ASEAN4-JAPAN TRADE RELATIONS IN AUTOMOTIVE AND ELECTRONICS SECTORS: TRADE PATTERNS AND TRENDS IN VALUE ADDED

Riza Noer Arfani
Universitas Gadjah Mada/Ritsumeikan University
ARTNeT UNESCAP Seminar
Bangkok: January 21st 2016
Presentation Outline

• A brief Backgrounder: ASEAN and GPN (Global Production Network)
• ASEAN4-Japan: Cases on Automotive and Electronics
• Trade Patterns
  • Inter-regional
  • Intra-regional
• Trends in Value Added
• Extended Context
  • Network Trade: East and Southeast Asia Nexus
• On-going Research
  • Research Design Developed
  • Past and Contemporary Studies
  • Proposed Framework
  • Some Tentative Arguments on Regional Value Chains (RVCs)
Background: ASEAN and GPN

- ASEAN+3 contribution to the region’s trade and production network in the two sectors.
- Being part of the global production network in the two sectors, the +3 partner countries have positioned ASEAN as a major hub for their multinational companies venturing for:
  - sales and marketing
  - production and manufacturing
  - research and development
  - upgrading and innovation in manufacturing processes, product design and brands
ASEAN4 and Japan: Cases on Automotive and Electronics

- ASEAN4 (Indonesia, Malaysia, Singapore and Thailand) and Japan trade and investment relations in the two sectors
  - Trade Patterns (based on the UN Comtrade Database for general trends of commodities traded under HS Code 87 (automotive-related) and HS Code 85 (electronics-related))
  - Patterns of Trade in Value-Added (TiVA) (based on the OECD-WTO TiVA Database for trends in foreign value added (FVA), domestic value added (DVA) and services value added (SVA) in commodities traded in SITC transport equipment (automotive) and electrical and optical equipment (electronics)).

- **Value Chain Governance: preliminary findings on key policy issues (firms and industry-levels micro analysis)**
Trade Pattern: Automotive/Japan-ASEAN4

Japan Trading Partners (Automotive-related, HS Code 87)

- Import from THA
- Export to THA
- Import from SGP
- Export to SGP
- Import from MYS
- Export to MYS
- Import from IDN
- Export to IDN

US $ (Billions) vs. Year (2009-2013)
Automotive/Japan-ASEAN4: Commodities Traded

- Main commodities traded: parts and accessories (HS Code 8708), particularly transmissions for motor vehicles (HS Code 870840)
- Types of main commodities traded:
  - 8703 – Motor vehicles for the Transport of Persons (Passenger Cars except Bus)
  - 8704 – Motor vehicles for the Transports of Goods (Trucks, etc.)
  - 8706 – Motor vehicle Chassis fitted with Engine
  - 8708 – Parts and Accessories for Motor Vehicles
  - 8714 – Parts and Accessories of Motorcycles, etc.

<table>
<thead>
<tr>
<th>Thailand</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Singapore</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Export</strong> to Japan</td>
<td><strong>Export</strong> to Malaysia</td>
<td><strong>Export</strong> to Singapore</td>
<td></td>
</tr>
<tr>
<td>8708 (4 b US $)</td>
<td>8706 (0.8 b US $)</td>
<td>8703 (1.2 b US $)</td>
<td>8703 (0.3 b US $)</td>
</tr>
<tr>
<td>8708 (2 b US $)</td>
<td>8704 (1.2 b US $)</td>
<td>8708 (0.9 b US $)</td>
<td>8708 (0.1 b US $)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Import</strong> from Japan</th>
<th><strong>Import</strong> from Indonesia</th>
<th><strong>Import</strong> from Malaysia</th>
<th><strong>Import</strong> from Singapore</th>
</tr>
</thead>
<tbody>
<tr>
<td>8703 (0.7 b US $)</td>
<td>8708 (0.3 b US $)</td>
<td>8708 (0.05 b US $)</td>
<td>8708 (0.01 b US $)</td>
</tr>
<tr>
<td>8708 (0.6 b US $)</td>
<td>8704 (0.2 b US $)</td>
<td>8714 (0.01 b US $)</td>
<td>8714 (0.01 b US $)</td>
</tr>
</tbody>
</table>
Trade Pattern: Electronics/Japan-ASEAN4

Japan Trading Partners (Electronics-related, HS Code 85)

- Import from THA
- Export to THA
- Import from SGP
- Export to SGP
- Import from MYS
- Export to MYS
- Import from IDN
- Export to IDN
Electronics/Japan-ASEAN-4: Commodities Traded

- Main export commodities: electronic integrated circuits and micro-assemblies (HS Code 8542) (top destinations are Singapore and Malaysia)
- Main import commodities: electric apparatus for line telephony, telegraph (HS Code 8517) and television receivers, video monitors, projectors (HS Code 8528) (from Malaysia)
- Types of main commodities traded:
  - 8516 – electric equipment with heating element, domestic, etc.
  - 8517 – electric apparatus for line telephony, telegraph
  - 8525 – radio & TV transmitters, television cameras
  - 8528 – television receivers, video monitors, projectors
  - 8536 – electrical switches, connectors, etc. for <1 kV
  - 8541 – diodes, transistors, semi-conductors, etc.
  - 8542 – electronic integrated circuits and micro-assemblies
  - 8544 – insulated wire & cable, optical fiber cable
Trade Pattern: Automotive/Intra ASEAN4

Thailand as Major Hub

- Import from IDN
- Export to IDN
- Import from MYS
- Export to MYS
- Import from SGP
- Export to SGP
Indonesia Top Five Trades with Thailand: Passenger Cars (HS 8703)/I&E; Motor Vehicle Parts & Accessories (HS 8708)/I&E; Trucks (HS 8704)/I; Motorcycles (HS 8711)/I; Motorcycle Parts and Accessories (HS 8714)/I&E
Trade Pattern: Electronics/Intra ASEAN4

Malaysia as a Major Hub

- Import from SGP
- Export to SGP
- Import from THA
- Export to THA
- Import from IDN
- Export to IDN
Indonesia Top Five Trades with Malaysia: TV, Video Monitors, Projectors (HS 8528)/I&E; Electronic Integrated Circuits, Micro Assemblies (HS 8542)/I; Line Telephony App (HS 8517)/I; Resistors, Rheostats (HS 8533)/E; and Transformers, Static Converters (HS
<table>
<thead>
<tr>
<th>Automotive [commodities under HS Code 87: vehicles, other than railway, tramway]</th>
<th>Electronics [commodities under HS Code 85: electrical and electronic equipment]</th>
</tr>
</thead>
<tbody>
<tr>
<td>~Intra-regionally: passenger cars are the main commodity traded confirming production network shift to Thailand and Indonesia as the two countries participating firms’ production sharing are in a steady increase (InEIM 2012, Athukolara &amp; Kohpaiboon 2013) ~Inter-regionally: parts and accessories are the main commodity traded ~Japan is a leading home country of firms investing in manufacturing facilities (as FDIs), particularly in Indonesia and (still) in Thailand (Nakanishi et al, 2015)</td>
<td>~Intra-regionally: TV, video monitors and projectors are the major commodity traded confirming existing hub triangle of Malaysia, Singapore and Thailand ~Inter-regionally: electronic integrated circuits and micro assemblies are the major commodity traded ~China and Japan factors in the industry have come to an era where China has no longer attractive as FDI destination in terms of cheap labor or other low-end factors of production and Japan has reversed its position for in-shoring and re-shoring their firms production sites, especially for the latest high-end products (Kwan, Ikebe et al 2015).</td>
</tr>
</tbody>
</table>
Pattern of TiVA: Automotive/Japan-ASEAN4 FVA/DVA

Substantially more FVAs/DVAs of Japan-ASEAN-4 than of Intra-ASEAN-4 Trades
Pattern of TiVA: Electronics/Japan-ASEAN4 FVA/DVA

Intra-ASEAN-4 FVAs/DVAs are catching up those of Japan-ASEAN-4 Trades
### ASEAN4-Japan Trends in Value Added: Recap

<table>
<thead>
<tr>
<th>Automotive (commodities under SITC: transport equipment)</th>
<th>Electronics (commodities under SITC: electrical and optical equipment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>~Japan-ASEAN4 trade has produced considerably more FVAs, DVAs and SVAs than the ones resulted among ASEAN4 countries trade</td>
<td>~ASEAN4 FVAs, DVAs and SVAs gained momentum and have been tagging closely behind the Japanese ones as the values reach to almost half of the Japan’s where Japan-Malaysia and Japan-Thailand FVAs are the highest gainers.</td>
</tr>
<tr>
<td>~Japan-ASEAN4 trade have generated much more FVAs than FVAs created among ASEAN4 countries for the commodities, with Japan-Thailand and Japan-Indonesia FVAs dominating at 1,681.8 million US $ (2009) and 937.4 million US $ (2009) respectively</td>
<td>~In terms of DVAs, Thailand and Malaysia gain the most for its embodied final foreign demand in Japan with the values of US $ 1,525.9 million (2009) and US $ 974.6 million (2009) respectively.</td>
</tr>
</tbody>
</table>
Extended Context (2): Shifting Roles and the Centrality of Southeast Asia/ASEAN4 as Hub of Parts and Components Trade *(ibid)*
<table>
<thead>
<tr>
<th>Inter-regional strong growth in network products of manufacture trade</th>
<th>East Asia’s shifting roles in final assembly trade and in parts and components trade</th>
<th>Southeast Asia’s roles in parts and components trade &amp; Industrial development gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>~Both regions of East Asia (EA) and Southeast Asia (SEA) have persistently maintained substantial share of total network products in manufacturing trade between 1992-3 and 2009-10</td>
<td>~East Asia’s share of final assembly trade export has declined quite significantly as China and Japan reverse the roles: 31.6% → 25.3%</td>
<td>~Southeast Asia’s share of parts and components trade export has substantially increased: 22.7% (1992-3) to 59.2% (2009-10).</td>
</tr>
<tr>
<td>~Export share EA: 51.8% → 61.7% SEA: 56.8% → 69.2%</td>
<td>~Japan assembly export significantly dropped and its final assembly import rose drastically</td>
<td>~Among Southeast Asian countries, Indonesia has gained the greatest changes in share of final assembly trade import: its share has almost quadrupled (9.2% → 34.8%) indicating a stagnated industrialization</td>
</tr>
<tr>
<td>~Import share EA: 44.4% → 61.8% SEA: 54.4% → 64%</td>
<td>~Both China and Japan has experienced substantial increase in parts and components trade export</td>
<td></td>
</tr>
</tbody>
</table>
ON-going (1) Research Design Developed

Trade Pattern?

JAPANESE FIRMS

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Electronic

Automotive

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?

ASEAN4 GROWTH ZONES

Bangkok Greater Area

Jakarta Greater Area

Penang

Singapore

Global Production Network

Trade Pattern?

Trends in Value Added?

Strategic Response?

Regional Value Chains?
Regional economic integration as seen from GVC and GPN: comprehending changes in production network as part of dynamic (regional) economic integration of ASEAN4 growth zones and Japanese automotive and electronics industries

GVC framework as an alternative perspective to comprehend East & Southeast Asia regional economic integration stemming from functioning production networks (IDE JETRO & WTO, 2011 and UNCTAD, 2013)

Automotive and electronics sectors as prime cases (Kuroiwa & Heng, 2008 and Kawakami, 2008)

Strategic responses of firms and other relevant stakeholders

Regional value chains: types of value addition and methods of industrial collaborations

Policy dimension: firms level setting and governmental context
ON-going (3) Proposed Framework

**Strategic Responses**

- Firms Strategy: Production Sites, Product Development, Chains Organization, Technological Development
- Suppliers Relations: Firms linkages to SMEs in wider industrial development
- Technical Capacity Building & Human Resource Development

**Regional Value Chains**

- Types of Value Addition: Process, Product, Functional, and Inter-Sectoral/Inter-Chains Upgrading
- Methods of Industrial Collaboration: Trans. Complexity (Cx-T); Trans. Codification (Cd-T); Suppliers competence (SC)
- Policy Incentives Scheme: Local or National Host Governments, Regional Economic Schemes

**Policy Dimension**

- Lessons Learnt at Firms Level Setting: Learning Mechanism of how upgrading is acquired
- Lessons Learnt at Institutional Context: Policy Mechanism of how business and innovation systems are developed
RVC #1: Value Added-ness at Firms level

GVC in 2000s

Value Chains in 1970s

Toyota – Panasonic
up & down - **Lead Firms** – more down
more on up – **Suppliers** – more on up but some down
more on down - **Local Partners** – more on down

*Graphical illustration is adapted from Rabellotti, 2014*
RVC #2: Industrial Collaborations in Value Addition?

Degree of Explicit Coordination

Degree of Power Asymmetry

Low → High

End Use

Value Chains

Materials

Market Modular Relational Captive Hierarchical

Electronic

Automotive

*Graphical illustration is adapted from Gereffi & Fernandez-Stark, 2011
RVC #3: Policy Lessons on Learning Mechanism for Upgrading?

- Local/National Host Governments
  - ASEAN

- Learning by knowing & doing
  - Learning through pressure
  - Learning from trade activities

- Regulations on MSTQ*
  - Education & Training
  - NIS (National Innovation System)

- Policy Incentive Schemes
- Firms Level Setting
- Institutional Context
- Learning Mechanism for Upgrading at Firms Level
- Business Development & Innovation Systems

*MSTQ: Metrology, Standards, Testing, And Quality