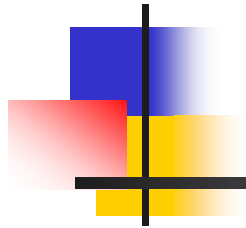


# Multinational Corporations, FDI and the East Asian Economic Integration



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# I. Multinational Corporations

## A. Why should we care about MNCs?

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1. 53 of the top 100 economic bodies are MNCs. they are larger than  $\frac{3}{4}$  of all nations in the world. (Gabel and Bruner 2003)
2. Through FDI and trade, MNCs mobilize resources across countries, arrange vertical and horizontal production fragmentation, and form regional/global production networks.
3. Willingly or not, national economies have been joined together and become dependent on one another.

## B. Who have been investing abroad?

**Table 1. The ranking of the source countries of the Global 2000 firms**

source country	2009	2008	2007	2006	2004	2003
United States	1 ( 536)	1 ( 526)	1 ( 598)	1 ( 659)	1 ( 711)	1 (776)
Japan	2 ( 270)	2 ( 290)	2 ( 259)	2 ( 291)	2 ( 326)	2 (331)
China	3 ( 113)	3 ( 111)	4 ( 70)	9 ( 44)	17 ( 21)	21 (13)
United Kingdom	4 ( 86)	4 ( 87)	3 ( 116)	3 ( 123)	3 ( 131)	3 (132)
France	5 ( 64)	5 ( 66)	5 ( 67)	4 ( 66)	6 ( 61)	4 (67)
Canada	6 ( 62)	7 ( 57)	6 ( 59)	5 ( 61)	4 ( 67)	7 (50)
Germany	7 ( 57)	6 ( 62)	7 ( 59)	6 ( 57)	5 ( 63)	5 (64)
India	8 ( 56)	8 ( 55)	10 ( 48)	15 ( 34)	15 ( 30)	16 (20)
South Korea	9 ( 51)	9 ( 54)	8 ( 52)	7 ( 52)	8 ( 41)	6 (55)
Hong Kong/China	10 ( 49)	10 ( 48)	12 ( 39)	8 ( 45)	12 ( 32)	13 (30)
Taiwan	13 ( 39)	14 ( 40)	11 ( 42)	10 ( 42)	10 ( 35)	12 (32)

Source: the Global 2000, the Forbes. Firm number in parentheses.

## C. What are they doing?

**Table 2. Industrial distribution of the Global 2000 firms  
(average of all years)**

Industry		percentage (%)	
Finance	Banking	15.44	28.71
	Diversified financing	7.90	
	Insurance	5.36	
Manufacturing	Capital goods	7.62	22.93
	Intermediate goods	6.44	
	Consumption goods	8.87	
Other services	Market channels	6.47	18.88
	Production services	6.22	
	Consumption services	6.19	
Resources type	Material	6.20	17.82
	Oil and gas	5.76	
	Utilities	5.86	
Transportation, communication & construction	Transportation	4.16	11.70
	Communications	3.48	
	Construction	4.06	

Source: the Global 2000, the Forbes.

**Table 3. The ranking of the source countries of the finance firms in the Global 2000 (by firm number)**

source country	2009	2008	2007	2006	2004
United States	1 ( 117)	1 ( 110)	1 ( 135)	1 ( 159)	1 ( 160)
Japan	2 ( 79)	2 ( 83)	2 ( 84)	2 ( 92)	2 ( 107)
China	3 ( 28)	3 ( 28)	5 ( 22)	13 ( 13)	17 ( 8)
India	4 ( 21)	4 ( 21)	7 ( 18)	12 ( 14)	13 ( 10)
United Kingdom	5 ( 20)	6 ( 19)	3 ( 30)	3 ( 32)	4 ( 26)
Italy	6 ( 18)	5 ( 20)	6 ( 18)	4 ( 22)	3 ( 26)
Switzerland	7 ( 17)	10 ( 15)	11 ( 14)	8 ( 15)	6 ( 16)
Hong Kong/China	8 ( 16)	11 ( 15)	9 ( 15)	6 ( 17)	10 ( 12)
Australia	9 ( 16)	8 ( 16)	4 ( 23)	5 ( 18)	9 ( 14)
Bermuda	10 ( 16)	7 ( 17)	14 ( 13)	11 ( 14)	15 ( 9)
Canada	11 ( 15)	15 ( 13)	8 ( 15)	7 ( 16)	8 ( 14)
France	12 ( 14)	12 ( 14)	13 ( 13)	16 ( 13)	11 ( 12)
Taiwan	13 ( 14)	9 ( 15)	10 ( 15)	10 ( 14)	7 ( 15)
Germany	14 ( 13)	14 ( 13)	15 ( 12)	14 ( 13)	5 ( 17)
Spain	15 ( 12)	13 ( 13)	17 ( 9)	15 ( 13)	14 ( 9)
South Korea	16 ( 11)	16 ( 11)	12 ( 14)	9 ( 15)	12 ( 10)
United Arab Emirates	17 ( 9)	17 ( 9)	16 ( 10)	—**	—**
Saudi Arabia	18 ( 8)	22 ( 7)	19 ( 7)	40 ( 2)	—**
Sweden	19 ( 8)	19 ( 8)	23 ( 7)	18 ( 7)	16 ( 8)
Greece	20 ( 7)	23 ( 6)	21 ( 7)	20 ( 7)	18 ( 7)

Source: the Global 2000, the Forbes. Firm number in parentheses.

**Table 4. The ranking of the source countries of the manufacturing firms in the Global 2000 (by firm number)**

Country	2009	2008	2007	2006	2004
United States	1 ( 146)	1 ( 144)	1 ( 157)	1 ( 161)	1 ( 177)
Japan	2 ( 85)	2 ( 98)	2 ( 79)	2 ( 90)	2 ( 95)
China	3 ( 29)	3 ( 29)	9 ( 11)	11 ( 8)	23 ( 2)
Taiwan	4 ( 20)	5 ( 21)	3 ( 22)	4 ( 20)	6 ( 15)
Germany	5 ( 20)	4 ( 22)	4 ( 22)	5 ( 20)	3 ( 22)
France	6 ( 19)	6 ( 20)	5 ( 22)	3 ( 21)	5 ( 20)
Switzerland	7 ( 13)	7 ( 14)	7 ( 13)	8 ( 12)	8 ( 13)
South Korea	8 ( 13)	8 ( 13)	8 ( 13)	7 ( 14)	7 ( 14)
United Kingdom	9 ( 12)	9 ( 12)	6 ( 17)	6 ( 18)	4 ( 20)
Sweden	10 ( 9)	10 ( 9)	10 ( 11)	9 ( 10)	10 ( 9)
Hong Kong/China	11 ( 8)	11 ( 8)	37 ( 1)	—**	—**
Brazil	12 ( 7)	12 ( 7)	17 ( 4)	27 ( 2)	25 ( 2)
Canada	13 ( 7)	15 ( 6)	11 ( 7)	10 ( 8)	9 ( 9)
India	14 ( 6)	13 ( 6)	13 ( 5)	13 ( 5)	13 ( 5)
Italy	15 ( 6)	14 ( 6)	14 ( 5)	14 ( 5)	14 ( 5)
Saudi Arabia	16 ( 5)	17 ( 5)	25 ( 2)	29 ( 1)	—**
Singapore	17 ( 5)	16 ( 5)	16 ( 4)	18 ( 3)	22 ( 2)
Netherlands	18 ( 5)	21 ( 3)	12 ( 6)	12 ( 8)	11 ( 7)
Mexico	19 ( 4)	20 ( 3)	23 ( 3)	17 ( 4)	12 ( 6)
Australia	20 ( 4)	18 ( 4)	15 ( 4)	15 ( 4)	17 ( 4)

Source: the Global 2000, the Forbes.

**Table 5. The ranking of the source countries of the other services firms in the Global 2000 (by firm number)**

Country	2009	2008	2007	2006	2004
United States	1 ( 156)	1 ( 149)	1 ( 157)	1 ( 181)	1 ( 210)
Japan	2 ( 41)	2 ( 42)	3 ( 36)	2 ( 45)	2 ( 55)
United Kingdom	3 ( 27)	3 ( 28)	2 ( 39)	3 ( 41)	3 ( 45)
France	4 ( 14)	4 ( 14)	4 ( 14)	4 ( 14)	4 ( 13)
Canada	5 ( 11)	7 ( 10)	6 ( 11)	6 ( 10)	5 ( 12)
Hong Kong/China	6 ( 11)	6 ( 11)	7 ( 9)	7 ( 10)	10 ( 5)
South Korea	7 ( 10)	8 ( 10)	8 ( 9)	8 ( 8)	8 ( 6)
Germany	8 ( 10)	5 ( 12)	5 ( 12)	5 ( 11)	6 ( 11)
Australia	9 ( 7)	9 ( 7)	9 ( 8)	10 ( 6)	9 ( 5)
India	10 ( 6)	11 ( 6)	11 ( 6)	12 ( 4)	18 ( 3)
Mexico	11 ( 6)	13 ( 6)	12 ( 6)	11 ( 6)	11 ( 5)
China	12 ( 6)	10 ( 6)	13 ( 4)	37 ( 1)	--**
Switzerland	13 ( 6)	12 ( 6)	21 ( 3)	14 ( 4)	12 ( 4)
Ireland	14 ( 5)	17 ( 3)	29 ( 1)	21 ( 2)	--**
Brazil	15 ( 5)	16 ( 4)	24 ( 2)	34 ( 1)	--**
South Africa	16 ( 4)	15 ( 4)	14 ( 4)	13 ( 4)	13 ( 4)
Netherlands	17 ( 4)	18 ( 3)	10 ( 7)	9 ( 7)	7 ( 11)
Sweden	18 ( 4)	19 ( 3)	19 ( 3)	16 ( 3)	15 ( 3)
Singapore	19 ( 4)	14 ( 4)	20 ( 3)	22 ( 2)	20 ( 2)
Belgium	20 ( 3)	21 ( 3)	16 ( 3)	18 ( 3)	19 ( 2)

Source: the Global 2000, the Forbes.

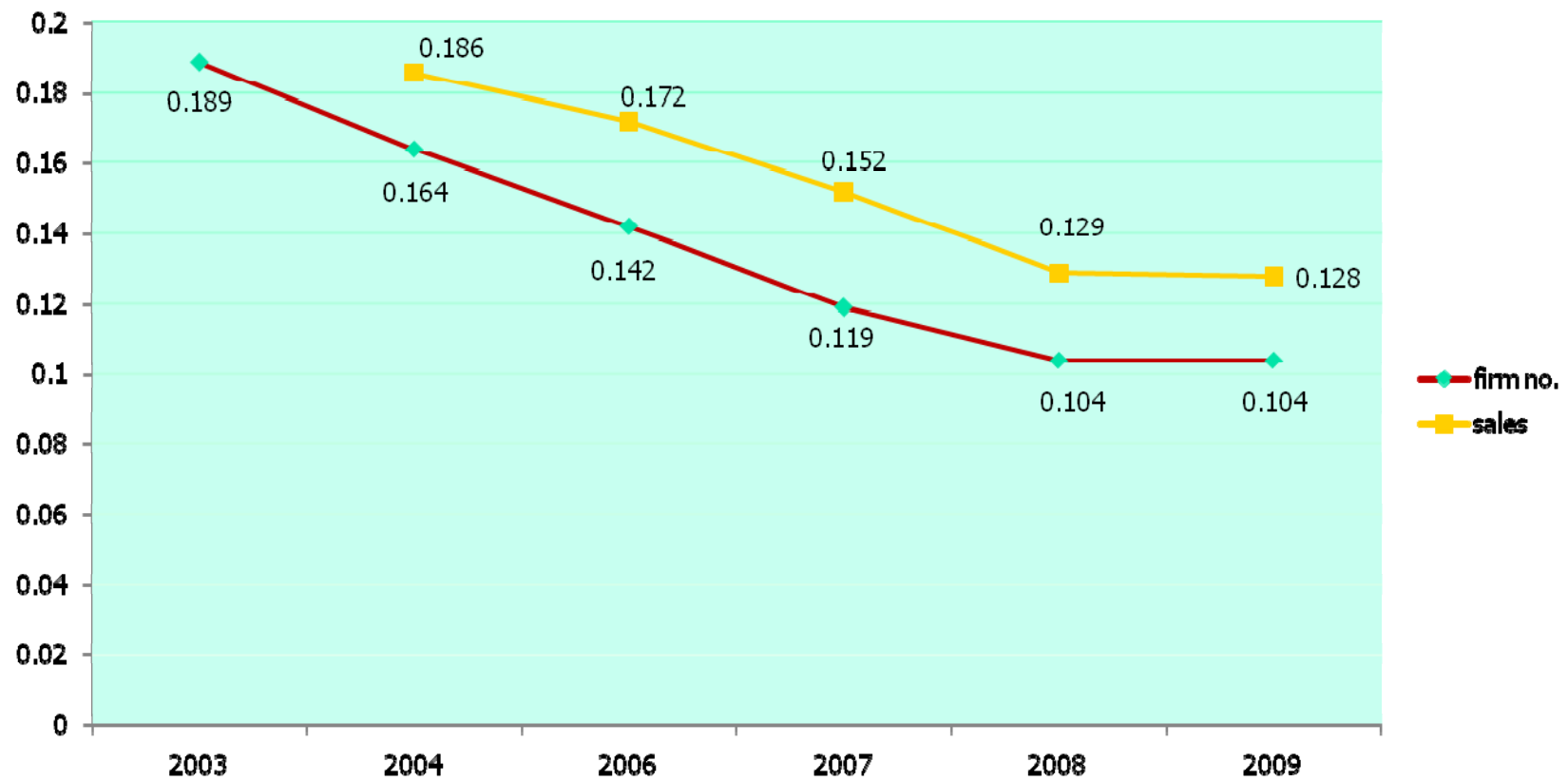


**Table 6. The rankings by firm number and sales, 2009**

Source country	Ranking by sales ( \$ billions )	The ranking by firm number
United States	1 (8957.33)	1 ( 536)
Japan	2 (4240.14)	2 ( 270)
France	3 (2007.44)	5 ( 64)
UK	4 (1921.80)	4 ( 86)
Germany	5 (1771.44)	7 ( 57)
China	6 (1308.44)	3 ( 113)
Netherland	7 (851.97)	20 ( 22)
South Korea	8 (842.54)	9 ( 51)
Italy	9 (827.60)	14 ( 38)
Switzerland	10 (714.54)	11 ( 48)
Canada	11 (657.46)	6 ( 62)
Spain	12 (566.91)	16 ( 29)
Brazil	13 (476.27)	15 ( 33)
Russia	14 (470.50)	17 ( 28)
Australia	15 (458.51)	12 ( 44)
India	16 (382.82)	8 ( 56)
HK	17 (347.49)	10 ( 49)
Taiwan	18 (341.76)	13 ( 39)
Sweden	19 (275.66)	18 ( 27)
Belgium	20 (258.43)	30 (12)

Source: the Global 2000, the Forbes.

**Fig. 1. The Herfindahl concentration index of the source countries of the Global 2000 firms**



Source: the Global 2000, the Forbes.



**Table 7. Sales concentration ratio of the top 10 source countries—by industry**

Year	all_firms	finance	manuf	resource	service	tr_cm_ct
2004	0.855	0.850	0.927	0.815	0.942	0.845
2006	0.831	0.819	0.911	0.801	0.926	0.797
2007	0.802	0.789	0.896	0.763	0.920	0.772
2008	0.794	0.766	0.890	0.762	0.911	0.788
2009	0.778	0.749	0.873	0.759	0.900	0.771

Source: the Global 2000, the Forbes.

## D. MNC and FDI

Table 7. The correlation coefficients between the firm number in the Global 2000 and FDI

category	2009	2008	2007	2006	2004	2003
MNC firm no. and inward FDI flow	0.74	0.82	0.71	0.76	0.74	0.49
MNC firm no. and outward FDI flow	0.86	0.83	0.76	0.77	0.91	0.83
MNC firm no. and inward FDI stock	0.82	0.80	0.85	0.87	0.86	0.88
MNC firm no. and outward FDI stock	0.85	0.80	0.88	0.88	0.88	0.87

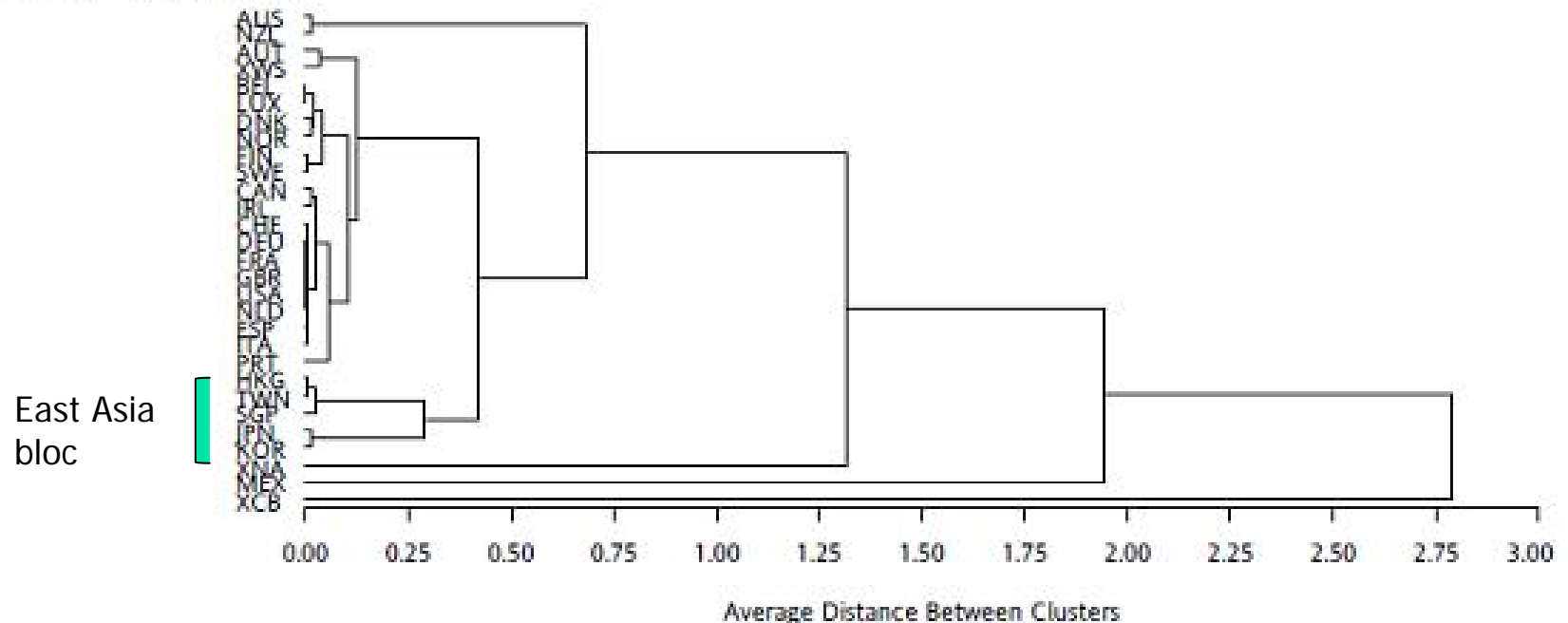
Source: 1. the Global 2000, the Forbes. 2. World investment Report, IMF, various years.

## II. Foreign Direct Investment

### A. Examining Gravity effect using clustering analysis

Figure 2: The tree diagram of total FDI blocs (2004)

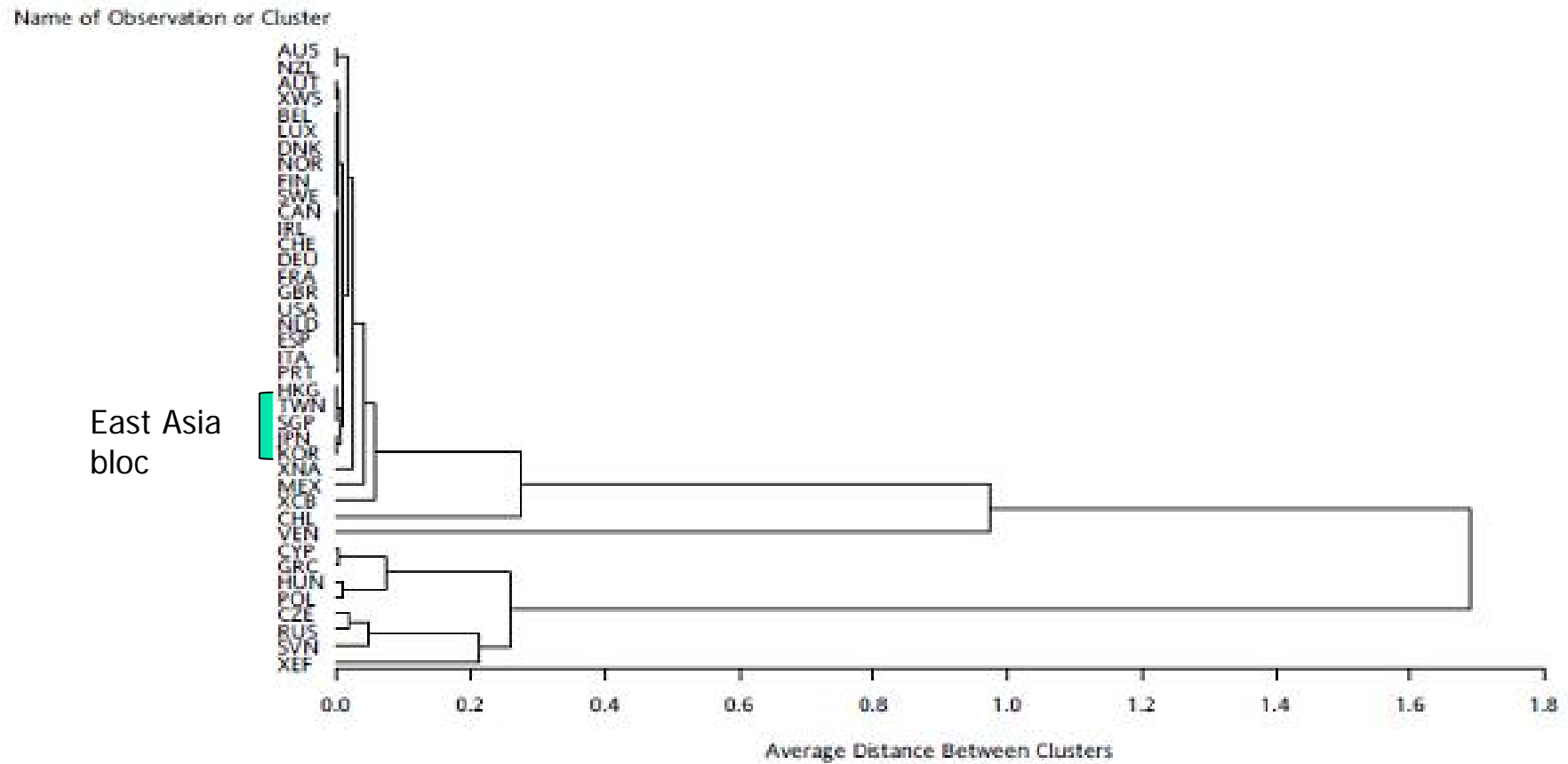
Name of Observation or Cluster



Source: FTAP dataset, GTAP, Purdue University.

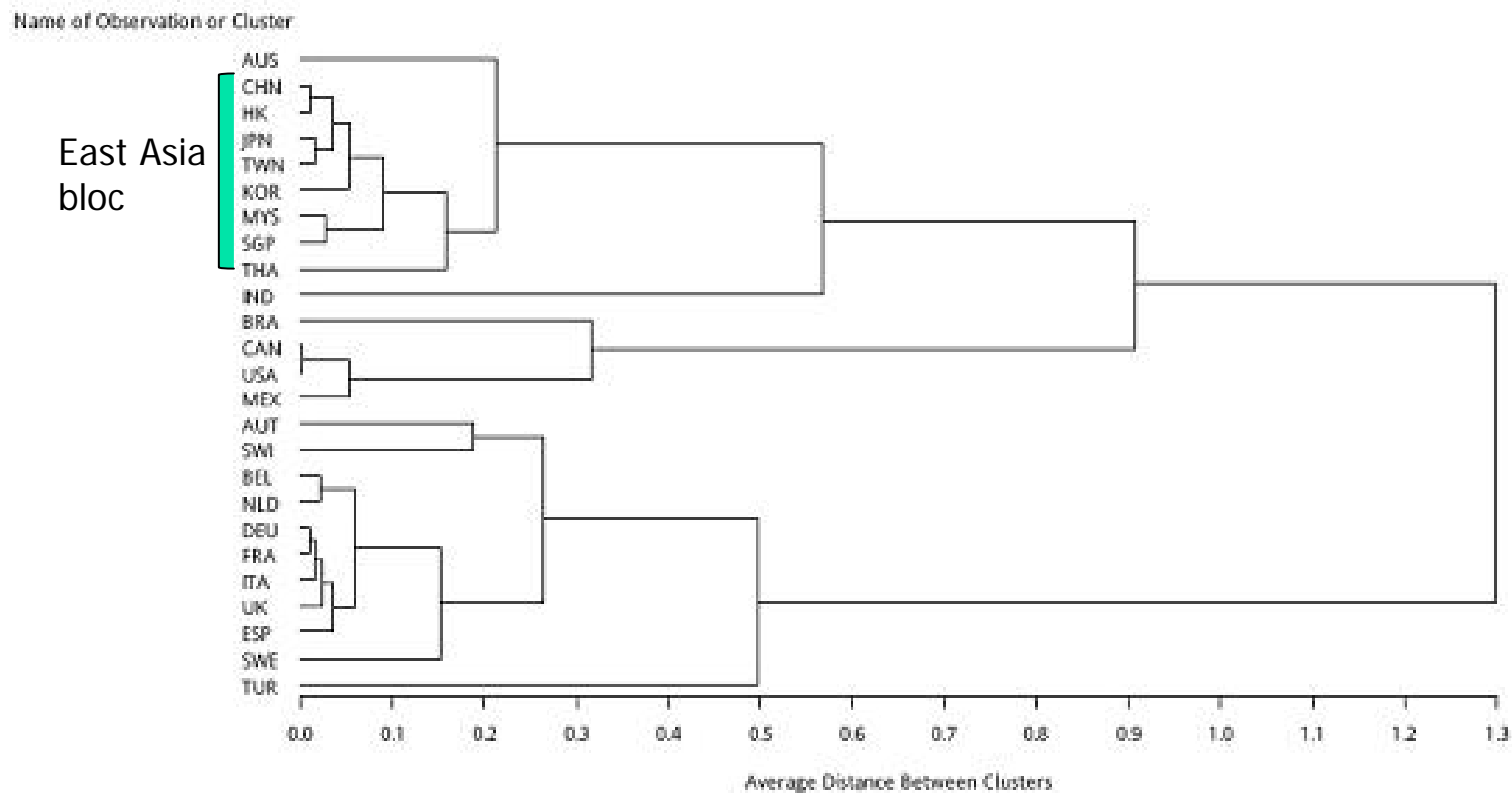
We adopt the method of clustering analysis of Huang et al. 2006, J. of Economic Integration 21(3), 474-495 to see whether there is regional FDI blocs.

Figure 3: The tree diagram of manufacturing FDI blocs (2004)



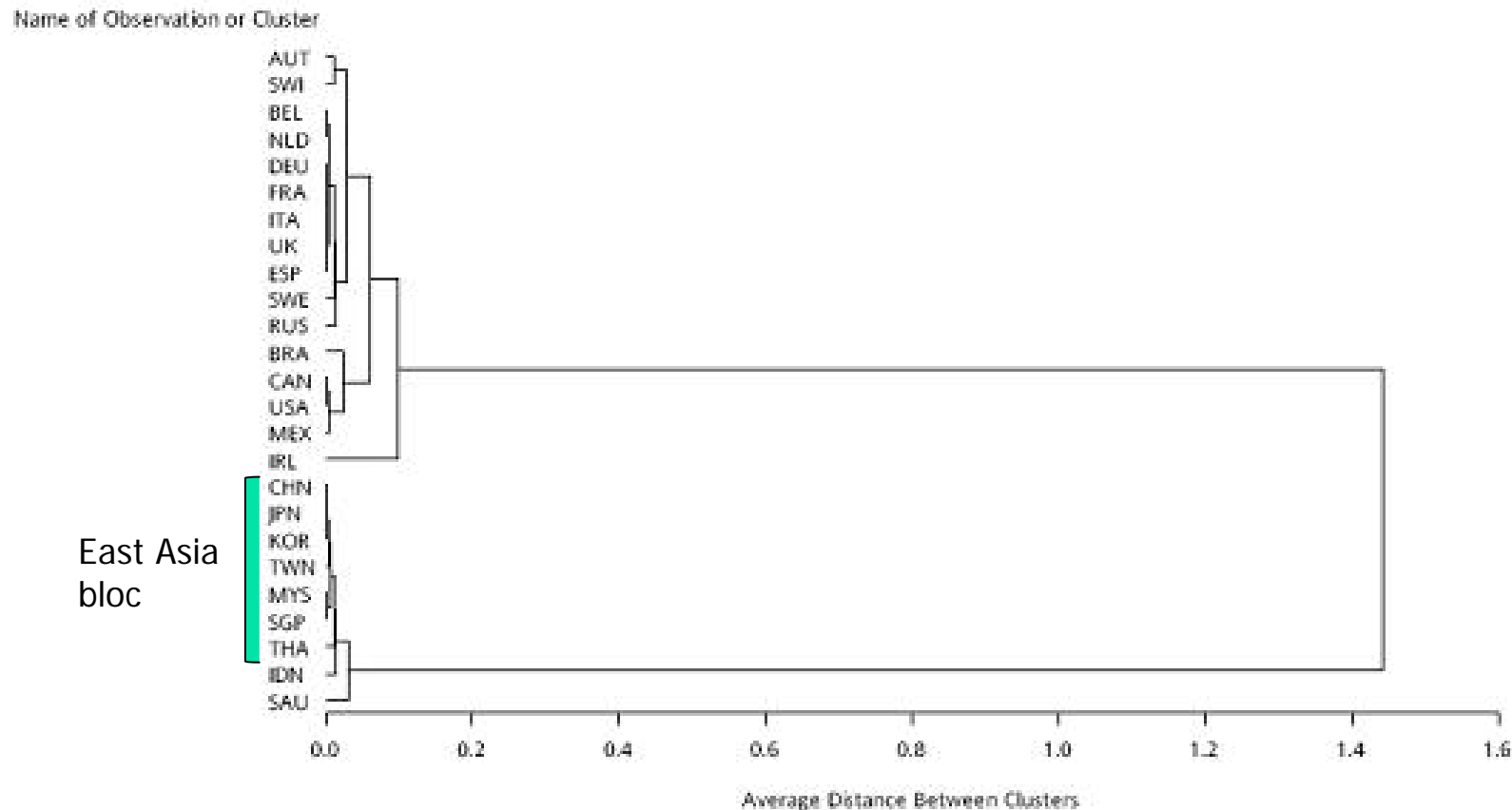
Source: FTAP dataset, GTAP, Purdue University.

Figure 4: The tree diagram of trade blocs (2000)



By examining the evolution of bilateral trade density, we may find the development path of the economic integration through trade.

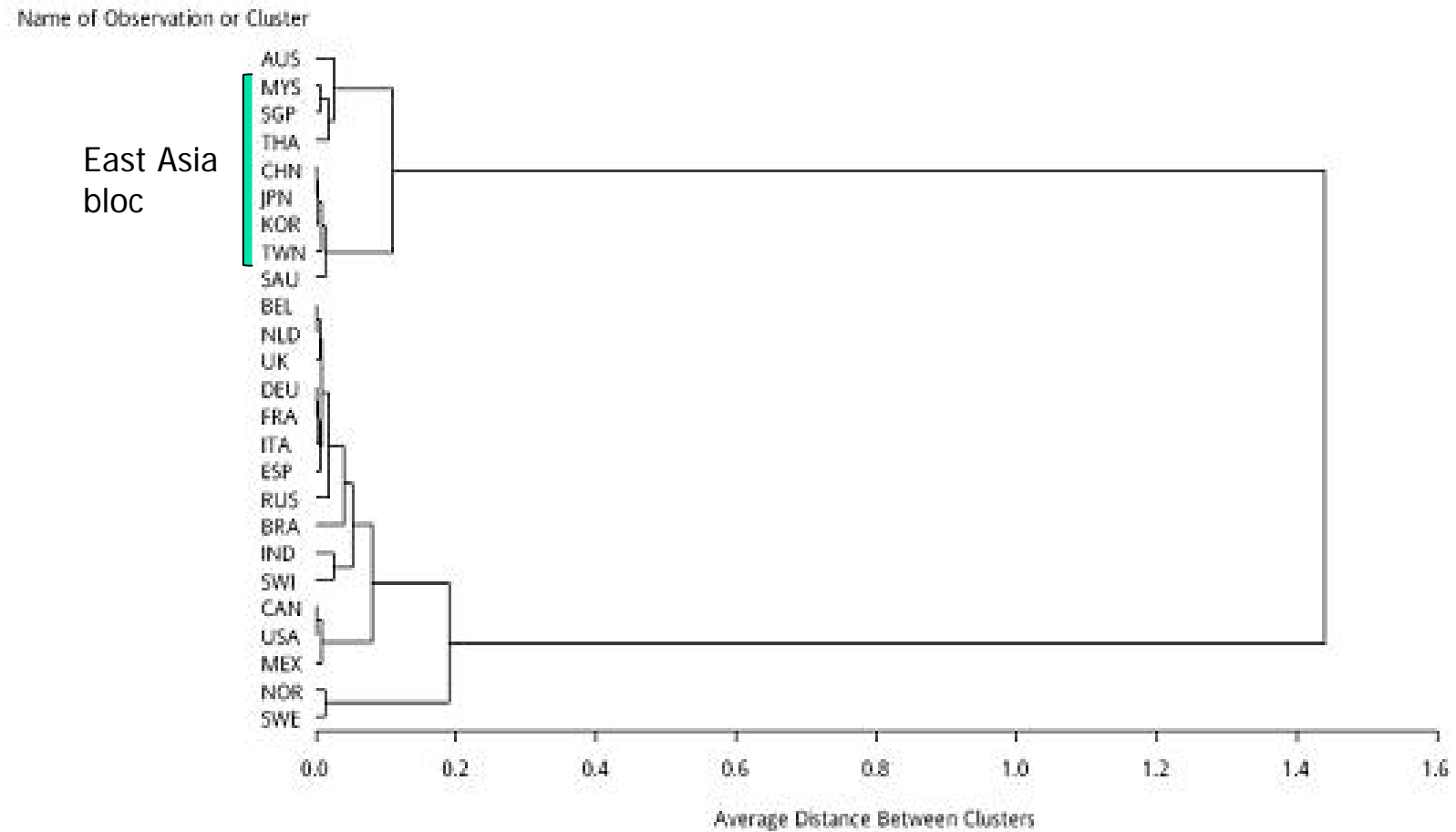
Figure 5: The tree diagram of trade blocs (2004)



In 2004, the inner core the East Asian trading bloc has changed from the pair of Japan and Taiwan in 2000 to the pair of Japan and China, followed by S. Korea and Taiwan.



Figure 6: The tree diagram of trade blocs (2008)



The structure remains in 2008.

### III. The East Asian Economic Integration

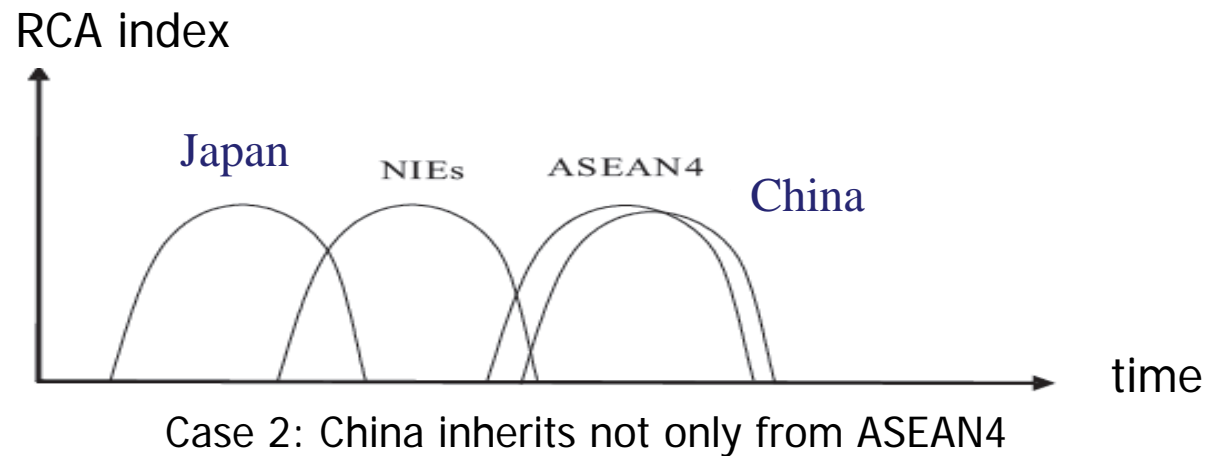
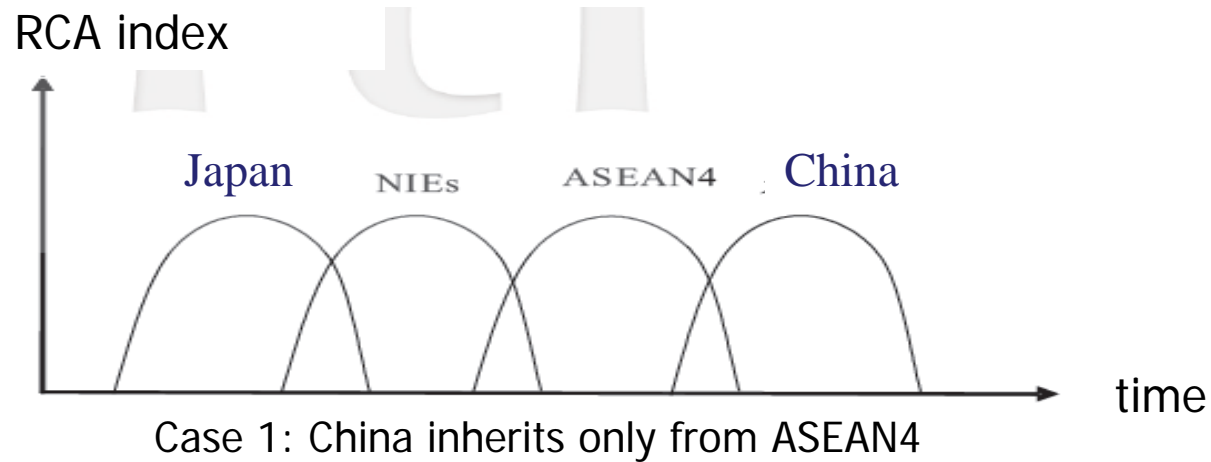
#### China's catching up and flying geese paradigm

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- The high density of Japan-China bilateral trade relationship may imply the sequence of flying geese pattern in the East Asia has changed.
- Does China catch up and pass over ASEANS?
- We calculate the RCA index for 742 SITC 4-digit industries to see how many and what industries that China inherited directly from Japan and NIEs and gained relative comparative advantages ahead of ASEANS.

### III. The East Asian Economic Integration

#### China's catching up and flying geese paradigm



### III. The East Asian Economic Integration

#### China's catching up and flying geese paradigm

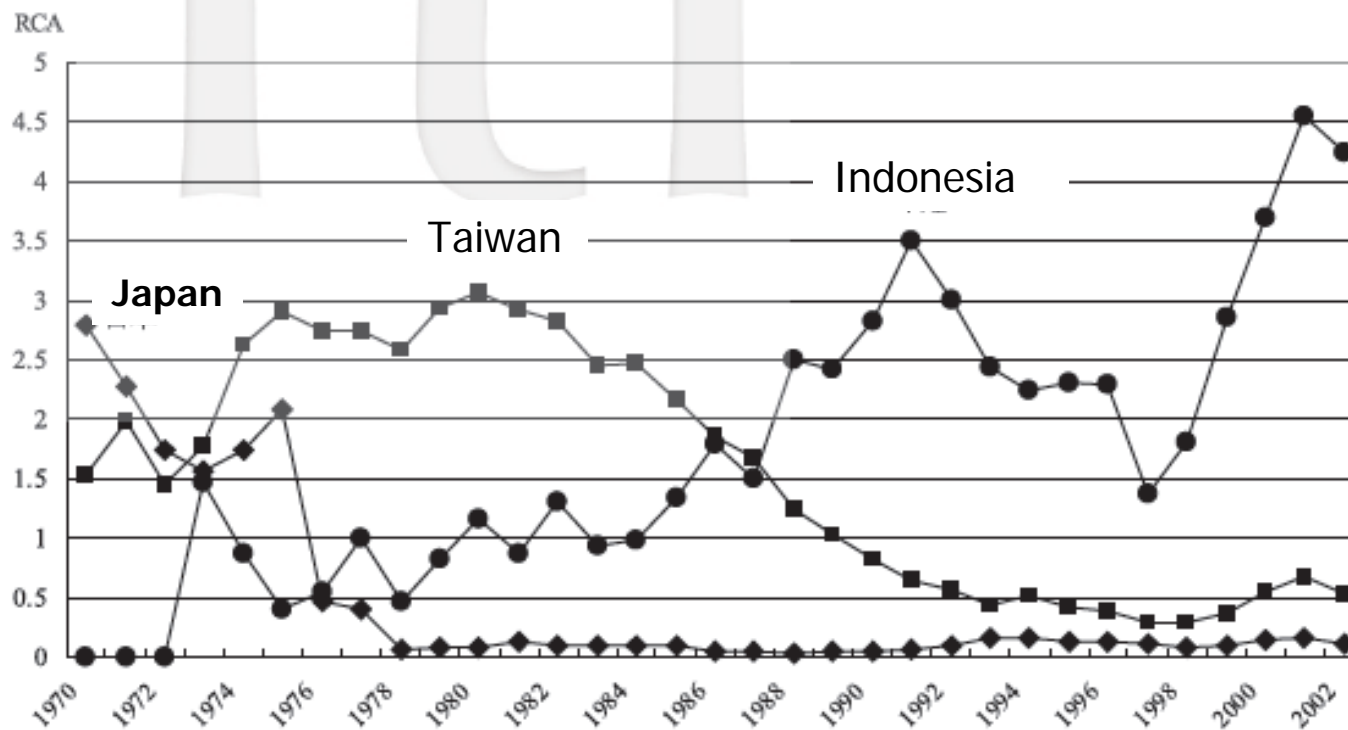


Figure 8: RCA index for SITC 8465

### III. The East Asian Economic Integration

#### China's catching up and flying geese paradigm

Table 8. the number of industries that China inherited from various countries (1980-2002)

Leading countries									
Japan/US		NIEs				ASEAN4			
US	Japan	Singapore	Taiwan	HK	Korea	Malaysia	Thailand	Philip.	Indo.
100	118	118	128	100	122	73	96	74	69

### III. The East Asian Economic Integration

#### China's catching up and flying geese paradigm

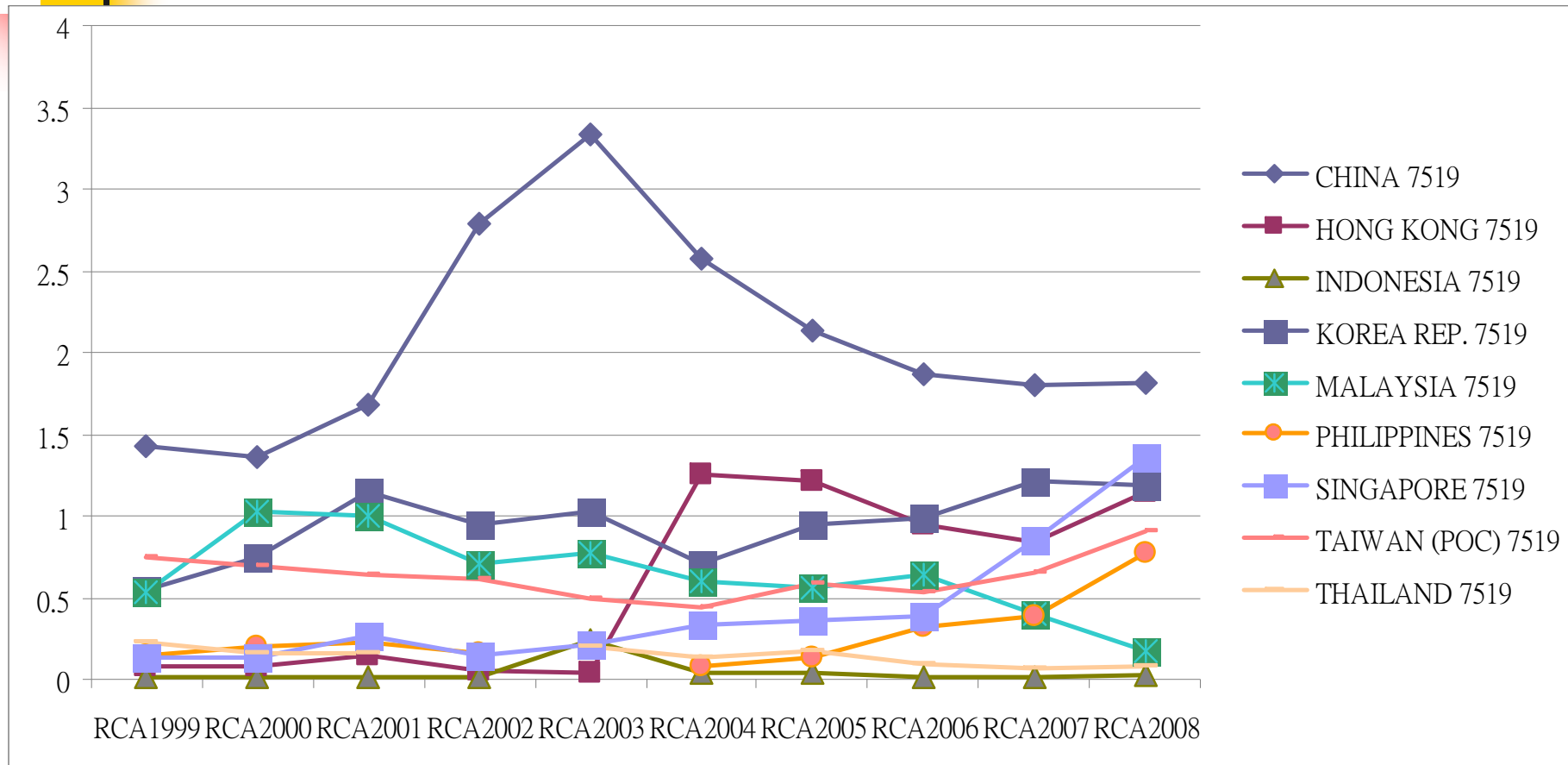


Figure 8: RCA index for SITC (V3) 7519: office machines

### III. The East Asian Economic Integration

#### China's catching up and flying geese paradigm

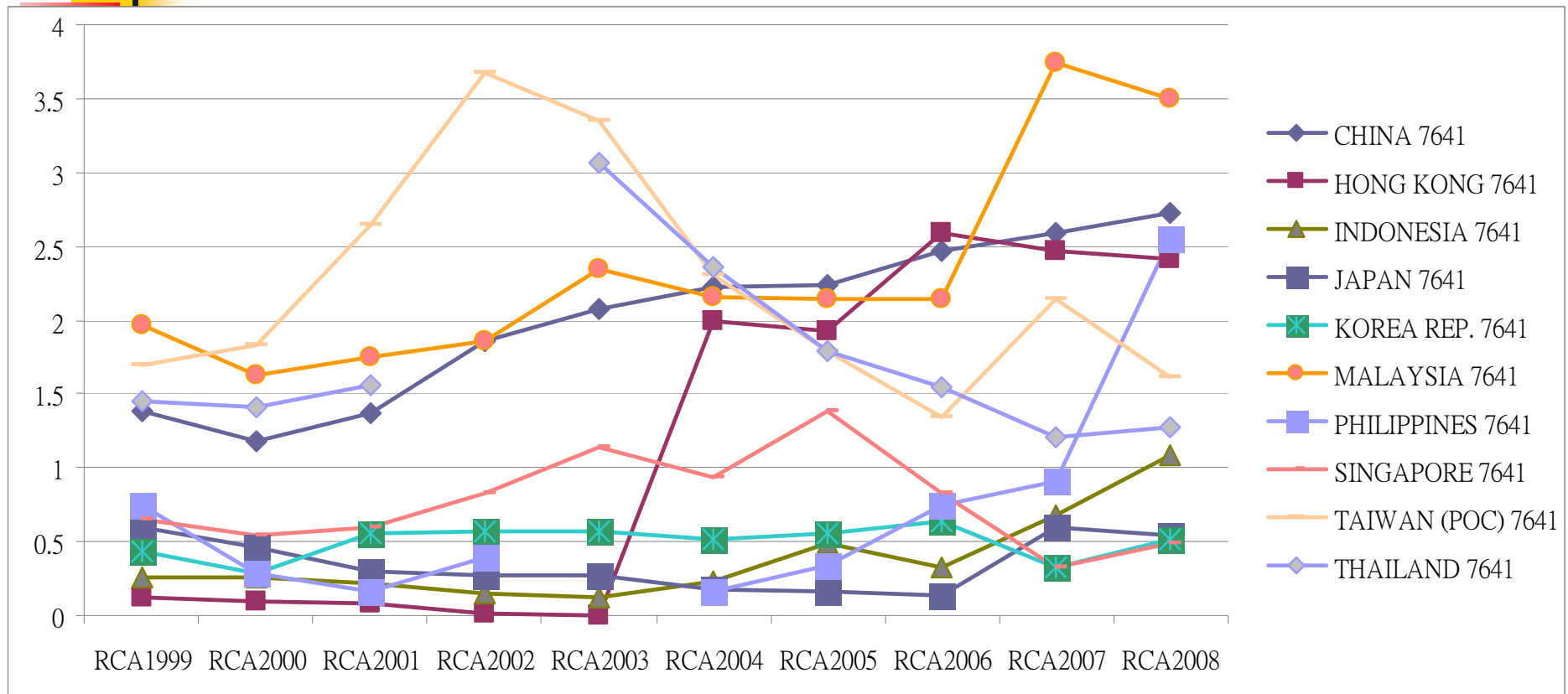
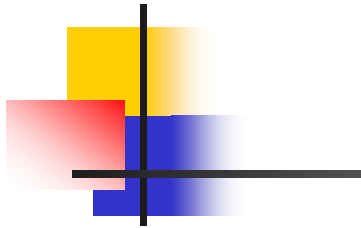


Figure 8: RCA index for SITC (V3) 7641: electrical apparatus for line telephony or line telegraphy



Appendix 2 Table List of Product Groups

Code	Commodity Group	Example of Commodity
1	Agricultural products	cereals, vegetables, fruits, tobacco, oilseeds, natural rubber
2	Processed agricultural products	cereal preparation, sugar, coffee, spices, feeding stuff, beverages, tobacco manufacturing, wood and pulp
3	Mineral products	Minerals, coal, crude petroleum, natural gas
4	Petroleum products & gases	ferrous and nonferrous metal, petroleum products
5	Natural fiber textiles	silk, cotton, wool
6	Synthetic fiber textiles	synthetic fiber for spinning
7	Yarn & fabric	textile yarn, cotton fabric, manmade fabric, knit fabric
8	Apparel	made-up articles, bed linen, apparel
9	Basic petrochemical products	synthetic rubber, inorganic chemicals, organic chemicals, dye, polymers
10	Petrochemical products	chemical fertilizer, plastic in non primary form
11	Iron & steel	pig iron, flat-rolled iron, iron and steel bar, wire, non-ferrous metal
12	Metal processing	Containers, nails, screws
13	Footwear & leather articles	footwear, leather products, rubber products, plywood, wood manufacturing, bags, chairs, beds
14	Furniture	sinks, sanitary, stationary goods, jewels, musical instruments
15	Miscellaneous manufactured goods	
16	Glass & cement	cement, glass, ceramics
17	Industrial machinery parts	boiler-parts, turbine parts, filters for engines
18	Industrial machinery	boilers, condensers, boring machines, agricultural machines, weaving machines
19	Machine tool parts	machine tool parts
20	Machine tools	Machining, grinding machines, presses for working metal, welding machines
21	Molding	molds, mold bases
22	Electronic parts	printed circuits, condensers, CPU's
23	Office & communication apparatus parts	photo-copying machine parts
24	Office and communication apparatus	photo copying machines, other office machines, telephone receivers
25	Personal computers and peripherals	personal computers, peripherals
26	Home electrical appliance parts	compressors, motors, trans, generators, TV tubes
27	Home electrical appliances	air conditioners, color TV's, video recorders
28	Precision apparatus parts	microscope parts, medical instruments
29	Precision apparatus	microscopes, medical instruments, measurements
30	Automobile parts	chassis, brakes, gear boxes, drive-axles
31	Commercial vehicles	trucks, buses
32	Passenger cars	Passenger cars
33	Motorcycle parts	motorcycle parts
34	Motorcycles	Motorcycle
35	Bicycle parts	Bicycle parts
36	Bicycle	Bicycle
37	Rail locomotive parts	rail locomotive parts
38	Rail locomotives	electric rail locomotives
39	Aircraft parts	aircraft and helicopter parts
40	Aircraft	aircraft, helicopters
41	Vessels	ships, boats, yachts
42	TV games	video, game
43	Unclassified items	Electricity

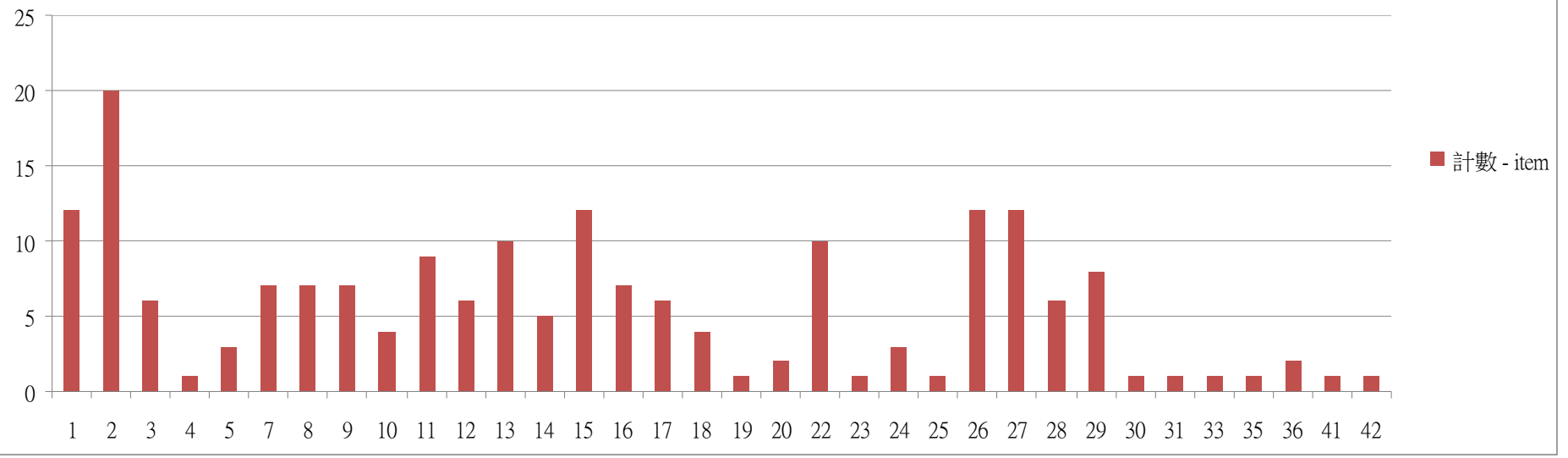
Source: by the author.

Source: Hiratsuka (2005), The "Catching up" Process of Manufacturing in East Asia. Discussion paper of IDE, no. 22.



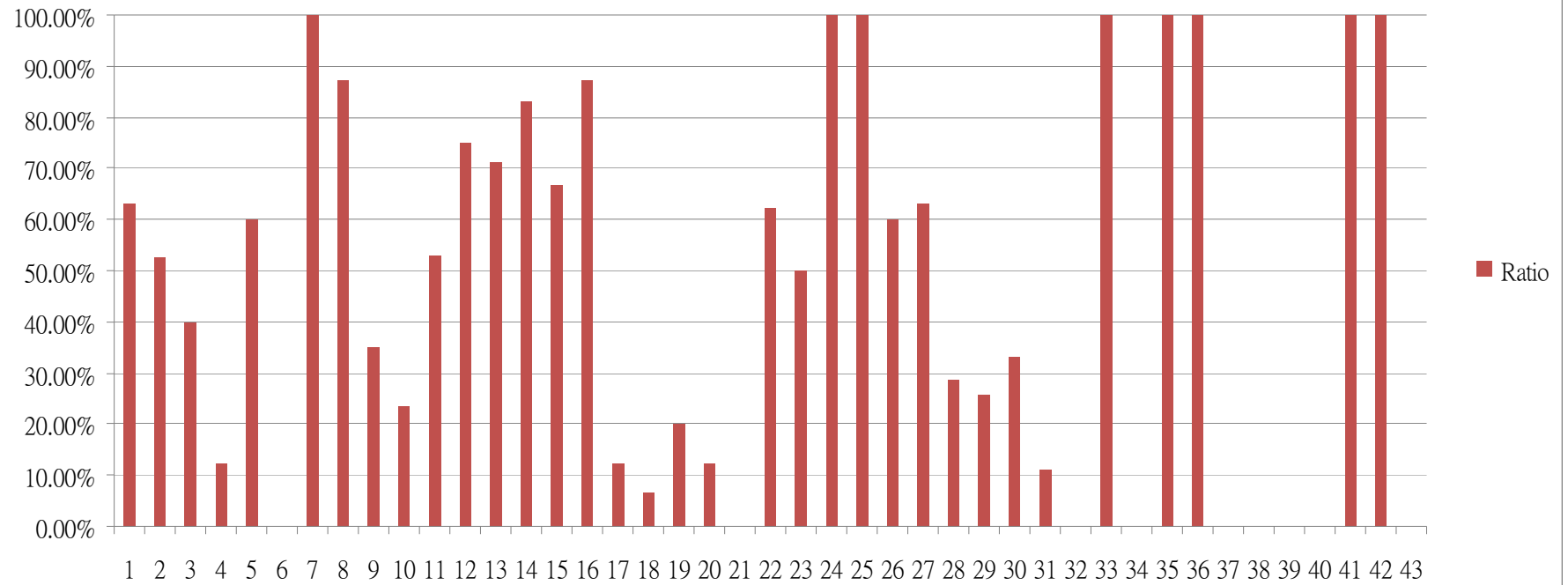


No. of Goods in Each Ind. that China's Has Caught up before ASEAN4





Ratio of Item Per Ind, that China's Has Caught up before ASEAN4





## IV. Conclusion

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1. Large MNCs have grown rapidly in size of assets and sales and facilitated global and regional economic integration through FDI and intra- and inter-firm trade.
2. East Asian countries have higher rankings in the manufacturing MNCs and have played a more important role in (regional) manufacturing production fragmentation.



## IV. Conclusion

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3. The countries with more large MNCs invest more abroad and receive more investment from abroad.
4. There is (regional) gravity effect that the bilateral FDI intensity is high among Japan, NIEs and ASEANs, which may induce higher trade intensity in the EA region.
5. The EA trading bloc structure change shows that China may have caught up and pass over the ASEAN4.



## IV. Conclusion

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6. The RCA index analysis results show that China inherited more industries directly from NIEs and Japan/US than from ASEAN4.



## Appendix 1: the top 10 firms of the Global 2000 (2009)

Rank	Company	Country	Industry	Sales (\$bil)	Profits (\$bil)	Assets (\$bil)	Market Vaue (\$bil)
1	JPMorgan Chase	US	Banking	115.63	11.65	2031.99	166.19
2	General Electric	US	Conglomerates	156.78	11.03	781.82	169.65
3	Bank of America	US	Banking	150.45	6.28	2223.3	167.63
4	ExxonMobil	US	Oil & Gas Operations	275.56	19.28	233.32	308.77
5	ICBC	China	Banking	71.86	16.27	1428.46	242.23
6	Banco Santander	Spain	Banking	109.57	12.34	1438.68	107.12
7	Wells Fargo	US	Banking	98.64	12.28	1243.65	141.69
8	HSBC Holdings	UK	Banking	103.74	5.83	2355.83	178.27
8	Royal Dutch Shell	Netherlands	Oil & Gas Operations	278.19	12.52	287.64	168.63
10	BP	UK	Oil & Gas Operations	239.27	16.58	235.45	167.13

Source: the Global 2000, the Forbes.



## Appendix 2: the top 10 manufacturing firms of the Global 2000 (2009)

Rank	Company	Country	Industry	Sales (\$bil)	Profits (\$bil)	Assets (\$bil)	Market Vaue (\$bil)
1	Procter & Gamble	US	Household & Personal Products	76.78	13.05	135.29	184.47
2	Hewlett-Packard	US	Technology Hardware & Equip	116.92	8.13	113.62	121.33
3	Nestlé	Switzerland	Food, Drink & Tobacco	97.08	10.07	105.16	173.67
4	Pfizer	US	Drugs & Biotechnology	50.01	8.64	212.95	143.23
5	Johnson & Johnson	US	Drugs & Biotechnology	61.90	12.27	94.68	174.9
6	Samsung Electronics	S. Korea	Semiconductors	97.28	4.43	83.30	94.48
7	Sanofi-aventis	France	Drugs & Biotechnology	41.99	7.54	114.85	98.07
8	Ford Motor	US	Consumer Durables	118.31	2.72	194.85	41.80
9	Novartis	Switzerland	Drugs & Biotechnology	44.27	8.40	90.89	126.22
10	Roche Holding	Switzerland	Drugs & Biotechnology	47.35	7.51	69.64	146.19

Source: the Global 2000, the Forbes.