

**Production Networks and Regional
Integration: Role of Economic Corridor**
***Case Study of India's Trade in P&C with
Southeast Asia***

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Production networks: three distinctly prominent views

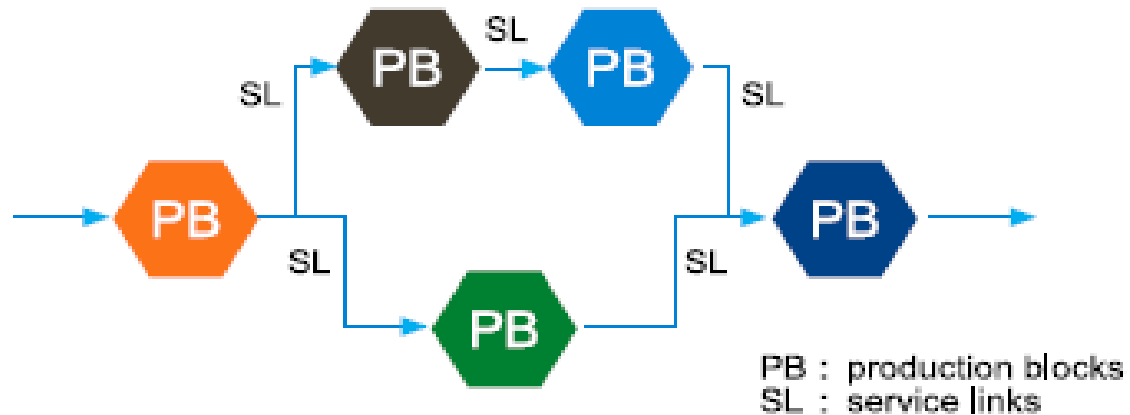
- East Asia has recorded high intra-regional trade shares owing in particular to rapidly expanding intra-regional trade in parts and components.
 - In ASEAN, production network exports witnessed over 60% of total manufacturing exports in the last decade (Athukorala, 2010).
- The costs of fragmentation depend on the associated service link costs (Jones and Kierzkowski, 2005), where service link costs are the costs arising from country's infrastructure and regulations.
- Production processes and tasks in production are increasingly fragmented across boundaries, time-sensitive logistics infrastructure along with improved ICT and trade facilitation are prerequisites in building production networks across borders (Kimura, 2009; Kimura and Ando, 2007, 2010).

Production networks and service Links

Before fragmentation



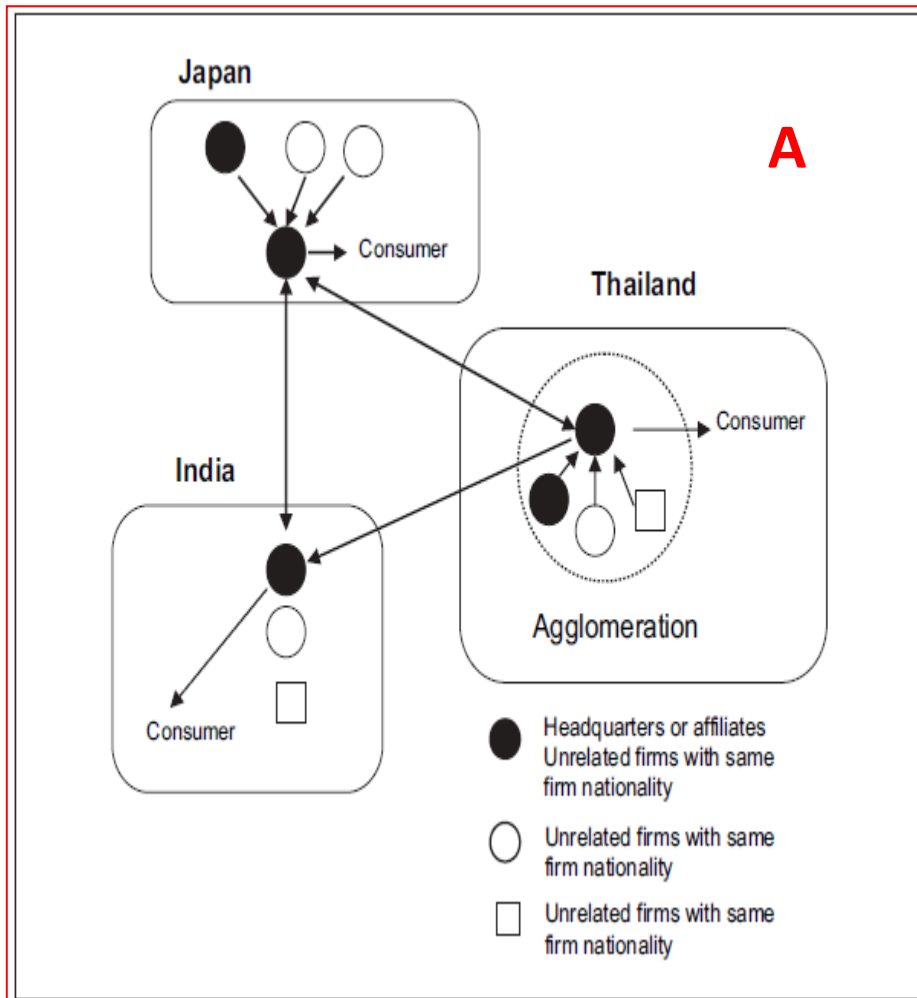
After fragmentation



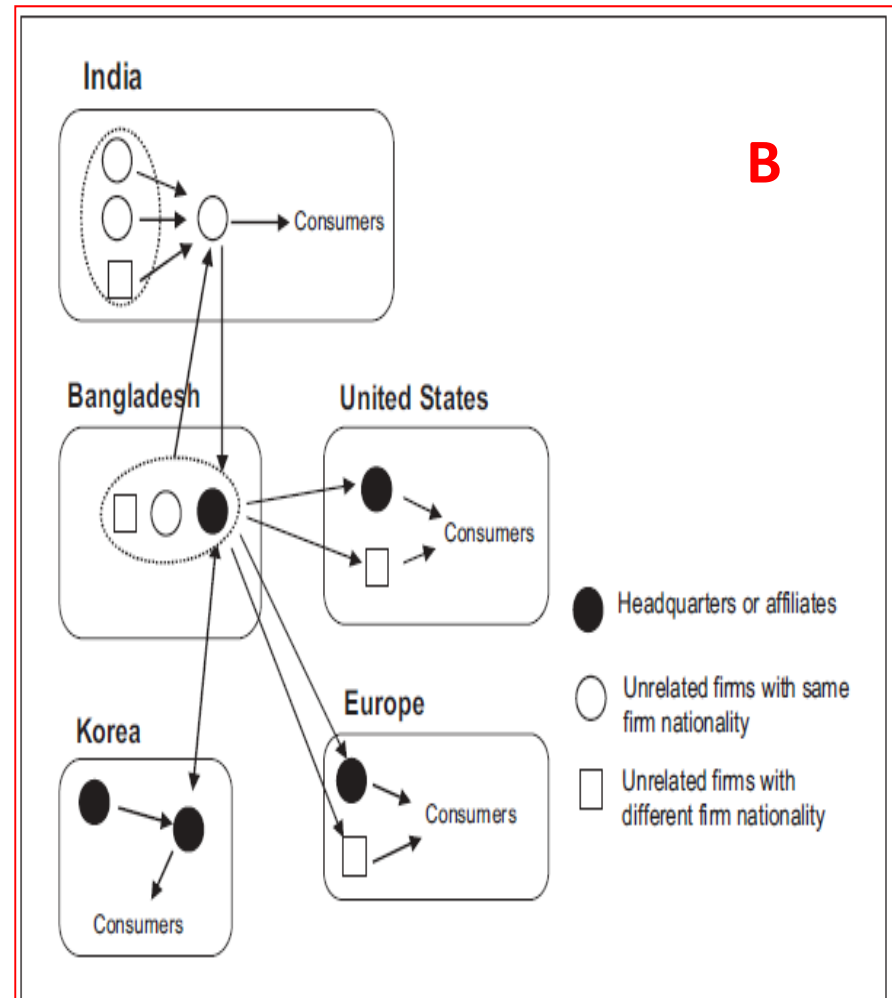
Source: Kimura and Kobayashi (2011)

Emerging production networks between India and Southeast Asia

Case: Southeast Asia
India's Import of ACE from Thailand



Case: South Asia
India's Export of Yarn to Bangladesh



Source: De and Saha (2013) based on Kimura (2011)

Scale economy vs. Trade cost

- When trade costs decrease from economic corridor, MNEs may concentrate their activities on one country and develop trade flows rather than open a plant in a foreign member country.
- Apparently, as MNEs derive more benefits from economies of scale than tariff jumping, strategies after conclusion of FTAs, the production network might fall.

Objective

- Objective: to explore the role of economic corridor in enhancing production networks between India and Southeast Asia.
 1. We analyse how economic corridor affects production networks
 2. Implications for regional integration

Stages of development of economic corridor

- An EC can be national (e.g. Tokyo-Osaka corridor), subregional (e.g. GMS corridors), regional (e.g. TEN-T corridors), or international (e.g. submarine telecom cables).
- Trade facilitation and logistics services are the main catalysts in its development.
- EC helps strengthen industrial (or, services) agglomeration over time through establishment of industrial zones (or, SEZ).
- EC facilitates cluster-type development of enterprises.

**Transport
corridor**



**Logistics
corridor**



**Economic
corridor**

**Catalysts: Trade
facilitation, logistics
services, a.o.**

Source: Srivastava (2011)

Model

- Models have been drawn primarily from Melitz (2003) and HMY (2004).
- HMY (2004) model is an extension of Melitz (2003) who develops the trade model which accounts for firm heterogeneity within an industry in international trade.
- The Melitz's (2003) model is very useful to explain firm-level variation in export pattern
 - Impact of trade in industry structure and performance
- We introduce economic corridor into the model.

Baseline equation

$$Y_{ijt} = \beta_0 + \beta_1 GDP_{jt} + \beta_2 Wage_diff_{jt} + \beta_3 Tariff_{jt} + \beta_4 Charges_{jt} + \beta_5 EC_{ijt} + \beta_6 TTF_{ijt} + \gamma_i + \delta_j + \tau_t + \varepsilon_{ijt}$$

Share of exports (imports) of parts and components to total exports (imports) from India

Partner country's market size

Per capita GDP difference between India and partner country

Weighted applied tariff rate

Presence of economic corridor

Trade and transport facilitation dummy

Aggregate cost of import in importing country $[(cif-fob)/cif]*100]$

•We test the baseline equation using both cross-section (2000 and 2011) and cross-section and pooled (2000 and 2011) frameworks.

Data sources

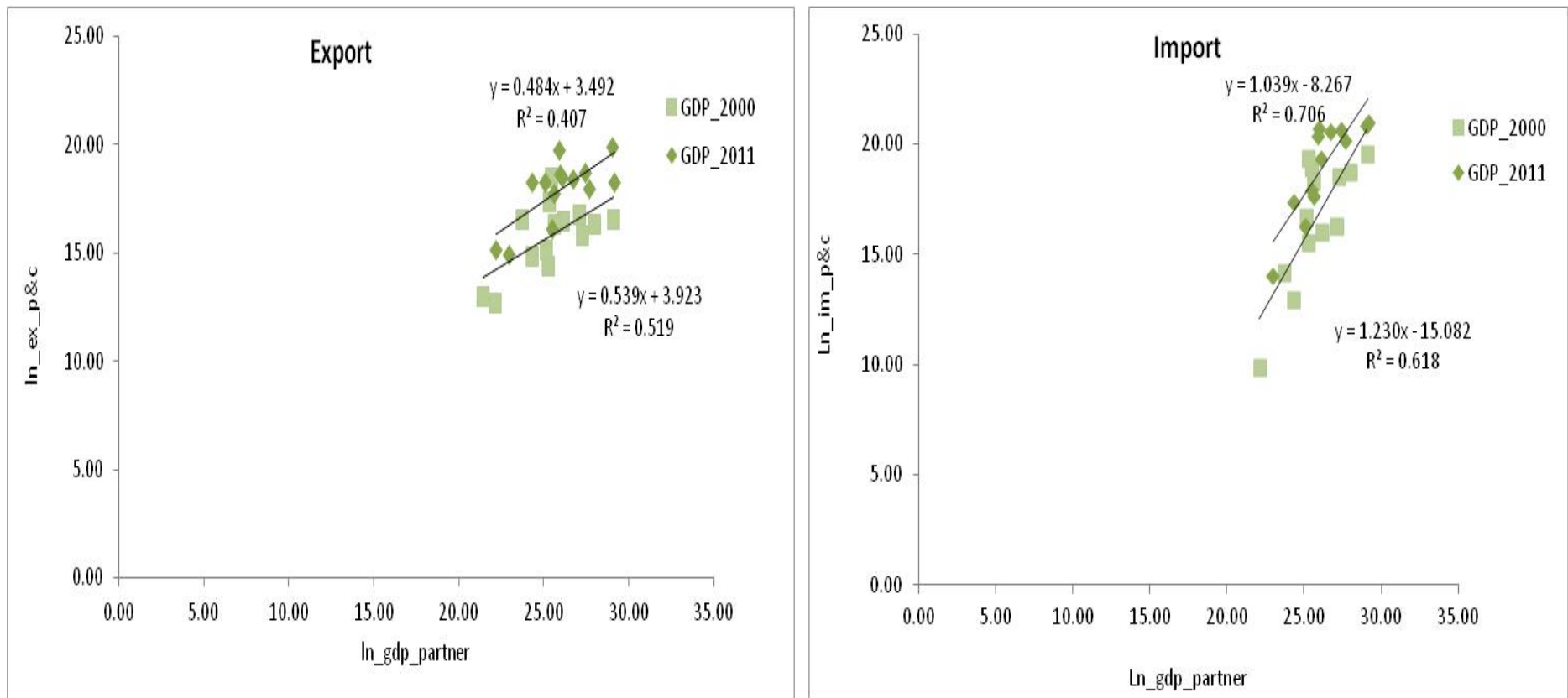
Variable	Data Source
Export and import in parts and components	WITS based on UNCONTRADE
Export and import	WITS based on UNCONTRADE
GDP (constant 2005 US\$)	WDI, World Bank
Per capita GDP (constant 2005 US\$)	WDI, World Bank
Weighted tariff rate	UNCTAD TRAINS
Import chares	IMF based on UNCONTRADE
EC	Author's own source based on ASEAN Secretariat and ADB's ARIC
TTF	ASEAN Secretariat

- Australia, Cambodia, China, Indonesia, Japan, Korea, Lao PDR, Malaysia, New Zealand, Philippines, Singapore, Sri Lanka, Thailand and Vietnam.
- With India, we have taken total 15 countries
- P&C is based on BEC data, which are recalculated from SITC as available in UNCOMTRADE.
- We took parts and components for (i) transport equipment and (ii) capital goods.

Key interests - EC

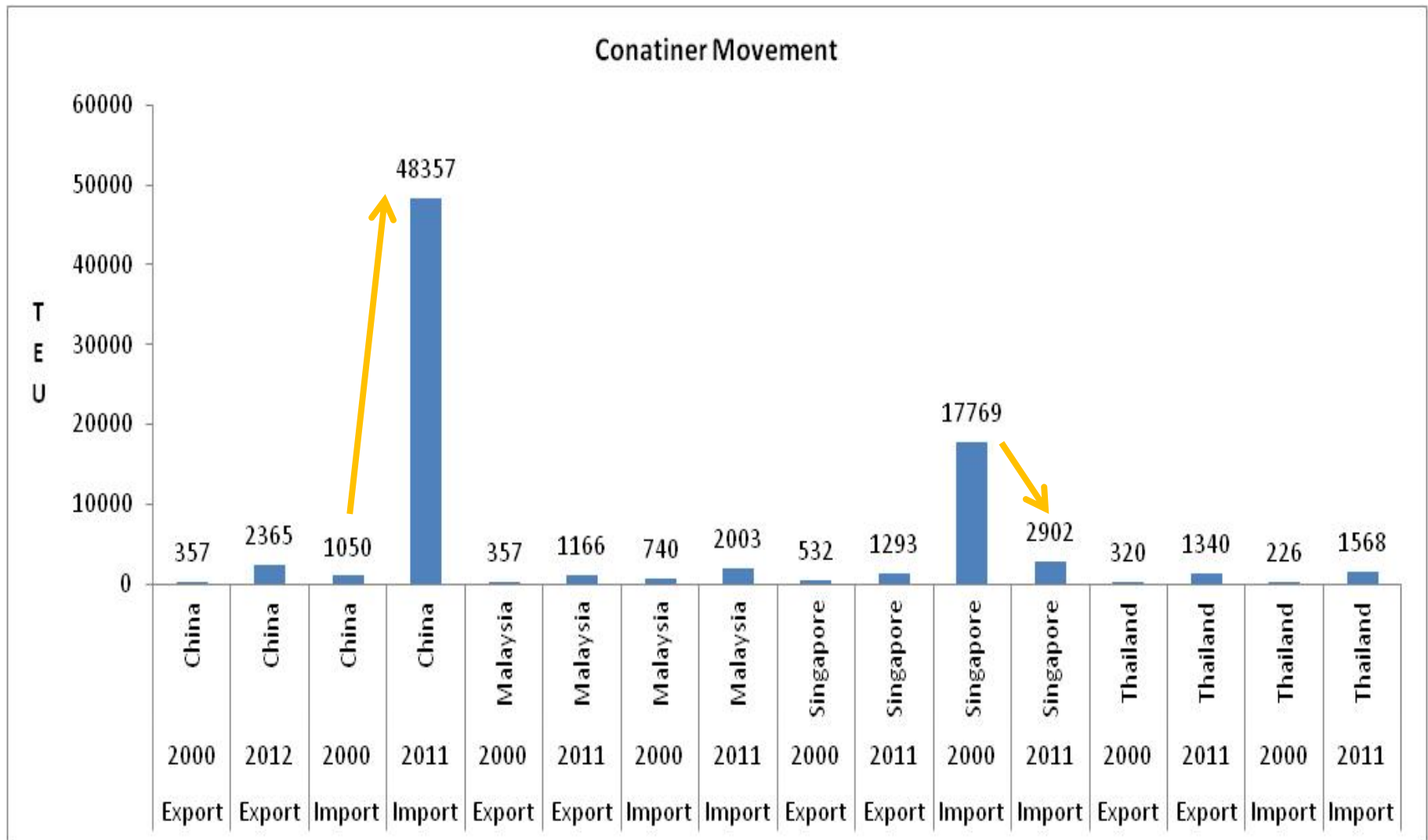
- *EC* is an index based on availability of following six facilities and assets:
 - (i) links or develops SEZs or both,
 - (ii) links to minimum on sea port handling international cargo,
 - (iii) connects at least one neighbor,
 - (iv) allows transit of goods or passengers or both,
 - (v) accepts electronic customs, and
 - (vi) monitors through a special institutional arrangement.
- While building the EC, we follow Srivastava (2011).

Scatter Plot of India's Trade in Parts and Components with Southeast Asian Countries



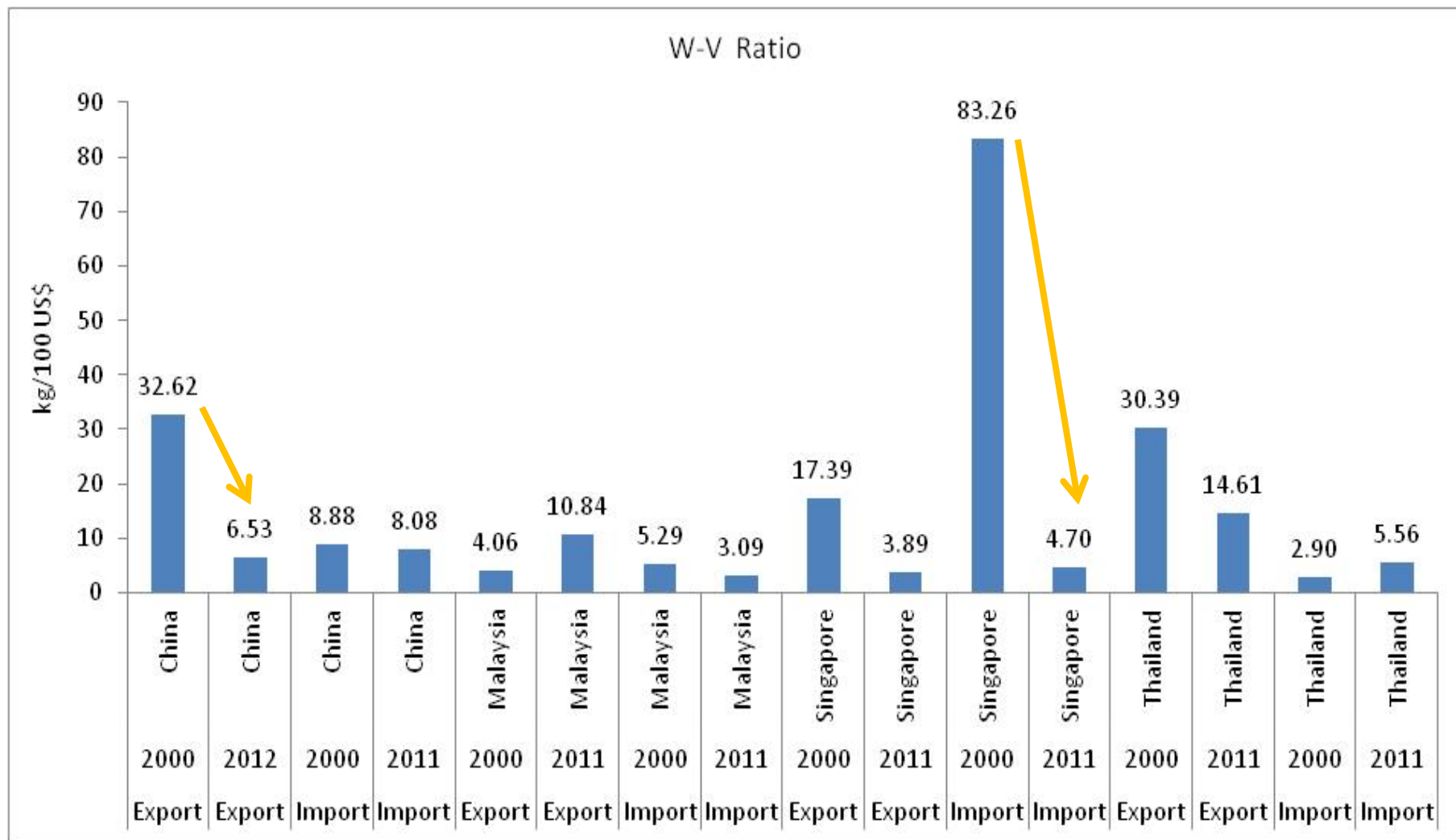
Source: Author

Trends in India's Containerized Trade in P&C with Southeast Asia



Source: Author

Trends in W-V Ratio in India's Trade in P&C with Southeast Asia



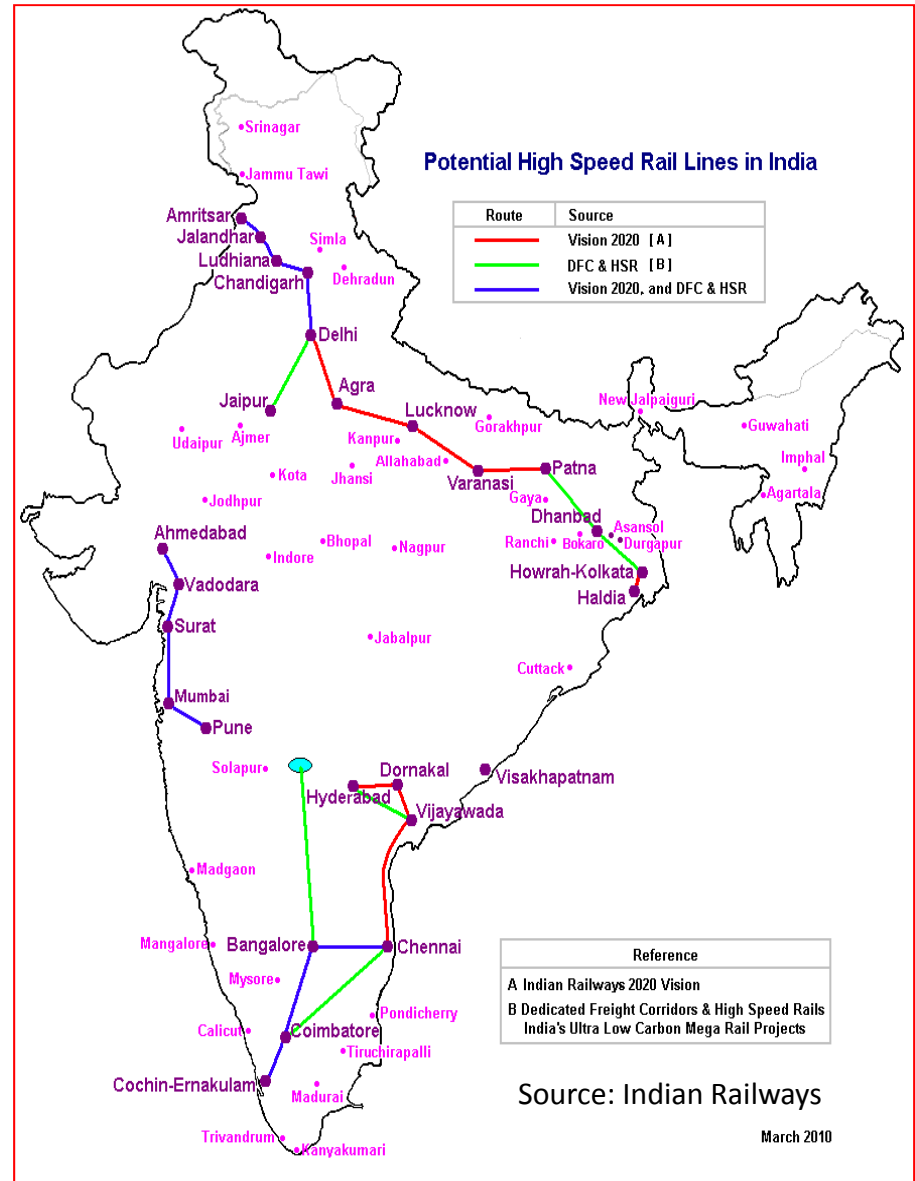
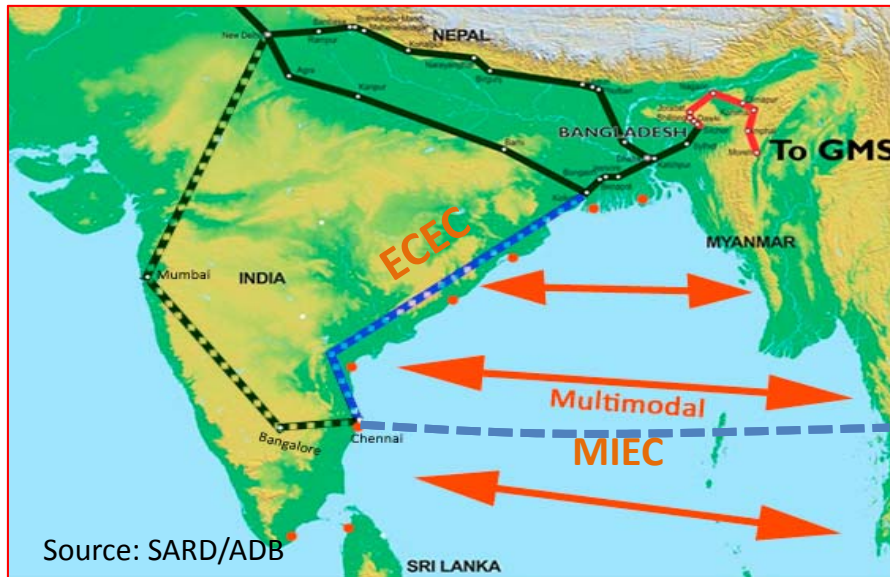
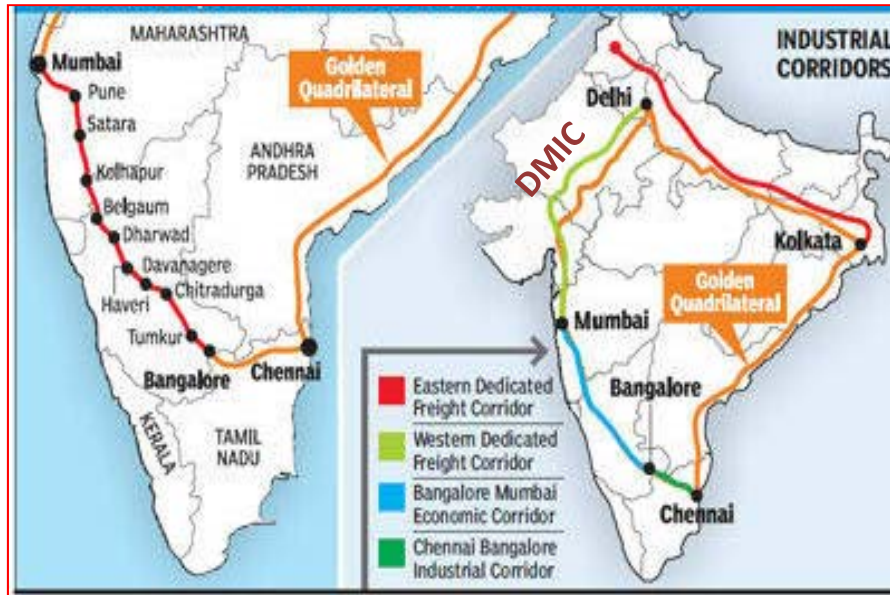
Source: Author

Empirical results

	Cross-section (2000)	Cross-section (2011)	Pooled	Pooled
Variables	y	y	y	y
	(1)	(2)	(3)	(4)
gdp_partner	0.386**	0.0838	0.190	0.404**
	(0.163)	(0.144)	(0.125)	(0.00755)
wage_diff	0.230***	-0.0154	0.102	0.117*
	(0.0774)	(0.0711)	(0.0627)	(0.0112)
tariff	0.612***	0.250	0.447**	0.115
	(0.123)	(0.211)	(0.166)	(0.0639)
charges	0.0823	-0.281	-0.0851	0.0742*
	(0.180)	(0.188)	(0.129)	(0.00749)
ec	-0.518	-0.963**	-0.523	-0.0423
	(0.379)	(0.361)	(0.354)	(0.121)
ttf		0.101	0.0562	0.127
		(0.310)	(0.302)	(0.343)
constant	8.219*	4.051	4.239	11.23**
	(3.968)	(3.918)	(3.214)	(0.489)
Observations	25	25	50	50
R-squared	0.489	0.265	0.335	0.316
Fixed effect	No	No	No	Yes

- Country's demand level increases, there might be the case of higher trade in parts and components, *ceteris paribus*.
- Wage difference indicates rise in wage gap might lead to higher trade in parts and components, suggesting more firm might use horizontal FDI route in host country.
- Coefficients of EC show correct sign but statistically insignificant except model (2).
- At least for model (2), it suggests that lack of economic corridor would negatively affect the trade in parts and components.

National corridors, having regional implications



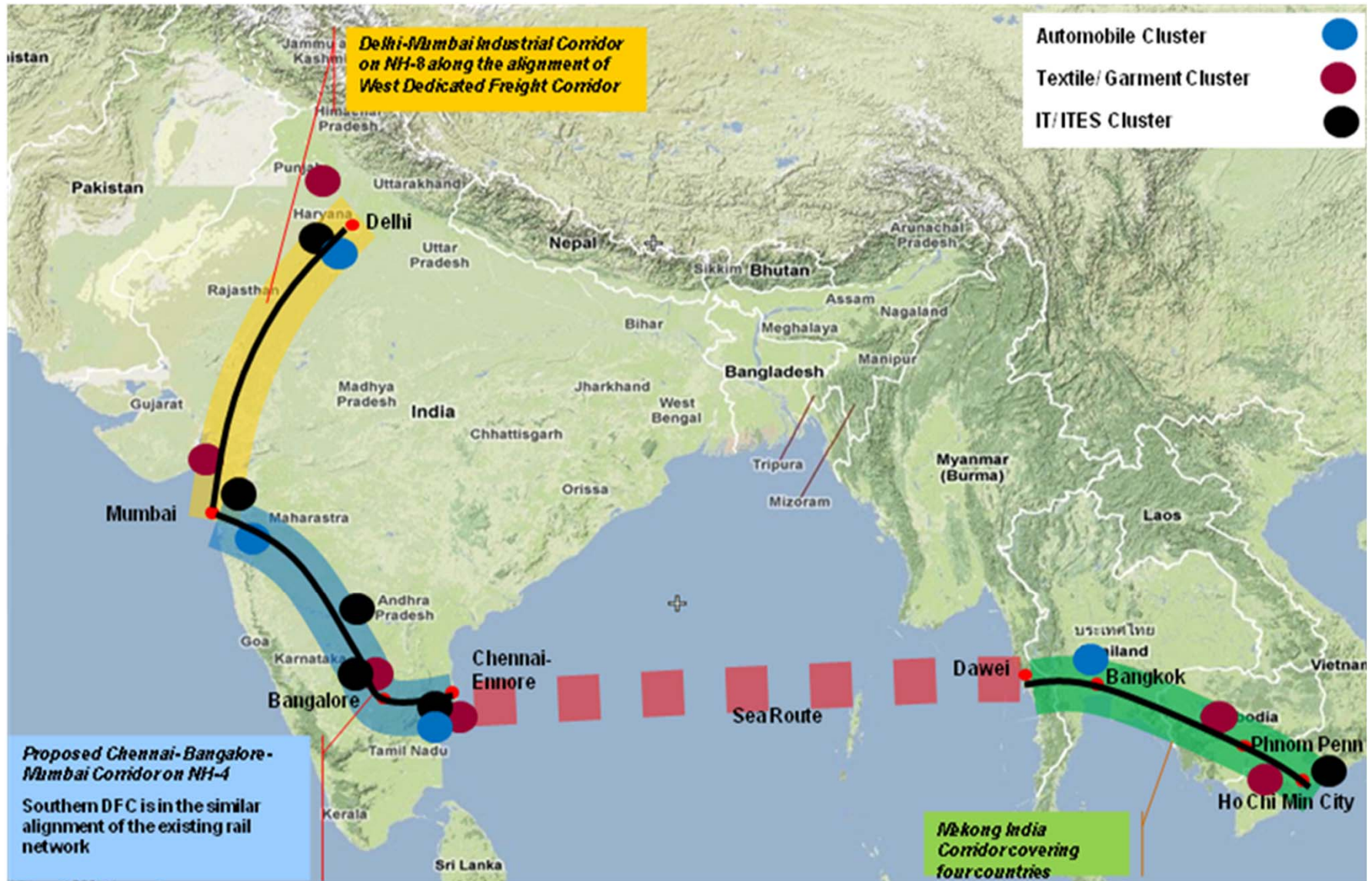
Mekong – India Economic Corridor (MIEC)

- MIEC involves integrating the four Mekong countries (Myanmar, Thailand, Cambodia and Vietnam) with India.
- Strong synergy with Southern Economic Corridor of GMS
- It connects Ho Chi Minh City (Vietnam) with Dawei (Myanmar) via Bangkok (Thailand) and Phnom Penh (Cambodia) and further linking to Chennai in India.
- Augment trade between India and ASEAN by reducing travel distance and removing supply side bottlenecks.
- Approx. investment US\$ 88 billion*



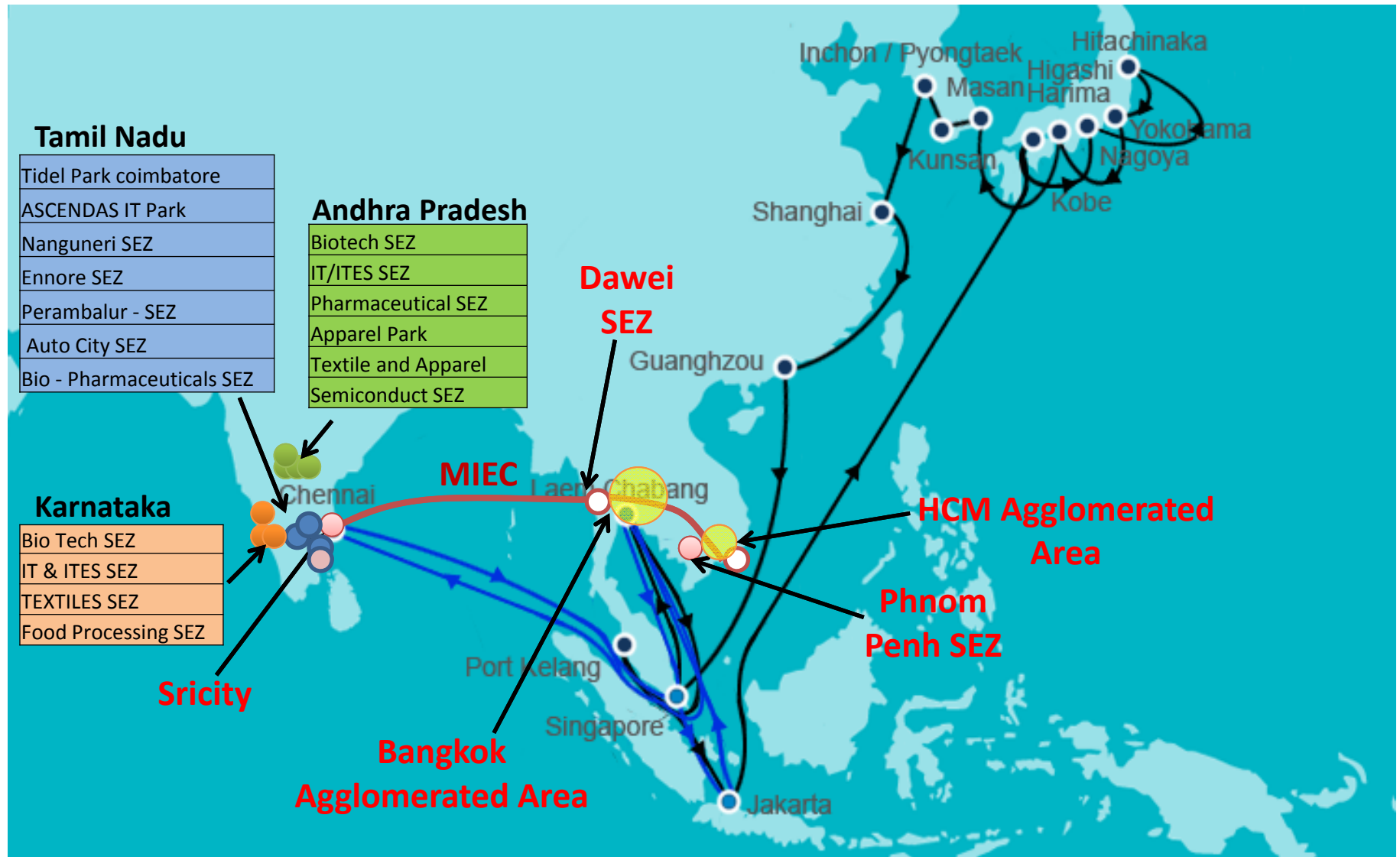
Source: ERIA

MIEC alignment and linking industries



Source: ERIA

MIEC – Connecting industrial space



Conclusions

- Variation in volume/value ratio in trade in parts and components calls for stronger transportation, preferably overland between India and some ASEAN countries.
- For some countries, air transportation would be more effective than overland in case of Singapore.
- Moving trade across land and/or multimodal use of transportation would be economically advantages than simply floating it on water.
- Cross-border infrastructure in the form of economic corridor important for production networks
- India has to do a lot to reduce service link cost –
 - Domestic transportation costs
 - Network set-up cost through reduction in NTMs
 - Improvement of trade infrastructure such as development of economic corridor, border infrastructure, a.o.

Taxes on domestic transportation

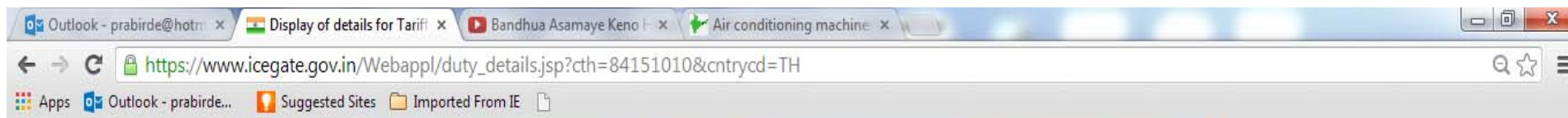
Travel from Delhi to Manali by road, total distance 650 km one way

Journey	Travel through	Tax payable (Rs.)	Period	Speed money (Rs.)	Departments
Delhi to Manali	When it enters Haryana	2000	6 months, multiple entry	100	Finance
	when it enters Punjab	250	Single entry	150	Finance
	When it enters Himachal	500	7 days, multiple entry	100	Finance
	When it enters Simla (Himachal)	600	7 days, multiple entry	0	Municipality
	When in enters Manali (Himachal)	650	8 days, multiple entry	0	Municipality
Manali to Delhi (return)	When it enters Punjab	250	Single entry	150	Finance
	When it enters Delhi	300	Single entry	50	Municipality
Toll	Toll on roads, at 7 places	250	Single entry	0	NHAI, Private
	Toll on roads, at 6 places	230	Single entry	1	operators
	Sub-total	5230		550	
	(US\$)	84.35	Share (%)	8.87	
	Freight (US\$)	293.55			
	Total fixed cost (US\$)	386.77			
	Taxes as % of total fixed cost	22			

*Author's own travel experience

Duties collected on imports

Exporter: Thailand, Importer: India, Product: ACE(HS Code 84151010)



Structure of Duty for selected Tariff

Customs Tariff Head :84151010 C.Excise Tariff Head :84151010 Country of Origin :THAILAND

Customs Duty	Rate of Duty (Tariff)	Specific Duty	Unit	Notification -S/no	Rate of Duty (Effective)	Specific Duty	Unit
Basic Customs Duty	10			Select Exemption Notn. (if any) ▼	10	0	undefined
Preferential Notification				Select Exemption Notn. (if any) ▼	10		
Education Cess	2			Select Exemption Notn. (if any) ▼	2		
Secondary and Higher Edu. Cess	1				1		
Other Duties							
Countervailing Duty (CVD)	12			Select Exemption Notn. (if any) ▼	0		
Additional CVD	4			021/2012-82 Select Exemption Notn. (if any) ▼	0		
RSP Detail				Notification -S/no	Abatement Rate		
Abatement Details				049/2008	35		
Overall Duty							
Total Duty	28.852				10.3		
Duty Calculator							
Sample calculation for Assessable value Rs. 100000	28851.84				10300		
Enter your Assessable value in INR				0	0		

Important Notifications Customs Notn [012/2012-CUS](#) Excise Notn [012/2012 C.Ex](#) Special Additional duty Notn [021/2012 Cus](#)

RSP Based duty RSP abatement is not considered for duty calculation

calculation
Compulsory compliance Requirements (CCRs) IMPORT OF ITEMS CONTAINING ODS SUBSTANCES IS SUBJECT TO THE PROVISIONS OF THE OZONE DEPLETING SUBSTANCES (REGULATION AND CONTROL) RULES, 2000 - REFER NOTE 8 OF GENERAL NOTES REGARDING IMPORT POLICY. SPECIFIED ITEMS UNDER THIS CTH ATTRACT CVD ON RSP BASED VALUATION AS PER NOTIFICATION NO. 49/2008-C.EX. (N.T.) DATED 24/12/2008,

Application developed by National Informatics Centre (NIC) under supervision of Directorate General of Systems and Data Management (CBEC), New Delhi

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Thanaleng (Lao PDR) and Nonkhai (Thailand)



Thank you