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## ADB Working Paper Series on Regional Economic Integration



### Critical Review of East Asia – South America Trade

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Shintaro Hamanaka and Aiken Tafgar

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ADB Working Paper Series on Regional Economic Integration

## Critical Review of East Asia – South America Trade

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No. 105 | January 2013

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## **Abstract**

There is a general consensus that trade between East Asia and South America is becoming increasingly important. However, we know little about the actual dynamic development of this inter-regional trade. This paper examines whether the trend of East Asia–South America trade is a general phenomena or a country- and commodity-specific issue, and whether the increase in trade values has a solid basis in terms of commodity diversification and/or price and quantity effects. While South America has an overall trade surplus with East Asia, detailed country and commodity analysis of inter-regional trade reveal several potential weaknesses in South America's trade with East Asia. Our research finds that (i) the increase in trade between the two regions can be explained mainly by the increase in the People's Republic of China's (PRC) trade with South America, (ii) the increase in the PRC's imports from South America is limited to a few commodities, (iii) the increase in East Asia's imports from South America is due partly to commodity price increases, and (iv) the PRC has started to export various types of electronics and machinery products to South America. Overall, East Asia's exports to South America seem to show more promising signs of growth than South America's exports to East Asia.

*Keywords:* Regional integration/cooperation, trade policy, inter-regional trade, East Asia trade, South America trade

*JEL Classification:* F1 , F13, F14, F15, O2, O24

## 1. Introduction

External trade is one of the main contributors to the economic progress of a country or region. On one hand, trade can be an engine of economic growth; on the other, it can be a vehicle that spreads economic crisis. As the importance of trade grows, recent literature has emphasized trade integration within a region, or intra-regional trade integration.<sup>1</sup> This paper looks at another dimension—the potential of trade between two regions, or inter-regional trade integration. Given a significant difference in factor endowments between two regions, inter-regional trade holds huge potential for growth despite the geographical distance between the regions. This also implies that inter-regional trade constrained by distance can be increased significantly when transport costs decline (Asian Development Bank [ADB], Inter-American Development Bank [IDB], and Asian Development Bank Institute [ADBI] 2012, p. 22).

This paper analyzes inter-regional trade between East Asia and South America. We can easily assume that the inter-regional trade between the two regions is undergoing a dynamic change because East Asia is becoming the center of the world's economic growth and South America is very rich in natural resources. However, recent studies suggest that inter-regional trade between East Asia and South America has several inherent weaknesses that can be summarized as “asymmetric relations” (Jenkins 2012). These asymmetric relations include (i) the significance of East Asia to South America with respect to trade, and the corresponding insignificance of South America to East Asia; (ii) the composition of East Asian exports (mainly manufactured products) vs. South American exports (primary commodities); and (iii) the variety in exported items from East Asia compared with the concentration of exported items from South America. Overall, this paper examines whether the trend of inter-regional trade is a general phenomenon or a country- or commodity-specific issue, and whether the increase of inter-regional trade has a solid basis in terms of commodity diversification and price and quantity effects, bearing the asymmetric relations in mind.

This paper is structured as follows. Section 2 assesses the importance of the two regions to one another, using measures such as trade growth, inter-regional trade shares, and trade bias. The section also examines whether trade between the two regions is becoming stronger or weaker. Section 3 compares the trade of two key East Asian countries—the People's Republic of China (PRC) and Japan—with South America, covering commodity-level analysis in terms of both value and quantity. Section 4 considers the policy implications of the paper's findings.

In this paper, we mainly analyze inter-regional trade in recent decade since East Asia–South America trade increased significantly beginning in 2000, a development triggered by the rise of the PRC (Whalley and Medianu 2010). East Asia refers to eight countries: the PRC, Indonesia, Japan, the Republic of Korea, Malaysia, Singapore, the Philippines, and Thailand. South America includes 10 countries: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela. South America, rather than Latin America, is used because the principal focus of this paper is countries on the South American continent. Mexico is excluded because East Asia's trade with Mexico is different in nature than its trade with South American countries since Mexico is a member of the North American Free Trade Area (NAFTA).

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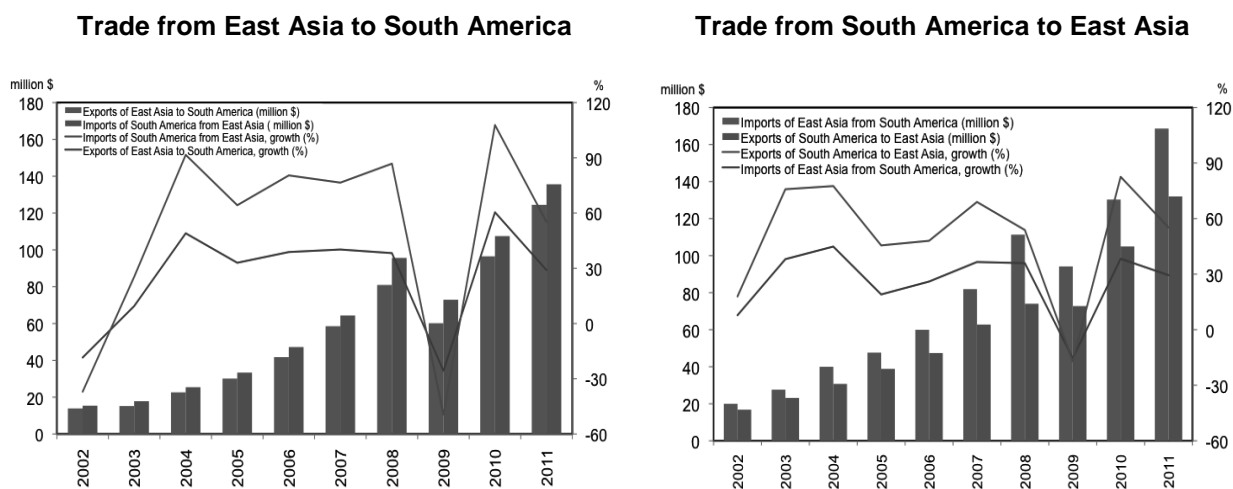
<sup>1</sup> In the case of intra-regional trade integration in East Asia, see Hamanaka (2012).



## 2. The Recent Development of Trade Ties between East Asia and South America

Trade between the two regions increased between 2001 and 2011 despite the disruption caused by the global economic crisis in 2008/09 (Figure 1). It is also observed that the value of imports of each region is larger than the value of exports, which is partly due to transport costs. Considering distances that entail large transport costs, it is reasonable to assume that South America's primary commodity exports to East Asia (East Asia's imports from South America) are larger than East Asia's manufacturing exports to South America (South America's imports from East Asia). However, as we will see later, this South American trade surplus with East Asia does not imply that the inter-regional trade is favorable to South America because the larger values of South American exports are mainly due to commodity price inflation.

**Figure 1: Inter-Regional Trade between East Asia and South America**



Source: United Nations (UN) Comtrade.

Since the increase in trade is a world-wide phenomenon, we analyze the apparent development of inter-regional trade in terms of share. From the East Asian perspective, trade shares reveal that trade with South America has become more important but still seems very small relative to East Asia's trade with the rest of the world (Table 1). South America appears to be significant to East Asia with respect to imports more than exports. From the South American perspective, on the other hand, trade with East Asia is increasing and is not negligible (Table 2). Moreover, the significance of East Asia to South America appears to encompass both exports and imports.

**Table 1: East Asian Perspective on Inter-Regional Trade with South America**

	Share of Exports to South America (%)		Share of Imports from South America (%)		Inter-Regional Trade Share (Trade with South America / Trade with the World)*100	
	2001	2011	2001	2011	2001	2011
China, People's Rep. of	1.5	3.9	2.4	5.9	1.9	4.9
Japan	1.4	1.7	1.9	3.3	1.6	2.5
Republic of Korea	2.5	3.6	1.9	2.9	2.2	3.3
Indonesia	0.9	1.4	1.0	2.3	0.9	1.8
Malaysia	0.4	0.8	0.8	1.9	0.6	1.3
Philippines	0.2	0.6	0.8	1.4	0.5	1.0
Singapore	0.4	0.5	0.4	1.7	0.4	1.1
Thailand	0.7	2.1	1.4	1.6	1.0	1.9
<b>Total East Asia</b>	<b>1.3</b>	<b>2.7</b>	<b>1.7</b>	<b>4.0</b>	<b>1.5</b>	<b>3.3</b>

Source: Authors' calculations using UN Comtrade data.

**Table 2: South American Perspective on Inter-Regional Trade with East Asia**

	Share of Exports to East Asia (%)		Share of Imports from East Asia (%)		Inter-Regional Trade Share (Trade with South America / Trade with the World)*100	
	2001	2011	2001	2011	2001	2011
Argentina	10.4	14.4	13.7	21.5	11.8	17.8
Bolivia	1.1	14.3	10.7	22.2	6.2	17.9
Brazil	10.3	27.0	13.6	26.3	11.9	26.7
Chile	22.3	41.1	15.1	26.3	19.0	34.0
Colombia	2.2	5.7	12.0	21.8	7.2	13.5
Ecuador	8.3	2.8	16.3	24.0	12.6	13.8
Paraguay	4.7	3.2	19.5	36.3	14.9	26.0
Peru	16.0	24.9	15.9	26.7	16.0	25.7
Uruguay	9.7	–	8.6	–	9.0	–
Venezuela	1.3	15.6	10.3	16.2	4.8	16.2
<b>Total South America</b>	<b>9.7</b>	<b>23.4</b>	<b>13.4</b>	<b>24.6</b>	<b>11.5</b>	<b>24.0</b>

– = Data not available.

Source: Authors' calculations using UN Comtrade data.

Further, it is observed that inter-regional trade between East Asia and South America is dominated by a few countries (Table 3). In East Asia, Japan had traditionally been the dominant trader with South America until it was recently overtaken by the PRC. In South America, Brazil is, by far, the dominant player, followed by Chile.

**Table 3: Key Inter-Regional Traders in East Asia and South America**

	Share of East Asia's Total Trade with South America (based on East Asian statistics)				Share of South America's Total Trade with East Asia (based on South American statistics)				
	2001		2011		2001		2011		
	Value (million \$)	Share (%)	Value (million \$)	Share (%)	Value (million \$)	Share (%)	Value (million \$)	Share (%)	
PRC	9,706	29.7	177,553	60.6	Argentina	5,533	16.2	28,609	10.7
Japan	12,178	37.3	41,885	14.3	Bolivia	191	0.6	3,007	1.1
Rep. of Korea	6,454	19.8	35,567	12.1	Brazil	13,519	39.6	128,721	48.1
Indonesia	803	2.5	6,885	2.4	Chile	6,617	19.4	53,186	19.9
Malaysia	938	2.9	5,425	1.9	Colombia	1,803	5.3	15,112	5.7
Philippines	359	1.1	1,151	0.4	Ecuador	1,257	3.7	6,447	2.4
Singapore	933	2.9	8,451	2.9	Paraguay	471	1.4	4,642	1.7
Thailand	1,299	4.0	8,520	2.9	Peru	2,258	6.6	21,454	8.0
					Uruguay	462	1.4	–	–
					Venezuela	2,009	5.9	6,409	2.4
<b>Total East Asia</b>	<b>32,669</b>	<b>100</b>	<b>285,438</b>	<b>100</b>	<b>Total South America</b>	<b>34,121</b>	<b>100</b>	<b>267,587</b>	<b>100</b>

– = Data not available; PRC = People's Republic of China.  
Source: Authors' calculations using UN Comtrade data.

The increase in inter-regional trade shares, particularly any country or region's trade with East Asia as a share of its total trade, could be a world-wide phenomenon. Almost all countries in the world increased their trade with East Asia between 2001 and 2011, especially with the PRC. South America's increasing level of trade with East Asia may not be an exception to this global trend. Thus, we look at trade bias, defined below (Plummer, Cheong, and Hamanaka 2012). The trade bias index measures the relative significance of a partner country or region from the perspective of a certain country or region. If the index is equal to 1 (neutral), then the member countries of a free trade area or regional grouping of countries under consideration do not have a bias toward trading either with members or with outsiders. If the index is more than 1, then the countries or regions under consideration have a bias toward trading among themselves. If the index is less than 1, then the countries or regions under consideration have a bias toward trading with outsiders.<sup>2</sup>

<sup>2</sup> For example, assume that Country A's share of the PRC's total trade is 2%. It cannot be argued that 2% is large or small without first knowing the importance of Country A in world trade. If country A's share of world trade is 2%, then the trade bias index is 1 and, therefore, the PRC's trade with Country A has no regional bias (neutral). If country A's share in world trade is 1%, then the PRC's trade with Country A has a positive bias (0.5). On the other hand, if Country A's share in world trade is 4%, then the PRC's trade with Country A has a negative bias (2.0).

$$\text{Regional Bias} = \frac{\frac{\text{Region of Origin's Trade with Region of Destination}}{\text{Region of Origin's Trade with the World}}}{\frac{\text{Region of Destination's Trade with the World}^3}{\text{Total World Trade}}}$$

Using the equation above, the results show that both East Asia and South America experienced a similar development of trade bias toward each other in the past decade (Table 4). Both regions had a negative bias toward the other (bias index much lower than 1.0), which means that countries in East Asia and South America prefer to trade with countries outside the other region. However, this negative trade bias declined in 2011, which means that inter-regional trade is becoming more neutral (less negatively biased).

**Table 4: Inter-Regional Trade Bias**

	2001	2011
East Asia's Trade with South America (million \$) [A]	35,528	292,959
East Asia's Trade with the World (million \$) [B]	2,632,134	9,514,355
South America's Trade with East Asia (million \$) [C]	34,121	267,587
South America's Trade with World (million \$) [D]	298,066	1,115,356
World Trade (million \$) [E]	11,932,010	29,254,922
South America's Share in East Asia (A/B*100) [F]	1.4%	3.1%
East Asia's Share in South America (C/D*100) [G]	11.5%	24%
South America's Share in World (D/E*100) [H]	2.5%	3.8%
East Asia's Share in World (B/E*100) [I]	22.1%	32.5%
East Asia's Bias with South America = F/H	0.5	0.8
South America's Bias with East Asia = G/I	0.5	0.7

Source: Authors' calculations using UN Comtrade data.

<sup>3</sup> Theoretically, we should use "World's Trade with South America." However, for the ease of collecting data, we instead use "South America's Trade with the World," which is the mirror of the former.

### 3. East Asia's Trade Ties with South America: The People's Republic of China and Japan Compared

This section focuses on trade between the two major economies in East Asia—the PRC and Japan—and South America's major traders—Brazil and Chile. Japan was once the largest Asian trader with South America. However, the PRC has emerged as the dominant trader over the past decade. We analyze the PRC and Japan's trade with Brazil and Chile, covering commodity-level analysis in terms of both value and quantity.

The following discussion will focus on the bias of trade and commodity level trade of the PRC and Japan with Brazil and Chile. The bias of trade is given below:

$$\text{Bias Index} = \frac{\frac{\text{The PRC or Japan's Trade with Brazil and Chile}}{\text{The PRC or Japan's Trade with the World}}}{\frac{\text{Brazil and Chile's Trade with the World}}{\text{Total World Trade}}}$$

#### 3.1 Imports: The People's Republic of China vs. Japan

Though the shares of the PRC and Japan's imports from South America are small relative to their respective imports from the world, the bias index indicates a deepening trade relationship between the PRC and South America (Table 5). The bias index shows that the PRC had no bias toward imports from Brazil in 2001, but by 2011 a significant bias had developed. The PRC's import bias vis-à-vis Chile also increased over the same period. The fact that the bias is greater than 2.0 implies that the PRC's imports from South America have a strong positive bias. In Japan's case, on the other hand, the bias toward importing from Brazil did not change much in the past decade and the bias toward imports from Chile even declined, despite the fact that commodity prices increased during the same period. As we will see later, the reason is that although import values for both the PRC and Japan increased due to an increase in commodity prices, the PRC's import volume increased more than that of Japan's.

**Table 5: Asia's Import Bias toward Brazil and Chile (Asian side data)**

Share and Bias			Brazil	Chile
<b>People's Republic of China (PRC)</b>	Share of the PRC's Imports from South America to the PRC's Total Imports from the World (%)	2001	1.0	0.5
		2011	3.0	1.2
	Import Bias	2001	1.1	2.0
		2011	2.1	2.5
<b>Japan</b>	Share of Japan's Imports from South America to Japan's Total Imports from the World (%)	2001	0.7	0.7
		2011	1.5	1.2
	Import Bias	2001	0.8	2.6
		2011	1.0	2.4

Source: Authors' calculations based on UN Comtrade data.

Table 6 lists the major imports of the PRC from Brazil as indicated by their shares. These items are mostly mineral products, vegetable products, base metals, and foodstuffs. Between 70% and 90% of the PRC's imports from the two countries consist of HS 12, HS 26, and HS 74. Imports from Brazil are mostly HS 26 and HS 12. The largest import of the PRC from Brazil is HS 260111 under HS 26, and HS 120100 under HS 12. On the other hand, imports from Chile are mostly HS 74 and HS 26. Under HS 74, nearly all imports are HS 740311, and HS 260300 under HS 26. A large portion of the PRC's imports from Brazil and Chile are limited to a few 6-digit items. Further, these items are primary products (mainly natural resources and agricultural products). While some have argued that trade with the PRC brings an opportunity for South America to diversify its exports (Calle 2010), this has not been the case so far.

**Table 6: The PRC's Major Import Items from Brazil and Chile (PRC side data)**

		Value		% in 2011	Volume	
		million \$			million kg	
		200	2011		2001	2011
Brazil	26 Ores, slag, and ash	762	26,157	49.9		
	260111 Iron ore, concentrate, not iron pyrites, unagglomerated	540	23,935	45.7	19,691	134,164
	260112 Iron ore, concentrate, not iron pyrites, agglomerated	205	1,822	3.5	4,844	8,538
	12 Oil seed, oleagic fruits, grain, seed, fruit, etc., nes	620	11,791	22.5		
	120100 Soya beans	620	11,790		3,160	20,622
	27 Mineral fuels, oils, distillation products, etc.	0.0	4,885	9.3		
	47 Pulp of wood, fibrous cellulosic material, waste, etc.	149	1,824	3.5		
	17 Sugars and sugar confectionery	24	1,268	2.4		
Chile	74 Copper and articles thereof	564	12,610	61.3		
	740311 Copper cathodes and sections of cathodes unwrought	529	11,219	54.5	320	1,264
	740200 Unrefined copper, copper anodes, electrolytic refining	28	1,216	5.9	17	123
	26 Ores, slag, and ash	326	5,532	26.9		
	260300 Copper ores and concentrates	311	3,743	18.2	694	1,427
	260111 Iron ore, concentrate, not iron pyrites, unagglomerated	6	1,391	6.8	190	7,695
	47 Pulp of wood, fibrous cellulosic material, waste etc	243	998	4.9		
	08 Edible fruit, nuts, peel of citrus fruit, melons	22	452	2.2		
	23 Residues, wastes of food industry, animal fodder	57	199	1.0		

PRC = People's Republic of China.

Note: Share = (PRC's import of the product from Brazil or Chile in 2011 / PRC's total imports from Brazil or Chile in 2011) \* 100.

Source: Authors' calculations based on UN Comtrade data.

In the case of Japan, the dominant imports from South America are HS 02, HS 03, and HS 26 (Table 7). About 67% of imports from Brazil are HS 26 and HS 02. The majority of these imports are under HS 260111 and HS 260112, and HS 020714. Around 76% of Japan's imports from Chile are HS 26 and HS 03, which mainly consist of HS 260300, HS 261310, HS 030310, and HS 030420.

**Table 7: Japan's Major Import Items from Brazil and Chile** (Japanese side data)

		Value		% in	Volume	
		million \$			2011	million kg
		2001	2011	2001		2011
Brazil	26 Ores, slag and ash		6,826	53.8		
	260111 Iron ore, concentrate, not iron pyrites, unagglomerated	584	5,275	41.6	21,975	29,301
	260112 Iron ore, concentrate, not iron pyrites, agglomerated	113	1,520	12	2,821	7,363
	02 Meat and edible meat offal		1,481	11.7		
	020714 Fowls, cuts & offal, fro	150	1,463	11.6	104	408
	020712 Fowls, domestic, not cut	7	11	0.1	5	5
	09 Coffee, tea, mate and spices		619	4.9		
	76 Aluminium and articles thereof		559	4.4		
	72 Iron and steel		461	3.6		
Chile	26 Ores, slag, and ash		5,875	59.8		
	260300 Copper ores and concentrates	767	5,030	51.2	1,781	2,084
	261310 Molybdenum concentrates, roasted	38	458	4.7	12	22
	03 Fish, crustaceans, molluscs, aquatic invertebrates nes		1,521	15.5		
	030310 Salmon, Pacific, frozen, whole	238	568	5.8	86	94
	030420 Fish fillets, frozen	120	537	5.5	24	49
	74 Copper and articles thereof		759	7.7		
	44 Wood and articles of wood, wood charcoal		726	7.4		
	02 Meat and edible meat offal		215	2.2		

Source: Authors' calculations using UN Comtrade data.

Note: Share = (Japan's import of the product from Brazil or Chile in 2011 / Japan's total import from Brazil or Chile in 2011)\*100.

It is evident that the imports of the PRC and Japan from South America are concentrated in a limited number of 6-digit items and that in both countries imports have been affected by increases in commodity prices. The difference between the two countries is that the PRC's import volume increased more than that of Japan's between 2001 and 2011. The mechanism by which the PRC's imports from Brazil and Chile increased implies an inflationary phenomenon in addition to a large increase in volume. To illustrate this, consider that while the value of HS 120100 imports of the PRC from Brazil increased by nearly 20 times in the past decade, the volume increased by only seven times. Likewise, HS 260111 imports from Brazil increased by around 44 times in terms of value between 2001 and 2011, while increasing only seven times in terms of volume. In the case of the PRC's imports from Chile, HS 740311 imports increased by around 21 times in terms of value, and only four times in terms of volume. On the other hand, increases in Japan's imports from Brazil and Chile can mainly be explained by increases in commodity prices. HS 260111 imports from Brazil increased only 33% in terms of volume, although they increased 9 times in terms of value. Likewise, HS 260300 imports from Chile increased only 17% in terms of volume, compared to seven times in terms of value. These observations imply that if commodity prices had been stable, the value of Japan's imports from South America would not have increased much between 2001 and 2011.

### 3.2 Exports: The People's Republic of China vs. Japan

Though the shares of the PRC and Japan's exports to South America are small relative to their exports to the world, there seems to be a deepening trade relationship indicated by the bias index (Table 8). The PRC had a negative bias toward Brazil until it became neutral in 2011. In the case of Chile, the bias has not changed significantly since 2001. Since the PRC's export bias toward both countries was nearly 1.0 in 2011, it appears that the PRC exported to South American countries in 2011 just like it exported to other countries, unlike in 2001 when it preferred to trade with partners other than Brazil and Chile. In the case of Japan, on the other hand, the bias index toward both Brazil and Chile remained small and had not changed that much over the most recent decade. Japan's export bias index with the two countries remains lower than 1.0, which means that Japan has a negative bias toward them. It can, therefore, be argued that while exporting to South America is becoming more important for the PRC it remains insignificant for Japan.

**Table 8: Asia's Export Bias toward Brazil and Chile (Asian side data)**

Share and Bias			Brazil	Chile
<b>China, People's Rep. of (PRC)</b>	The PRC's Exports to South America as a share of the PRC's Exports to the World (%)	2001	0.5	0.3
		2011	1.7	0.6
	Export Bias	2001	0.5	1.0
		2011	1.0	1.0
<b>Japan</b>	Japan's Exports to South America as a share of Japan's Exports to the World (%)	2001	0.6	0.1
		2011	0.8	0.3
	Export Bias	2001	0.6	0.4
		2011	0.4	0.5

Source: Authors' calculations based on UN Comtrade data.



Table 9 lists the major exports of the PRC to Brazil and Chile. Around 30%–50% of the PRC's exports to the two countries consist of HS 84, HS 85, and HS 87. For exports to Chile, apparel-related items (HS 61 and HS 62) are dominant as well. Unlike the case of imports from South America, the PRC's exports are not concentrated among a few 6-digit items. The PRC's largest export item under HS 85 (HS 851790) accounts for only 10% of the entire HS 85 group. The largest export item under HS 84 (HS 847330) accounts for only 12% of this 2-digit group. In the case of the PRC's exports to Chile, the largest item under HS 85 is HS 852520, which accounts for 25%. Moreover, Chinese exports to South America have become more diversified with the addition of newly traded items in 2011. For example, in the case of the PRC's exports to Chile, newly exported items in 2011 are HS 848180, HS 845011, HS 852812, HS 870322, and HS 870210. Overall, the PRC exports various types of electric appliances such as air conditioners, radios, televisions, and washing machines to South America.

**Table 9: The PRC's Major Export Items to Brazil and Chile (PRC side data)**

	Major Item (Based on 2011 shares)	Value		% in 2011	Volume		Note
		million \$			million kg or #		
		2001	2011		2001	2011	
Brazil	85 Electrical, electronic equipment	365	7,462	23.4			
	851790 Parts of line telephone/telegraph equipment, nes	8	815	2.6	0.7	9	kg
	854230 Monolithic integrated circuit	0.3	668	2.1	0.0	0.3	#
	852990 Parts for radio and TV transmit–receive equipment, nes	22	456	1.4	0.1	33	kg
	851780 Electric apparatus for line	0	430	1.4	0	–	#
	84 Nuclear reactors, boilers, machinery, etc	191	5,889	18.5			
	847330 Parts and accessories of data processing equipment, nes	38	726	2.3	11	32	kg
	841510 Air conditioners window and wall types, self-contained	1	270	0.9	0.2	25	#
	847130 Portable digital data pr	0	245	0.8	0	1	#
	90 Optical, photo, technical, medical, etc apparatus	31	2,023	6.4			
	87 Vehicles other than railway, tramway	18	1,601	5			
	870322 Automobiles, spark ignition engine of 1000–1500 cc	0.0	332	1.0	0.0	38	#
	871419 Motorcycle parts except sacaddles	3	142	0.4	1	31	kg
870323 Automobiles, spark ignition engine of 1500–3000 cc	0	136	0.4	0	13	#	
29 Organic chemicals	100	1,425	4.5				
Chile	85 Electrical, electronic equipment	89	1,563	14.5			
	852520 Transmit–receive apparatus for radio, TV, etc.	0.0	391	3.6	0.0	1	#
	852812 Color television receive	3.4	226	2.1	–	7	#

**Table 9: Continued**

Major Item (Based on 2011 shares)	Value		% in 2011	Volume		Note
	million \$			million kg or #		
	2001	2011	2001	2011		
851780 Electric apparatus for line	0.0	117	1.1	0.0	–	#
84 Nuclear reactors, boilers, machinery, etc	52	1,281	11.8			
847130 Portable digital data pr	0	425	3.9	0	2	#
848180 Taps, cocks, valves and similar appliances, nes	7	65	0.6	0.6	7	Kg
847160 I/O units w/in storage	17	51	0.5	0.6	1	#
61 Articles of apparel, accessories, knit or crochet	95	1,153	10.7			
62 Articles of apparel, accessories, not knit or crochet	126	945	8.74			
87 Vehicles other than railway, tramway	17	716	6.6			
870322 Automobiles, spark ignition engine of 1000–1500 cc	0	174	1.6	0	20	#
870210 Diesel powered buses	0	75	0.7	0	9	#
871120 Motorcycles, spark ignition engine of 50–250 cc	0.3	63	0.6	0.0	4	#

– = Data not available.

Source: Authors' calculations using UN Comtrade data.

Table 10 lists the major exports of Japan to Brazil and Chile. As shown by the shares, the most dominant exports of Japan to these two countries are HS 84 and HS 87. The concentration of exports in HS 84 and HS 87 is clearer in the case of Japan than in the PRC's case. The concentration of exports in a limited number of 6-digit items is evident in the case of Japan's exports. In particular, HS 870323 and other automobile-related parts are critically important export items for Japan, although Japan also exports intermediate products including machineries.

**Table 10: Japan's Major Export Items to Brazil and Chile (Japanese side data)**

Major Item (Based on 2011 shares)	Value		% in 2011	Volume		Note
	million \$			million kg or #		
	2001	2011	2001	2011		
Brazil 84 Nuclear reactors, boilers, machinery, etc	716	1,970	31.8			
840991 Parts for spark-ignition engines except aircraft	64	248	4	3	8	kg
847989 Machines and mechanical appliances nes	33	131	2.1	0.6	1	#
87 Vehicles other than railway, tramway	389	1,587	25.6			
870323 Automobiles, spark ignition engine of 1500–3000 cc	68	517	8.3	–	48	#

**Table 10: Continued**

	Major Item (Based on 2011 shares)	Value		% in 2011	Volume		Note
		million \$			million kg or #		
		2001	2011		2001	2011	
	870840 Transmissions for motor vehicles	27	222	3.6	2	12	kg
	85 Electrical, electronic equipment	581	624				
	90 Optical, photo, technical, medical, etc apparatus	206	329	5.3			
	40 Rubber and articles thereof	47	273	4.4			
Chile	87 Vehicles other than railway, tramway	241	1,039	44.3			
	870323 Automobiles, spark ignition engine of 1500–3000 cc	83	468	20	–	44	#
	870322 Automobiles, spark ignition engine of 1000–1500 cc	19	209	8.9	–	24	#
	27 Mineral fuels, oils, distillation products, etc	0.8	582	24.8			
	271000 Petroleum oils and oils obta	0	582	24.8	0	624	kg
	271220 Paraffin wax containing < 0.75% oil	0	0.2	0.0	0	0.1	kg
	84 Nuclear reactors, boilers, machinery, etc	56	295	12.6			
	842952 Shovels and excavators with revolving superstructure	4	54	2.3	2	8	#
	842720 Self-propelled works trucks, non-electric	5	43	1.8	2	8	#
	40 Rubber and articles thereof	47	169	7.2			
	90 Optical, photo, technical, medical, etc apparatus	17	56	2.4			

– = Data not available.

Share = (Japan's export of the product to Brazil or Chile in 2011 / Japan's total exports to Brazil or Chile in 2011)\*100.

Source: Authors' calculations using UN Comtrade data.

## 4. Summary

There is a general consensus that trade between East Asia and South America is becoming more important. In this paper, we consider the question of whether the trend of inter-regional trade is a general phenomena or a country- or commodity-specific issue, and whether the increase in inter-regional trade has a solid basis in terms of commodity diversification and price and quantity effects. We found that (i) the increase in inter-regional trade between the two regions can mainly be explained by the increase in the PRC's trade with South America, (ii) the increase in the PRC's imports from South America is limited to a few types of commodities, (iii) the increase in East Asia's commodity imports from South America is partly due to commodity price increases, and (iv) the PRC has begun to export various types of electronics and machinery products to South America.

The comparison between the trade of the PRC and Japan with South America is interesting. While Japan was the largest Asian trader with South America in 2001, the PRC had become East Asia's largest trader with South America by 2011. The majority of the PRC's imports from

South America are primary products. For example, around 70% of Chinese imports from Brazil are iron ore (HS 260111) and soya beans (HS 120100), and around 80% of Chinese imports from Chile are copper ores (HS 260300) and copper cathodes (HS 740311). The PRC's primary product imports from South America increased significantly between 2001 and 2011, due to an increase in both volumes and prices. Furthermore, while Japan's primary product imports also increased in terms of value over the same period, the increase in import volumes was small, which implies that if commodity prices had remained stable, the value of Japan's imports from South America would not have increased. Thus, South America's exports to East Asia are extremely vulnerable to commodity price fluctuations (Koleski 2011).

In the case of East Asia's exports to South America, with the PRC being the dominant exporter, the items being exported are diverse. For example, the PRC has begun to export to Brazil and Chile various types of electric appliances such as air conditioners, radios, televisions, and washing machines, which may eventually have a negative influence on domestic production as suggested by Rosales (2012). On the other hand, Japan's exports to Brazil and Chile are less diverse, consisting mainly of automobiles and intermediate products.

If we look at the aggregate level, it appears that inter-regional trade between East Asia and South America is increasing. However, cross-country and commodity analysis in this paper reveals several important features of this inter-regional trade. First, while East Asia's imports from South America (South America's exports to East Asia) are larger than East Asia's exports to South America (South America's imports from East Asia), East Asia's import items are limited to a small number of primary commodities. Moreover, the recent increase in commodity import values is partly due to commodity price increases. Thus, South America's exports may decline sharply in terms of value if commodity prices were to decline. Second, the PRC has recently started to export various types of electric appliances to South America. Chinese products are successfully penetrating South American markets and this trend may continue for a while. Thus, East Asia's exports, particularly the PRC's, are expected to continue growing steadily. Even though South America currently enjoys a trade surplus with East Asia, it is East Asia's (the PRC's) exports to South America that are expected to grow steadily rather than South America's exports to East Asia, which are vulnerable to commodity price fluctuations. Overall, the growth trend of East Asian exports to South America seems to be more promising than that of South American exports to East Asia.

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## **Critical Review of East Asia – South America Trade**

The paper examines whether trade between East Asia and South America is a general phenomenon or a country-specific/commodity-specific issue, and whether increased trade is due to diversification and/or price/quantity effects. We find that (1) trade between the People's Republic of China and South America is most significant; (2) the increase in East Asia's imports from South America is a price effect; and (3) the growth of East Asia's export to South America seems more promising than that of South America's export to East Asia.

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