U.S. Bilateral Trade Deficits with China and Japan: The Role of Japanese Direct Investment

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Abstract: This paper argues that Japanese Foreign Direct Investment (FDI) in China plays a critical role in home and host country's bilateral trade imbalances with the U.S. Using six cross-sectional panel data from 1981 to 2007, we find strong evidence in support of the role of Japanese FDI in mounting U.S.-China trade imbalance and in reducing deficit of U.S. trade with Japan. The results also indicate that the devaluation of Chinese Yuan does not affect its bilateral trade balance with the U.S. and there are mixed evidence in terms of the relationship between the Japanese Yen exchange rate and the U.S.-Japan trade deficit. The implication of these findings is that U.S. trade deficit is a macroeconomic problem which cannot be blamed on the exchange rate alone. Policies to attract and retain Japanese firms in the U.S. will help reduce its trade deficit in the long-run.

Keywords: Japanese Foreign Direct Investment, bilateral trade imbalance, devaluation of exchange rate.

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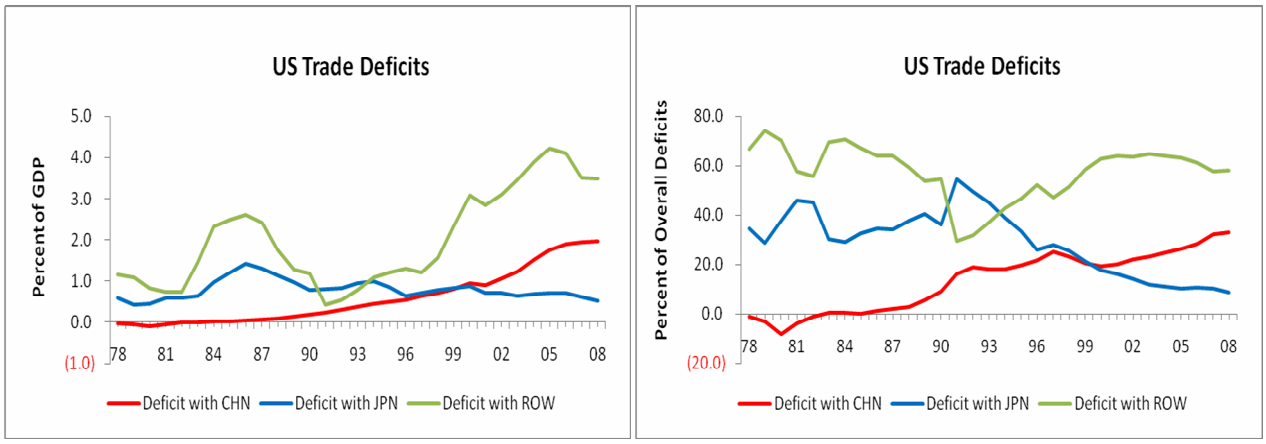
I. Introduction

After its trade liberalization in the late 1970s, China's exports of manufactures have expanded dramatically, leading to growing concern among developed and developing economies. The rapid rise of China's trade surplus with the former and the competition of China's exports with the latter have posed considerable concern on the respective economies. In 2006, China surpassed the U.S. as the world's largest exporter with total exports of manufactures amounting to 404 billion USD. This rapid growth of exports has provided China with an enormous trade surplus with the U.S., reaching 285 billion USD in 2008 (U.S. International Trade Commission). The upsurge of U.S. bilateral trade deficit with China, coupled with its enormous overall trade deficits, has triggered severe trade frictions between the two nations.

Starting from labor-intensive and increasingly shifting to high-tech sectors, the sustained upward trend of U.S. deficit on trade with China is closely akin to its trade relation with Japan since the 1970s. According to UN Comtrade, U.S. deficits on trade with Japan grew from a low level of about one billion USD in 1970 to a record high of over 92 billion USD in 2006, yet representing only about 37 percent of its deficit with China counterpart. Like China today, Japan had been under intense allegation of unfair trade practices and currency manipulation, leading to Voluntary Restraint and Plaza Agreement during the 1980s. However, the climax of U.S.-Japan trade tension has subsided with the U.S.'s attention diverted and policies targeted emerging economies, like China. This is not surprising given the enormous amount and rapid growth of U.S. trade imbalance with China relative to that with Japan. In fact, the share of U.S.-Japan trade deficit has shrunk steadily while that with China has been on the rapid rise (Figure 1).

Figure 1: U.S. Trade Deficits as the Percentage of GDP and Overall Deficits



Sources: UN Comtrade, WDI, and U.S. International Trade Commission.
Note: ROW stands for the rest of the world besides Japan and China.

The U.S.'s obsession in solving bilateral trade deficits with a specific partner has taken it far afield from the fundamental problems of overall trade deficits and underlying macroeconomic conditions at home. A simple macroeconomic theory suggests that if the total domestic production of goods and services in a country falls short of domestic spending, there is a demand for imports, thereby causing trade imbalances. That is, overall trade deficit is essentially a macroeconomic issue and cannot be resolved with trade policies. That is to say trade policies targeting particular industry or trading partner may only work to affect the composition of trade but not the aggregate balance. Thus, the U.S.'s trade policies intended to curb Japanese imports can only substitute away Japanese goods for goods from other foreign suppliers such as China, while leaving overall level of trade deficits unchanged.

However, at the country level, a question naturally arises as to why U.S. consumers seem to have shifted a bulk of their import demand from Japan to China, causing such a massive bilateral trade imbalance. There have been several empirical studies into the root causes of the U.S. trade deficit with China. Xu (2008) attributes the U.S.-China trade imbalance to the so-called China's

undervalued currency, which allegedly makes China's exports artificially cheap in the international markets. This has given rise to intense pressures from the U.S. on China to revalue its currency. Klitgaard and Schiele (1997) identify high trade barriers, low labor costs, and illegal subsidies on the part of China as the factors causing the trade imbalance. On the other hand, Burke (2000) argues that the surge in the level of U.S. direct investment in China has substituted for U.S. exports to China while boosting China's exports to the U.S., thereby deteriorating U.S. trade deficit. However, in the study of intra industry trade, Xing (2007) found no evidence in support of the significant relationship between U.S. direct investment in China and the growth of intra-industry trade between the U.S. and China.

In essence, earlier studies examine U.S. trade deficit with China per se without taking into account the possible substitution for U.S.-Japan trade imbalance, which may suggest other underlying factors at work. Indeed, it can be argued that the desire of Japanese firms to meet the U.S.'s import demand is so strong that the U.S.'s protectionist trade policies intended to reduce Japanese imports to some extent have induced Japanese firms to relocate their production facilities to China and export their products to the U.S. This is not at all contentious given the extensive acknowledgment of the export-oriented nature of Japanese FDI in the empirical studies, and the rapid accumulation of Japanese FDI in China for the last two decades. Following this line of argument, this paper is the first to ascribe the mounting U.S. bilateral trade imbalance with China and decreasing share of its trade deficits with Japan to the influx of Japanese FDI into China.

The paper proceeds as follows: Section 2 provides an overview of the U.S.'s bilateral trade deficits with China and Japan and examines the natures of Japanese FDI in China. In the third section, we present econometric models to test the effects of Japanese direct investment on host and home

country's bilateral trade imbalances with the U.S. Finally, the empirical evidence and policy implications are laid out in Section 4 and 5, respectively.

II. Overview of U.S. Bilateral Trade Deficit and Japanese FDI in China

Although the gap of U.S. trade deficits has slightly narrowed as the severe recession since late 2007 has reduced demand for imports, the concern of the deficits is far from over given the enormous amount accumulated for the last three decades. In 1960, the U.S. was the world's leading exporter with trade surplus of over three billion USD (U.S. Census Bureau). However, since the 1970s it has experienced a deteriorating balance of trade and a dynamic shift in the composition of trade with its trading partners, China and Japan. Particularly, between 1978 and 2008, its overall trade deficit in goods has rapidly soared from approximately 40 billion USD to over 860 billion USD, about six percent of its GDP. This is a striking over twenty-fold increase in three decades.

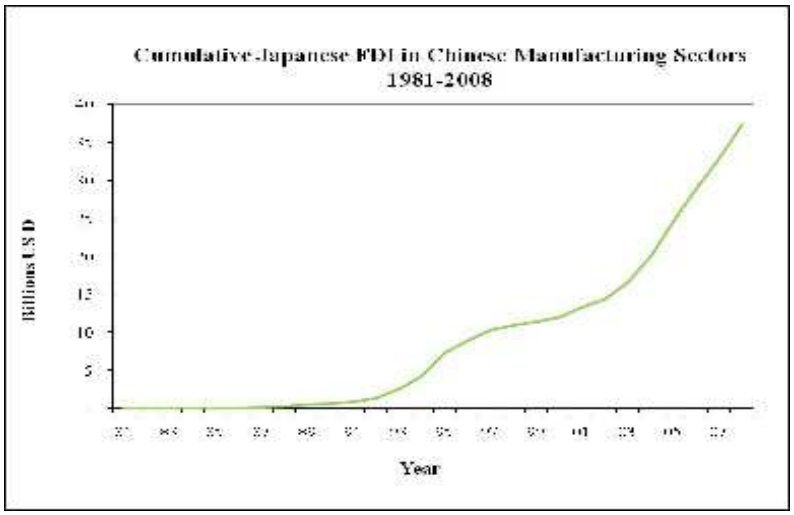
Historically, the U.S. and Japan were major trading partners and their bilateral trade has been for the most part characterized by the imbalanced trade in favor of Japan. In 1981, the amount of their trade deficit in goods accounted for almost half of U.S. overall trade deficits, leading to serious trade tensions between the two nations. However, from 1990, the amount of U.S. trade imbalance with Japan has only expanded slowly while the share has rapidly declined, accounting for less than 10 percent by the end of 2008 (Figure 1). This is largely the result of increasing trade restrictions on the part of the U.S. and partly of their greater trade integration with other Asian countries and their neighbors.

For a while after China embarked on far-reaching economic reforms in the late 1970s, the U.S. enjoyed a modest trade surplus with China. However, in less than a decade, China has emerged as

one of the fastest export-led growth economy, with annual export growth averaging 13 percent since 1979 (World Development Indicators). At the end of the 1980s, U.S. exports to China began to lag behind its imports, leading to rapid surge of its bilateral trade deficits with China in the following decades. By 2008, U.S. trade deficit in goods with China has reached a record high of 285 billion USD, representing over 30 percent of its total trade deficits. It is noteworthy that China's rapid trade expansion can be attributed to its role as the final assembly platform for other Asian countries' exports to the West. Japan, in particular, has been one of the nations actively involved in such practices partly due to the discriminatory trade practices Japanese exporters face in the U.S. market.

The fact that Japan has used China as the assembly and production platform so as to serve the U.S. market has been made possible through the establishment of a network of subsidiaries in China. Japanese multinational enterprises (MNEs) seek to take advantages of the low production costs in China, coupled with their superior technology, brand name recognition and global distribution network, to increase their global competitiveness (Xing, 2006). That is the nature of Japanese FDI is to exploit comparative advantages in developing countries to enhance its export competitiveness (Kojima, 1978). Since the late 1980s, Japan has been one of the major sources of foreign direct investment in manufacturing sectors in China. Japanese direct investment in China has increased from almost zero in 1981 to over 40 billion USD in 2008 (Figure 2). The motives of Japanese FDI in China have important implications for the home and host country's international trade with a major trading partner such as the U.S.

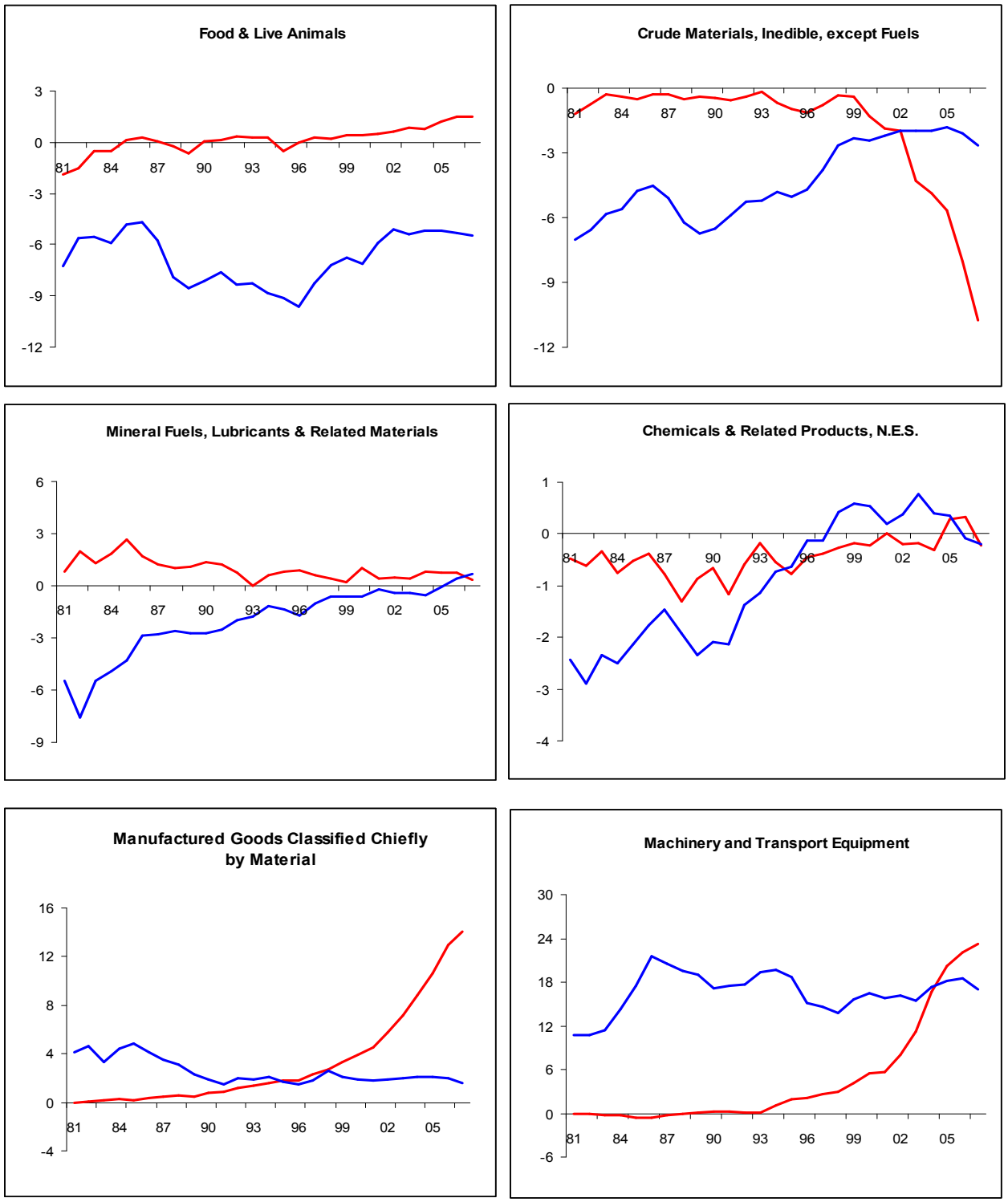
Figure 2: Cumulative Japanese FDI in Chinese Manufacturing Sectors



Sources: Ministry of Finance, Japan.

The aggregate data may not disclose the whole story. While the U.S. ran overall trade deficits with both Japan and China, it actually had trade surpluses with both partners in some sectors. The bilateral trade imbalance between the U.S. and Japan was in the U.S's favor in such sectors as Food and Live Animals combined with Beverage and Tobacco (SITC 0 & 1); Crude Materials, Inedible, Except Fuels (SITC 2); Mineral Fuels, Lubricants and Related Materials (SITC 3); and for most periods Chemicals and Related Products (SITC 5). On the other hand, U.S. trade surpluses with China were prominent in Crude Materials, Inedible, Except Fuels and to some extent in Chemicals and Related Products. These sectors are more of the primary products and the size of the surpluses was quite modest, with the rapid soar of U.S. trade surplus with China in Crude Materials, Inedible, Except Fuels, reaching approximately 18 billion USD in 2008 (Figure 3).

Figure 3: U.S. Sectoral Trade Deficits as the Percentage of Sectoral GDP



Sources: UN Comtrade, U.S. International Trade Commission, Bureau of Economic Analysis, and Ministry of Finance, Japan.
Note: Positive figures represent trade deficits, while negative figures indicate trade surpluses.

SITC 6, corresponding to Manufactured Goods Classified Chiefly by Materials, and SITC 7, representing Machinery and Transportation Equipment, are the two sectors that the U.S. consistently ran a substantial amount of trade deficits with the two nations. The most outstanding in terms of size and growth of U.S. bilateral trade deficit is SITC 7. The deficit with China in this sector alone accounted for almost 45 percent of their bilateral trade imbalance in 2008. This reflects the fact that the most drastic increases in exports from China to the U.S in the past decade have been in high-tech sectors, such as office machinery and electrical equipment. Between 2000 and 2008, China's exports of Machinery and Transportation Equipment to the U.S. surged by 326 percent. The growth rate in this sector has been so rapid that in 2008 its export value alone (156 billion USD) was twice as large as total U.S. exports to China.

It is overwhelming in the case of Japan, in which for many periods their bilateral trade deficit in SITC 7 has exceeded their overall bilateral trade imbalance. In 2008, the deficit in this sector was 86 billion USD, which was well in excess of the overall imbalance (77 billion USD). Although the deficit in this sector with Japan has not expanded as fast as that with China, for the last few years, the amount of the deficits with the two countries has been quite comparable.

According to Xing and Wan (2006), China has become the largest receiver of Japanese FDI in Asia. Table 1 below summarizes the cumulative rise of Japanese FDI in China by major manufacturing sectors. The data do not include the reinvestment by existing Japanese affiliated firms. Machinery and Transport Equipment including subcategories such as General Machinery, Electric Machinery, Transportation Equipment and Precision Machinery takes the lead in receiving Japanese FDI followed by Manufactured Goods. In 1992, Japanese firms invested 109 billion Yen in Machinery and Transport Equipment and the amount rose quite rapidly to 2,625

billion Yen in 2008, about 30 folds for a decade and a half. Xing (2007) indicates that among them the investment expansions in Transportation Equipment are Toyota, Honda and Nissan. According to the Quarterly Survey of Overseas Japanese Subsidiaries, in 2002 total exports by all sectors of Japanese firms in China to the third countries was 8.3 billion USD and they grew about 220 percent to 26.5 billion USD in 2008. Among all sectors, exports in Machinery and Transport Equipment were the largest. Electrical Machinery ranked number one accounting for 77 percent and 60 percent of total exports to non-Japanese markets in 2002 and 2008, respectively. That was followed by General Machinery and Transport Equipment..

Table 1: Cumulative Japanese Direct Investment in China

SITC	ITEM LIST	Amount in Billion Yen		
		1992	2000	2008
0 & 1	Food and Live Animals	16	100	242
2	Crude Materials, Inedible, except Fuels	35	225	407
3	Mineral Fuels, Lubricants and Related Materials	-	-	44
5	Chemicals and Related Products, N.E.S.	13	106	409
6	Manufactured Goods Classified Chiefly by Material	12	130	489
7	Machinery and Transport Equipment	109	762	2,625

Source: Ministry of Finance, Japan

III. Model Specification and Data

Standard trade equations using the "elasticities" approach has a very long history and has been accepted as part of most policy and empirical study in the field of international economics. Adler (1945), Adler (1946), Chang (1945-46) and Houthakker and Magee (1969) relate demand for exports and imports to a country's income and its relative prices under the assumption of two countries producing products of imperfect substitutes and homogeneity in prices and incomes. To date, the use of real exchange rates instead of relative prices has become more popular especially when the devaluation of bilateral exchange rates has become the blame to cause huge U.S. trade

deficits. Hooper and Marguez (1993) summarize the conceptual relationship between relative prices, real exchange rates, and the terms of trade and suggest that the deviations among those variables vary depending on the shares of nontradables in national outputs. Regardless of the regression methods, these simple export and import demand equations are still used in most of the empirical work to date (see also Bahmani-Oskooee & Ardalani, 2006; Chinn, 2004; Hooper, Johnson & Marguez, 2000). The specifications can be written as follows:

$$\log IM_{ijkt} = \alpha_0 + \alpha_1 \log GDP_{ikt} + \alpha_2 \log REX_{ijt} + v_{ijkt} \quad (1)$$

$$\log EX_{ijkt} = \delta_0 + \delta_1 \log GDP_{jkt} + \delta_2 \log REX_{ijt} + e_{ijkt} \quad (2)$$

where *IM, EX, GDP* and *REX* represent real imports, exports, gross domestic products, and real exchange rate, respectively. Subscripts stand for country *i*, trading partner *j*, sector *k* and time *t*.

α_1 and δ_1 are income elasticities; and α_2 and δ_2 are price elasticities. With an implicit assumption that there is no income elasticity gap between export and import equations (i.e. the income elasticities of both imports and exports are symmetric $(\alpha_1 = \delta_1)$)[1], subtracting exports from imports yields:

$$\log\left(IM_{ijkt} / EX_{ijkt}\right) = \left(\alpha_0 - \delta_0\right) + \alpha_1 \log\left(GDP_{ikt} / GDP_{jkt}\right) + \left(\alpha_2 - \delta_2\right) \log REX_{ijt} + \left(v_{ijkt} + e_{ijkt}\right) \quad (3)$$

To test our hypotheses, equation (3) is augmented with the variable of interest, the Japanese FDI to China and a deterministic time trend dummy to capture the momentum of the deficits. The model is estimated for each U.S. trading partners, China and Japan, separately. For simplicity, the

[1] This could be a strong assumption given the evidence found by Houthakker and Magee (1969) and Chinn (2004). However, at the commodity level as well as on the bilateral basis, Bahmani-Oskooee and Ardalani (2006) and Bahmani-Oskooee and Wang (2007) find mixed results.

notations are abbreviated and the model is specified as follows:

$$TD_{ujkt} = \lambda_0 + \lambda_1 RGDP_{ujkt} + \lambda_2 REX_{ujt} + \lambda_3 JDI_{jckt} + \lambda_4 TREND + \upsilon_{ujkt} \quad (4)$$

$$TD_{uckt} = \beta_0 + \beta_1 RGDP_{uckt} + \beta_2 REX_{uct} + \beta_3 JDI_{jckt} + \beta_4 TREND + u_{uckt} \quad (5)$$

where now the subscripts, *u*, *c* and *j*, stand for the U.S., China and Japan, respectively. The dependent variable (*TD*) is the U.S. bilateral trade deficit. The explanatory variables consist of the relative GDP of the U.S. to that of its partner (*RGDP*), the bilateral exchange rate (*REX*) and Japanese FDI to China (*JDI*). All these variables are in real terms and natural logarithmic forms.

It is postulated that the increase in income of an importing economy relative to that of its trading partner would raise the imports relatively more than its exports, hence deteriorating the trade deficit. Therefore, the coefficients (λ_1 and β_1) are expected to be positive. The coefficients (λ_2 and β_2) are also expected to be significantly positive because if Marshall-Lerner condition holds, the appreciation of U.S. dollar makes its U.S. goods relatively more expensive; in other words, the depreciation of the trading partner's currency makes U.S. imports relatively cheaper, worsening U.S. bilateral trade deficit.

JDI is the variable of interest. It is the real stocks of Japanese FDI in China because of the fact that the stock rather than flow variable that is deemed to be the engine for export growth. While Japanese FDI to China is hypothesized to reduce the trade imbalance between the U.S. and Japan, it is expected to raise U.S. trade deficit with China. Hence, the coefficient (λ_3) is expected to carry a negative sign while β_3 would be significantly positive.

The estimation is based on panel data covering six sectors from 1981 to 2007. The model is

estimated using the fixed-effects (FE) and random-effects (RE) regression methods with White cross-section standard errors to correct for heteroskedasticity in the error term. Using panel data constitute an advantage of controlling for unobserved cross-section specifics. The descriptive statistics of all variables are presented in Table 2.

Table 2: Descriptive Statistics

Variables	Description	Obs	Mean	Std. Dev	Min	Max
		U.S.-Japan Equation				
TD	Log of relative imports to exports	162	-0.903	1.997	-5.028	2.382
RGDP	Log of relative U.S. GDP to Japanese GDP	162	0.491	0.393	-0.521	1.365
REER	Log of Real effective exchange rates	162	4.383	0.171	4.055	4.708
REX	Log of Real exchange rate	162	4.803	0.191	4.437	5.153
JDI	Log of Real Japanese direct investment	125	19.688	2.222	14.377	23.728
		U.S.-China Equation				
TD	Log of relative imports to exports	162	0.497	1.811	-2.987	6.851
RGDP	Log of relative U.S. GDP to Chinese GDP	162	2.435	0.501	1.503	3.308
REER	Log of Real effective exchange rates	162	4.766	0.342	4.331	5.547
REX	Log of Real exchange rate	162	1.973	0.226	1.338	2.248
JDI	Log of Real Japanese direct investment	125	19.688	2.222	14.377	23.728

U.S bilateral trade flows by sectors with Japan and China are the combined data from the UN Comtrade database and the U.S. International Trade Commission. Both imports and exports are deflated with the U.S. consumer price index (CPI 2000), extracted from World Bank's World Development Indicator (WDI). The Japanese GDP by sector is obtained from the Cabinet Office and the U.S. GDP by sector is obtained from the Bureau of Economic Analysis. Both variables are deflated by the CPI of respective countries. Real GDP of the U.S. and that of China are downloaded from WDI[2]. The unit labor cost (ULC) deflated real effective exchange rate is

[2] Because the sectoral GDP data for China are not available, the aggregate data are used instead which means that the

obtained from International Financial Statistics (IFS) as well as the real exchange rates are calculated based on IFS. The Japanese direct investment in China is downloaded from the Ministry of Finance, Japan and deflated by the Japanese CPI with 2000 as the base year.

IV. Empirical Evidence

Equation (4) is estimated and the results from fixed and random-effects are presented in Table 3. Since the hot policy debates on the currency devaluation being the cause of U.S. trade deficits have been overwhelm, we alternatively include two measures of exchange rate, unit labor cost (ULC) deflated real effective exchange rate and consumer price index (CPI) deflated real exchange rate. Due to missing observations of the Japanese FDI in China, especially those of MINERAL FUELS, LUBRICANTS AND RELATED MATERIALS (SITC 3), the panel is not completely balanced; therefore, only 125 observations are included.

Regardless of the estimation methods, the results show that the estimates of the relative GDP have the expected significant sign at a one percent level, indicating that the increase in the relative GDP of the U.S. to that of Japan intensifies the trade imbalance between the two countries, *ceteris paribus*. That also suggests that the higher income of the U.S. results in higher demand for goods imported from Japan. According to the estimated coefficients obtained in Table 3, the difference in U.S. GDP growth from Japan contributes to a roughly one to one rise in its bilateral trade deficit.

On the other hand, the results provide a mixed, contrasting evidence for the exchange rate. When ULC deflated real effective exchange rate is used, we find a positive relationship between real

relative GDPs over time are the same for all sectors.

exchange rate devaluation and the deteriorating trade imbalance. Nonetheless, when the real exchange rate is used, the coefficient turns out to be negative. They are both significant at a one percent level. Though, the sign is not consistent with the prediction, using bilateral real exchange rate may sufficiently justify our bilateral model.

Table 3: U.S. bilateral trade deficit with Japan and Japanese FDI in China

Dependent Variable:	**U.S. bilateral trade deficit with Japan**			
Explanatory Variables	**Fixed Effects**		**Random Effects**	
Constant			-3.105	6.879
	—	—	(-2.150)**	(3.393)***
RGDP	1.080	1.453	1.079	1.450
	(6.462)***	(7.801)***	(6.468)***	(7.327)***
REER	0.864		0.861	
	(3.224)***	—	(3.322)***	—
REX		-1.300		-1.296
	—	(-4.373)***	—	(-4.474)***
JDI	-0.140	-0.158	-0.140	-0.157
	(-1.842)*	(-2.125)**	(-1.947)*	(-2.280)**
TREND	0.059	0.069	0.059	0.068
	(2.634)***	(3.074)***	(2.789)***	(3.315)***
Adj. R2	0.971	0.973	0.350	0.388
No. of Observations	125	125	125	125

Note: Figures in parenthesis are *t*-statistics. *** denotes significance at 1%, ** at 5%, * at 10%.
Heteroskedasticity is corrected (White cross-section standard errors & covariance).

Our interesting findings are pretty much as we have expected. Regardless of the estimation methods and which exchange rate variables included, the estimate of the Japanese FDI carries a negative sign, thus suggesting that the bilateral trade imbalance between the two countries is negatively affected by the Japanese FDI in China. The coefficients are at least marginally significant at a 10 percent level. The results indicate that a one percent increase in Japanese direct investment in China reduces the U.S. trade deficit with Japan by approximately 0.15 percent.

Because both estimation methods produce very similar results, the Hausman test, used to check the relative efficiency of each estimation method, is deemed to be unnecessary.

Table 4 shows the results of equation (5) which evaluates the impact of Japanese FDI on U.S. trade deficit with China. Similarly, the coefficient of relative real GDP is positive and significant at a one percent level. The increase in the relative GDP of the U.S. to that of China raises the trade deficit between the two countries. It is worth noting that the magnitude is twice as great as that of relative income in the U.S.-Japan equation, indicating that higher demand for Chinese imports due to higher income could deteriorate the bilateral deficit more than U.S.-Japan deficit.

Table 4: U.S. bilateral trade deficit with China and Japanese FDI in China

Dependent Variable:	**U.S. bilateral trade deficit with China**			
Explanatory Variables	**Fixed Effects**		**Random Effects**	
Constant			-12.043	-12.883
	—	—	(-3.748)***	(-4.671)***
RGDP	2.601	2.591	2.386	2.335
	(3.218)***	(3.020)***	(2.995)***	(2.850)***
REER	0.095		-0.092	
	(0.349)	—	(-0.356)	—
REX		0.185		0.289
	—	(0.496)	—	(0.807)
JDI	0.366	0.344	0.274	0.275
	(5.022)***	(5.298)***	(4.198)***	(4.515)***
TREND	0.128	0.127	0.136	0.130
	(2.279)**	(2.153)**	(2.431)**	(2.274)**
Adj. R2	0.780	0.780	0.353	0.354
No. of Observations	125	125	125	125

Note: Figures in parenthesis are *t*-statistics. *** denotes significance at 1%, ** at 5%, * at 10%.
Heteroskedasticity is corrected (White cross-section standard errors & covariance).

The findings do not appear to be in line with Xu (2008) who calls for the revaluation of Yuan to ease the imbalances between the two nations. The results indicate that the coefficients of

exchange rate, no matter which measure of exchange rate is used, in both methods are small and are not statistically significant. That is, the depreciation of Chinese Yuan does not seem to be one of the factors affecting the enormous amount of U.S.-China trade imbalance. However, the findings support other studies (Goldberg & Dillon, 2007) in which it is unlikely that the depreciation of dollar alone will close the trade gap because the price of foreign imports for U.S. consumers will be considerably more resilient to exchange rate movement.

Importantly regardless of estimation methods, the findings in Table 4 provide evidence to support our argument that Japanese FDI in China plays significant role in mounting U.S. bilateral trade deficit with China. The coefficients of Japanese FDI, no matter which exchange rate variable is employed, are positive as expected and significant at a one percent level though they are larger in the fixed effects method. Overall, a one percent rise in FDI of Japanese firms in China increases the ratio between U.S. imports from and exports to China by roughly 0.30 percent. Compared with the estimates of the effect of Japanese FDI on U.S.-Japan trade deficit, the effect on U.S.-China trade is twice as large as that on U.S.-Japan trade, indicating that investment of Japanese firms in China is partly substituting for its exports to the U.S. market so as to meet higher demand growth.

V. Conclusion

The paper postulates that Japanese direct investment in China has played an important role in the U.S.'s bilateral trade imbalances with Japan and China. More specifically, the relocation of Japanese firms to China has reduced the share of U.S. trade deficit with Japan while widening the gap of its trade imbalance with China. Using cross-sectoral data from 1981 to 2007, we estimate the trade imbalance models for each U.S. trading partner, China and Japan. The results support our

argument, suggesting the tradeoff between the deficits of U.S. trade with Japan and that with China. Particularly, a one percent increase of Japanese FDI in China lowers the ratio of imports to exports between the U.S. and Japan by about 0.15 percent while raising that with China by approximately 0.30 percent, twice as much as the corresponding reduction.

We find evidence that the relative growth of U.S. income to its trading partner has significant impact on its mounting trade imbalance. Moreover, while the empirical results provide inconclusive evidence to support to the effect of real exchange rate on U.S-Japan trade imbalance, the effect of bilateral exchange rate between the U.S. and China is found to be insignificantly small, hence no relationship with deteriorating U.S.-China trade deficit. The findings reject the hypothesis that the revaluation of Chinese Yuan would turn around the U.S. bilateral trade deficit with China.

The findings have important policy implications for U.S. trade deficits in general and with China in particular. The fact that the accumulation of Japanese FDI in China has been associated with the rapid growth of U.S. trade deficit with China highlights the potential role of Japanese firms in easing U.S. trade imbalance if there are in place policies conducive to Japanese FDI in the U.S. It is worth noting that the U.S. received a sizable share of Japanese FDI outflows in the 1950s. However, China has gained momentum in attracting FDI from Japan and other countries, including the U.S. itself thanks to its large labor endowment coupled with national policies encouraging FDI inflows to boost exports. It is evident that protectionist trade policies may not work to decrease trade deficits in the long-run but policies to attract and retain U.S. firms and firms from other countries to build production facility in the U.S. will help change macroeconomic fundamentals, thereby reducing trade deficits.

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