

# Role of Regional Integration in Ensuring Stable Supply of Parts and Industrial Materials

October 12, 2011

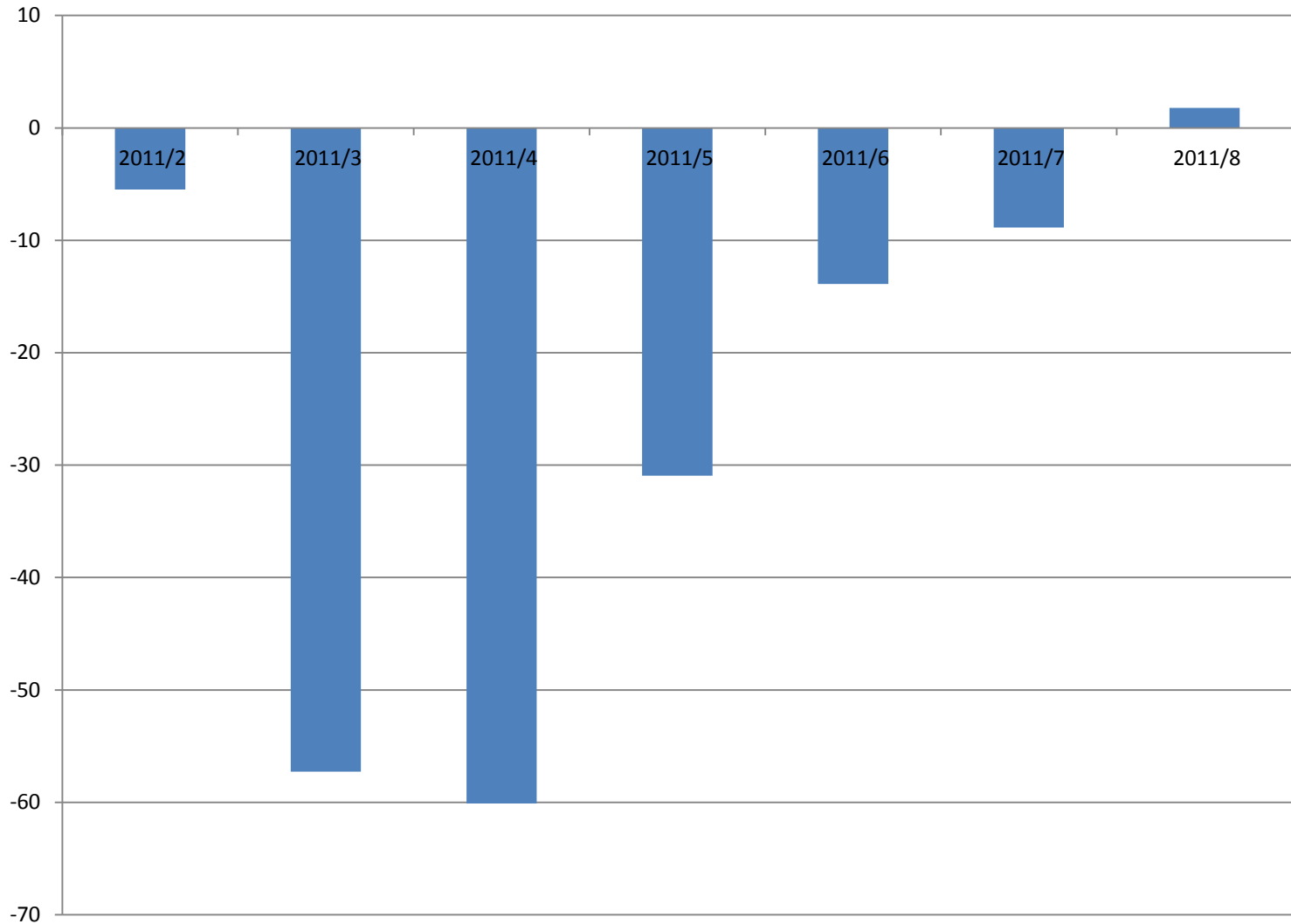
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# The Impacts of Great East Japan Earthquake and Tsunami on Supply Chains in Automobile Production

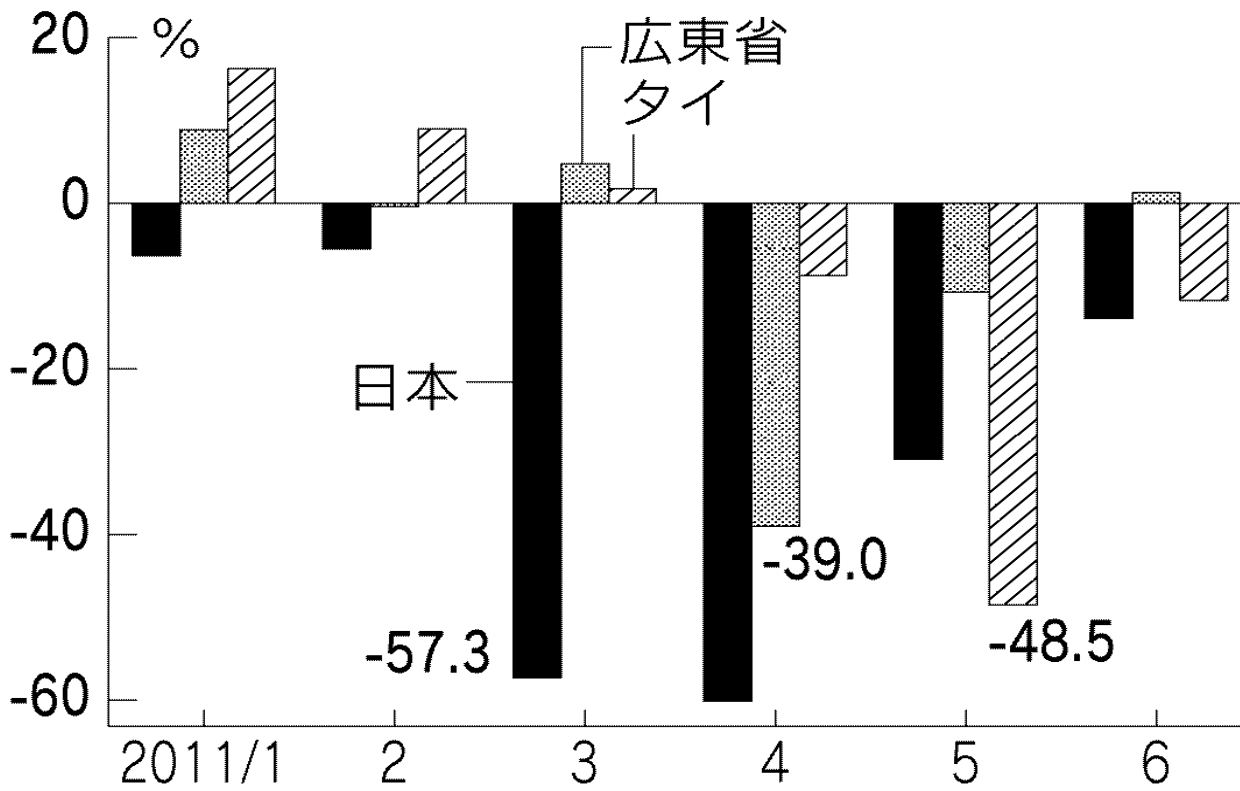
- Immediate impacts are substantial as the level of automobile production declined more than 50 percent from the previous year due to the destruction of supply chains
- Supply chains recovered much more quickly than anticipated
- However, medium- to long-term impacts may result in relocation of auto production from Japan to foreign countries (hollowing out) in order to diversify risks in terms of natural disasters, high electricity prices, high taxes, etc (yen appreciation),

# **% Decline in Auto Production from the Corresponding Month in 2010**



# Changes in Auto Production in Japan, Guangdong and Thailand

日本、中国・広東省、タイの月間自動車生産台数の前年同月比増減率



(出所) 日本自動車工業会、広東省統計局、タイ自動車工業会

# Lessons from Japanese Experiences

- Auto producers did not have a good grasp of extensive supply chains, or production networks
- Holding inventory of parts and components was important to maintain production
- Dispatching engineers and other workers from parent auto assembling companies to parts and component suppliers has proven to be very effective for recovering the supply chains

# Nature of Supply-Chains: Production Networks

- Rather than the pyramid style production system comprising of 1<sup>st</sup> tier, 2<sup>nd</sup> tier, 3<sup>rd</sup> tier parts suppliers with many lower tier suppliers supply to fewer higher tier suppliers
- The barrel style production system, where a small number of 3<sup>rd</sup> tier parts suppliers supply to many 2<sup>nd</sup> and/or 1<sup>st</sup> tier producers, has been constructed. More specifically, some parts are used for the production of a large number of parts/finished products. For example, Renesus Electronics, medium-sized firm, has been a major supplier of many kinds of micro-computers used for many products.

# Use of a Region-wide FTA to Deal with Disruption of Supply Chains

To avoid disruption of supply chains

- Diversify sources of parts and components supplies  
→ provide environment for promoting foreign and domestic investment to set up parts and components suppliers (FTA)
- Facilitate trade in parts and components → trade liberalization and facilitation (FTA)
- Promote the use of standardized parts and components → technical barriers to trade (FTA)

To recover from the disruption of supply chains quickly

- Dispatch engineers → free movement of engineers (FTA)