THE GEOGRAPHY OF CHINA'S CURRENT ACCOUNT SURPLUSES: A DESCRIPTIVE NOTE

Robert Dekle
Department of Economics
University of Southern California
Los Angeles, CA U.S.A.

Huayu Sun
Department of Economics
University of International Business and Economics
Beijing, China

October 2009

I. Introduction.

In 2007, China's current account surplus was 2.3 trillion yuan or $340 billion dollars. In this paper, we use Chinese provincial data, to decompose China's current account balances into those accounted for by each of China's 31 provinces. We show that just one province, Guangdong, accounted for 23 percent of China's current account surplus in 2007. Other provinces with large current account surpluses in 2007 were Jiangsu, Zhejiang, Anhui, and Shandong. These four provinces and Guangdong accounted for over 55 percent of China's current account surplus in 2007. With the exception of Anhui, all of the provinces are located in coastal regions, and engage in large amounts of processing trade: importing materials, processing these materials, and then exporting the finished products. Guangdong also has the highest GDP among China's provinces.

At first glance, it may seem obvious that these particular provinces are running large current account or net export surpluses. After all, the coastal provinces are manufacturing most of China's export goods. On further reflection, however, it is difficult to reconcile the large current account surpluses with comparative advantage patterns in trade at the provincial level. College textbooks and standard neoclassical theory (Chakraborty and Dekle, 2009) teach us that the current account is the difference between saving and investment. The current account is positive and net exports are positive if saving exceeds investment. Thus, a province's current account surpluses should be disconnected from a province's trade patterns or of comparative advantage.

We leave the development of a model to reconcile the current account surpluses and trade patterns at the provincial level in China to our next paper. In this note, we will just describe the facts of how China's aggregate current account surplus is distributed among the provinces.

II. Current Account Surpluses at the Provincial Level.

For each province, K, the current account can be broken down into the following components.

$$CAS_K = S_k(H) + S_K(B) + S_K(G) - I_K(R) - I_K(G) - I_K(B).$$

where

$S_K(H)$ is household saving

$S_K(B)$ is business saving

$S_K(G)$ is government saving

$I_K(R)$ is residential investment

$I_K(G)$ is government investment

$I_K(B)$ is business investment

The Data Appendix gives how each component has been constructed from the Chinese Provincial Accounts. In principle, the sum of each component over all of the provinces should add up to the national aggregate in the national income statistics. For example, if the national aggregate of household saving is S(H), then: $\sum_K S_K(H) = S(H)$.

However, in practice, because of statistical discrepancies, the summed provincial components do not add up to the national aggregates. We thus scale each province's component by the ratio of the component's national aggregate to the summed provincial component, to make the provincial data consistent in magnitude with the national aggregates. For example, if the component is household saving, we scale each provinces household saving by: $\frac{S(H)}{\sum_K S_K(H)}$.

Thus formed, we calculate CAS_K as above. Note that since $\sum_K CAS_K = CAS$, the current account surplus of each province can be expressed as a fraction or percentage of the national aggregate. Chart 1 depicts these provincial level current account surpluses (see Table 1 for the number corresponding to a particular province). We can see from Chart that Guangdong province accounts for over 22 percent of China's aggregate current account surplus. The other provinces with large current account surpluses are Jiangsu, Zhejiang, Anhui, and Shandong. Heilongjiang also has a large surplus. Surprisingly, the highly urbanized provinces of Beijing and Shanghai have current account surpluses of nearly zero, despite their relatively high provincial GDPs.

As is well-known, China's current account surpluses have become an international issue only after 2003. In 2003, China's current account surplus was a modest 298 million yuan, but by 2007, China's current account surplus was 2.3 billion yuan. Chart 2 shows how this *increase* in China's current account from 2003 to 2007 has been distributed across the provinces. The pattern is similar to that depicted in Chart 2. Guangdong has contributed overwhelmingly to the increase in the current account in China, accounting for 24 percent of the aggregate increase in the current account between

2003 and 2007. Jiangsu, Zhejiang, Anhui, and Shandong have also contributed modestly to the aggregate current account increase. Interestingly, Shanghai's current account position turned sharply negative between 2003 to 2007, helping *reduce* China's aggregate current account surplus by about 10 percent. That is, during this period, there was a sharp increase in capital flows into Shanghai.

Using the current account accounting identity above, we can decompose the change in each province's current account balance into that accounted for by the change in household saving $\Delta S_K(H)$, by the change in government saving $\Delta S_K(G)$, by the change in the sum of government investment and residential investment $\Delta(I_K(G)+I_K(R))$, and by the surplus in the business sector, the difference between business saving and business investment, $\Delta(S_K(B)-I_K(B))$. The results for the period 2003 to 2007 are depicted in Chart 3.

What is remarkable is that the enormous increase in the current account surplus of Guangdong province between 2003 and 2007 was accounted for almost entirely by the increase in the surplus of business saving over business investment. That is, businesses in this province had dramatic run-ups in profits and retained earnings that were not re-invested, resulting in a sharp increase in the provincial current account surplus. Household saving actually fell, and the increase in government saving was negligible in Guangdong province. Provinces such as Jiangsu, Zhejiang, and Shandong also had large increases in the business surplus, but household saving also rose sharply, contributing to the bump in their current account surpluses. In Shanghai, the business surplus and household saving fell.

II. Provincial Saving-Investment Correlations.

We can use our data on saving and investment at the provincial level to calculate the correlation between saving and investment. Such correlations have been used to infer whether capital markets within countries are integrated. The idea is that if capital is fully mobile within countries, an exogenous increase in saving should not be correlated with an increase in investment, since this increase in saving can be invested elsewhere in the country. For example, Dekle (1996) examined the correlation between saving and investment among Japanese prefectures, and found that their correlation is statistically insignificant, that is, close to zero, thus inferring that capital markets among Japanese prefectures are integrated. Boyreau-Debreu and Wei (2004) examined the correlation between saving and investment, using Chinese provincial data up to the late 1990s. They find that the saving-investment correlation among Chinese provinces is very high, implying the lack of capital market integration within China.

Here we update Boyreau-Debreu and Wei's findings, by examining whether the change in provincial total saving between 2003 and 2004 is correlated with the change in provincial total investment between 2003 and 2004. That is, we plot $\Delta \ln(I_K)$ against $\Delta \ln(S_K)$, to see if provinces that have experienced large percentage increases in total saving have also experienced large percentage increases in total investment. The results are plotted in Chart 4. Indeed, the changes in provincial total saving and in provincial total investment are very highly correlated, suggesting that even today, capital markets within China are far from integrated.

III. Conclusion.

In this paper, we uncovered two facts. First, that China's current surplus is highly concentrated among the coastal provinces. Second, that China's internal capital markets are far from integrated. Clearly, these two facts are interrelated. Perhaps, the story goes like this. After China entered the WTO, China's trade expanded, and the businesses in China's coastal areas experienced an enormous growth in profits. Because of the lack of integration in domestic capital markets, these profits could not be invested domestically, and had to be invested internationally, thus expanding China's aggregate current account. We leave the development of an explicit model to connect these two facts to our next paper.

Data Appendix.

All variables are constructed using the Provincial Statistical Yearbooks and other statistical sources described below.

S(H): Household Saving by Province. Disposable Income - Household Consumption (from Final Consumption Expenditure and Its Composition by Province).

S(G): Government Saving by Province. General budget revenue（from Government Revenue by Province）+ Extra-budgetary revenue by Province (from Extra-budgetary revenue by Province) – General budget expenditure (from Government Expenditure by Province) - Extra-budgetary expenditure by Province (from Extra-budgetary expenditure by Province). Note Extra-budgetary revenue and expenditure Extra-budgetary fund refers to financial fund of various types not covered by the regular government budgetary management, which is collected, allocated or arranged by government agencies, institutions and social organizations while performing duties delegated to them or on behalf of the government in accordance with laws, rules and regulations. It mainly covers following items: administrative and institutional fees, funds and extra charges that are stipulated by laws and regulations; administrative and institutional fees approved by the State Council and provincial governments and their financial and planning (price management) departments; funds and extra charges established by the State Council and the Ministry of Finance; funds turned over to competent departments by their subordinate institutions; self-raised and collected funds by township governments for their own expenditure; and other financial funds that are not covered in budgetary management.

S(B): Business Saving by Province. Net outflow of goods and services (from Gross Regional Product by Expenditure Approach) - Household Savings by Province - Government savings by Province +Gross capital formation (from Gross Regional Product by Expenditure Approach)
Note: from NX =S(H)+S(B)+S(G)-I(H+B+G)
Where NX= Net outflow of goods and services
S(H)= Household Savings
S(B)= Business savings
S(G)= Government savings
I(H+B+G)= Gross capital formation
We have S(B)=NX- S(H)-S(G)+I(H+B+G)

I(H): Household Investment by Province. Total (from Total Investment in Residential Buildings in the Whole Country by Province) + Investment in Fixed Assets by Individuals Economy (from Total Investment in Fixed Assets in the Whole Country by Ownership and Province).

I(G): Government Investment by Province. State Budget (from Sources of Funds of Total Investment in Fixed Assets in the Whole Country by Province).

I(B): Business Investment by Province. Gross Capital Formation (From Gross Domestic Product by Expenditure Approach by Province) - Household Investment by Province – Government Investment by Province.

References:

Boyreau-Debreu, M. and S. Wei, 2004, “Can China Grow Faster? A Diagnosis of the Fragmentation of the Domestic Capital Market,” IMF Working Paper, WP/04/76.

Chakraborty, S. and R. Dekle, 2009, “Can International Productivity Differences Alon Account for the U.S. Current Account Deficits?”, *Review of International Economics*,17(4)7234-749.

Dekle, R., 1996, “Saving-Investment Associations and Capital Mobility: On the Evidence from Japanese Regional Data,” *Journal of International Economics.*