



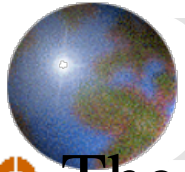
*Trade and Investment for Tomorrow:
Promoting Asia-Pacific Regional Integration*

*ARTNeT RESEARCH WORKSHOP
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Macao, China*



Evolution of Machinery Production Networks in East Asia: Linkage of North America and Europe

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(Keio University, Japan)



1. Introduction

✚ The 2nd unbundling or int'l division of labor at prod. processes/tasks (Baldwin, 2011)

✚ Geo. distance and the quality of logistics links

- Global value chains, value added trade
 - Right timing of procurement, subtle coordination among PBs, other SL costs, with tight information and ICT connectivity and reliable logistics connectivity

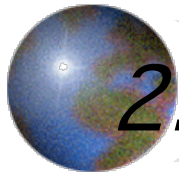
✚ 3 centers of machinery prod. networks: E. Asia, North America, and WE-CEE

- Change in the extent and depth of prod. networks within E. Asia parti. after the GFC

✚ Expanding connectivity of production bet. E.Asia and North America / Europe

- The increasing dominance of E. Asia for their production
 - Advanced industrial agglomeration on the developing

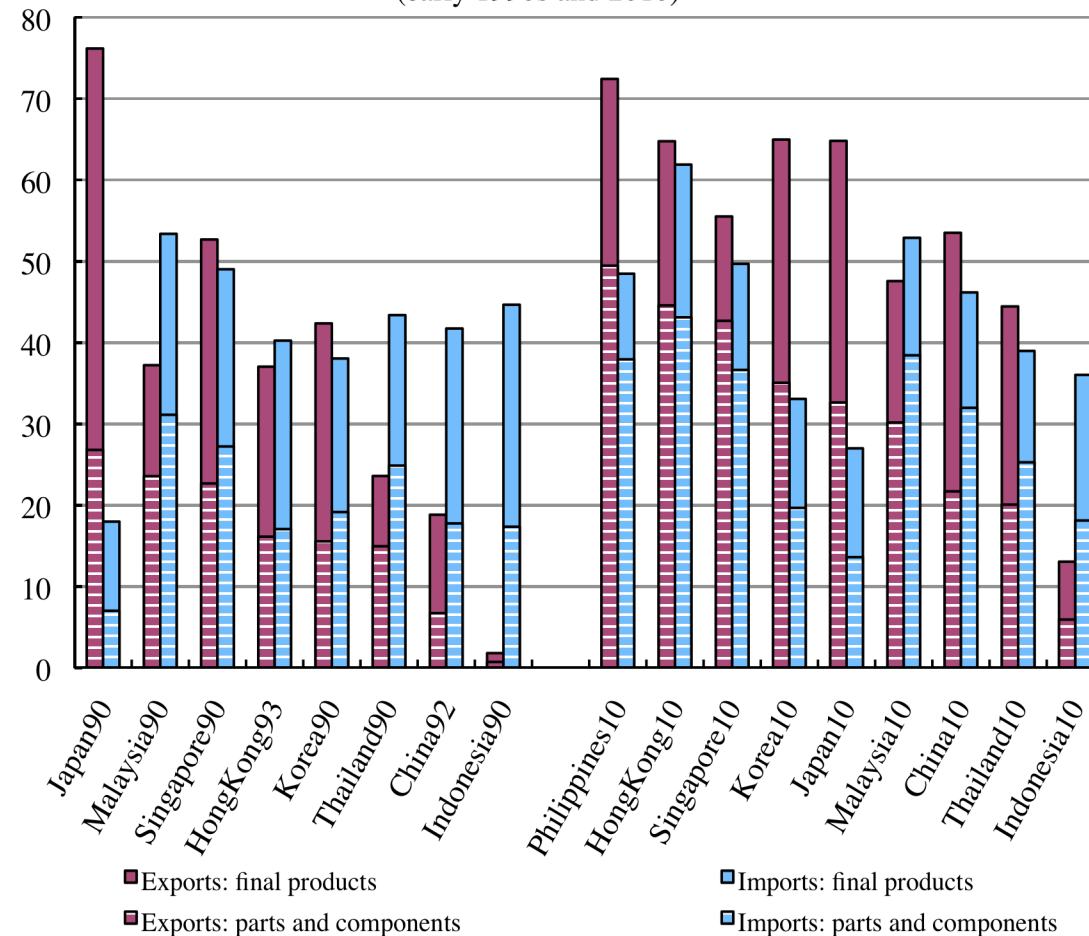
Dec 11 2013 countries' side with short-distance arm's length transactions



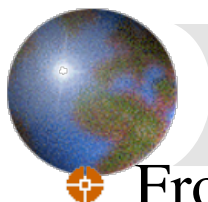
2. *Prod. networks in E. Asia: trade value*

- ✚ Significance of machinery trade with active back-and-forth transactions of P&C

Figure 1: Machinery trade in East Asia: shares in total exports/imports
(early 1990s and 2010)



Data: Ando (2006) and Ando and Kimura (2013).



From right to left (early 1990s, 1995, 2010)

Different timing (PHL, SIG, MAL, KOR, THA, HKG; CHN; IND; VNM)

Figure 2 Machinery goods and machinery parts and components: shares in total exports and imports in the early 1990s

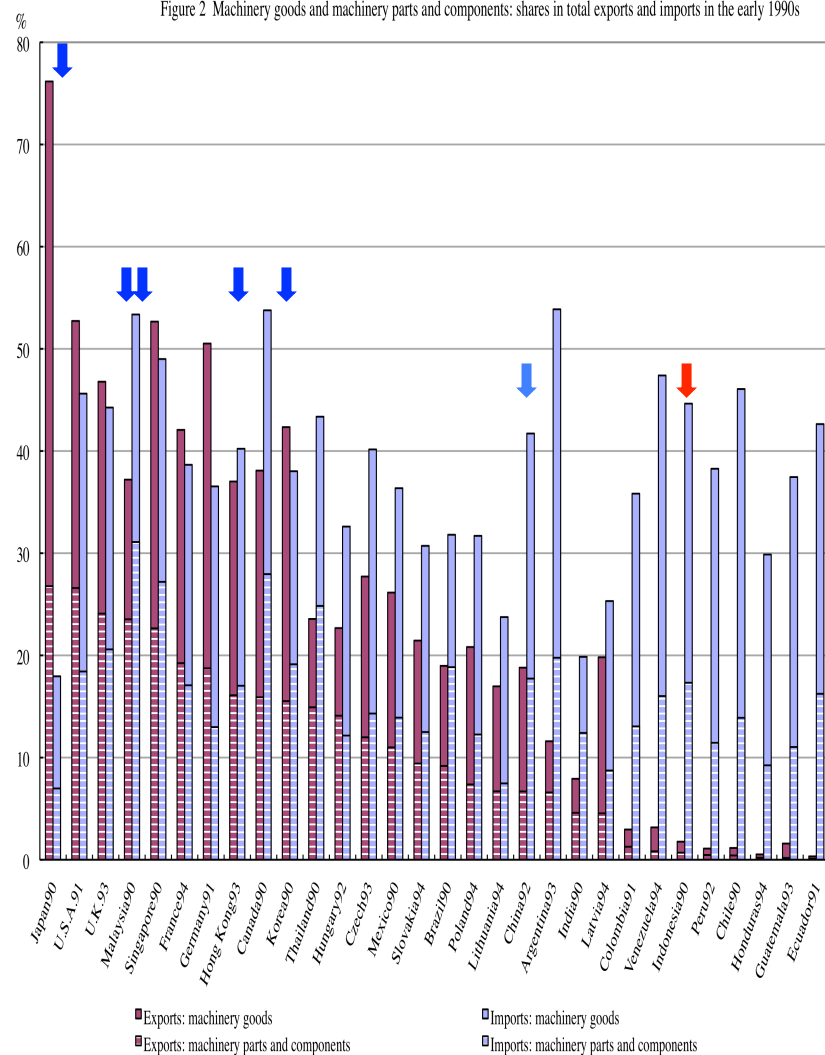
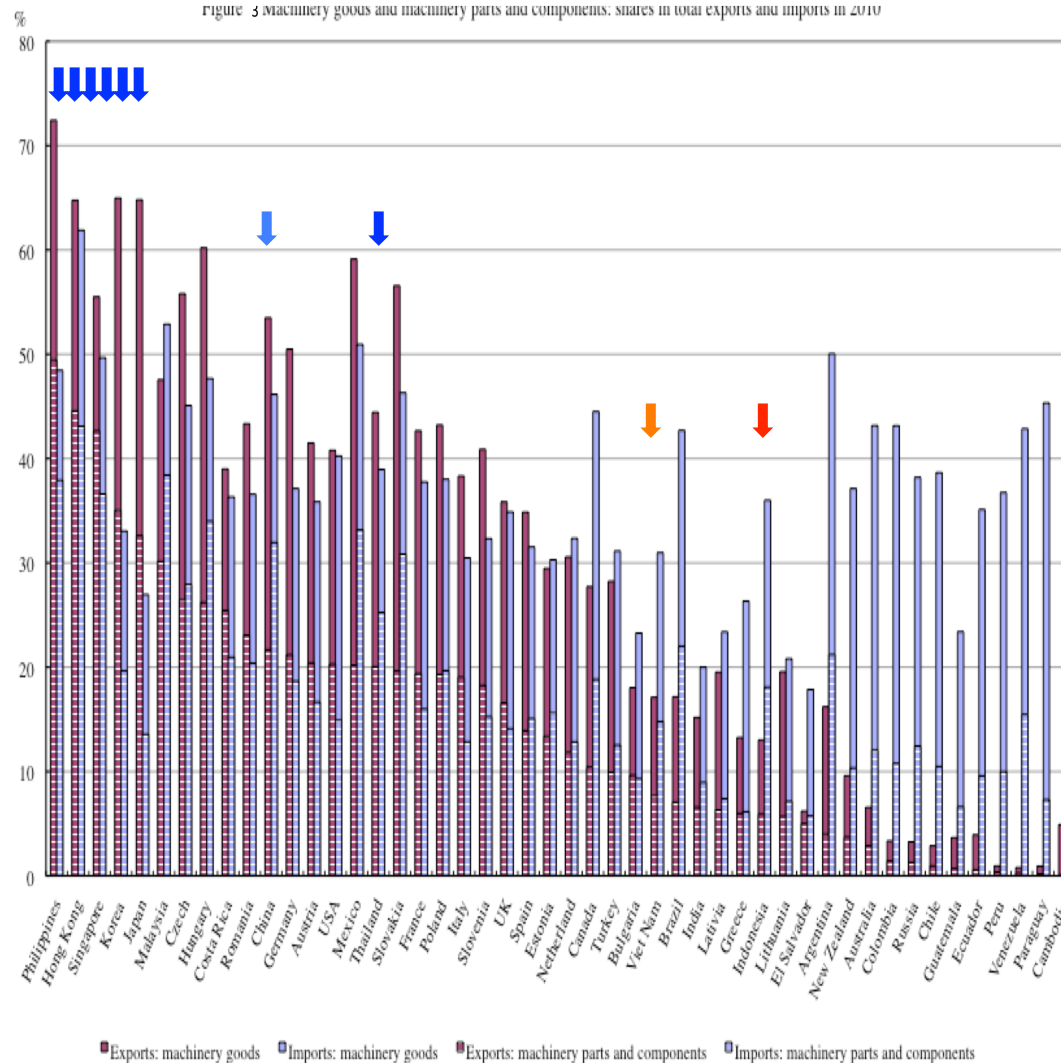


Figure 3 Machinery goods and machinery parts and components: shares in total exports and imports in 2010





Almost no decline at the annual level after GFC: resiliency

Increasing importance as the market for final products

Table 2: Intra-regional trade of East Asia 9: value and share

Destination/origin	Exports					Imports				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011

(b) Machinery parts and components
Value (nominal): 2007=1

World	1.00	1.06	0.94	1.19	1.31	1.00	1.05	0.91	1.19	1.27
EastAsia15	1.00	1.04	0.95	1.19	1.30	1.00	1.04	0.90	1.22	1.28

Share: World=100

World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
EastAsia15	63.9	62.4	65.1	64.0	63.5	69.9	69.3	69.3	71.3	70.7
China	20.9	20.9	23.6	22.0	22.8	14.2	15.1	15.3	15.1	15.7
CLMV	0.7	0.9	1.1	1.1	1.3	0.3	0.4	0.4	0.5	0.6
ASEAN4	10.5	10.3	9.7	9.8	9.3	12.5	11.7	11.1	11.9	11.2
ASEAN5	11.1	11.1	10.6	10.8	10.5	12.8	12.1	11.5	12.4	11.8
ASEAN10	15.7	15.1	14.8	15.0	14.1	17.2	16.7	16.4	17.1	16.4
NIEs4	26.2	24.7	25.6	26.3	25.2	28.2	27.0	27.9	28.7	28.2
Japan	5.7	5.6	5.1	4.8	4.8	14.7	15.1	14.6	15.1	15.0

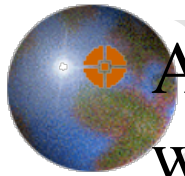
(c) Machinery final products
Value (nominal): 2007=1

World	1.00	1.11	0.91	1.16	1.29	1.00	1.11	0.99	1.28	1.54
EastAsia15	1.00	1.12	0.99	1.32	1.52	1.00	1.12	0.97	1.29	1.51

Share: World=100

World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
EastAsia15	30.4	30.6	33.3	34.7	35.8	58.7	59.0	57.2	59.0	57.8
China	6.2	6.2	6.6	7.4	7.5	23.4	23.1	24.5	25.3	25.5
CLMV	0.9	1.1	1.3	1.3	1.5	0.3	1.3	0.5	0.5	0.7
ASEAN4	4.6	5.0	5.1	5.5	5.7	9.9	10.2	9.9	10.0	9.1
ASEAN5	5.2	5.8	6.1	6.4	6.7	10.2	10.6	10.4	10.5	9.7
ASEAN10	8.4	9.1	9.9	9.6	10.2	13.3	14.5	13.8	13.2	12.6
NIEs4	14.6	14.3	15.6	15.8	16.2	11.4	10.7	10.4	10.0	10.6
Japan	4.2	4.1	4.7	4.7	4.8	13.6	13.7	11.8	13.2	12.0

Data: Ando (2013).



A possible change in the composition of trading P&C within the region: CN, CLMV (mainly VN)

Table 2: Intra-regional trade of East Asia 9: value and share

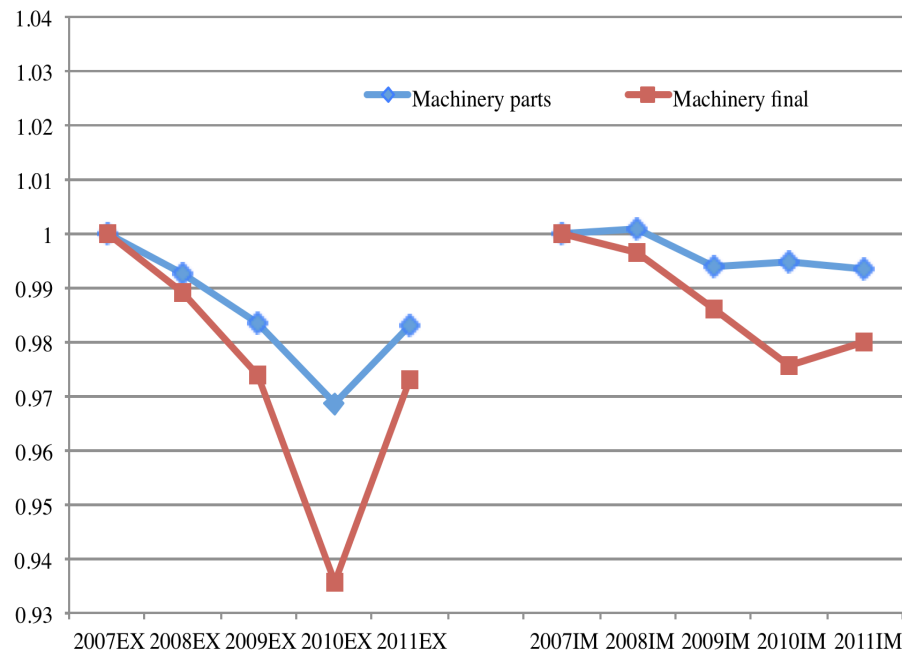
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Data: Ando (2013).

2. Prod. networks in E. Asia: extensive margins

✚ # of products exported to the world ↓ , but # of exported product-country pairs within the region ↑
 => New trade relationships within the region!

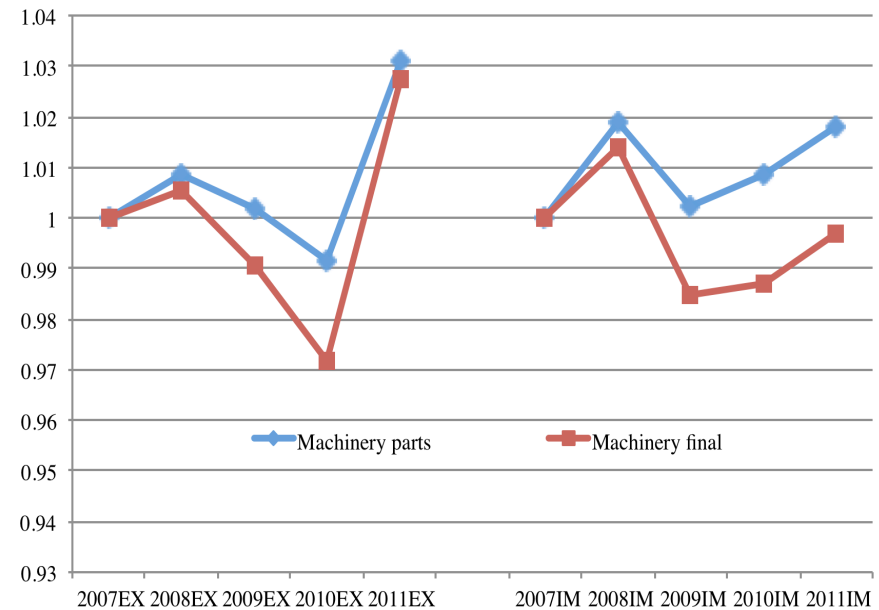
Figure 4: The number of products traded with the world for East Asia 9 (2007=1)



Data: Ando (2013).

Note: the number of products traded with the world is at HS 6 digit level, regardless of partner countries.

Figure 5: The number of exported/imported product-country pairs for intra-regional trade: East Asian 9 (2007=1)



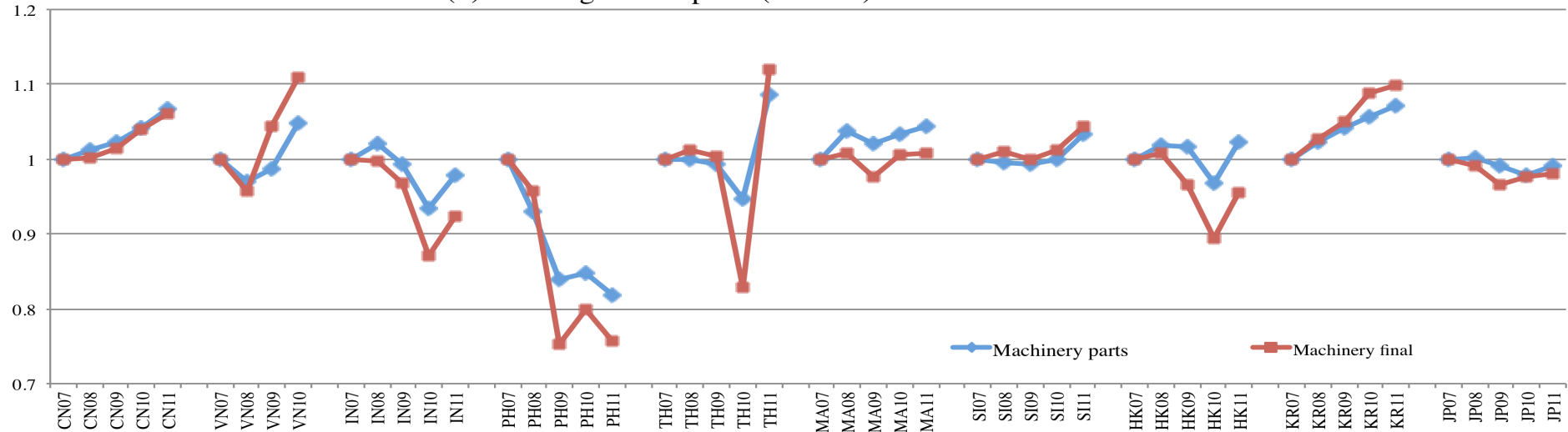
Data: Ando (2013).

Note: intra-regional trading partners are East Asia 15.

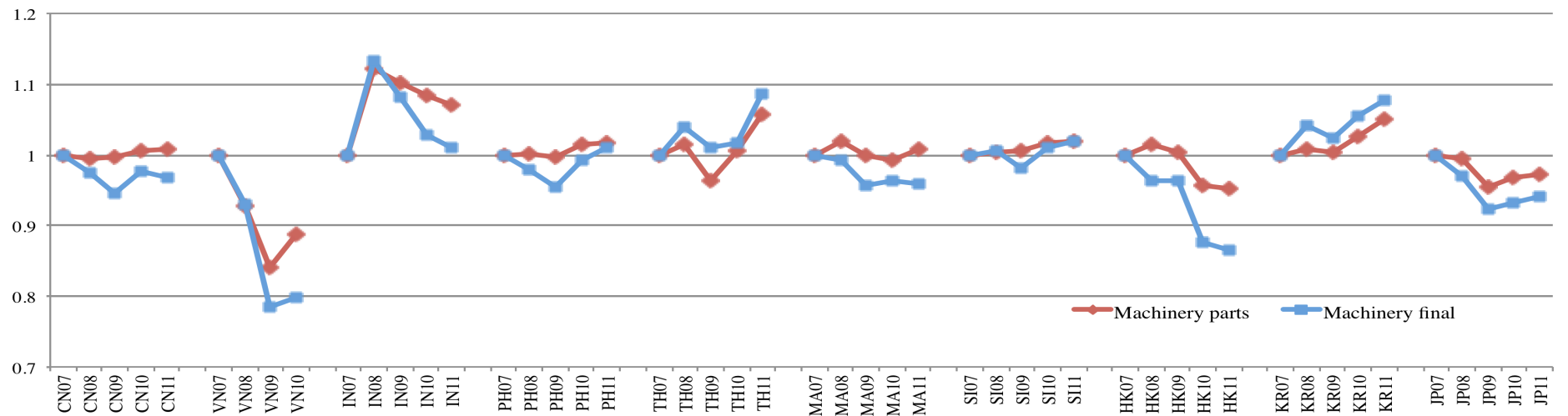


Figure 6: The number of product-country pairs for intra-regional machinery trade

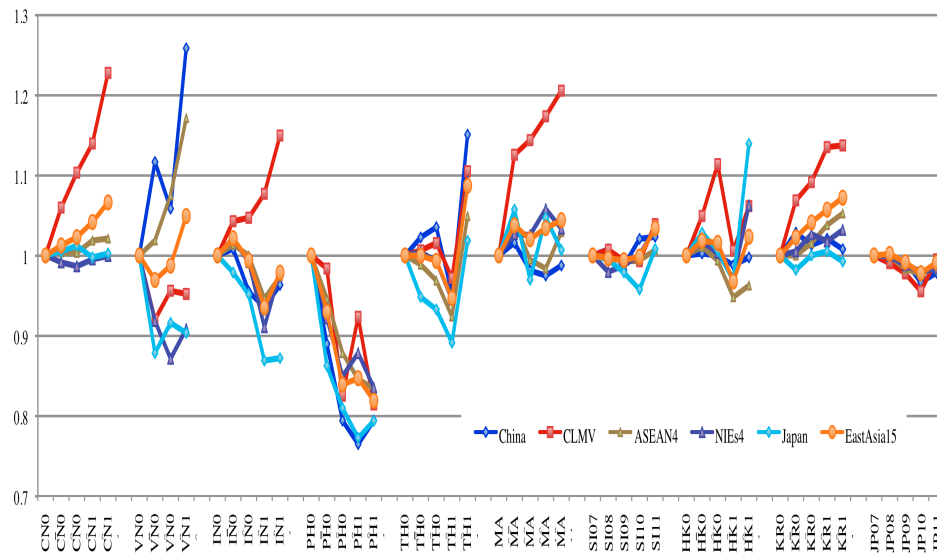
(i) Intra-regional exports (2007=1)



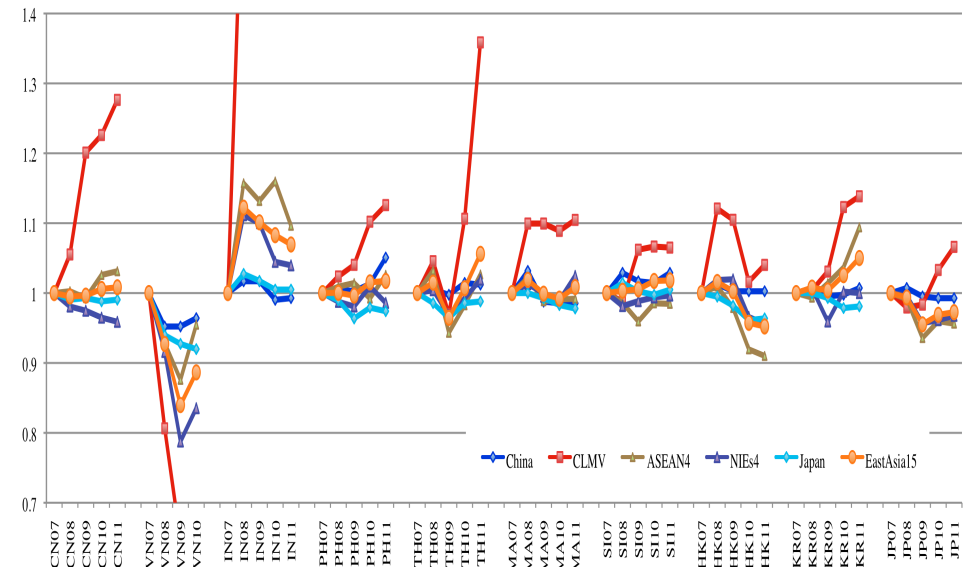
(ii) Intra-regional imports (2007=1)



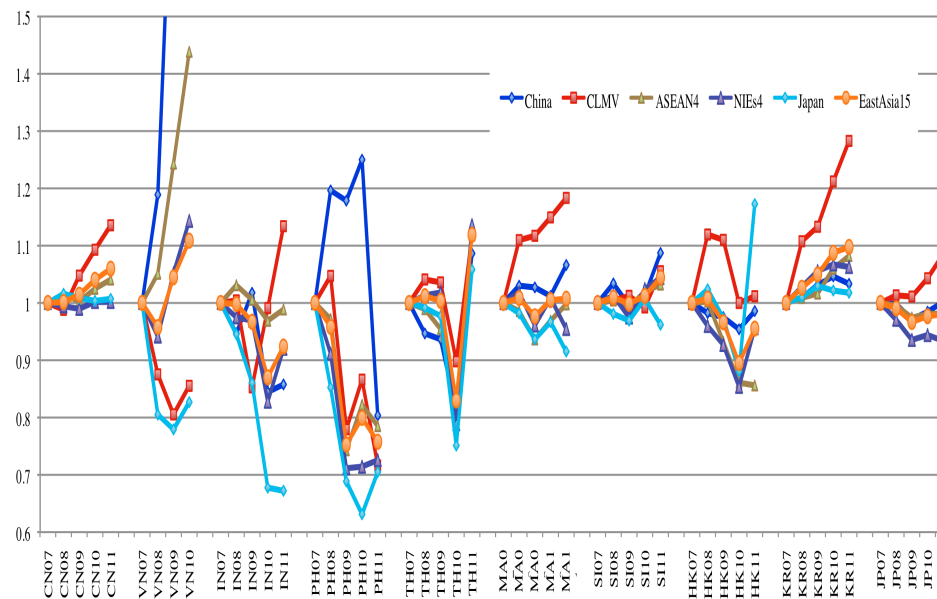
(b) Intra-regional exports in machinery parts



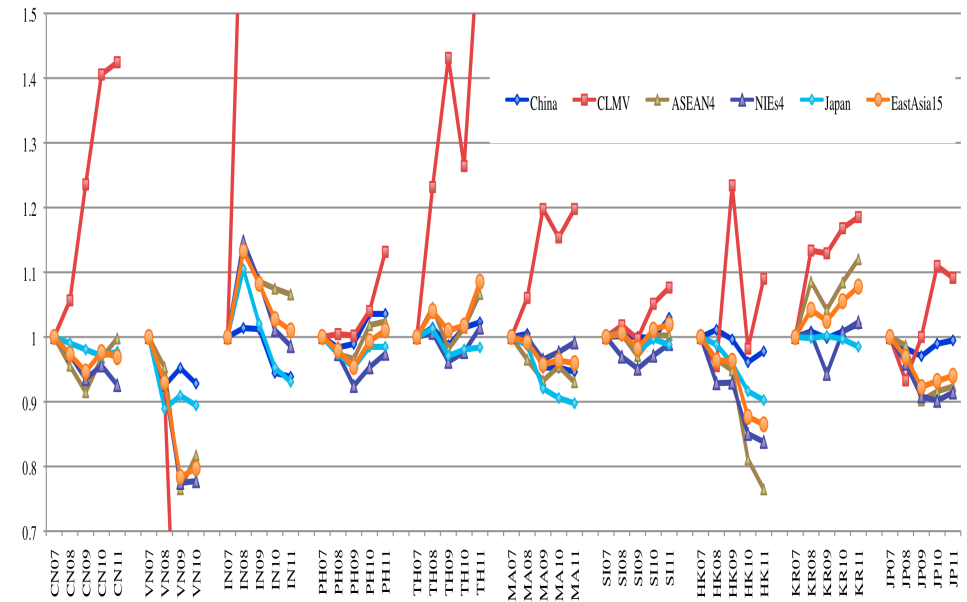
(b) Intra-regional imports in machinery parts



(c) Intra-regional exports in machinery final products



(c) Intra-regional imports in machinery final products



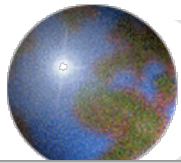
2. Prod. networks in E. Asia: extensive margins (cont'd)

- ✚ CLMV(mainly Vietnam): rapidly becoming to be connected to both EX&IM of other E. Asian countries
 - ▣ Note: partly due to small # in 2007
 - ✚ CN: becoming more important supplier of machinery final products using P&C imported from the region, parti. ASEAN
 - ✚ Strengthening connections bet. VN and CN and bet. VN and ASEAN4, with new transactions
 - ✚ Korea: becoming more active in the networks
- => Expanding prod. networks with changes in their shape

3. *Expanding connectivity of production*

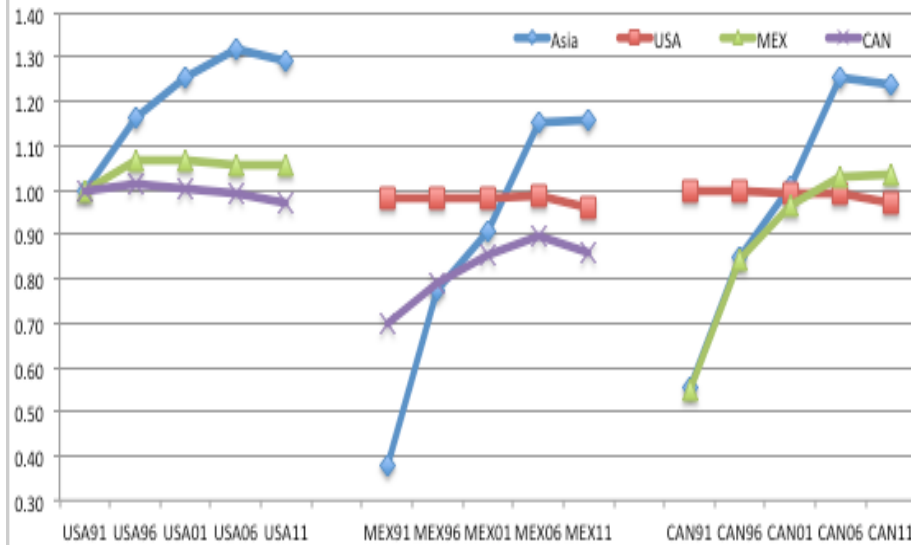
- ✚ Trade in machinery P&C within a region in general
- ✚ A new phenomenon: prod. linkage of E. Asia with prod. networks in N. America and EU
 - ▣ IM from E.Asia to MEX ↑ : from 10% in 1991 to close to 60% in 2011 for electronic P&C (Ando and Kimura, 2013, to be published)
 - US FDI in E. Asia, and JPN and KOR FDI in MEX
 - E.Asia share for IM to US: about 50%
 - **MEX: bridge to strengthen the link with US and E.Asia**
 - ▣ IM from E.Asia to CEE ↑ : from 10% in 1995 to 45% in 2011 for electronic P&C (Ando and Kimura, 2013, JEI)
 - 60% for Poland!
 - EU FDI in E. Asia, and JPN and KOR FDI in CEE
 - **CEE: bridge to connect WE and E.Asia**

=>Extensive margins and gravity model estimations also confirm the increasing dominance of E. Asia for their production, reflecting industrial characteristics!

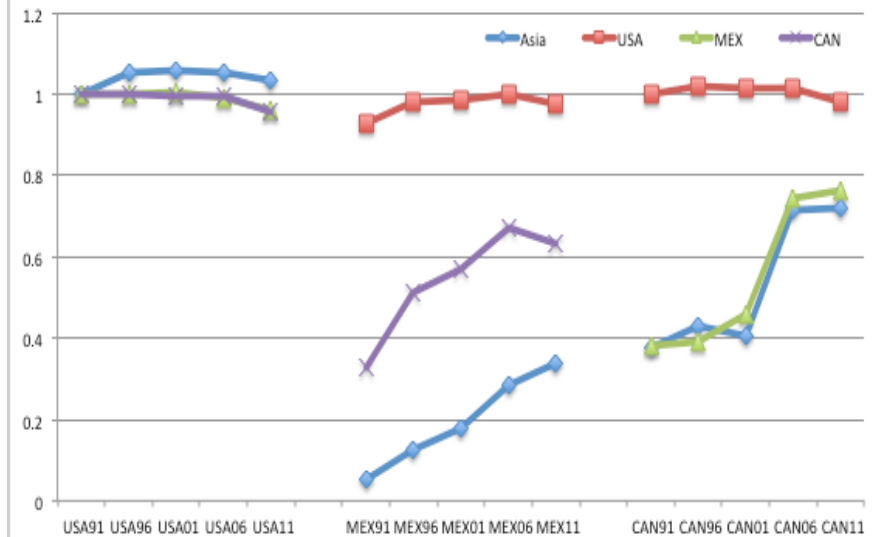


of product-country pairs for each N. American country from 1991 to 2011 ((USA (CAN) in 1991=1): all machinery sectors

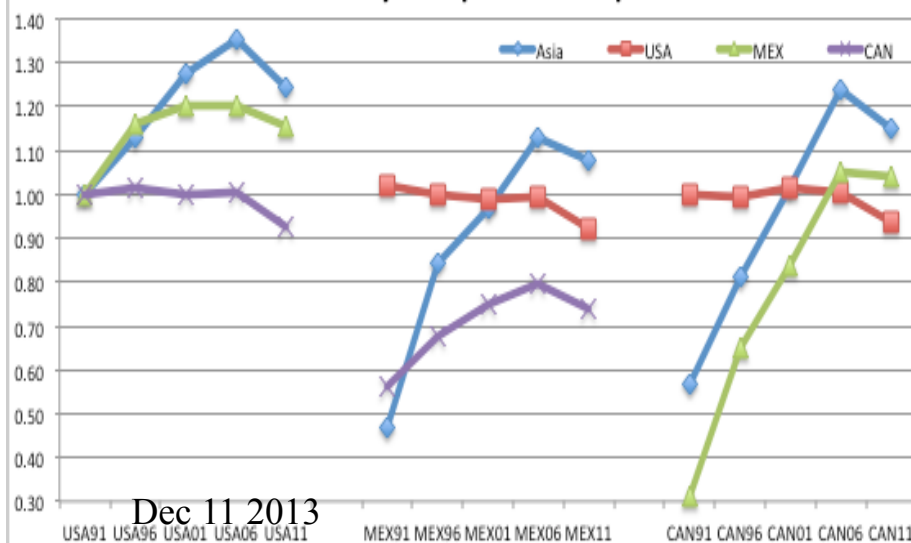
Machinery parts and components: imports



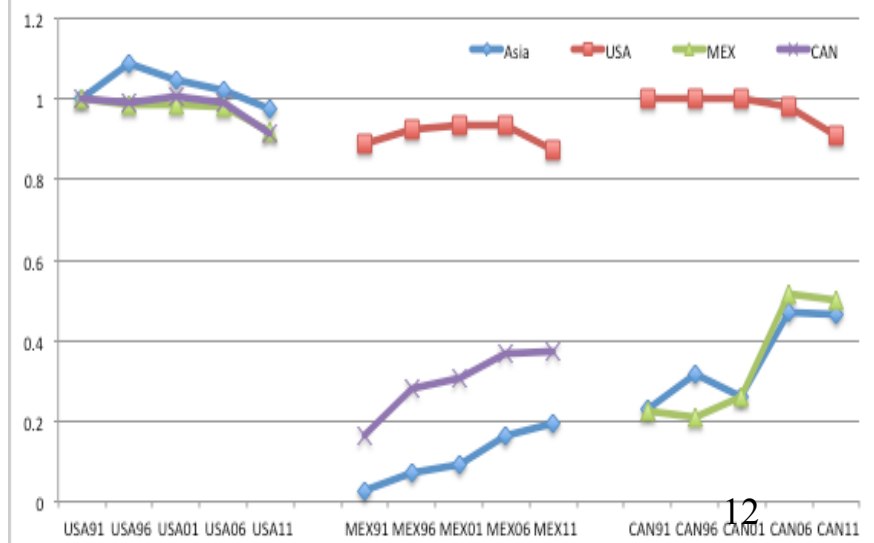
Machinery parts and components: exports



Machinery final products: imports



Machinery final products: exports



Dec 11 2013

12

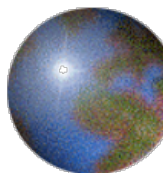


Table A.1 The rankings of importing partners and their shares in trade with the world by each North American country

ii) Machinery parts and components

All machinery sectors						Electric machinery sector					
US		Mexico		Canada		US		Mexico		Canada	
Name	%	Name	%	Name	%	Name	%	Name	%	Name	%
Year: 1991											
1	JPN 28.8	USA 64.0	USA 73.9	JPN 27.5	USA 55.3	USA 64.5	JPN 32.3	USA 68.2	USA 82.3		
2	CAN 16.9	DEU 6.9	JPN 7.0	MEX 14.9	SWE 11.0	Special 11.0	CAN 31.4	DEU 7.9	JPN 6.1		
3	MEX 8.9	JPN 6.1	Special 3.3	CAN 11.7	JPN 8.0	JPN 6.7	MEX 7.5	Asia 4.6	MEX 4.2		
4	DEU 7.2	SWE 3.9	MEX 2.9	KOR 6.9	DEU 6.5	DEU 3.7	GBR 4.9	GBR 4.1	DEU 1.5		
5	GBR 5.3	FRA 3.8	DEU 2.9	Asia 6.5	FRA 3.5	MEX 2.6	FRA 4.7	JPN 3.6	GBR 1.4		
6	Asia 5.0	ITA 2.3	GBR 2.0	MYS 5.5	CAN 2.0	Asia 1.6	ITA 4.0	FRA 2.9	KOR 0.9		
7	FRA 4.7	GBR 2.1	FRA 1.3	SGP 5.1	Asia 1.7	KOR 1.4	DEU 3.7	CAN 2.2	FRA 0.9		
8	SGP 3.2	CAN 1.7	Asia 1.0	DEU 4.4	ITA 1.7	FRA 1.3	Asia 2.1	BRA 1.6	ITA 0.5		
9	KOR 3.2	BRA 1.6	KOR 0.9	PHL 2.6	BRA 1.7	GBR 1.3	ESP 1.6	ESP 1.5	SWE 0.5		
10	ITA 2.3	Asia 1.5	ITA 0.8	GBR 2.4	GBR 1.4	HKG 0.9	BRA 1.2	IND 1.4	Asia 0.4		
11	MYS 2.1	ESP 1.2	SWE 0.7	HKG 1.9	ESP 1.2	MYS 0.8	KOR 0.9	ITA 0.8	AUT 0.3		
12	BRA 1.2	CHE 0.9	HKG 0.4	THA 1.8	NLD 1.1	SWE 0.7	ISL 0.9	ARG 0.6	Special 0.3		
13	HKG 1.2	NLD 0.6	AUT 0.3	FRA 1.3	PRK 1.0	SGP 0.6	AUS 0.7	NLD 0.1	NLD 0.2		
14	SWE 1.1	PRK 0.5	NLD 0.3	ISL 0.9	CHE 0.7	CHE 0.5	SWE 0.6	BEL 0.1	BRA 0.1		
15	PHL 1.0	HKG 0.4	SGP 0.3	CHN 0.9	HKG 0.7	PHL 0.4	NLD 0.4	SGP 0.1	ESP 0.1		
16	CHE 1.0	BEL 0.4	CHE 0.3	SWE 0.8	BEL 0.5	NLD 0.4	CHE 0.4	PRK 0.1	BEL 0.1		
17	ISL 0.9	ARG 0.3	CHN 0.2	ITA 0.7	SGP 0.4	ITA 0.3	BEL 0.4	HKG 0.0	IRL 0.1		
18	THA 0.9	IND 0.2	MYS 0.2	CHE 0.6	PRT 0.3	CHN 0.3	CHN 0.4	CHN 0.0	CHE 0.0		
19	CHN 0.8	SGP 0.2	BRA 0.2	IRL 0.4	KOR 0.2	ESP 0.3	HUN 0.3	IDN 0.0	SGP 0.0		
20	NLD 0.7	DNK 0.2	ESP 0.2	NLD 0.4	MYS 0.2	BEL 0.1	SGP 0.3	VEN 0.0	VEN 0.0		
Year: 2011											
1	CHN 18.4	USA 37.9	USA 56.5	CHN 21.5	CHN 25.8	USA 41.8	MEX 22.3	USA 61.6	USA 69.2		
2	MEX 16.1	CHN 20.8	CHN 8.5	MEX 18.8	USA 25.4	CHN 14.0	JPN 17.5	JPN 11.1	JPN 7.4		
3	JPN 13.1	JPN 8.4	MEX 7.4	JPN 9.5	KOR 13.0	MEX 10.8	CAN 16.6	DEU 6.8	MEX 7.4		
4	CAN 9.2	KOR 7.8	JPN 5.5	MYS 6.4	JPN 7.1	Asia 4.8	CHN 11.1	CHN 4.9	CHN 4.6		
5	DEU 7.4	DEU 4.7	DEU 3.3	Asia 6.1	MYS 6.4	KOR 4.4	DEU 7.1	CAN 4.6	GBR 2.9		
6	KOR 4.4	MYS 3.3	GBR 3.0	CRI 5.9	Asia 4.9	JPN 3.8	KOR 5.7	KOR 2.2	DEU 1.6		
7	Asia 3.7	Asia 2.9	KOR 2.2	KOR 5.0	CRI 4.3	DEU 3.1	GBR 2.8	BRA 1.9	KOR 1.2		
8	GBR 3.0	CRI 2.1	Asia 1.9	DEU 4.4	DEU 2.4	MYS 2.4	Asia 2.7	ITA 1.0	Asia 1.0		
9	FRA 2.9	CAN 1.9	ITA 1.3	CAN 3.9	PHL 2.0	PHL 2.3	FRA 2.5	IND 0.8	FRA 0.8		
10	MYS 2.9	BRA 1.2	FRA 1.2	PHL 2.6	THA 1.6	THA 1.5	ITA 2.2	Asia 0.8	ITA 0.6		
11	ITA 2.2	THA 1.2	MYS 0.8	SGP 2.1	CAN 0.8	SGP 1.4	IND 1.3	FRA 0.7	IND 0.2		
12	CRI 2.0	PHL 1.1	PHL 0.6	THA 1.5	SGP 0.8	FRA 1.1	BRA 0.8	ESP 0.7	POL 0.2		
13	SGP 1.7	ITA 0.9	POL 0.6	GBR 1.3	FRA 0.5	GBR 0.8	AUS 0.7	SWE 0.6	ESP 0.2		
14	IND 1.0	FRA 0.7	THA 0.6	FRA 1.1	IND 0.4	SWE 0.6	ESP 0.5	THA 0.3	AUT 0.1		
15	THA 1.0	SGP 0.5	SWE 0.5	ITA 1.0	SWE 0.4	CRI 0.5	NLD 0.5	POL 0.2	BRA 0.1		
16	PHL 1.0	ESP 0.5	SGP 0.5	IND 0.7	ITA 0.3	ITA 0.5	AUT 0.5	AUT 0.2	CZE 0.1		
17	AUT 0.9	IND 0.5	IND 0.3	ISL 0.7	IDN 0.3	IND 0.4	BEL 0.5	CZE 0.2	BEL 0.1		
18	BRA 0.8	GBR 0.4	CHE 0.3	CHE 0.6	ESP 0.3	CHE 0.3	TUR 0.4	TUR 0.2	AUS 0.1		
19	CHE 0.8	SWE 0.4	NLD 0.3	IDN 0.6	CHE 0.3	ISL 0.267	ISL 0.4	GBR 0.2	NLD 0.1		
20	CHE 0.7	CHE 0.3	AUT 0.3	AUT 0.4	CZE 0.3	IDN 0.264	CZE 0.4	ARG 0.1	RUS 0.1		



Appendix for N. America: gravity model

Major results

- ✚ Reduction in SL costs and/or strengthening competitiveness of E. Asia in the electric machinery

	1991						2011							1991						2011					
	All		Elec		Trans		All		Elec		Trans			All		Elec		Trans		All		Elec		Trans	
Parts and components													Final products												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(7)	(8)	(9)	(10)	(11)	(12)	(7)	(8)	(9)	(10)	(11)	(12)
Dist	-0.89 ***	-0.84 ***	-1.27 ***	-0.41 **	-0.22	-0.77 **	-0.78 ***	-0.34	-1.25 ***	-0.58 **	-0.40	-0.94 ***	Dist	-0.78 ***	-0.34	-1.25 ***	-0.58 **	-0.40	-0.94 ***	-0.78 ***	-0.34	-1.25 ***	-0.58 **	-0.40	-0.94 ***
GDPpcij (i>j)	1.21 ***	1.23 ***	1.46 ***	0.73 ***	0.50 ***	0.93 ***	1.34 ***	1.25 ***	1.91 ***	1.10 ***	0.95 ***	1.19 ***	GDPpcij (i>j)	1.21 ***	1.23 ***	1.46 ***	0.73 ***	0.50 ***	0.93 ***	1.34 ***	1.25 ***	1.91 ***	1.10 ***	0.95 ***	1.19 ***
GDPpcij (i<j)	1.12 ***	0.98 ***	1.41 ***	1.10 ***	0.86 ***	1.32 ***	1.12 ***	1.11 ***	1.37 ***	1.26 ***	1.35 ***	1.09 ***	GDPpcij (i<j)	1.12 ***	0.98 ***	1.41 ***	1.10 ***	0.86 ***	1.32 ***	1.12 ***	1.11 ***	1.37 ***	1.26 ***	1.35 ***	1.09 ***
GDPpcij	0.18	0.44 *	0.23	0.04	0.10	0.15	0.15	0.63 ***	-0.02	0.21	0.70 **	-0.16	GDPpcij	0.18	0.44 *	0.23	0.04	0.10	0.15	0.15	0.63 ***	-0.02	0.21	0.70 **	-0.16
GDPpcij	0.25 **	0.52 **	0.30 *	0.05	0.08	0.18	0.26 **	0.70 ***	0.12	0.19	0.61 **	-0.19	GDPpcij	0.25 **	0.52 **	0.30 *	0.05	0.08	0.18	0.26 **	0.70 ***	0.12	0.19	0.61 **	-0.19
Cons.	-37.96	-38.44 ***	-52.17 ***	-26.64 ***	-16.50 **	-38.53 ***	-42.44 ***	-48.65 ***	-61.55 ***	-41.97 ***	-47.85 ***	-35.89 ***	Cons.	-37.96	-38.44 ***	-52.17 ***	-26.64 ***	-16.50 **	-38.53 ***	-42.44 ***	-48.65 ***	-61.55 ***	-41.97 ***	-47.85 ***	-35.89 ***
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(7)	(8)	(9)	(10)	(11)	(12)	(7)	(8)	(9)	(10)	(11)	(12)
Dist*USA	-0.87 ***	-0.71 **	-1.43 ***	-0.79 **	-0.73	-1.14 **	-0.93 ***	0.03	-1.58 ***	-0.93 **	-1.00	-1.36 ***	Dist*USA	-0.87 ***	-0.71 **	-1.43 ***	-0.79 **	-0.73	-1.14 **	-0.93 ***	0.03	-1.58 ***	-0.93 **	-1.00	-1.36 ***
Dist*MEX	-0.90 ***	-1.11 ***	-0.86 ***	-0.42 ***	-0.39 *	-0.59 ***	-0.43 ***	-0.82 ***	-0.07	-0.18	0.04	-0.35	Dist*MEX	-0.90 ***	-1.11 ***	-0.86 ***	-0.42 ***	-0.39 *	-0.59 ***	-0.43 ***	-0.82 ***	-0.07	-0.18	0.04	-0.35
Dist*CAN	-0.81 ***	-0.94 ***	-0.77 ***	-0.67 ***	-0.72 ***	-0.82 ***	-0.45 ***	-0.50 ***	-0.21 *	-0.36 *	-0.30	-0.57 **	Dist*CAN	-0.81 ***	-0.94 ***	-0.77 ***	-0.67 ***	-0.72 ***	-0.82 ***	-0.45 ***	-0.50 ***	-0.21 *	-0.36 *	-0.30	-0.57 **

Appendix for N. America: gravity model (cont'd)

✚ Getting stronger link of N. America with East Asia, parti. MEX

✚ Electric machinery > transport equipment

✚ Pars for MEX: became significant with larger coef. than US/CAN

	1991						2011					
	All		Elec		Trans		All		Elec		Trans	
Parts and components												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dist	-1.13 ***	-1.37 ***	-1.39 ***	-0.86 ***	-1.05 ***	-0.99 ***	-1.18 ***	-1.28 ***	-1.43 ***	-1.09 ***	-1.37 ***	-1.15 ***
GDPi	0.96 ***	0.98 ***	1.14 ***	0.68 ***	0.48 ***	0.85 ***	1.02 ***	1.02 ***	1.35 ***	1.00 ***	0.93 ***	1.13 ***
GDPj	0.96 ***	0.70 ***	1.29 ***	0.87 ***	0.57 ***	1.17 ***	0.84 ***	0.75 ***	1.07 ***	0.95 ***	0.91 ***	0.94 ***
GDPpcij (i>j)	0.05	0.29	0.13	0.09	0.16	0.18	-0.09	0.46	-0.29 *	0.23	0.71 ***	-0.14
GDPpcij (i<j)	0.06	0.28	0.13	0.11	0.17	0.21	-0.06	0.49	-0.26	0.21 *	0.65 ***	-0.17
E.Asia	1.51 ***	2.32 ***	1.27 ***	1.43 ***	2.29 ***	0.83 **	2.21 ***	2.83 ***	2.16 ***	1.64 ***	2.36 ***	0.85
Cons.	-23.63 ***	-18.42 **	-37.79 ***	-15.69 ***	-1.90	-30.64 ***	-20.27 ***	-23.71 ***	-33.42 ***	-26.78 ***	-27.16 ***	-27.34

	1991						2011					
	All		Elec		Trans		All		Elec		Trans	
Final Products												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dist	-1.11 ***	-1.33 ***	-1.39 ***	-0.91 ***	-1.17 ***	-0.99 ***	-1.16 ***	-1.23 ***	-1.45 ***	-1.12 ***	-1.51 ***	-1.16 ***
GDPi	0.83 ***	0.75 ***	1.13 ***	0.70 ***	0.54 **	0.84 ***	0.93 ***	0.76 ***	1.54 ***	1.03 ***	1.00 ***	1.17 ***
GDPj	0.95 ***	0.68 ***	1.29 ***	0.87 ***	0.57 ***	1.16 ***	0.83 ***	0.74 ***	1.12 ***	0.95 ***	0.91 ***	0.96 ***
GDPpcij (i>j)	0.05	0.25	0.14	0.12	0.25	0.18	-0.09	0.43	-0.27	0.24	0.79 ***	-0.14
GDPpcij (i<j)	0.04	0.26	0.14	0.12	0.22	0.21	-0.07	0.45	-0.22	0.21 *	0.68 ***	-0.18
E.Asia*USA	1.74 ***	2.61 ***	1.28 ***	1.39 ***	2.20 ***	0.85 *	2.32 ***	3.05 ***	1.81 ***	1.62 ***	2.34 ***	0.79
E.Asia*MEX	-0.44 *	0.12	-1.15 ***	2.19 ***	3.41 ***	1.05 **	0.77 **	1.10 ***	0.60	2.21 ***	3.86 ***	1.02
E.Asia*CAN	1.01 ***	1.32 ***	1.56 ***	0.56 *	1.02 **	0.56	2.06 ***	2.23 ***	3.23 ***	1.44 ***	2.02 ***	1.22 **
Cons.	-19.43 ***	-11.09	-37.46 ***	-16.26 ***	-3.45	-30.18 ***	-17.35 ***	-16.12	-40.23 ***	-27.52 ***	-28.76 ***	-28.87 ***

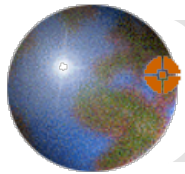
Appendix for N. America: gravity model(cont'd)

✚ Strong link of N. America with East Asia for both extensive and intensive margins in electric machinery

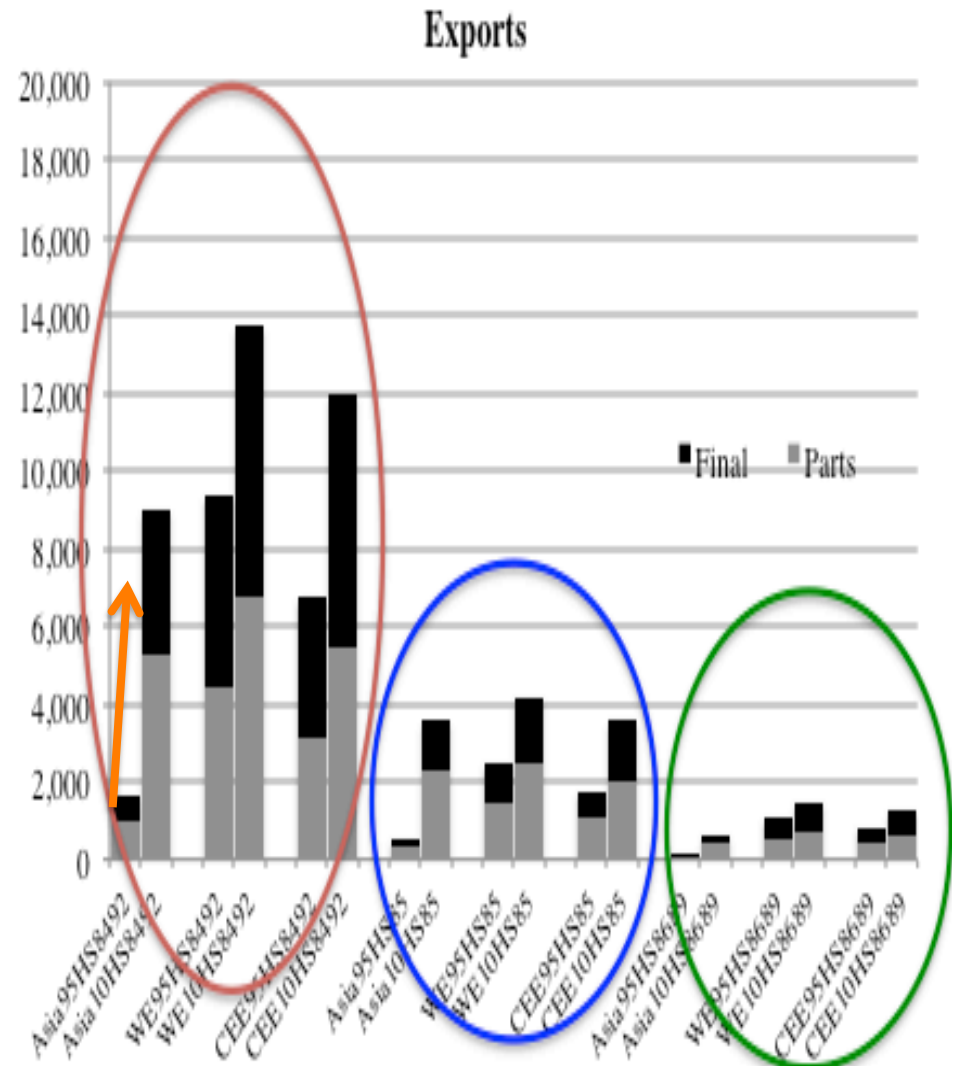
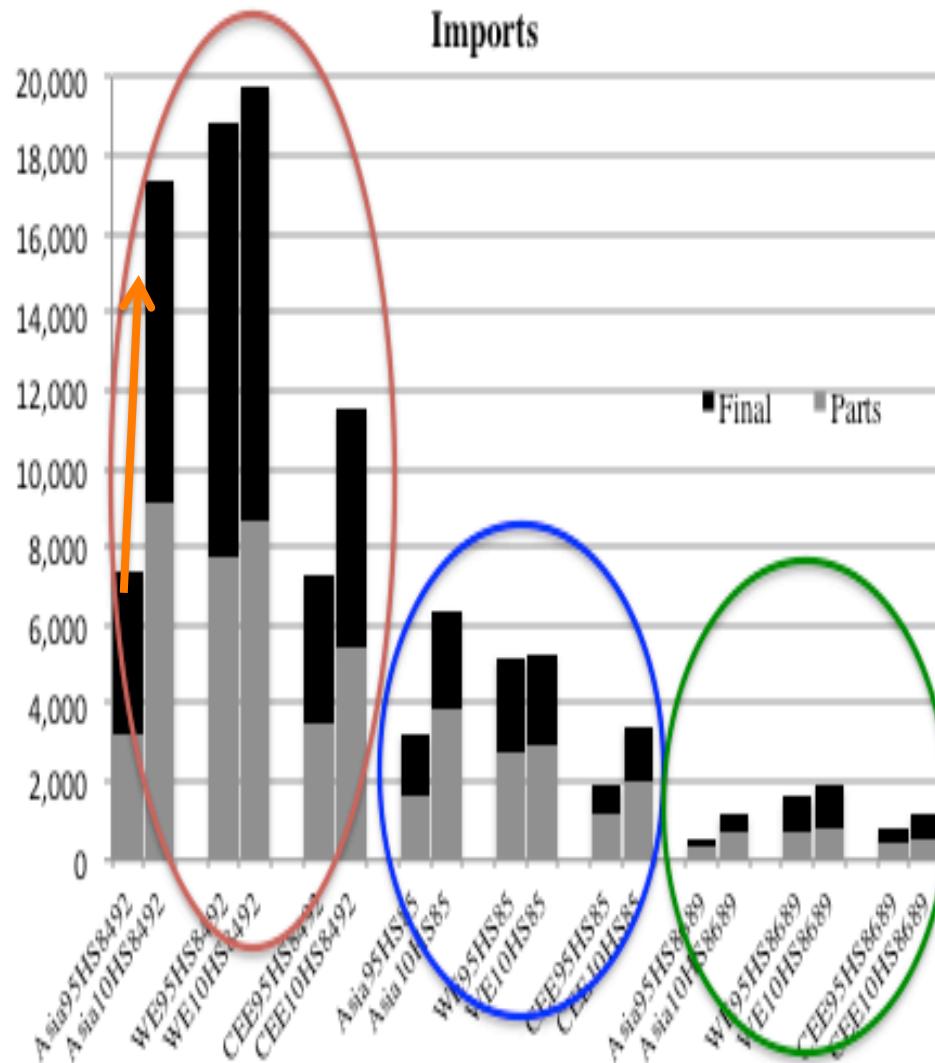
✚ Parts for MEX: became significant for both

✚ Different natures for electric machinery and transport equipment: intensive only for transport equipment

	Parts and components				Final products			
	1991		2011		1991		2011	
	Extensive	Intensive	Extensive	Intensive	Extensive	Intensive	Extensive	Intensive
Electric machinery sectors								
E.Asia	0.42 **	2.48 ***	0.21 ***	2.48 ***	0.62 ***	2.94 ***	0.28 ***	2.36 ***
E.Asia*USA	0.43	2.77 ***	0.21 **	2.40 ***	0.54	3.18 ***	0.22 **	2.37 ***
E.Asia*MEX	0.22	0.27	0.15 **	3.80 ***	0.57 ***	1.44 ***	0.24 ***	3.65 ***
E.Asia*CAN	0.56 *	1.57 ***	0.29 ***	1.21 **	0.78 **	2.40 ***	0.40 ***	1.91 ***
Transport equipment sectors								
E.Asia	0.12	1.32 ***	0.04	0.91 ***	-0.02	1.96 ***	-0.05	1.10 **
E.Asia*USA	0.09	1.42 ***	0.00	0.95 **	-0.16	1.85 ***	-0.27	1.11 **
E.Asia*MEX	0.01	-1.07 ***	-0.06	1.18 **	0.11	-0.23	-0.10	1.12
E.Asia*CAN	0.26	1.43 ***	0.18 *	0.53	0.04	2.56 ***	0.27 **	1.03 *



Rapid growth in # of product-country pairs for machinery trade of CEE with E.Asia



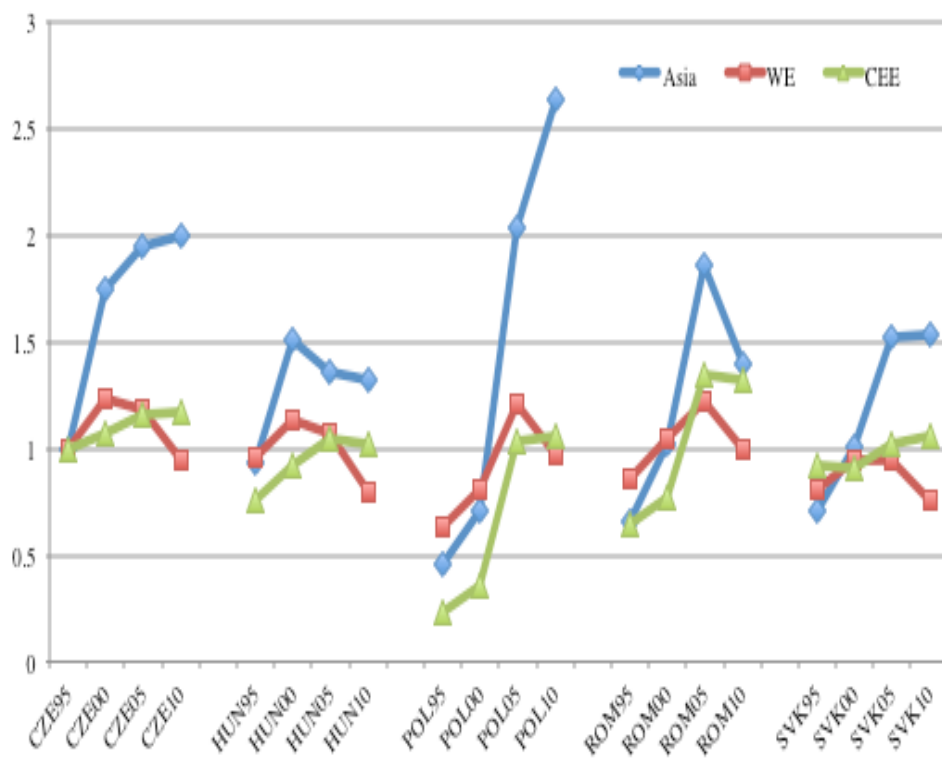


of product-country pairs for each CEE5 in 1995, 2000, 2005, 2010 (CZE in 1995=1)

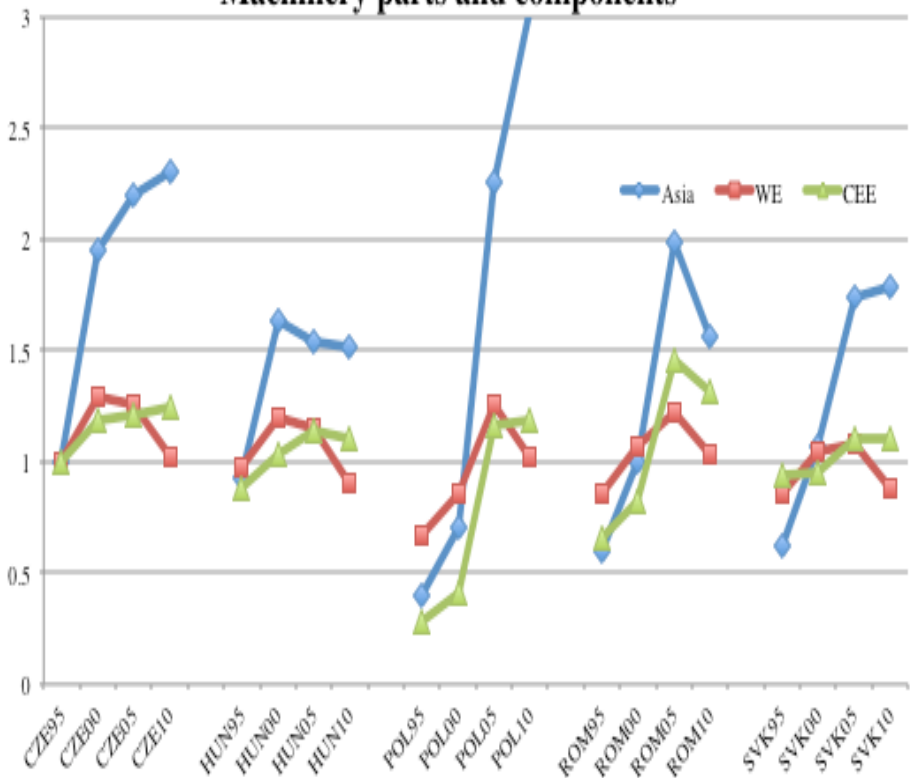
for IM from E.Asia, pari. P&C, ↑ , # for IM from WE
(some) ↓ , # for IM and EX with CEE ↑ in the 2000s

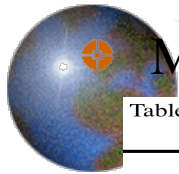
=> Possible shift of production from WE to E.Asia and develop. of industrial clusters in CEE after their EU accession for P&C

Machinery total



Machinery parts and components





Many E. Asian countries within the top 20th, parti. in electric machinery sector

Table 3 The rankings of CEE5's trade partners and shares in trade with the world

	All machinery sectors						Electric machinery sector						Transport equipment sector					
	Total		Parts		Final		Total		Parts		Final		Total		Parts		Final	
	Name	%	Name	%	Name	%	Name	%	Name	%	Name	%	Name	%	Name	%	Name	%
Year: 1995																		
1	DEU	33.1	DEU	36.5	DEU	30.5	DEU	32.5	DEU	38.2	DEU	22.0	DEU	31.6	DEU	33.9	DEU	30.4
2	ITA	9.5	ITA	9.0	ITA	9.8	AUT	7.0	AUT	7.7	JPN	7.9	ITA	9.5	ITA	13.0	FRA	10.4
3	AUT	6.2	AUT	6.9	USA	6.5	GBR	6.1	GBR	6.1	FRA	6.5	FRA	8.9	CZE	7.8	ITA	7.8
4	USA	5.9	USA	5.1	FRA	5.8	USA	5.8	USA	5.5	USA	6.3	CZE	5.7	SVK	7.1	ESP	6.9
5	FRA	5.4	FRA	4.7	AUT	5.6	FRA	5.7	FRA	5.2	GBR	6.0	ESP	5.0	SWE	7.1	KOR	6.8
6	GBR	4.9	GBR	4.6	GBR	5.1	ITA	4.6	ITA	4.3	AUT	5.8	JPN	5.0	FRA	6.1	JPN	6.6
7	JPN	3.9	CZE	3.9	JPN	5.0	JPN	4.3	KOR	3.7	ITA	5.2	KOR	4.6	AUT	3.8	CZE	4.6
8	CZE	2.9	SVK	2.9	KOR	2.7	KOR	3.4	NLD	3.1	FIN	4.6	AUT	4.1	GBR	2.6	AUT	4.3
9	SWE	2.7	SWE	2.7	NLD	2.6	NLD	2.9	CZE	2.3	SWE	3.2	SWE	3.8	JPN	1.8	GBR	3.7
10	NLD	2.6	NLD	2.4	CHE	2.6	FIN	2.5	JPN	2.3	KOR	2.9	SVK	3.6	HUN	1.8	BGD	2.9
11	CHE	2.4	JPN	2.4	SWE	2.6	SWE	2.5	SWE	2.0	SVK	2.8	GBR	3.3	POL	1.7	RUS	2.2
12	SVK	2.3	CHE	2.1	CZE	2.1	CHE	2.1	BGD	2.0	CHE	2.6	BGD	2.5	USA	1.7	SWE	2.2
13	KOR	2.3	BGD	1.7	ESP	2.1	CZE	2.1	CHE	1.8	NLD	2.5	NLD	1.8	BGD	1.6	NLD	2.1
14	BGD	1.7	KOR	1.7	SVK	1.9	SVK	2.0	SVK	1.6	CHN	2.4	RUS	1.7	ESP	1.4	SVK	1.9
15	ESP	1.7	ESP	1.1	BGD	1.7	BGD	1.9	HKG	1.5	BGD	1.7	USA	1.5	NLD	1.1	USA	1.4
16	FIN	1.3	POL	1.1	DNK	1.5	HKG	1.5	FIN	1.4	CZE	1.6	HUN	0.8	RUS	0.7	CHE	0.7
17	DNK	1.2	FIN	1.1	FIN	1.4	CHN	1.2	POL	1.0	MYS	1.6	POL	0.8	DNK	0.6	BLR	0.3
18	RUS	0.7	DNK	0.9	RUS	0.8	ESP	1.2	ESP	1.0	ESP	1.5	CHE	0.6	BLR	0.5	HUN	0.3
19	SGP	0.7	HKG	0.8	SGP	0.8	SGP	1.1	SGP	0.9	HKG	1.5	BLR	0.4	CHE	0.4	FIN	0.3
20	POL	0.7	HUN	0.8	CHN	0.8	POL	0.8	CHN	0.6	SGP	1.4	DNK	0.3	UKR	0.4	POL	0.3
Year: 2010																		
1	DEU	24.2	DEU	26.9	DEU	20.2	CHN	22.3	CHN	20.5	CHN	26.3	DEU	35.3	DEU	42.3	DEU	28.4
2	CHN	15.1	CHN	14.0	CHN	16.8	DEU	17.6	DEU	20.2	DEU	11.9	FRA	7.3	FRA	7.7	FRA	7.0
3	KOR	8.0	KOR	11.2	ITA	4.8	KOR	11.1	KOR	13.7	HUN	7.2	CZE	5.9	CZE	6.4	CZE	5.4
4	ITA	4.8	ITA	4.9	FRA	3.7	HUN	4.2	NLD	5.0	KOR	5.1	ITA	5.5	ITA	6.0	ITA	5.0
5	FRA	3.9	JPN	4.5	USA	3.7	NLD	4.2	JPN	4.0	SVK	4.0	ESP	4.2	KOR	5.5	ESP	4.9
6	JPN	3.8	FRA	4.1	NLD	3.5	JPN	3.7	HUN	2.9	POL	3.4	KOR	3.3	POL	3.7	USA	4.1
7	NLD	3.4	NLD	3.4	HUN	3.5	ITA	2.6	ITA	2.7	JPN	3.0	JPN	3.2	ESP	3.6	NLD	3.5
8	HUN	2.9	AUT	2.6	CZE	3.2	AUT	2.3	FRA	2.4	CZE	2.6	SVK	2.6	JPN	3.0	BEL	3.3
9	CZE	2.8	CZE	2.5	KOR	3.1	FRA	2.1	AUT	2.4	ITA	2.5	USA	2.5	AUT	2.7	JPN	3.3
10	USA	2.7	HUN	2.5	JPN	2.9	GBR	2.1	GBR	2.2	NLD	2.4	AUT	2.4	SVK	2.5	GBR	3.1
11	AUT	2.5	POL	2.2	SVK	2.7	SVK	2.0	CZE	1.7	USA	2.1	GBR	2.4	CHN	2.0	TUR	3.1
12	GBR	2.3	GBR	2.2	GBR	2.4	POL	2.0	THA	1.7	AUT	2.0	TUR	2.4	HUN	2.0	NOR	2.8
13	POL	2.1	USA	2.1	AUT	2.4	CZE	2.0	MYS	1.6	GBR	1.9	POL	2.3	TUR	1.6	SVK	2.6
14	SVK	2.0	SVK	1.5	ESP	2.1	USA	1.5	HKG	1.5	ROM	1.6	BEL	2.1	GBR	1.6	AUT	2.0
15	ESP	1.7	ESP	1.5	POL	2.0	MYS	1.5	POL	1.4	FRA	1.5	NLD	2.1	BEL	0.9	HUN	1.9
16	TUR	1.1	THA	1.0	SGP	1.6	HKG	1.5	USA	1.3	HKG	1.5	HUN	2.0	USA	0.8	LBR	1.9
17	BEL	1.1	MYS	1.0	BEL	1.5	THA	1.5	ROM	1.2	MYS	1.4	NOR	1.4	SWE	0.8	SWE	1.7
18	SGP	1.1	TUR	0.9	TUR	1.5	ROM	1.4	SVK	1.2	FIN	1.4	CHN	1.3	ROM	0.7	SGP	1.5
19	THA	1.1	ROM	0.9	THA	1.2	SWE	0.8	SGP	0.8	IND	1.1	SWE	1.3	PRT	0.6	BHS	1.4
20	MYS	1.0	BEL	0.9	SWE	1.2	ESP	0.8	SWE	0.8	UKR	1.1	LBR	1.0	NLD	0.6	CAN	1.3

Data: Ando and Kimura (2013).

Note: CEE5 are Czech, Hungary, Poland, Romania, and Slovakia.



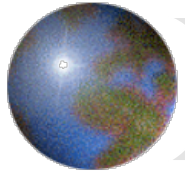
4. Summary and policy implications

✚ Prod. networks in E.Asia

- ✚ Resiliency
- ✚ Increasing importance as the market for final products
- ✚ Changing shape in terms of extent and depth

✚ Expanding connectivity of production

- ✚ The reduction in SL costs
- ✚ The strengthening competitiveness of prod. networks in East Asia in machinery sectors, parti. electric machinery
 - The increasing dominance of E. Asia as an industrial base
 - FDI activities in both directions
 - The further evolution of prod. sharing in the US-MEX
 - Various measures promoting activities of MNEs in MEX such as the Maquiladora, PROSEC, and NAFTA
 - The development of industrial clustering among CEE countries and a shift from the simple WE-CEE nexus to more regional



4. Summary and policy implications

- ✚ Require a new international policy environment beyond simple tariff removal
 - ▣ The reduction in SL costs
 - Transport costs: not only monetary transport cost but also time cost and the reliability of logistics links is crucial
 - The removal of NTBs, trade facilitation including customs clearance, logistics and related services liberalization, physical and institutional logistics infrastructure development, and others
 - Coordination costs; the convergence or harmonization of economic institutions is also important

4. *Summary and policy implications (cont'd)*

- ✚ Improve location advantages and business environment to invite prod. blocks
 - ✚ Services and investment liberalization, provision of economic infrastructure services such as electricity supply, reform in government procurement, the improvement of intellectual property right protection and competition policy
- ✚ Use of FTAs
 - ✚ Tariff removal
 - User-friendly ROOs and lower compliance cost
 - Nature of industrial characteristics
 - ✚ Flexibility in the range of policy modes for better business environment
 - NTBs, services liberalization, investment liberalization, government procurement, intellectual property right protection, competition policy, environment, labor, and even economic cooperation