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Are Chinese Imports Sensitive to Exchange Rate Changes?

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Abstract

Estimating the price elasticity of China's imports is difficult because many imports are used to produce exports and because the real effective exchange rate has remained fairly stable. To circumvent the first problem, we control for re-exports, and to increase the discriminatory power of the tests, we employ a panel data set including imports from 25 countries. The results indicate that a 10 percent RMB appreciation would increase imports for processing and ordinary imports by three to four percent. As China climbs the value chain, the potential for import substitution and hence the import price elasticity should increase. Thus, a renminbi appreciation should help to raise China's imports and rebalance its economy.

JEL classification: F32, F41
Keywords: Exchange rate elasticities; China

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1. Introduction

The IMF (2011) reports that China is now the first or second largest trading partner for 78 countries, up from 13 countries in 2000. In addition, it is the largest importer of commodities and exporter of capital goods. Many countries complain that the rise of China has been aided by an undervalued exchange rate and has caused dislocation to their export and import-competing sectors. Understanding the relationship between Chinese trade and exchange rates has thus become an issue of particular importance.

A difficulty with estimating trade elasticities for China is that its trade includes two different customs regimes, processing trade and ordinary trade. Imports for processing are intermediate inputs that are imported duty free to produce final goods for re-export. Neither the imported inputs nor the processed final goods can enter China's domestic market. Ordinary trade includes imports and exports that do not receive special tariff treatment and that can enter China's domestic market. One would expect these two categories of trade to respond differently to changes in exchange rates and other variables.

Previous research has indicated that an appreciation of the renminbi would lower China's ordinary exports. Marquez and Schindler (2007), employing an autoregressive distributed lag model and monthly data over the January 1997 – July 2006 period, found that a 10 percent appreciation of the RMB would reduce China's ordinary exports as a share of world exports by 57 to 67 basis points. Ahmed (2009), employing an autoregressive distributed lag model and quarterly data over the 1996Q1 – 2009Q2 period, reported that a 10 percent appreciation of the renminbi relative to non-East Asian

countries would reduce China's non-processed exports by 5 percent and that a 10 percent appreciation in other East Asian countries would reduce China's non-processed exports by 19 percent. Cheung, Chinn, and Fujii (2010), using DOLS techniques with quarterly data over the 1993Q3 – 2006Q2 period and the capital stock to measure Chinese productive capacity, report that a 10 percent appreciation of the RMB would decrease ordinary exports by between 3 and 6 percent.

Evidence on the effects of a renminbi appreciation on processed exports has been mixed. For instance, using the methodologies described above, Marquez and Schindler (2007) found that a 10 percent appreciation of the RMB would reduce China's processed exports as a share of world exports by 24 to 32 basis points while Cheung, Chinn, and Fujii (2010) reported that an appreciation of the RMB is associated with an increase in China's processed exports (i.e., the coefficient has the wrong sign).

One reason for these conflicting results is that the majority of the value added of processed exports comes from imported parts and components rather than from production activities within China. Ahmed (2009), Thorbecke and Smith (2010), Unteroberdoerster, Mohommad, and Vichyanond (2011), Thorbecke (2011), and others have presented evidence indicating that an appreciation throughout East Asian supply chain countries would cause a larger decline in China's processed exports than an appreciation of the renminbi alone.

In theory, an appreciation of the renminbi should also increase domestic purchasing power and thus imports. However, empirical evidence supporting this hypothesis has been intransigent. Cheung, Chinn, and Fujii (2010) and Garcia-Herrero and Koivu find that for both ordinary and processed imports the coefficient on the

exchange rate often takes on the wrong sign. While Marquez and Schindler (2007) did report that that an appreciation of the renminbi would have a small positive effect on ordinary imports, they also found that it had a negative and statistically significant effect on imports for processing.

An explanation for why the coefficient on imports often takes on the wrong sign is that many imports into China are used for re-export. An appreciation of the renminbi that reduces exports will also reduce imports that are used to produce goods for re-export (see Kamada and Takagawa, 2005).

This paper takes a different approach to estimate the price elasticity for China's imports. First, as discussed below, it controls for re-exports when estimating the demand for imports. Second, it employs a panel data set including China's imports from 25 countries. While the renminbi has exhibited stability on a real effective basis for parts of the last 20 years, it has exhibited substantial variation both cross-sectionally and over time relative to the currencies of these 25 countries (see Fig. 1). This approach should thus help to identify in an econometric sense how exchange rate changes affect Chinese imports. Third, this paper extends the sample period to 2008. The import elasticity of demand depends on whether China can produce domestically the goods that it imports. Several authors have argued that China's capacity to produce sophisticated imports domestically increased in the first decade of the 21st century (see Kuijs, 2011, and Knight and Wang, 2011).

The results indicate that the price elasticity of imports is correctly signed and equal to around 0.35. In addition, there is a close link between imports for processing and processed exports. These results complement the findings in Thorbecke and Smith

(2010) for Chinese exports. Those results indicated that a 10 percent appreciation of the renminbi would reduce China's ordinary exports by 11 or 12 percent and a 10 percent appreciation across supply chain countries would reduce China's processed exports by 10 or 11 percent.

Interestingly, the IMF (2011) recently reported the result of a study using detailed data at the Harmonized System (HS) 2002 6-digit level. It found aggregate exchange rate elasticities of around 0.2 for China's imports and of around 1.1 for China's exports. These results using a very different methodology thus resemble the findings reported here and in Thorbecke and Smith (2010).

The next section presents the data and methodology. Section 3 contains the results. Section 4 concludes.

2. Data and Methodology

Fig. 2 disaggregates imports for processing and ordinary imports using HS classifications. Fig. 2a shows that for imports for processing, machinery and electrical products (HS 84-85) have become more and more important while textiles (HS 41-43, 50-63) have become progressively less important. Feenstra and Wei (2010) also reported that machinery and electrical products are by far the most important category of processed exports. Processing trade largely involves importing sophisticated parts and components and using them to produce computers, telecommunications equipment, and other high-tech goods.

Fig. 2b shows that 35 percent of ordinary imports were mineral and wood products and stone and glass (HS 25-27, 44-49, 68-71). 25 percent were machinery

and electrical products (HS 84-85). 15 percent were chemicals and allied industries, plastics and rubbers (HS 28- 40). These data suggest that the lion's share of China's ordinary imports consists of inputs into the production process rather than consumer goods. Gaulier, Lemoine, and Unal (2011) similarly reported that 69 percent of ordinary manufactured imports in 2007 were intermediate goods, 22 percent were capital goods, and only 9 percent were consumption goods.

To explain imports, we begin with the imperfect substitutes model of Goldstein and Khan (1985). This model implies that import functions can be represented as:

$$im_t = \alpha_1 + \alpha_2 rer_t + \alpha_3 rgdp_t + \varepsilon_t , \quad (1)$$

where im_t represents real imports, rer_t represents the real exchange rate, $rgdp_t$ represents domestic real income, and all variables are measured in natural logs.

In the case of China's imports for processing it is necessary to modify equation (1). The IMF (2005) noted that imports for processing should vary one-for-one with processed exports. Imports for processing should thus flow elastically into China in response to an increase in the demand for processed exports in the rest of the world. Processed exports should therefore be included as a right hand side variable to explain imports for processing. Since imports for processing are not intended for the domestic market but only for the assembly of processed exports, our preferred specification below includes processed exports but not Chinese income. We do, however, also present results including Chinese income.

The IMF (2005) also noted that the price elasticity of imports for processing would be small if these goods cannot be produced domestically, resulting in little potential for import substitution. However, Knight and Wang (2011) reported that China's high investment levels in recent years have generated excess capacity in heavy industry. This has enabled firms to substitute foreign sources of intermediate products with domestic sources. Kuijs (2011) also observed that China has developed deeper supply chains in the processing sector and that more of the value-added of processed exports can now be produced in China. The fact that firms have been able to source more intermediate goods from within China in recent years implies that the demand for imports for processing may have become more price elastic.

For ordinary imports, we begin with the specification in equation (1). However, since the lion's share of ordinary imports represent inputs into the production process, some of the ordinary imports are used to produce ordinary exports. Thus we include ordinary exports as a right hand side variable in some of our specifications.

Data on imports for processing and ordinary imports from 25 leading exporting countries are obtained from the China Customs Statistics. These 25 countries are listed in Fig. 1. The data are measured in US dollars.

Following Cheung, Chinn, and Fujii (2010), we use the Hong Kong to China re-export unit value index to deflate Chinese imports. We also use the US producer price index. Data on the Hong Kong re-export index were obtained from the CEIC database and data on the US producer price index were obtained from the US Bureau of Labor Statistics.

We seek to explain China's imports using China's real income, the real exchange rate between China and the exporting country, processed exports in the case of imports for processing, ordinary exports in the case of ordinary imports, a dummy variable to take account of China's WTO accession, and a time trend. Data on real income and the real exchange rate are obtained from the CEPII-CHELEM database. Real income is measured in 2005 dollars. The real exchange rate between China and country *j* is calculated by first dividing nominal GDP for China by GDP in PPP for China and doing the same for country *j*. The resulting ratio for China is then divided by the ratio for country *j*. As Bénassy-Quéré, Fontagné, and Lahrèche-Révil (2001) discussed, this variable measures the units of consumer goods in China needed to buy a unit of consumer goods in country *j*. Higher values of this variable represent a stronger renminbi. Data on processed and ordinary exports are obtained from the China Customs Statistics. Following Cheung, Chinn, and Fujii (2010), they are deflated using the Hong Kong to US re-export unit value index. Following many previous researchers, we also include a dummy variable that equals 1 beginning in 2002 and 0 before 2002 to control for China's WTO accession.

To specify the econometric model a battery of panel unit root tests is first performed on the levels and first differences of the variables.[1] The results, presented in Table 1, indicate in most cases that the variables are integrated of order 1 (I(1)).

Kao residual cointegration tests are then performed for the variables.[2] The results indicate that the null hypothesis of no cointegration can be rejected in every case (see

[1] These tests include the Im, Pesaran, and Shin test, the ADF Fisher Chi-square test, the Phillips-Perron Fisher Chi-squared test, the Levin, Lin, and Chu test, and the Hadiri test. These tests are discussed by Barbieri (2005).
[2] This test is discussed in Kao and Chiang (2000).

Table 2). Panel dynamic ordinary least squares (DOLS) estimation, a technique for estimating cointegrating relations, is thus employed.

DOLS is more robust and less sensitive to small sample size than other estimators. Kao and Chiang (2000) reported that panel DOLS estimators and t-statistics have better small sample properties and provide better approximations to the normal distribution than estimators and t-statistics obtained using panel OLS or panel fully modified OLS methods. Wagner and Hlouskova (2010) reported that DOLS performs better than other estimators with respect to the impact of stable autoregressive roots approaching the unit circle, the effects of an $I(2)$ component, and the presence of cross-sectional correlation and cross-unit cointegration.

DOLS involves regressing the left hand side variable on a constant, the right hand side variables, and lags and leads of the first difference of the right hand side variables. The import equations have the form:

$$\begin{aligned} im_{j,t} &= \beta_0 + \beta_1 rer_{j,t} + \beta_2 rgdp_{C,t} + \beta_3 ex_{C,t} + \beta_4 WTO + \beta_4 TIME \\ &+ \sum_{k=-p}^{p} \alpha_{1,k} \Delta rer_{j,t-k} + \sum_{k=-p}^{p} \alpha_{2,k} \Delta rgdp_{j,t-k} + \sum_{k=-p}^{p} \alpha_{3,k} \Delta ex_{C,t-k} \\ &+ \mu_j + u_{j,t}, \\ & t = 1, \cdots, T; \qquad j = 1, \cdots, N. \end{aligned} \tag{2}$$

Here $im_{j,t}$ represents real imports (either ordinary or for processing) into China from country j, $rer_{j,t}$ represents the bilateral real exchange rate between China and country j, $rgdp_{C,t}$ represents real GDP in China, $ex_{C,t}$ represents real exports (either ordinary or processed) from China to the world, WTO is a dummy variable that takes on a value of 1 beginning in 2002 and 0 before that, $Time$ is a time trend, and μ_j is a

country j fixed effect. The data set extends from 1992 to 2009. Because we use one lead and lag in the DOLS estimation, the actual sample period for the estimation extends from 1994 to 2008.

3. Results

Table 3 presents the results for imports for processing and Table 4 presents the results for ordinary imports. For both Table 3 and Table 4, Panel A contains the results with imports deflated using the Hong Kong unit value index and Panel B contains the results with imports deflated using the producer price index.

In Table 3, our preferred specifications are in columns (5) and (6) of Panels A and B. Column (5) presents results for the real exchange rate, processed exports, and the WTO dummy variable and column (6) presents the results for these three variables plus a time trend. Across the four specifications, the exchange rate is correctly signed and statistically significant at the 1 percent level in every case. The coefficients are all close to 0.35. These results indicate that a 10 percent appreciation of the renminbi would increase imports for processing by 3.5 percent.

The coefficients on processed exports across our four preferred specifications are all correctly signed and statistically significant at the 1 percent level. The coefficient values vary from 0.76 to 0.98. These results indicate that a 10 percent increase in processed exports would increase imports for processing by between 7.6 and 9.8 percent.

The coefficients on the WTO variable and the time trend are not significantly different from zero in columns (5) and (6). The coefficients on the real exchange rate and

processed exports in columns (5) and (6) are also not sensitive to the inclusion of a time trend.

In the other specifications (columns (1) through (4) of Panels A and B) the coefficient on the real exchange rate is statistically significant in every case and not far from 0.35. This provides support for the hypothesis that exchange rates do affect imports for processing in the way that one would expect. The coefficients on real GDP, processed exports, and the time trend vary across specifications. This probably reflects the fact that there is a lot of multicollinearity between these variables.

In Table 4 we do not have a single preferred specification, since both real GDP and exports should influence imports. Because GDP and exports both trend upwards, it is hard to disentangle the individual effects of real GDP, exports, and the time trend when the three variables are included together. It is noteworthy, though, that the time trend is statistically significant in all 6 cases in Table 4 when it is included in the estimation. This contrasts with Table 3, where the time trend is never statistically significant. Evidently, the rapid increase in imports for processing in Table 3 is explained well by processed exports, whereas the rapid increase in ordinary imports in Table 4 is not explained sufficiently by real GDP and ordinary exports.

The coefficient on the real exchange rate, on the other hand, is correctly signed and statistically significant at at least the 5 percent level in 10 of the 12 cases and at the 10 percent level in the other two cases. The coefficients range from 0.29 to 0.94.

When only one of the three upward trending variables (the time trend, real GDP, and ordinary exports) is included in the regression, the coefficient of the real exchange rate averages 0.74. When at least two of the upward trending variables are included, the

coefficient on the real exchange rate averages 0.34. It seems likely that two of these three variables are necessary to account for the upward trend in ordinary imports. Otherwise, the upward trend in the real exchange rate that is evident in Fig. 1 may lead to a spurious correlation with ordinary imports. If this is true, then the exchange rate elasticity for ordinary imports is around 0.35 and not around 0.75.

The important implication of the results presented in the section is that an appreciation of the renminbi would increase Chinese imports. This is true for both ordinary and processed exports. In both cases the evidence indicates that a 10 percent appreciation of the renminbi would increase imports by between 3 and 4 percent.

4. Conclusion

This paper investigates how an appreciation of the renminbi affects China's imports. Obtaining evidence on this question has been difficult. One problem is that many imports into China are used for re-export. An appreciation of the renminbi that reduces exports will also reduce imports that are used to produce goods for re-export. Another problem is that the renminbi has exhibited stability on a real effective basis for parts of the last 20 years. This reduces the discriminatory power of the tests.

To get around the first problem, we control for exports in some specifications. To get around the second problem, we employ a panel data set including China's imports from 25 countries. There has been substantial variation both cross-sectionally and over time between the renminbi and the currencies of these 25 countries.

The results indicate that an appreciation of the renminbi would increase imports. A ten percent appreciation of the renminbi would increase both imports for processing

and ordinary imports by three to four percent. In addition, the evidence indicates that there is a close link between imports for processing and processed exports.

China has invested in heavy industries in recent years. Its supply chains have become deeper and its industrial clusters more involved in higher value added activities. This has increased the potential for import substitution between sophisticated goods produced in China and other supply chain countries. In addition, China's imports of consumption goods are increasing, especially from Europe (see Gaulier, Lemoine, and Unal, 2011). As these trends continue, the price elasticity of China's imports should increase. Thus an appreciation of the renminbi should help to raise China's imports and rebalance its economy. Policy makers should take account of the fact that a stronger currency would benefit consumers and firms by allowing them to purchase more from abroad.

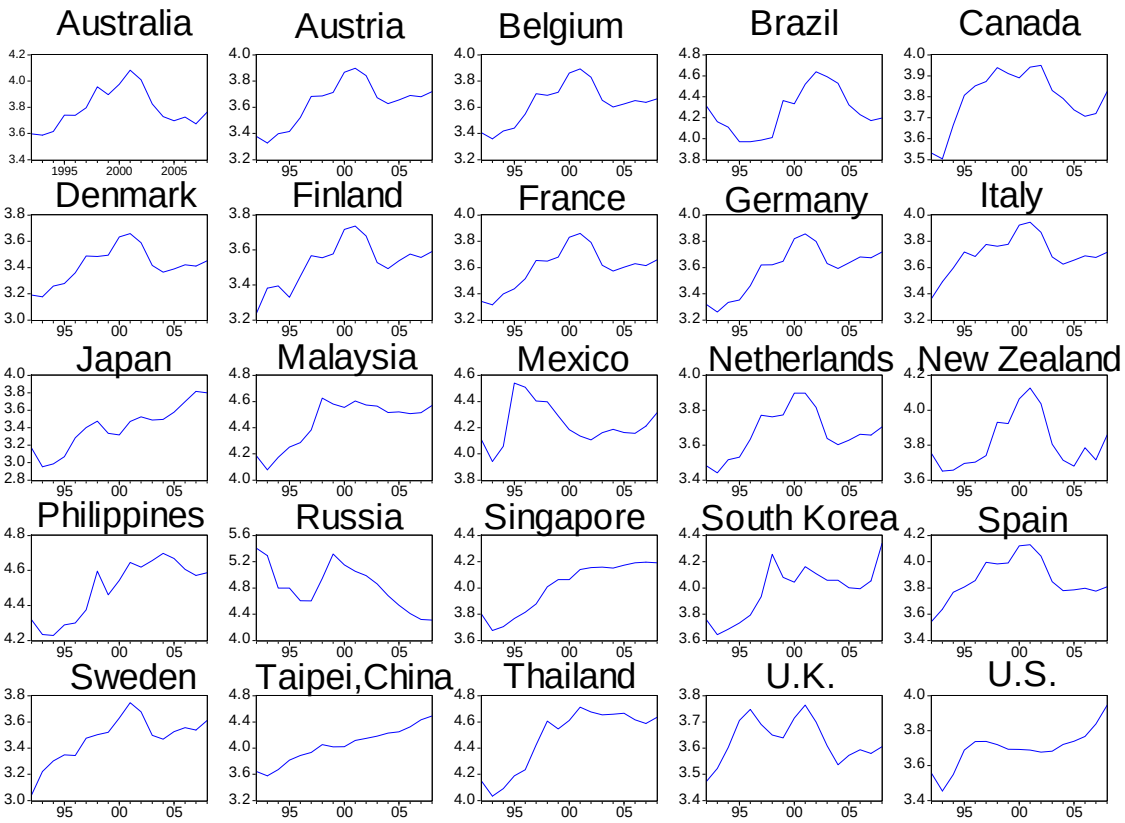

Fig.1. CPI-deflated real exchange rates between China and 25 countries. Source: CEPII-CHELEM Database.

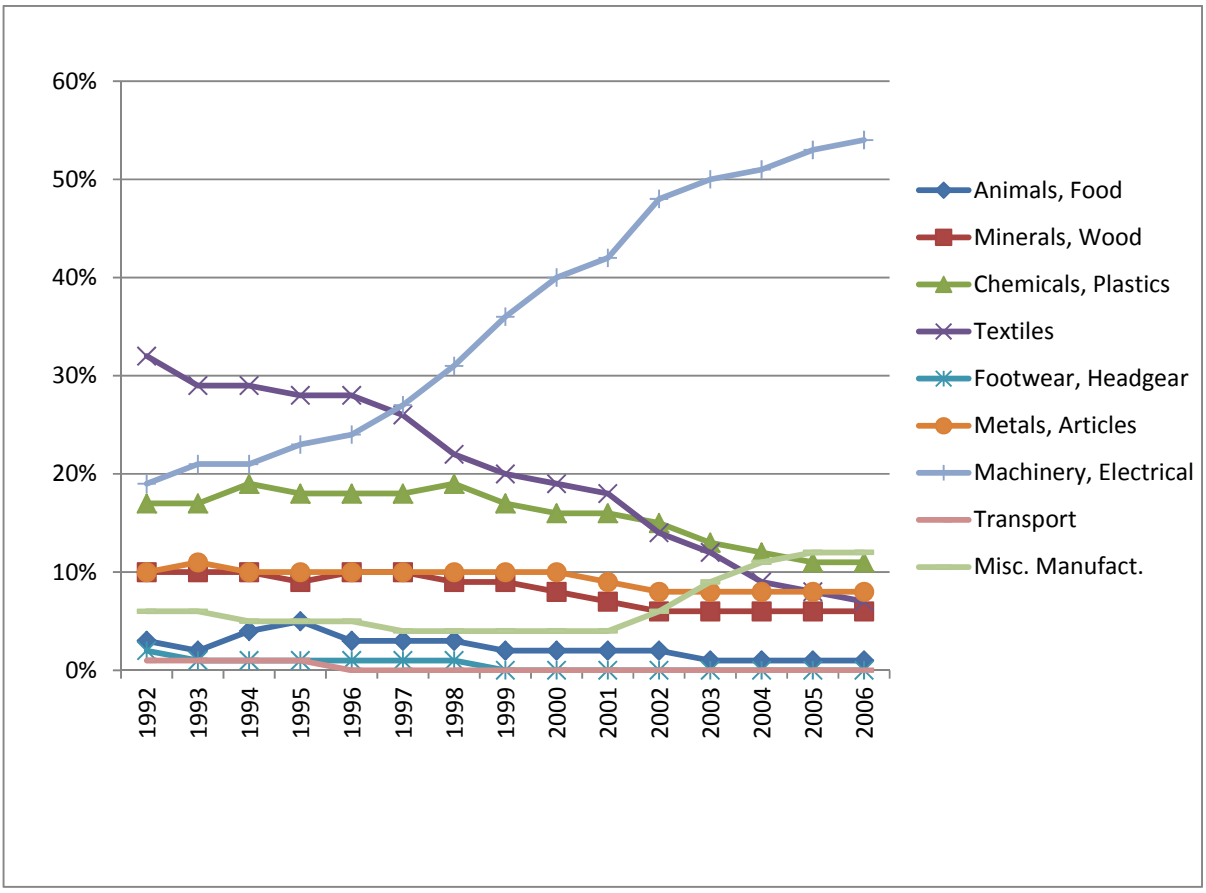

Fig. 2a. Imports for Processing by Industry (Percent of Total Value). Source: Feenstra and Wei (2010).

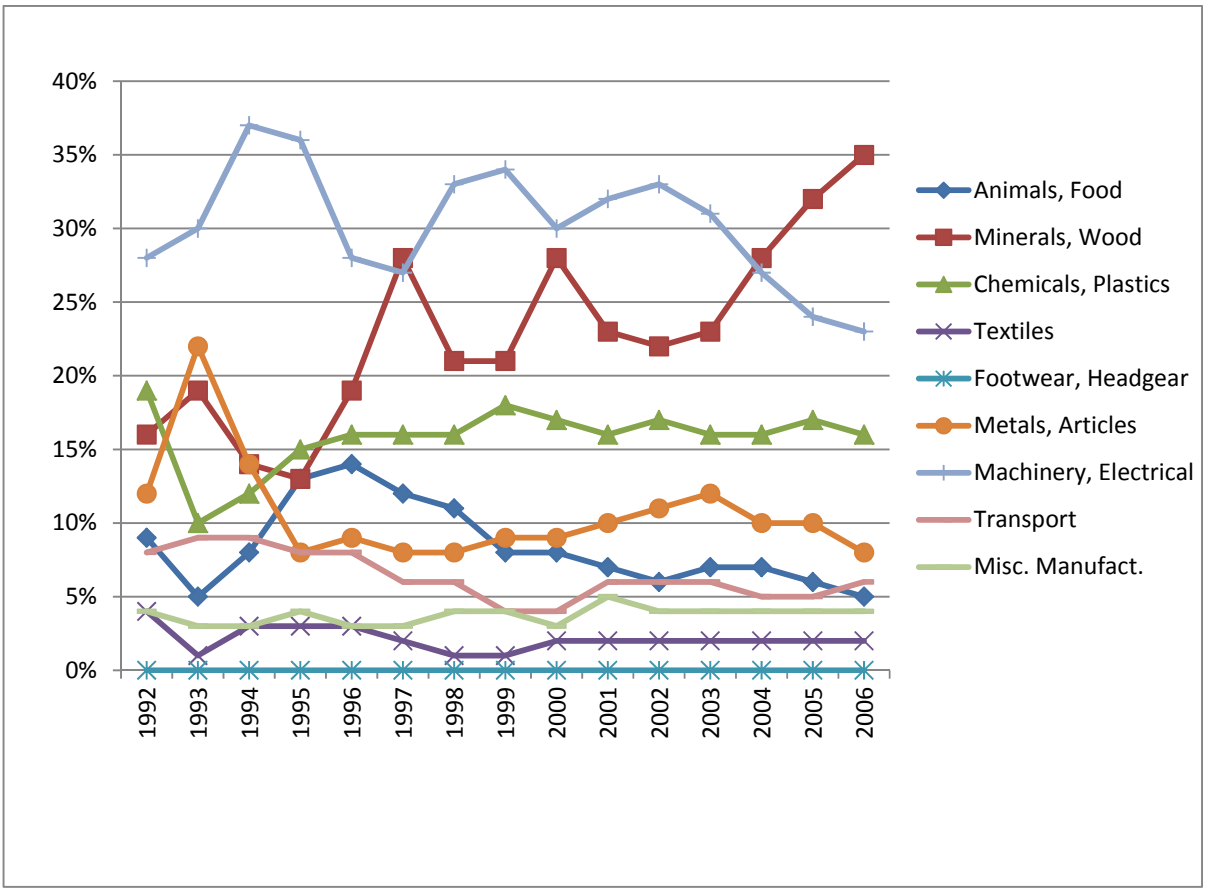

Fig. 2b. Ordinary Imports by Industry (Percent of Total Value). Source: Feenstra and Wei (2010).

Table 1
Results of Unit Root Tests.

Level, trend and intercept included	(1)	(2)	(3)	(4)	(5)
Processed Imports deflated by HK Index	2.40	-2.26**	58.11	-2.74***	7.83***
Processed Imports deflated by US PPI	2.05	-1.80**	68.41**	-1.66**	7.63***
Ordinary Imports deflated by HK Index	-2.03**	-4.27***	77.68***	-7.91***	7.34***
Ordinary Imports deflated by US PPI	-2.39***	-4.07***	71.73**	-7.46***	7.20***
Processed Exports deflated by HK Index	9.11	1.01	12.64	0.40	6.91***
Ordinary Exports deflated by HK Index	0.80	5.99	4.11	1.03	11.3***
Bilateral RER	-2.02**	-0.22	25.25	-2.93***	7.76***
Real GDP	5.84	-3.30***	12.84	-3.98***	9.22***
Level, intercept included	(1)	(2)	(3)	(4)	(5)
Processed Imports deflated by HK Index		2.49	31.57	-3.14***	13.44***
Processed Imports deflated by US PPI		0.02	47.29	-5.01***	12.40***
Ordinary Imports deflated by HK Index		7.48	5.71	2.42	13.67***
Ordinary Imports deflated by US PPI		6.23	9.88	1.53	13.25***
Processed Exports deflated by HK Index		6.27	5.44	-0.37	14.37***
Ordinary Exports deflated by HK Index		12.46	0.28	7.26	13.78***
Bilateral RER		-2.56***	79.14***	-4.35***	4.39***
Real GDP		10.64	2.15	4.48	14.91***
First difference, trend and intercept included	(1)	(2)	(3)	(4)	(5)
Processed Imports deflated by HK Index	-3.65***	-10.72***	217.03***	-14.97***	7.08***
Processed Imports deflated by US PPI	-4.15***	-10.76***	195.66***	-14.57***	6.27***
Ordinary Imports deflated by HK Index	-7.58***	-10.48***	246.41***	-14.06***	20.86***
Ordinary Imports deflated by US PPI	-7.35***	-10.43***	256.52***	-13.49***	21.52***
Processed Exports deflated by HK Index	2.06	0.86	33.30	2.43	5.11***
Ordinary Exports	1.79	-0.67	48.28	1.69	3.48***

deflated by HK Index					
Bilateral RER	-9.52***	-12.32***	206.9***	-16.8***	6.07***
Real GDP	4.75	-0.14	39.10	-3.14***	8.99***
First difference, intercept included	(1)	(2)	(3)	(4)	(5)
Processed Imports deflated by HK Index		-16.00***	275.37***	-19.88***	0.90
Processed Imports deflated by US PPI		-15.49***	258.58***	-19.41***	1.20
Ordinary Imports deflated by HK Index		-12.31***	277.61***	-13.52***	3.67***
Ordinary Imports deflated by US PPI		-12.91***	291.44***	-14.15***	3.70***
Processed Exports deflated by HK Index		-4.38***	88.25***	-1.97**	-2.07
Ordinary Exports deflated by HK Index		2.60	238.1	4.85	3.53***
Bilateral RER		-7.32***	148.83***	-9.21***	1.84**
Real GDP		-4.18***	85.91***	-5.03***	-0.53

(1) Breitung t-statistic (null hypothesis: unit root)

(2) Im, Pesaran, and Shin W-statistic (null hypothesis: unit root)

(3) PP test-Fisher Chi-squared statistic (null hypothesis: unit root)

(4) Levin, Lin, and Chu t-statistic (null hypothesis: unit root)

(5) Hadiri Heteroskedasticity-consistent Z-statistic (null hypothesis: stationarity)

Note: Lag selection is based on the Schwarz Information Criterion

*** (**) denotes significance at the 1 percent (5 percent) level

Table 2
Results of Kao residual cointegration tests.

Specification	t-statistic
Processed Imports deflated by HK Index, Processed exports deflated by HK Index, Bilateral RER	-4.95***
Processed Imports deflated by HK Index, Processed exports deflated by HK Index, Real GDP, Bilateral RER	-5.09***
Processed Imports deflated by HK Index, Real GDP, Bilateral RER	-4.55***
Processed Imports deflated by US PPI, Processed exports deflated by HK Index, Bilateral RER	-4.28***
Processed Imports deflated by US PPI, Processed exports deflated by HK Index, Real GDP, Bilateral RER	-4.54**
Processed Imports deflated by US PPI, Real GDP, Bilateral RER	-3.80***
Ordinary Imports deflated by HK Index, Ordinary exports deflated by HK Index, Bilateral RER	-4.86***
Ordinary Imports deflated by HK Index, Ordinary exports deflated by HK Index, Real GDP, Bilateral RER	-4.33***
Ordinary Imports deflated by HK Index, Real GDP, Bilateral RER	-3.89***
Ordinary Imports deflated by US PPI, Ordinary exports deflated by HK Index, Bilateral RER	-4.08***
Ordinary Imports deflated by US PPI, Ordinary exports deflated by HK Index, Real GDP, Bilateral RER	-3.70***
Ordinary Imports deflated by US PPI, Real GDP, Bilateral RER	-3.37***

Note: The table contains t-statistics from Kao residual cointegration tests of the null hypothesis of no cointegration. Lag selection is based on the Schwarz Information Criterion.
*** denotes significance at the 1 percent level.

Table 3
Panel DOLS Estimates of China's Imports for Processing from 25 Countries over the 1994-2008 Period (Panel A).

	(1)	(2)	(3)	(4)	(5)	(6)
Bilateral RER	0.38***	0.38***	0.35**	0.34***	0.36***	0.33***
	(0.13)	(0.13)	(0.13)	(0.12)	(0.10)	(0.13)
Real GDP	1.32**	0.38	1.75***	1.63		
	(0.62)	(2.33)	(0.08)	(1.57)		
Processed Exports	0.26	0.33			0.98***	0.88***
	(0.40)	(0.40)			(0.06)	(0.21)
WTO Dummy	-0.08	-0.06	0.01	0.01	-0.09	-0.09
	(0.14)	(0.15)	(0.08)	(0.07)	(0.08)	(0.07)
Time		0.07		0.01		0.02
		(0.17)		(0.14)		(0.04)
Adjusted R-squared	0.95	0.95	0.95	0.95	0.95	0.95
No. of Observations	375	375	375	375	375	375

Notes: DOLS(1,1) estimates. Heteroskedasticity-consistent standard errors are in parentheses.
*** (**) denotes significance at the 1 percent (5 percent) level.

Table 3
Panel DOLS Estimates of China's Imports for Processing from 25 Countries over the 1994-2008 Period (Panel B).

	(1)	(2)	(3)	(4)	(5)	(6)
Bilateral RER	0.38***	0.38***	0.32**	0.34***	0.34***	0.35***
	(0.13)	(0.13)	(0.13)	(0.12)	(0.09)	(0.13)
Real GDP	0.86	0.95	1.33***	1.84		
	(0.60)	(2.21)	(0.08)	(1.61)		
Processed Exports	0.24	0.23			0.76***	0.80***
	(0.40)	(0.39)			(0.05)	(0.22)
WTO Dummy	-0.01	-0.01	0.04	0.05	-0.07	-0.08
	(0.15)	(0.17)	(0.08)	(0.07)	(0.08)	(0.09)
Time		-0.01		-0.05		-0.01
		(0.17)		(0.15)		(0.04)
Adjusted R-squared	0.95	0.95	0.95	0.95	0.95	0.95
No. of Observations	375	375	375	375	375	375

Notes: DOLS(1,1) estimates. Heteroskedasticity-consistent standard errors are in parentheses.
*** (**) denotes significance at the 1 percent (5 percent) level.

Table 4
Panel DOLS Estimates of China's Ordinary Imports from 25 Countries over the 1994-2008 Period (Panel A).

	(1)	(2)	(3)	(4)	(5)	(6)
Bilateral RER	0.38**	0.33**	0.60***	0.30*	0.94***	0.37**
	(0.18)	(0.17)	(0.19)	(0.16)	(0.17)	(0.16)
Real GDP	4.18***	-12.6	2.06***	-8.91***		
	(1.43)	(8.38)	(0.20)	(1.62)		
Ordinary Exports	-1.11	1.11			1.02***	0.24
	(0.75)	(1.60)			(0.09)	(0.20)
WTO Dummy	-0.13	-0.11***	0.03	-0.16*	-0.08	-0.03
	(0.09)	(0.09)	(0.16)	(0.09)	(0.16)	(0.09)
Time		1.16***		1.02***		0.14***
		(0.54)		(0.15)		(0.04)
Adjusted R-squared	0.94	0.95	0.94	0.94	0.94	0.95
No. of Observations	375	375	375	375	375	375

Notes: DOLS(1,1) estimates. Heteroskedasticity-consistent standard errors are in parentheses. *** (**) [*] denotes significance at the 1 percent (5 percent) [10 percent] level.

Table 4
Panel DOLS Estimates of China's Ordinary Imports from 25 Countries over the 1994-2008 Period (Panel B).

	(1)	(2)	(3)	(4)	(5)	(6)
Bilateral RER	0.37**	0.33**	0.57***	0.29*	0.84***	0.37**
	(0.18)	(0.17)	(0.19)	(0.16)	(0.16)	(0.16)
Real GDP	3.58**	-12.2	1.63***	-8.70***		
	(1.48)	(8.37)	(0.18)	(1.66)		
Ordinary Exports	-1.03	1.06			0.79***	0.15
	(0.78)	(1.60)			(0.09)	(0.18)
WTO Dummy	-0.07	-0.06	0.06	-0.11	-0.03	0.01
	(0.09)	(0.09)	(0.16)	(0.08)	(0.15)	(0.09)
Time		1.09**		0.97***		0.12***
		(0.54)		(0.16)		(0.03)
Adjusted R-squared	0.94	0.94	0.94	0.94	0.93	0.94
No. of Observations	375	375	375	375	375	375

Notes: DOLS(1,1) estimates. Heteroskedasticity-consistent standard errors are in parentheses. *** (**) [*] denotes significance at the 1 percent (5 percent) [10 percent] level.

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