted a price mechanism which would track closely changes in international energy prices. But the authorities would hold down domestic prices when international prices surge rapidly. Therefore, energy cost distortions measured in this study were not a major problem until several years ago.

Fourth, environmental cost distortion was the only item that showed consistent improvement. This might be a surprise to some, at least initially, but individual and aggregate pollution indicators did confirm less emission in recent years.

And, finally, the aggregate estimates of cost distortions or PSEs match the current imbalance data surprisingly well (see Chart 7). Given limited number of observations, we are not able to conduct any statistical analyses test correlation or causality between the two sets of data. But these estimates at least provide a partial evidence that factor market distortions were possibly an important reason behind China's large current account surpluses.

Chart 7. Estimated Cost Distortion and Current Account Balance, 2000-09 (% GDP)



Source: CEIC Data Company and authors' estimation.

The trend of liberalization and recent increases in PSEs are not necessarily contradictory with one another. For example, even if the factor market is gradually liberalized, cost distortions may rise dramatically as long as the distorted factor prices could not keep up pace with shadow market prices.

But if PSEs provide any guide for future development of the current account, then we may argue that the worst of the external imbalance is probably over. Factor market distortions as share of GDP already peaked in 2006, followed by peak of current account surplus as share of GDP in 2007. Therefore, narrowing of the current account surpluses in 2008 and 2009 were not entirely caused by weakening external demand. Unless cost distortions rebound again, current account surpluses may stay at relatively lower levels in the coming years.

Policy Options for Rebalancing the External Sector

Findings of this study have important policy implications. If, alongside other factors such as industrial relocation and policies pursuing strong GDP growth, cost distortions were a fundamental cause of China's current account surplus, removal of these distortions should be a part of the solution. So far, however, this has not been a central strategy for rebalancing the Chinese economy.

Past policies rebalancing the external sector

When the Wen Jiabao government first took office in early 2003, it immediately identified structural imbalances as a key threat to China's growth model. The Premier and other senior leaders repeatedly pointed out that the existing growth pattern was unstable and unsustainable.³

³ See, for instance, reports on Premier Wen Jiabao's press conference on March 16, 2007, following the annual National People's Congress meeting.

One of the imbalance problems was too much reliance of economic growth on exports. The export share of GDP rose from around 10 percent in the 1980s to above 20 percent in the early 21st century. While such export dependency ratio is not particularly high compared with other small open Asian economies, it is extraordinary in comparison with other large economies like the U.S. and Japan. The potential risk is that China would probably face hurdles in sustaining export growth in normal years, let alone times when external demand weaken significantly.

More worrying is its growing trade and current account surpluses. While current account balances always fluctuated, its surpluses rose quickly back to 3 percent of GDP in the years following the Asian financial crisis. Persistent and rising current account surpluses indicate China's inefficient use of capital: as a low-income country China lends to the world market. More importantly, the large current account surplus every year added further pressures on the Chinese economy such as accumulation of foreign exchange reserves, excess liquidity in the domestic market, high inflation risks and greater expectations for currency appreciation.

In order to reduce these and other structural risks, Wen Jiabao government adopted several policy measures to rebalance the economy and improve growth quality. One type of policies attempts to directly address the surplus problem. These include reduction of export tax rebate and appreciation of the currency. Export tax rebate policy was introduced in 1994 to exempt exports from value-added taxes. The government, however, adjust the rates from time to time either as industrial policy or as macroeconomic instrument. For instance, in June 2007, the Ministry of Finance (MOF) and State Administration of Taxation (SAT) lowered the rebates for a list of exports in order to both improve export structure and slow export growth.

The other type of measures attacks the imbalance problem indirectly. For instance, the government abolished agricultural taxes, increased spending on rural infrastructure, strengthened social welfare systems. All these measures aimed at boosting domestic demand and therefore reduce export growth and narrow current account surplus. The authorities also raised interest rates and tightened controls over large investment projects in order to slow building-up of export capacity.

While all these efforts were probably useful and achieved some results, as a whole they failed to contain external imbalances. In fact, between 2003 and 2007, export share of GDP rose further, from 26.6 percent to 35.4 percent. And current account surplus surged from 2.8 percent of GDP to 10.8 percent during the same period. An important reason why the government policies have not succeeded so far was that they did not deal with the root cause of the problem, i.e., the distorted incentive structure. If capital is too cheap, then tighter controls by the National Development and Reform Commission on investment project are not likely to be effective alleviating the overinvestment problem.

Social welfare systems and the currency

Economists also proposed some fundamental solutions to China's current account imbalance problem. One is development of social welfare system, and another is appreciation of RMB.

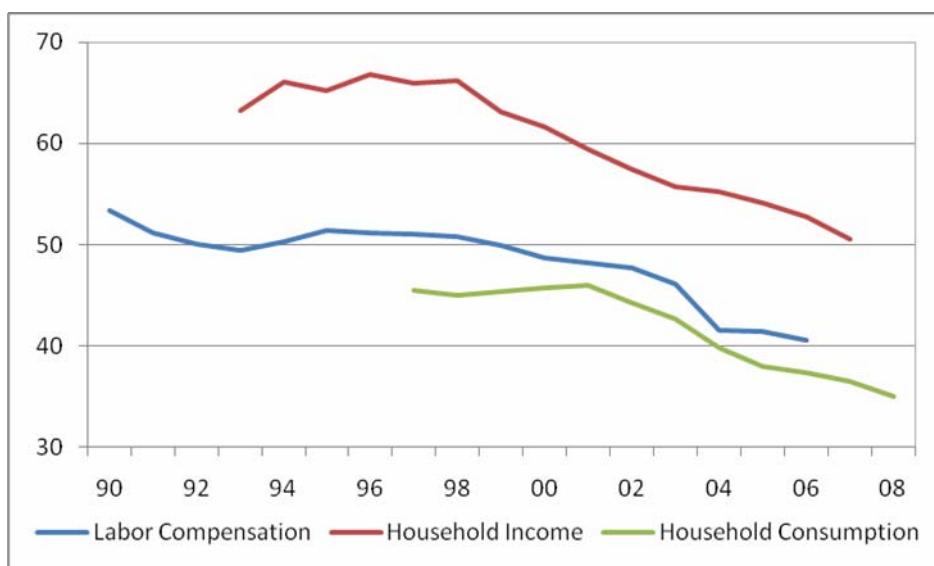
The idea of developing social welfare system is based on the belief that insufficient consumption was the cause behind the saving and investment gap. In the late 1990s, the Chinese government dismantled the state-dominated social welfare systems and began to

build market-based systems. Building new systems is, however difficult and the transition significantly increased uncertainty. Households probably increased their saving for their own future protection. Therefore, improved social welfare systems might be able to reduce saving and increase consumption, effectively narrowing the saving and investment gap.

This policy advice is reasonable. After all, social welfare systems are a critical part of a developed market system. But it is unclear if improvement in social welfare system alone is sufficient to reduce the external imbalances. First, as Governor Zhou (2009) already pointed out, household savings as share of GDP has been relatively stable for the past 20 years, fluctuating slightly around 20 percent. What drove significant increase in national saving ratio, which is now well above 50 percent, was rising corporate saving, from 11.3 percent of GDP in 1992 to 22.9 percent in 2007. Therefore, improved social welfare systems may be able to reduce household savings, but their impact on overall national savings is likely to be limited.

More importantly, more worrying trends during the past decade or so were declining shares of labor compensation and household income in national income. According to Bai and Qian (2009a and 2009b), the share of labor compensation in national income dropped from 51.4 percent in 1995 to 40.6 percent in 2006 (see Chart 8). Likewise, the share of household income in national income declined from 66.8 percent in 1996 to 50.6 percent in 2007. We argue that the declining income shares of labor and households are largely attributable to distortions in factor markets. If these macro trends are not reversed, then it's impossible to expect consumption to pick up strongly.

Chart 8. Shares of Labor Compensation, Household Income and Household Consumption in National Income, 1990-2007 (%)



Source: Chong-en Bai and Zhenjie Qian (2009a and 2009b).

The exchange rate option is much more sensitive. For most economists and policymakers, there is little disagreement about importance of more flexible exchange rate regime in China. During the first fifteen years of China's economic reform, RMB depreciated by 75 percent in real effective terms (see Chart 9). Between January 1994 and June 2005, the real

effective exchange rate of RMB appreciated by 30 percent and, again, between June 2005 and December 2008 it appreciated by another 19 percent. While the overall trend of appreciation is clear, the magnitudes of the changes were probably grossly insufficient, compared with China's extraordinary productivity growth during the same period. Rising external imbalance is one important evidence of an undervalued currency.

Chart 9. Real Effective Exchange Rate Indices of Renminbi and U.S. Dollar, 1980-2009



Note: Both indices were set to 1.0 in June 2005, the month before China abandoned the peg and adopted the managed float system.

Source: Citigroup.

So exchange rate policy reform should be a part of the program dealing with the imbalance problem. In fact, policymakers are probably already contemplating options for exiting from the current soft peg and resume the track of gradual appreciation for RMB. This will most likely happen within 2010.

The risk now, however, is that often the exchange policy issue is singled out and sometimes is even politicized. These will for sure prove counter-productive. Foreign pressures are sometimes useful for reformers to overcome domestic resistances. But like American policymakers, the Chinese leaders also have to entertain domestic politics. To be seen as giving in to foreign pressures on important issues like exchange rate policy could significantly weaken the leader's political standing.

There is still significant disagreement on how much the currency is undervalued. For instance, Goldstein and Lardy (2009) suggested that, if half of 2008's current account surplus was to be eliminated, then by the end of that year, RMB was probably undervalued only by 12-16 percent. Such adjustment, even if it took place, would not likely satisfy demands by most foreign country politicians. The Chinese politicians would also be reluctant to introduce greater adjustment in the short-term, given the likely consequences for the Chinese enterprises and financial institutions.

We should also be careful about what we ask for. For instance, a sharp rise in RMB exchange rate may wipe out China's current account surplus, but it might not reduce

America's current account deficits. RMB only accounts for 15 percent of the Fed exchange rate basket for the dollar. This implies a 20 percent appreciation of RMB would only translate into appreciation of the dollar by 3 percent. More importantly, the market vacuum left by Chinese products might be quickly filled with products from other low-income countries such as India, Indonesia, South Africa and Vietnam.

Even for China, exchange rate may not be the only, or even the most important, factor behind external imbalances. For instance, Wing Thye Woo argued that trade surpluses are better handled by establishment of an efficient financial intermediation mechanism than by appreciation of the currency (Woo 2006). Similar, Goldstein and Lardy (2009) argued that the exchange rate policy alone is not likely to be effective. China's recent experiences after the July 2005 reform provided a useful footnote to these arguments. Between mid-2005 and mid-2008, the real effective exchange rate of RMB appreciated by 20 percent, but China's current account surpluses surged during the same period.

Removing factor market distortions

Given the structural nature of the Chinese imbalance problem, a comprehensive package dealing with the problem is probably preferred than exclusive focus on the exchange rate.⁴ Greater exchange rate flexibility and gradual currency appreciation should be part of that package. But the reality is that sharp revaluation demanded by some foreign politicians and experts is not only political infeasible in China but is probably also economic undesirable, at least in the near term.

Following findings in this study, we argue that extraordinary growth performance and growing structural imbalances are actually different sides of the same coin: the asymmetric market liberalization approach. An effective solution to the imbalance problem, therefore, is to complete transition to the market economy by further liberalizing the factor markets and removing cost distortions. Reduction of PSEs associated with factor market distortions would correct the unusually high incentives for production, investment and exports.

Introduction of market-based factor prices, however, cannot be done overnight. Some changes are relatively easy to make. The government is already looking various ways of removing or reducing distortions in resource prices. From late 2009, the authorities began to make efforts in adjusting prices for fuel, gas, electricity and water. In the past, the main hurdles for resource price liberalization are special interest groups such as agriculture, farmers and low-income urban households. The government can deal with these special groups with fiscal instruments while pushing ahead price liberalization.

Distortions to environmental costs are already falling, at least as shares of GDP. This reflects the government's stepped up efforts protecting the environment. Senior officials of the Ministry of Environmental Protection (MOEP) recently indicated that, while environmental turning point normally occurred when per income was \$8,000 in developed

⁴ Goldstein and Lardy (2009) recommended a comprehensive package dealing with China's imbalance problems focusing on four policy domains: fiscal, financial, pricing and exchange rate policies. Their policy recommendations share many similarities with suggestions in this study.

economies, it could happen at \$3,000 in China.⁵ The official also mentioned that MOF, SAT and MOEP were considering new environmental protection taxes.

Labor market liberalization is progressing rapidly, evidenced by massive migrant The government also plans to make new breakthroughs in reform of the household registration system and propelled urbanization in 2010. But complete removal of this restriction and therefore discrimination against rural workers will likely take some time. One critical condition is extension of the social welfare systems to all rural residents. However, the earlier the Lewis turning point, i.e., labor market transiting from surplus to shortage, arrives, the faster the labor market liberalization would occur.

Capital market liberalization is already gaining momentum and, according to optimistic judgment, could see major breakthroughs in terms of introducing market-based interest and exchange rates within the next five years. Of course, these changes are conditional on successful reforms of the state-owned enterprises and financial institutions and improvement in macroeconomic management skills.

Privatization of land might not happen any time soon. But clearly defined and well protected leasing rights and freedom to circulate according to market mechanisms could also reduce distortions to use rates for land.

Reduction or abolition of PSEs should also be supplemented by some related reforms. For instances, the government will need to give up over-emphasis on growth performance, which was in many cases the initial cause of persistent cost distortions. The government's role should be provision of public services and maintenance of stable macroeconomic environment, not direct involvement in economic activities (Yao 2010).

The state sector, which is capturing an increasing portion of national income and causing the imbalance problem, needs further reforms in order to share more benefits with households. In the minimum, the state should collect more dividends and taxes from the SOEs for redistribution to the broad society. Ideally, the state sector should gradually give up the monopoly power or be privatized.

Factor market liberalization is likely to help prevent further slide of household income shares. But if this is insufficient to reverse the trend, the government may need to step in to redistribute more income and wealth to the households. After all, enriching the households, rather than keeping more wealth at the hands of the SOEs or the government, is the ultimate goal of economic reform and economic growth.

Finally, rapid development of the service sector will be a critical benchmark for structural rebalancing. Factor market liberalization should realign incentives between manufacturing and service activities. But the government may need to help overcome some major obstacles for service sector development, especially insufficient financial services, high entry barriers and lack of intellectual property rights.

Concluding Remarks

Structural rebalancing will likely remain a key policy challenge for both the global and the Chinese economy in the years to come. In this paper, we attempt to review both recent

⁵ See, for instance, report at the Xinhua News Agency website at http://news.xinhuanet.com/fortune/2010-02/10/content_12960850.htm

evolution of current account surpluses and the literature on causes of such surpluses. Large current account surplus is a relatively recent phenomenon in China, occurred most clearly after 2004. Significant rise in U.S. current account deficit happened a few years earlier. These suggest that while China should be a part of the solution to the global imbalance problem. It is not reasonable to blame China for America's large imbalance problem.

The existing literature offers five closely related hypotheses for China's current account imbalances: measurement error, saving and investment gap, industrial relocation, policies pursuing strong growth and exchange rate policy. All these are important factors related to China's imbalance problems. But unfortunately they do not offer actionable policy solutions for resolving such imbalance problems. Most critically, these factors generally fail to explain the sharp surge of current account surpluses in recent years.

In this study, we propose an alternative hypothesis: asymmetric market liberalization during the reform period. This particular reform approach generally lowers production costs and provides producer subsidy equivalents. It artificially raises production profits, increases investment returns and improves international competitiveness of the Chinese products. Continued factor market distortion is the cause for both extraordinary growth performance and growing structural imbalances during the reform period.

To offer some guidance, we made some crude estimation of cost distortions for the period 2000-2009. The results suggest that capital cost distortion was by far the most important components of PSEs. Labor cost distortion jumped recently as number of migrant workers increased. Surprisingly, distortions to environmental costs already began to decline in recent years, at least as shares of GDP.

Estimates of total PSEs provide an almost perfect fit for current account imbalances, rising steadily from 2000 and reaching their peak in 2006. Cost distortions increased despite the fact that the factor markets were gradually liberalized, suggesting that the distorted factor prices did not keep up pace with market prices. Total PSEs in 2009 were back to the levels of 2003-04, before the surge of current account surpluses. This may be an indication that although the surpluses may rebound somewhat as the global economy continues to recovery, the worst of China's external imbalances may be behind us.

Findings of this study have important policy implications for dealing with the imbalance problems. The Chinese government has been trying hard rebalancing the economy since 2003 but has achieved limited results. In fact, most imbalance problems worsened in the following years. The reason for the lack of success was probably because the government only addressed the factors on the surface, not the root cause, i.e., the distorted incentive structure for exporters, investors and producers.

Recent popular policy advices include development of the social welfare systems and appreciation of the currency. While these are probably useful steps to take, we do not think these measures alone would be effective in resolving the problem. As increasing portion of saving is from the corporate sector and household income share of the economy continues to decline, better social welfare systems would have limited impact on national saving rate and consumption.

Greater exchange rate flexibility and gradual currency appreciation should be important parts of the policy package, but exclusive focus on the issue may be counter-productive. While we believe the government is likely to take further steps reforming the exchange

rate regime in 2010, it is politically infeasible and possibly economically undesirable for China to implement large step appreciation in the short term. In the minimum, RMB appreciation alone will unlikely resolve America's imbalance problem. And the 2005-2008 experiences suggest that currency appreciation should be combined with other policy measures in controlling current account surpluses.

We recommend a comprehensive policy package for dealing with China's external imbalance problem. The core element of the package is to complete the transition to a market economy by further liberalizing the factor markets and removing all cost distortions. Exchange rate adjustment serves as a part of this package. The liberalization may take years to accomplish, but some measures can be implemented relatively quickly than the others. The government is already reforming resource prices. Environmental cost distortion is already on the decline. Both labor and capital market liberalization could gather momentums in the coming year or so.

This core element may also needs to be supplemented by some other reforms, including reform of the government's over-emphasis on GDP growth, liberalization of the state-owned enterprises and financial institutions, redistribution of income from the corporate sector to households, and removal of the barriers for service sector development.

To summarize, China's growing internal and external imbalances may be natural results of China's unique reform approach. The fundamental solution, therefore, lies in correcting the problems of that reform approach, i.e., asymmetric market liberalization. If our analyses and prescription are correct, then we may conclude that the worst of the external imbalance problem is probably over, unless cost distortions rebound sharply again. The current and future reform initiatives would also ensure further containment of external imbalances. But most of these reforms could not be implemented overnight. Therefore, rebalancing of China's external sector may also take a few years to accomplish.

Appendix. Estimation of Factor Cost Distortions

This Appendix explains how cost distortions are estimated. It should be noted that these estimates only provide rough guidance about the distortions. In many cases we do not have reliable benchmarks. And also we often can only consider limited aspects of the distortions. However, if the methodologies are consistent, then the results should at least provide some good indications about changes over time.

Labor Market

Estimation of labor market distortion focuses on the under-paid migrant workers given the household registration system. Migrant workers' pay grew by an average of 7 percent between 2000 and 2008, which was only half the rate of national average of workers' pay. This is why the pay gap between migrant workers and urban workers widened significantly, from about 30 percent in 2000 to 50 percent in 2008. In estimating cost distortion, we assume that migrant workers should be paid 25 percent less than urban workers given likely differences in human capital.

The total distortion is a product of number of migrant workers multiplied by the pay gap. The distortion increased, partly because rapid rise in number of migrant workers, from 88 million in 2000 to 140 million in 2008. As a result, labor cost distortion rose from 6 billion yuan (or 0.1 percent of GDP) in 2000 to 1130 billion yuan (or 3.6 percent of GDP) in 2008. In 2008, it surpassed capital to become the largest cost distortion item.

Clearly, these probably still under-estimate the actual labor cost distortion. At least they ignore the under-developed social welfare systems. But they may also be biased in the opposite direction. If migrant workers' wages are depressed, it would increase demand for labor and therefore create more jobs. Whether or not farmers' income would increase or decrease as a result depends on labor demand elasticity with respect to wages. Our simple exercise does not assume change in labor demand behavior following changes in labor compensation.

Capital Market

Capital cost distortions show in at least two forms, one distorted interest rates and the other distorted exchange rates. Instead of calculating cost distortions in these two forms, we compute aggregate cost of distortion due to financial repression. China still shows typical symptoms of a financially repressed economy: regulated interest rates, controlled exchange rates, managed credit allocation and dominance of both state-owned commercial banks and state-owned enterprises.

Following Caprio et al (1996), Huang (2010) assumed that financial repression depressed cost of capital by an average of 2 percentage points in 2008. In order to calculate variations of capital cost distortion, we borrow the Financial Repression Index from Wang (2010). By setting the index at 100 in 2008 and rebase it to 2 percentage points, we can then obtain the percentage point distortions for other years covered in this study. The highest distortion was 3 percentage points which occurred in 2000. And the distortions then declined gradually.

The total cost distortions were calculated by multiplying the total bank deposits by cost distortions. The total amount of distortions increased steadily, mainly because total bank deposits grew rapidly during that period. One potential criticism is lack of explicit

estimation of exchange rate distortion. However, calculation of actual cost distortion due to undervalued currency is difficult conceptually unless it directly involves imports or exports. And the financial repression indicators should at least partly reflect cost distortion in terms of both exchange rates and interest rates.

Land Market

In China, there are different ways of setting land transfer fees. The first is essentially by negotiation between potential users and government entities. This method is non-market and is normally applied to industrial activities. The actual fees set are often much lower than potential market rates as the government is inclined to attract investors. The other market forms include bidding and auctioning, which set market rates. The market rates are on average six times higher than the non-market rates.

We try to calculate distortions in non-market land transfers. First we obtain the total areas of land transferred under the non-market approach. Unfortunately we only obtained data from 2003 to 2007. The annual transferred land under the non-market approach fluctuated across years, from the low of 108,000 hectares in 2005 to 162,000 hectares in 2006.

In 2007, the non-market transfer rate was 637,888 yuan per hectare, while the market rate was 3,232,251 yuan per hectare. This gap was somewhat narrower earlier as the market rate was later pushed up by property market boom. Total calculated land cost distortions increased from around 150 million in 2003/04 to 423 million in 2006. Since we do not have enough data to estimate cost distortion for 2000-2002 and 2008-2009, we simply assumed some numbers for these years, take into account the trends during nearby years.

The main problem with land cost distortion estimates was that we do not have market rates for equivalent land uses. Obviously the market rates were substantially boosted due to housing boom. Such rates may not be applicable to industrial land. Also, here we only calculated cost differences for land transferred. A better approach would be to look at the actual rental costs paid by industrial firms, compared with potential market rate.

Energy Market

Oil, coal, natural gas and electricity constitute the majority energy use in China. China is the largest producer and consumer of coal. But coal prices are more or less liberalized. Our calculation here focuses on oil products, by looking at the equivalent price gaps for domestic and international oil prices and total oil consumption in China. There is little difference in the prices of crude oil produced in China or abroad. The price differences are mainly in finished goods.

The price gaps also fluctuate from year to year. The government already adopted a mechanism which links domestic oil prices to international prices, with some time lags. Therefore, there would normally be no significant cost distortions. But when international prices rose sharply, the government is reluctant to let domestic prices to follow for fear of disruptive effects on consumption and production. This happened in years after 2005.

We choose NY harbor petrol price as the benchmark for international petrol prices. China's petrol prices are published by National Development and Reform Commission. Then we take the oil consumption into account to calculate the energy market distortion. It turned out that the calculated distortions were small negative numbers for the years 2000-2003, which means effective taxes. We think these probably reflect more data noises

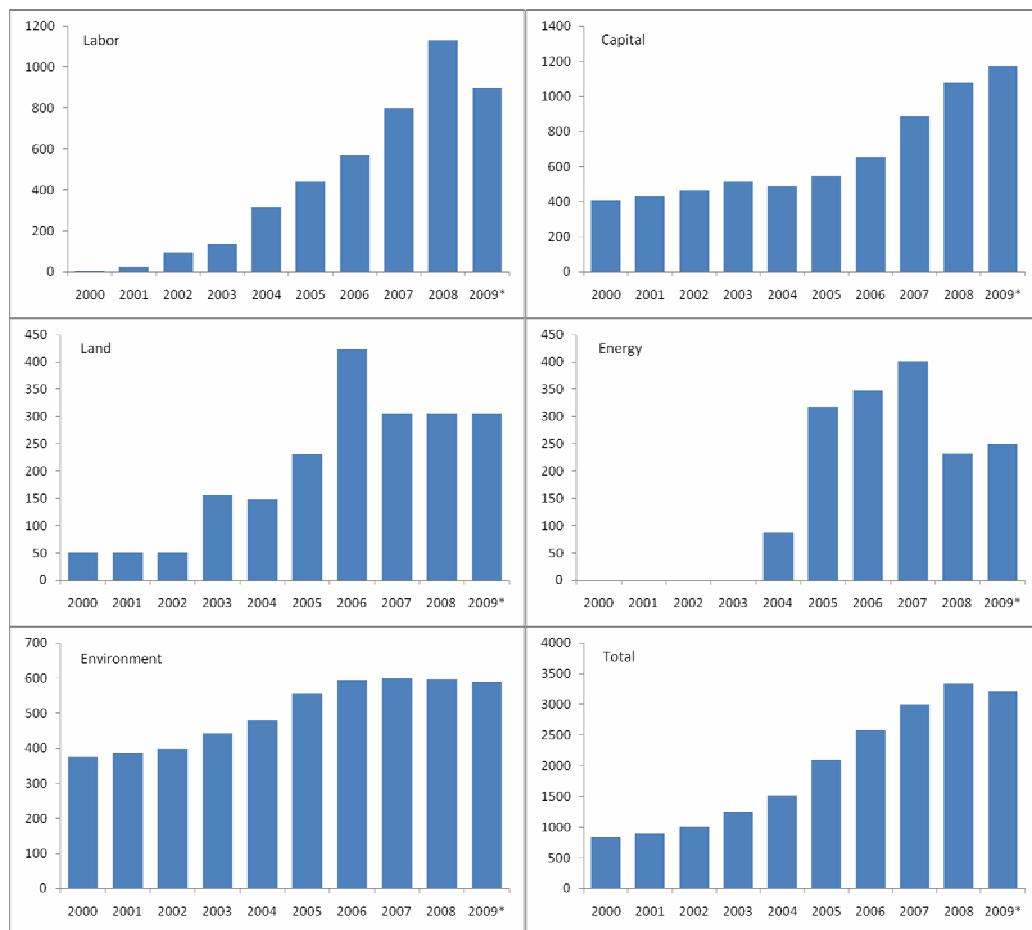
rather than actual taxes and therefore set the numbers for those years to zero. Energy cost distortions reached their peak in 2007 at 400 million yuan.

The Environment

Distortions in environmental costs mainly reflect polluters under compensation for their emissions. Following Huang (2010), we adopt the government estimate of environmental costs of 3 percent of GDP in 2004. We then look at changes in emissions of SO₂ and COD discharge, which are categorized by the State Environmental Protection Administration.

The aggregate emissions show peaking in 2005 and 2006. We then use these physical emission indices to calculate the likely cleaning costs, benchmarking them at 3 percent of GDP in 2004 and applying a 5 percent inflation rate to obtain the nominal value of cost distortions. The total costs stagnated in 2006-2009 but their shares of GDP declined steadily from 3 percent in 2005 to 1.9 percent in 2008.

Chart A. Estimated Cost Distortions, 2000-2009 (Billion Yuan)



Source: Authors' estimation.

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