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Economic Cooperation

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Resiliency of Supply Chain

Submitted by: Kobe University

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Resiliency of supply chain

A paper factory damaged in Ishinomaki City, Miyagi Prefecture, April 30 2011

Nobuaki Hamaguchi (Kobe University & RIETI)

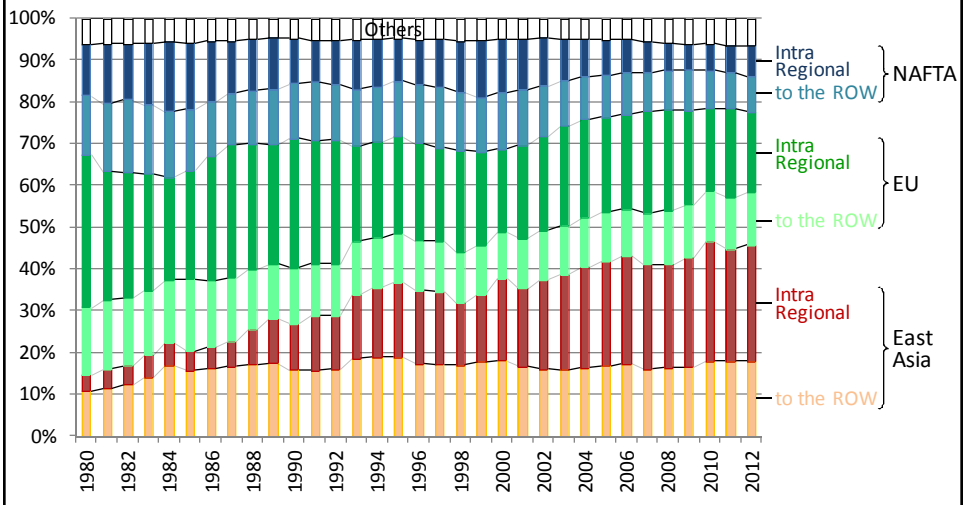
Outline of the presentation

- Supply chain has been internationalized in East Asia. Intermediate goods trade has been expanded enormously, increasing complexity and including more countries.
- There is a benefit of higher productivity in tranquil time but higher vulnerability is a cost that we must pay.
- Resiliency is as important as having an access to global supply chain for individual business, area, country and region. What could be done?

1

World parts and components trade shares by region

Substitution Mexico→Asia; EU Eastern enlargement; and Factory Asia

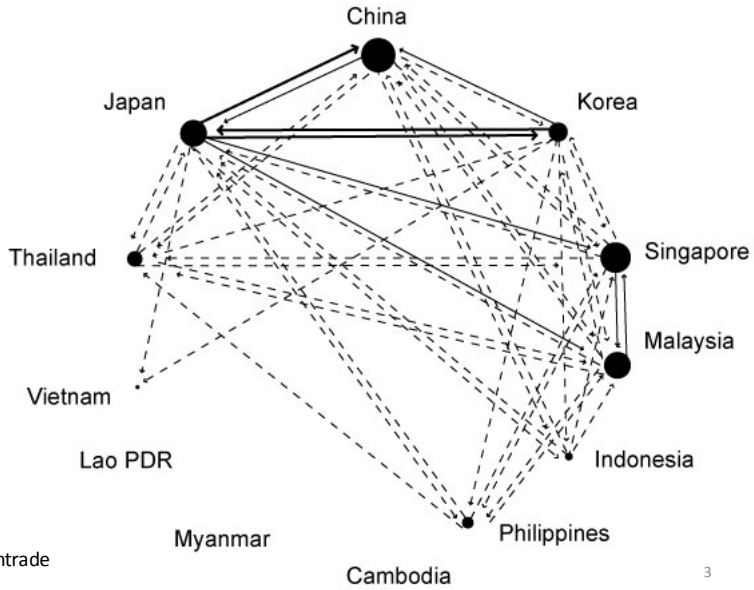


Source: RIETI-TID ROW: Rest of the World

2

Intermediate goods trade in East Asia 2000
General and Electric Machinery and Transport Equipment (BEC 22, 42, 53)

Obs. Each circle represents import volume of intermediate goods. Solid line arrows are over $10 billion and the thicker the bigger. Broken line arrows are more than $1 billion.



Source: UN Comtrade

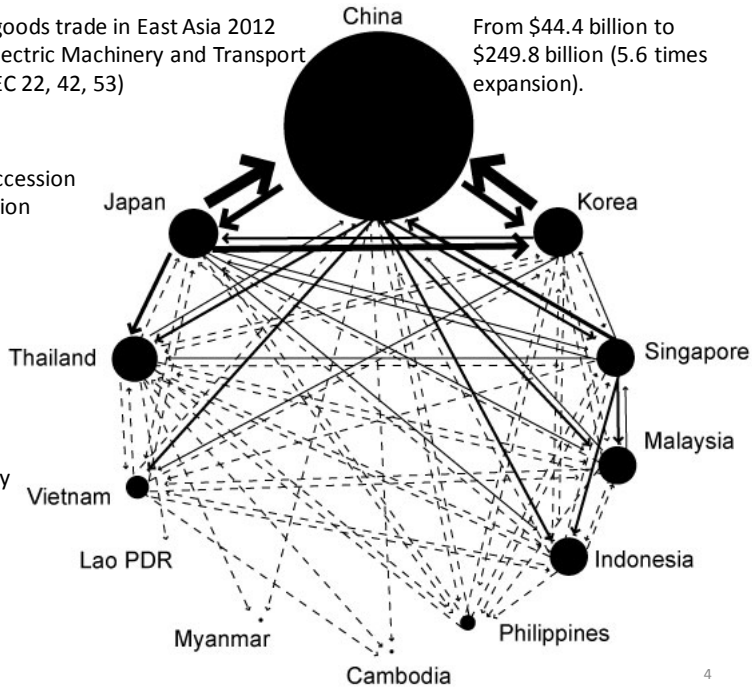
3

Intermediate goods trade in East Asia 2012
General and Electric Machinery and Transport Equipment (BEC 22, 42, 53)

From $44.4 billion to $249.8 billion (5.6 times expansion).

China's WTO accession
ASEAN integration
Exchange rate
Transportation
ICT
……

Greater volume
Higher density
More complexity
And
More inclusion



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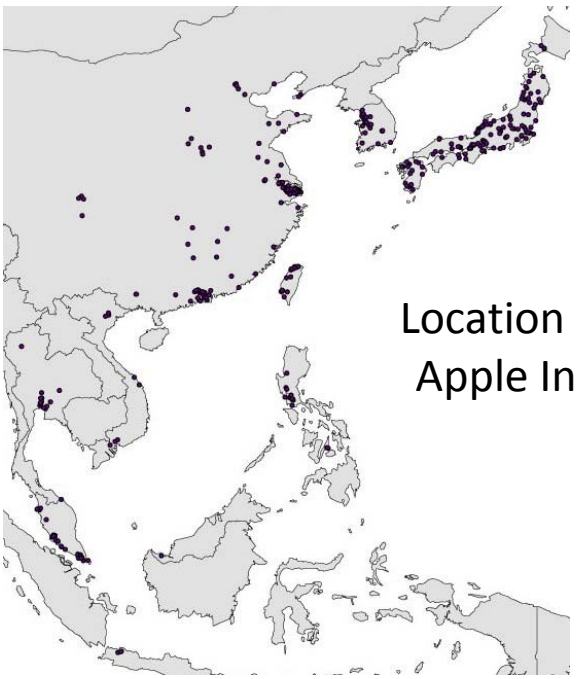

An example

Location of suppliers of Apple Inc. in East Asia

Source: Apple Inc. homepage

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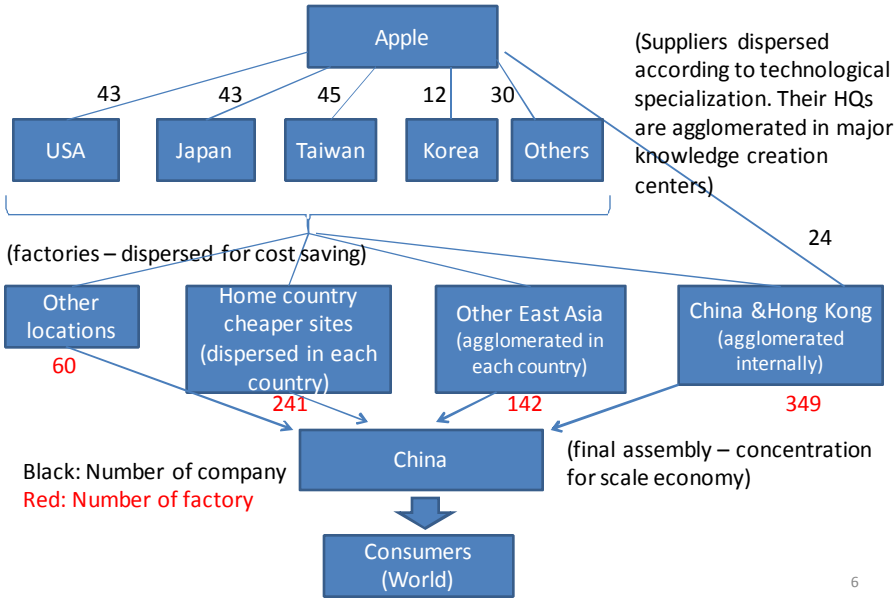
Cascade of agglomeration and dispersion



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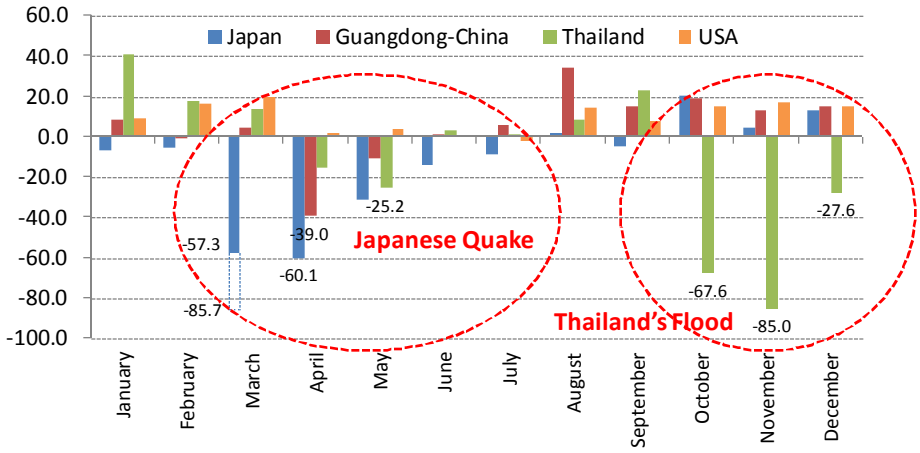
The Global Impact of the Japanese Quake and Thailand's Flood

2011, Japan, Guangdong (China), Thailand, and the US
Automobile production (y-o-y % change)



Source: JAMA, Statistic Bureau of Guangdong Province, TAIA, Federal Reserve Board

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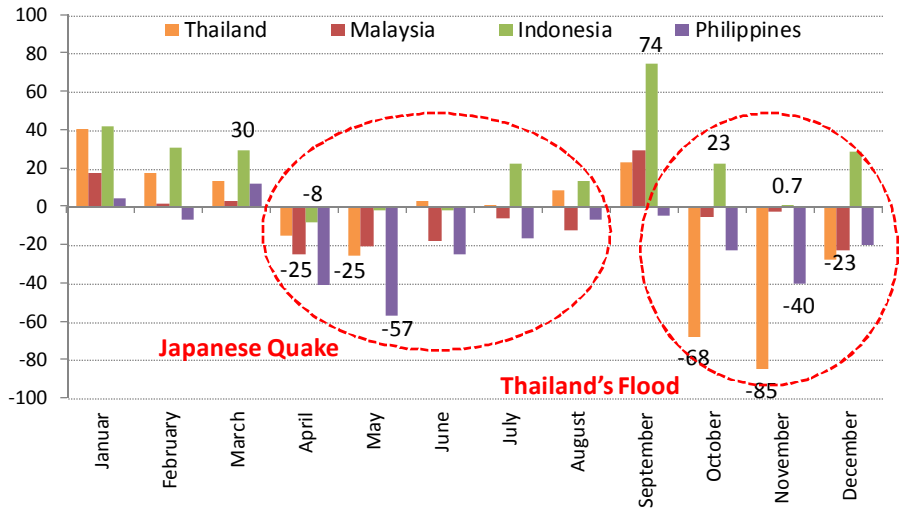
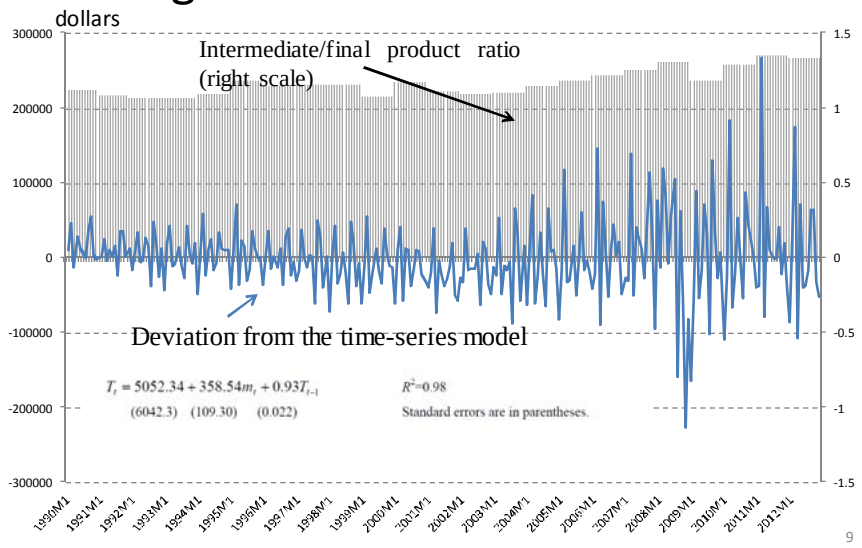
2011, ASEAN automobile production (y-o-y % change)



Source: TAIA, AAM, GAIKINDO, AAP

8

Supply chain and volatility of the global trade: 1990–2012.



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(Source) Own calculation based on UN-Comtrade database

What to do for resiliency? Individual level measure

- Business Continuity Plan
- Investment in higher level of protection of workplace.
- More visibility in the supply chain.
- Creation of redundancy (multiple sourcing, duplication of production locations, etc). However, companies see that having a redundancy is luxury under a harsh competition, especially small companies.

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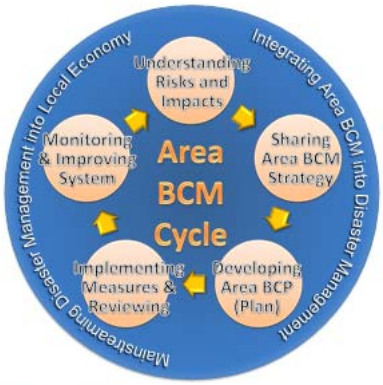
National/Local level

- Natural disaster risk evaluation has become an important location choice factor.
- Area Business Continuity Plan & Management (Area BCP and Area BCM) is being promoted by JICA.
- Area BCM is concerted efforts of local stakeholders which is continuously updated, under the common interest of enhancing the resiliency of business, protecting jobs and increasing the advantage the locality.



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International/regional cooperation

- Promotion of scientific researches to generate information on hazard risks. Guideline to avoid unorganized development that may increase environmental vulnerability. Mechanism for risk monitoring and sharing information.
- Contingency measures for business continuity: quick visa issuance for rehabilitation personnel, speedy custom clearance of capital goods for replacement, etc.
- Subsidy and credit for "creative reconstruction" of the damaged region.
- Insurance of economic losses, in particular reinsurance mechanism to transfer a part of risks to investors. The cost of such market-based solution could be lowered if governments, with international cooperation, ensure that they should act as insurers of last resort.

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