






Impacts of Trade and Transport Policy on International Cargo Shipping and Economic Activities (2nd mid-term report)



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Steps Forward

- 30th TPT-WG (April 2008, Philippines): approval of the proposal
- 31st TPT-WG (August 2008, Peru):
intermediate reports and discussion [1]
- 32nd TPT-WG (July 2009, Singapore):
intermediate reports and discussion [2]
- 33rd TPT-WG (2010):
final presentation and discussion for final report submission

Contents of Today's Presentation

- 1) Introduction (Objective, Model, etc.)
- 2) Three examples for policy simulation and implication
 - Trade Policy
 - Transport Infrastructure Investment
 - Risk Management on International Shipping
- 3) Discussion for final report

Note: All of simulation results described in this presentation may be changed in a final version after modification of the model and input data.

Objectives of the Project

- 1) **to show the simulation results** on the impacts of trade and transport policy on international cargo shipping and economic activities of APEC region
- 2) **to provide materials for discussion to realize the mutual development** of the APEC region

Future Scenarios and Policies to be simulated and evaluated

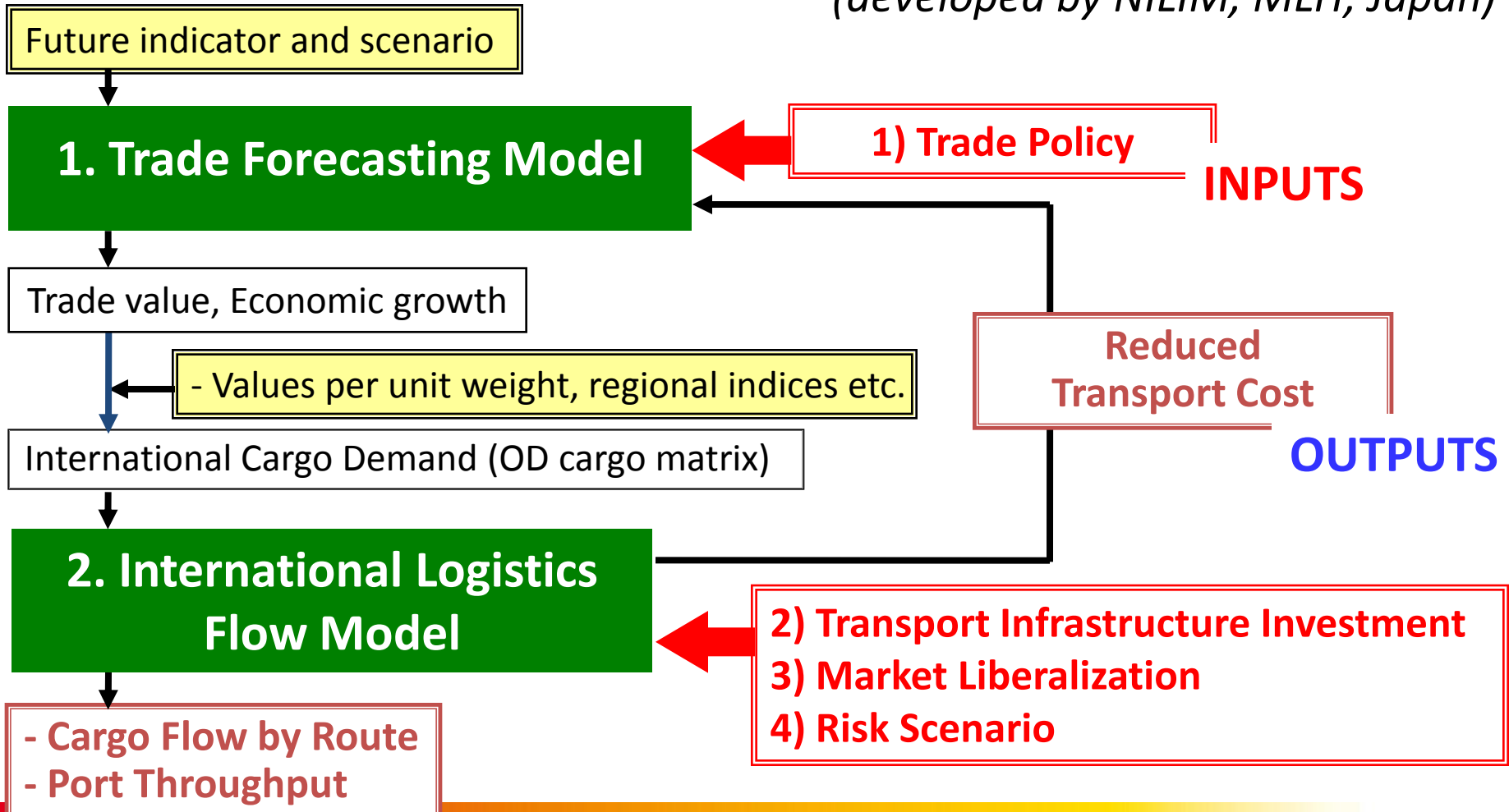
- 1) Trade Policy
- 2) Transport Infrastructure Investment
and Cost Reduction Policy
- 3) Market Liberalization on International Shipping
- 4) Risk Management on International Shipping

Discussion Point

- 1) Are implications exemplified in this presentation valid?
Are there any other implications expected?
- 2) Are there any other simulations (or more specific simulation) to contribute to the discussion for the mutual development and cooperation of the APEC region, utilizing the developed system?

The Model ... Trade and Logistics Forecasting System

(developed by NILIM, MLIT, Japan)



1. Trade Policy

What impacts on international cargo volumes and economic activities of the APEC region are expected by trade liberalization and facilitation towards the Bogor Goal?

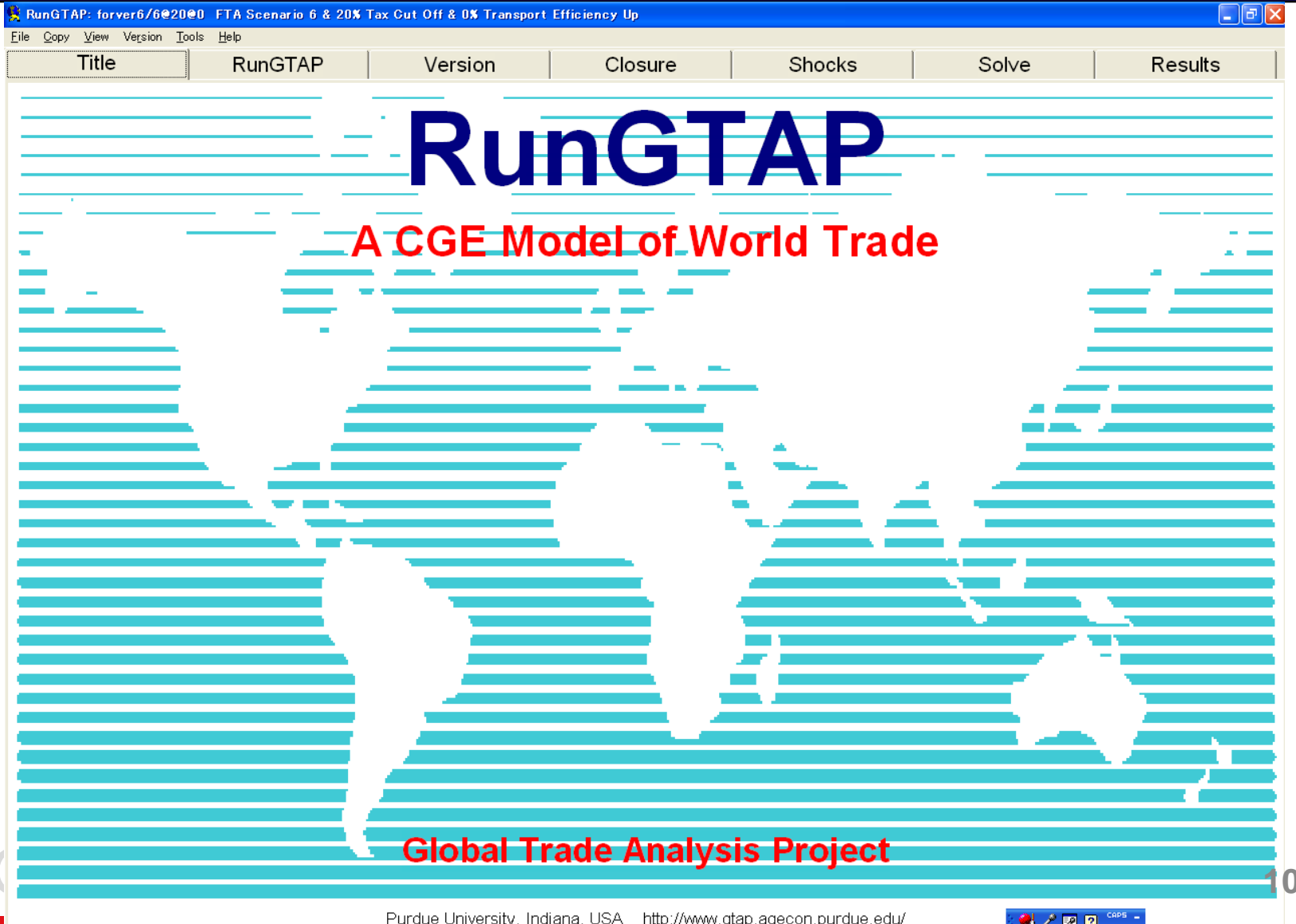
Output

- 1) Future trade amount (- 2025)
- 2) Impacts of trade liberalization

Trade Forecasting Model

Global Trade Analysis Project (GTAP) Model

- Most popular model package among the world for trade forecast
- CGE (Computable General Equilibrium) framework based on
Microeconomic theory assuming equilibrium of all market
- Evaluate economic impact of trade policies
- Many applications in practical field
 - e.g. GATT [1994] ... Economic Analysis at Uruguay Round
 - APEC [1997] ... Economic Impact of Trade Liberalization
based on Manila Action Plan**



RunGTAP: forver6/6@2008 FTA Scenario 6 & 20% Tax Cut Off & 0% Transport Efficiency Up

File Copy View Version Tools Help

Title	RunGTAP	Version	Closure	Shocks	Solve	Results
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RunGTAP

A CGE Model of World Trade

Global Trade Analysis Project

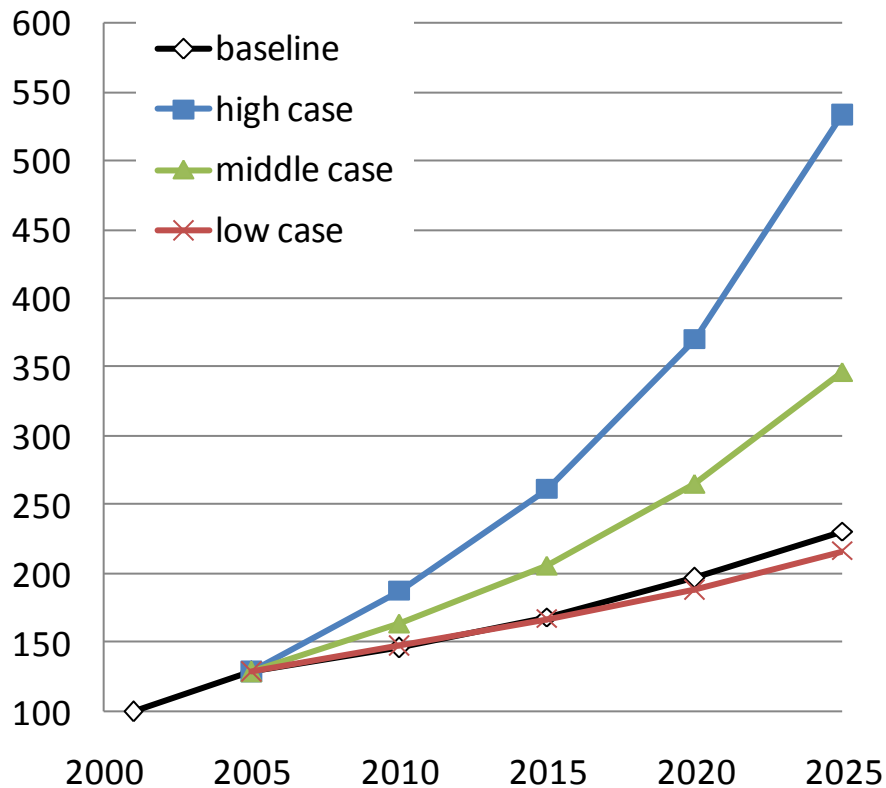
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Purdue University, Indiana, USA <http://www.gtap.agecon.purdue.edu/>

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Future Trade Predicted until 2025 (1)

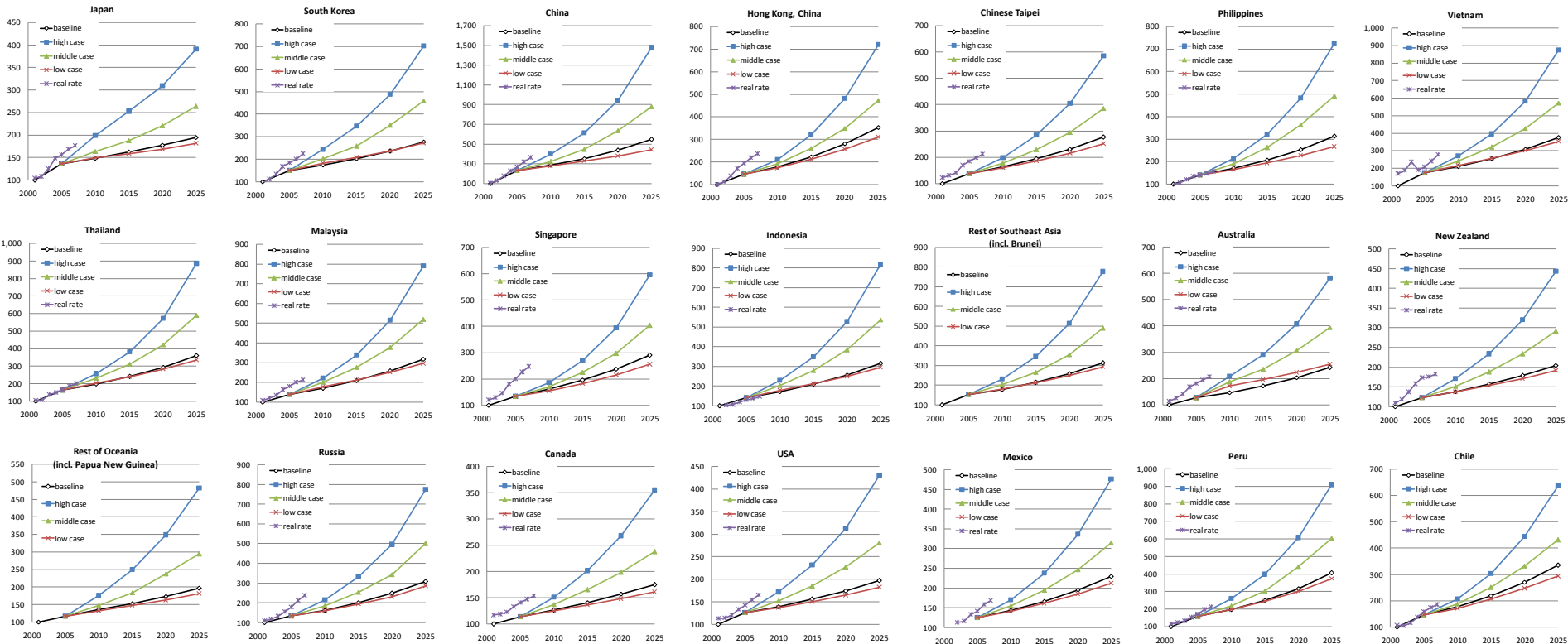
Increase ratio of world's trade amount
(year 2001 = 100)



Scenario	Input data
✓ Baseline	Past trend
✓ High case	Based on questionnaire survey to experts on future capital, labor, technical progress, natural resource, tax rate , etc.
✓ Middle case	
✓ Low case	

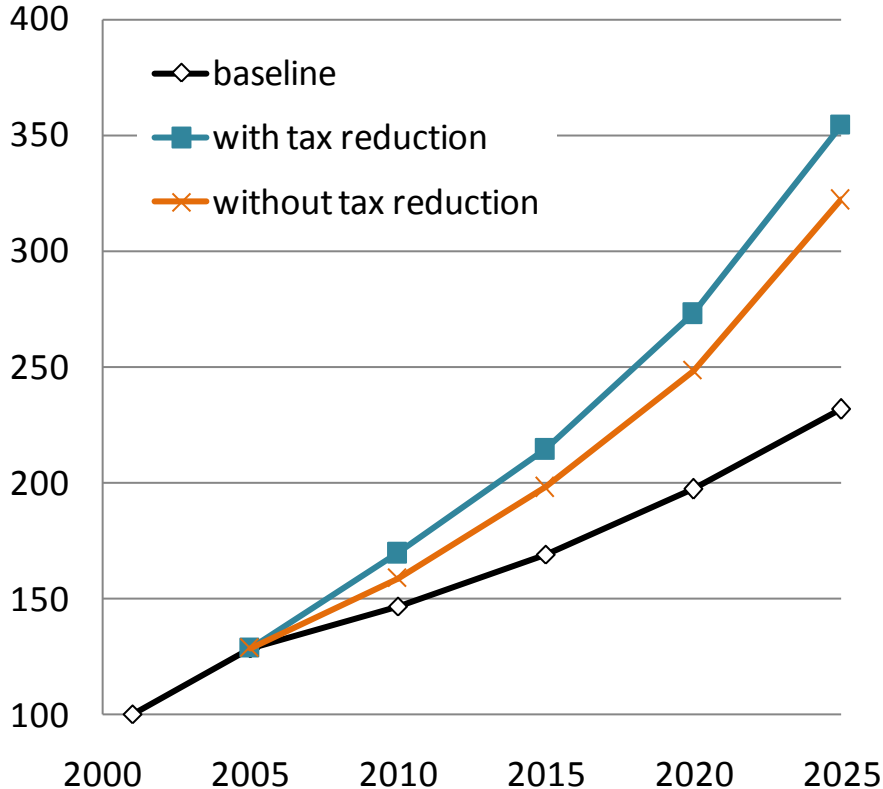
Future Trade Predicted until 2025 (2)

Increase ratio of each economy's trade amount (year 2001 = 100)



Impact of Trade Liberalization (1)

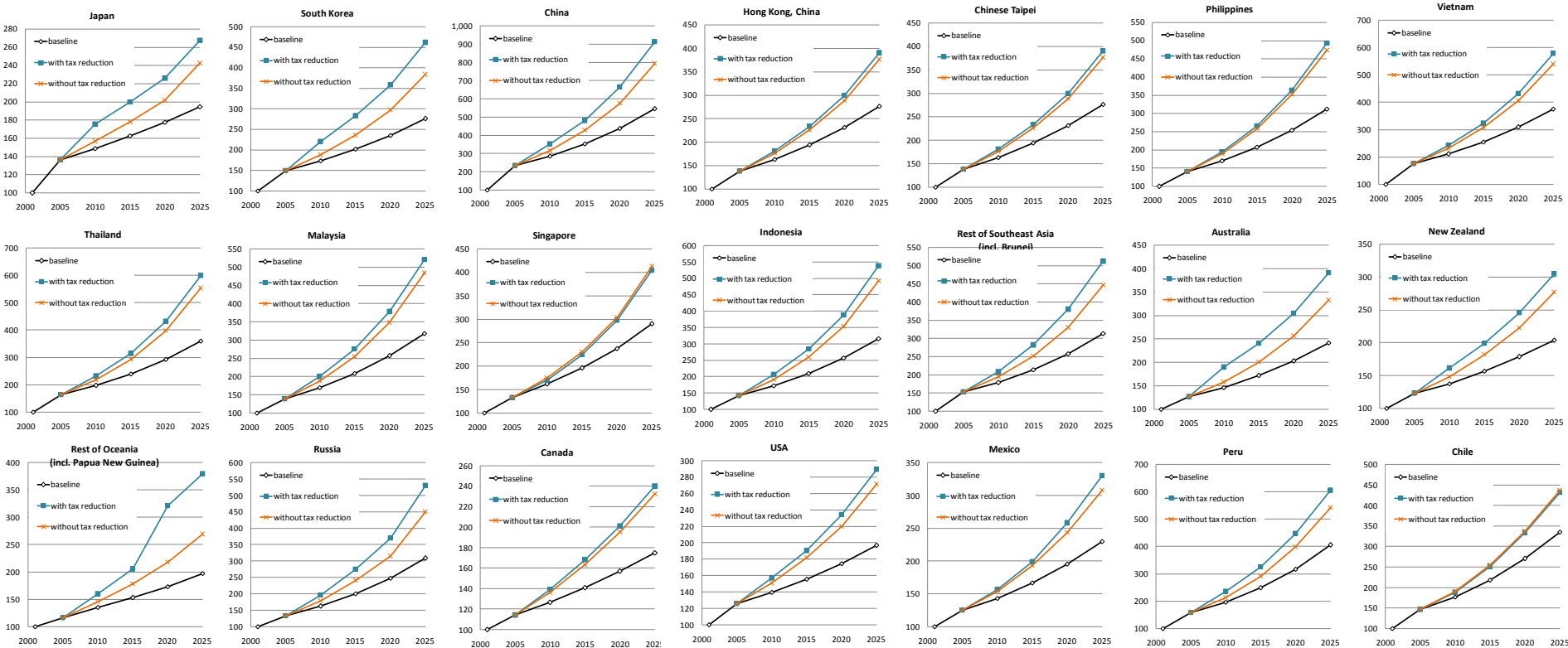
Increase ratio of world's trade amount
(year 2003 = 100)



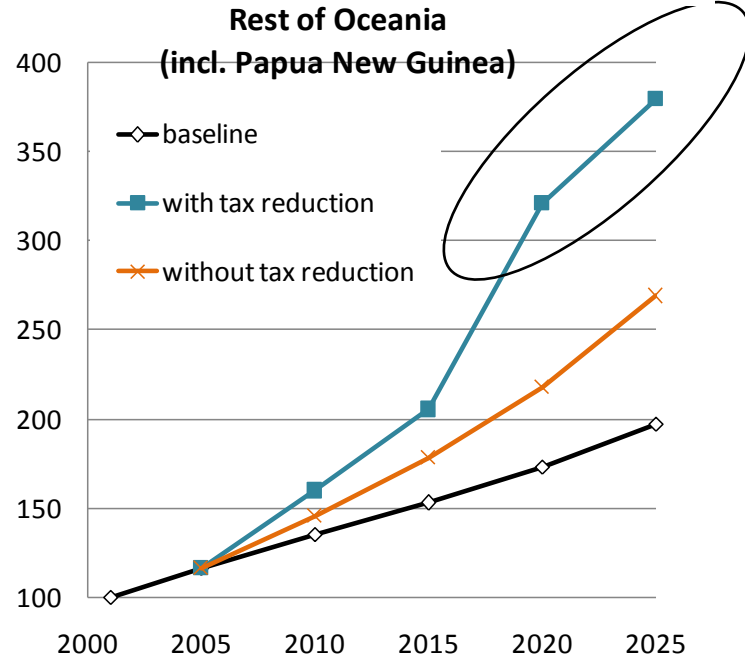
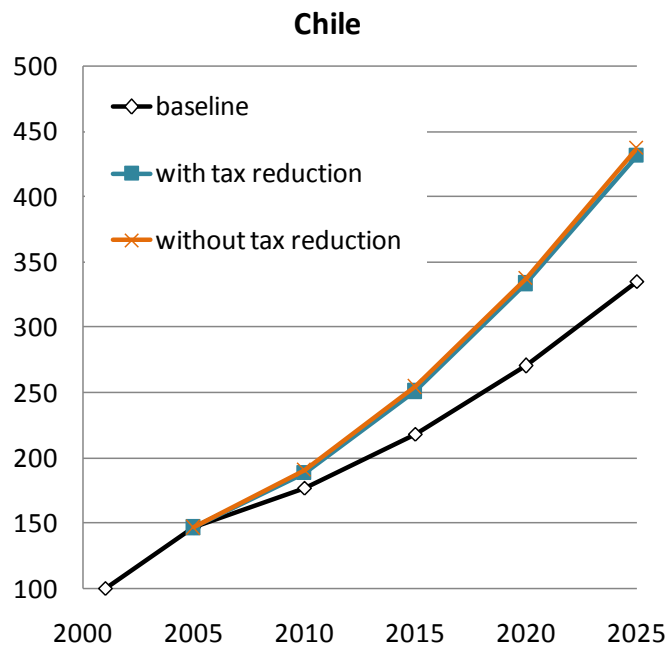
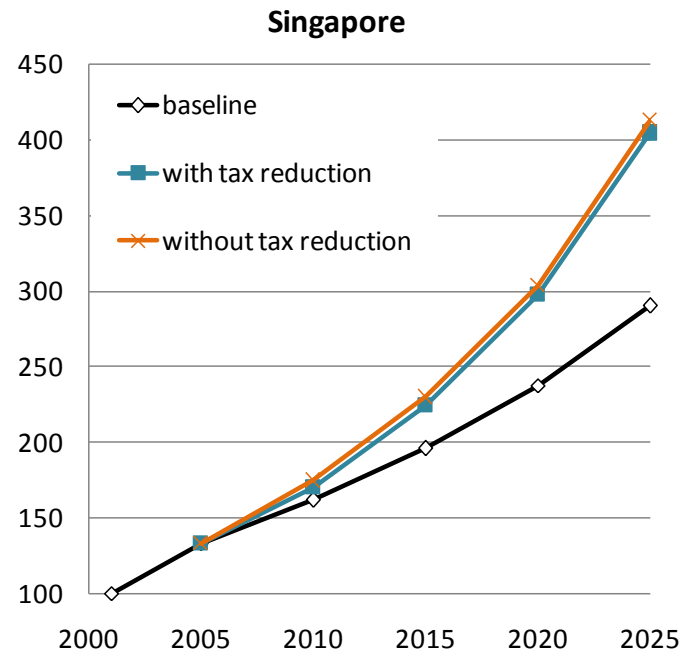
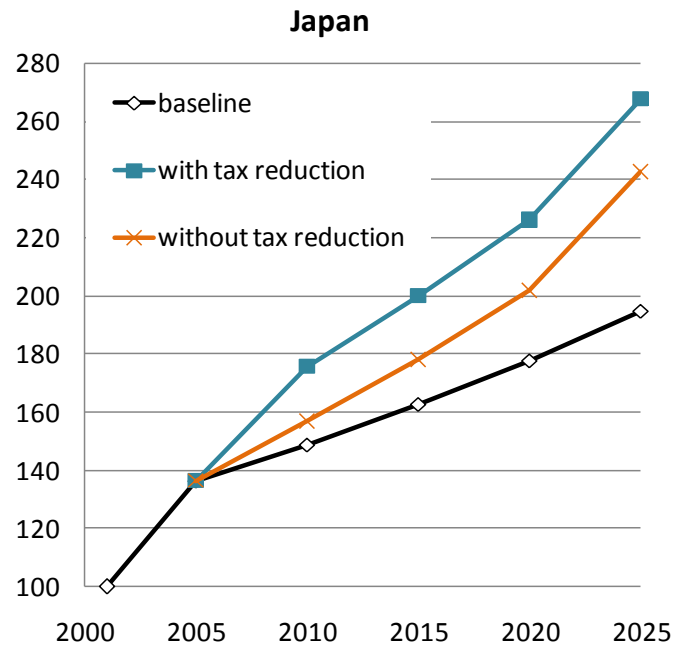
Scenario	Input data
✓ Baseline	Past trend
✓ without tariff reduction	Middle-case scenario but no tariff reduction
✓ with tariff reduction	Reduction of multilateral and bilateral import tax negotiated and discussed now incl. tax exemption among APEC economies

Impact of Trade Liberalization (2)

Increase ratio of each economy's trade amount (year 2003 = 100)



Increase ratio of each economy's trade amount (year 2003 = 100)



Expected Implication of Trade Policy Simulation

- Trade liberalization and facilitation can accelerate economic and trade growth as well as international shipping demand increase
- In particular, increasing rate of international maritime container shipping demand will surpass trade growth rate

2. Transport Infrastructure Investment

(tentative)

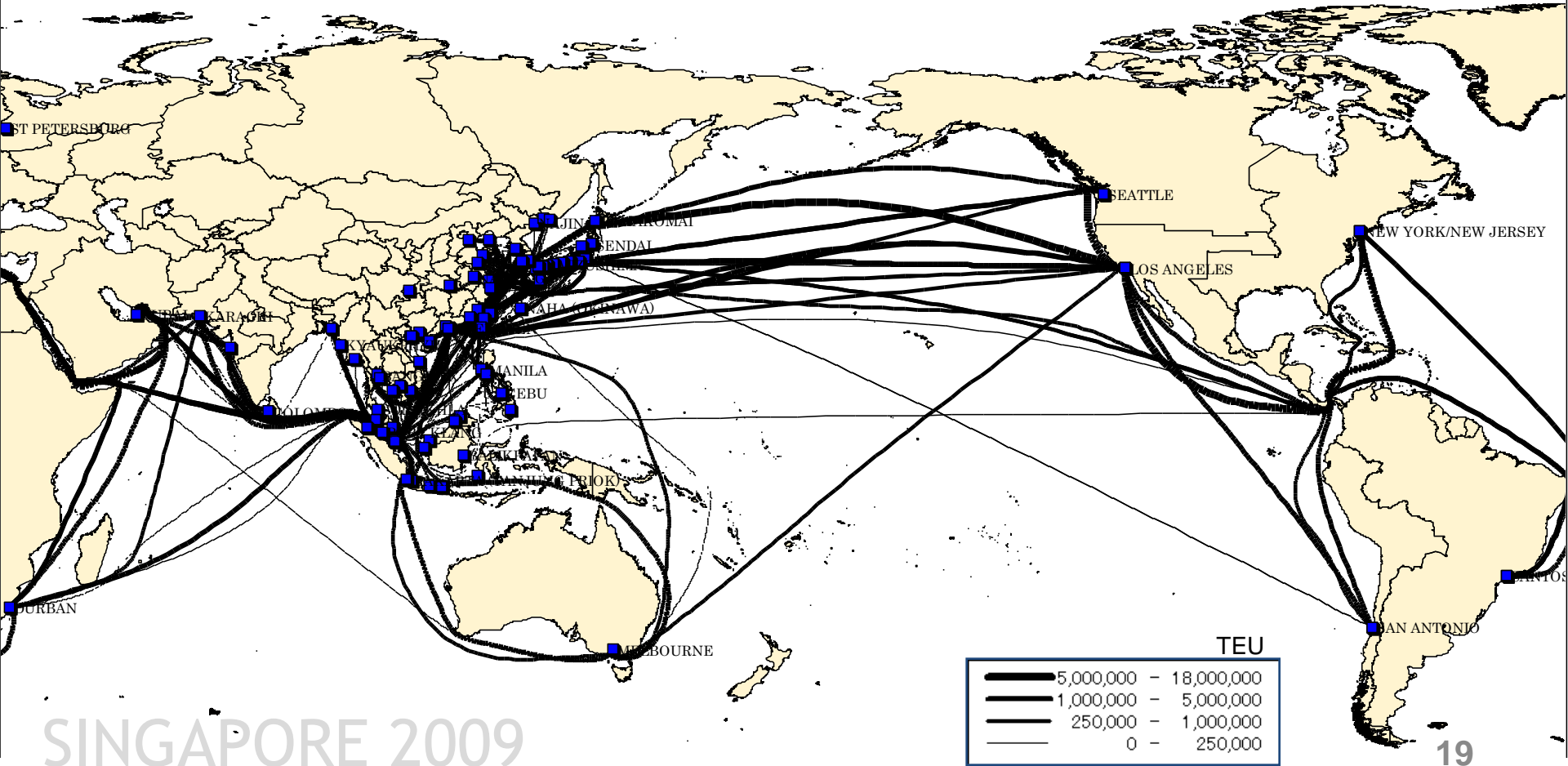
What impacts on international cargo flow patterns, transport costs and economic activities of the APEC region are expected when transport policies are implemented?

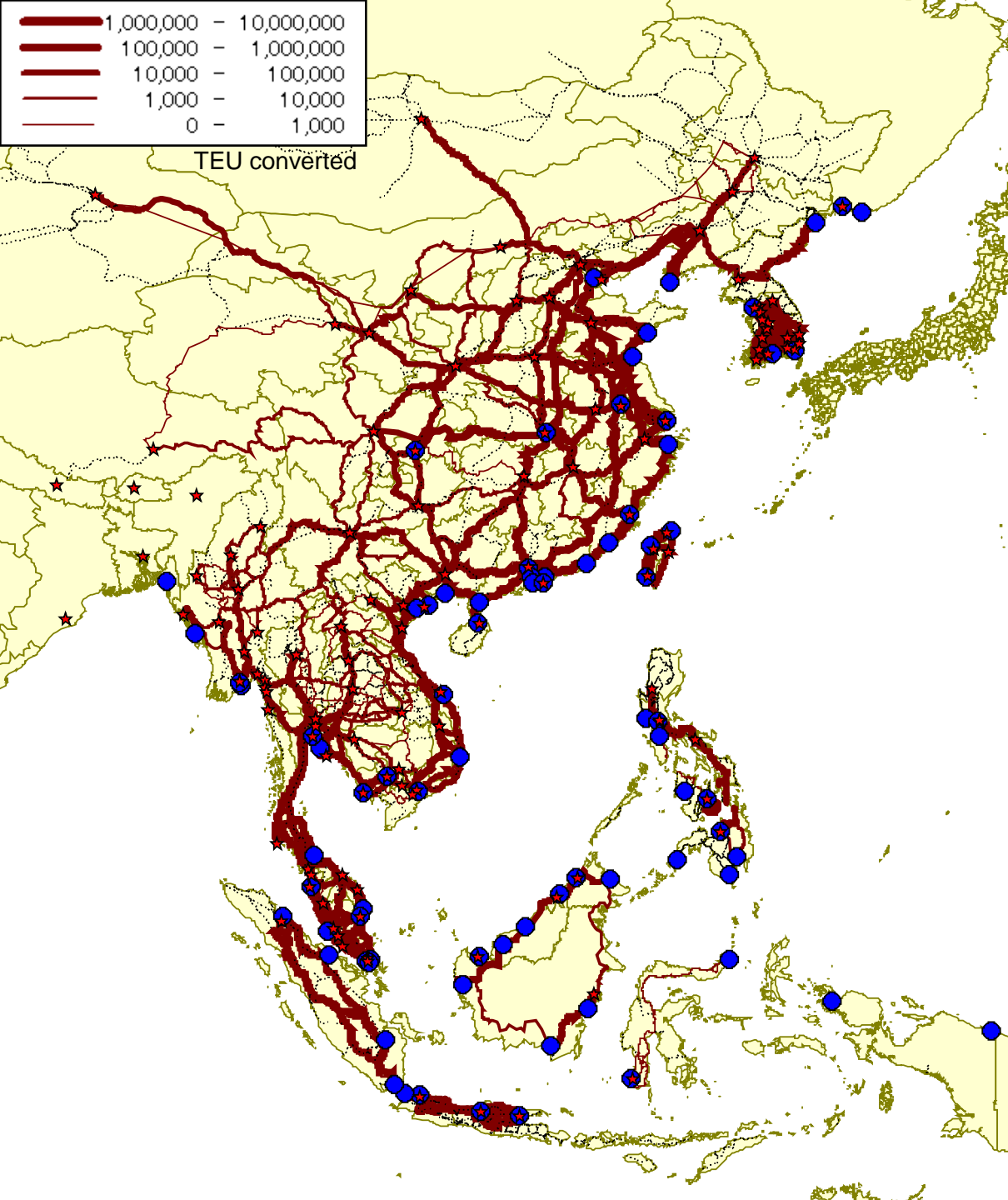
International Logistics Flow Model

Model for International Cargo Simulation (MICS)

- Developed by NILIM, Japan
- Predicting international logistics flow (mainly maritime container cargo) by inputting cargo transport demand (from a region to other region)
- Calculated based on a Nash Equilibrium between oceangoing carrier and shipper, as well as between major carriers
- Mainly focusing maritime shipping, but also including international and hinterland land transport (only East Asia presently)

Predicted Maritime Container Cargo Flow (in 2003, tentative)



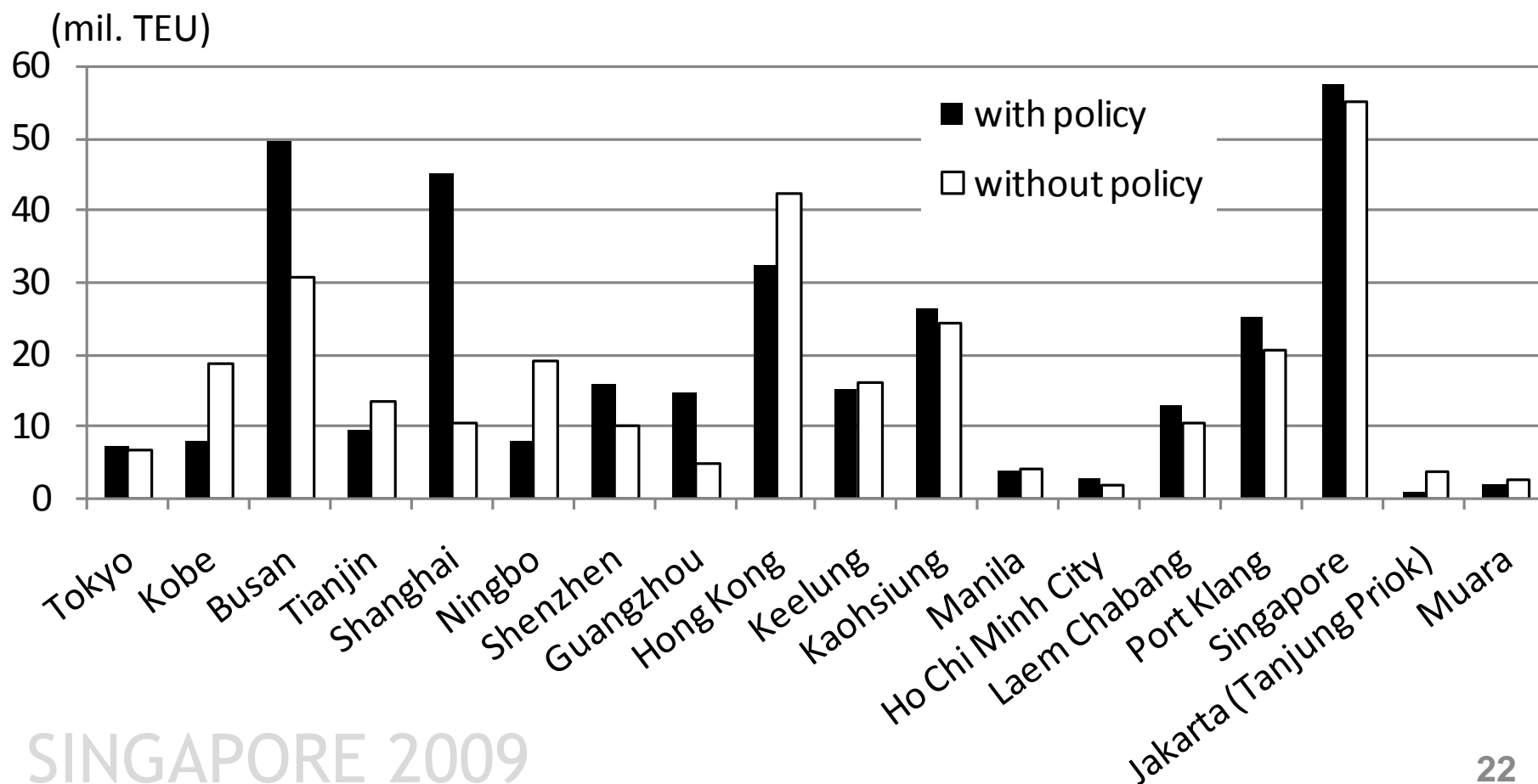


Predicted Land Cargo Flow in East Asia
(in 2003, tentative)

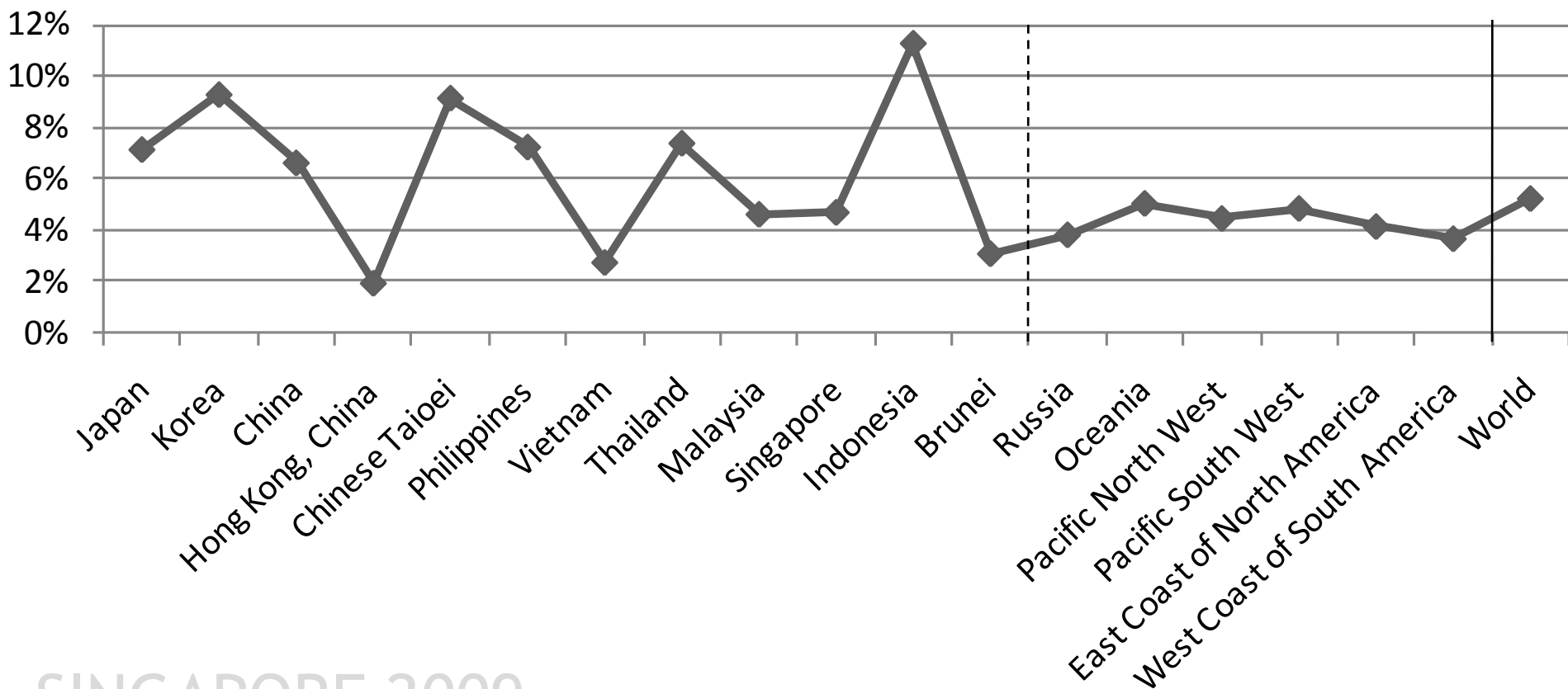
Policy Simulation

- Cargo Demand ... 2020 Middle Case
- Target Policy
 - New Container Terminal Construction in East Asia
 - Shorten Lead Time and Handling Time at Terminal
- Outputs
 - Change of Port Cargo Throughput
 - Reduction of Shipping Cost (Amount and Ratio)
 - Increase of Cargo Demand

Comparison of predicted container throughput for with and without port policy *(in 2020, East Asian major ports, tentative)*

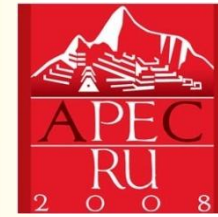


Reduction ratio of international shipping cost (in 2020, tentative)



Expected Implication of Port Policy Simulation

- Port investment and shortening lead and handling time will reduce international shipping cost, accelerate economic and trade growth, and increase cargo demand
- The benefits will spread not only the economies that policies implemented, but also all of other economies as well as the entire world



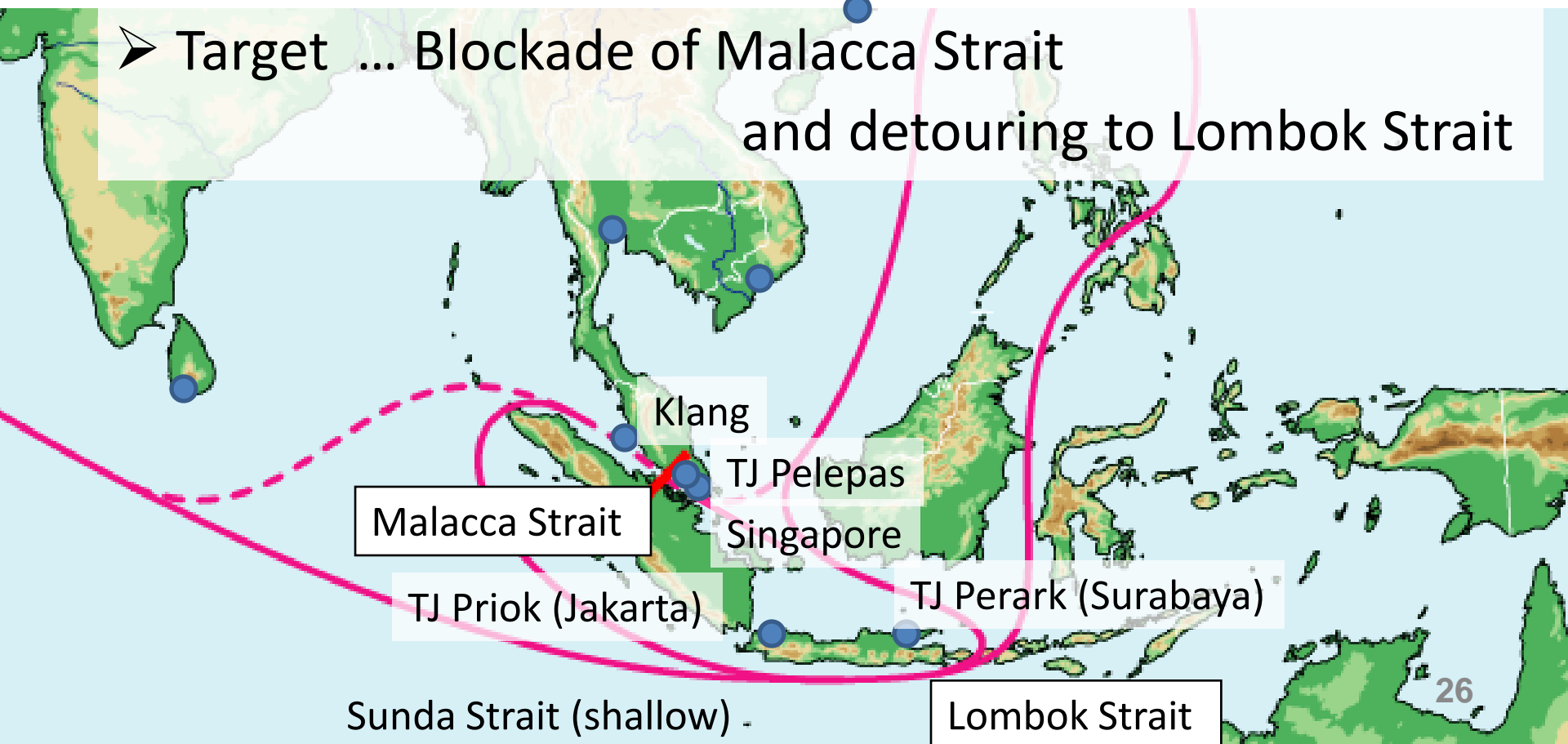
4. Risk Management on International Shipping

What impacts on international shipping market and economic activities of the APEC region are expected when some sea routes such as Straits of Malacca are blocked due to some security reasons?

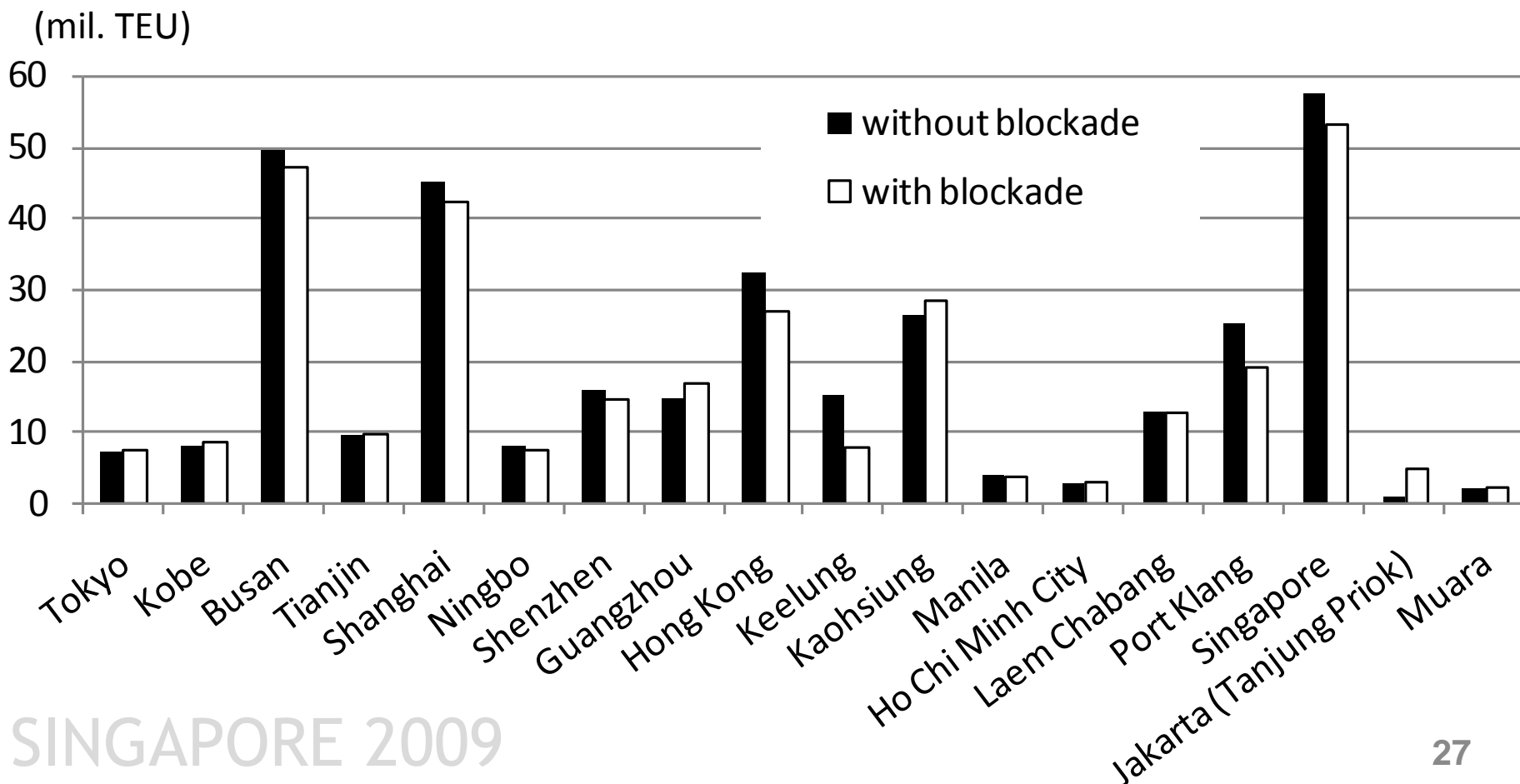
Risk Simulation (tentative)

➤ Cargo Demand ... 2020 Middle Case

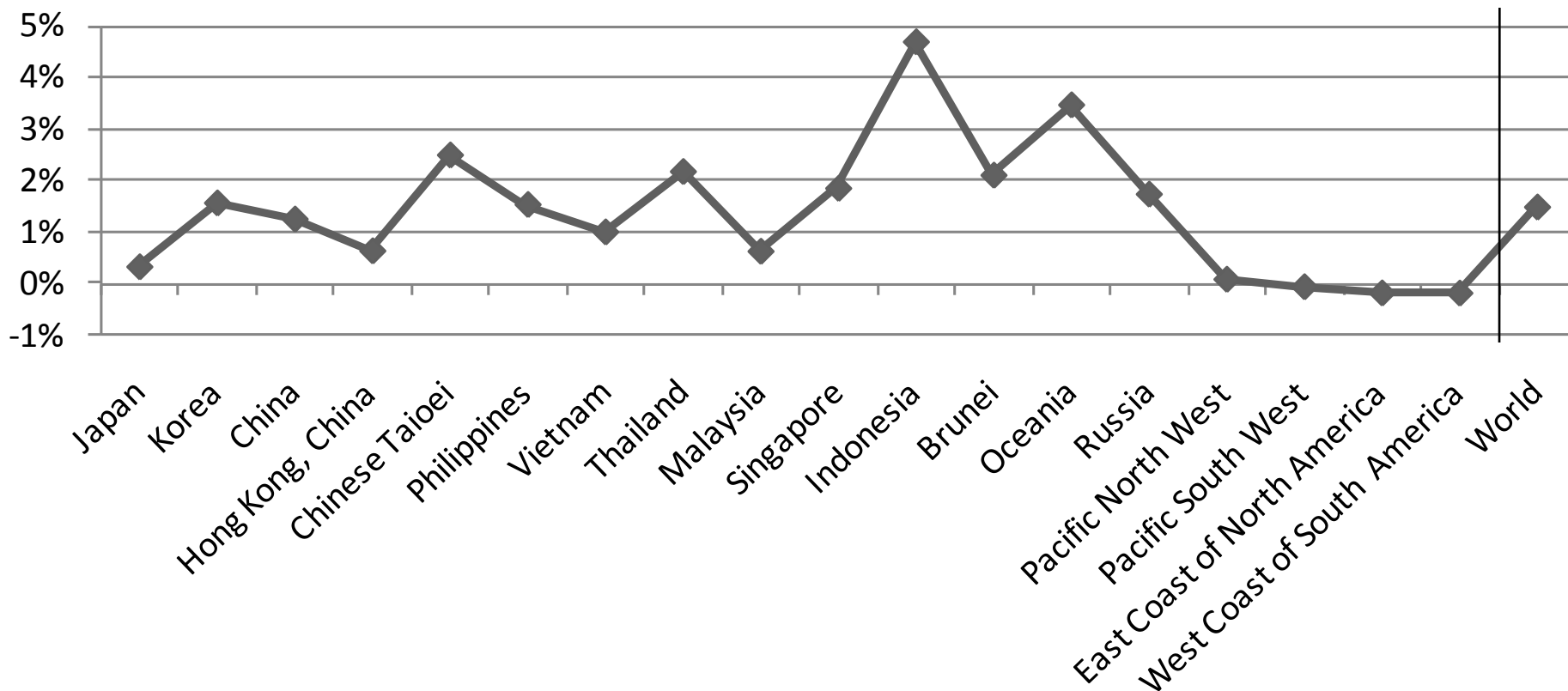
➤ Target ... Blockade of Malacca Strait and detouring to Lombok Strait



Comparison of predicted container throughput for without and with blockade *(in 2020, East Asian major ports, tentative)*



Increase ratio of international shipping cost (in 2020, tentative)



Expected Implication of Risk Simulation (tentative)

- Detouring due to blockade the strait will increase international shipping cost
- Negative impact will broadly spread to the region
- If blockade is protracted, regional economy and trade will be also affected

Further Actions

- Extension of the international logistics model to the whole APEC economies
- Various types of simulation and analyses (any policies needed to be evaluated do you have?)
- Extracting implications and discussion

Discussion Point

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Are there any other implications expected?
- 2) Are there any other simulations (or more specific simulation) to contribute to the discussion for the mutual development and cooperation of the APEC region, utilizing the developed system?

Thank you for your listening!