APEC Supply Chains:
Identifying Opportunities for Improvement

USC UNIVERSITY OF SOUTHERN CALIFORNIA
Marshall School of Business ABAC Team 2011

ABAC
APEC BUSINESS ADVISORY COUNCIL

Executive Summary

APEC Supply Chains: Identifying Opportunities for Improvement

This report presents a detailed comparative analysis of APEC supply chains. Specifically this study focused on identifying and quantifying the most significant chokepoints, inefficiencies, and barriers which impose time delays, raise transaction costs unnecessarily, and increase supply chain risk and uncertainty. The report's objective was to bring into focus for policymakers those chokepoints where improvements would have the greatest impact.

Chokepoints impose direct economic losses. Chokepoints benefit no one; they hurt consumers, businesses, and economies. And when chokepoints are large and persistent, they impact competitiveness and divert trade and investment. Achieving improvements is difficult because supply chains require the coordination of multiple parties and multiple government agencies in different economies. Additionally, the chain-linked nature of supply chains means that changes in one part offer diminished benefits unless the entire chain is improved. Consequently, it is crucial for APEC to identify which chokepoints are most critical and what improvements will provide the greatest potential time and cost savings.

Our research included the following:

- A comprehensive descriptive comparison of APEC supply chains with data drawn from the WEF Enabling Trade Report, the World Bank Logistics Performance Index and Doing Business Report.
- A detailed analysis of potential time and cost savings in APEC supply chains.
- Detailed analyses designed to identify the most significant chokepoints in APEC supply chains.
- In depth interviews with 181 APEC business executives, supply chain experts, and government officials; and an analysis of 44 detailed supply chain questionnaires.
- A detailed examination of the key chokepoints identified by the APEC Supply Chain Taskforce, May 2009.

KEY FINDINGS

- **APEC economies lead and lag in supply chain competitiveness.** As a region, APEC is home to economies that lead the world in supply chain efficiency. It also has economies that lag world averages, and lag substantially. Where supply chains cross multiple APEC economies this becomes a collective concern.
- **Substantial opportunity exists to improve APEC supply chains, particularly in emerging economies.** When compared to a best-in-APEC supply chain, potential time and cost savings were estimated at:

POTENTIAL TIME & COST SAVINGS	Developed Economy (Import)	Emerging Economy (Import)
Developed Economy (Export)	2.1 Days / Shipment $617 / Container	4.1 Days / Shipment $1,084 / Container
Emerging Economy (Export)	3.6 Days / Shipment $840 / Container	5.6 Days / Shipment $1,307 / Container

- **Concerns about supply chain chokepoints differ across economies.** Executives in developed economies complained about the speed of customs and port clearance, complex regulations and standards, non-tariff barriers (NTBs), and burdensome document requirements. In emerging economies the issues raised were around infrastructure, transparency of procedures, variability in clearance times, efficiency and quality of customs services, availability of logistics services and connectivity of transport modes.
- **Emerging economies lagged developed economies most in transparency, availability and use of online IT systems, efficiency of customs, and transportation and port infrastructure.** Developed economies have benefited most from moving to online IT based systems and improved customs efficiency and procedures. A lack of transparency and the presence of corruption burden emerging economies the most.
- **Trade barriers, particularly NTBs, continue to plague APEC supply chains.** Significant progress on tariff reduction has been accomplished in the APEC region. This progress, however, has been outweighed by the continued presence of non-tariff barriers and the emergence of new NTBs.

- **Improvements in port operations and custom services offer the opportunity for the largest immediate improvements.** In emerging economies, improvements in both customs and port clearance efficiency will produce immediate time and cost saving, while improved port efficiency in developed economies will offer immediate benefits.
- **Absence of detailed data required for rigorous analysis**. In our attempts to quantify the impact of supply chain chokepoints, we discovered that businesses and economies are not capturing relevant data in a holistic manner. There is a need to encourage businesses to track information related to specific chokepoints with an emphasis on standardized data.
- **Benefits of IT systems to supply chains.** A finding that emerged in many areas of our research was that there are benefits to the adoption of information technology. IT systems were found to positively impact documentation, custom and port clearance, connectivity, and to dramatically improve transparency problems. Electronic systems can produce substantial cost and time savings at ports
- **Uncertainty and variability is also critical.** Interview and questionnaire respondents focused on improvements in reducing uncertainty and variability in shipping time and customs procedures as being as important as, or more important than, achieving improvements in supply chain costs and time.
- **Burdensome documentation requirements and complex regulations and standards, and in particular, disadvantage small and mid-sized enterprises (SMEs).** Business complained loudly about unnecessary and complex documentation requirements. Complex requirements to meet rules of origin requirements discourage many businesses, particularly small and mid-size firms without additional resources, from taking advantage of the provisions of free trade agreements.
- **Problems of multi-jurisdictional authority behind and at the border.** Across economies the lack of coordination among government agencies was raised as a source of unnecessary costs and time delays.
- **Found support for all 8 chokepoints identified by the APEC Taskforce, and added market access barriers.** Our interviews with APEC business executives confirmed that all 8 chokepoints are issues within APEC. However, concern of the continued presence of restrictive trade barriers in some APEC economies led us to conclude market access remains an important issue for APEC. Customs and port clearance, transparency, and market access were found to be relatively more important.

ACTION AGENDA

APEC has an important role in improving regional supply chains. Improving supply chains across borders requires collective coordinated action.

- **APEC must expand its role in coordinating the sharing of supply chain best practice information.** Supply chain best practices for developed and emerging economies do exist within APEC. APEC is home to best-in-the-world supply chains; both within firms and at the economy-level. This study has identified where best practices exist in APEC for each component of the supply chain.
- **Get the Data.** The analysis and conclusions reached in this study could have been improved if greater granularity of data were available. The data that is currently available is simply not sufficient to provide estimates of impact that can be segmented down to individual chokepoints. Better data collection by both business and government would allow the creation of a stronger business case for change that is not dependent on "black box" economic models.
- **Accelerate harmonization efforts in customs requirements and procedures across APEC.** Improved customs clearance times will have significant impacts on competitiveness and GDP.
- **APEC must expand its role in the leadership, governance, and oversight of standardization initiatives within supply chains.** Standardization has broad positive economic consequences. Improved standardization will impact multiple chokepoints including transparency, documentation, customs efficiency, and customs transit arrangements.
- **Develop APEC-wide "model measures/model protocols" for information and communication technology systems (ICTs).** Encourage adoption of compatible IT online systems for all parts of the supply chain by all economies in APEC. Simply put, it is an issue of economic competitiveness. Adopting IT systems will "force" coordination among government agencies with responsibility for supply chain activities.
- **Keep the focus on NTBs.** APEC must encourage increased transparency by all economies for non-tariff measures (NTM) requirements. APEC must create opportunities for economies to discuss new emerging industry and NGO-initiated NTBs. APEC must produce model measures for all new emerging NTBs. Establishing APEC-wide standards for all NTMs, and procedures for testing and compliance, will greatly reduce cost of NTBs.

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SUPPLY CHAIN

INTRODUCTION

Introduction - Evaluating the APEC Regional Supply Chain

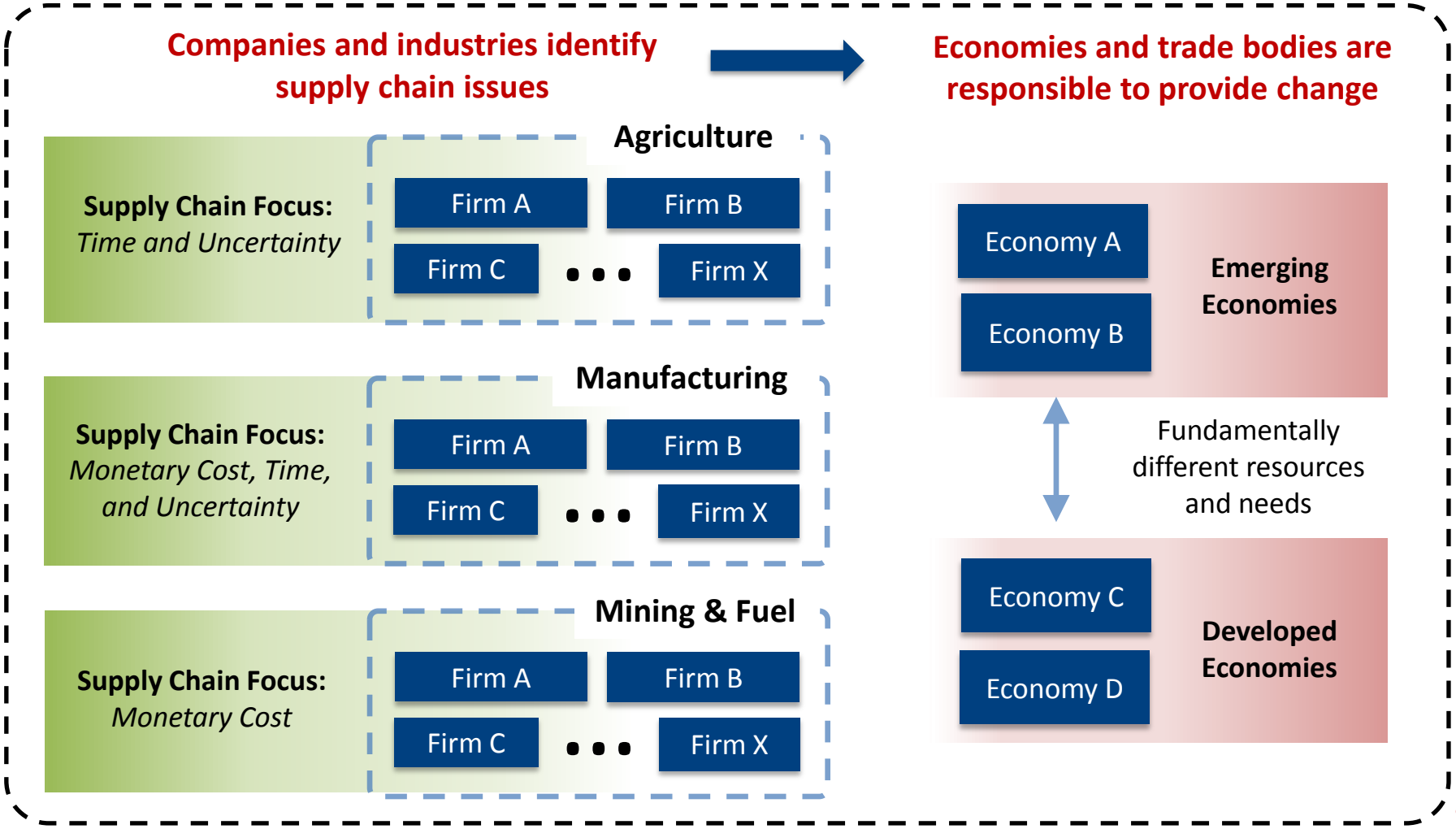
By definition, supply chains encompass the beginning-to-end efforts of business – with the entire process enabled by workers, trade bodies, and governments. The inherently complicated nature of any company's supply chain is made substantially more complex when considered in the context of competition, industry dynamics, and regional concerns. Every firm has a supply chain, designed to deliver a product or service to market while maximizing firm profits. Drivers that enable above-normal returns, however, can vary broadly by industry and economy. For an agricultural firm in an emerging economy, issues of time and uncertainty in the supply chain take precedence above all other concerns. For a manufacturing firm in a developed economy, the pure monetary cost of moving product through the chain may be the most relevant driver.

Competing priorities across industries and economies make the simple concept of supply chains difficult to describe, segment, and, most importantly, understand. Making matters more complicated, each step in the supply chain is subject to frictions that reduce efficiency and drive unnecessary additions of time, cost and uncertainty. This report focuses on providing quantitative and qualitative assessments of the damage to trade that supply chain chokepoints, blockages, and inefficiencies are currently incurring on the APEC region. These results will inform the discussion about supply chain issues by providing defensible evidence for the potential impact of change.

ABAC currently faces a challenge and an opportunity. Simply put, change is not occurring fast enough or with appropriate emphasis. Cynics might argue that potential solutions to supply chain issues are slowed by public policy inertia or mired in debate. ABAC, however, has the capability and oversight to drive change in the face of these real and problematic factors. This report provides ammunition for ABAC to drive change that will enable economic gains for the broader APEC region. The time for leadership and action is now.

Many Stakeholders in Supply Chain Improvement

Objectives in supply chain improvement vary by economy and industry. In addition, business leads the identification of supply chain issues but must rely on government and larger trade bodies to produce changes that will enable greater efficiency. All actors in this complex process have different objectives and goals, making the landscape difficult to evaluate holistically.



Need for ABAC Leadership and Directional Focus

ABAC is positioned to provide direction and leadership in a complex and increasingly interrelated region. This objective can be achieved by using quantitative information to support recommendations for potential improvement, which can be directly tied to economic gains. In addition, shared learning can help accelerate progress by enabling economies to match best practices and leapfrog past incremental improvements to enjoy significant gains.

ABAC members can use this document to:

1. **Identify** areas where efficiency improvements in the supply chain will result in economic gains for member economies. See **Valuation** at **Slide 55.**
2. **Prioritize** efforts based on which focal areas will produce the highest return for the largest segments of their membership. See **Relative Importance** at **Slide 45**.
3. **Justify** projects by providing supporting data that reflects reductions in time, cost, or uncertainty. See **Valuation** at **Slide 55.**
4. **Accelerate** results by considering best practices that are relevant for specific economies and frictions. See **Chokepoints** at **Slide 75.**

Key Findings

Slack in the Regional Supply Chain

For the movement of a product across the supply chain, substantial improvements in time and cost could be realized with reduction of inefficiencies. These numbers vary based on trading partners involved:

POTENTIAL SAVINGS	Developed Economy (Import)	Emerging Economy (Import)
Developed Economy (Export)	2.1 Days / Shipment $617 / Container	4.1 Days / Shipment $1,084 / Container
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Directional Focus for the APEC Region

For emerging economies, port operations and customs clearance appear to show the largest levels of potential time improvements. This is particularly evident in customs clearance since large deviations exist between economies in the current state.

For developed economies, port operations show the largest area of improvement. This is purely a fallout of numerical analysis and the root cause is left unexplained. However, our survey and interview data suggest that port infrastructure, hours of operation, loading and unloading processes, electronic data interchange systems (e.g. Single Window), and security procedures are potential sources of this inefficiency.

Cost Reduction with Documentation

Realizing cost reductions for both emerging and developing economies is possible through the implementation of electronic systems and simplified documentation. Operators in Korea, for example, can create and process all documentation required for import/export for $60 while the average cost for emerging and developed economies averages $178 and $162, respectively.

Reduced Time Effects for Documentation

Delays due to documentation must be regarded in a unique manner. Specifically, companies are generally capable of completing documentation in parallel with other supply chain activities. Hence, reductions or improvements in documentation procedures will be expressed primarily as a cost savings, without removing much slack from the time involved in trade activities. However, in economies with very large documentation lead times, there may be potential for significant time savings. Industries in those economies may not be able to predict production needs far enough ahead of that lead time, and therefore can achieve benefits from reduced documentation time.

Key Findings

Minimal Impact for Inland Transport

Drastic improvements to time and cost cannot be expected in the area of inland transportation. This is largely due to the fact that businesses have already located manufacturing fronts to minimize the total time required for inland transportation. This clustering effect is magnified in emerging economies to mitigate relatively weaker infrastructure. Another implication of this finding is that production fronts may be limited to those areas with existing infrastructure, driving up localized resource demands and resulting costs.

Customs Clearance in Emerging Economies

Customs clearance and technical control appears to be inefficient and could result in significant cost savings. Customs clearance charges for emerging economies average $134 while Korea imposes just $30. This reduced cost is partially due to simplified electronic documentation.

Detailed Data Required For Rigorous Analysis

In our attempts to quantify the impact of supply chain chokepoints, we discovered that businesses and economies are not capturing relevant data in a holistic manner. There is a need to encourage businesses to track information related to specific chokepoints with an emphasis on standardized data. Additionally, customs officials and logistics providers should be encouraged to gather time and cost data across the entire supply chain. This will ensure that the effects of specific changes within the supply chain can be understood.

Developed Versus Emerging Segmentation

This research has found that a segmentation of emerging versus developed economies allows for the greatest understanding of problems, drivers, and potential solutions. Although industry divisions also provide significant differences, the industry effects appear to be overshadowed by problems encountered based an economy's level of economic development.

Best Practices in Context

Best practices can only accelerate change for economies that share certain common links. For that reason, it is extremely important to select multiple pathfinder projects within one area to meet the needs of the entire APEC region. One apparent example is infrastructure, where Singapore's CoolPort best practice holds much more value for developed economies than emerging economies. This is a an issue of relative returns – bigger gains can be achieved by focusing on the critical issues that exist for economies in different states of development.

Key Findings

Interdependence of Economies

Due to technological improvements in communication and transportation, economies are increasingly moving portions of their supply chains to other economies that have competitive advantages in those areas. As a result, businesses with supply chains that span multiple economies are often not only dependent on connectivity between economies, but also rely on the internal supply chain conditions within partner economies.

Standardization has Broad Consequences

A move towards standardization would have an impact on chokepoints that range from customs-transit arrangements to transparency and documentation costs. The reach of this single blockage is significant. Governments need to steer internal standards and regulations towards international norms. ABAC's broad and impartial view of the region presents a unique opportunity to provide leadership in this area.

Tariff and Non-Tariff Effects Are Cumulative

Significant progress on tariff reduction has been accomplished in the APEC region. This progress, however, has been outweighed by an increase in existing non-tariff barriers and the emergence of new issues. Since economies have the ability to reduce market access through both avenues, the cumulative impact of tariff and non-tariff measures should be considered and addressed in aggregate to fully understand progress.

Common Nodes Exist Between APEC Segments

The APEC region represents a broad variety of industry and economy types. Choosing focal areas that impact the largest cross-section of interested parties is difficult but achievable. Because supply chains, even for very different products and economies, are highly interlinked, improvement at common nodes can benefit the region faster than focusing on any specific segment.

Benefits of Information Technology

Information technology can provide benefits to documentation, clearance and connectivity. As such, it is important that economies move aggressively towards digitizing information. Non-incremental progress is achievable in this area, since the nature of IT can allow economies to leapfrog antiquated systems and leverage progress already achieved in the region. Furthermore, technology benefits will be even greater when all participants are connected.


HIT
RESEARCH PROJECT

Project Objective and Scope

The purpose of this research project is to quantify costs incurred as a result of supply chain chokepoints in the APEC region. More specifically, our research team aimed to:

- Investigate the supply chain chokepoints identified by businesses in the APEC region
- Gather quantifiable data on how these chokepoints are impacting businesses
- Quantify the potential savings if these chokepoints were to be eliminated
- Determine which chokepoints, if addressed, can make the most significant impact to businesses in the APEC region
- Highlight best practices and recommendations we discovered in our discussions with business leaders and subject-matter experts
- Identify any emerging supply chain issues within the APEC region

To address these issues, we relied heavily on two reports we found to be most informative and comprehensive on this topic – the World Economic Forum's Global Enabling Trade Report 2010 including its Enabling Trade Index (ETI), and the World Bank's Connecting to Compete Report 2010 including its Logistics Performance Index (LPI). We augmented this information with our own field research that consisted of in-economy interviews and a follow-up survey. Through this research we were able to capture the "voice of business".

Need for Research – The Economic Impact of Inefficiency is Real

Chokepoints impact economies by reducing competitiveness and limiting trade potential. 70% of our primary research respondents indicated that there is slack in the supply chain can increase costs by 6% or more. The impact of supply chain improvements can result in significant benefits for APEC economies. For example:

- Increasing trade-related transparency in the APEC region could increase intra-APEC trade by approximately $148 billion or 7.5% of the baseline trade in the region.
- A 0.55% improvement in port efficiency, or a 5.46% improvement in customs efficiency could increase intra-APEC trade by $27 billion.
- Reducing delays in exports by one day will save 1% in export value.
- Intra-APEC trade volume has increased by 131% from $2.1 trillion in 2001 to $4.8 trillion in 2010, magnifying the effect of frictions.

Furthermore, the past decade has demonstrated the importance of building responsive, intelligent supply chains that can withstand acts of terrorism, natural disasters and pandemics. Most recently, the earthquake and resulting tsunami in Japan slowed down exports from developing nations in East Asia by as much as 1.5% as manufacturers in those countries suffered from supply chain disruptions.

Eliminating supply chain chokepoints across the APEC region is a difficult task as it involves cooperation among a diverse group of economies that focus on different industries and are in varying stages of development. However, it is increasingly more important that these chokepoints are addressed from a regional perspective as projections show intra-APEC trade volumes will continue to grow.

As this region becomes more and more interdependent, it is crucial that APEC economies work together to invest in developing specialized skills and fostering the exchange of ideas and innovation to benefit all of the 21 economies involved.

Source: Wall Street Journal (2011). "Japan Disaster Cost Estimate: $300 billion."
International Trade Center (2011). Trade Statistics. Retrieved from: http://www.intracen.org/trade-support/Stat_export_country_product, on September 2011.
World Bank (2007). "Transparency and Trade Facilitation in the Asia Pacific. What's at Stake?" Retrieved from: http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:21459346~pagePK:64165401~piPK:64165026~theSitePK:469382,00.html, on August 2011.
Wilson, Mann, and Otsuki (2003). Trade Facilitation and Economic Development: Measuring the Impact.

Need for Research – An Increasingly Interconnected Supply Chain

Due to technological improvements in communication and transportation, economies are increasingly moving portions of their supply chains to other economies that have competitive advantages in those areas. For example, consider the example below of a potential product pathway for an apparel company:

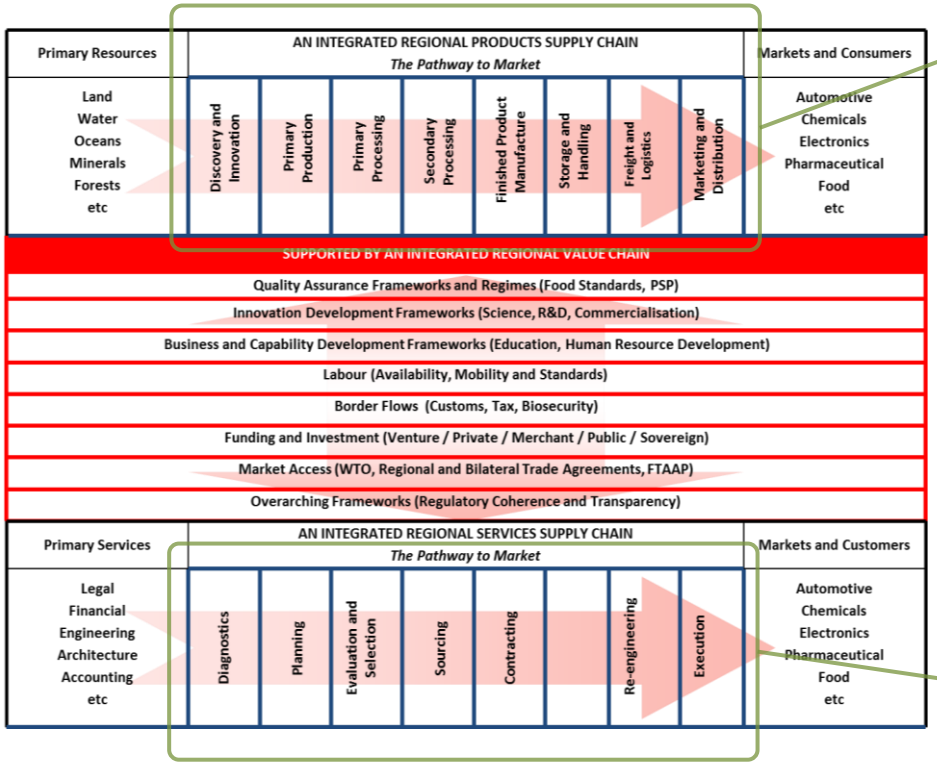
Potential Pathway for Apparel

1. Primary Production of Wool
   - Inland Transportation & Logistics
2. Port and Border Administration
   - International Transit
3. Port and Border Administration
   - Inland Transportation & Logistics
4. Primary Processing into Apparel
   - China Port and Border Administration
5. US Port and Border Administration
   - Inland Transportation & Logistics
6. Final Customer Distribution

Businesses with supply chains that span multiple economies are often not only dependent on connectivity between economies, but also rely on the internal supply chain conditions within partner economies.

Research Structure - Understanding Supply Chains

We started with the Regional Economic Integration (REI) Working Group's supply chain framework as it brings a comprehensive perspective of the supply chain. The framework is unique in that it addresses both the resources and services components of the supply chain, as well as evaluates the integration between the two.



Resources Pathway to Market
Chokepoints, blockages, and inefficiencies in the supply chain appear across the pathway to market.

Integrated Regional Value Chain
The impact of supply chain issues is more meaningful when divided into elements of value creation.

Services Pathway to Market
Services are inherently tied to the resources pathway and will also experience supply chain issues.

Source: ABAC Regional Economic Integration Working Group (2011). Supply Chain Framework.

Research Structure – Evaluating Supply Chain Chokepoints

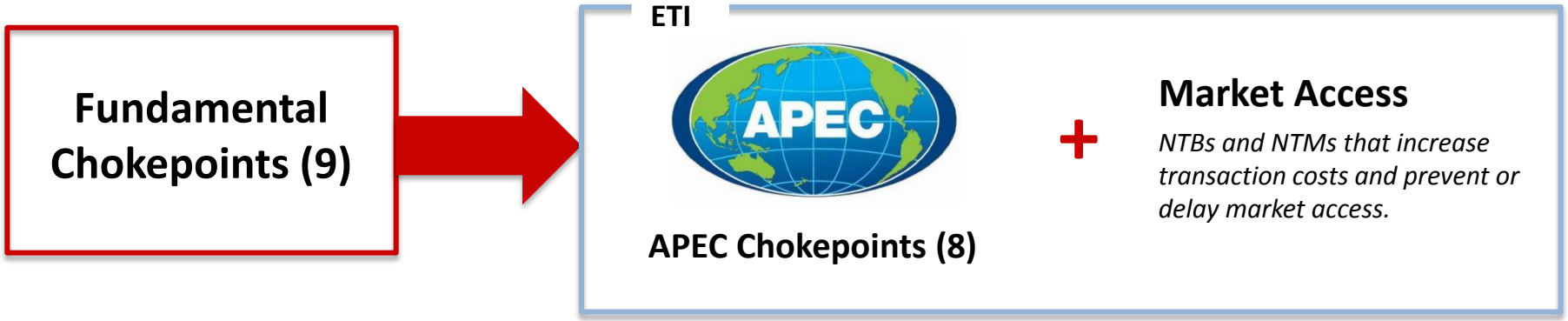
Issues in the supply chain cannot be sorted using the REI Working Group supply chain framework. The issues span multiple parts of the product pathway and must be structured differently.

Framework – APEC Singapore Forum:

During the Singapore Forum in 2009, APEC established eight critical bottlenecks impeding the flow of goods throughout the region. This framework was adopted to discuss quantitative and qualitative findings throughout this report.

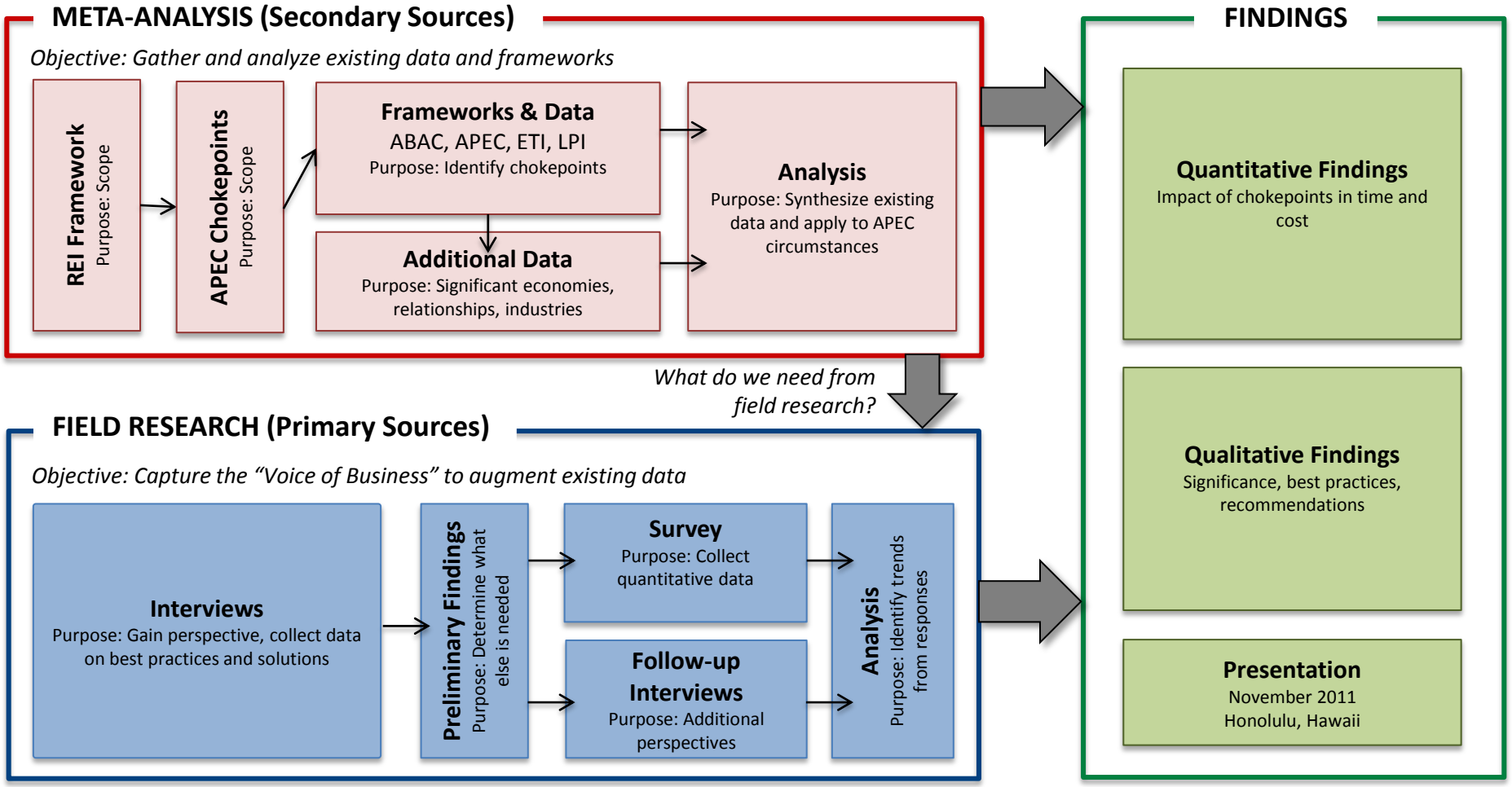
Framework Limitations

Although APEC's framework does cover all of the relevant issues that were discovered during our research, the boundaries on each issue overlap in substantial ways. This should be acknowledged as a limitation and an insight to the interconnected nature of product flows. Additionally, one area we felt that was not adequately represented by the APEC identified chokepoints was ETI's "Market Access", used to address the role of NTBs and NTMs as supply chain chokepoints. As such, we augmented the 8 APEC-identified chokepoints with a "Market Access" category to capture these issues.



Research Method

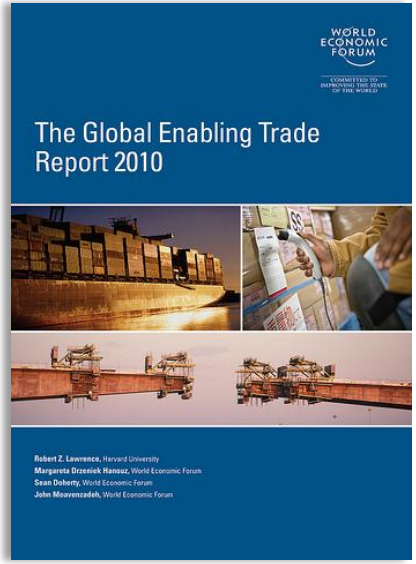
Our approach utilized both meta-analysis of existing information and interviews with business leaders to provide a comprehensive perspective on the impact of chokepoints in the APEC regional supply chain.



Meta-Analysis Sources

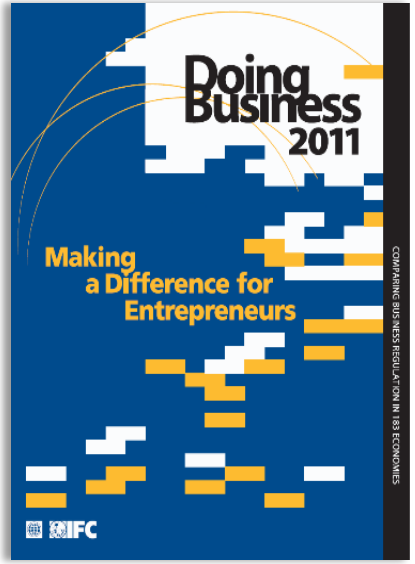
Understanding the current state of the regional global supply chain requires a review and analysis of existing research. Four of the most impactful sources were utilized to perform meta-analysis to support this research effort.

World Economic Forum
Global Enabling Trade

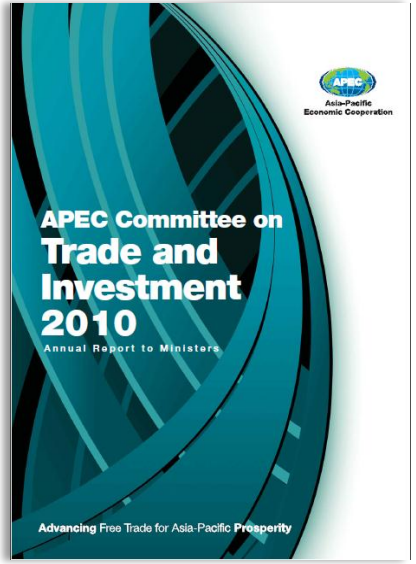


World Bank
Connecting to Compete

International Finance Corporation
Doing Business 2011



APEC
Annual Reports and Studies



Field Research

To capture the “voice of business,” our researchers conducted field research in the form of interviews and surveys with business leaders, including executives, subject-matter experts and trade organizations.

In-Economy Interviews
180 interviews in 16 economies

Follow-up Survey
44 respondents from 15 economies

Capturing the Voice of Business

The USC Research Team conducted **181** in-economy interviews in **17** APEC economies and received **44** survey responses from **15** APEC economies.

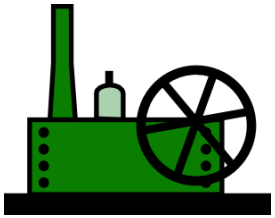
In-Economy Interviews

Our interview subjects covered a wide-range of businesses, service companies and subject-matter experts.

Industries

16 Agriculture companies

5 Mining and minerals companies



15 High Tech
7 Automotive
7 Apparel
7 Chemicals
2 Steel/Metal Products
17 Others

Services

25 Logistics Services
12 Non-Logistics Services

Other

67 Other (Trade Organizations, Customs Officials, Academics, etc.)

Research Limitations

Scope Limitations

- The topic of supply chains encompasses a large portion of business. As a result, breadth and depth are difficult to achieve simultaneously. This paper presents information that focuses on broad APEC information and implications.
- Data regarding Brunei and Papua New Guinea does not appear in our focal research documents. Resulting conclusions for these economies are based on inclusion in larger groups.
- FDI and services are not handled in depth but addressed only as necessary.

Data Limitations

- Data available through WEF, World Bank, and other groups covers a limited period and reduces the ability to identify progress or change.
- Although numerical data related to various chokepoints is available in published reports, much of this data is driven by perceptual survey data and could lack the ideal correlation with real world conditions.
- Questionnaire responses indicate that firms do not collect fine grained data necessary to individually quantify chokepoints.

Analysis Limitations

- The REI framework considers elements of the supply chain and value chain. Steps in the supply chain, however, are more readily separated and valued than elements of the value chain. This makes estimates on the value chain subject to more assumptions and less hard data.

COMPARING APEC ECONOMY SUPPLY CHAINS

Comparing APEC Economy Supply Chains: Introduction

This section presents a descriptive comparison of APEC-economy supply chains drawn from different published reports. The continued self-interest of firms and economies to improve the speed, efficiency, and reliability of supply chains in pursuit of competitive advantages means that it is a much researched topic. Though compiled for different purposes and from different perspectives, these reports offer a wealth of information with which to compare and contrast APEC-economy supply chains.

This report draws primarily from a number of ongoing research programs: the World Economic Forum's *Global Enabling Trade Report*, the World Bank's *Logistics Performance Index*, the International Finance Corporation's *Doing Business Report*, and existing APEC reports. While conducted for different purposes, each of these studies provides rich data on supply chains. Using a meta-analysis approach, we use these existing studies to examine APEC economy supply chains in detail.

A meta-analysis of these reports allowed us to investigate three important topics:

1. Assess the comparative performance of APEC economy supply chains
2. Identify and rank the most important APEC chokepoints
3. Quantify the potential benefits from improvements in the APEC supply chain

Each of these areas are discussed in detail. This section presents the economy specific rankings and relative performance. The following two sections of this report present the following:

1. Statistical regression analysis of the data showing the projected time and cost savings from improvements in key barriers to trade
2. The quantification and analysis of the gaps and best practices between developed and emerging economies, and the identification of areas where potential time and cost savings can be realized

Comparing APEC Economy Supply Chains: Introduction

The three reports overlap considerably. The *Enabling Trade Report* is, perhaps, the most comprehensive study of trade among all economies. It incorporates data from both the *Doing Business* report and the *Logistics Performance Index* report. The *Doing Business* report incorporates data from the *Logistics Performance Index* report.

Given that the objective of this study was to identify and quantify the most significant supply chain chokepoints among APEC economies, we used all three studies in our analysis to find common drivers and supporting evidence for the conclusions reached in our research.

World Economic Forum, *The Global Enabling Trade Report*

Published by the World Economic Forum, *The Global Enabling Trade Report* assesses the obstacles to trade in the 125 economies covered by the report. The assessment quantifies both economic data and questionnaire responses to produce its Enabling Trade Index (ETI) scores. The ETI measures the extent to which individual economies have developed *institutions, policies, and services facilitating the free flow of goods within and across borders.*

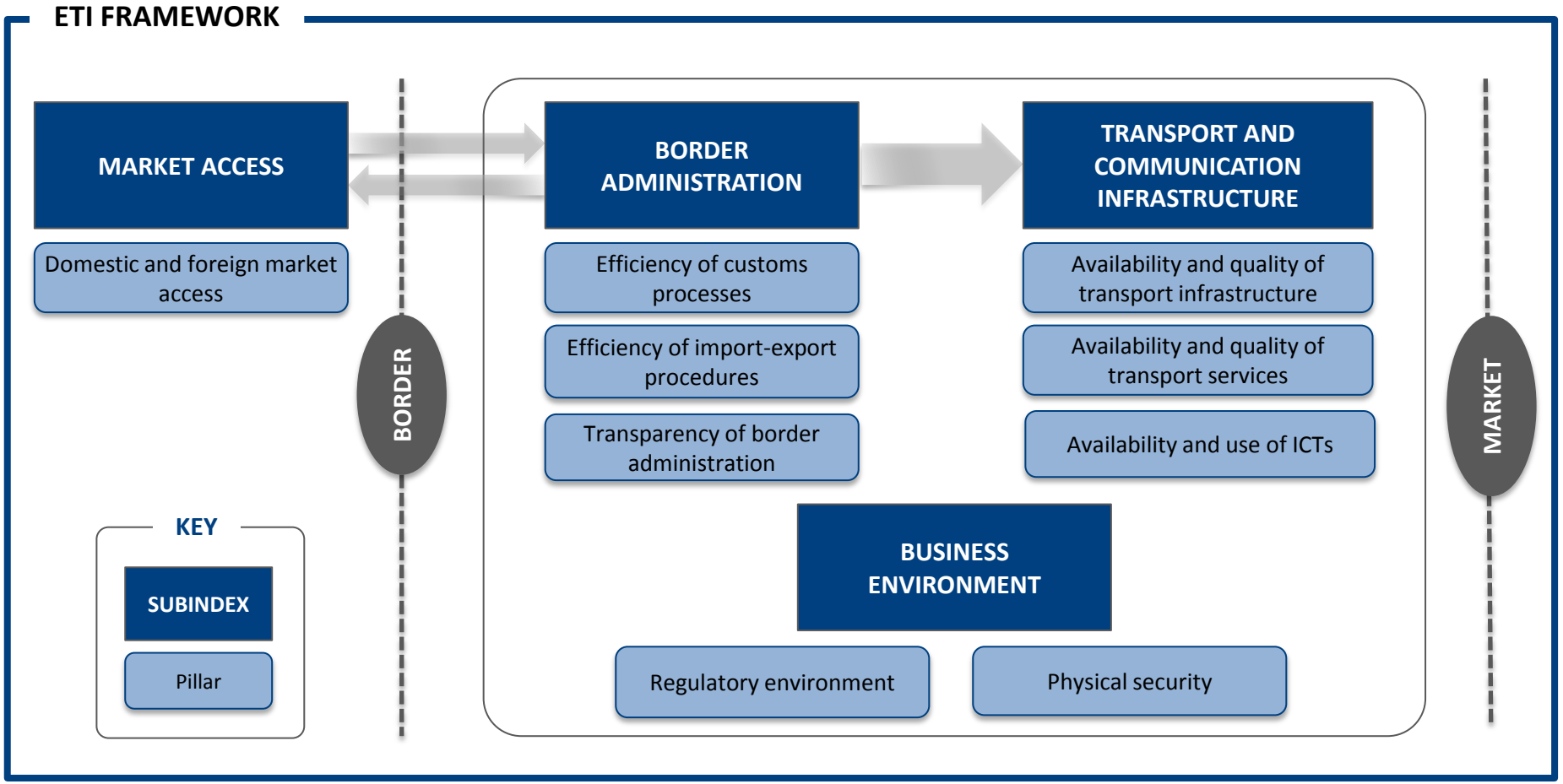
Enabling Trade Index (ETI)

- The ETI index is comprised of four main pillars and nine sub-pillars:
  - **Market access** - measures the extent to which the policy framework of the economy welcomes foreign goods into the economy and enables access to foreign markets for its exporters.
  - **Border administration** - assesses the extent to which the customs services and port operations at the border facilitates the entry and exit of goods.
  - **Transport and telecommunications infrastructure** - takes into account whether the economy has the transport and communications infrastructure necessary to facilitate the movement of goods within the economy and across the border.
  - **Business environment** – assesses the quality of governance as well as at the overarching regulatory and security environment impacting the business of importers and exporters active in the economy.

Source: World Economic Forum (2010), The Global Enabling Trade Report.

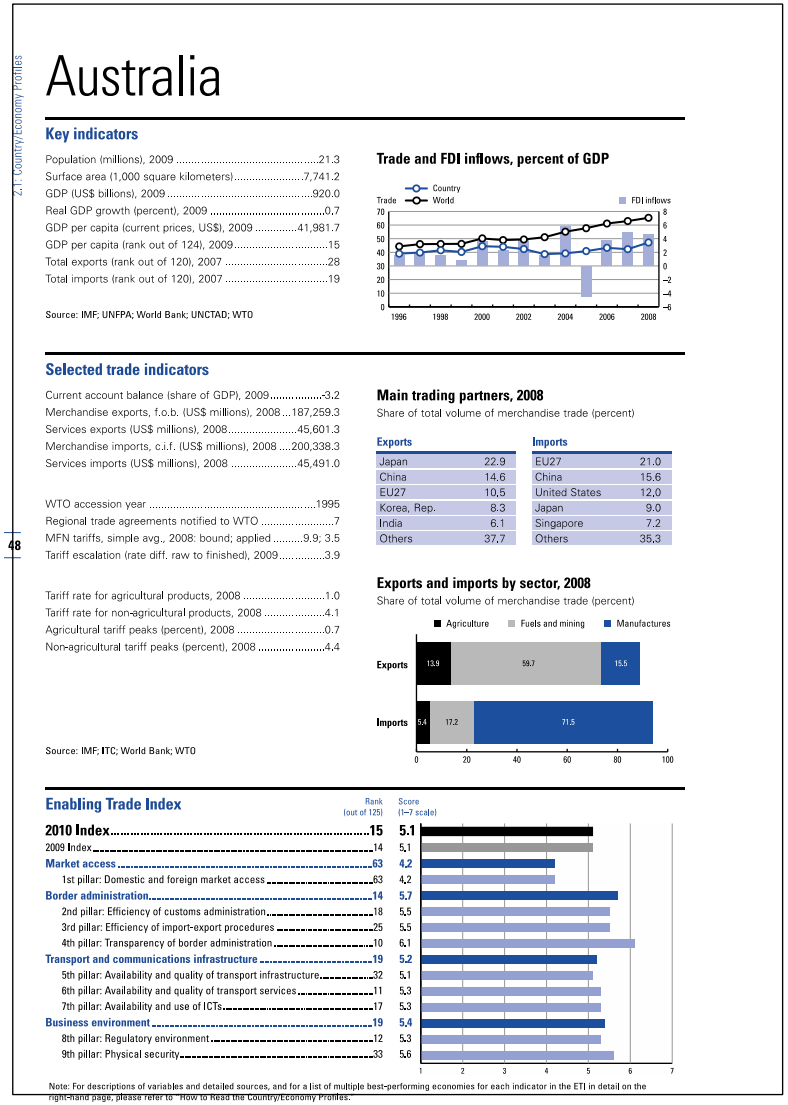
Enabling Trade Index – Framework

The World Economic Forum has published The Global Enabling Trade Report, containing the Enabling Trade Index (ETI), on an annual basis since 2008. The ETI ranks 125 economies based on the extent to which they have developed institutions, policies and services facilitating the free flow of goods over borders and to destination.



Source: World Economic Forum (2010), The Global Enabling Trade Report.

Enabling Trade Index - Pillars



2.1 Country/Economy Profiles

Australia

Key indicators

Population (millions), 2009 ..... 21.3
Surface area (1,000 square kilometers) 7,741.2
GDP (US$ billions), 2009 ..... 920.0
Real GDP growth (percent), 2009 ..... 0.7
GDP per capita (current prices, US$), 2009 ..... 41,981.7
GDP per capita (rank out of 124), 2009 15
Total exports (rank out of 120), 2007 28
Total imports (rank out of 120), 2007 19

Source: IMF; UNFPA; World Bank; UNCTAD; WTO

Trade and FDI inflows, percent of GDP

Selected trade indicators

Current account balance (share of GDP), 2009 ..... -3.2
Merchandise exports, f.o.b. (US$ millions), 2008 ... 187,259.3
Services exports (US$ millions), 2008 ..... 45,601.3
Merchandise imports, c.i.f. (US$ millions), 2008 .... 200,338.3
Services imports (US$ millions), 2008 ..... 45,491.0

WTO accession year 1995
Regional trade agreements notified to WTO 7
MFN tariffs, simple avg., 2008: bound; applied 9.9; 3.5
Tariff escalation (rate diff. raw to finished), 2009 ..... 3.9

Tariff rate for agricultural products, 2008 ..... 1.0
Tariff rate for non-agricultural products, 2008 ..... 4.1
Agricultural tariff peaks (percent), 2008 ..... 0.7
Non-agricultural tariff peaks (percent), 2008 ..... 4.4

Source: IMF; ITC; World Bank; WTO

Main trading partners, 2008

Share of total volume of merchandise trade (percent)

Exports		Imports	
Japan	22.9	EU27	21.0
China	14.6	China	15.6
EU27	10,5	United States	12,0
Korea, Rep.	8.3	Japan	9.0
India	6.1	Singapore	7.2
Others	37,7	Others	35,3

Exports and imports by sector, 2008

Share of total volume of merchandise trade (percent)

Enabling Trade Index

	Rank (out of 125)	Score (1–7 scale)
2010 Index	**15**	**5.1**
2009 Index	14	5,1
Market access	**63**	**4,2**
1st pillar: Domestic and foreign market access	63	4,2
Border administration	**14**	**5.7**
2nd pillar: Efficiency of customs administration	18	5,5
3rd pillar: Efficiency of import-export procedures	25	5,5
4th pillar: Transparency of border administration	10	6,1
Transport and communications infrastructure	**19**	**5.2**
5th pillar: Availability and quality of transport infrastructure	32	5,1
6th pillar: Availability and quality of transport services	11	5,3
7th pillar: Availability and use of ICTs	17	5,3
Business environment	**19**	**5,4**
8th pillar: Regulatory environment	12	5,3
9th pillar: Physical security	33	5,6

1 2 3 4 5 6 7

Note: For descriptions of variables and detailed sources, and for a list of multiple best-performing economies for each indicator in the ETI in detail on the right-hand page, please refer to "How to Read the Country/Economy Profiles."

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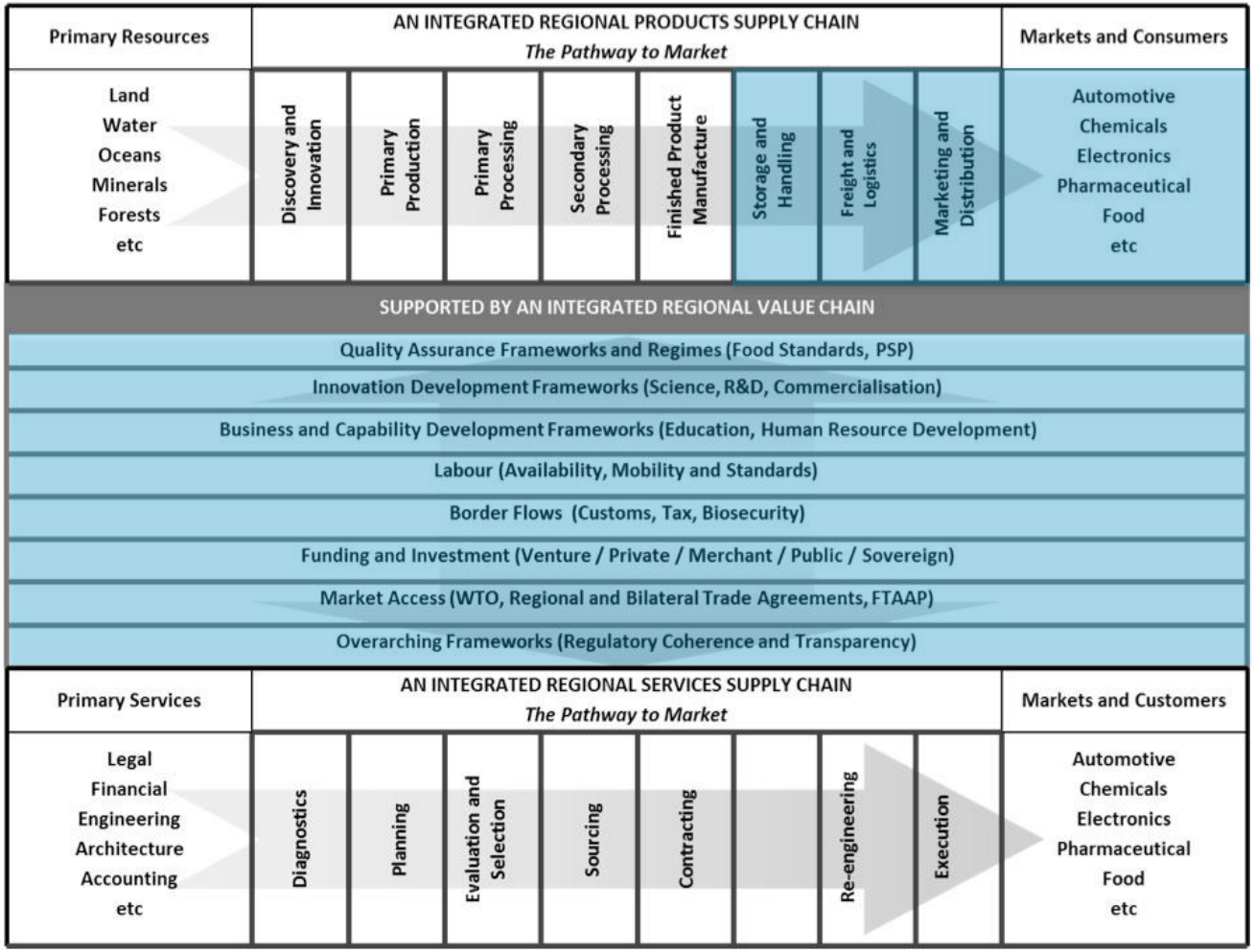
The purpose of the ETI score is to summarize ease of trade based on 9 pillars, which are aggregated into 4 sub-indices:

- **Market Access**
  - Domestic and Foreign Market Access
- **Border Administration**
  - Efficiency of Customs Administration
  - Efficiency of Import/Export Procedures
  - Transparency of Border Administration
- **Transport and Communications Infrastructure**
  - Availability and Quality of Transport Infrastructure
  - Availability and Quality of Transport Services
  - Availability and Use of ICTs
- **Business Environment**
  - Regulatory Environment
  - Physical Security

Source: World Economic Forum (2010), The Global Enabling Trade Report.

Comparing the ETI and REI Working Group Supply Chain Framework

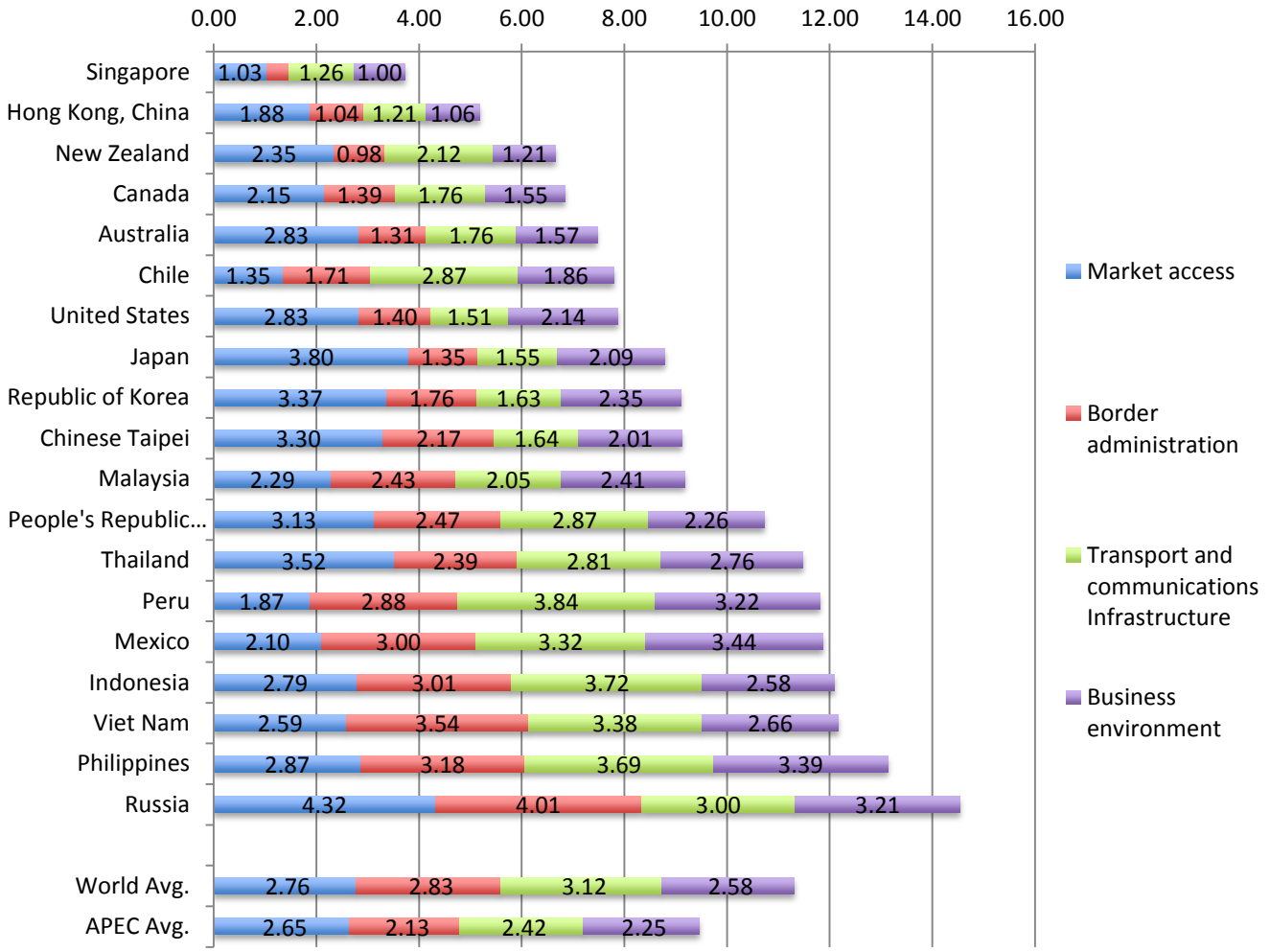
Based on our analysis of existing research, the ETI report offers the most comprehensive overlap with the REI framework. The ETI index includes assessments of supporting regulatory institutions and market access barriers. It does not cover steps prior to storage and handling and any external supply chain services, nor does it offer specific information services, talent availability, or IP regions. Importantly, it is a supply chain framework; it does not address value chain issues.



ETI Rankings: Comparative Analysis of APEC Economies

The table and chart below presents a comparison of APEC economies by the four main pillars of the ETI index. Lower scores represent greater ease of trade.

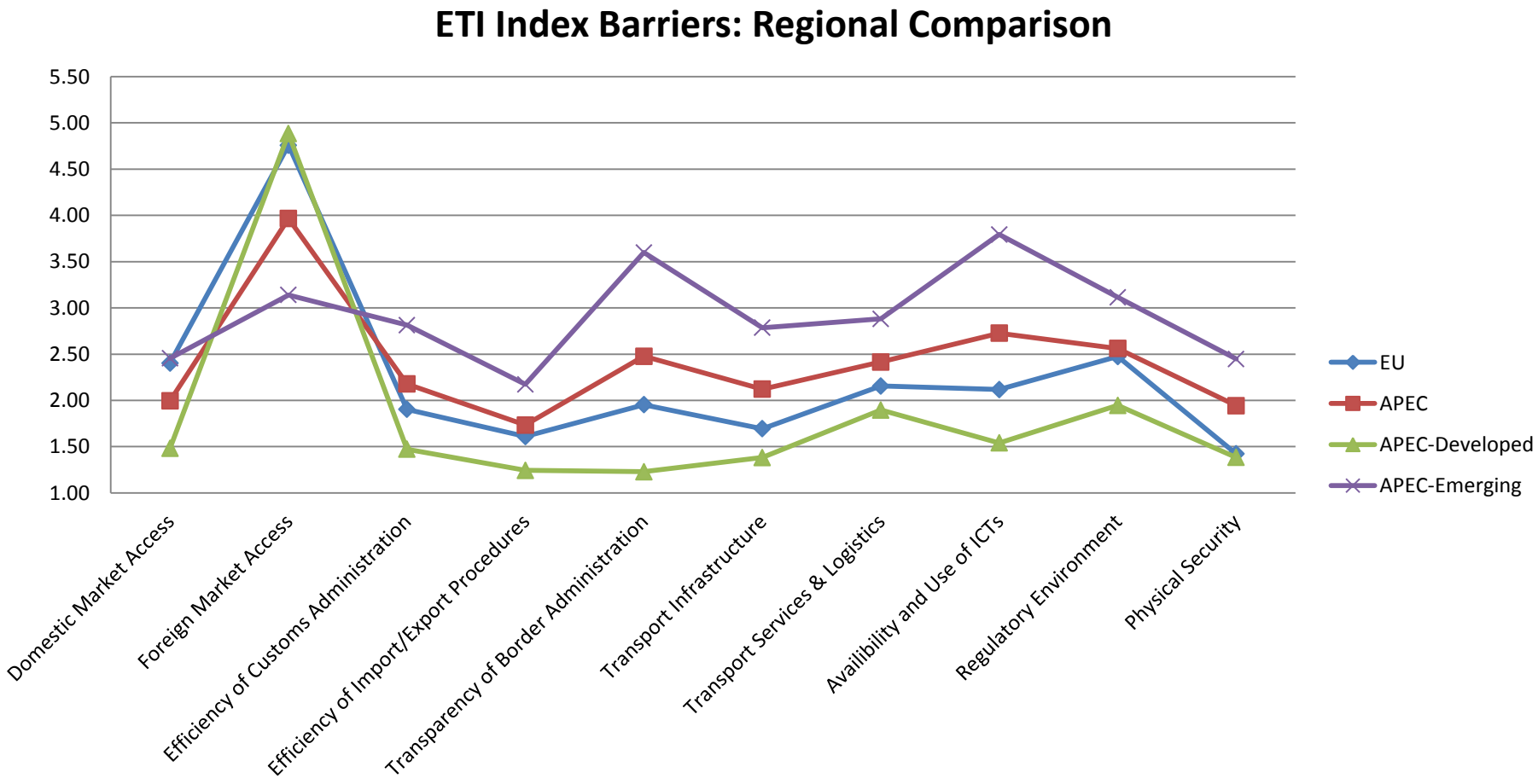
	Market Access	Border administration	Transport and communications Infrastructure	Business environment
Australia	2.83	1.31	1.76	1.57
Canada	2.15	1.39	1.76	1.55
Chile	3.3	1.71	2.87	1.86
China	1.88	2.47	2.87	2.26
Chinese Taipei	3.8	2.17	1.64	2.01
Hong Kong	3.37	1.04	1.21	1.06
Indonesia	2.35	3.01	3.72	2.58
Japan	1.03	1.35	1.55	2.09
Korea	2.83	1.76	1.63	2.35
Malaysia	1.35	2.43	2.05	2.41
Mexico	3.13	3	3.32	3.44
New Zealand	2.79	0.98	2.12	1.21
Peru	2.29	2.88	3.84	3.22
Philippines	2.1	3.18	3.69	3.39
Russia	1.87	4.01	3	3.21
Singapore	2.87	0.44	1.26	1
Thailand	4.32	2.39	2.81	2.76
United States	3.52	1.4	1.51	2.14
Viet Nam	2.59	3.54	3.38	2.66
World Avg.	2.76	2.83	3.12	2.58
APEC Avg.	2.65	2.13	2.42	2.25



Source: World Economic Forum (2010), The Global Enabling Trade Report.

Comparing APEC with the E.U.

For comparative purposes, the chart below presents the average ETI index scores for all APEC economies with EU economies on the 9 ETI pillars. APEC as a region outperforms the EU in all areas, except on market access. On average, APEC economies impose and face higher tariff and non-tariff barriers than EU economies. The comparative contrast becomes more significant when APEC is separated into two groups of economies: developed and emerging. Developed APEC economies substantially outperform E.U. economies in all areas except imposed market access barriers. Unfortunately, emerging APEC economies lag in all areas except market access.

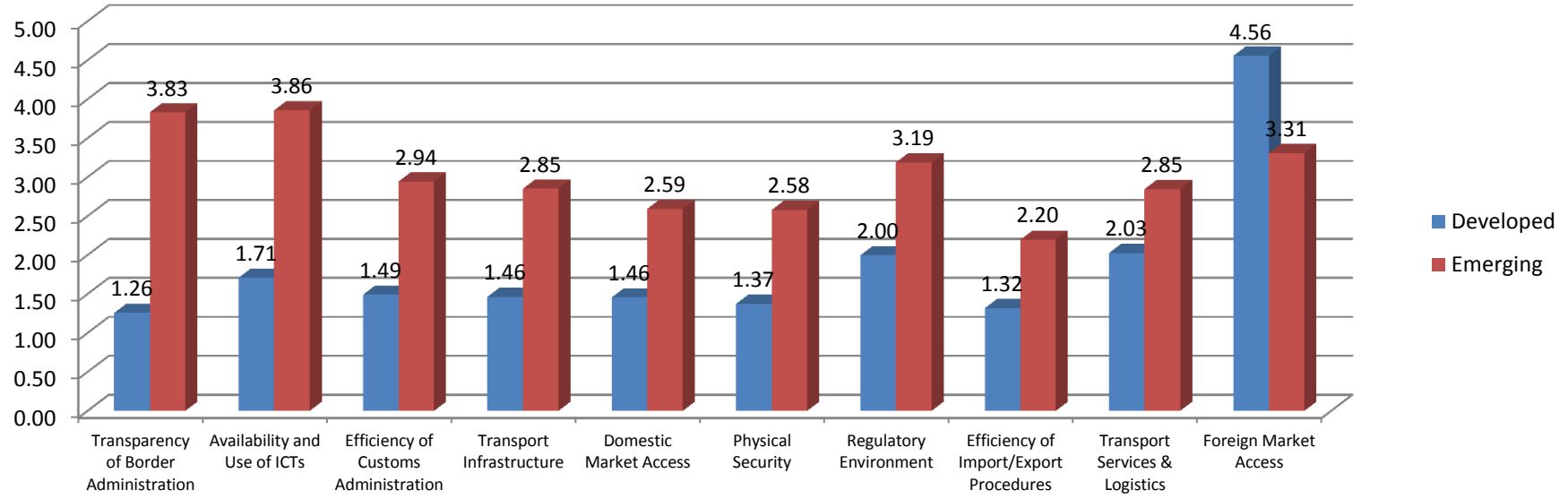


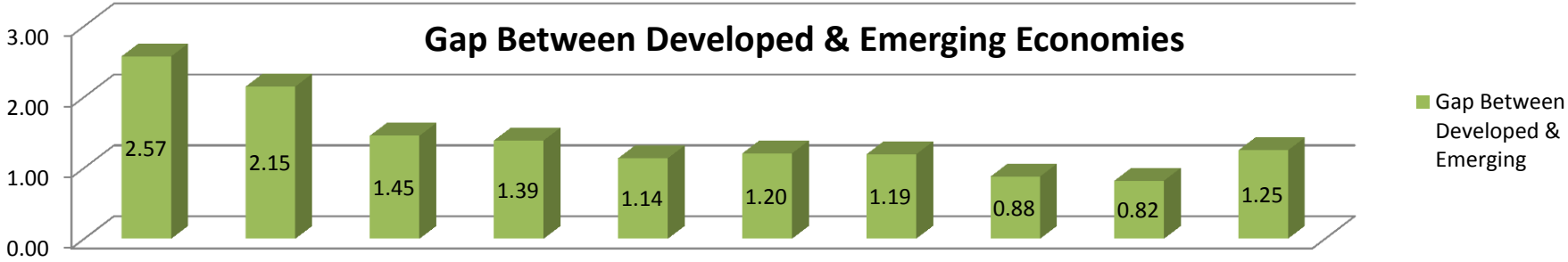
Source: World Economic Forum (2010), The Global Enabling Trade Report.

Comparing Developed and Emerging APEC Economies

The charts below highlight the most critical gaps or lags between developed and emerging economies in APEC. These major differences in transparency, IT capabilities and online supply chain systems, customs efficiency, transportation infrastructure, and regulatory institutions mirror closely the responses received during our field interviews. The supply chain challenges faced by emerging economies differ significantly from those of developed economies. These gaps are of particular importance to firms who outsource their supply chains to one or more emerging economies.

ETI Scores: Developed vs. Emerging Economies

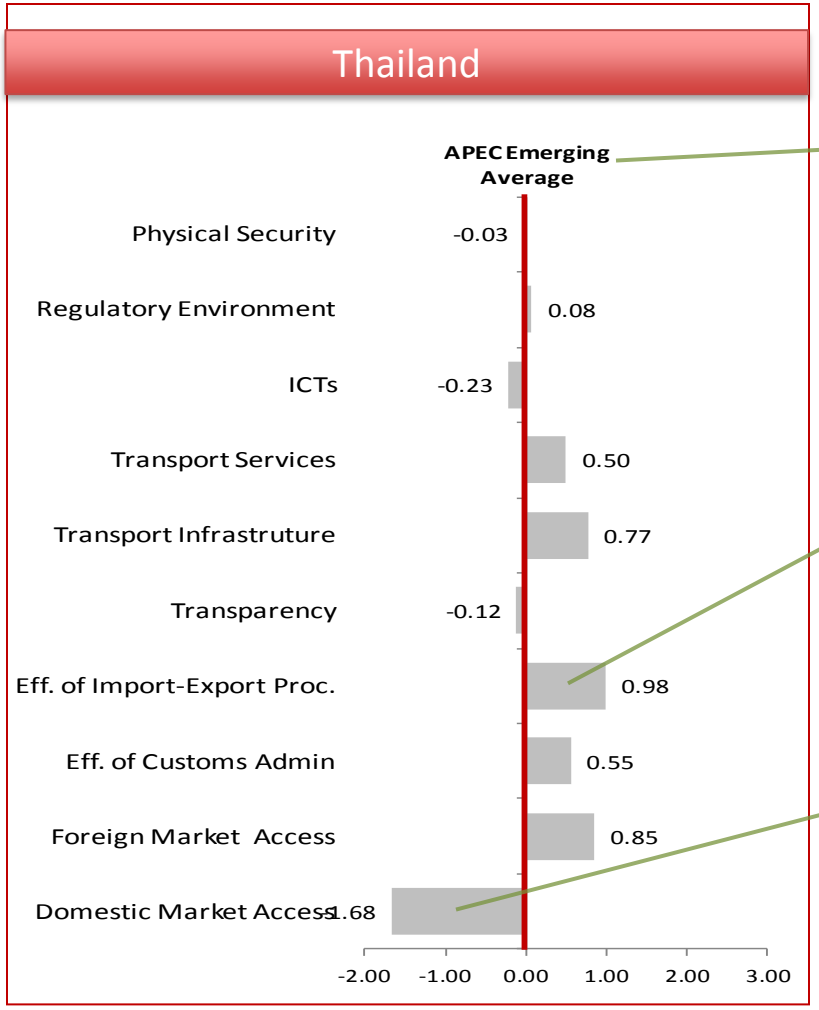




Source: World Economic Forum – The Global Enabling Trade Report 2010

Economy Comparison with Peers, by ETI Index Average

In the chart below, ETI pillar scores are presented for an APEC economy (ETI data is not available for Brunei or Papua New Guinea). Each economy's ETI index score is presented in comparison to the mean of developed APEC economies or the mean of emerging APEC economies, depending on each economy's economic stage of development. For the full list of charts, see **Appendix A.**



Comparison Against Peers
As an emerging economy, Thailand is compared against the average scores for emerging economies in the APEC region.

Above Average
Compared to other emerging economies, Thailand has an above average Transport Infrastructure system.

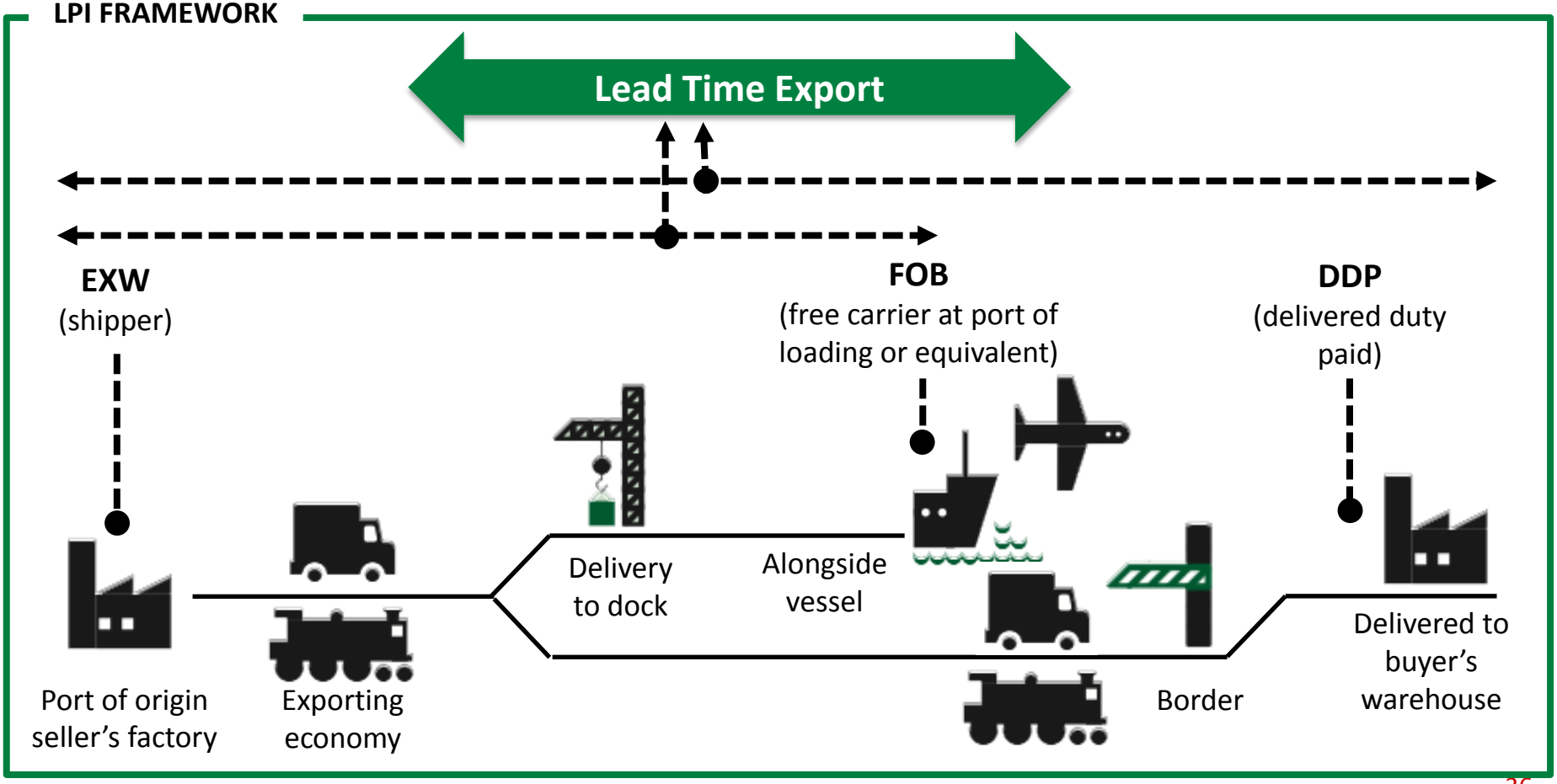
Below Average
Compared to other emerging economies, Thailand has a below average Domestic Market Access system.

Source: World Economic Forum (2010), The Global Enabling Trade Report.

Connecting to Compete & the Logistics Performance Index

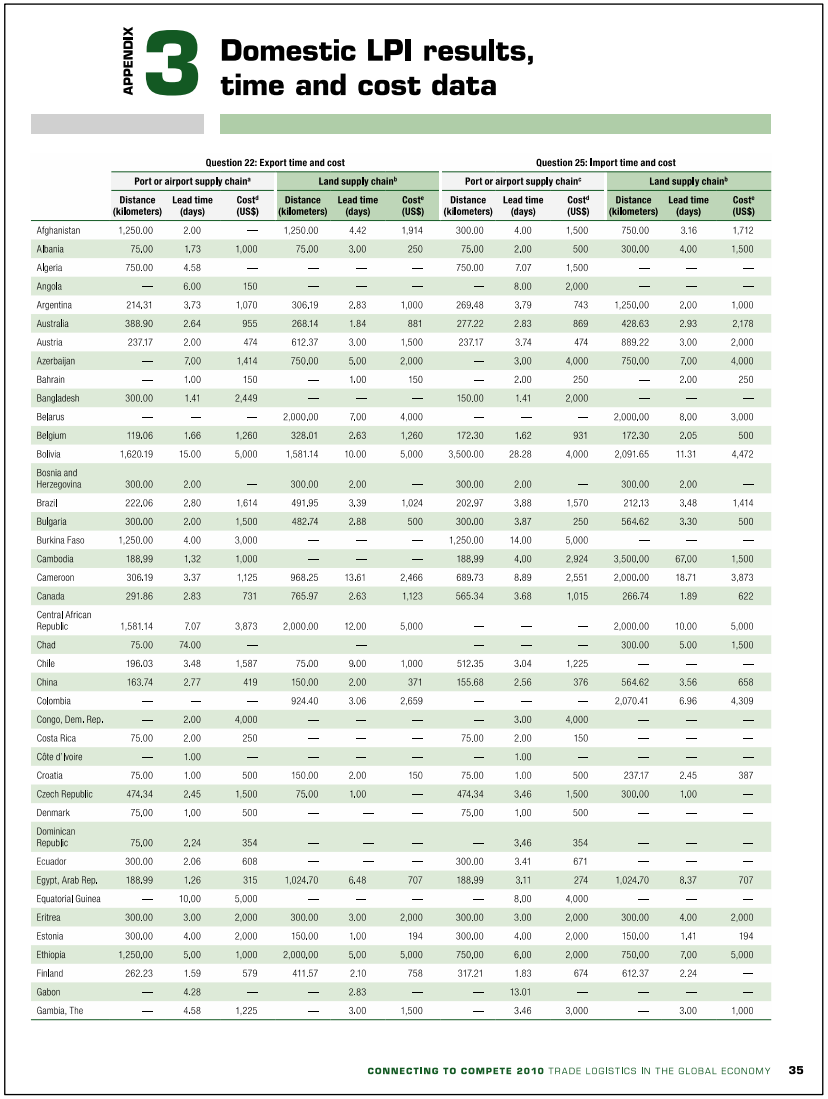
The World Bank has published the *Connecting to Compete* Report, which includes the Logistic Performance Index (LPI) in 2007 and 2010. The LPI rates the performance of an economy's logistics sector based on perceptual data collected from survey responses of 1000 logistics professionals from various multinational freight forwarders and express carriers that operate in 155 economies. The LPI also measures trade logistic performance which has significant impact on trade expansion, diversification of export, and economic growth.

LPI FRAMEWORK



Source: World Bank (2010), Connecting to Compete.

Logistics Performance Index



APPENDIX 3

Domestic LPI results, time and cost data

	Question 22: Export time and cost						Question 25: Import time and cost					
	Port or airport supply chain[a]			Land supply chain[b]			Port or airport supply chain[c]			Land supply chain[b]		
	Distance (kilometers)	Lead time (days)	Cost[d] (US$)	Distance (kilometers)	Lead time (days)	Cost[e] (US$)	Distance (kilometers)	Lead time (days)	Cost[d] (US$)	Distance (kilometers)	Lead time (days)	Cost[e] (US$)
Afghanistan	1,250.00	2.00	—	1,250.00	4.42	1,914	300.00	4.00	1,500	750.00	3.16	1,712
Albania	75.00	1.73	1,000	75.00	3.00	250	75.00	2.00	500	300.00	4.00	1,500
Algeria	750.00	4.58	—	—	—	—	750.00	7.07	1,500	—	—	—
Angola	—	6.00	150	—	—	—	—	8.00	2,000	—	—	—
Argentina	214.31	3.73	1,070	306.19	2.83	1,000	269.48	3.79	743	1,250.00	2.00	1,000
Australia	388.90	2.64	955	268.14	1.84	881	277.22	2.83	869	428.63	2.93	2,178
Austria	237.17	2.00	474	612.37	3.00	1,500	237.17	3.74	474	889.22	3.00	2,000
Azerbaijan	—	7.00	1,414	750.00	5.00	2,000	—	3.00	4,000	750.00	7.00	4,000
Bahrain	—	1.00	150	—	1.00	150	—	2.00	250	—	2.00	250
Bangladesh	300.00	1.41	2,449	—	—	—	150.00	1.41	2,000	—	—	—
Belarus	—	—	—	2,000.00	7.00	4,000	—	—	—	2,000.00	8.00	3,000
Belgium	119.06	1.66	1,260	328.01	2.63	1,260	172.30	1.62	931	172.30	2.05	500
Bolivia	1,620.19	15.00	5,000	1,581.14	10.00	5,000	3,500.00	28.28	4,000	2,091.65	11.31	4,472
Bosnia and Herzegovina	300.00	2.00	—	300.00	2.00	—	300.00	2.00	—	300.00	2.00	—
Brazil	222.06	2.80	1,614	491.95	3.39	1,024	202.97	3.88	1,570	212.13	3.48	1,414
Bulgaria	300.00	2.00	1,500	482.74	2.88	500	300.00	3.87	250	564.62	3.30	500
Burkina Faso	1,250.00	4.00	3,000	—	—	—	1,250.00	14.00	5,000	—	—	—
Cambodia	188.99	1.32	1,000	—	—	—	188.99	4.00	2,924	3,500.00	67.00	1,500
Cameroon	306.19	3.37	1,125	968.25	13.61	2,466	689.73	8.89	2,551	2,000.00	18.71	3,873
Canada	291.86	2.83	731	765.97	2.63	1,123	565.34	3.68	1,015	266.74	1.89	622
Central African Republic	1,581.14	7.07	3,873	2,000.00	12.00	5,000	—	—	—	2,000.00	10.00	5,000
Chad	75.00	74.00	—		—		—	—	—	300.00	5.00	1,500
Chile	196.03	3.48	1,587	75.00	9.00	1,000	512.35	3.04	1,225	—	—	—
China	163.74	2.77	419	150.00	2.00	371	155.68	2.56	376	564.62	3.56	658
Colombia	—	—	—	924.40	3.06	2,659	—	—	—	2,070.41	6.96	4,309
Congo, Dem. Rep.	—	2.00	4,000	—	—	—	—	3.00	4,000	—	—	—
Costa Rica	75.00	2.00	250	—	—	—	75.00	2.00	150	—	—	—
Côte d'Ivoire	—	1.00	—	—	—	—	—	1.00	—	—	—	—
Croatia	75.00	1.00	500	150.00	2.00	150	75.00	1.00	500	237.17	2.45	387
Czech Republic	474.34	2.45	1,500	75.00	1.00	—	474.34	3.46	1,500	300.00	1.00	—
Denmark	75.00	1.00	500	—	—	—	75.00	1.00	500	—	—	—
Dominican Republic	75.00	2.24	354	—	—	—	—	3.46	354	—	—	—
Ecuador	300.00	2.06	608	—	—	—	300.00	3.41	671	—	—	—
Egypt, Arab Rep.	188.99	1.26	315	1,024.70	6.48	707	188.99	3.11	274	1,024.70	8.37	707
Equatorial Guinea	—	10.00	5,000	—	—	—	—	8.00	4,000	—	—	—
Eritrea	300.00	3.00	2,000	300.00	3.00	2,000	300.00	3.00	2,000	300.00	4.00	2,000
Estonia	300.00	4.00	2,000	150.00	1.00	194	300.00	4.00	2,000	150.00	1.41	194
Ethiopia	1,250.00	5.00	1,000	2,000.00	5.00	5,000	750.00	6.00	2,000	750.00	7.00	5,000
Finland	262.23	1.59	579	411.57	2.10	758	317.21	1.83	674	612.37	2.24	—
Gabon	—	4.28	—	—	2.83	—	—	13.01	—	—	—	—
Gambia, The	—	4.58	1,225	—	3.00	1,500	—	3.46	3,000	—	3.00	1,000

The Logistics Performance Index summarizes logistic performance along on six logistics dimensions:

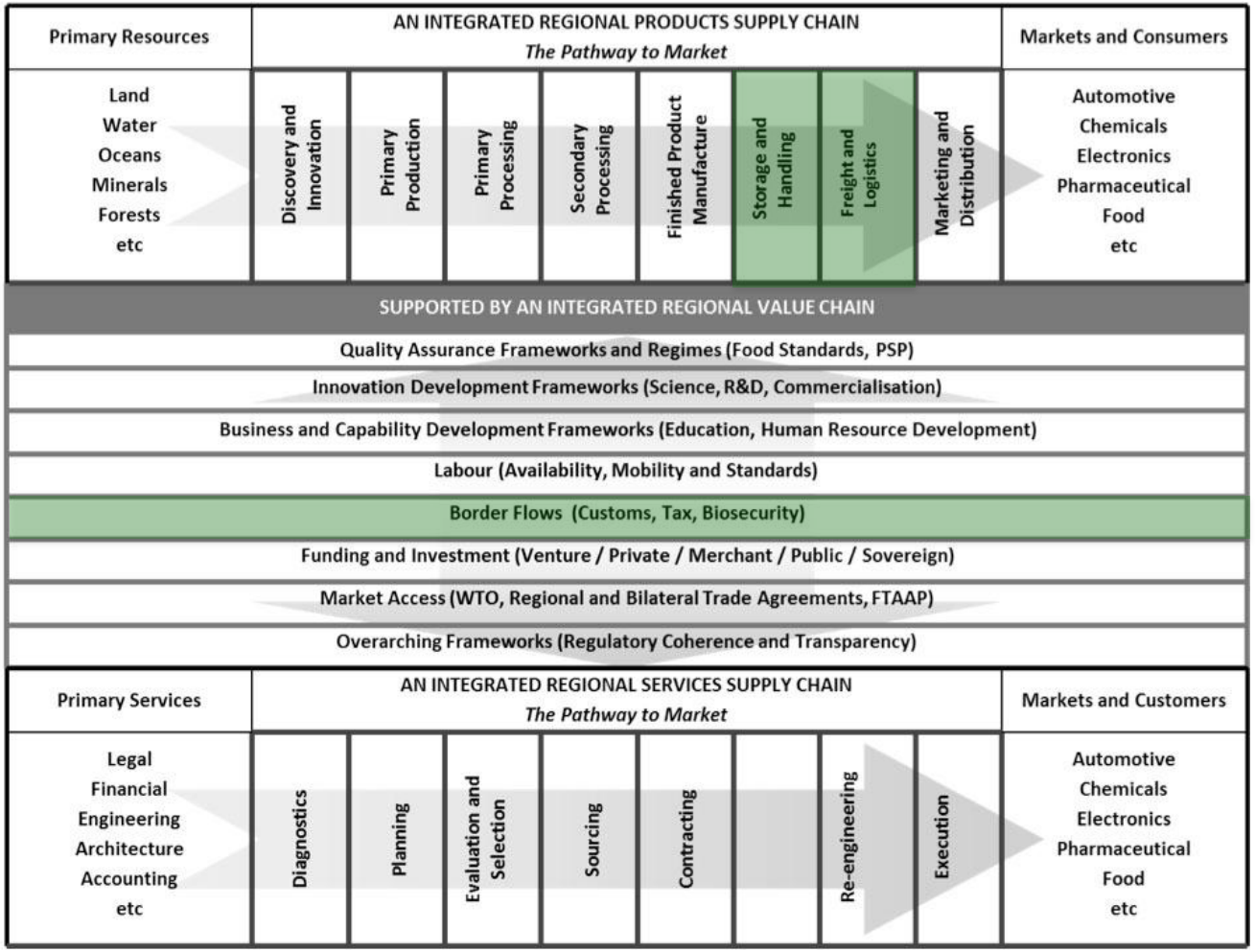
- Efficiency of the Clearance Process
- Quality of Trade and Transport Related Infrastructure
- Ease of Arranging Competitively Priced Shipments
- Competence and Quality of Logistics Services
- Ability to Track and Trace Consignments
- Frequency with which Shipments Reach the Consignee within the Scheduled or Expected Time

Government officials have used LPI rankings to engage in dialogues to improve logistic performance and trade efforts.

Source: World Bank (2010), Connecting to Compete.

Comparing the Logistics Performance Index with the REI Supply Chain Framework

The LPI focuses specifically on the storage and handling, freight and logistics, and border flow issues (highlighted below). It does not address any other part of the REI framework.



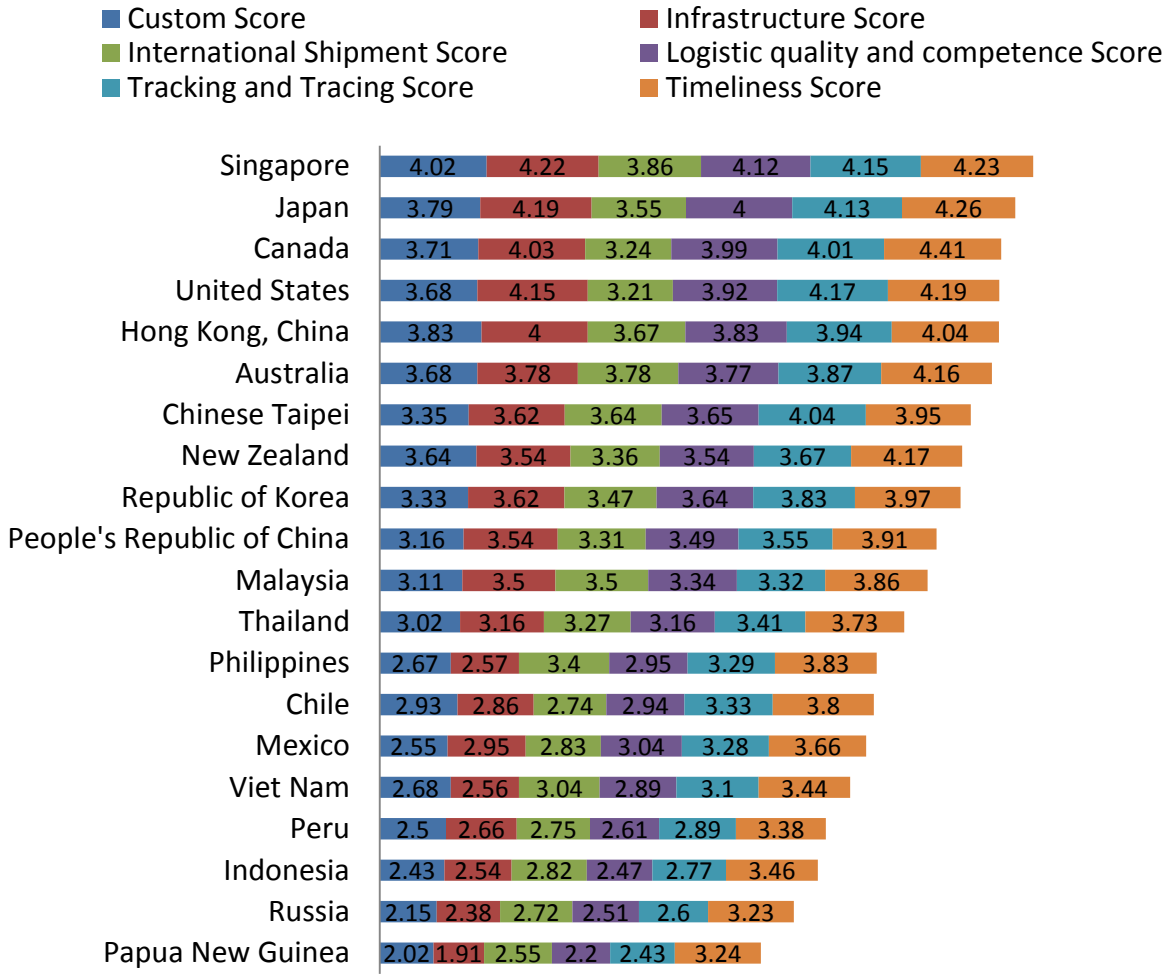
LPI Ranking: Comparative Analysis of APEC Economies

The table and chart below present a comparison of APEC economies by the six LPI dimensions.

2010 LPI APEC Rankings

	Global LPI Rank	LPI Score	Percent of Highest Performer
Australia	18	3.84	93.9%
Canada	14	3.87	94.6%
Chile	49	3.09	75.6%
Chinese Taipei	20	3.71	90.7%
Hong Kong	13	3.88	94.9%
Indonesia	75	2.76	67.5%
Japan	7	3.97	97.1%
Korea, Rep.	23	3.64	89.0%
Malaysia	29	3.44	84.1%
Mexico	50	3.05	74.6%
New Zealand	21	3.65	89.2%
Papua New Guinea	124	2.41	58.9%
People's Republic of China	27	3.49	85.3%
Peru	67	2.8	68.5%
Philippines	44	3.14	76.8%
Russian Federation	94	2.61	63.8%
Singapore	2	4.09	100.0%
Thailand	35	3.29	80.4%
United States	15	3.86	94.4%
Viet Nam	53	2.96	72.4%

2010 LPI APEC Composite Scores

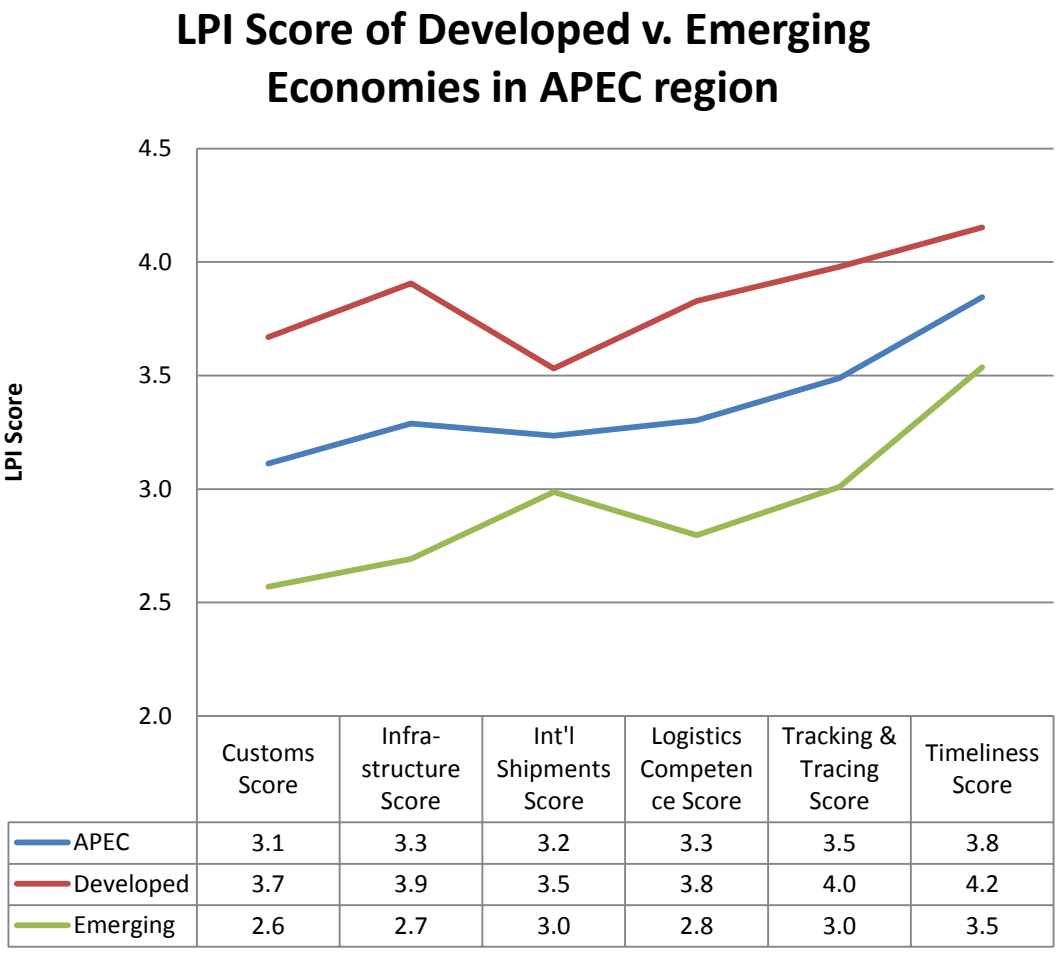


Source: World Bank (2010), Connecting to Compete.

Logistic Performance Index: Comparing Developed and Emerging APEC Economies

The tables and chart below highlight the gap in the six logistics LPI dimensions for developed vs. emerging economies in APEC.

		APEC	Developed	Emerging	Gap Dev-Em
Infra-structure	Score	3.3	3.9	2.7	1.2
	Rank	39.4	14.3	64.6	-50.2
Customs	Score	3.1	3.7	2.6	1.1
	Rank	41.8	14.3	70.3	-56.0
Logistics Competence	Score	3.3	3.8	2.8	1.0
	Rank	40.3	14.9	66.0	-51.1
Tracking & Tracing	Score	3.5	4.0	3.0	1.0
	Rank	39.4	14.6	65.2	-50.7
Timeliness	Score	3.8	4.2	3.5	0.6
	Rank	41.4	18.6	64.4	-45.9
Int'l Shipments	Score	3.2	3.5	3.0	0.5
	Rank	41.9	15.3	64.2	-48.9



Source: World Bank (2010), Connecting to Compete.

Doing Business Overview

The International Finance Corporation's *Doing Business* report provides quantitative data on the conditions of regulatory and business environments in 183 economies. It measures the relative ease or difficulty for entrepreneurs to start and operate a small to medium-sized business in those economies.

In the scope of this project, *Doing Business* supplies quantitative data on key parameters that strongly affect **trade across borders**. This information is collected from survey responses of 8,200 professionals, including freight forwarders, government officials, lawyers, and business consultants who routinely monitor logistics environments and advise regulatory policy on trade.

Trade Across Borders:

The key quantitative parameters affecting trade across borders are:

- Shipping Time, to and from economies
- Shipping Cost of containers, to and from economies
- Number of Documents needed to clear customs

In order to reduce the complexity of the real business environment to a simple quantifiable system that can be evaluated, measured, and ranked, the following key assumptions were made in this report:

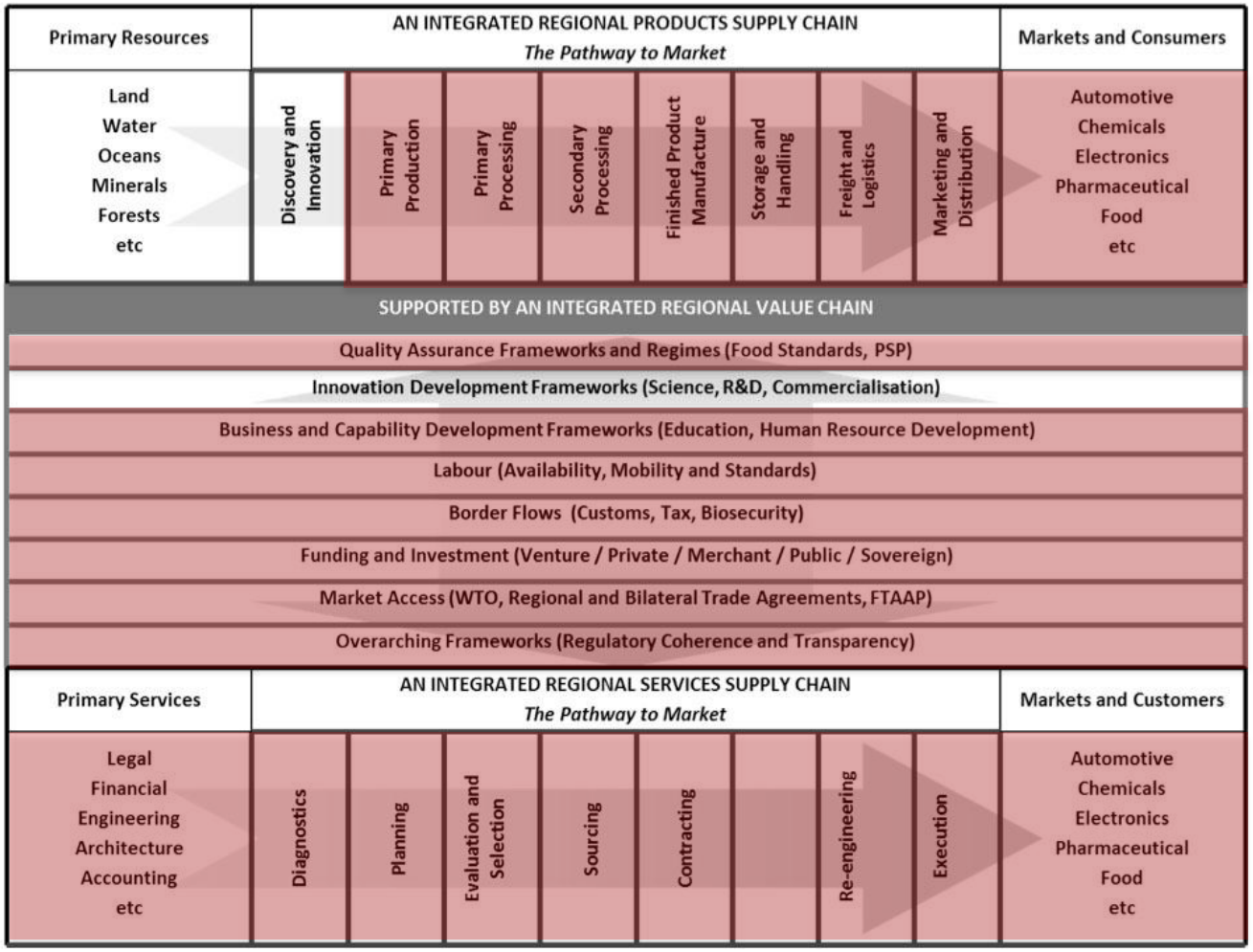
- Goods are transported across economies via sea freight.
- Upon arrival, goods are shipped to the closest large inland city.

The ranking of each economy is constructed by weighted average of the key parameters . Each parameter is weighted according to the level of impact on trade.

Source: International Finance Corporation (2011), Doing Business.

Doing Business and the REI Working Group Supply Chain

Doing Business provides information on most aspects of the supply chain (highlighted below), but does not address innovation, which is included in the REI framework. Furthermore, despite a wide breadth of data, the report provides little analysis of the data.



Doing Business Ranking: Comparison of APEC Economies

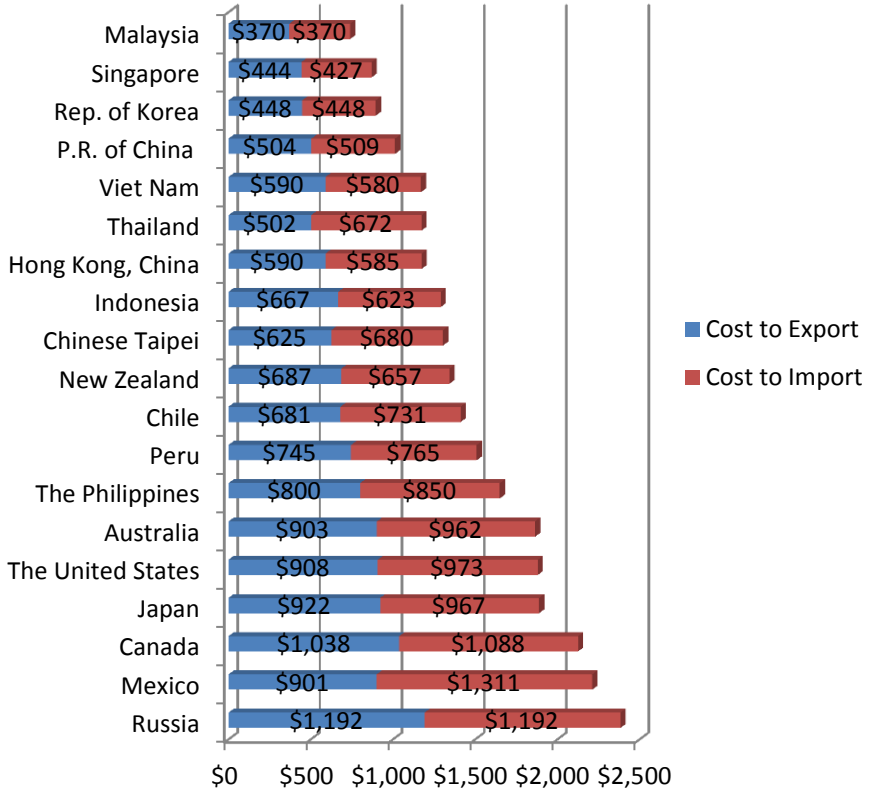
The *Doing Business* report provided data for 183 economies in the world. The charts below represents the import and export comparisons and time and costs comparisons for the 19 APEC economies which were included in the report.

	EXPORT								IMPORT							
	Documents Preparation		Customs Clearance and Technical Control		Ports and Terminal Handling		Inland Transportation & Handling		Documents Preparation		Customs Clearance and Techinical Control		Ports and Termninal Handling		Inland Transportation & Handling	
	Time (days)	Cost (US$)	Time (days)	Cost (US$)	Time (days)	Cost (US$)	Time (days)	Cost (US$)	Time (days)	Cost (US$)	Time (days)	Cost (US$)	Time (days)	Cost (US$)	Time (days)	Cost (US$)
Australia	5	285	1	45	1	350	2.2	223	3	269	1	120	2	350	2.2	223
Canada	3	225	1	35	1	600	2.1	178	4	185	1	75	3	650	2.1	178
Chile	11	135	2	50	4	210	2	286	12	185	3	50	4	210	2	286
Chinese Taipei	7	185	1	80	2	180	2	180	7	240	1	80	2	180	2	180
Hong Kong, China	2	90	1	50	2	265	1.9	185	2	95	1	40	1	265	1.9	185
Indonesia	14	210	1	169	2	165	3.1	123	15	210	4	125	6	165	3.1	123
Japan	4	110	2	160	2	250	2.1	402	5	200	2	115	2	250	2.1	402
Malaysia	10	85	2	65	3	135	2.1	85	10	85	2	65	2	135	2.1	85
Mexico	6	200	2	150	2	170	2.6	381	5	230	2	400	3	300	2.6	381
New Zealand	5	205	1	50	2	300	2.4	132	5	175	1	50	1	300	2.4	132
P.R. of China	14	250	2	70	3	85	2.5	99	15	260	4	70	3	80	2.5	99
Peru	5	150	2	100	3	330	3.1	165	7	150	3	120	5	330	3.1	165
Rep. of Korea	2	60	1	30	3	200	2	158	2	60	1	30	2	200	2	158
Russia	25	200	3	500	3	250	3.4	242	25	200	4	500	2	250	3.4	242
Singapore	1	105	1	31	1	180	1.8	128	1	88	1	31	1	180	1.8	128
Thailand	8	270	1	50	3	85	2.2	97	8	300	2	75	2	200	2.2	97
The Philippines	8	150	2	85	3	270	3.2	295	8	170	2	185	3	200	3.2	295
The United States	2	190	1	60	2	400	2	258	2	205	1	90	1	420	2	258
Viet Nam	12	125	4	100	3	150	3.2	215	12	95	4	95	4	175	3.2	215

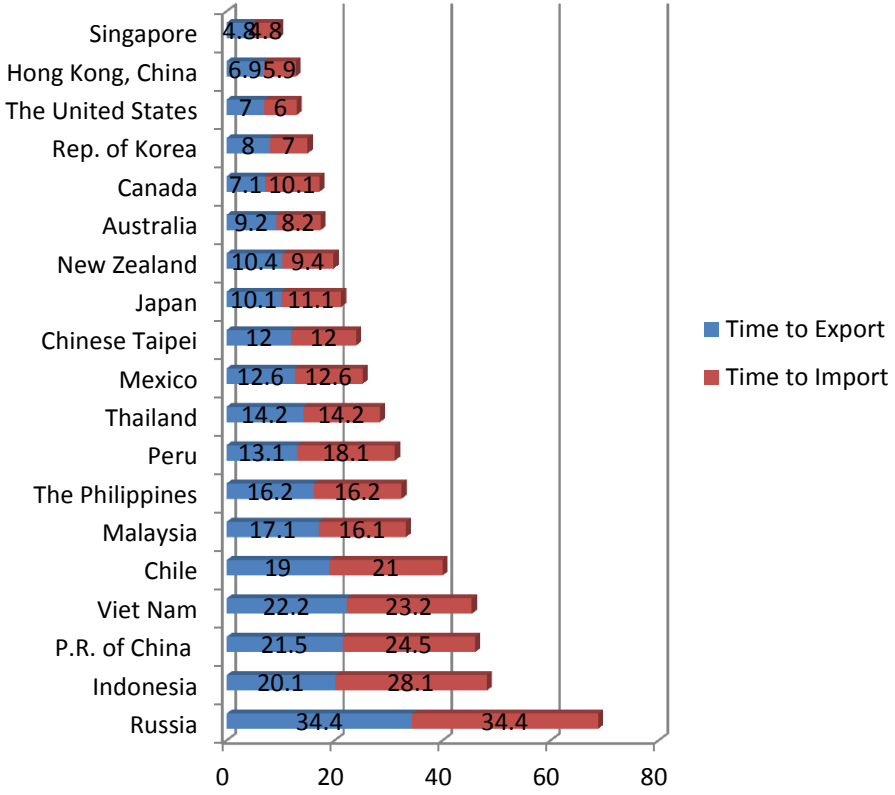
Doing Business Ranking: Comparison of Shipping Cost and Time

The *Doing Business* report provided data for 183 economies in the world. The charts below represents the import and export comparisons and time and costs comparisons for the 19 APEC economies which were included in the report.

Comparison of Shipping Cost in USD



Comparison of Shipping Time in Days



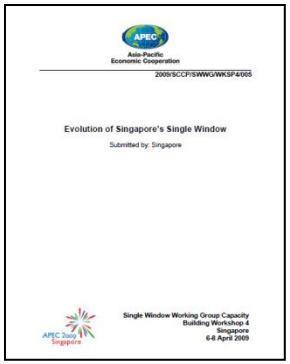
Source: International Finance Corporation (2011), Doing Business.

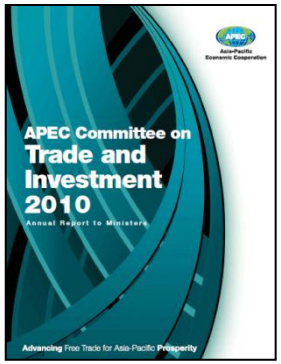
APEC Supply Chain Research

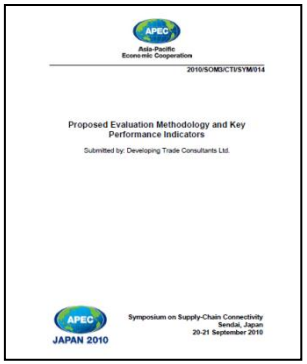
Given the importance of supply chains to achieving the goal of increased trade and investment among APEC economies, APEC has done significant research and analysis on supply chain issues. APEC continues to focus on accelerating efforts towards promoting a regional economic integration agenda. APEC has produced a series of research reports and meeting notes on a variety of related topics including logistics, connectivity, single window implementations, and trade facilitation.

Types of APEC Reports Used

- APEC Annual Reports to Ministers
- Working Group Workshop Reports
- Committee Chair Summary Reports
- Committee Reports
- Symposium Reports
- Symposium Handouts
- Policy Support Unit Reports







In May, 2009, APEC convened a symposium to focus on supply chain connectivity chokepoints A framework identifying 8 major chokepoints was proposed.

APEC Supply-Chain Connectivity Framework

Chokepoints

Chokepoint 1: *Lack of transparency/awareness of the full scope of regulatory issues affecting logistics; Lack of awareness and coordination among government agencies on policies affecting logistics sector; Absence of single contact point or champion agency on logistics matters.*
Chokepoint 2: *Inefficient or inadequate transport infrastructure; Lack of cross border physical linkages (e.g. roads, bridges).*
Chokepoint 3: *Lack of capacity of local/regional logistics sub-providers.*
Chokepoint 4: *Inefficient clearance of goods at Customs; Lack of coordination among border agencies, especially relating to clearance of regulated goods 'at the border'.*
Chokepoint 5: *Burdensome customs documentation and other procedures (including for preferential trade).*
Chokepoint 6: *Underdeveloped multi-modal transport capabilities; inefficient air, land, and multimodal connectivity.*
Chokepoint 7: *Variations in cross-border standards and regulations for movement of goods, services and business travelers.*
Chokepoint 8: *Lack of regional cross-border customs-transit arrangements*

Source: Asia Pacific Economic Consortium (2010), APEC Committee on Trade and Investment 2010

Reconciling ETI and the APEC Connectivity Chokepoints

There is significant overlap between the ETI Enabling Trade framework and the APEC chokepoints. The table below maps the chokepoints against the ETI pillars. This research study combines both the APEC chokepoints and the ETI pillars framework. We used the eight APEC chokepoints plus market access as an analytical starting point to organize our field interviews and analysis.

Fundamental Chokepoints	APEC Chokepoint	ETI Pillars
Transparency	Lack of transparency and awareness of regulation issues	4.01 – Irregular payments in exports and imports 4.02 – Corruption Perceptions Index 7.06 – Government online service index 8.02 – Ethics and corruption
Infrastructure	Inefficient or inadequate infrastructure	5.01 – Airport density 5.03 – Paved roads 5.04 – Quality of air transport infrastructure 5.05 – Quality of railroad infrastructure 5.06 – Quality of roads 5.07 – Quality of port infrastructure
Logistics	Lack of logistics capacity	6.03 – Logistics competence 6.04 – Tracking and tracing ability 6.05 – Timeliness of shipments in reaching destination 6.07 – GATS commitments to the transport sector
Clearance	Inefficiencies in customs clearance	2.02 – Customs services index 3.01 – Efficiency of the clearance process 3.02 – Time to import goods 3.05 – Time to export goods
Documentation	Burdensome documentation and procedures	2.01 – Burden of customs procedures 3.03 – Documents to import goods 3.06 – Documents to export goods
Connectivity	Underdeveloped multimodal transport connectivity	5.02 – Transshipment connectivity index 6.01 – Liner shipping connectivity index 7.01 – Extent of business Internet use
Standards & Regulations	Variations in standards and practices	8 – Regulatory Environment
Transit	Lack of regional cross-border customs-transit arrangements	6.02 – Ease and affordability of shipment 8.07 – Openness to foreign participation
Market Access	–	1 – Market Access

Comparing APEC Economy Supply Chains

Key Findings

Comparative Performance Within APEC

- The largest gaps between emerging and developed APEC economies appear in two areas; (1) transparency of border administration and (2) availability and use of ICTs. In both areas, developed economies exhibit performance that is superior to their emerging peers.

Economy Comparison with Relevant Peers

- Segmentation by level of economic development is the most useful method to understand differences in the regional supply chain. That said, deviations exist within these broad categories. A single emerging economy, for example, may perform on par with the average developed economies for a specific metric. Economies must be considered both within their segment and in comparison to their relevant peers.

Regional Comparison

- APEC is a unique region because it encapsulates economies that span a broad range of economic development. In aggregate, APEC lags the EU when with respect to the magnitude of trade barriers. This relative weakness, however, is largely due to the effect of emerging APEC economies and their associated performance on several key trade metrics.

Market Access is Unique

- Emerging economies lag developed economies when considering all supply chain chokepoints with one significant exception. Emerging economies, on average, score better than their developed peers in market access.

QUANTIFYING THE IMPACT ON TIME AND COST IN APEC SUPPLY CHAINS

Establishing Areas that Impact Cost and Time

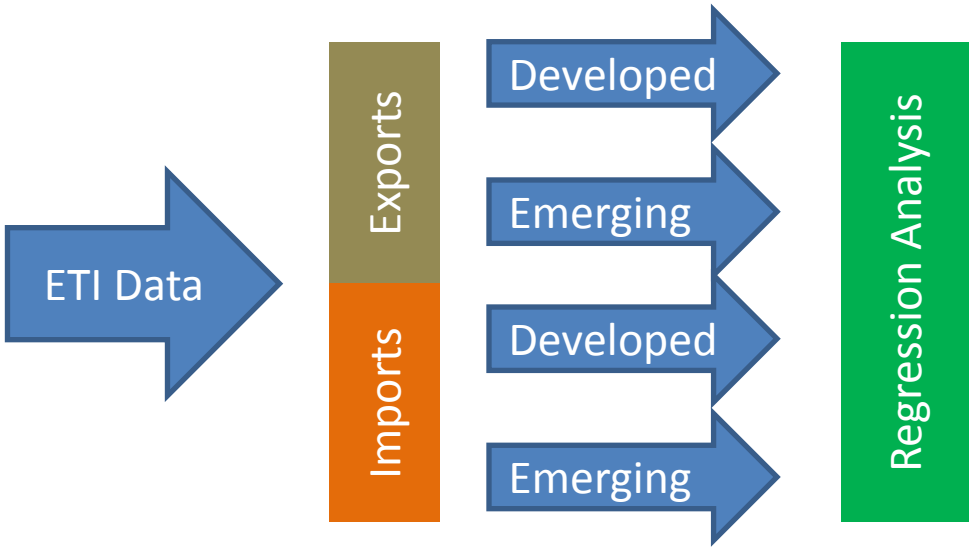
Although individual economies may lead or lag the averages with respect to various trade metrics, that knowledge does not address what implications and conclusions can actually be drawn from the data. An economy may lag in a metric in which an improvement will not impact the cost, time, or uncertainty involved in doing business. In that case, there may not be any justification for focusing resources there. The purpose of this section is to establish which metrics, if altered, will influence the costs associated with doing business in the region.

Method of Analysis:

To quantify the impact of different metrics on the time and cost of shipping in the APEC region, the ETI dataset was chosen because it was an extremely comprehensive and detailed dataset. Using this dataset, a regression analysis was conducted to analyze the effects of the ETI pillars and sub-pillars on time and cost.

Statistical Analysis:

Initially, a regression analysis was conducted on the APEC economies, differentiating only between imports and exports. This yielded poor statistical significance. Additional analysis of the data found a high statistical significance when the data was further segmented between developed and emerging economies.



Developed vs. Emerging Economies

For the purposes of this report, developed and emerging economies are defined as in the International Finance Corporation's *Doing Business* report. Economies identified as "high-income" are considered developed, whereas "middle" and "low" income economies were designated as emerging.

Developed	Emerging
Australia	Chile
Brunei Darussalam	People's Republic of China
Canada	Indonesia
Hong Kong, China	Malaysia
Japan	Mexico
Republic of Korea	Papua New Guinea
New Zealand	Peru
Singapore	The Philippines
Chinese Taipei	Russia
The United States	Thailand
	Viet Nam

Overview of Regression Analysis

The analysis employed a stepwise regression to identify the most statistically relevant data elements, and utilized 30+ independent variables which were analyzed over 342 observations.

Datasets Used in the Analysis:

- ETI sub-pillars for 19 economies was used for independent variables (World Economic Forum, *The Global Enabling Trade Report 2010*)
- Dependent variables analyzed included time to import / export goods and cost to import / export goods (The World Bank, *Doing Business 2010*)

Regression Analysis Approach:

- Countries were grouped into Developed Economy (D) or Emerging Economy classifications (E)
- Combined import and export data from the ETI sub-pillars of 19 economies to create 342 country-to-country relationships used in the regression
- Normalized data was used to allow comparisons of relative significance $\frac{X - \mu}{\sigma}$

Exporter	Importer	Observations	Time Analysis: Independent Variables	Cost Analysis: Independent Variables
Developed	Developed	90	29	30
Developed	Emerging	90	29	30
Emerging	Developed	90	29	30
Emerging	Emerging	72	29	30

Overview of Regression Analysis – Statistical Significance

The regression analysis yielded unexpectedly high R^2 and T-Stat numbers. This prompted a variance inflation factor (VIF) analysis to determine if multicollinearity was a significant aspect. The charts below shows results for ETI vs. Time and ETI vs. Cost.

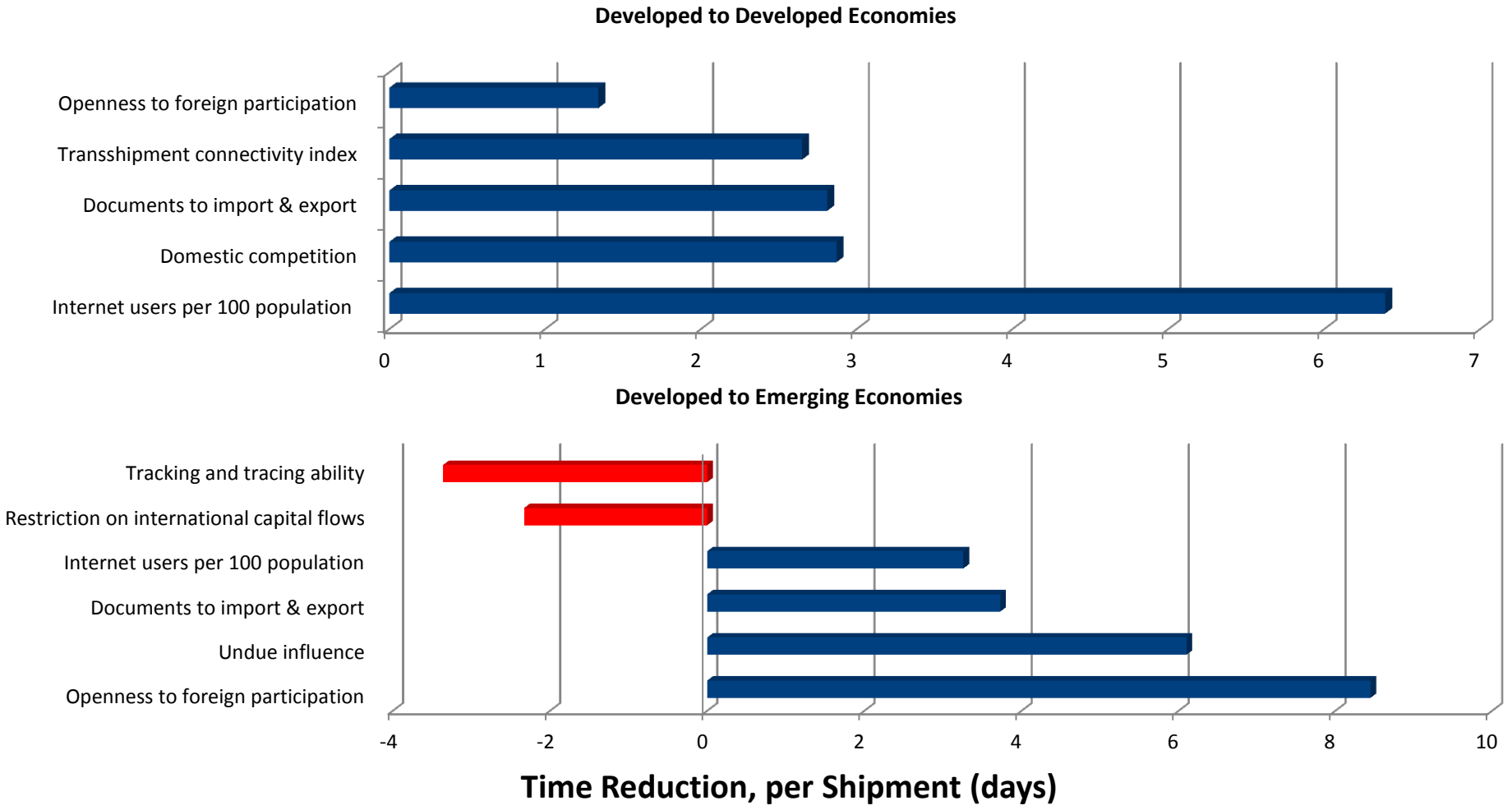
Shipping Time	D to D	D to E	E to D	E to E
RSquare	0.96	0.89	0.92	0.93
Observations	90	90	90	72
T-Stat Variable 1	5.0	7.0	8.7	12.9
T-Stat Variable 2	-11.0	-11.4	-5.4	-4.0
T-Stat Variable 3	-8.4	-5.5	-9.8	-13.7
T-Stat Variable 4	-6.2	4.1	6.4	-6.2
T-Stat Variable 5	-4.4	5.7	-11.8	10.5
T-Stat Variable 6		-10.7		-12.0
VIF Variable 1	5.3	2.0	1.9	1.9
VIF Variable 2	2.4	2.2	2.1	2.6
VIF Variable 3	7.7	1.4	3.3	2.5
VIF Variable 4	3.8	1.4	1.9	3.1
VIF Variable 5	4.6	2.8	1.4	2.2
VIF Variable 6		2.8		2.4

Shipping Cost	D to D	D to E	E to D	E to E
RSquare	0.98	0.70	0.76	0.95
Observations	90	90	90	72
T-Stat Variable 1	-23.9	-4.9	-8.6	-7.5
T-Stat Variable 2	5.1	7.0	5.5	-11.5
T-Stat Variable 3	-20.2	-6.3	6.1	-28.2
T-Stat Variable 4	23.9	-5.1	2.8	-12.6
T-Stat Variable 5	10.4	8.2	-4.7	21.7
VIF Variable 1	6.2	3.3	2.3	1.2
VIF Variable 2	2.3	2.2	1.3	1.9
VIF Variable 3	3.2	3.3	5.2	1.5
VIF Variable 4	4.7	3.4	2.3	1.4
VIF Variable 5	2.7	2.7	4.2	1.7

- R^2 values – Very High
- T-Stat values – High
- VIF values – Low

Analysis of ETI Sub-pillars (Time)

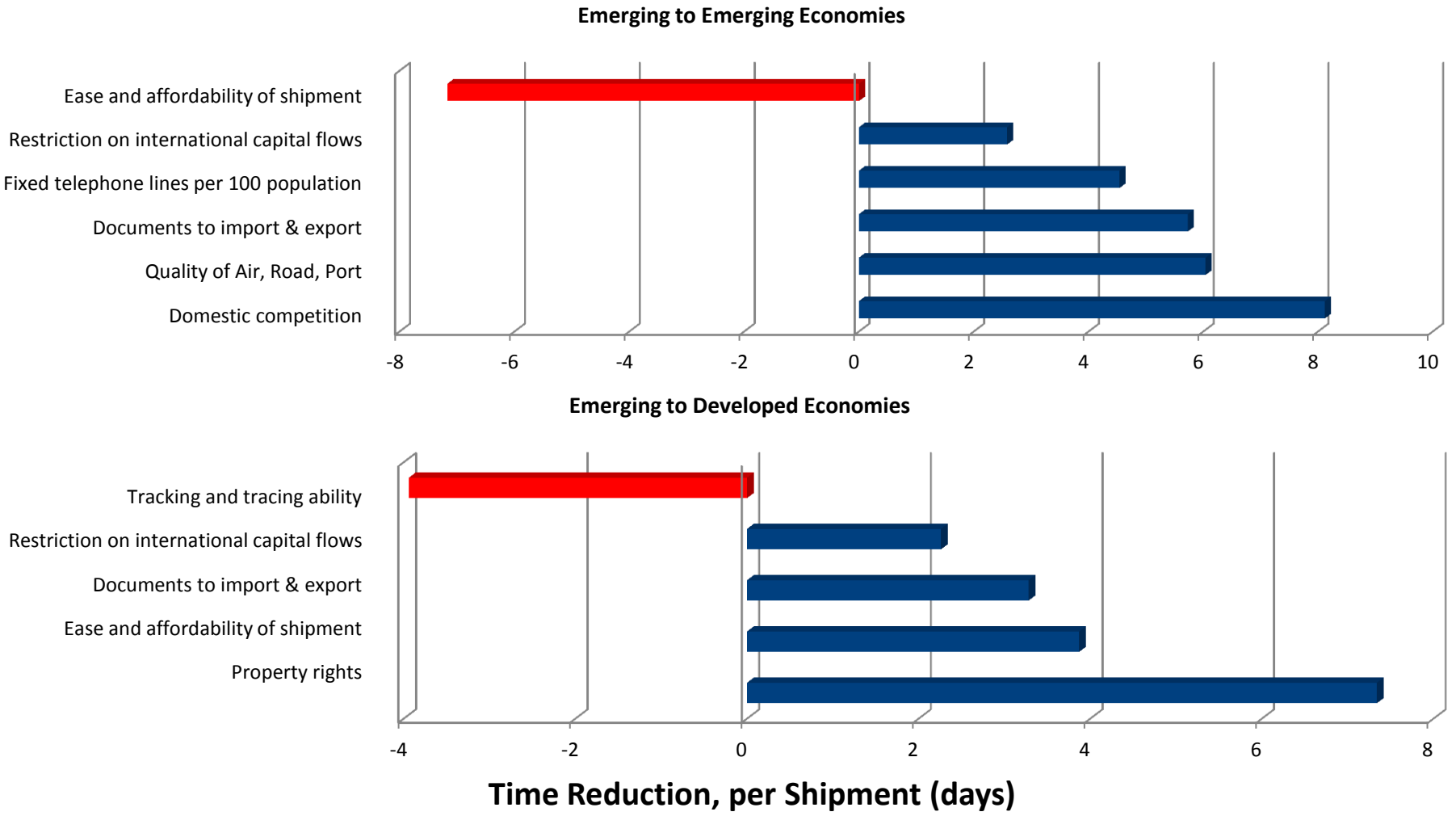
Impact on Shipping Time – Key findings identified in the regression analysis are shown below for the most impactful sub-pillars affecting shipping time from developed to developed economies and trade from developed to emerging economies.



Note: The numbers in the table show the effect of a one standard deviation increase in the explanatory variable.

Analysis of ETI Sub-pillars (Time)

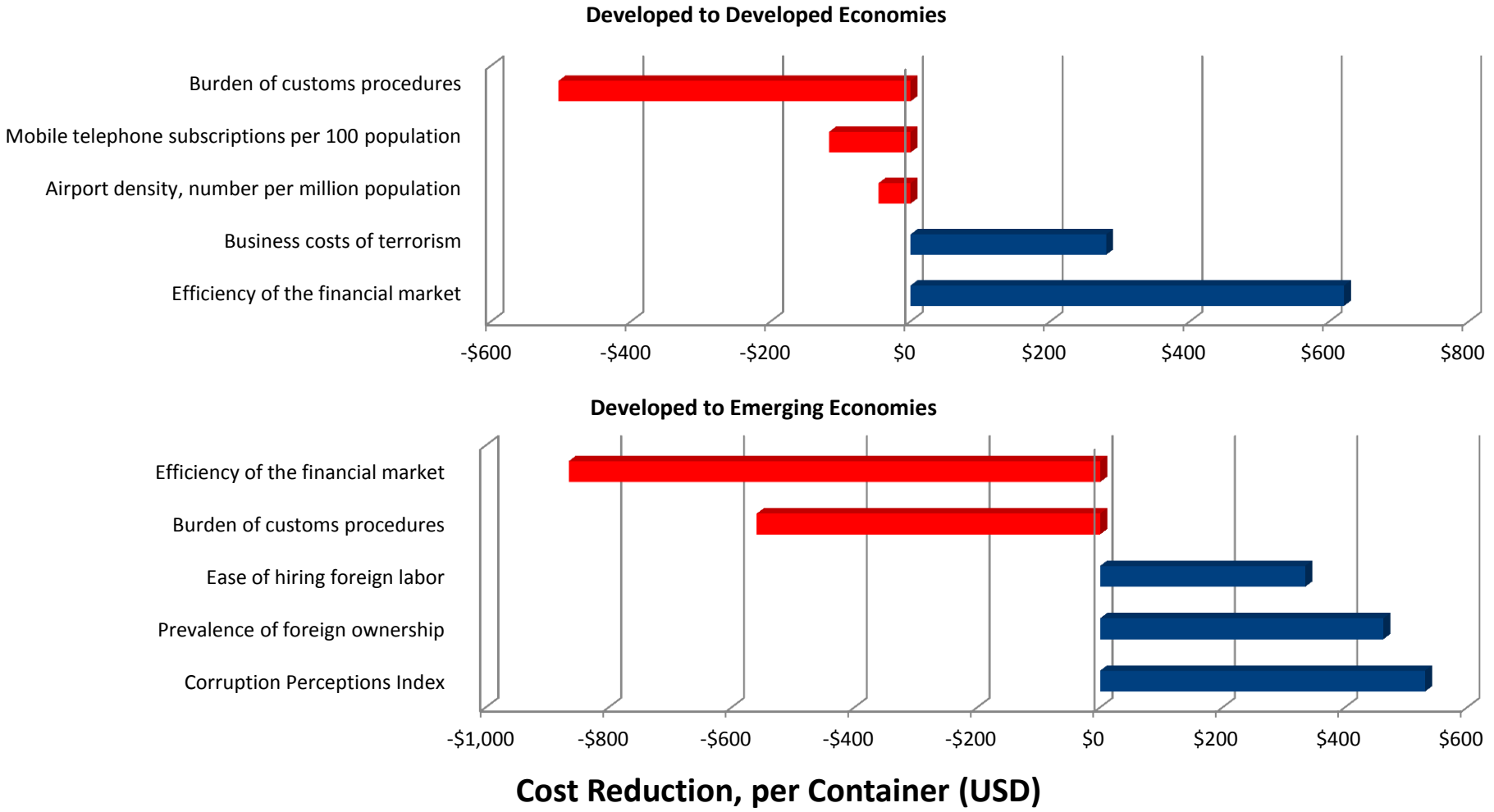
Impact on Shipping Time – Key findings identified in the regression analysis are shown below for the most impactful sub-pillars affecting shipping time from emerging to emerging economies and trade from emerging to developed economies.



Note: The numbers in the table show the effect of a one standard deviation increase in the explanatory variable.

Analysis of ETI Sub-pillars (Cost)

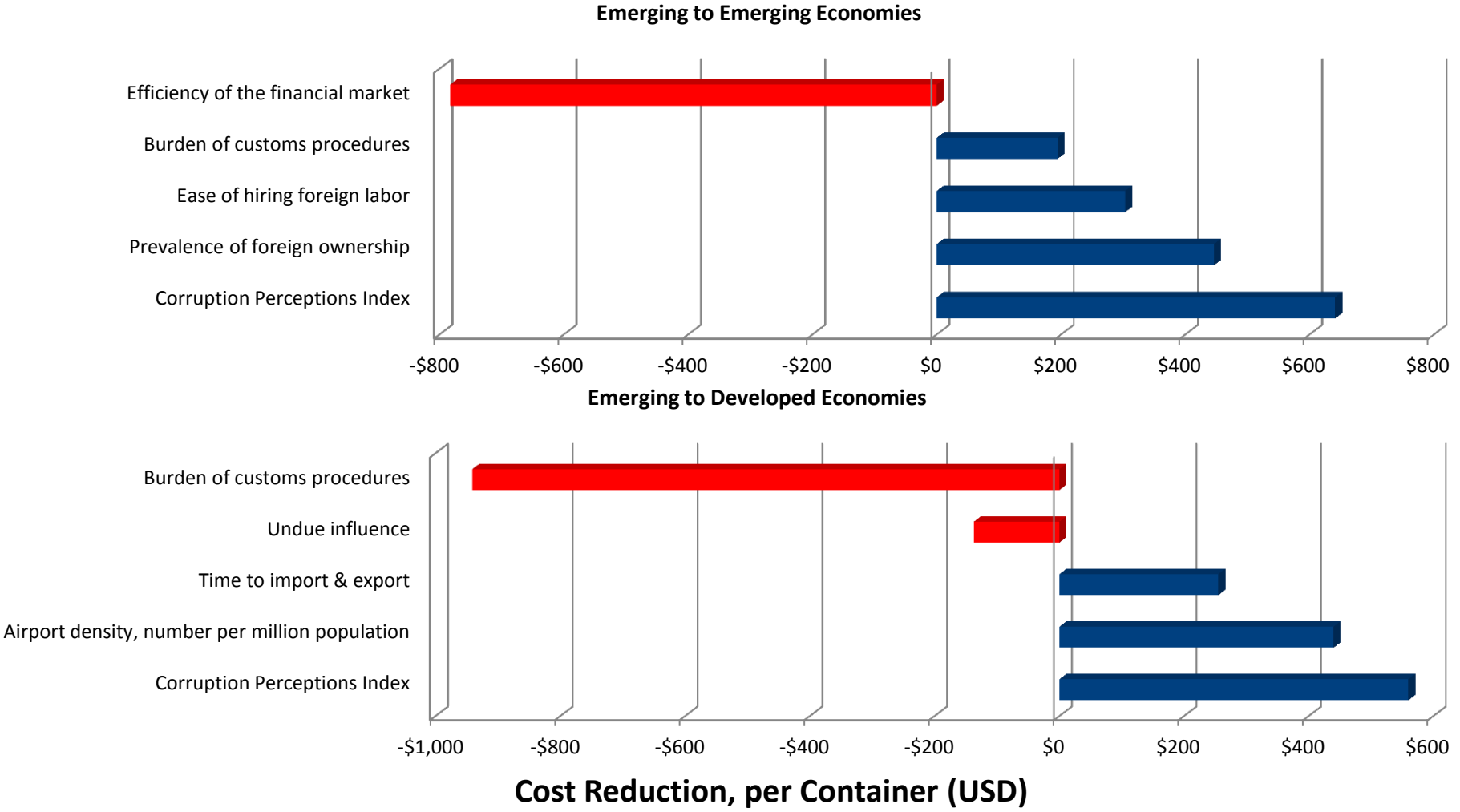
Impact on Shipping Cost – Key findings identified in the regression analysis are shown below for the most impactful sub-pillars affecting shipping cost from developed to developed economies and trade from developed to emerging economies.



Note: The numbers in the table show the effect of a one standard deviation increase in the explanatory variable.

Analysis of ETI Sub-pillars (Cost)

Impact on Shipping Cost – Key findings identified in the regression analysis are shown below for the most impactful sub-pillars affecting shipping cost from emerging to emerging economies and trade from emerging to developed economies.

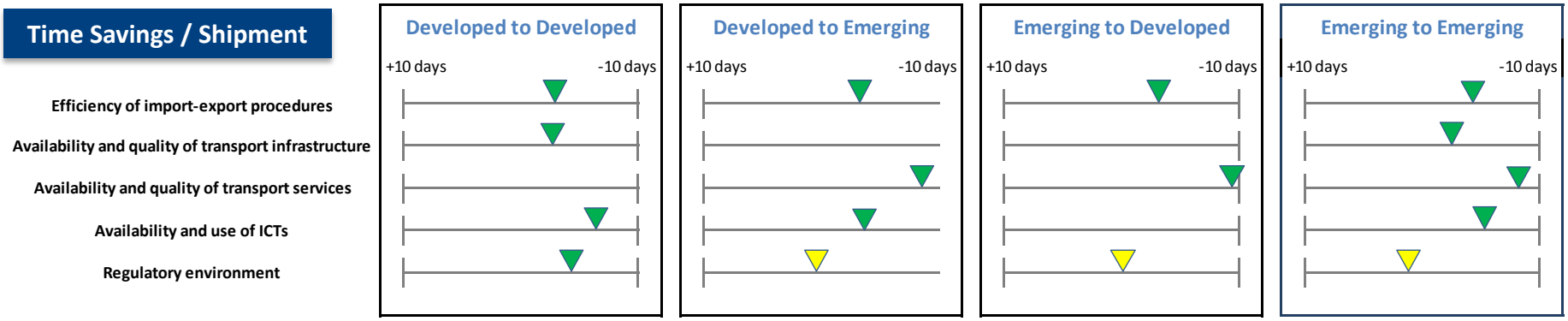


Note: The numbers in the table show the effect of a one standard deviation increase in the explanatory variable.

Impact of ETI Pillars on Time and Cost

Based on the sub-pillar data identified in the stepwise regression, proxies for ETI pillars were created by compiling related sub-pillar results. The ETI pillar proxies are shown in the tables below, and represent the projected impact on time and cost when the pillar metric is improved.

Time Savings / Shipment



Cost Savings / Container

Note: The numbers in the table show the effect of a one standard deviation increase in the explanatory variable.

Most Impactful ETI Pillars

Economies at different stages of development should focus on different trade aspects. From the regression analysis results, the most ***positively*** impactful pillar that affects both time and cost for each grouping of economic development stage is shown below.

WHAT HELPS?			Imports	
			Developed	**Emerging**
Export	**Time Savings**	**Developed**	(Pillar 7) Availability and Use of ICTs	(Pillar 5) Availability and Quality of Transport Services
		Emerging	(Pillar 5) Availability and Quality of Transport Services	(Pillar 5) Availability and Quality of Transport Services
	Cost Savings	**Developed**	(Pillar 2) Efficiency of Customs Admin	(Pillar 2) Efficiency of Customs Admin
		Emerging	(Pillar 2) Efficiency of Customs Admin	(Pillar 8) Regulatory Environment

Most Impactful ETI Pillars

Economies at different stages of development should focus on different trade aspects. From the regression analysis results, the most ***negatively*** impactful pillar that affects both time and cost for each grouping of economic development stage is shown below.

WHAT HURTS?			Imports	
			Developed	**Emerging**
Export	**Time Savings**	**Developed**	*No Elements Measured in the ETI Decrease Time Savings*	
		Emerging		
	Cost Savings	**Developed**	(Pillar 8) Regulatory Environment	(Pillar 4) Transparency of Border Administration
		Emerging	(Pillar 4) Transparency of Border Administration	(Pillar 9) Physical Security

Regression Analysis

Key Findings

- There are a number of key areas where improvements can lead to significant gains in cost and/or time savings: availability and quality of transport services, efficiency of customs, regulatory environment, and availability and use of ICTs.
- Improvements in some metrics may lead to tradeoffs between time and cost. In other situations, there may be savings in both time and cost.
- Decisions about where to make improvements should be an economy specific decision that takes into account an economy's trade partners. In our analysis, we broke down economies into their developmental stage, and found that developed economies have distinctly different drivers for reducing time and cost than emerging economies.
- It is important to note that some pillars have second order effects not apparent in first order analysis. A good example would be ICTs, which has added benefits to many other pillars, such as the efficiency of customs administration.

POTENTIAL COST AND TIME SAVINGS IN APEC SUPPLY CHAINS

Estimating Potential Cost and Time Savings in APEC Supply Chains

A major objective of this study was to estimate the costs imposed on businesses by chokepoints and barriers in APEC supply chains. However, determining the cost or time delay of specific chokepoints is difficult. Inherent differences in supply chains, by type of goods, industry sector, and economy, make estimating a specific cost of a chokepoint difficult to calculate in an encompassing manner. For example, the challenges faced by exporters of minerals are vastly different than those faced by firms exporting agricultural or manufactured products.

Comparative Analysis of Supply Chain Potential Costs and Time Savings. Rather than attempting to estimate the cost of specific chokepoints, the analytical approach taken here was to estimate the potential cost and time savings a firm, or an economy, could expect to gain if economies adopted APEC best practices at every stage of their supply chain. Of necessity this analytical approach required making many critical assumptions. The results obtained from the analysis are very general and should be interpreted cautiously. But they do offer APEC economies directional findings for creating an agenda for action.

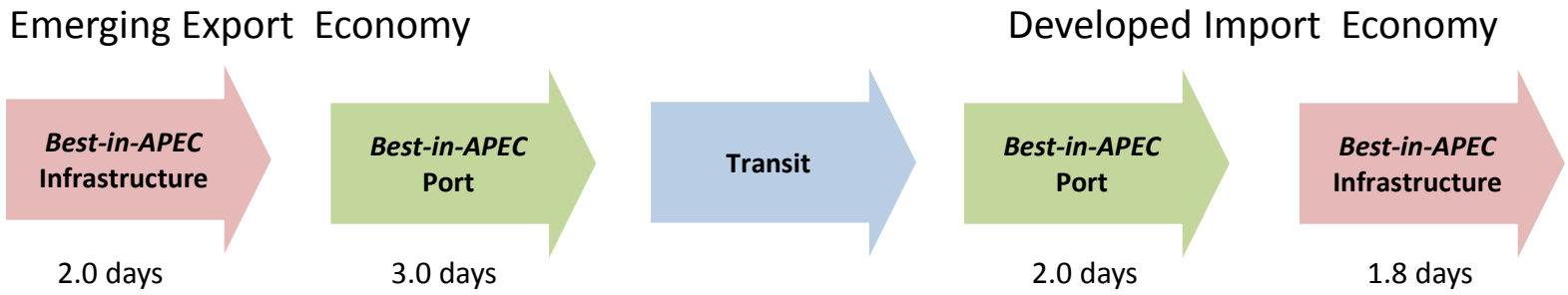
Comparing APEC Economies Against a Hypothetical Best Practice APEC Economy. For comparative purposes we built a *hypothetical* APEC economy and assigned to it best-in-APEC characteristics at each stage of the supply chain (an illustrative example of the analytical method is presented on the following page). We then constructed an *average* developed APEC economy supply chain, and an *average* emerging APEC supply chain. Recognizing that comparing an emerging economy directly with an advanced developed APEC economy is unrealistic, emerging economies were compared against the most *feasible-in-APEC* economy. In some cases this was best-in-APEC, but in most cases it was the best emerging APEC economy. Comparisons were then made by assuming trade flows between developed to developed economies, developed to emerging economies, emerging to developed economies, and emerging to emerging economies.

Data. The data used in the time and cost savings estimates in this section are drawn from the research study questionnaire and from the International Finance Corporation's *Doing Business, 2010* report, and the World Banks's *Connecting to Compete* report.

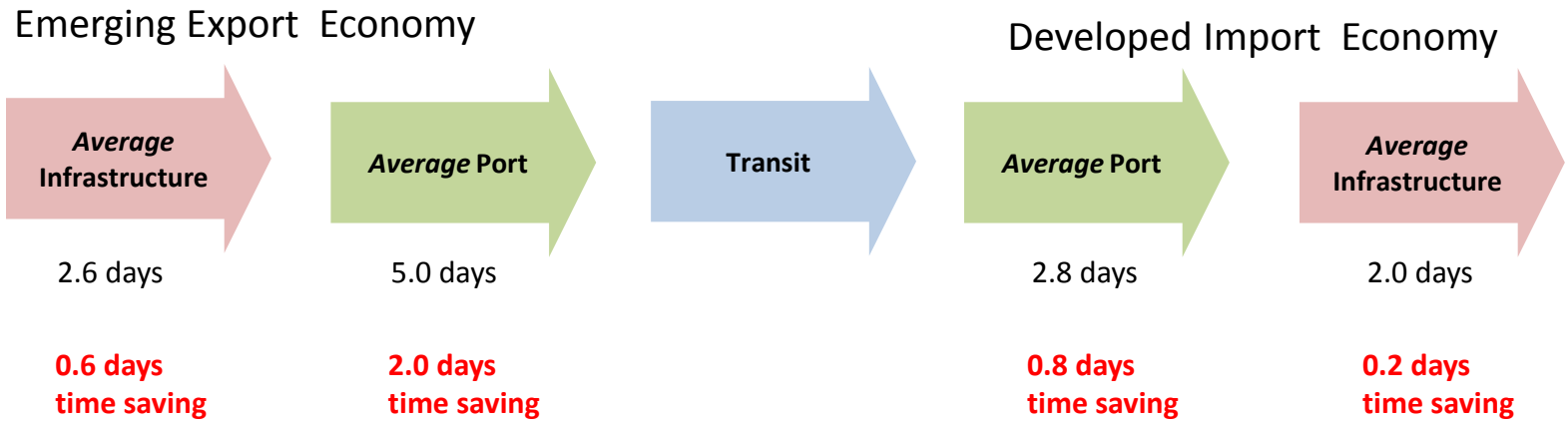
Illustrative Example of Analytical Approach

The diagram below provides an illustrative example of the analytical approach used to estimate the potential time savings in APEC supply chains. The example below compares a best-in-APEC supply chain for a firm exporting from an emerging economy to an importer located in a developed economy. The example shows that there is a potential time savings of 3.6 days.

Best-in-APEC Economy Supply Chain - Time



Actual *Average* Emerging APEC Economy Supply Chain - Time



Total potential time saving for average emerging APEC economy exporting to an average developed APEC economy: 3.6 days

Key Findings: Potential Time and Cost Savings in APEC Supply Chains

The chart below presents the estimated time and costs savings that potentially exist in APEC supply chains. Time was measured in days and cost was analyzed per container. Notably the most significant potential time and cost savings will result from improvements in emerging economies.

Note: The letters in parentheses (i.e. D1-3 or E4-6) refer to the lines in the analytical data tables presented on the following pages. This information can be used to identify the specific calculations used to derive the time or cost saving estimate.

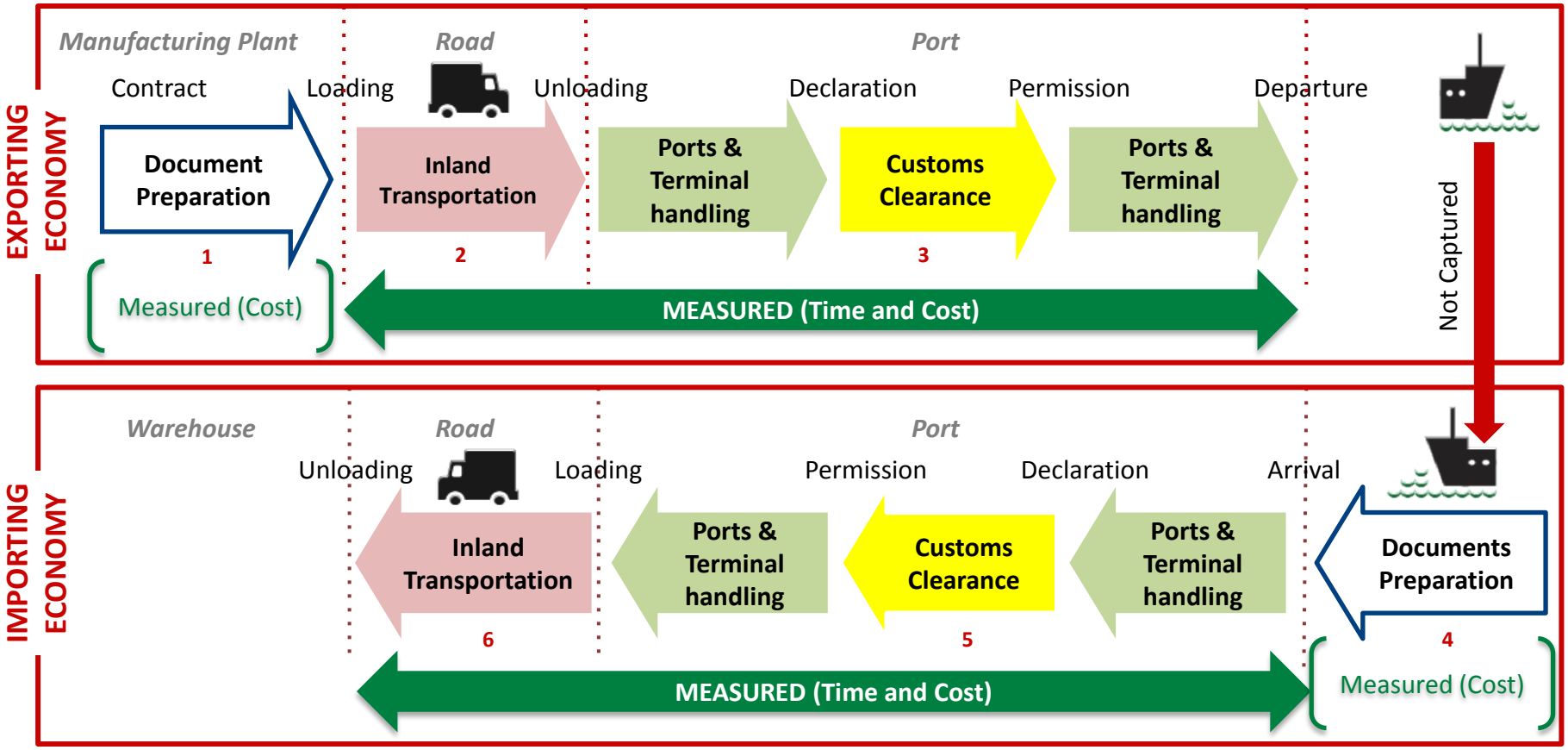
Export (TO)			Import: Developed	Import: Emerging
Developed	Cost		**$617 / container** Export (D1-3): $296 Import (D4-6): $321	**$1,084 / container** Export (D1-3): $296 Import (E4-6): $788
	Time		**2.1 days** Export (D1-3): 1.1 days Import (D4-6): 1.0 days	**4.1 days** Export (D1-3): 1.1 days Import (E4-6): 3.0 days
Emerging	Cost		**$840 / container** Export (E1-3): $519 Import (D4-6): $321	**$1,307 / container** Export (E1-3): $519 Import (E4-6): $788
	Time		**3.6 days** Export (E1-3): 2.6 days Import (D4-6): 1.0 days	**5.6 days** Export (E1-3): 2.6 days Import (E4-6): 3.0 days

- **Developed Exporting to Developed Economies**. On average, developed APEC economies can expect to remove up to 2.1 days, and up to $617 of unnecessary costs, from their supply chains when exporting to other developed economies. Export times and costs are slightly higher than import times and costs due to increased security concerns.
- **Developed Exporting to Emerging Economies**. Firms exporting from a developed economy benefit from the efficiencies present (1.1 days and $296); but must deal with the relative inefficiencies present in emerging economies (3.0 days and $788).
- **Emerging Exporting to Developed Economies.** Potential time and cost savings for a supply chain from a emerging economy into an developed economy are 3.6 days and $840.
- **Emerging Exporting to Emerging Economies**. The largest potential time and costs savings are between emerging economies. Emerging economies exporting to other emerging economies will encounter, on average, 5.6 days and $1,307 of unnecessary time delays and additional costs.

It is important to note that these estimates are for the “average” developed and the “average” emerging APEC economy. Individual economies outperform or lag these averages. In the tables that follow, the reader can determine their economy’s performance against the best-in-APEC standard, or other reference economies.

Valuation Method and Assumptions

A simplified supply chain was assumed. It is separated it into two parts: time at seaports & time on the road. The time needed for document preparation was not factored in. Document preparation was assumed to be a continuous recurring process. A supply chain using seaports and marine shipping was assumed because 90% of all international trade is transported by sea.



Source: IBISWorld Industry Report, (March 2011). Global Marine Port Operation: H4913-GL

Valuation Assumptions

Key assumptions made in estimating time and cost savings in supply chains are as follows:

Measurements of Time and Cost

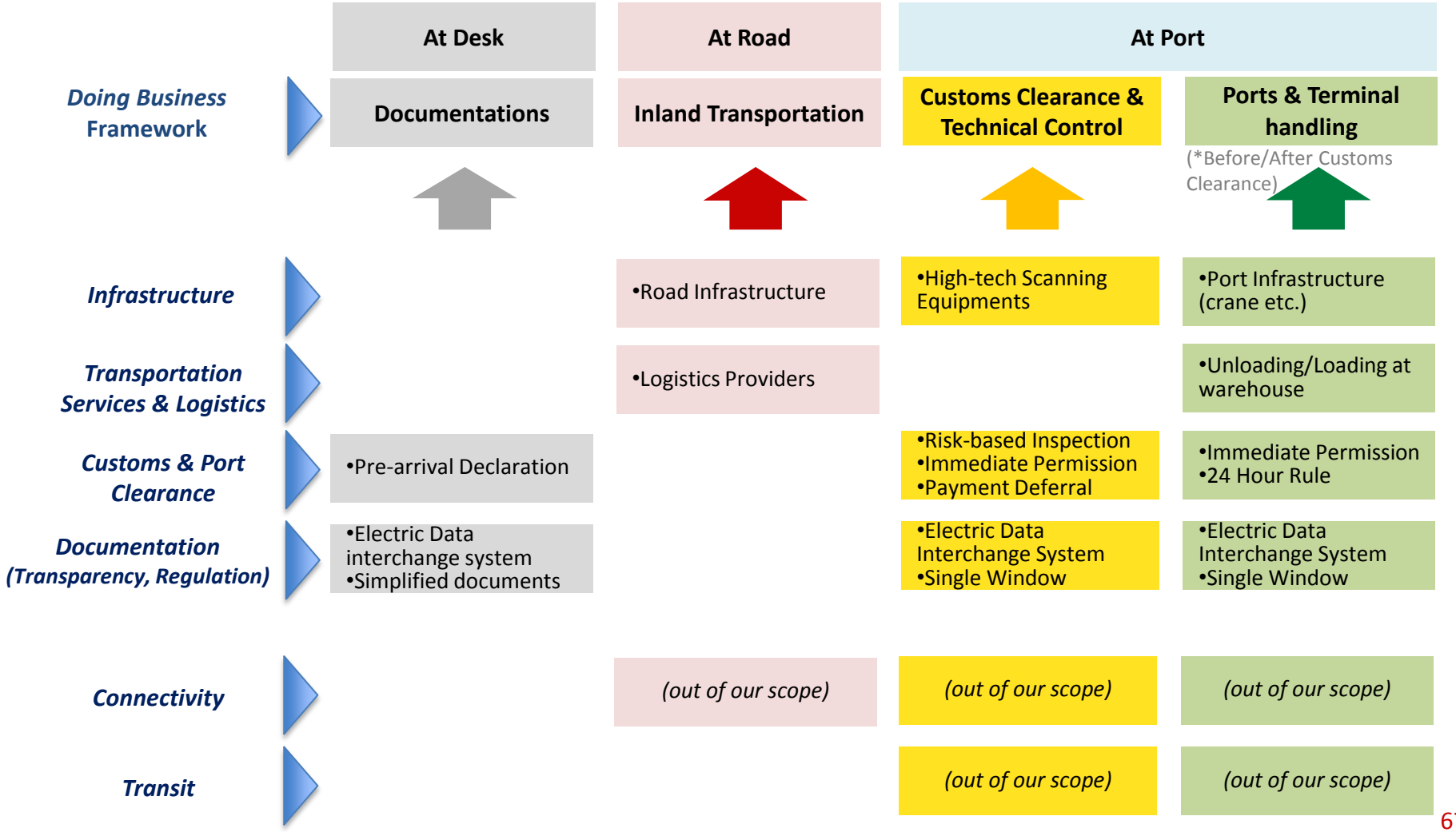
- Three processes are individually measured: (1) Inland Transportation, (2) Customs Clearance and Technical Control and (3) Port and Terminal Operations.
- For (2) and (3), we use Doing Business data, which is rounded to closest full day.
- For (1), we use LPI data from the *Connecting to Compete* report, which measures distance, time and cost.
- Basic assumptions for measuring the time and cost is the same as those in the Doing Business report. Important assumptions are :
  - The traded product travels in a dry-cargo, 20-foot, full container load. It is not hazardous and does not require refrigeration. The product does not require any special phyto-sanitary or environmental safety standards other than accepted international shipping standards
  - For (1), exporters/importers do not use expedite delivery service
  - For (2), products required to be specially examined (e.g. flowers) are excluded.
  - For (2), time for customs clearance at seaport is measured from document submission to cargo release
- Cost data for (1) from LPI is adjusted to Doing Business format by assuming that the cost of 40-foot container is 1.5 times as much as that of 20-foot.
- Calculations only capture direct costs. Indirect costs were determined to be minimal based on our study.

Consideration of Variability

- The average time and cost are measured. The variability of time for one specific process may be factored into the average of Port and Terminal Operations as a form of premium (i.e. exporters/importers expect).
- Some preferential treatments of customs procedure for certain products can make the time different from normal treatment. However, our measurement is assumed as a weighted average of the different times.

Fundamental Chokepoints Addressed in Valuation Analysis

The fundamental chokepoints identified in APEC supply chains are included in the analytical approach. The diagram below shows where and how each fundamental chokepoint is addressed in the analysis.



Developed Economies: Export Cost and Time Savings

Drawing survey responses and data from the Doing Business Report, potential time and cost savings are calculated by comparing current developed economy averages with identified best-in-APEC times and costs. Export times and costs in developed economies could potentially be improved by 1.1 days and $296, respectively.

Developed Economy – Export Time and Costs

		Current Situation		Best Practice		Potential Savings	
		Time (Avg)	Cost (Avg)	Time	Cost	Time	Cost
D1	**At Desk**						
	Documentation	*Time at Desk is part of usual operations*	$162	*Time at Desk is part of usual operations*	*Korea* $60	N/A	$102
D2	**On Road**						
	Inland Transportation	2.0 days	$410	*Singapore* 1.8 days	*Average* $369	0.2 days	$41
D3	**At Port**						
	Customs Clearance and Technical Control	1.1 days	$60	*Most* 1.0 days	*Korea* $30	0.1 days	$30
	Port and Terminal Operations	1.8 days	$303	*Singapore* 1.0 days	*Singapore+* $180	0.8 days	$123
	TOTAL	**4. 9 days**	**$935**	**3.8 days**	**$639**	**1.1 days**	**$296**

* Costs are based on the assumption that the traded product travels in a dry-cargo, 20-foot, full container load. It is not hazardous and does not require refrigeration, which is equivalent of the assumption in *Doing Business*.

Emerging Economies: Export Cost and Time Savings

Emerging economies are benchmarked against best practices achieved by best-in-APEC emerging economies. Note, however, that documentation-related costs can realistically meet developed economy benchmarks, as labor costs are lower in emerging economies. Export times and costs in emerging economies could potentially be improved by 2.6 days and $519, respectively.

Emerging Economy – Export Time and costs

		Current Situation		Best Practice		Potential Savings	
		Time (Avg)	Cost (Avg)	Time	Cost	Time	Cost
E1	**At Desk**						
	Documentation	*Time at Desk is part of usual operations*	$178	*Time at Desk is part of usual operations*	*Korea* $60	N/A	$118
E2	**On Road**						
	Inland Transportation	2.6 days	$517	*Chile* 2.0 days	*Top 5* $228	0.6 days	$197
E3	**At Port**						
	Customs Clearance and Technical Control	2.1 days	$134	*Thailand* 1.0 days	*Korea* $30	1.1 days	$104
	Port and Terminal Operations	2.9 days	$185	*Indonesia+* 2.0 days	*China* $85	0.9 days	$100
	TOTAL	**7.6 days**	**$1,014**	**5.0 days**	**$403**	**2.6 days**	**$519**

* Costs are based on the assumption that the traded product travels in a dry-cargo, 20-foot, full container load. It is not hazardous and does not require refrigeration, which is equivalent of the assumption in *Doing Business*.

Developed Economies: Import Cost and Time Savings

Import times and costs in developed economies could potentially be improved by 1.0 days and $321, respectively.

Developed Economy – Import Time and Costs

		Current Situation		Best Practice		Potential Savings	
		Time (Avg)	Cost (Avg)	Time	Cost	Time	Cost
D4	**At Desk**						
	Documentation	*Time at Desk is part of usual operations*	$169	*Time at Desk is part of usual operations*	*Korea* $60	N/A	$109
D5	**At Port**						
	Customs Clearance and Technical Control	1.1 days	$70	*Most* 1.0 days	*Korea* $30	0.1 days	$40
	Port and Terminal Operations	1.7 days	$311	*Singapore* 1.0 days	*Singapore+* $180	0.7 days	$131
D6	**On Road**						
	Inland Transportation	2.0 days	$410	*Singapore* 1.8 days	*Average* $369	0.2 days	$41
	TOTAL	**4.8 days**	**$960**	**3.8 days**	**$639**	**1.0 days**	**$321**

* Costs are based on the assumption that the traded product travels in a dry-cargo, 20-foot, full container load. It is not hazardous and does not require refrigeration, which is equivalent of the assumption in *Doing Business*.

Emerging Economies: Import Cost and Time Savings

Import times and costs in emerging economies could potentially be improved by 3.0 days and $788, respectively.

Emerging Economy – Import Time and Costs

		Current Situation		Best Practice		Potential Savings	
		Time (Avg)	Cost (Avg)	Time	Cost	Time	Cost
E4	**At Desk**						
	Documentation	*Time at Desk is part of usual operations*	$189	*Time at Desk is part of usual operations*	*Korea* $60	N/A	$129
E5	**At Port**						
	Customs Clearance and Technical Control	3.0 days	$169	*Thailand* 2.0 days	*Korea* $30	1.0 days	$139
	Port and Terminal Operations	3.4 days	$311	*Thailand+* 2.0 days	*China* $80	1.4 days	$231
E6	**On Road**						
	Inland Transportation	2.6 days	$517	*Chile* 2.0 days	*Top 5* $228	0.6 days	$289
	TOTAL	**9.0 days**	**$1,186**	**6.0 days**	**$398**	**3.0 days**	**$788**

* Costs are based on the assumption that the traded product travels in a dry-cargo, 20-foot, full container load. It is not hazardous and does not require refrigeration, which is equivalent of the assumption in *Doing Business*.

Estimating Time and Cost at Desk (D1, E1, D4, E4)

Time at Desk is not factored into our calculations as it is assumed to be a normal part of business operations. The costs associated with producing these documents is captured in our calculations as Cost at Desk.

	Exports		Imports	
	Documents (#)	Cost (US$)	Documents (#)	Cost (US$)
Developed :				
Rep. of Korea	3	60	3	60
Singapore	4	105	4	88
Hong Kong	4	90	4	95
New Zealand	7	205	5	175
Canada	3	225	4	185
Japan	4	110	5	200
United States	4	190	5	205
Chinese Taipei	5	185	6	240
Australia	6	285	5	269
Emerging :				
Malaysia	7	85	7	85
Viet Nam	6	125	8	95
Peru	6	150	8	150
The Philippines	8	150	8	170
Chile	6	135	7	185
Russia	8	200	13	200
Indonesia	5	210	6	210
Mexico	5	200	4	230
P. R. of China	7	250	5	260
Thailand	4	270	3	300

Source: International Finance Corporation (2011), Doing Business Report.

The Republic of Korea is the leader in electronic customs procedures and has the least number of documents.

Because electronic customs procedures is a best practice that can be applied across economies, we benchmarked all economies – developed and emerging – to the costs incurred by Korea.

Time and Cost at Desk – Best Practice

	Best Practice	Time	Cost
D1	Korea	N/A	$60
E1	Korea	N/A	$60
D4	Korea	N/A	$60
E4	Korea	N/A	$60

Estimating Time on Road (D2, E2, D6, E6)

Time on road is impacted by the quality of road infrastructure and the quality of transportation and logistics services. In our estimates, time on road was calculated by using an average distance of 150 km.

Road Infrastructure vs. Income Level

ETI score (Quality of Roads)	Group by Income Level (*Doing Business*)		
	Developed (High)	Emerging (Medium-high)	Emerging (Medium-low)
7.0-5.6	Singapore (6.7) Hong Kong (6.6) United States(5.9) Korea (5.8) Chinese Taipei(5.8) Canada (5.7) Japan (5.6)	Chile (5.8)	
5.5-4.0	Australia (5.0) New Zealand (4.6)	Malaysia(5.5) Mexico (4.0)	Thailand (5.0) China (4.2)
0.0-3.9		Russia (2.4)	Indonesia (2.9) Peru (2.9) Philippines(2.8) Viet Nam (2.8)

Based on ETI scores for Quality of Roads, we determined that Singapore was the best practice economy. Among emerging economies, Chile was used as the best practice.

Quality of Roads is correlated to shorter time in economies whose distance is less than 250 km. As such, we measured Time on Road based on 150 km distance using the following equation:

Days on Road (Distance = 150 km) = [- 0.57 + 0.01 * Distance (in km) + 0.37 * Quality of Roads (ETI score)] * Distance

This equation was identified by a careful analysis of the relationship between speed and distance (see next page).

Time on Road - Best Practice

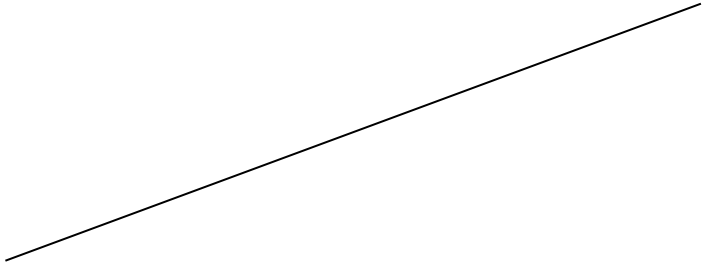
	Best Practice	Time
D2	Singapore	1.8 days
E2	Chile	2.0 days
D6	Singapore	1.8 days
E6	Chile	2.0 days

Additional Note on Time on Road (D2, E2, D6, E6)

Speed of transportation is partly determined by the quality of road if the distance is between 75 km to 225 km.

$$Speed\ in\ Transportation\left[\frac{km}{h}\right] = -0.5716 + 0.0104\ Distance\ [km] + 0.3720\ Quality\ of\ Roads\ [ETI, 1-7]$$

Regression Statistics	
Multiple R	0.7518
R Square	0.5652
Adjusted R Square	0.5194
Standard Error	0.7854
Observations	22



ANOVA

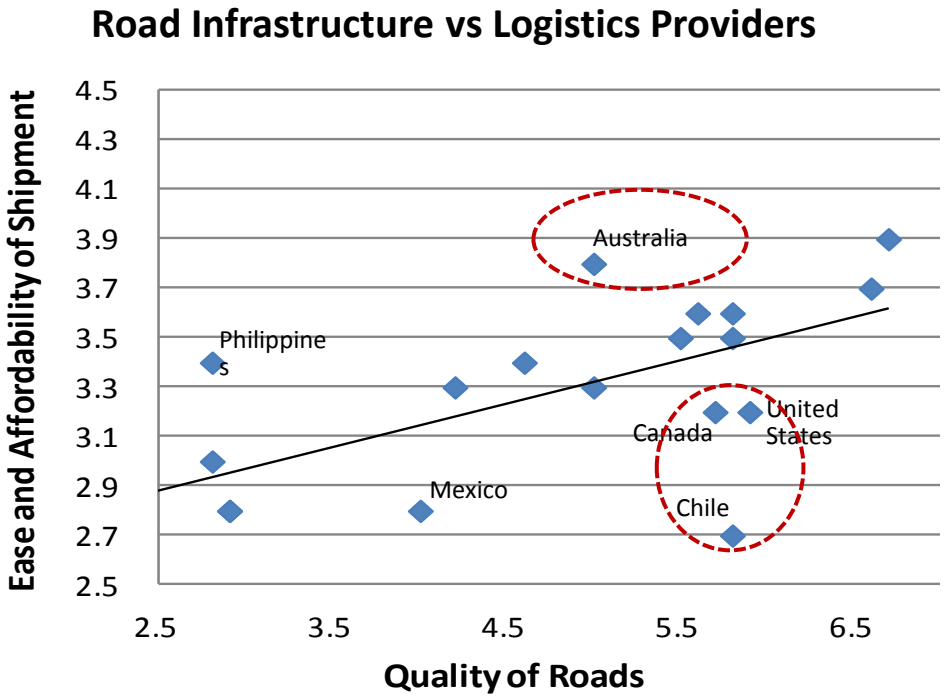
	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	15.2327	7.6164	12.3484	0.0004
Residual	19	11.7190	0.6168		
Total	21	26.9517			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-0.5716	0.7348	-0.7779	0.4462	-2.1095	0.9663
Distance (km)	0.0104	0.0031	3.3320***	0.0035	0.0039	0.0170
ETI Score (1-7)	0.3720	0.1373	2.7102 **	0.0139	0.0847	0.6593

	Speed (km/h) (LPI)	distance (km) (LPI)	Quality of Roads (ETI, 1-7)
Japan [IM]	3.13	75.00	5.6
New Zealand	2.48	75.00	4.6
Peru	1.54	75.00	2.9
Thailand	1.97	75.00	5.0
Philippines [IM]	1.72	75.00	2.8
Hong Kong [IM]	1.93	75.00	6.6
Japan	3.13	75.00	5.6
Singapore [IM]	1.76	75.00	6.7
Thailand [IM]	1.19	75.00	5.0
Philippines	0.63	75.00	2.8
Hong Kong	2.90	119.06	6.6
Taiwan	4.73	150.00	5.8
China [IM]	2.53	155.68	4.2
China	2.46	163.74	4.2
Malaysia	2.72	172.30	5.5
Peru [IM]	1.97	179.30	2.9
Korea	4.95	188.99	5.8
Korea [IM]	3.94	188.99	5.8
Taiwan [IM]	3.82	188.99	5.8
Chile	2.35	196.03	5.8
Malaysia [IM]	3.21	212.13	5.5
Singapore	4.30	224.07	6.7

Additional Note on Time on Road (D2, E2, D6, E6)

It is important to note that while Chile's Quality of Roads ETI score was considered best practice for emerging economies, Chile's time on road is higher than our expected estimate. This is because Chile has a lower Quality of Logistics Services - the second driver of Time on Road.



Quality of Roads and Quality of Logistics Services (or Ease and Affordability of Shipment) are highly correlated. There are some outliers, such as Australia, Canada and Chile.

	Distance (km)	Lead Time (days)	Infrastructure (ETI score)	Providers (ETI score)
Australia	333	2.7	5.0	3.8
Canada	429	3.3	5.7	3.2
Chile	354	3.3	5.8	**2.7**

For the purposes of our analysis, we determined what the Time on Road in Chile *would be* if the quality of logistics services were on par with their quality of roads.

Estimating Cost on Road (D2, E2, D6, E6)

Cost on Road is determined by Cost per Day and Time on Road (in days). Cost per Day, in the most part, cannot be improved, as these costs are primarily a result of labor and fuel costs. However, by increasing efficiency and reducing the Time on Road, savings can be captured.

Economy	Cost/day (USD$)		
Developed :			
Singapore	128		
New Zealand	132		
Korea	158		
Canada	178	Avg.	
Chinese Taipei	180	205	
Hong Kong	185		
Australia	223		
United States	258		
Japan	402		
Emerging :			
Malaysia	85		
Thailand	97	Avg.	
China	99	114	
Indonesia	123		Avg.
Peru	165		199
Viet Nam	215		
Russia	242	Avg.	
Chile	286	284	
Philippines	295		
Mexico	381		

Total Cost for Inland transportation

Developed Economies

Cost per Day = Cannot be improved as primarily determined by labor and fuel costs.
Time (days) = 1.8 days
Cost on Road = $205 (average) x 1.8 days = $369

Emerging Economies

Cost per Day = Considering that labor costs are generally lower in emerging economies, there should be room for improvement for the lower five economies on this metric. As such, we calculated best practice based off the average for the top five economies ($114).
Time (days) = 2.0 days
Cost on Road = $114 (average) x 2.0 = $228

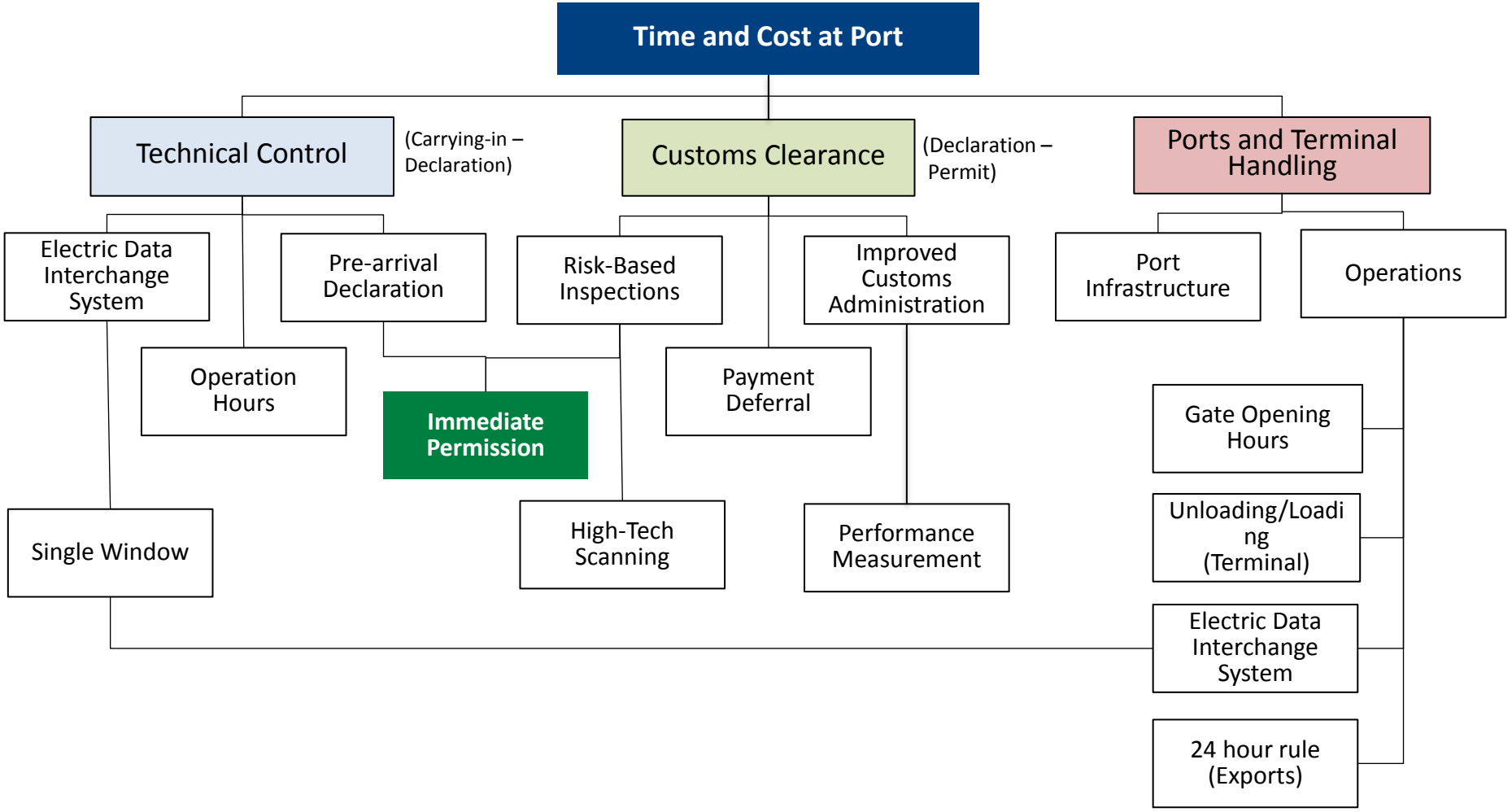
Cost on Road - Best Practice

	Best Practice	Cost
D2	Average	$369
E2	Top 5 Average	$228
D6	Average	$369
E6	Top 5 Average	$228

Source: IBISWorld (2011, July), Industry Report 48899, Freight Packing & Logistics Services in the US.

Drivers of Time and Cost at Port

At Port represents the most significant areas for improvement in regards to both time and cost. As such, it is important to understand the drivers of this chokepoint:



Source: Doing Business 2006 – 2011, International Finance Corporation (2006 – 2011),

Estimating Time at Port (D3, E3, D5, E5): Customs Clearance & Technical Control

Time at Port is comprised of two parts: Customs Clearance and Technical Control and Port and Terminal Operations. With Customs Clearance and Technical Control, most developed economies have little area of improvement. Most emerging economies, however, can potentially achieved substantial improvements.

Time for Clearance & Technical Control

Export	Import (days)		
(days)	1	2	3+
1	Australia Canada Hong Kong Chinese Taipei Korea New Zealand United States Singapore	Thailand	Indonesia
2		Japan Malaysia Mexico Philippine	Chile China (2,4) Peru
3			Russia (3,4) Viet Nam (4,4)

All of the developed economies (shown in green), with the exception of Japan, are at the best practice level of 1 day for customs clearance and technical control.

Among emerging economies, Thailand presents the best practice with 2 days.

Time for Clearance & Control - Best Practice

	Best Practice	Time
D3	Most Developed Economies	1.0 days
E3	Thailand	1.0 days
D5	Most Developed Economies	1.0 days
E5	Thailand	2.0 days

Estimating Cost at Port (D3, E3, D5, E5): Customs Clearance & Technical Control

Cost at Port is also comprised of two parts. The first part is the costs incurred to clear customs and technical control procedures, the second, port and terminal operations.

Cost for Clearance & Technical Control

	Exports		Imports	
	Time (days)	Cost (US$)	Time (days)	Cost (US$)
Developed :				
Rep. of Korea	1	30	1	30
Singapore	1	31	1	31
Hong Kong,	1	50	1	40
New Zealand	1	50	1	50
Canada	1	35	1	75
Chinese Taipei	1	80	1	80
United States	1	60	1	90
Japan	2	160	2	115
Australia	1	45	1	120
Emerging :				
Chile	2	50	3	50
Malaysia	2	65	2	65
P.R. of China	2	70	4	70
Thailand	1	50	2	75
Viet Nam	4	100	4	95
Peru	2	100	3	120
Indonesia	1	169	4	125
The Philippines	2	85	2	185
Mexico	2	150	2	400
Russia	3	500	4	500

The Republic of Korea is the leader in electronic customs procedures[1], which results in lower costs.

Because electronic customs procedures is a best practice that can be applied across economies, we benchmarked all economies – developed and emerging – to the costs incurred by Korea.

Cost for Clearance & Control - Best Practice

	Best Practice	Cost
D3	Korea	$30
E3	Korea	$30
D5	Korea	$30
E5	Korea	$30

Source: International Finance Corporation (2011), Doing Business Report.

Estimating Time at Port (D3, E3, D5, E5): Port & Terminal Operations

The second part of Time at Port is determined by port and terminal operations. Port and terminal operations are, in turn, determined both by port infrastructure and efficiency operations.

	Export Time (days)	Import Time (days)
Developed:		
Singapore	**1**	**1**
Chinese Taipei	2	2
Korea	3	2
Japan	2	2
Hong Kong	2	1
New Zealand	2	1
Australia	1	2
United States	2	1
Canada	1	3
Emerging:		
China	3	3
Thailand	3	**2**
Malaysia	3	**2**
Viet Nam	3	4
Indonesia	**2**	6
Mexico	**2**	3
Chile	4	4
Russia	3	**2**
Philippines	3	3
Peru	3	5

For developed economies, Singapore presents the best practice as time for Port and Terminal Operations is 1 day for both import and export. However, other APEC economies have achieved similar levels of efficiency on either the import or export side.

For emerging economies, the best practice in export is Indonesia and Mexico with 2 days and in imports Thailand, Malaysia and Russia with 2 days.

Time for Port & Terminal Ops - Best Practice

	Best Practice	Time
D3	Singapore	1.0 days
E3	Indonesia+	2.0 days
D5	Singapore	1.0 days
E5	Thailand+	2.0 days

Estimating Cost at Port (D3, E3, D5, E5): Port & Terminal Operations

The second component of Cost at Port is a result of port and terminal operations. This is determined by the cost of labor and the availability of capital to purchase equipment such as cranes to boost productivity.

	Export Cost (US$)	Import Cost (US$)
Developed:		
Singapore	**180**	**180**
Chinese Taipei	**180**	**180**
Korea	200	200
Japan	250	250
Hong Kong	265	265
New Zealand	300	300
Australia	350	350
United States	400	420
Canada	600	650
Emerging:		
China	**85**	**80**
Thailand	85	200
Malaysia	135	135
Viet Nam	150	175
Indonesia	165	165
Mexico	170	300
Chile	210	210
Russia	250	250
Philippines	270	200
Peru	330	330

For developed economies, Singapore and Chinese Taipei present best practices as costs for port and terminal operations is the lowest at $180 for both export and import.

For emerging economies, the best practice is China because their costs are the lowest for both export and import. Thailand has matched China's costs for export.

Cost for Port & Terminal Ops - Best Practice

	Best Practice	Cost
D3	Singapore+	$180
E3	China	$85
D5	Singapore+	$180
E5	China	$80

Source: IBISWorld (2011, March), Industry Report Global Marine Port Operation: H4913-GL.

The "Emerging Economy" Challenge within APEC

The challenge for APEC is to improve supply chains within emerging APEC economies. Emerging APEC economies lag significantly in capacity development and in building supporting institutions. Given the need and APEC's desire to integrate supply chains across all APEC economies, not just the largest and most developed, addressing the challenges and opportunities emerging face is particularly critical.

The table below compares emerging APEC economies with best-in-APEC standards. When compared this way, emerging APEC economies lag substantially. Potential time and cost savings , on average, are 9.5 days and $922.

Emerging Economy – Export/Import Time and Costs

		Current Situation		Best Practice (developed)		Potential Savings	
		Time (Avg)	Cost (Avg)	Time	Cost	Time	Cost
E1	**At Desk**						
	Documentation	*Time at Desk is part of usual operations*	$178	*Time at Desk is part of usual operations*	*Korea* $60	N/A	$118
E2	**On Road**						
	Inland Transportation	2.6 days	$517	*Singapore* 1.8 days	*Average of Developed* $369	0.8 days	$148
E3	**At Port**						
	Customs Clearance and Technical Control	2.1 days	$134	*Most* 1.0 days	*Korea* $30	1.1 days	$104
	Port and Terminal Operations	2.7 days	$185	*Singapore* 1.0 days	*Singapore+* $180	1.7 days	$5
E4	**At Desk**						
	Documentation	*Time at Desk is part of usual operations*	$189	*Time at Desk is part of usual operations*	*Korea* $60	N/A	$129
E5	**At Port**						
	Customs Clearance and Technical Control	2.7 days	$169	*Most* 1.0 days	*Korea* $30	1.7 days	$139
	Port and Terminal Operations	3.4 days	$311	*Singapore* 1.0 days	*Singapore+* $180	2.4 days	$131
E6	**On Road**						
	Inland Transportation	2.6 days	$517	*Singapore* 1.8 days	*Average of Developed* $369	0.8 days	$148
	TOTAL	**17.1 days**	**$2,200**	**7.6 days**	**$1,278**	**9.5 days**	**$922**

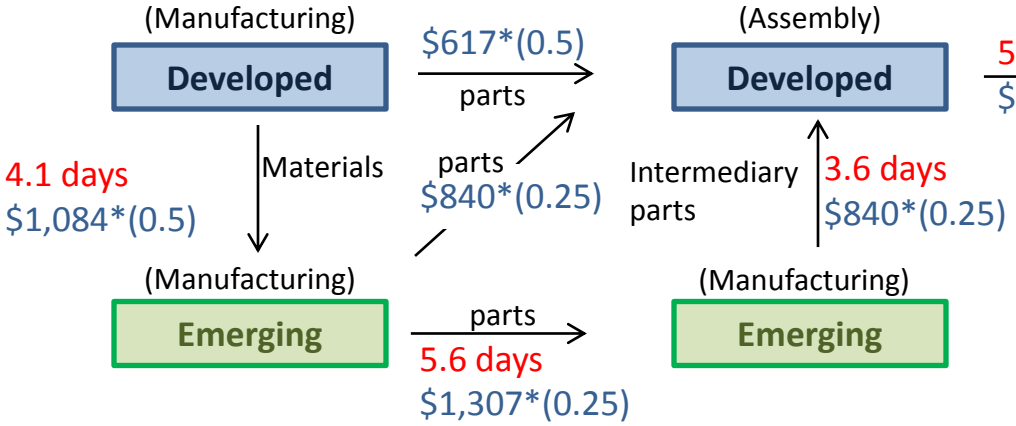
Multiplied Cost and Time Savings in Complex Supply Chains

Most global supply chains require the coordinated movement of parts / components and final goods between and across multiple economies. This multiplies and compounds the impact of any supply chain inefficiencies. Below shows a sample calculation comparing cost and time savings in a simple supply chain against a complex supply chain.

Agriculture

Potential Time Saving: **5.6 days**
Potential Cost Saving: **$1,307**

Manufacturing

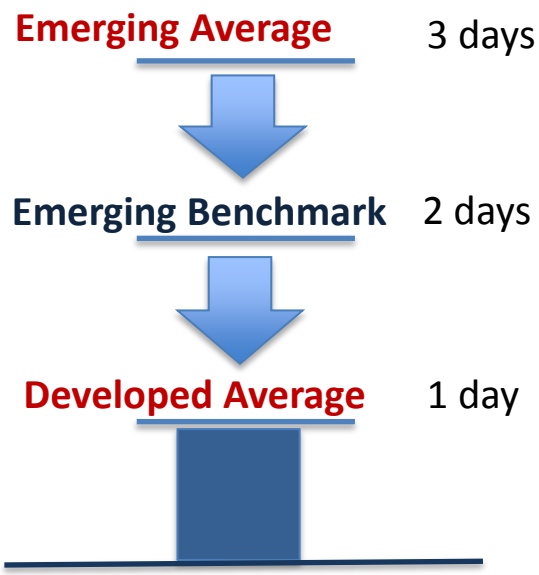


Potential Time Saving: **17.4 days**
Potential Cost Saving: **$2,681**

Analysis: Time at Port in Emerging Economies – measuring the impact of Customs Clearance

- Differences in the time for customs clearance and technical control between the emerging economy benchmark and the other emerging economies is explained primarily by the difference in the customs clearance time for imported goods without physical inspection. Emerging economies with best practices have customs clearance time of 0.7 days, whereas other emerging economies average 1.8 days for customs clearance.
- Only a one day improvement can be explained by the difference in customs clearance efficiency. The second day difference between emerging and developed economies is explained by differences in technical control.

Customs Clearance and Technical Control
(Doing Business)



Customs Clearance Time (excluding technical control)
(Logistics Performance Index)

	Without Physical Inspection (days)	With Physical Inspection (days)	Rate of Physical Inspection (%)	Weighted Average (days)
Emerging Economy Average	1.4	3.1	18	1.8
- Economies not achieving best practice	1.8	3.7	23	2.2
- Economies achieving best practice (Chile, Malaysia and Thailand)	0.7	1.6	6	0.7
Developed	0.6	1.4	3	0.6
- Hong Kong	0.3	0.6	2	0.3

1.1 days

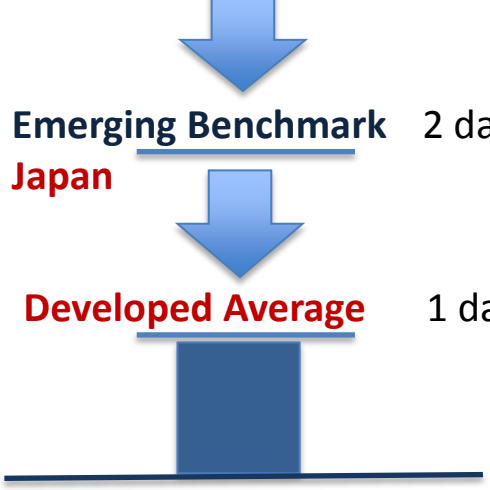
0.1 days

(Note) Time taken between the submission of an accepted customs declaration and notification of clearance.

Case Study: Japan Decreases Time at Port

Emerging economies currently average 3 days for customs clearance and technical control, and another 3 days for port and operations handling. Our analysis concludes that emerging economies could realistically reach the benchmarked best practice of 2 days. This appears to be feasible based on Japan's experience of reducing these metrics to 2 days each.

Customs Clearance and Technical Control
(Doing Business)



Improvements in Japan Customs
(Time Release Survey)

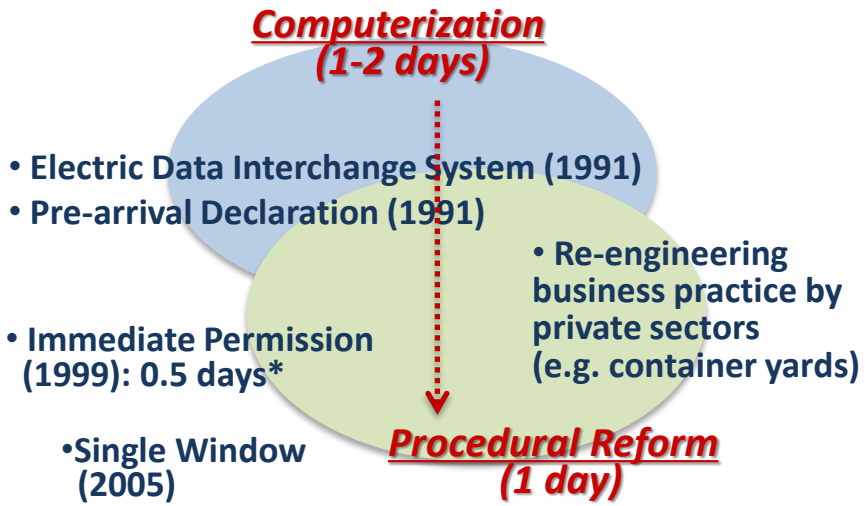
5.0 days (in 1991)

3.2 days (in 1993)

1.8 days (in 2001)

1.5 days (in 2009)

0.7 days (estimated)
**Under 7 day operation



Computerization provided the foundation for Procedural Reform. For example, immediate permission is the system that allows importers using electrical pre-arrival declaration to pass through customs area, which means no time for technical control.

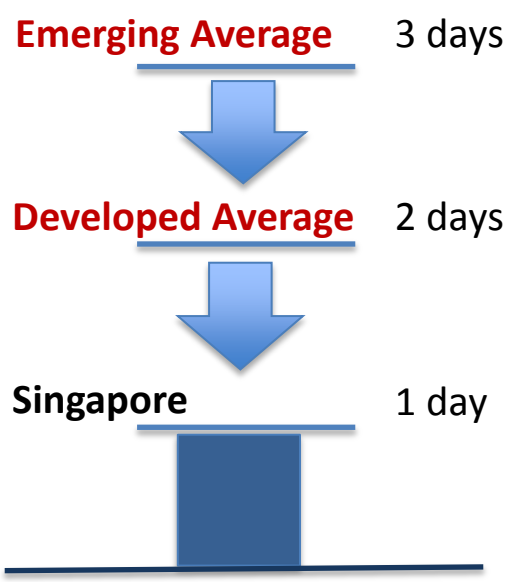
* The difference in the time for customs clearance between in 1998 and in 2001 is 0.5 days.
** The current time data for without weekend operation is used.

Source: APEC (2007). Time Release Survey in Japan - How to Measure and Use Performance (SCCP/ACBD/006).

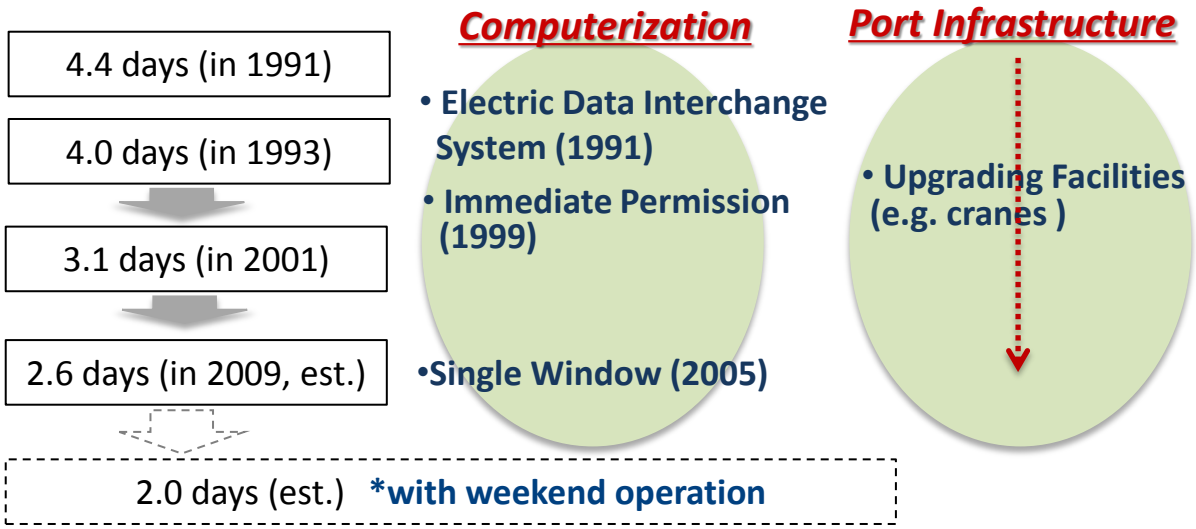
Case Study: Japan Decreases Time at Port

Through computerization and investment in port infrastructure, Japan was able to decrease time required for port and terminal operations.

Ports and Terminal Operations
(Doing Business)



Development in Japan Ports and Terminal Operations
(Time Release Survey)



Singapore's Best Practice

- **Fully integrated single window system**:
  - According to WCO survey, Only Singapore and Indonesia covered all trade-related government agencies' procedures in 2010.) More about Single Window on **Slide 114**.
- **Good port infrastructure:**
  - Quality of Ports (ETI score): 6.8 (out of 7.0)

Source: APEC (2007). Time Release Survey in Japan - How to Measure and Use Performance (SCCP/ACBD/006).

Impact of APEC Supply Chain Inefficiencies

If the potential time and cost savings identified in our analysis in APEC supply chain are generalized and interpreted as existing inefficiencies and capacity development lags, the estimated cost to economies and their firms can be substantial.

- Removing supply chain inefficiencies are more important to emerging economies and economies heavily dependent on trade.
  - In 2004 an APEC study estimated that a 10% improvement in supply chains between the borders (port to port) of APEC economies would increase APEC GDP by 0.1% ($21 billion). For trade-dependent developed APEC economies this improvement was as large as 0.3%. For emerging economies in Asia the impact was as large as 0.5%.
  - The scope of this research study did not permit an analysis of behind the border and at the border impact on GDP. *Our* analysis suggests that behind the border and at the border, supply chain inefficiencies do have a real impact on GDP, particularly in emerging economies. While we cannot accurately estimate the magnitude we do believe it to be equal to or greater than the APEC study estimates. Importantly, removing inefficiencies at the border in customs services and port administrations are substantially easier to achieve than removing inefficiencies in across the border trade.
- An empirical study has estimated that each day saved in the supply chain increases export values of manufactured goods by 0.8 – 1%.
  - Using this finding, our study indicates that improved supply chains between emerging market could increase export values by 4 – 5% with time savings of 5.6 days.
  - For complex supply chains operating across multiple emerging economies, this improvement could increase export values by 8 – 10%.
- For agricultural goods, supply chain inefficiencies are even more critical. Unnecessary delays can destroy the entire value of shipments.
  - Agricultural firms interviewed reported that when deciding whether to export to certain economies and set prices, end-to-end supply chain efficiency and the potential for variability are extremely important factors.

Source: The Centre for International Economics (2009, May), Supply-Chain Connectivity Across APEC: Identifying and Prioritising Choke Point.
D.Hummels (2001, July), Time as a Trade Barrier.

Key Findings

Slack in the Regional Supply Chain

For the movement of a product across the supply chain, substantial improvements in time and cost could be realized with reduction of inefficiencies. Although these numbers vary based on trading partners involved , the emerging economies have larger potential savings in time and cost.

POTENTIAL SAVINGS	Developed Economy (Import)	Emerging Economy (Import)
Developed Economy (Export)	2.1 Days / Shipment $617 / Container (20ft)	4.1 Days / Shipment $1,084 / Container (20ft)
Emerging Economy (Export)	3.6 Days / Shipment $840 / Container (20ft)	5.6 Days / Shipment $1,307 / Container (20ft)

Directional focus for the APEC Region: Biggest Chokepoints exist at ports

For emerging economies, port operations and customs clearance appear to show the largest levels of potential improvement in time. This is particularly evident in customs clearance since large deviations exist between economies in the current state. The difference is mainly explained by the fact that some emerging economies required an additional day for customs clearance without physical inspection.

For developed economies, port operations show the largest area of improvement. This is purely a fallout of numerical analysis and the root cause is left unexplained. However, our survey and interview data suggest that port infrastructure, hours of operation, loading and unloading processes, electronic data interchange systems (e.g. Single Window), and security procedures are potential sources of this inefficiency.

Cost reduction from electronic systems at port

Realizing cost reductions for both emerging and developing economies is possible through the implementation of electronic systems and simplified documentation. Operators in Korea, for example, can create and process all documentation required for import/export for $60 ,while the cost for emerging and developed economies averages $178 and $162, respectively. For Korea, this results in cost savings in customs clearance and technical control, as well. The average clearance charges for exports from emerging economies averages $134 while Korea imposes just $30.

Key Findings

Minimal Impact for Inland Transport

Drastic improvements to time and cost cannot be expected in the area of inland transportation. This is largely due to the fact that businesses have already located manufacturing fronts to minimize the total time required for inland transportation. This clustering effect is magnified in emerging economies to mitigate relatively weaker infrastructure. Another implication of this finding is that production fronts may be limited to those areas with existing infrastructure, driving up localized resource demands and resulting costs.

Detailed Data Required For Rigorous Analysis

In our attempts to quantify the impact of supply chain chokepoints, we discovered that businesses and economies are not capturing relevant data in a holistic manner. There is a need to encourage businesses to track information related to specific chokepoints with an emphasis on standardized data. Additionally, customs officials and logistics providers should be encouraged to gather time and cost data across the entire supply chain. This will ensure that the effects of specific changes within the supply chain can be understood.

Global Supply Chain enabled by cost and time saving

If potential time and cost savings are realized, it would allow for a more complex , but flexible, manufacturing network. Our computation, based on a simple model involving 4 economies in one supply chain, suggests that potential time and cost saving could be 17.4 days and $2,681, respectively. **See page 82.**

Supply chain driven GDP growth

An empirical study suggests that a 1 day reduction in time to export creates 0.8% additional value in exported manufacturing goods. This means the potential time savings of 5 days in trade between emerging economies creates an 4 – 5% additional value for manufacturing goods. This effect is expected to be larger for agricultural products. The effect of the time savings is greater in the countries relying heavily on exports , such as emerging economies in South Eastern Asia or the Newly Industrialized Economies (NIEs).

CHOKEPOINTS

Supply Chain Chokepoints

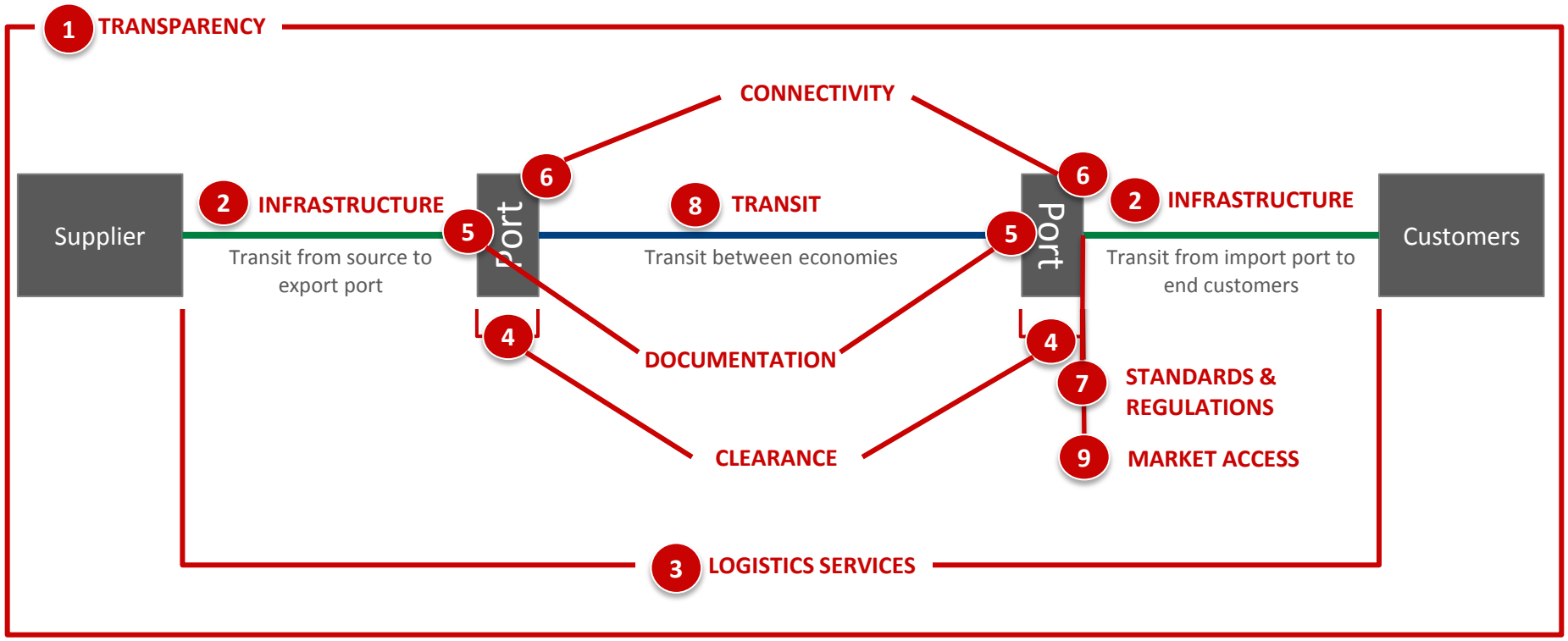
The ABAC Research Team categorized supply chain chokepoints as the following (See **Slide 18** for more information on how these chokepoints were identified):

1	**TRANSPARENCY**	Lack of transparency/awareness of the full scope of regulatory issues affecting logistics; Lack of awareness and coordination among government agencies on policies affecting logistics sector; Absence of single contact point or champion agency on logistics matters.
2	**INFRASTRUCTURE**	Inefficient or inadequate transport infrastructure; Lack of cross border physical linkages; Lack of physical linkages that connects businesses to and from the border (e.g. roads, bridges).
3	**LOGISTICS**	Lack of capacity of local/regional logistics sub-providers.
4	**CLEARANCE**	Inefficient (both costly & timely) clearance of goods at Customs; Lack of coordination among border agencies, especially relating to clearance of regulated goods 'at the border'.
5	**DOCUMENTATION**	Burdensome customs documentation and other procedures (including for preferential trade).
6	**CONNECTIVITY**	Underdeveloped multi-modal transport capabilities; inefficient air, land, and multimodal connectivity.
7	**STANDARDS & REGULATIONS**	Variations in cross-border standards and regulations for movement of goods, services and business travellers.
8	**TRANSIT**	Lack of regional cross-border customs-transit arrangements. Lack of mutual recognition arrangement in customs regulations across Asian regions.
9	**MARKET ACCESS**	NTBs ,NTMs, and tariffs that increase transaction costs and prevent or delay market access.

Source: Asia Pacific Economic Cooperation (2011, March). Supply-Chain Connectivity Action Plans, 23rd Electronic Commerce Steering Committee Group.

Location of Chokepoints within the Supply Chain

The nine chokepoints identified impact the APEC regional supply chain at varying points as goods move from suppliers to the end customers:




TRANSPARENCY & AWARENESS

Impact of Transparency on the Supply Chain

Transparency (language, availability of rules, documents, dispute mechanisms) refers to both border related policies affecting bilateral trade and how these policies are designed and implemented. These principles specify two crucial aspects of trade policy transparency: predictability and simplification.

Issues in Transparency

Costs arising from "before the border drivers" (e.g. NTMs/NTBs)

+

Costs arising from "at the border" drivers (e.g. bribery)

=

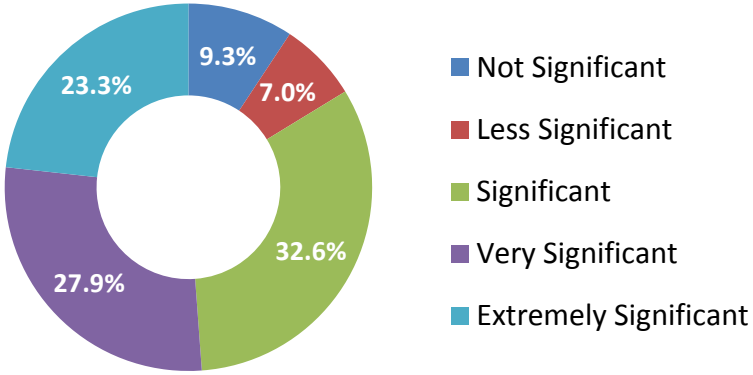
The result of the added time and costs due to lack of transparency are eventually passed on to consumers

Source: Asia Pacific Economic Cooperation (2011, March). Supply-Chain Connectivity Action Plans, 23rd Electronic Commerce Steering Committee Group.

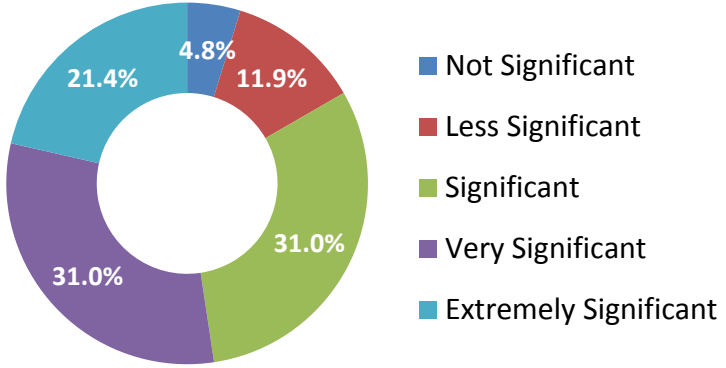
APEC Businesses Believe Regulatory Transparency is a Significant Barrier to Trade

Our survey responses indicated that 83.7% of respondents believed the lack of transparency of regulatory issues created a significant barrier to trade, and 83.3% of respondents found that the numerous trade-related agencies increased cost and complexity of supply chains.

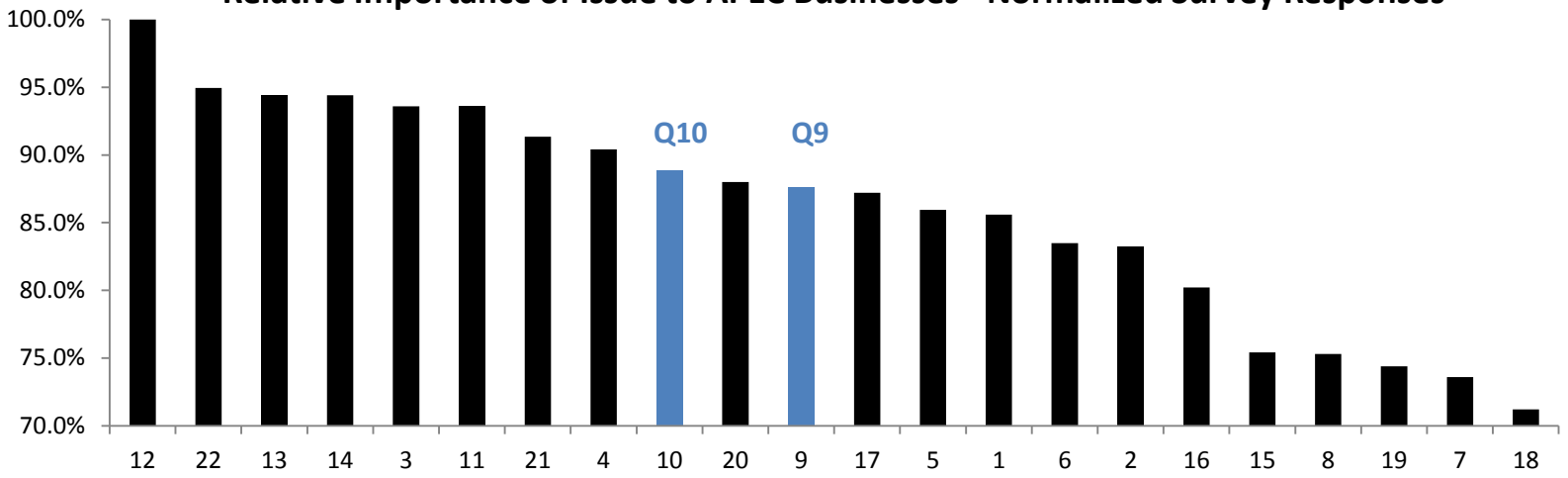
Q9. Lack of Transparency of Regulatory Issues Affecting Logistics



Q10. Numerous Agencies Increasing Supply Chain Cost and Complexity



Relative Importance of Issue to APEC Businesses - Normalized Survey Responses*

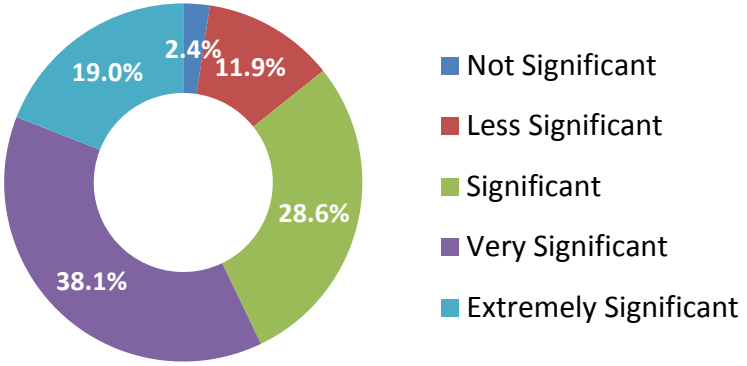


* For explanation of normalized data, see **Appendix C**

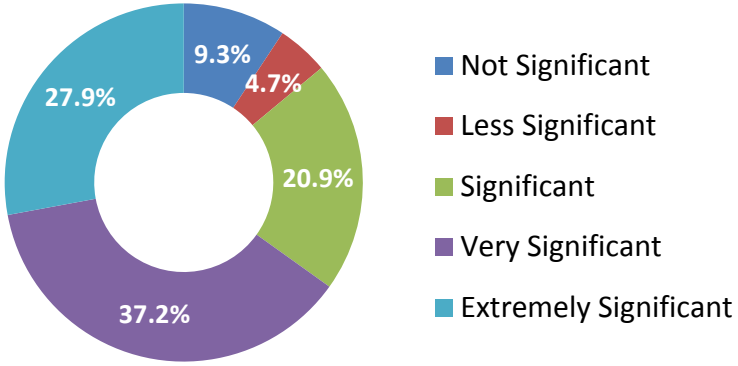
APEC Businesses See Significant Barriers to Trade Stemming From Non-Transparent Regulations

Our survey responses indicated that 85.7% of respondents believed that existing regulations created a significant barrier to trade due to increased confusion and costs, and 86.0% of respondents believed that opportunities for corruption arose from non-transparent regulations. An opportunity exists for the simplification of regulations.

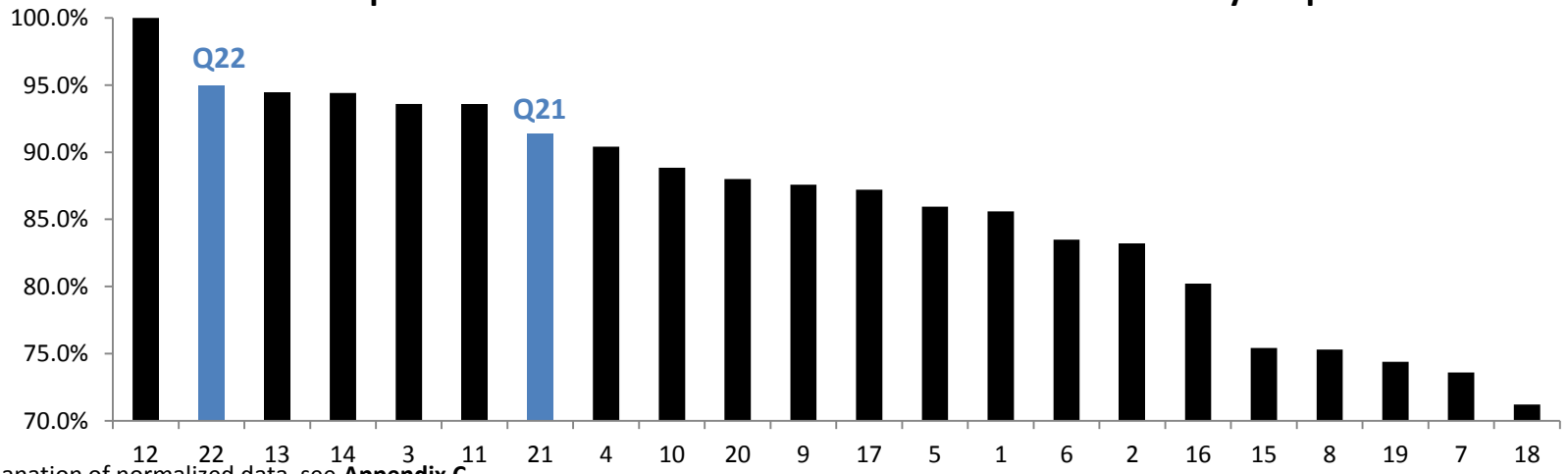
Q21. Presence of Regulations That Lead to Confusion and High Costs



Q22. Presence of Regulations That Create Opportunities for Corruption



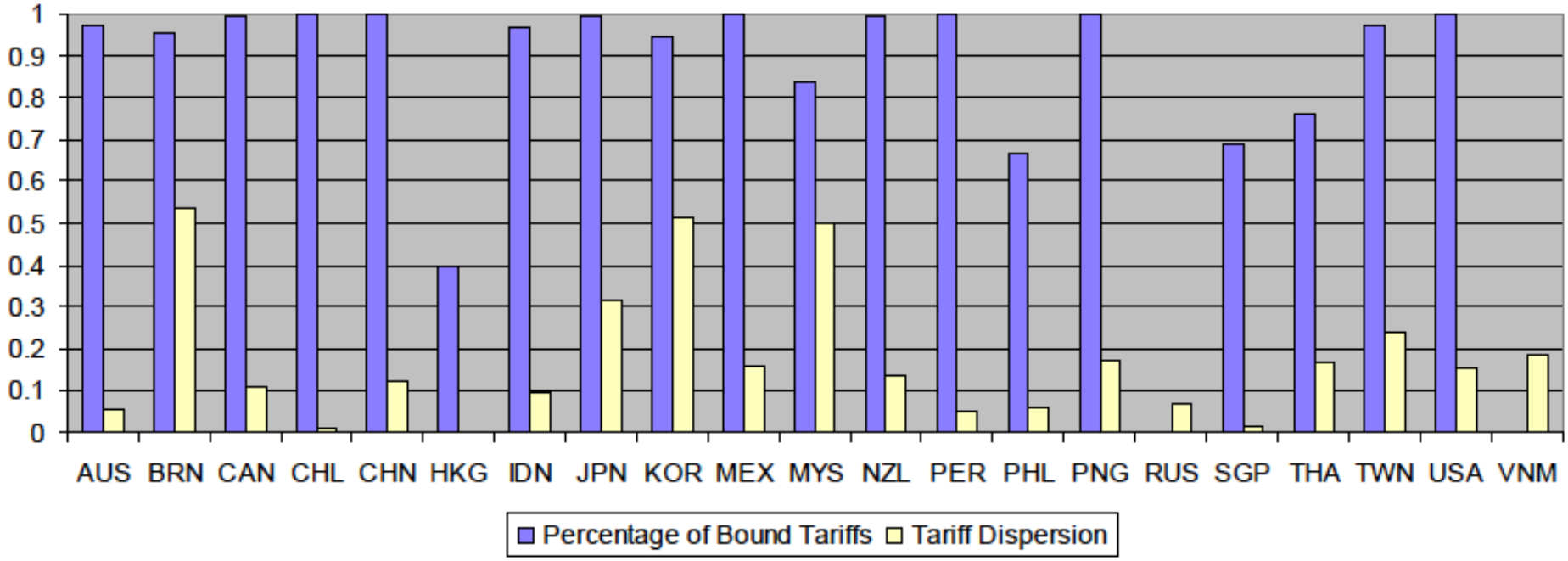
Relative Importance of Issue to APEC Businesses - Normalized Survey Responses*



* For explanation of normalized data, see **Appendix C**

Effects of Predictability and Simplification

The effects of predictability and simplification can be highlighted by examining the "dispersion" of tariff rates across products. Dispersion is the variability of tariffs across goods and services. In other words, the higher the dispersion rate an economy has, the less standardized are the fees associated with trade in that economy. A lower dispersion rate is better.



The table above from Heble, Shepherd, Wilson's *Transparency, Trade Costs, and Regional Integration in the Asia Pacific* report shows the tariff dispersion (white column) for most favored nation tariffs in six product categories for the 21 APEC member economies. Note that for economies with high transparency – Chile (flat tariff for almost every product line), Hong Kong (duty-free trade across all lines), and Singapore – there is a low dispersion rate.

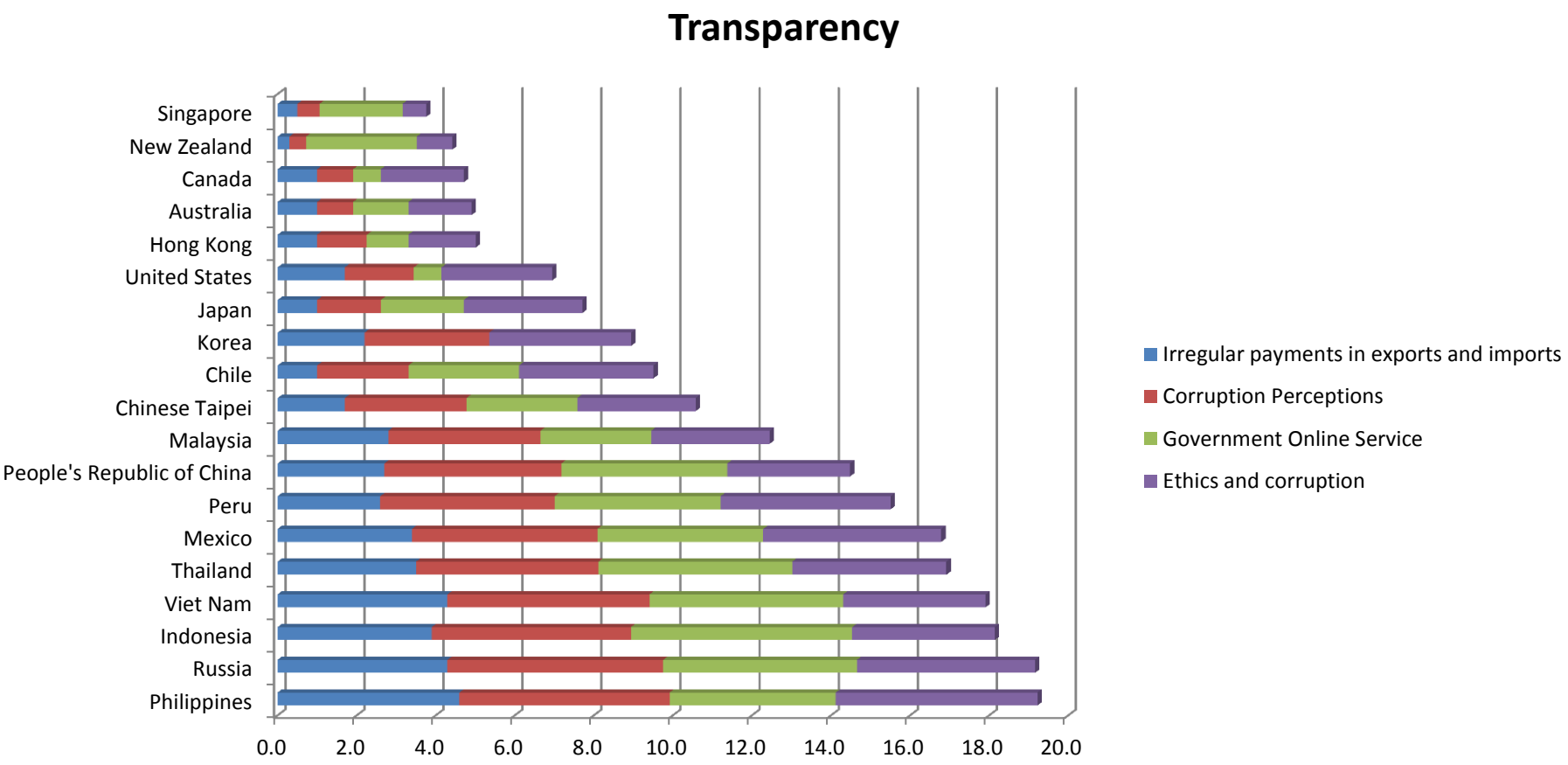
Source: The World Bank (2007, November), Transparency, Trade Costs, and Regional Integration in the Asia Pacific.

Drivers of Issues in Transparency

Chokepoint Drivers	Why Not Easy to Resolve	ABAC Actions
Availability of documents	Documents may not easily be available because of unavailable or inadequate websites, lack of translation skills available, or other channel deficiencies.	Create a central database where all necessary documents are available
Corruption	In economies where corruption is abundant, there is a lack of transparency simply because there is a difference between the publicized process and the actual process. Corruption has several interdependent drivers and is difficult to address.	We perceive this as an issue that must be addressed by domestic leadership.
Lack of rapid dispute mechanism	When there are disputes across borders, these can result in lengthy and costly processes. A rapid dispute mechanism would reduce the ambiguity of entering new markets and thereby, help companies cut costs and shorten time to market.	Implement an APEC arbitration process.
Language	The APEC region represents over 13 official languages, as well as hundreds of regionally accepted dialects and languages, and providing documents in multiple languages can be a challenge, particularly for emerging economies.	Reach agreement with economies regarding an accessible set of languages for which all documents should be translated.
Number of documents	The number of documents varies from economy to economy and varies from importer to exporter. A high number of documents can reduce transparency because it requires more time for businesses to get through all the paperwork.	Review documents for commonalities and create a "Common ABAC Document" that economies can create supplements to for items not addressed.
Politics	Politicians oftentimes utilize less transparent trade measures (NTBs and NTMs) over more transparent measures (tariffs) in order to gain favor among constituents.	Conduct a study on the economic impact to APEC economies due to protectionist policies.

Transparency Rankings by Economy

The Transparency chokepoint incorporates issues of irregular payments for exports and imports, corruption perceptions, government online services, and ethics and corruption. Below are the ETI scores for these sub-pillars.



Source: World Economic Forum (2010). The Global Enabling Trade Report.

Voice of Business on Transparency Issues

Through our interviews with business leaders and subject-matter experts in APEC economies, we collected the following anecdotes:

"Processes [in Russia] change based on different factors, but it's mainly based on the level of corruption and the power of the company."

Multinational Company, Russia

"One complaint we heard was in regards to a situation where Indonesia changed a technical standard, but did not offer it in English. The document was only available in Indonesia, and so the company had not been able to comply."

Trade Organization, Chinese Taipei

"I expect further reduced cost of doing business could be achieved through widespread post-declaration, higher de minimis levels, reduced single-entry requirements, and greater transparency in clearance requirements."

Logistics Company, United States

"One of the biggest problems is cultural differences. Some economies have a different definition of 'lying'."

Resources Company, Chile

Key Takeaway

Lack of transparency is due to myriad reasons, including corruption, language and cultural differences. However, regardless of the source, the lack of predictability that is created through poor transparency impacts business negatively.

Lack of Transparency Impacts Other Chokepoints and Consumers

Key Findings

- Transparency, in particular predictability and simplification, affects border transaction costs, time, and decisions on whether to enter a market or not.
- Transparency impacts multiple chokepoints, including clearance, documentation, standards and regulations, and logistics.
- Information needs to be available in accessible locations (e.g. website) and in multiple languages to increase transparency in the APEC region.
- Costs associated with lack of transparency are usually carried through the supply chain and passed on to the end consumer.

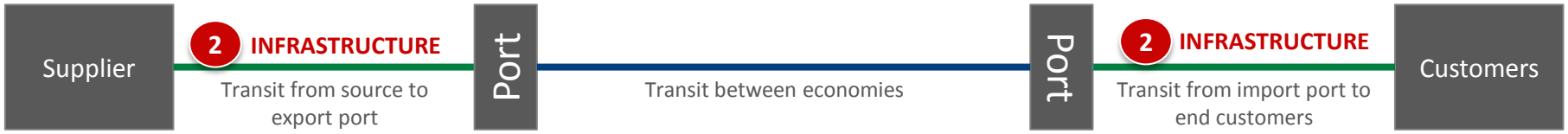
What ABAC Can Do

- Create a central database where all necessary documents are available.
- Implement an APEC arbitration process to resolve disputes.
- Reach agreement with economies regarding an accessible set of languages for which all documents (e.g. customs) should be translated to.
- Review documents for commonalities and create a "Common ABAC Document" that economies can create supplements to for items not addressed.
- Conduct a study on the economic impact to APEC economies due to protectionist policies.


INFRASTRUCTURE

Impact of Infrastructure on the Supply Chain

Infrastructure refers to the physical transport assets that facilitate economic activity and trade. This includes roads, railroads, bridges, seaports and airports.



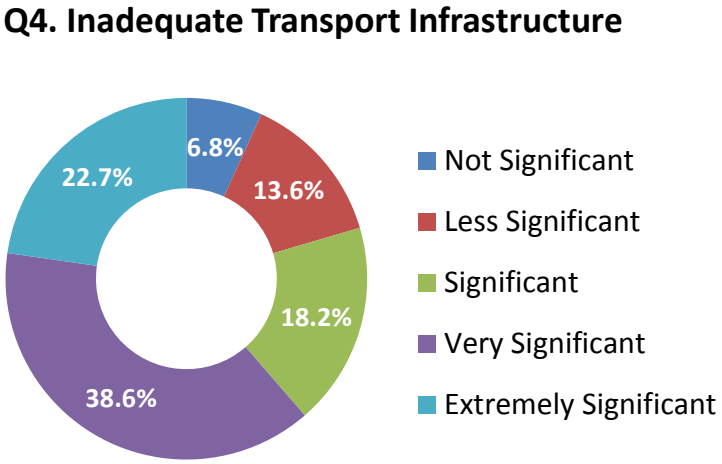
Issues in Infrastructure

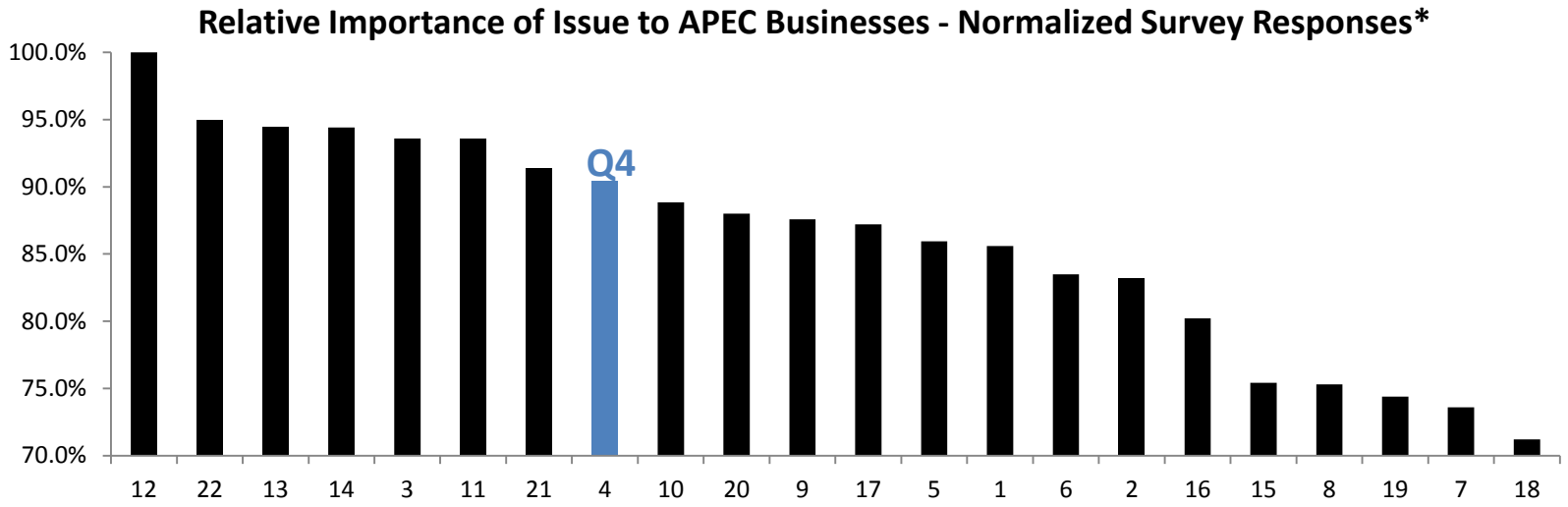
There are two critical components of infrastructure. First, the infrastructure projects must be properly funded through public and private resources. Second, there must be a structure in place to ensure that these assets are properly maintained.

Source: Asia Pacific Economic Cooperation (2011, March). Supply-Chain Connectivity Action Plans, 23rd Electronic Commerce Steering Committee Group.

APEC Businesses Believe Inadequate Infrastructure is a Significant Barrier to Trade

Our survey responses indicated that 79.5% of respondents believe that inadequate transport infrastructure was a significant barrier to trade.





* For explanation of normalized data, see **Appendix C**

Infrastructure: Time and Cost

Infrastructure can become a supply chain chokepoint when the physical assets are unavailable, inaccessible, or inadequately maintained. This can present the following costs, time delays, and uncertainty-related issues to businesses:

Cost	Time	Uncertainty
▪ *Direct monetary outlays* on communications, business travel, freight, insurance, and logistics services are affected by the quality of infrastructure and the cost and quality of related services	▪ *Timeliness*, even more than freight rates, is likely to be influenced by geography and infrastructure.	▪ *Risk* of damaged cargo and resulting increased losses and insurance costs is higher when infrastructure quality is poor. ▪ *Lack of access* to transport or telecommunication services can result in high opportunity cost, limited market access, and reduce the likelihood of realizing the full benefits of trade.

Shocking Facts

- Cost varies by stage of economic development: in the US a mile of highway costs an average of $3.6 million while in China it costs $1.3 million.
- For road infrastructure designed to last 30 years, maintenance will be 77% of construction cost.

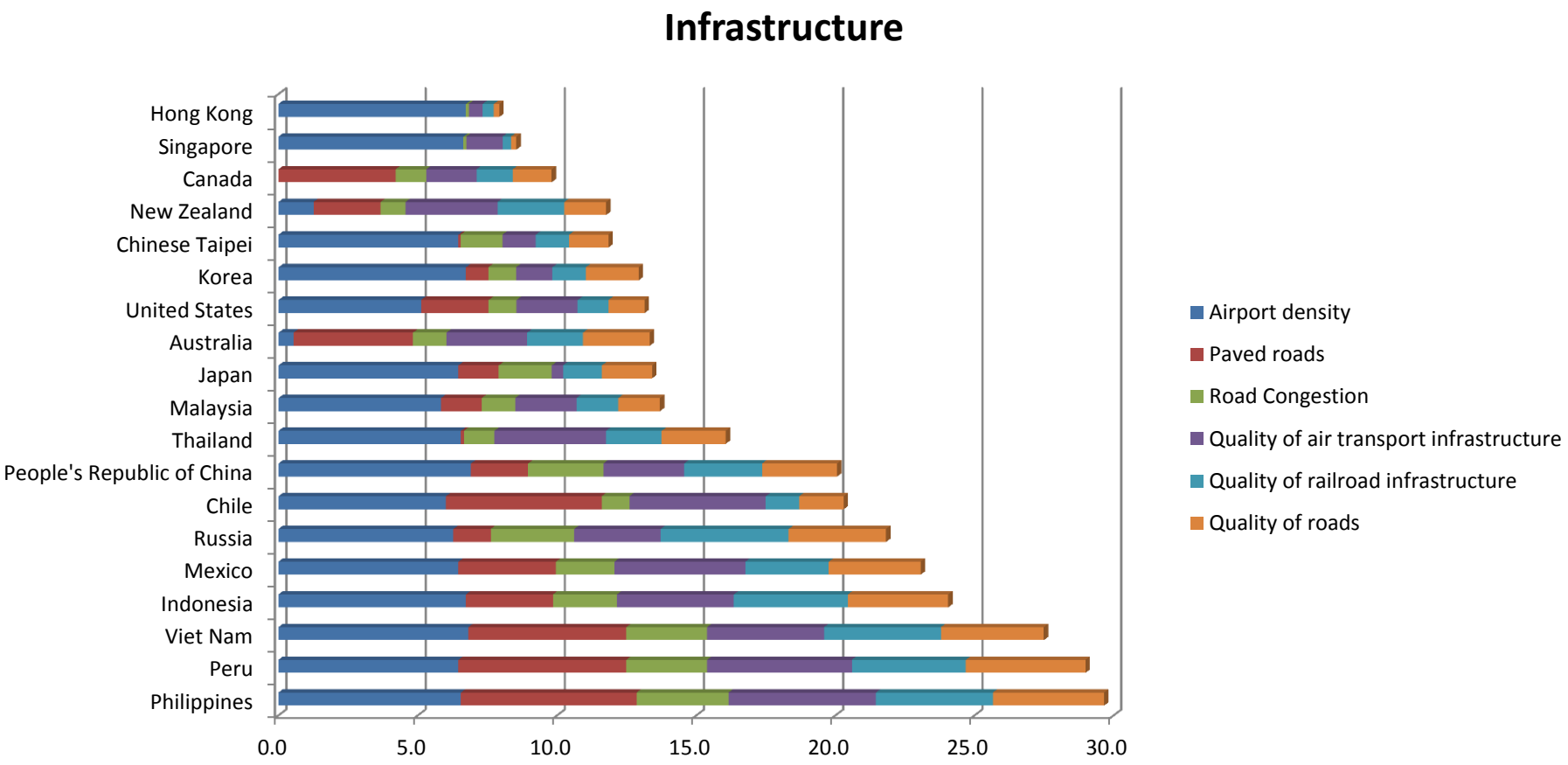
Source: Sacramento Region Metropolitan Transportation Plan Update 2035 (2008).
Russia Now (2011, May). Road-building in Russia six times more expensive than in the US or EU. Retrieved from http://www.telegraph.co.uk/sponsored/russianow/business/8102639/Road-building-in-Russia-six-times-more-expensive-than-in-the-US-or-EU.html referenced September 2011
Nordas, H. & Piermartini, Roberta. World Trade Organization (2004, August). Infrastructure and Trade.

Drivers of Infrastructure Issues

Chokepoint Drivers	Why Not Easy to Resolve	ABAC Actions
Geography	Some economies are blessed with geography that easily facilitates the development of infrastructure. For example, the United States has many natural harbors, navigable harbors, and long stretches of flat terrain. Other economies are not that lucky; Peru has mostly mountainous terrain which has resulted in only two railroads not even linked together.	Geography cannot be changed.
Financing	Another driver of the infrastructure chokepoint is financing projects. There are three main ways of funding new project: publicly financed, privately financed, and a public private partnership (PPP). In a PPP, the project is not sold to the private sector. Rather, the project is leased to private sector and operated through long-term concessions. The public sector retains oversight responsibility and protects the public interest. There are few examples of successful PPPs due to scarcity of private sector financing, and also the inability of government to identify and prepare financially attractive projects.	Focus additional research on the critical factors that drive successful PPP implementations.
Maintenance	A well-maintained road will require an additional 77 percent of construction cost for maintenance. The United States, New Zealand, and Australia have a gas tax which is solely dedicated to highway maintenance. Other economies, such as Canada, have no source of revenue specially designated for maintenance.	Encourage replication of models that generate recurring revenues directly correlated to the use of infrastructure such as the gas taxes in place in the U.S., New Zealand and Australia.
Government spending trade-offs	Another issue of government spending on infrastructure is opportunity cost. The government has a finite budget with unlimited possibilities of how to spend that budget. Each dollar spent on infrastructure is a dollar not spent on social services.	We perceive this as a political issue that ABAC will not be able to make significant in-roads to change. However, ABAC can help educate domestic leaders on the importance of infrastructure investments.

Infrastructure Rankings by Economy

The Infrastructure chokepoint is made up of the issues of airport density, paved roads, road congestion, quality of air transport infrastructure, quality of railroad infrastructure, and quality of roads. Below are the ETI values for these sub-pillars.



Source: World Economic Forum (2010), The Global Enabling Trade Report.

Voice of Business on Infrastructure Issues

Through our interviews with business leaders and subject-matter experts in APEC economies, we collected the following anecdotes:

> "Infrastructure adds 10%-15% to cost of goods as goods go north & south of Lima and 30% when goods go east."
>
> *Large CPG Manufacturer, Peru*

> "It costs 50% more to ship goods to inland China relative to coastal China."
>
> *CEO of Conglomerate, Canada*

> "The improvement in the infrastructure of the Port of Callao has reduced the total time of the inbound process from 8 to 3 days. This reduces average inventory in 7 days, in our case from 45 to 37 days."
>
> *Importer, Peru*

> "Port capacity issues could cause 24 hours of delays due to infrastructure constraints."
>
> *Agriculture Exporter, Peru*

Key Takeaway

Infrastructure issues vary by economy because each economy has different geographic constraints. Also, the lack of adequate infrastructure can create chokepoints in other areas as well, such as logistics capacity.

Best Practice: Coolport @Changi, Singapore

Description: Coolport is the first dedicated on-airport facility in Singapore for handling terminal and transit perishable cargo. With multi-tiered temperature zones ranging from -28C to 19C, Coolport is designed to handle a wide range of fresh produce including chilled meat, live seafood and fresh flowers. More importantly, its secure cool chain logistics process enables Coolport to handle pharmaceutical and biomedical products which require more stringent temperature controls.

Initiated By: Singapore Airport Terminal Services Limited. August 2009-November 2010.

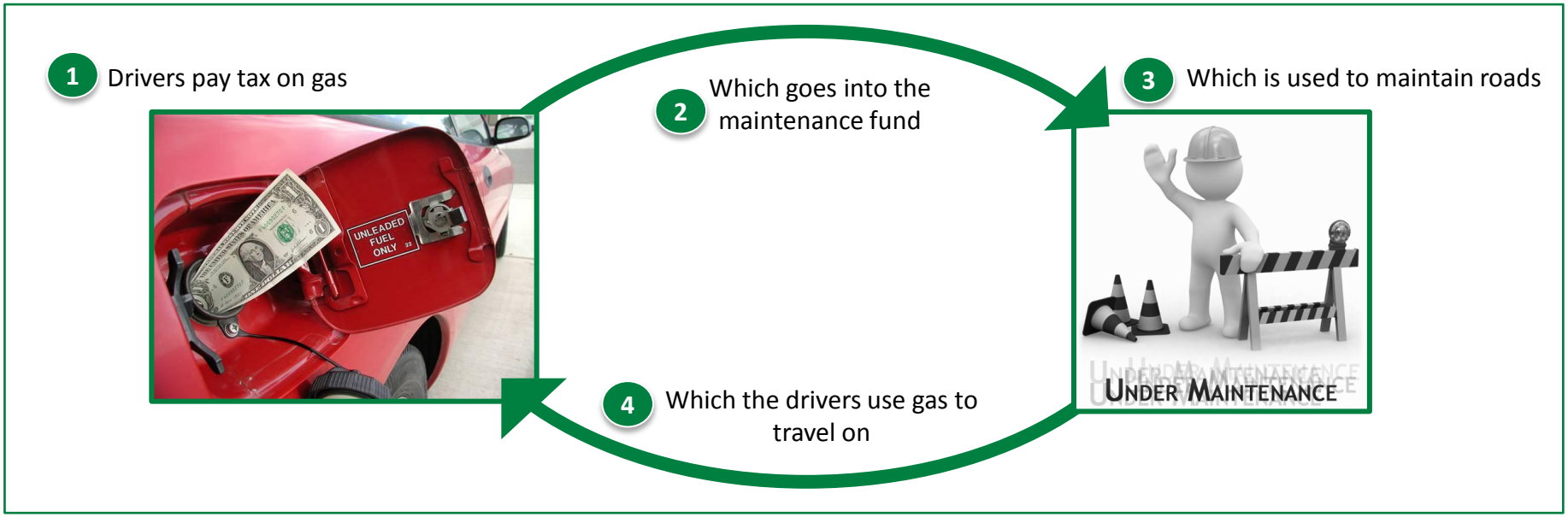
Investment: $13.7 million

Implications: It Is a critical part of Singapore's "cold chain" that allows imports of highly perishable pharmaceuticals/biomedical products.

Other Implementations: Kunming, China
Houston, TX

More Information:
http://www.changiairportgroup.com/cag/html/business-partners/air-cargo/facilities-and-infrastructures/coolport.html

Best Practice: Infrastructure Maintenance Tax, United States



Description: While each economy has a tax on gas/diesel consumption, only the United States has a program where 100% of the tax goes to infrastructure maintenance rather than to a general revenue fund. Currently, the tax rate is 18.4 cents per gallon.

Initiated By: United States Government

Investment: Governmental/Legislative transaction

Savings: $29.6 billion in 2008

Other Implementations: Australia, New Zealand

More Information: http://www.dot.gov

Improving Infrastructure Requires Cooperation

Key Findings

- Infrastructure improvements in themselves do not completely relieve frictions – improvements must be accompanied by process improvements in customs, clearance, and etc.
- Depending on the state of economic development of an economy, there are differences in the purchasing power of a dollar for infrastructure improvements.
- Return on investment of infrastructure is inherently tied to economic gains achieved through various means and is difficult to isolate.

What ABAC Can Do

APEC economies will require $8 trillion of infrastructure investments over the next 10 years. ABAC can help the growth of PPPs that can help fund this investment by:

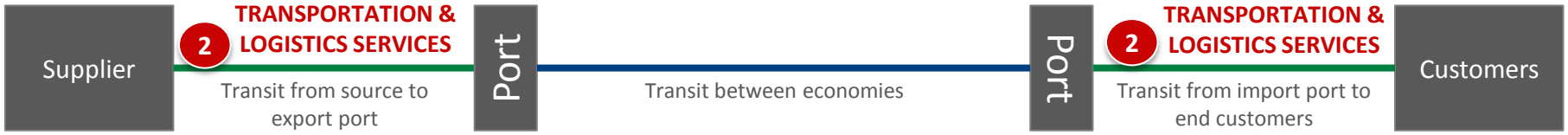
- Doing pre-feasibility studies of projects to maximize the chances of a successful PPP.
- Harmonizing procedures on infrastructure finance to facilitate cross-border investments.
- Encouraging development banks to guarantee PPP loans to promote private sector financing.

Source: Logjam (2010). Meeting APEC's Infrastructure Challenge: Breaking the PPP.


TRANSPORTATION & LOGISTICS SERVICES

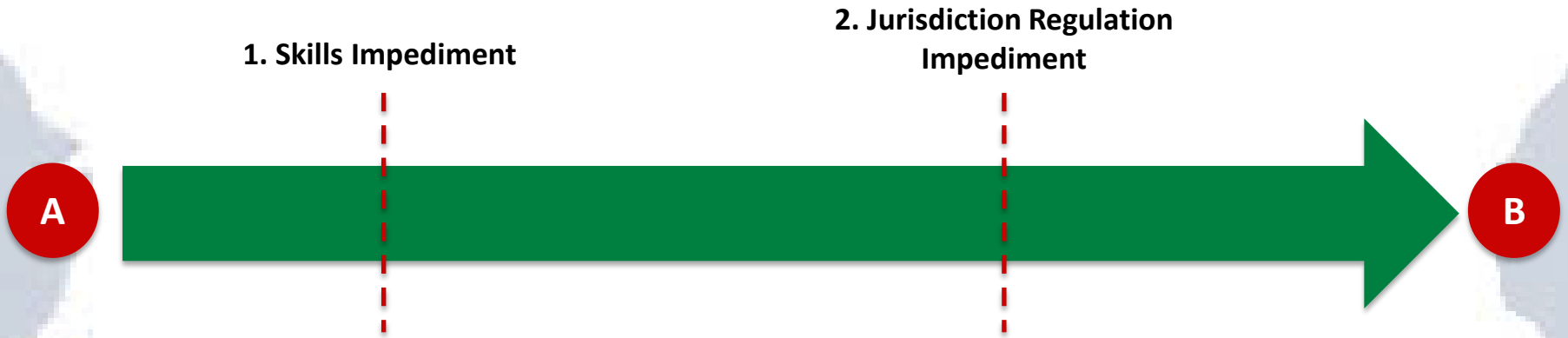
Impact of Transportation & Logistics Services on the Supply Chain

Logistics Services refers to the availability of services to utilize existing physical infrastructure to move goods from the manufacturer to the end consumer.



Issues in Logistics Services

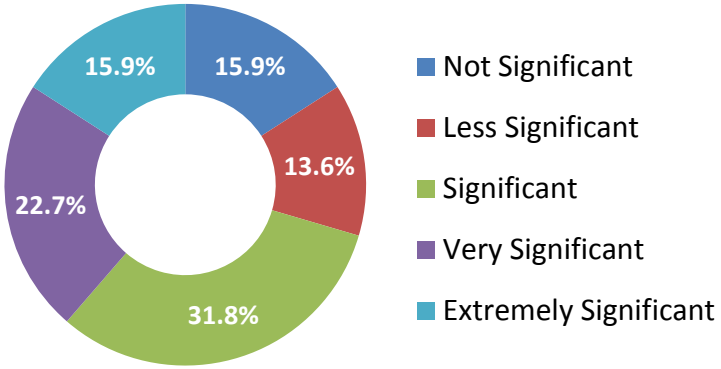
The primary issues with logistics services are the availability of necessary skilled employees and the regulations that facilitate or impede the process of moving products:



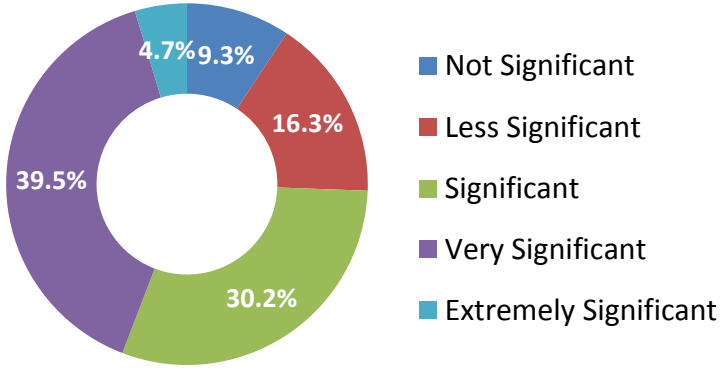
APEC Businesses Believe Burdensome Transportation & Logistics Restrictions are a Significant Barrier to Trade

Our survey responses indicated that 70.5% of respondents believed a lack of expertise of local logistics providers was a significant barrier to trade, and 74.4% of respondents found that a lack of capacity of local logistics providers was a significant barrier to trade.

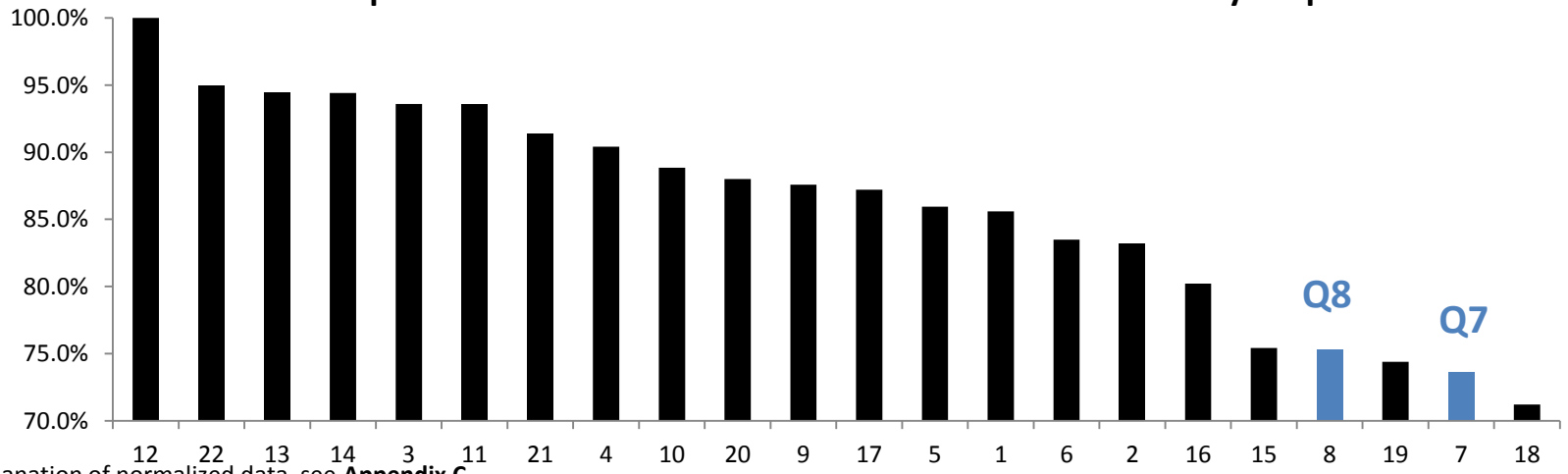
Q7. Lack of Expertise of Local Logistics Providers



Q8. Lack of Capacity of Local Logistics Providers



Relative Importance of Issue to APEC Businesses - Normalized Survey Responses*



* For explanation of normalized data, see **Appendix C**

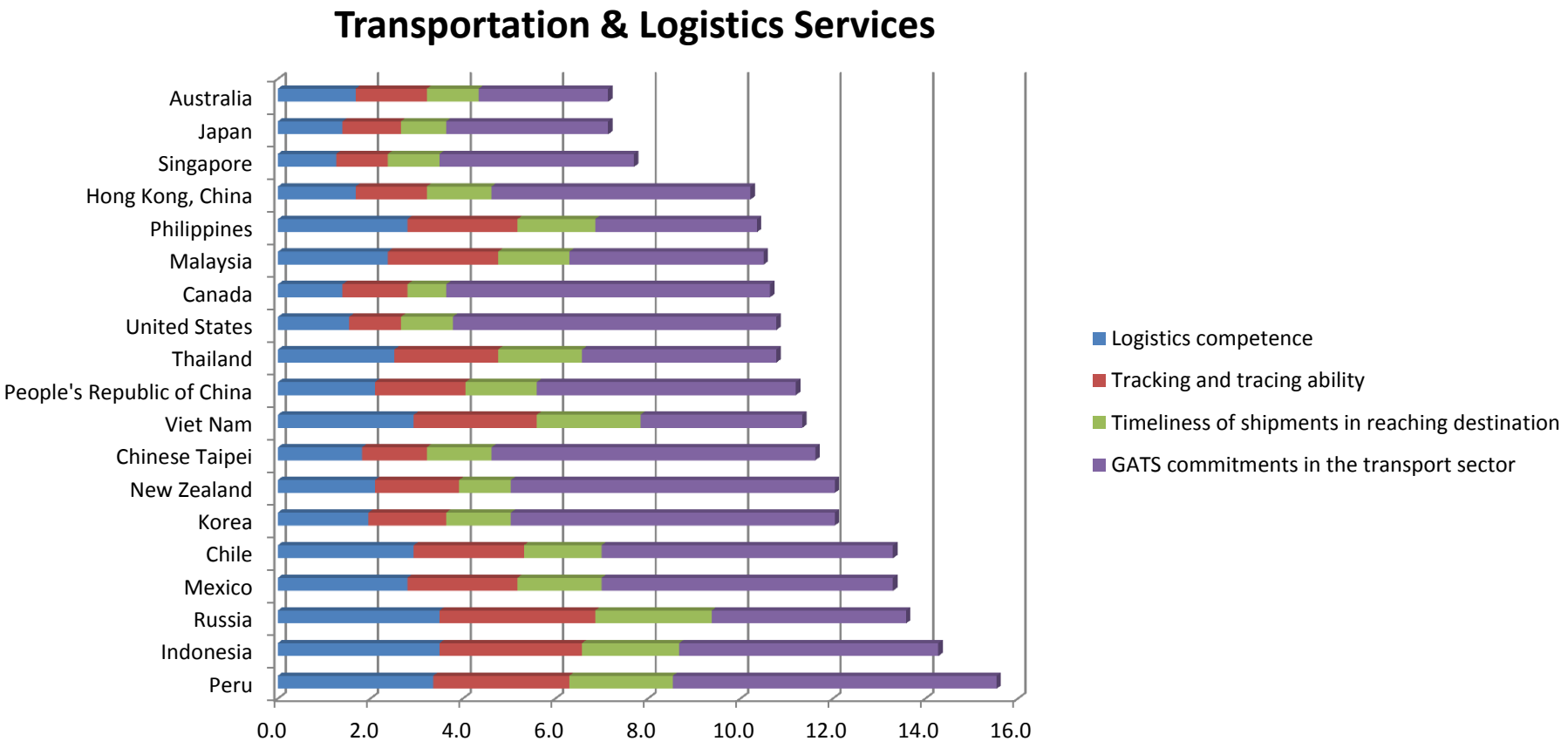
Drivers of Transportation & Logistics Services Issues

Chokepoint Drivers	Why Not Easy to Resolve	ABAC Actions
Infrastructure	Goods can only move as fast as the modes of transportation allow. As such, logistics services are reliant on availability of quality infrastructure. Improvements made to infrastructure will also benefit logistics services.	See **Slide 91**
Institutions	Domestic trade organizations and other knowledge-sharing institutions can help connect businesses to appropriate logistics services as well as provide service providers valuable information to increase their efficiency. However, when there is redundancy of these organizations in an economy, there can be inefficiency as this leads to confusion and turf wars.	Compile a comprehensive list of institutions across all 21 economies and identify the redundancies and gaps.
Regulation of jurisdiction	Many economies do not allow foreign logistics service providers to render services across borders. This eliminates competition which debases the quality of services within an economy. It is clear that governments are trying to protect domestic industries. For example, the practice of cabotage reduces the efficiency of existing logistics services, as foreign carriers cannot participate in domestic activity and increase overall service capacity.	We perceive this as a political issue that APEC will not be able to make significant in-roads to change. However, additional analysis on the impact of cabotage may provide a quantitative basis for the discussion of this issue.
Lack of necessary skilled labor	There are not enough skilled employees in most APEC economies to fill the needs of the logistics services industry. This lack of competency decreases service quality. Additionally, restrictions on foreign service providers and lack of labor mobility make it difficult for economies that cannot fill these roles internally to seek outside talents.	Initiate a study to evaluate the effectiveness of two potential methods for addressing skilled labor shortages impacting logistics: 1. Invest in educating people in the domestic economy or 2. Decrease or eliminate regulations that deter labor mobility so that foreigners can contribute skills in lacking areas.

Source: ASEAN (2010), Master Plan on ASEAN Connectivity .

Transportation & Logistics Services Rankings by Economy

The Logistics Services chokepoint is closely related to logistics competence, tracking and tracing ability, timeliness of shipments in reaching destination, and GATS commitments in the transport sector. Below are the ETI scores for those sub-pillars by economy.



Source: World Economic Forum (2010), The Global Enabling Trade Report.

Voice of Business on Transportation & Logistics Services Issues

Through our interviews with business leaders and subject-matter experts in APEC economies, we collected the following anecdotes:

"Sometimes we go from New York to Charleston to Savannah to drop off items, but we can't pick anything up in New York to drop off in Charleston. This results in pollution, capacity wasted and more congestion."

Logistics Company, Hong Kong

"We have been dealing with agents to negotiate with factories, organize logistics and deal with freight forwarders, but this is inefficient and costly. To reduce costs, we are planning to move upstream and bring this in-house, which is estimated to save us 7 to 25 percent."

Conglomerate, Singapore

"Wider range of service providers (multinationals) and logistic operators generate greater competition and reduced tariffs."

Exporter, Peru

"We estimate that every 1% increase in logistics efficiency will save Australia approximately $1.5 Billion Australian Dollars."

Trade Organization, Australia

Key Takeaway

Regulation of jurisdiction creates inefficiencies in the logistics processes because it reduces capacity. These inefficiencies can have significant cost impacts to business.

Increasing Capacity of Transportation & Logistics Services is Necessary

Key Findings

- Many of the APEC economies do not have enough skilled logistics services workers.
- Protectionism within economies impairs competition, efficiency, and innovation.
- Larger economies have more domestic competition and therefore lower cost logistics services.
- Logistics Services costs are higher in emerging economies.

What ABAC Can Do

- Compile a comprehensive list of institutions across all 21 economies and identify the redundancies and gaps.
- Perform analysis on the impact of cabotage to provide a quantitative basis for the discussion of this issue.
- Initiate a study to evaluate the effectiveness of two potential methods for addressing skilled labor shortages impacting logistics: 1. Invest in educating people in the domestic economy or 2. Decrease or eliminate regulations that deter labor mobility so that foreigners can contribute skills in lacking areas.

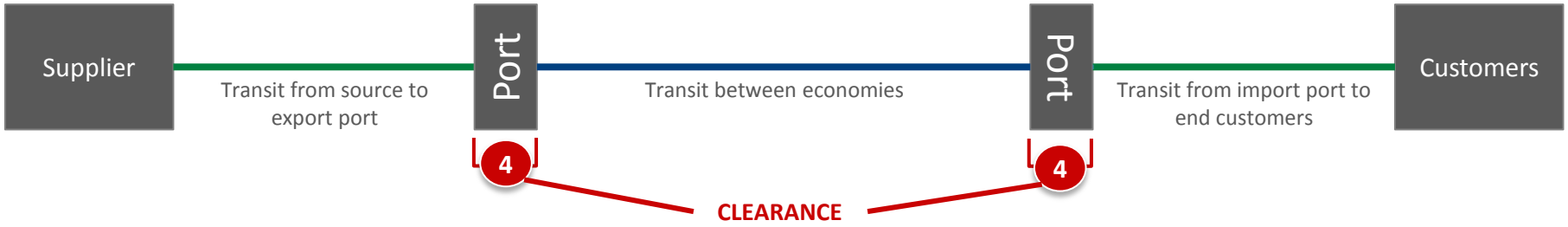
Source: Asia Pacific Gateway Skills Table (2010). Skills Table Report 2010.
The Economist (2007, Aug). Asia's skills shortage capturing talent. Retrieved from http://www.economist.com/node/9645045 on in October 2011


U.S. CUSTOMS AND BORDER PROTECTION
DEPARTMENT OF HOMELAND SECURITY

CLEARANCE

Impact of Clearance on the Supply Chain

Chokepoints around clearance stem from inefficient and burdensome customs IMEX procedures. These include rules to comply with preferential trade agreements. To reduce the burden, there must be coordination among border agencies, especially relating to the clearance of regulated goods "at the border." This includes single window systems, rules of origin and de minimis, release of consignments, and intra-APEC border cooperation. It does not cover issues around language, documentation, or transparency.



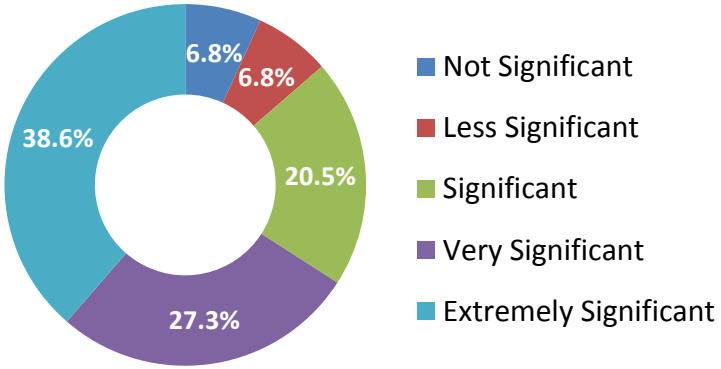
Issues in Clearance

CLEARANCE				
Customs Procedures	Rules of Origin	Single Window	Import and Export Procedures	Port Operations

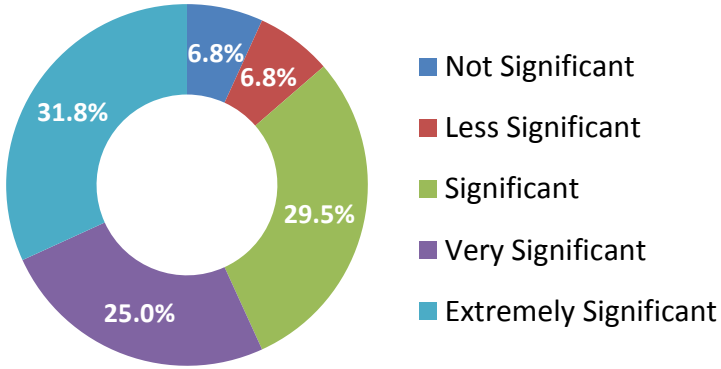
APEC Businesses Believe Burdensome Clearance Procedures are a Significant Barrier to Trade

Our survey responses indicated that 86.4% of respondents found inefficient customs clearance processes a significant barrier to trade, 86.4% of respondents believed that lack of coordination among border agencies to create or improve single window systems was a significant barrier to trade, and 76.2% of respondents found inadequate procedures for accessing preferential treatment was a significant barrier to trade.

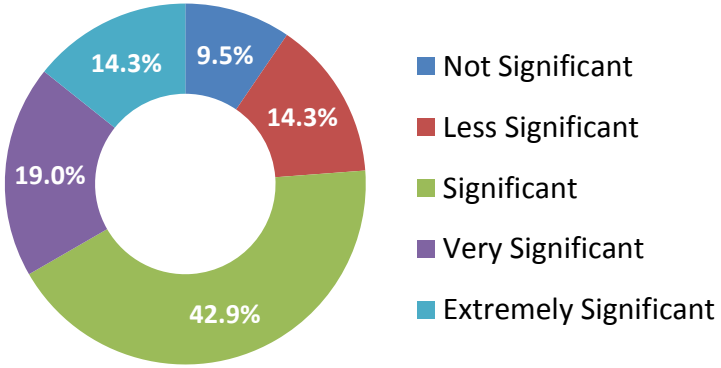
Q12. Inefficient Customs Clearance



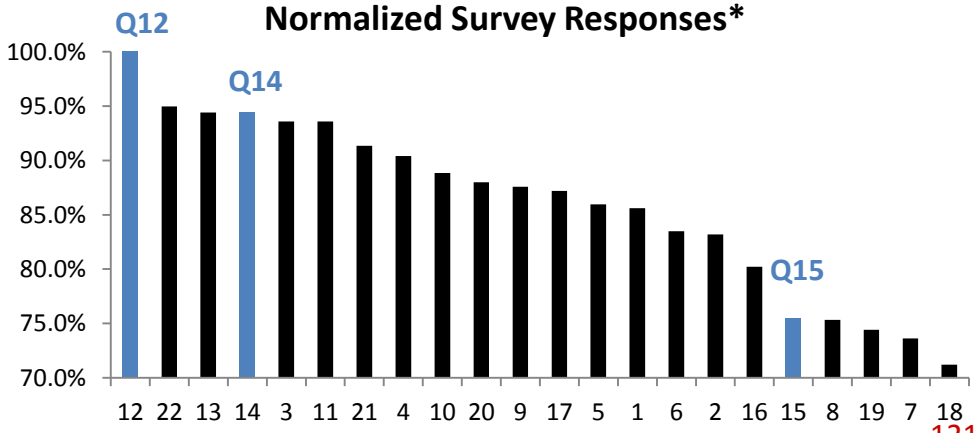
Q14. Single Window Customs Clearance



Q15. Customs Procedures for Preferential Trade



Relative Importance of Issue to APEC Businesses - Normalized Survey Responses*

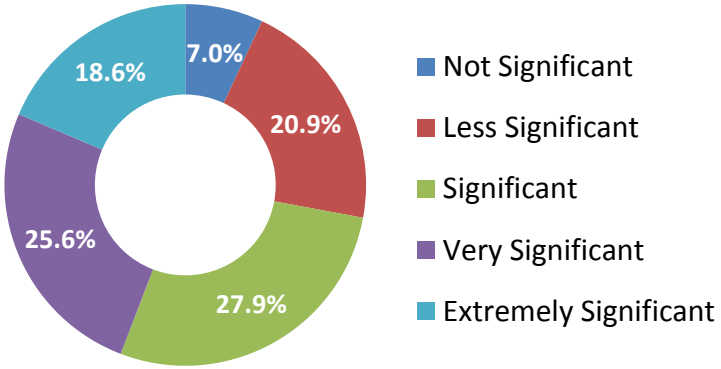


* For explanation of normalized data, see **Appendix C**

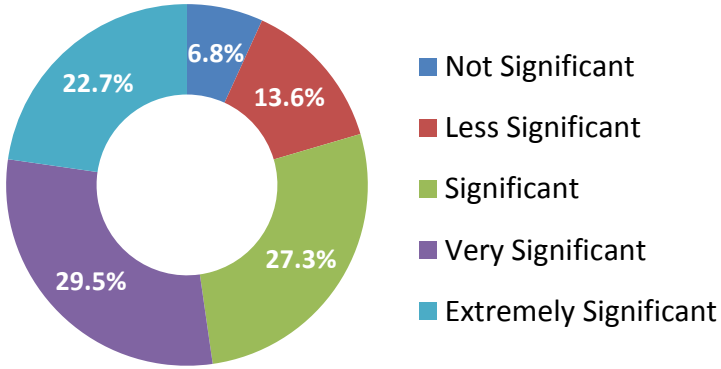
APEC Businesses Believe Burdensome Clearance Restrictions are a Significant Barrier to Trade

Our survey responses indicated that 72.1% of respondents found lack of customs capacity a significant barrier to trade, 79.5% of respondents believed that lack of adoption of global customs standards was a significant barrier to trade, and 83.3% of respondents found inadequate IT infrastructure was a significant barrier to trade.

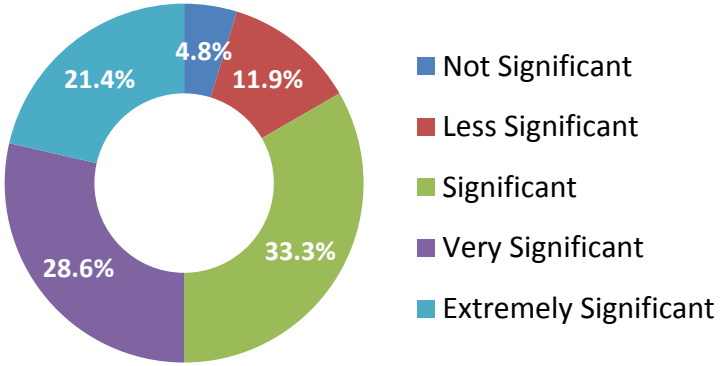
Q16. Customs Capacity During Peak Trade Volumes



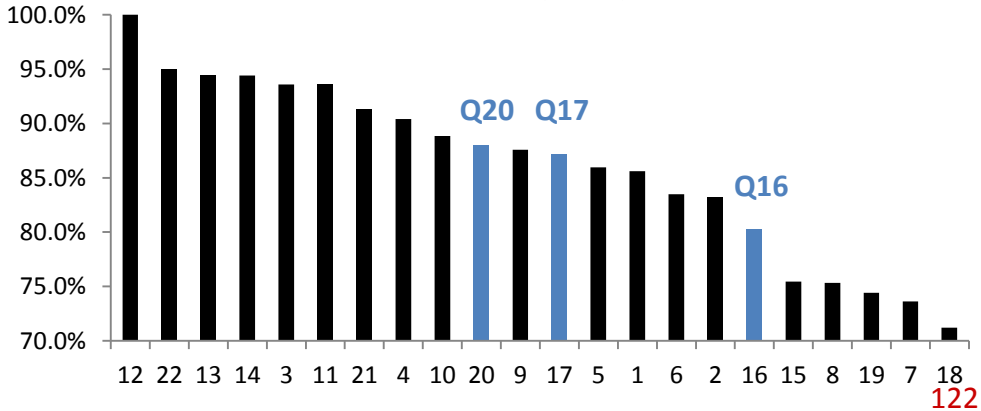
Q17. Lack of Adoption of Global Customs Standards



Q20. Inadequate IT Infrastructure



Relative Importance of Issue to APEC Businesses - Normalized Survey Responses*



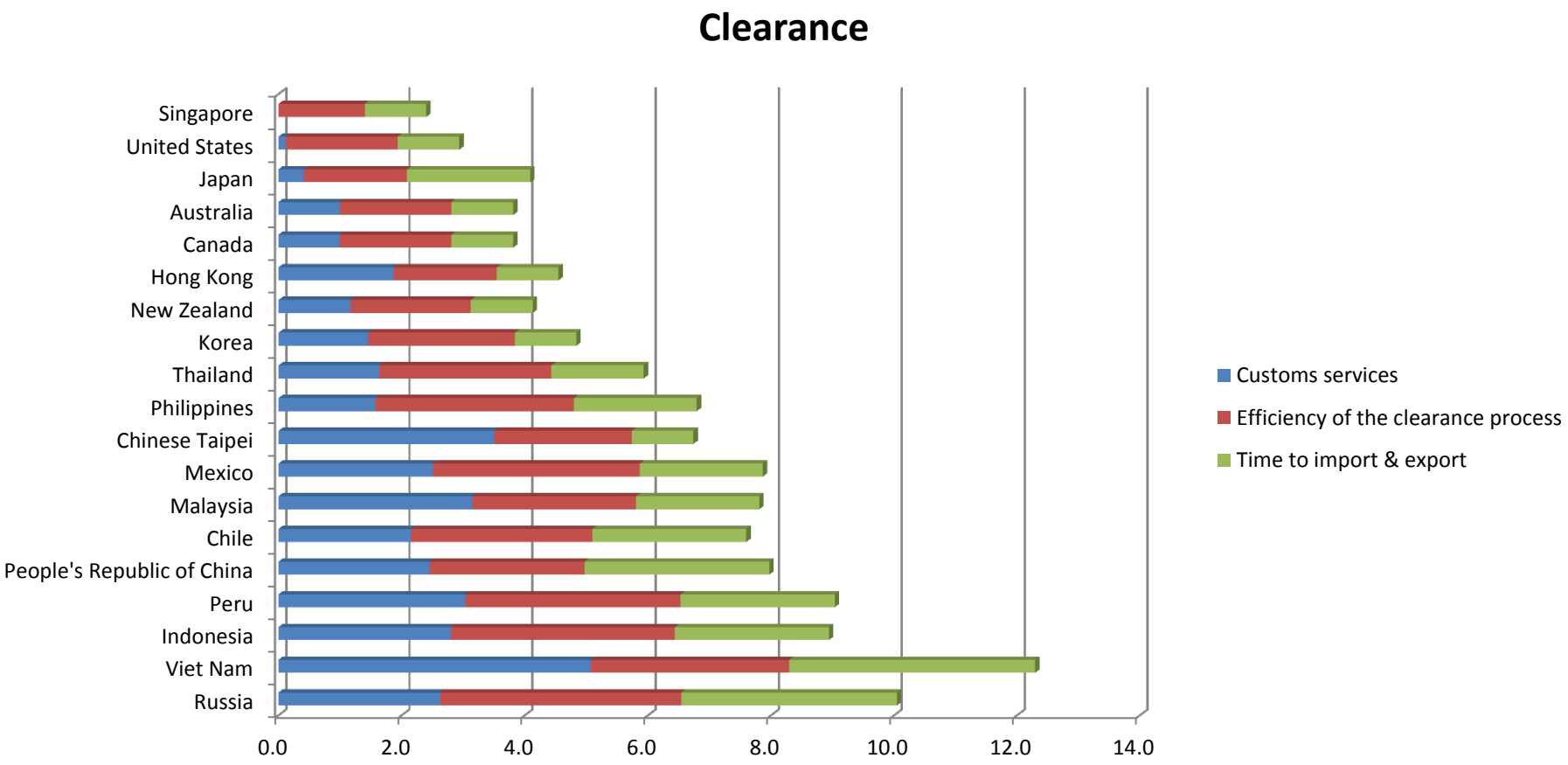
* For explanation of normalized data, see **Appendix C**

Drivers of Clearance Issues

Chokepoint Drivers	Why Not Easy to Resolve	ABAC Actions
Compliance with rules of origin	Rules of origin administration and compliance costs are much higher for ASEAN than for EU and NAFTA. Estimates show that compliance costs are three percent of the value of goods traded for EFTA, six to eight percent for other EU schemes, and six percent for NAFTA. For ASEAN, these costs represent approximately twenty-five percent of the value of goods traded.	Considering the difference in administration and compliance costs amongst APEC, EU, and NAFTA, a comparative study should be conducted to identify best practices that can be carried over.
Number of electronics systems and level of difficulty to integrate	The cost and manpower needed in integrating the many systems in each of the “silo-ed” governmental agencies may be prohibitive. Only two of the APEC economies have integrated all of the trade-related governmental agencies in their Single Window system, and only thirteen economies have implemented a Single Window system at all.	Encourage the adoption and implementation of compatible ICT systems by acting as the central resource on this topic for the 21 economies.
Complexity of FTAs	The costs associated with administration of and compliance with free trade agreements can be higher than the benefits gained from the preferential treatment.	Movement towards fewer FTAs that incorporate larger groups of economies seems to be the most efficient way to address the complexities of existing FTAs.
Redundancy of documents	Lack of coordination between agencies in one economy results in redundancy in the information provided in documents. Businesses must submit the same data to multiple agencies, which results in wasted time and personnel costs.	Review documents for commonalities and create a "Common ABAC Document" that economies can create supplements to for items not addressed.

Clearance Rankings by Economy

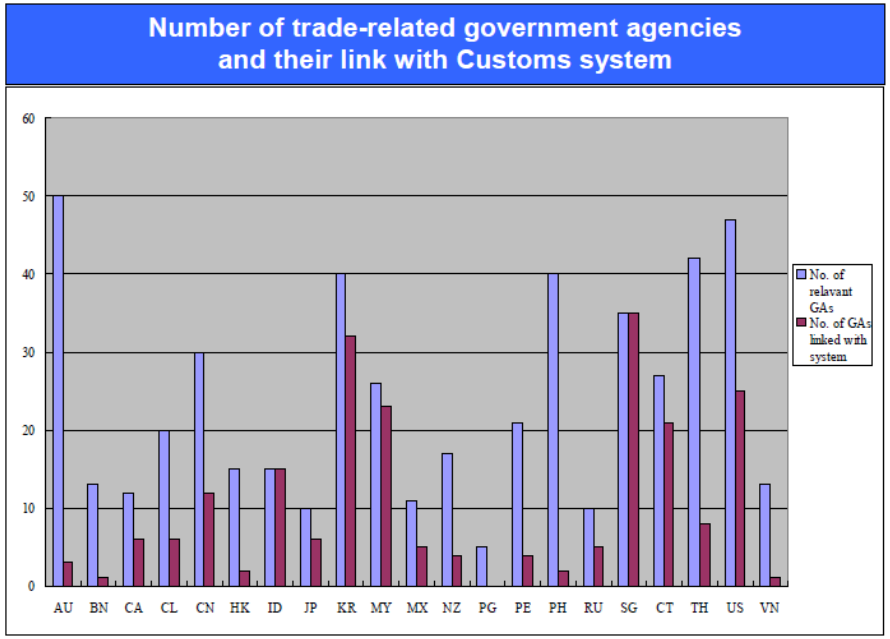
The Clearance chokepoint encompasses issues surrounding customs services, efficiency of the clearance process, and time to import & export. Below are the ETI scores for these sub-pillars by economy.



Source: World Economic Forum (2010). The Global Enabling Trade Report.

Current Status of Single Window Implementation

The World Customs Organization (WCO) 2010 survey of 58 economies revealed that:



- All survey participating customs administrations have adopted a computer based cargo clearance system.
- However, an average of three other government agencies have electronic links with customs clearance systems, while fifteen agencies, on average, are directly involved in the cross border transactions.
- 42% of respondents said over sixteen agencies were involved.
- 61% of customs administration respondents indicated they have not started exchanging trade data and information with trade partners via single window systems.

Source: World Customs Organization (2011), *A Survey of Single Window Implementation*.

Voice of Business on Clearance Issues

Through our interviews with business leaders and subject-matter experts in APEC economies, we collected the following anecdotes:

"Certain economies require visual inspection inside containers. This requires them to break the seal meat is packed in and starts the countdown clock on expiry date of meat."

Trade Organization, Australia

"Apple juice arrived in LA – spent 5 days in the port then transferred to Oakland – was meant to be shipped immediately but cheaper to unload in LA than put it on a train to Oakland. By the time it arrived the product was ruined by the sun exposure."

Food & Beverage Company, Indonesia

"A test was done where raisins were shipped to the US as a US product then the same product was shipped as Chilean. The Chilean product was marked as substandard and destroyed even though we had to pay for it."

Food & Beverage Company, Chile

"American truck drivers who have security clearance for US ports have to be accompanied by Canadian security cleared personnel when dropping off containers at Canadian ports."

Logistics Company, Canada

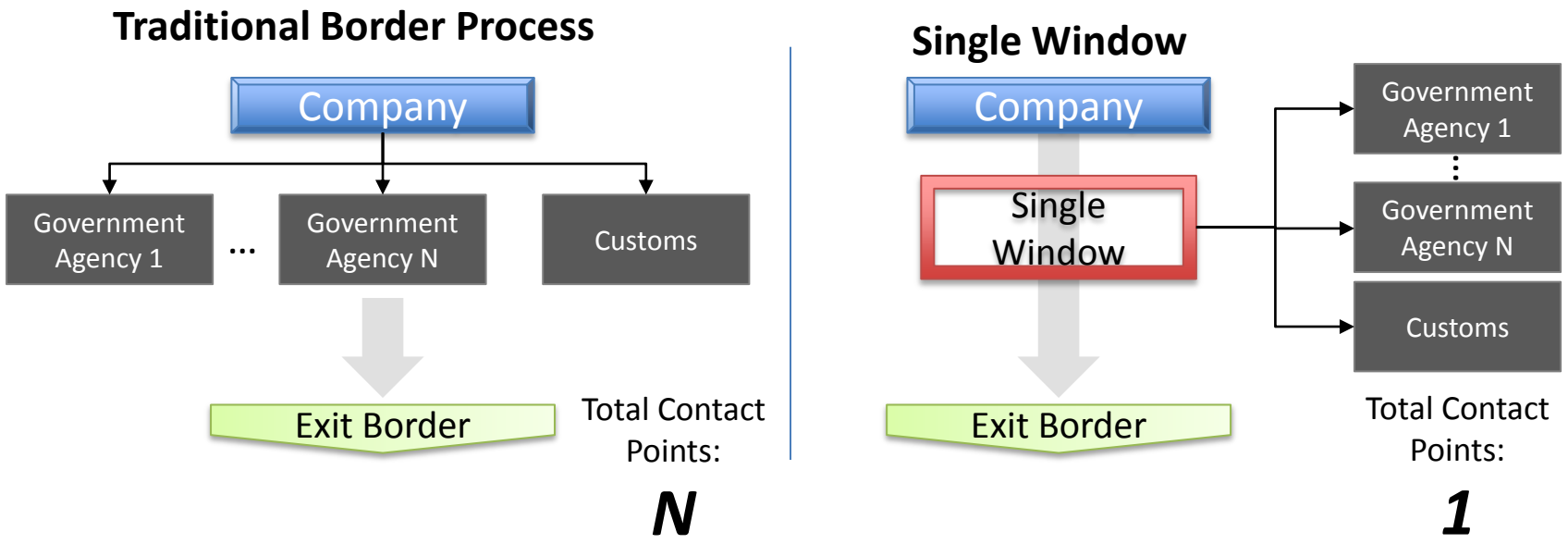
"The US hopes to scan every container before it comes to the US. US agents should be able to access scans that are taken in the port of exit rather than scan them in the port of entry. Once again, the US is putting security before economic growth."

Logistics Company, Hong Kong

Key Takeaway

Additional time spent in clearance can have several repercussions including damage or loss of value to product. Reasons for time spent include security concerns.

Best Practice: Single Window, Singapore



Description: Documents from various custom and port administration agencies are integrated together to provide businesses with one unified document. Instead of sending multiple documents to multiple agencies for approval, single window provides one main point of contact for document submissions. These measures allow businesses to reduce the human resources dedicated to producing and tracking multiple documents and generate saving for businesses. With electronic submission, the human element in documentation processing in each agency is eliminated, reducing the possibility of corruption taking place.

Initiated By: Singapore Customs

Investment: Unknown

Other Implementations: Thirteen economies have single window systems, and five are developing Single Window systems. But only two of those economies' Single Window systems covered all trade-related government agencies' procedures.

More Information: WCO Trade Facilitation Report June 2011; Singapore Customs Website

Source: World Customs Organization (2011, June). WCO Trade Facilitation Report.

Best Practice: Border Cooperation, Norway, Sweden, Finland

Description: Border cooperation between Norway, Sweden, and Finland allowing the customs authority from one economy to act on behalf of the other economies.

Initiated By: Norway, Sweden Customs (1960). Finland added in 1969.

Investment: Transactional costs – drafting and passing legislation, planning costs.

Savings: 1995 – calculation of expenses for Norway if they didn't have these agreements – 10 customs offices, 100 customs officers, USD$16M for buildings and salaries, USD$39M additional costs for economic operators.

Other Implementations: N/A

More Information: WCO Coordinated Border Management June 2009; WTO "Border Agency Cooperation" Communication – June 2005.

Source: World Customs Organization (2009, June), Coordinated Border Management.

Clearance Improvements are Addressable

Key Findings

- Clearance issues result from the complexity of documents and policies involved.
- Improvements in documentation and standards and regulations will also impact clearance.
- Digitization of documents and data will help reduce clearance issues.
- Time to clearance varies widely between APEC economies. Generally, emerging economies require more time.

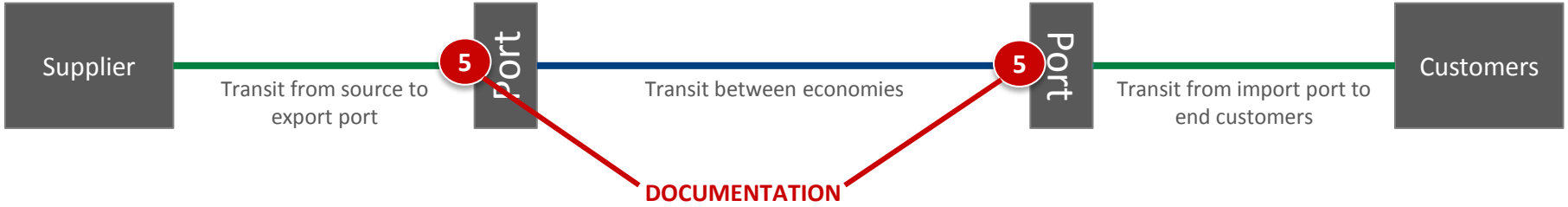
What ABAC Can Do

- Considering the difference in administration and compliance costs between APEC and EU and NAFTA, a comparative study should be conducted to identify best practices that can be carried over.
- Encourage the adoption and implementation of compatible ICT systems by acting as the central resource on this topic for the 21 economies.
- Movement towards fewer FTAs that incorporate larger groups of economies seems to be the most efficient way to address the complexities of existing FTAs.
- Review documents for commonalities and create a "Common ABAC Document" that economies can create supplements to for items not addressed.

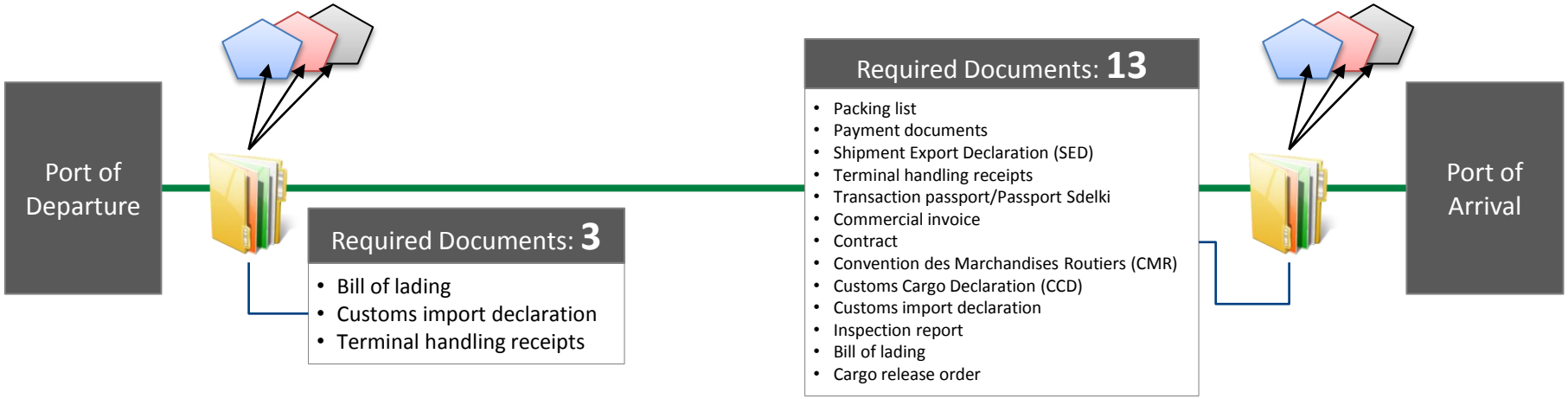

DOCUMENTATION

Impact of Documentation on the Supply Chain

Documentation presents a chokepoint as it creates burdensome procedures for customs documentation and other import/export documentation (including for preferential trade). Reducing the burden entails eliminating, combining, and simplifying documentation, coordinating documents across agencies and economies, and expanding online access and submission of forms. It does not cover issues around language, online access to procedural information, single window, and rules of origin. Specifically, there are opportunities in self-certification processes, simplifying customs procedures, and adopting electronic certification.



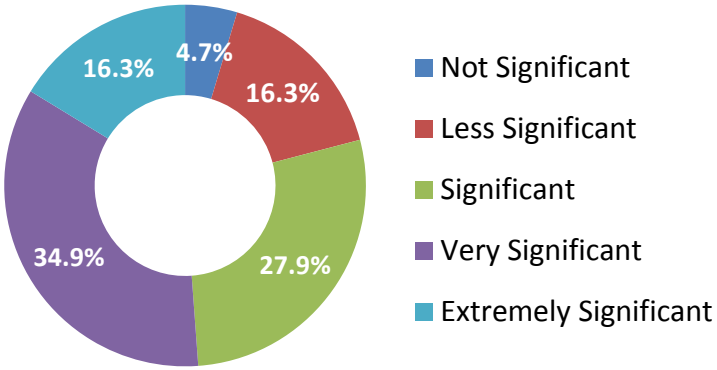
Issues in Documentation



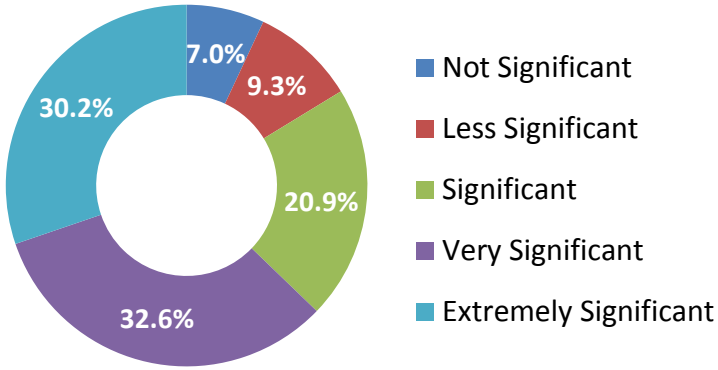
APEC Businesses Believe Burdensome Documentation is a Significant Barrier to Trade

Our survey responses indicated that 77.3% of respondents found burdensome documentation a significant barrier to accessing preferential trade benefits, 81.8% of respondents believed that burdensome customs documentation was a significant barrier to trade, and 90.9% of respondents found that paper-based customs systems were significant barriers.

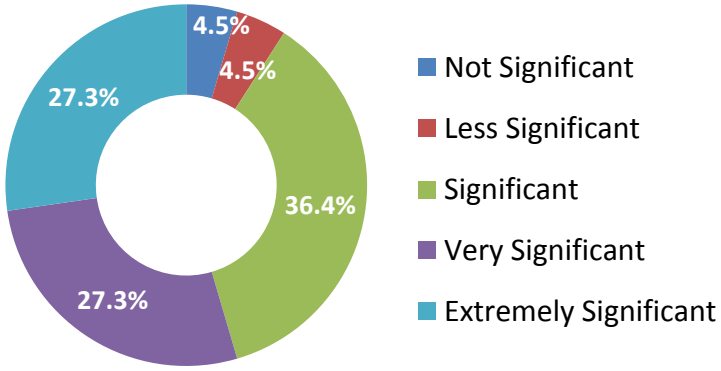
Q2. Presence of Burdensome Documentation For Preferential Trade



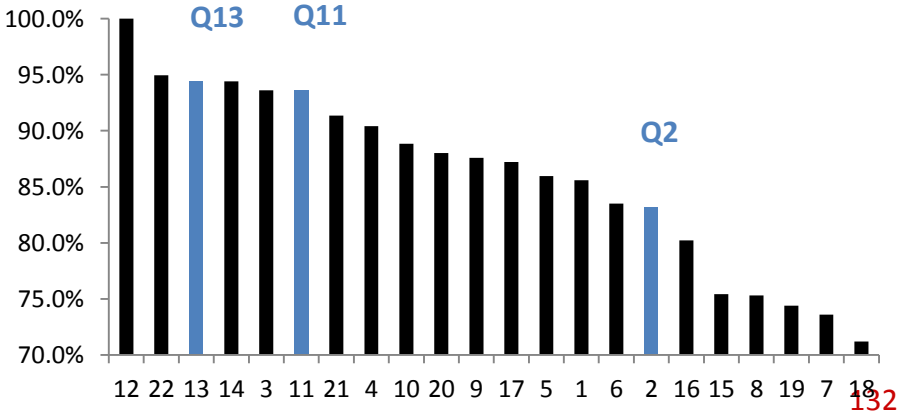
Q11. Presence of Burdensome Customs Documentation



Q13. Presence of Inefficient Paper-based Systems



Relative Importance of Issue to APEC Businesses - Normalized Survey Responses*



* For explanation of normalized data, see **Appendix C**

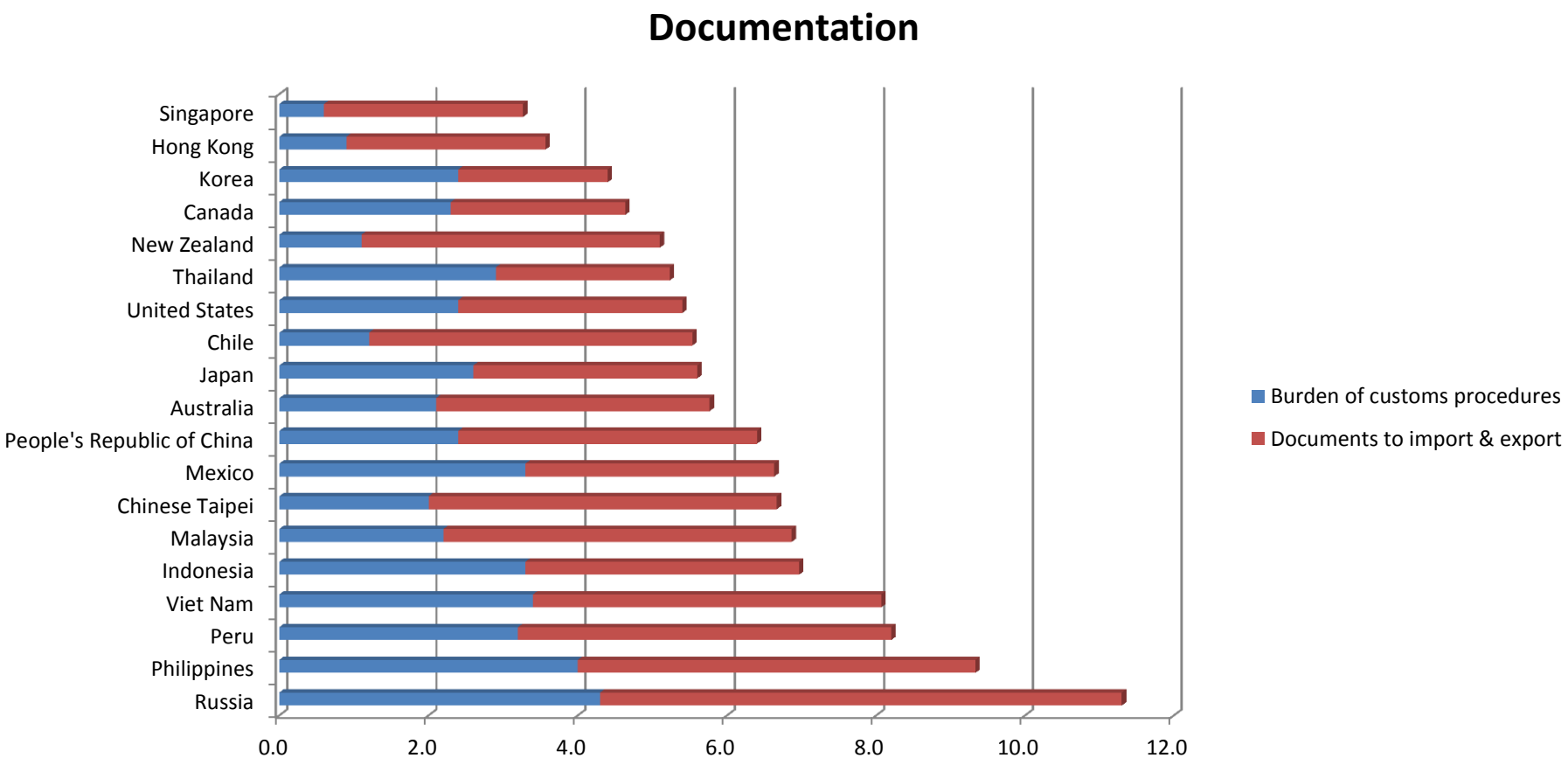
Drivers of Documentation Issues

Chokepoint Drivers	Why Not Easy to Resolve	ABAC Actions
Differences in product classifications by economy	Some products may require more detailed documentation – this can be due to increased security risk, rules of origin, etc. When importing into the U.S., for instance, a Toxic Substance Control Act Statement is required for importing any chemical shipments, whereas a Quota Charge Statement is required for importing textiles or clothing. Eliminating these documents may pose safety hazards or threaten domestic producers of goods.	Develop a collaborative wiki-type database that is monitored by ABAC, but would allow businesses to update their product classifications. This system could be accessed by customs officers across all economies to ensure consistency.
Paper vs. electronic systems	While moving from paper documentation to electronic systems is a foregone conclusion nowadays, moving all government agencies involved in the import/export process to the same system can be quite costly and time-consuming. Some economies can have 50+ agencies involved with clearance processes, and even if they all employ electronic systems, these may all be silo-ed IT systems.	Encourage the adoption of Port Community Systems across the APEC region.
Complexity of documents and requirements	Many rules surrounding completion of documents can be confusing. For example, Rules of Origin can be quite complex across different industries – some may be by FOB (free on board) value, some by weight, and some by different rules applied to the major material making up the component that determines the tariff classification.	Review documents for commonalities and create a "Common ABAC Document" that economies can create supplements to for items not addressed.
Differences across economies	Documentation requirements will vary from economy to economy because of the importance placed on terrorist threats and safety, availability of IT infrastructure, and/or protection of domestic interests. Free trade agreements between economies can also lead to increased or decreased documentation. Depending on the FTA, benefits can be gained in tariff rates by certifying compliance with Rules of Origin.	Work towards standardization by identifying practices that can be replicated in other economies.

Source: CBP.gov (2011) De Minimis. Retrieved from: http://www.cbp.gov/xp/cgov/trade/trade_programs/international_agreements/free_trade/nafta/customs_procedures/confer_origin/deminimis.xml on Oct 2011.
Fedex (2011) International Resource Center. Retrieved from: http://www.fedex.com/us/international/irc/profiles/irc_us_profile.html on Oct 2011.
APEC (2010, Sept). APEC Single Window Report. Second Sub-Committee on Customs Procedure Meeting – Tokyo, Japan.

Documentation Rankings by Economy

The Documentation chokepoint encompasses the burden of customs procedures and documents to import & export.



Source: World Economic Forum (2010) The Global Enabling Trade Report.

Link Between Documents and Shipping Time

A regression analysis between the ETI data and shipping time show that there is a statistically relevant relation between the two. As economies have a greater number of documents required for import/export procedures, the time to ship increases.

ETI Sub-Pillar 3.03 – Documents to Import & Export, Number

	Developed	Emerging
Developed to	2.81	3.26
Emerging to	3.28	4.54

Note: Larger numbers show greater effect on shipping time

Key Findings

- Increased documentation leads to longer shipping times.
- Increased documentation increases shipping times from emerging economies more than from developed economies.
- Increased documentation increases shipping times to emerging economies more than to developed economies.

Documents Required for Export

The number of documents needed to export a good out of an economy varies across the APEC economies. Korea and Canada require the least documents with three whereas Russia and the Philippines require eight.

Number of Documents to Export	Group by Income Level (*Doing Business*)		
	High	Medium-high	Medium-low or Low
Less than 4	Republic of Korea (3) Canada (3)		
4 – 6	Japan (4) Singapore (4) Hong Kong, China (4) United States(4) Chinese Taipei (5) Australia (6)	Mexico (5) Chile (6)	Thailand (4) Indonesia (5) Viet Nam(6)
7 or more	New Zealand (7)	Malaysia (7) Russia (8)	Peru (7) People's Republic of China (7) Philippines (8)

Examples

Exporting from Korea:

1. Packing list
2. Bill of lading
3. Customs export declaration

Exporting from the Philippines:

1. Bill of lading
2. Cargo release order
3. Certificate of origin
4. Commercial invoice
5. Customs export declaration
6. Packing list
7. Technical standard/health certificate
8. Terminal handling receipts

Documents Required for Import

The number of documents required to import a good into an economy also varied across the APEC economies. Korea and Thailand require the least documents with three, whereas Russia requires the most with thirteen documents.

Number of Documents to Import	Group by Income Level (*Doing Business*)		
	High	Medium-high	Medium-low or Low
Less than 4	Republic of Korea (3)		Thailand (3)
4 – 6	Canada (4) Singapore (4) Hong Kong, China (4) United States(5) New Zealand (5) Japan (5) Australia (5)	Mexico (5)	People's Republic of China (5) Indonesia (6)
7 or more	Chinese Taipei (7)	Malaysia (7) Chile (7) Russia (13)	Peru (8) Philippines (8) Viet Nam(8)

Examples

Importing to Thailand:

1. Packing list
2. Terminal handling receipts
3. Customs import declaration

Importing to Russia:

1. Packing list
2. Payment documents
3. Shipment Export Declaration (SED)
4. Terminal handling receipts
5. Transaction passport/Passport Sdelki
6. Commercial invoice
7. Contract
8. Convention des Marchandises Routiers (CMR)
9. Customs Cargo Declaration (CCD)
10. Customs import declaration
11. Inspection report
12. Bill of lading
13. Cargo release order

Time and Cost Associated with Documentation Issues

Improvements in four areas can result in the most significant cost and time savings:

Certification	Rules of Origin	Electronic Documentation	Import/Export Permits
▪ Allowing self-certification leads to significant costs savings by reducing the amount of customs documentation necessary. ▪ Singapore Customs estimates $880,000 USD in annual savings across 850 certified exporters due to the elimination of one form. Extrapolating this value across all intra-APEC exports, leads to a potential savings of $15.8M – a savings of 0.3% on revenues.	▪ Complying with rules of origin can cost up to 25% of the value of goods in ASEAN economies.	▪ Switching to electronic documentation increases time efficiencies, transport costs, personnel costs, and storage costs.	▪ Singapore processes 90% of import and export permits within 10 minutes. ▪ 100% of collections are made electronically through Intra-bank transactions.

Sources: Singapore Customs **(2011, March). inSync - Singapore Customs Newsletter.**
International Trade Center Exports (2009-2010), APEC Committee on Trade and Investment.
APEC (2009, April). Evolution of Singapore Single Window.

Voice of Business on Documentation Issues

Through our interviews with business leaders and subject-matter experts in APEC economies, we collected the following anecdotes:

"Procedures for obtaining any kind of license are very tedious and time consuming – and there are many hidden costs."

Importer, Indonesia

"Every document must be printed, get an official red stamp and uploaded again."

Executive, China

"Cost of documentation is high! 1 – 2% total cost of product, but when you consider administrative expense, 10 – 25%."

Exporter, Thailand

"Documentation requires key officer's signature, which takes 2 – 3 hours a day. And there's a room with lockers and lockers of these paper documents."

Executive, Peru

"There's a required fee of 10 cents to obtain each customs document – much higher than if it were online and we printed ourselves."

Exporter, Malaysia

Key Takeaway

Avoidable bureaucratic processes, although specific to each economy, cause many complaints about added costs.

Best Practice: ASEAN Self-Certification, Malaysia, Brunei, Singapore

Conventional Certification Regime	Self-Certification Regime
1 Manufacturer submits Factory Registration to Singapore Customs	1 Exporter submits application for Certified Exporter to Singapore Customs
2 Manufacturer submits Manufacturing Statement to Singapore Customs for verification	2 Exporter makes self assessment whether product meets the requisite Rules of Origin
3 Exporter submits application for Form D via TradeNet	3 Exporter makes self certification on own invoice
4 The importer makes a preferential tariff claim based on the Form D	4 The importer makes a preferential tariff claim based on the exporter's self certification

Description: To facilitate the trade of ASEAN origin goods, Singapore, Malaysia and Brunei are piloting a new ASEAN Self-Certification Scheme for a one year period as part of a wider plan to roll out the scheme in all ASEAN member states by 2012. The self-certification scheme allows certified exporters to self-declare the economy of origin for their goods and avoid filing ASEAN Common Effective Preferential Tariff (CEPT) Form D, saving $15 per shipment.

Problem Addressed: Eliminates both cost and time to fill out Form D.

Initiated By: ASEAN, 2009.

Investment: Transactional costs – drafting and passing legislation, planning costs.

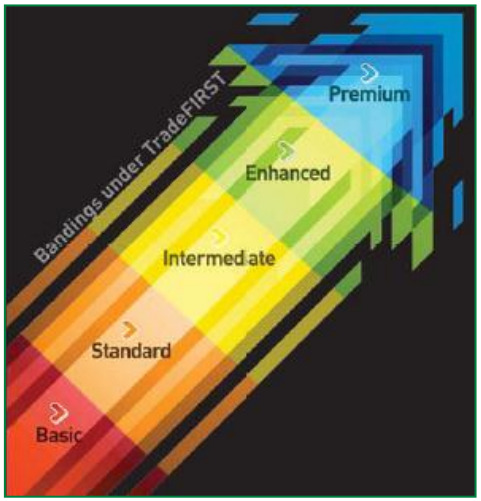
Savings: With about 6,000 applications for Form D monthly, Singapore Customs estimates that full-fledged self-certification in 2012 will result in potential annual savings of about US$880 million for some 850 exporters.*

Other Implementations: To be rolled out to Thailand on Oct 1 2011. Indonesia to conditionally join later.*

More Information:
http://www.customs.gov.sg/insync/Issue11/article_5.html

Source: Singapore Customs (2011, March), inSYNC – Singapore Customs Newsletter.
ASEAN (2011, July), Updates on ASEAN Self Certification.

Best Practice: TradeFIRST, Singapore



Description: Allows companies exemption from certain documentation based on level of compliance with assessment criteria. Each additional level of compliance has greater exemptions from filing documentation.*

Problem Addressed: Despite Singapore's various initiatives to increase trade facilitation, they found that there was still more work to do. Implementing the TradeFIRST program ensures transparent criteria and specific account managers to help guide companies through the process.

Initiated By: Singapore Customs

Investment: Transactional costs – drafting and passing legislation, planning costs.

Savings: One SME had saved as much as US$20,000 from halving its time and management costs in the first month of implementation.

More Information: WCO Trade Facilitation Report June 2011; Singapore Customs Website

Source: World Customs Organization (2011, 2011), WCO Trade Facilitation Report.
Singapore Customs Website. Retrieved from http://www.customs.gov.sg/ in September 2011

Harmonization and ICT can Solve Documentation Issues

Key Findings

- Economies need not look for incremental improvements – there is room for massive gains.
- Economies have successfully realized savings and reduced documents, proving there are viable options that can be rolled out throughout the APEC region.
- Economies currently are focused on internal harmonization as opposed to cross-economy harmonization, but collaborating to establish a vision for the future of the APEC region will help reduce future integration costs.

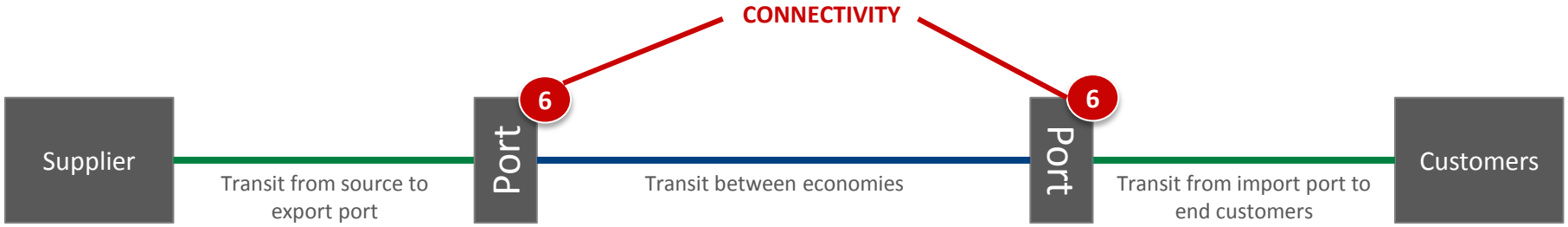
What ABAC Can Do

- Develop a collaborative wiki-type database that is monitored by ABAC, but would allow businesses to update their product classifications. This system could be accessed by customs officers across all economies to ensure consistency.
- Encourage the adoption of PCS systems across the APEC region.
- Review documents for commonalities and create a "Common ABAC Document" that economies can create supplements to for items not addressed.
- Work towards standardization by identifying practices that can be replicated in other economies.

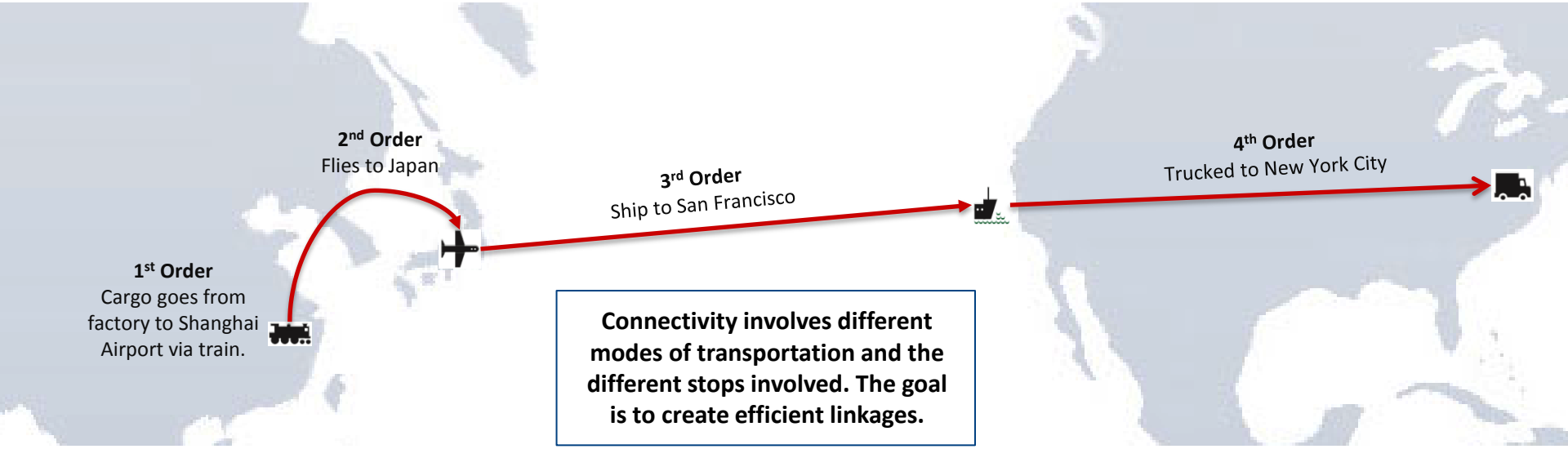
CONNECTIVITY

Impact of Connectivity on the Supply Chain

Connectivity looks at how multi-modal connections can contribute to economic integration and competitiveness in APEC, including opportunity costs arising from chokepoints relating to physical infrastructure and coordination.



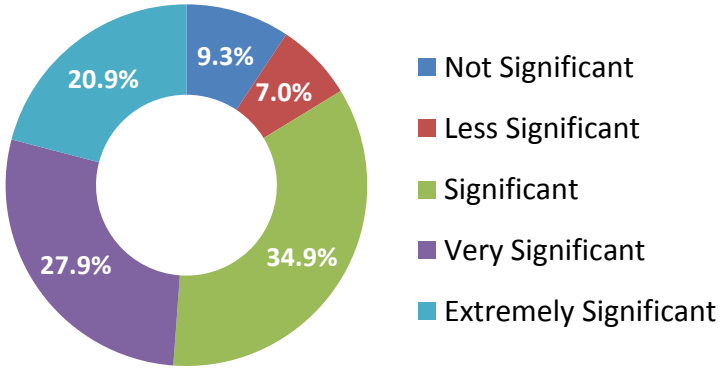
Issues in Connectivity



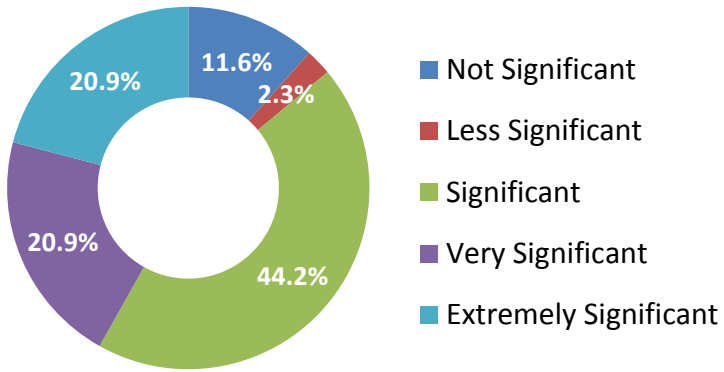
APEC Businesses Believe Connectivity Deficiencies are a Significant Barrier to Trade

Our survey responses indicated that 83.7% of respondents found inadequate capacity of multi-modal transportation a significant barrier to trade, and 86.0% of respondents believed that inadequate connectivity of multi-modal transportation was a significant barrier to trade.

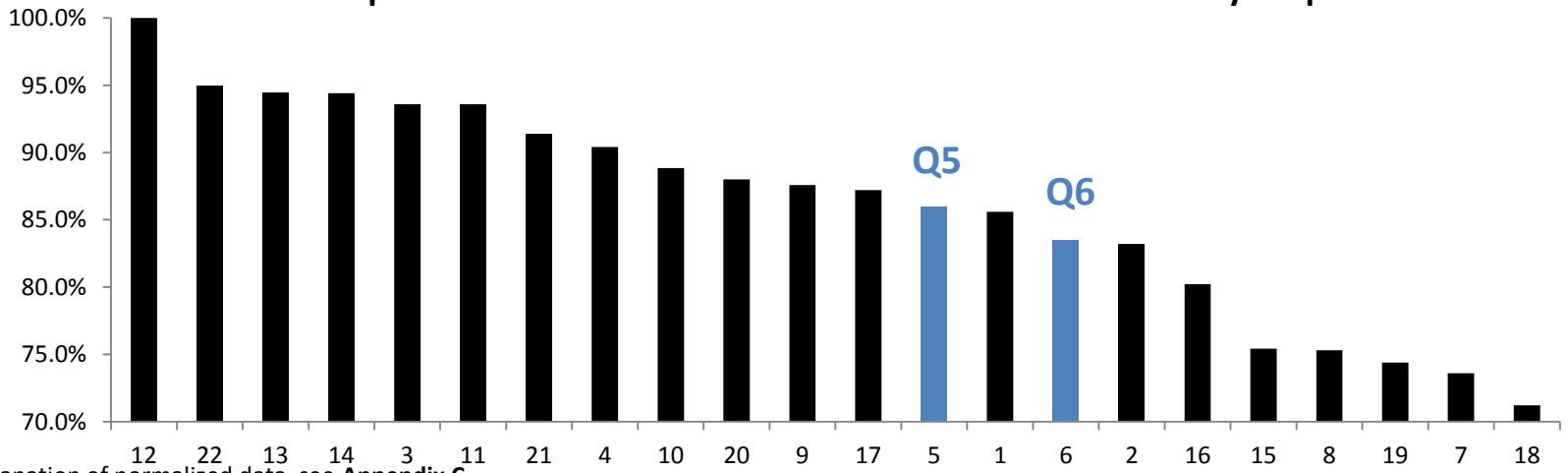
Q5. Inadequate Capacity of Multi-modal Transportation



Q6. Inadequate Connectivity of Multi-modal Transportation



Relative Importance of Issue to APEC Businesses - Normalized Survey Responses*



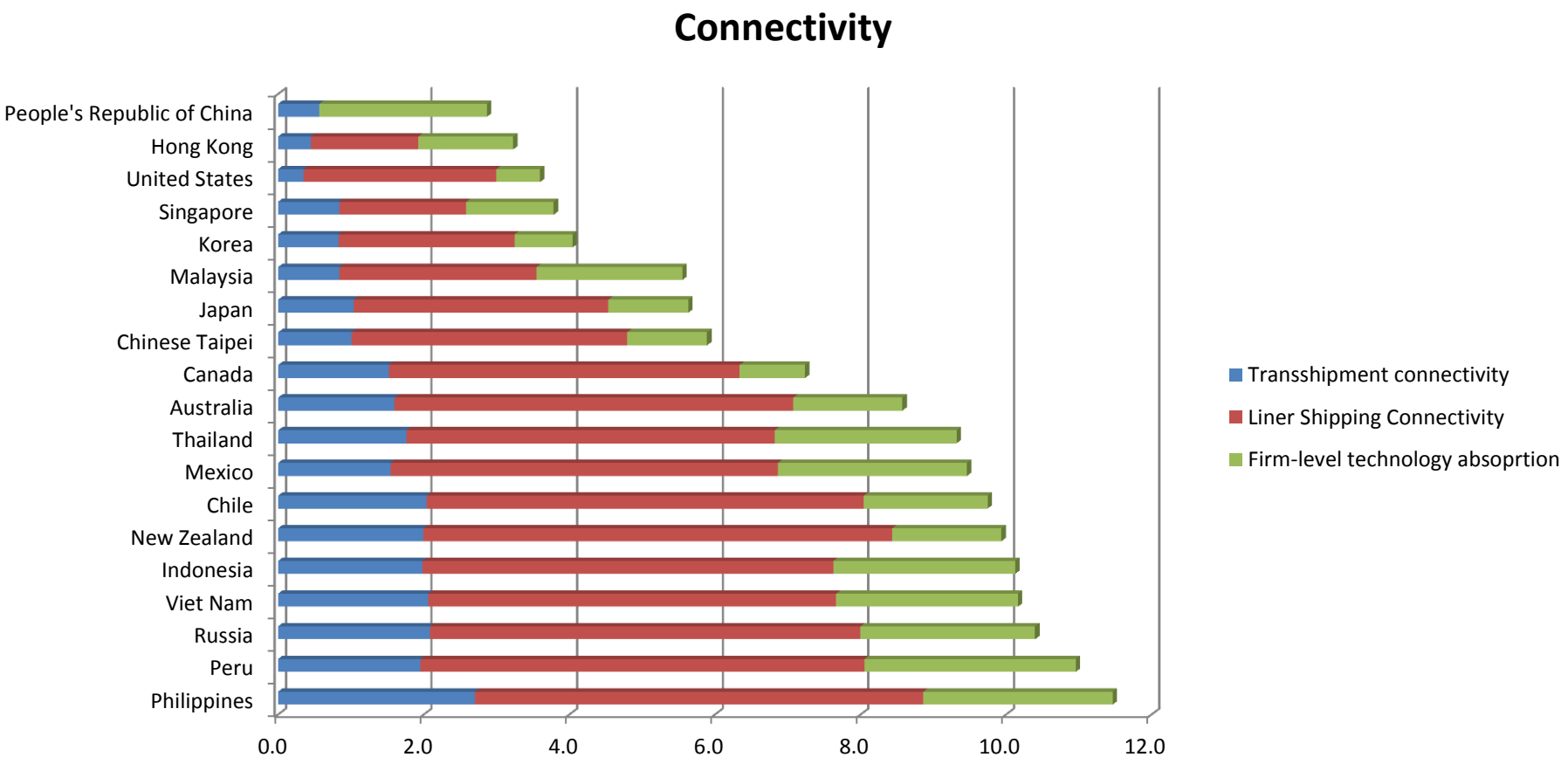
* For explanation of normalized data, see **Appendix C**

Drivers of Connectivity Issues

Chokepoint Drivers	Why Not Easy to Resolve	ABAC Actions
Complexity of documents and requirements	At connectivity points, there are often multiple regulatory institutions that importers and exporters must deal with. Political friction between these regulatory bodies makes consolidation and standardization extremely difficult. On top of the intra-economy political issues, the issue of standardization between economies is exacerbated by international politics and makes the development of common trade rules difficult to accomplish.	Review documents for commonalities and create a "Common ABAC Document" that economies can create supplements to for items not addressed.
Differences across economies	Many economies have widely varying economic drivers and rules, which make it difficult for importers and exporters to navigate the regulatory environment. What makes sense for one economy may not make sense for another, and due to strict customs rules, industry participants are burdened with the steep learning curve of understanding the situation in all economies they wish to conduct business in or through.	Work towards standardization by identifying practices that can be replicated in other economies.
ICTs and PCS	The initial investment costs associated with implementing ICTs and PCSs are high. For some economies, the return period may be too lengthy, and for other economies, the expected return on technology investments may be inferior alternative investments.	Encourage the adoption and implementation of compatible ICT systems by acting as the central resource on this topic for the 21 economies.
Tariffs and trade restrictions	Tariffs and trade restrictions may be established due to political, not economic, motivations. This poses a challenge for companies, as they must adhere to economically inefficient regulations.	We perceive this as a largely political issue that ABAC will not be able to make significant in-roads to change.

Connectivity Rankings by Economy

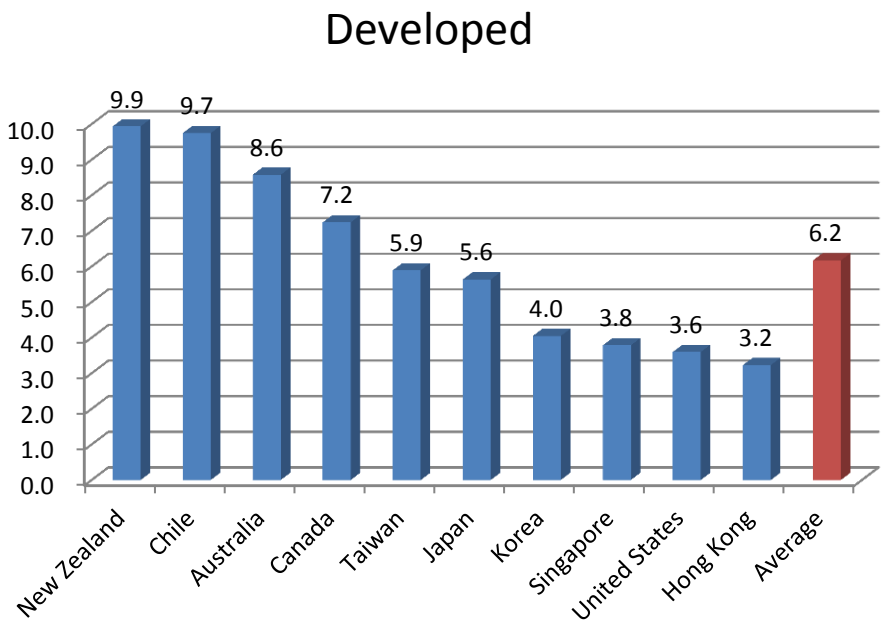
The Connectivity chokepoint encompasses transshipment connectivity, liner shipping connectivity, and firm-level technology absorption. Below are the ETI scores for these sub-pillars.

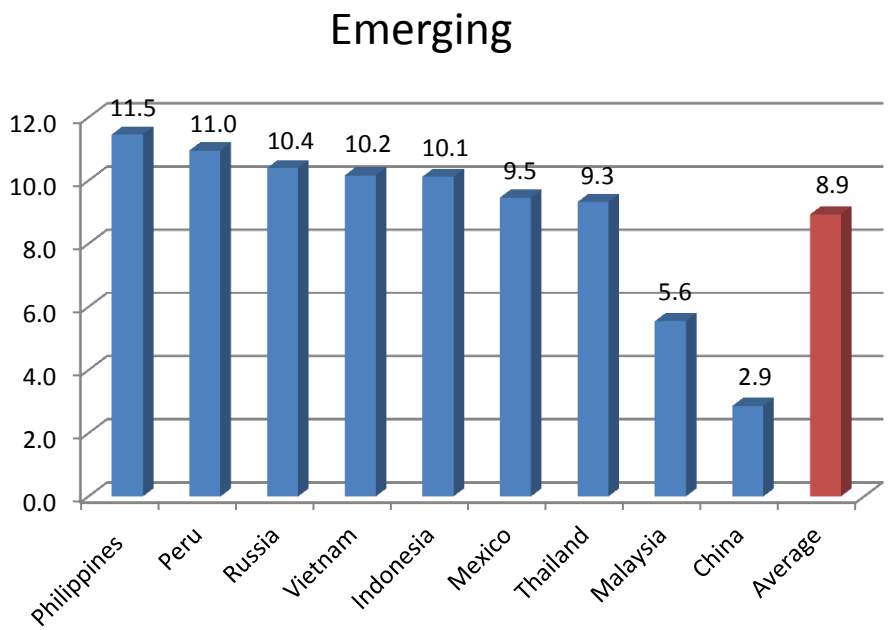


Source: World Economic Forum (2010), The Global Enabling Trade Report.

Connectivity is a Bigger Issue for Emerging Economies

A comparison of connectivity barriers for economies based on their stage of development is shown below. Economies identified as Developed have been grouped together and compared against the average connectivity score for developed economies, and emerging economies have been grouped together and compared against the average connectivity score for emerging economies.





Link Between ICTs and Shipping Time

A regression analysis which utilizes the ETI ICT prevalence sub-pillar and shipping time shows that there is a statistically relevant relation between the two. As economies make improvements in ICTs, the time to ship decreases.

ETI Sub-Pillar 7.01 – Extent of business internet use

	Developed	Emerging
Developed to	7.06	7.77
Emerging to	8.32	9.24

Note: Anticipated time savings per 1 point shift in ETI Sub-Pillar 7.01
R^2 for regression coefficients shown above range from 0.47 to 0.66

Key Findings

- The estimated benefit to shipping times from ICT improvements is high in the APEC region.
- Emerging economies appear to yield a greater benefit from ICTs than developed economies. This may be due to the already higher levels of ICT services within developed economies.
- Data analysis shows that Transshipment Connectivity and Liner Shipping Connectivity are largely correlated with geography and economic development stage, which are difficult to improve.

Voice of Business on Connectivity Issues

Through our interviews with business leaders and subject-matter experts in APEC economies, we collected the following anecdotes:

"[Lack of ICTs] creates a situation where products sit on the dock unnecessarily. This is costly in terms of time and port capacity."

Exporter, Australia

"PCSs face a lot of bureaucratic resistance. It involves several departments, and requires a lot of political will."

Executive, Chinese Taipei

"ICTs have the ability to expedite customs and reduce costly idle periods."

Exporter, Japan

"ICT customs link is a huge thing. It's critical because good business is both about moving goods and the information about goods."

Executive, Hong Kong

"We make many strategic decisions based on customs issues which sometimes force us to choose secondary routes to reduce costs and/or risk."

Major Shipping Company

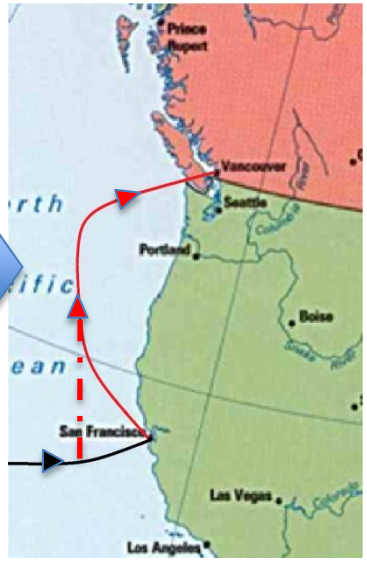
Key Takeaway

Industry participants believe that ICT/PCS improvements can potentially benefit both connectivity and the customs regulatory environment.

Best Practice: PCS and ICT Systems

"…due to [transparency] and unclear regulatory needs in China, goods from the U.S. have been rerouted through Viet Nam…"

If the cold chain is broken, goods can be rerouted to an alternate destination. ICTs can help identify this before ships dock at ports.



Note: Images shown above are illustrative and may not exhibit actual trade routes

Description: Port Community Systems (PCS) and information communication technology (ICT) systems improve port logistics and efficiency by consolidating customs procedures, digitizing paperwork, and tracking ships and cargo through its network of information systems. The centralized network, automated customs procedures, and data sharing allows regulatory institutions to electronically pre-certify shipments prior to arrival or communicate additional needs to businesses.

Problem Addressed:

- Data consolidation and sharing allows businesses to more easily understand the regulatory needs of ports which were previously difficult to decipher.
- Advanced notification of clearance needs reduces risk and average shipping time for businesses, because they can rectify deficiencies prior to arrival.
- Advanced notification of non-compliance with port clearance needs allows ships to reroute to their best alternatives.

Implications:

- Compliance shortfalls can be identified in advance, and efficiencies to both port capacity and shipping time savings can be realized.
- PCS and ICT systems can help businesses to circumvent standardization needs. These systems can be used to inform businesses about the regulatory needs at each intermittent shipping destination and optimize their shipping routes.

PCS and ICT Systems Present Opportunities

Key Findings

- Inefficiencies in connectivity can create real costs to the transportation of goods.
- The multitude of regulations and tariffs between different economies have created a scattered mess of custom rules and trade barriers.
- Standardization is seen as a key method to remedy the issues, but standardization is a slow and difficult process. PCS and ICT systems can create a workaround.
- ICTs and PCS systems can help automate the process to meet current regulatory rules and allow companies to make better business decisions.

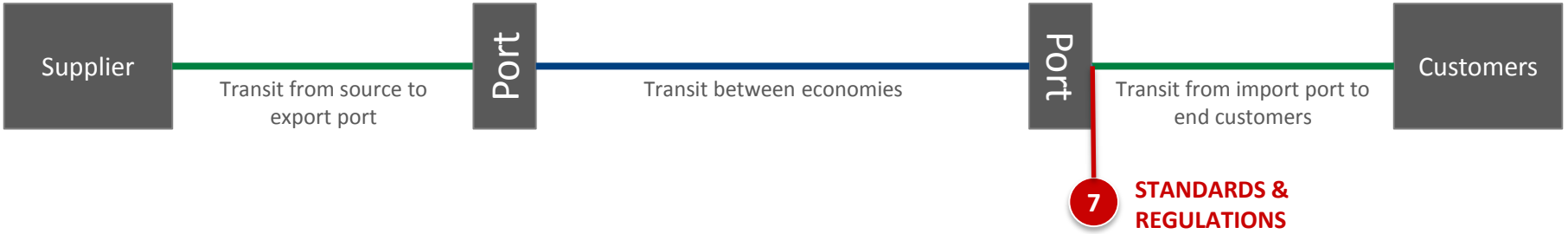
What ABAC Can Do

- Review documents for commonalities and create a "Common ABAC Document" that economies can create supplements to for items not addressed.
- Work towards standardization by identifying practices that can be replicated in other economies.
- Encourage the adoption and implementation of compatible ICT systems by acting as the central resource on this topic for the 21 economies.

REGULATIONS & STANDARDS

Impact of Standards & Regulations on the Supply Chain

Standards and regulations can cause inefficiencies in the supply chain as economies have varied practices in labeling requirements, package requirements, testing and inspection, and technical regulations.



Issues in Standards & Regulations

Time and Cost Associated with Standards & Regulations

Existing standards and regulations have imposed additional direct and indirect costs to businesses in the APEC region.

Directs Costs

- Costs associated with product re-design, building administrative system, maintaining quality control, testing, and certification.
- Higher up-front costs related to market entry barriers and higher marginal costs related to maintaining quality standards.
- Costs related to conformity (i.e. product inspections).

Indirect Costs

- Market distortion related to pricing, causing inefficiency in resource allocation.
- Reduced capacity to innovate and adapt.

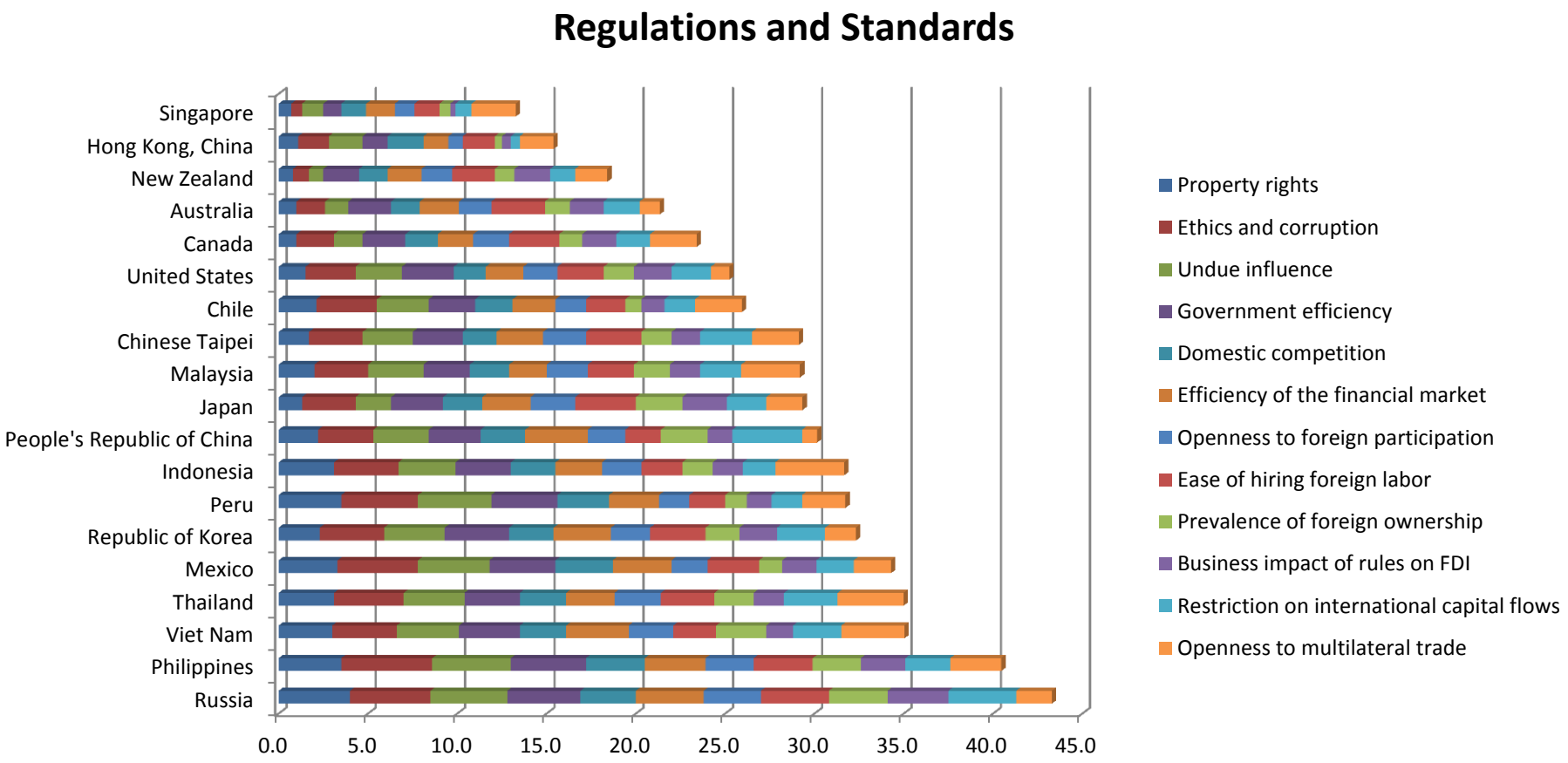
Source: McCarty, A (2000, Sept). Standards, Regulatory Reform And Development in APEC: Case Studies of Viet Nam and Thailand.
APEC (2009). APEC Economic Policy Report.

Drivers of Standards & Regulations Issues

Chokepoint Drivers	Why Not Easy to Resolve	ABAC Actions
Inconsistencies in implementation and execution of policies	It is difficult to harmonize standards and regulation because it involves changing existing complex administrative procedures. Often, the initial cost of investment and training that is required to overcome organizational inertia becomes the barrier to change.	Implement an APEC arbitration process.
Multi-jurisdictions within economies	Improvements to trade policy may result in procedural changes in multiple agencies. The effort to reform and align the mission and interests of multiple agencies is a major challenge.	Increase transparency. (See **Slide 83** for Transparency Recommendation.)
Political influences	Emerging industries seek protection from local standards and regulations. This can be in the form of standards and technical regulation.	Conduct a study on the economic impact to APEC economies due to protectionist policies.

Regulations & Standards Rankings by Economy

The Regulations & Standards chokepoint consist of questions surrounding property rights, ethics and corruption, undue influence, government efficiency, domestic competition, efficiency of the financial market, openness to foreign participation, ease of hiring foreign labor, prevalence of foreign ownership, business impact of rules on FDI, restriction on international capital flows, and openness to multilateral trade. Below are the ETI scores for these sub-pillars by economy.



Source: World Economic Forum (2010). The Global Enabling Trade Report.

Voice of Business on Standards & Regulations Issues

Through our interviews with business leaders and subject-matter experts in APEC economies, we collected the following anecdotes:

"Textile factories in Peru have to be in strict compliance with regulations in China and EU; however, laws and standards in Asia and Europe have various different requirements that create excessive transaction costs for firms that try to do business in these economies."

Textile Company, Peru

"Chilean firms are overwhelmed by the U.S. regulations so they don't even try. A lot of the time, the rules in the U.S. are actually the same as in Chile, but the Chilean firms don't realize this."

Trade Organization, Chile

"Uniformity in labeling regulations would be the biggest realistic change for [our company].

Wine Manufacturer, Australia

"The Chinese may require you to do a trial in their economy to get approval, even though they have the same requirements as other nations, and this process can take a lot of time and redundant money – sometimes in the millions of dollars."

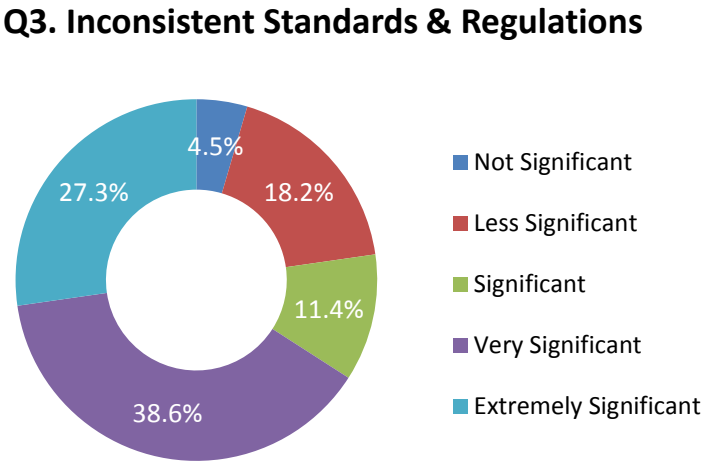
Pharmaceutical Company, Thailand

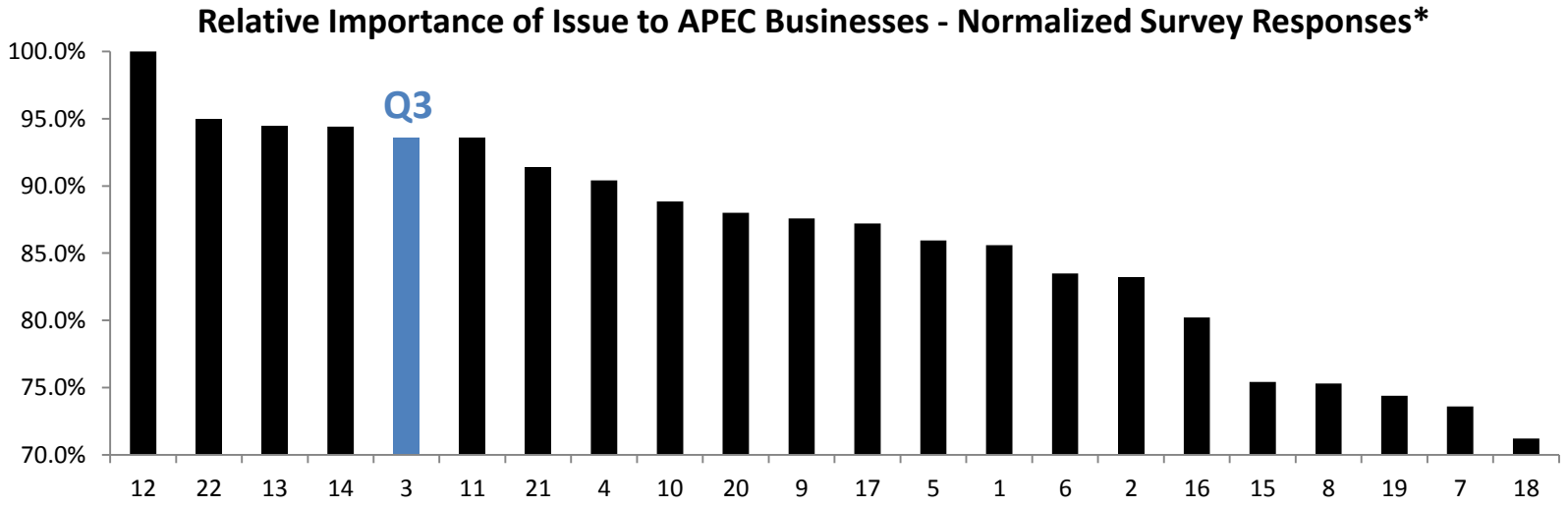
Key Takeaway

The complexity of standards and regulations in other economies is causing anxiety to businesses in emerging economies and thereby deterring participation. Those who do participate are incurring redundant costs related to compliance with requirements that are similar to those in their home economy.

APEC Businesses Believe Inconsistent Standards and Regulations are a Significant Barrier to Trade

Our survey responses indicated that 77.3% of respondents found inconsistent standards and regulations across economies to be a significant barrier to trade.





* For explanation of normalized data, see **Appendix C**

Regulations & Standards: Best Practice

Mutual Recognition (Equivalence):

Differences in standards and regulations can be resolved if economies can recognize each other's policies as equivalent to its own in terms of effectiveness to achieve the same objectives: from the protection of human safety and health to the protection of the environment.

Trans-Tasman Mutual Recognition Arrangement

Description: The Trans-Tasman Mutual Recognition Arrangement is a non-treaty arrangement between the government of Australia and the government of New Zealand to establish mutual recognition and to facilitate the trade of goods, services, and human resources across the economies.

Problem Addressed: Under this arrangement, goods and products that are in compliance with Australian regulations are also considered to in compliance with New Zealand regulations, and they can be transported and sold to each other's economy legally without further inspection, testing, and certification. Similarly, a person who is registered to practice an occupation in one economy is also entitled to practice equivalent occupation in the other economy.

Investment: Transactional costs – drafting and passing legislation, planning costs.

Result: This mutual recognition arrangement has been effective in enabling free movement of products, goods, and people across economies, and lowering business transaction and compliance costs.

More Information:

http://www.med.govt.nz/templates/StandardSummary____334.aspx

Source: World Trade Organization (2011).Technical Information on Technical Barriers to trade. Retrieved from http://www.wto.org/english/tratop_e/tbt_e/tbt_info_e.htm on Oct, 2011.

Bringing Together Standards & Regulations will Reduce Costs

Key Findings

- Variations in standards and regulations can impede the flow of trade and create transaction costs.
- Unifying standards and regulations across economies can generate large savings for both the public and private sector in those economies.
- If standards and regulations can be unified across borders, unnecessary transaction costs can be avoided. Trade volumes can be increased by reducing costs for businesses and government, reducing time for goods clearance and paperwork processing, and simplifying existing procedures which can lead to a reduction in redundant reporting.

What ABAC Can Do

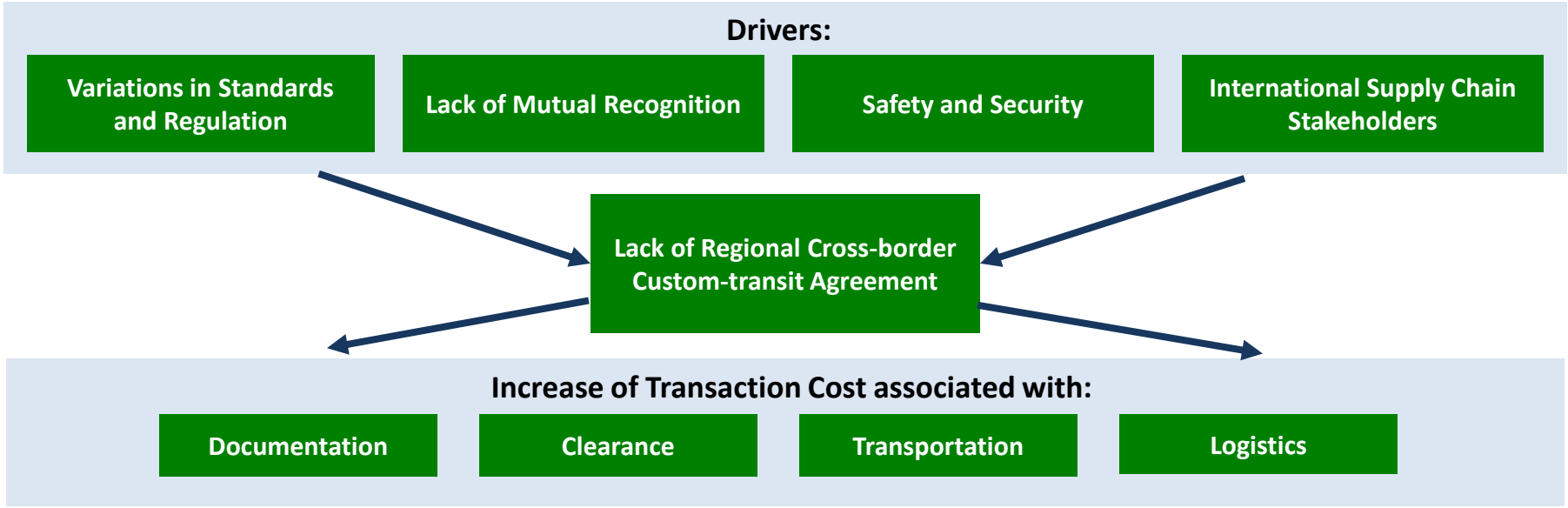
- Implement an APEC arbitration process.
- Conduct a study on the economic impact to APEC economies due to protectionist policies.

CUSTOMS TRANSIT ARRANGEMENTS

Impact of Customs Transit Arrangements on the Supply Chain

Cross-border transit issues refer to the inefficiencies involved in transiting between two economies by connecting through one or more economies that are not participating in the end transaction.

Issues in Transit



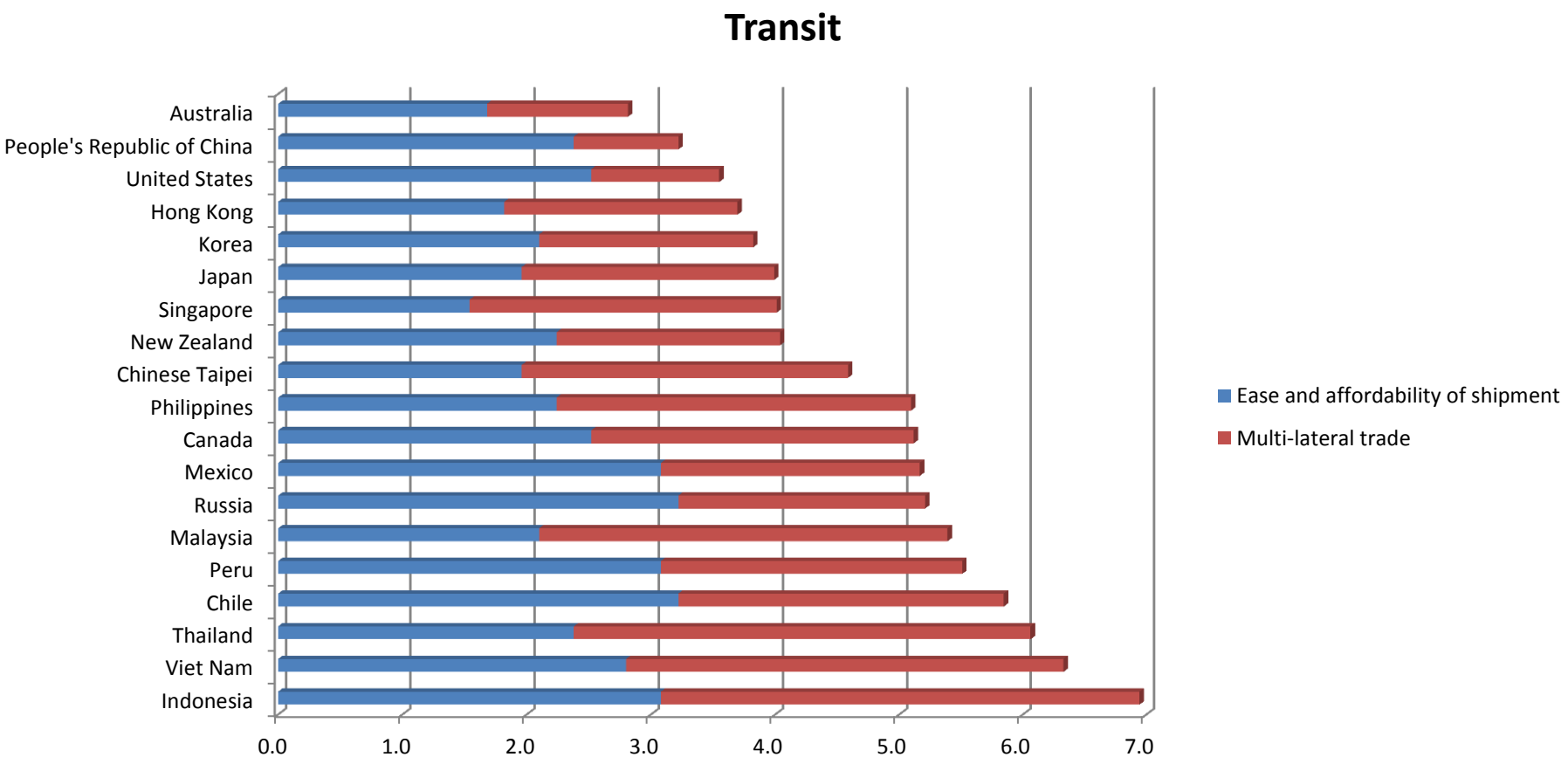
Source: European Commission (2006, June). Authorised Economic Operators The AEO Compact Model.
Laden, M. (2007, Nov). Authorized Economic Operator Rolls Out in the European Union. Retrieved from http://www.shipsolutions.com/anm/templates/newsletter_article.asp?articleid=115&zoneid=3 in Oct 2011.

Drivers of Customs Transit Arrangement Issues

Chokepoint Drivers	Why Not Easy to Resolve	ABAC Actions
Safety and security	Due to differences in what are perceived as acceptable levels of safety and security, it is difficult to implement a systematic approach to assess the customs procedures in place across multiple economies. The risks associated with accepting other economies' policies are very significant.	Progress towards standardization will also impact this driver as differences across economies decrease.
Differences across economies	Economies have different import/export procedures in place, and as a result, it is difficult to reach common outcomes and uniform interpretation of standards.	Work towards standardization by identifying practices that can be replicated in other economies.

Custom Transit Arrangement Rankings by Economy

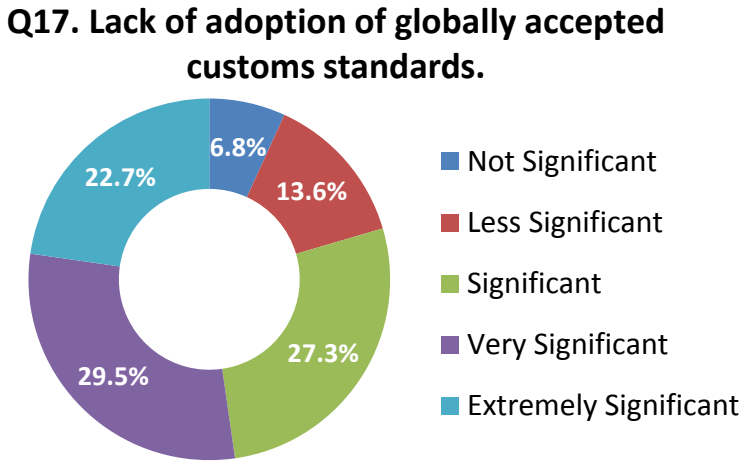
The transit chokepoint encompasses issues around ease and affordability of shipment and multi-lateral trade. Below are the ETI values for those sub-pillars by economy.

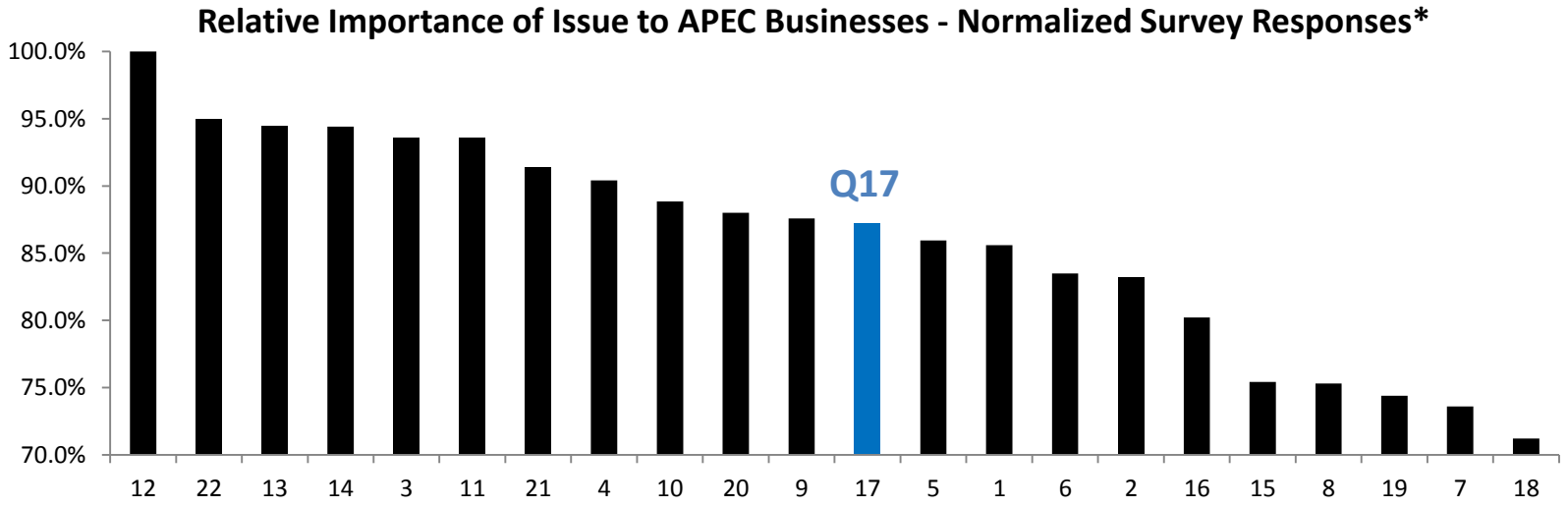


Source: World Economic Forum (2010), The Global Enabling Trade Report.

APEC Businesses Believe Inconsistent Customs Transit Arrangement Rules are a Significant Barrier to Trade

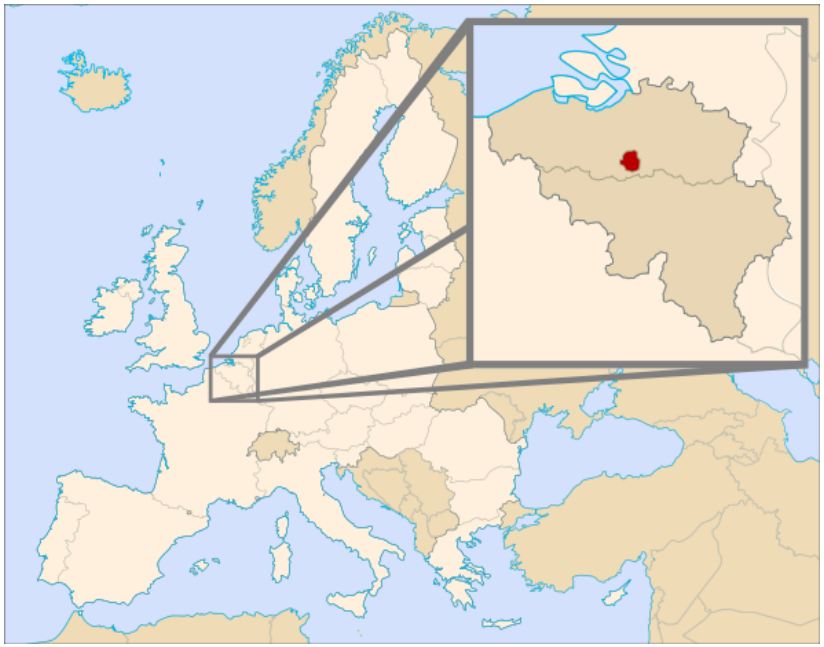
Our survey responses indicated that 79.6% of respondents found the lack of globally accepted customs standards a significant barrier to trade.





* For explanation of normalized data, see **Appendix C**

World Customs Organization: Attempt to Create a Global Customs Standards



WCO Headquarters

WCO Data Model – An Ongoing Development

Description: The WCO Data Model provides a framework of standard and harmonized sets of data and standard electronic messages to be submitted by trade for Customs and other regulatory purposes to accomplish formalities for the arrival, departure, transit and clearance of goods in international cross-border trade.

Problem Addressed: Information and documentation are key elements in the control of international cross-border trade. In today's interconnected electronic environment these controls include advance transmission of data to Customs as well as Customs-to-Customs information exchange in order to provide the necessary level of security as well as acceptable release times.

Standardized data sets and electronic messages using international code standards are key for effective and efficient for B2B, B2G (business to government), and G2G (government to government) exchange and sharing of information.

Benefits: Increased safety and security through the early sharing of information, reduction in regulatory redundancy, reduction in the amount of data required at time of release, and reductions in compliance costs

Result: The WCO Data Model has aligned export and import data requirements and created a single electronic structure for countries which have adopted the model. This enables a more effective exchange of information between export and import and allows export information to be reused at import.

More Information:

http://www.wcoomd.org/learning.htm

Source: WCO (2002), *WCO Fact Sheet 2002.*

WCO, (2008), *WCO Data Model*. Retrieved from http://www.wcoomd.org/files/6.SW_Files/SW%20Initiatives/WCO/001-History%20and%20Current%20Status.pdf in Oct, 2011.

Standardization Can Help Reduce Customs Transit Issues

Key Findings

- A lack of trust between economies results in unnecessary and redundant customs clearance procedures. When cargo is shipped from economy A to C but must pass through economy B en route, the relationship and trust between economy B and A determines the need for economy B to redundantly pass the cargo through their own customs clearance procedures.
- Reducing the differences in customs clearance procedures within the region can increase the likelihood of individual economies using customs transit agreements that are standardized across multiple economies.

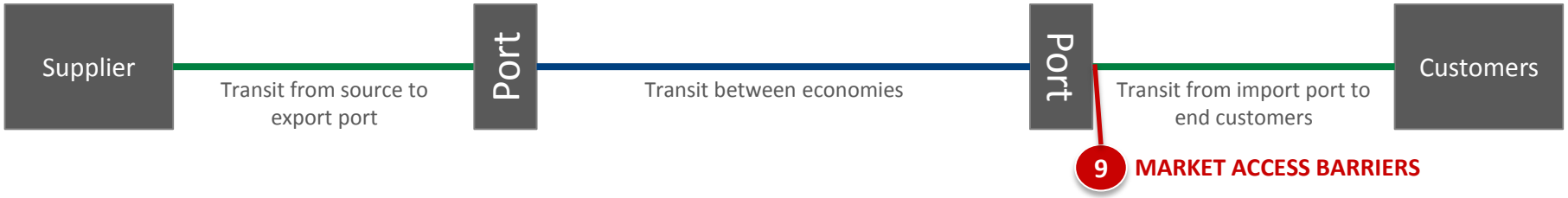
What ABAC Can Do

- Promote standardization, as this will help decrease the differences between economies and move them towards a unified set of procedures.
- Work towards standardization by identifying practices that can be replicated in other economies.

MARKET ACCESS

Tariff and Non-Tariff Barriers Impact on the Supply Chain

Market access barriers, both tariffs and non-tariff barriers (NTBs), continue to divert trade and unnecessarily increase costs of goods and services within the APEC region. APEC businesses estimate NTBs increase costs by 12 – 15 percent or higher. Improving market access is a complex challenge. It involves a difficult balance - weighing sovereignty concerns against coordinated collective gains by multiple economies.



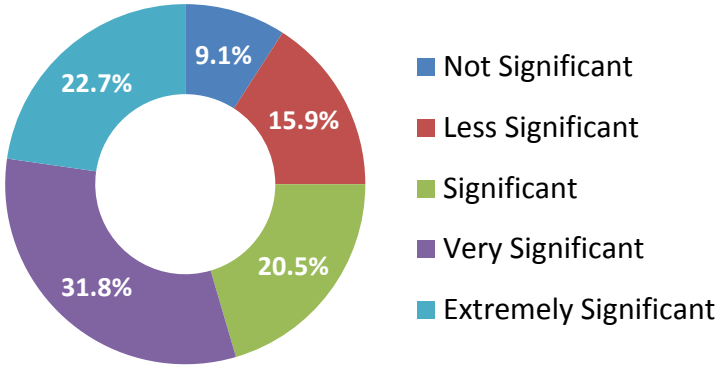
Issues in Market Access

- **Key Challenge:** While tariffs are slowly being reduced, NTBs are not. Newly introduced NTBs, as well as those already in place, are unnecessarily increasing costs.
- **Emerging NTBs:** Industry-initiated requirements within supply chains, NGO initiatives (such as FairTrade), and technological advances (such as genetically modified organisms) are creating new categories of NTBs which increase costs of compliance. Of critical importance is that these emerging NTBs fall outside the traditional scope of government control.
- **Perspective Conflict:** Domestic and foreign interests clash over the need for and legitimacy of non-tariff measures.
- **Impact on Industry Sectors:** Different types of NTBs are problematic to different industrial sectors. For agricultural goods, NTBs that impose time delays are far more damaging than simple increases in testing and compliance costs. For manufactured goods, technical standards requirements can easily become outright import bans.

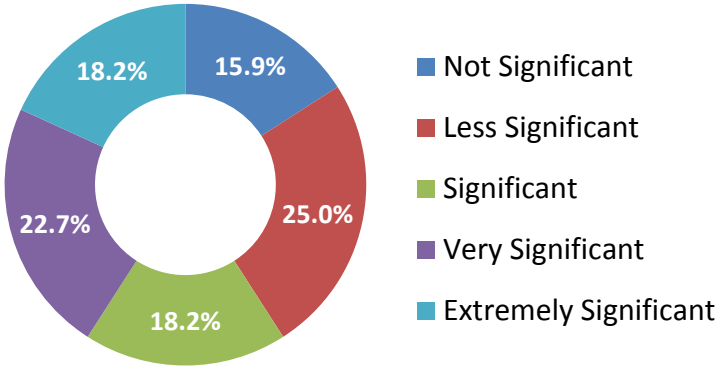
APEC Businesses Criticize Unnecessary Market Access Restrictions

Our survey responses indicated that 75.0% of respondents found trade regulations restrictive and significant barriers to trade, and 59.1% of respondents believed that costs for terrorism prevention were a significant barrier to trade.

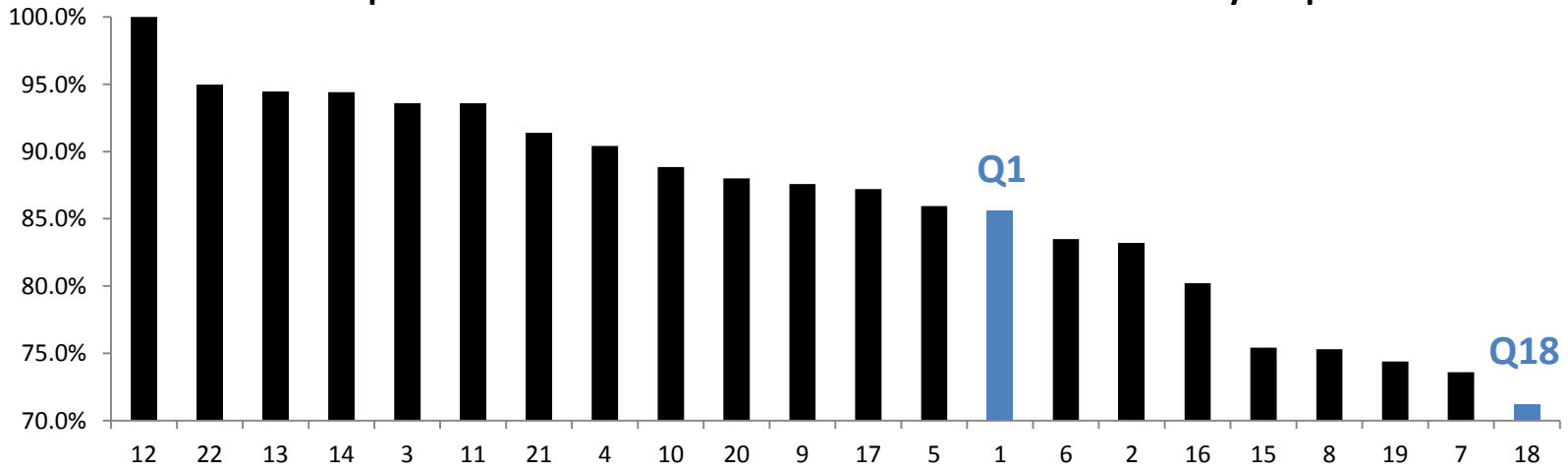
Q1. Restrictive Trade Regulations



Q18. Terrorism Prevention Costs or Fees



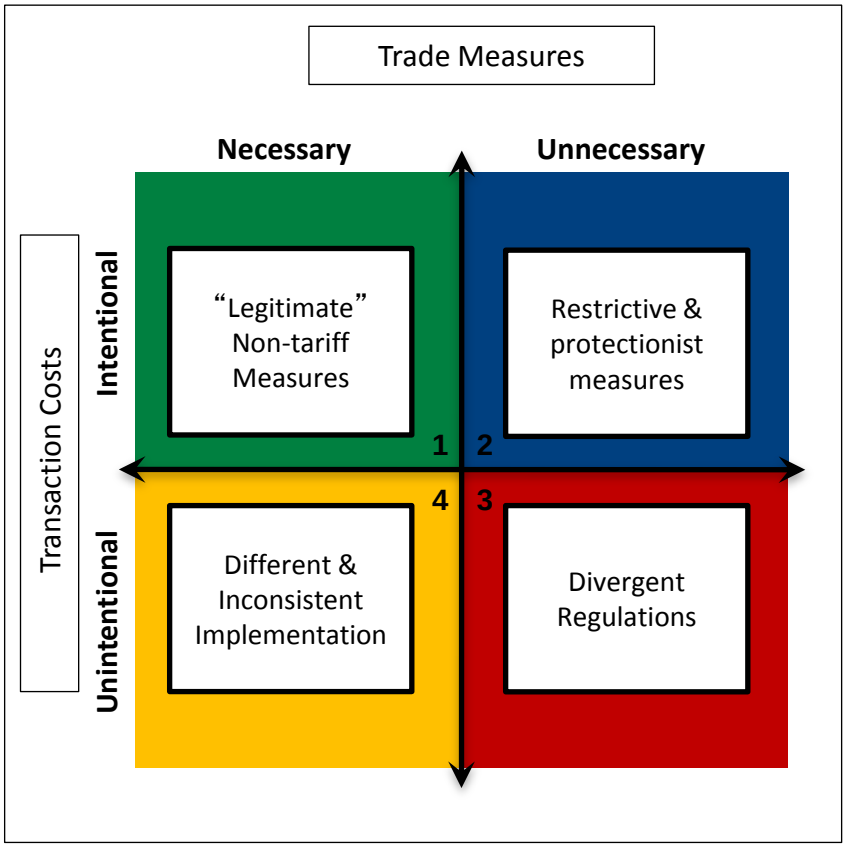
Relative Importance of Issue to APEC Businesses - Normalized Survey Responses*



* For explanation of normalized data, see **Appendix C**

Not all NTBs are the Same

It is important to distinguish NTBs by their source and impact. Even globally-recognized "legitimate" Non-Tariff Measures (NTMs) can unintentionally and unnecessarily raise transaction costs and impede trade flows. In this definition, NTMs are legitimized by agreement of need between parties involved, whereas NTBs are argued, by at least one party, to restrict the flow of trade.



1 – "Legitimate" NTMs

Exporting economies recognize the need to put in place regulations that protect against known threats and risks.

2 – Restrictive and Protectionist NTBs

Exporting economies debate the destination economy's need for these measures, and deem them to be unnecessary and "illegitimate".

3 – Divergent Regulations

In the absence of globally accepted standards, economies create their own regulations and standards. The lack of harmonization of standards across economies raises transaction costs.

4 – Different and Inconsistent Implementation

Economy-specific procedures, additional administrative requirements, and inconsistent implementation of procedures increases transaction costs.

The conceptual matrix is developed more fully in the USC Marshall ABAC research study "Non-Tariff Barriers to Trade in the APEC Region" presented in Lima, Peru, 2008

Drivers of Market Access Barriers

Chokepoint Drivers	Why Not Easy to Resolve	ABAC Actions
Protectionism and restrictive NTBs	When NTMs are not appropriate to mitigate risk, seek to advantage domestic producers, are based on non-standardized principles, or are implemented differently across economies, *they become NTBs.* Disagreements and misunderstanding over whether an NTM is legitimate or unnecessary are difficult to resolve because domestic and foreign parties weigh the risks differently.	Encourage transparency. Engage in ongoing APEC dialogues to improve understanding of mutual concerns between economies.
Absence of globally-accepted standards	Some economies add economy-specific regulations to the globally accepted standards. This creates new and different sets of standards. Getting all economies to accept comprehensively inclusive standards, without omissions, is very difficult.	Lobby for harmonized and standardized NTM requirements. Provide more robust guidance on how SPS and technical standards should be written.
Inconsistencies in implementation and execution of policies	Differences in approaches to how standards and regulations are made, interpreted, and implemented turn well-intentioned NTMs into burdensome and costly NTBs. The implementation process can be made more difficult due to variances in economic development.	Establish protocols and comprehensive standards. Share best practice protocols across economies.

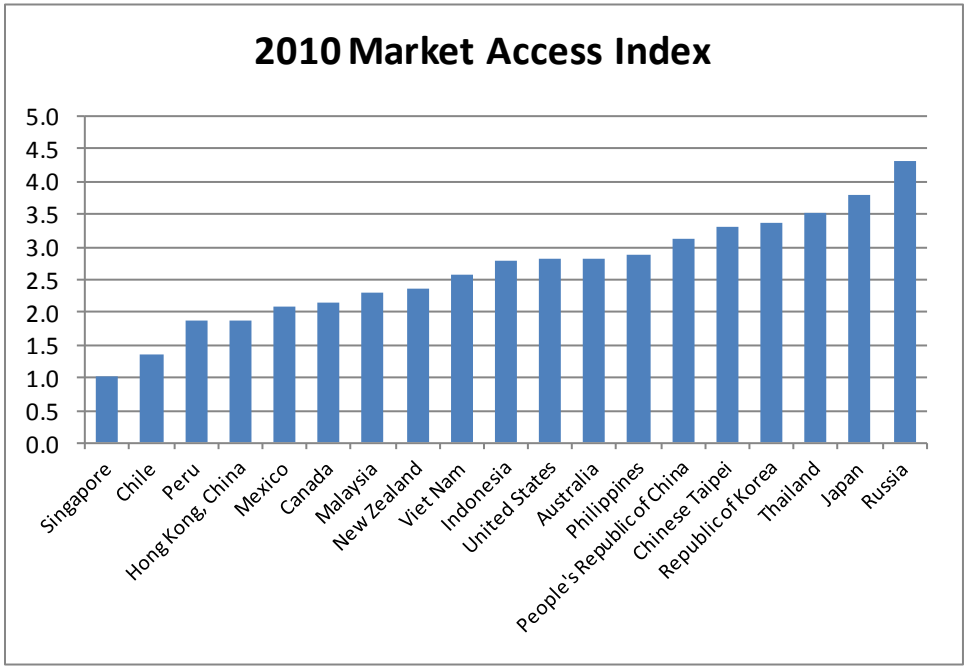
Level of Market Access in APEC Economies Varies Greatly

The data below is drawn from the WEF Global Enabling Trade Report. The report creates a composite score which combines tariffs and NTBs imposed by economies on incoming trade, and those faced by its exporters. The composite score gives an overall view of market access barriers.

APEC Market Access Index and Rankings

Economy	2010 Market Access Rank	2010 Market Access Index	2009 Market Access Rank	2009 Market Acces Index	Rank change	Index change
Australia	63	2.83	97	3.28	34	0.45
Canada	25	2.15	13	2.04	-12	-0.11
Chile	2	1.35	3	1.42	1	0.07
People's Republic of China	79	3.13	103	3.4	24	0.27
Chinese Taipei	106	3.30	99	3.3	-7	0.00
Hong Kong, China	16	1.88	20	2.25	4	0.37
Indonesia	60	2.79	53	2.93	-7	0.14
Japan	121	3.80	115	3.9	-6	0.10
Republic of Korea	111	3.37	106	3.53	-5	0.16
Malaysia	31	2.29	32	2.4	1	0.11
Mexico	22	2.10	43	2.75	21	0.65
New Zealand	37	2.35	39	2.61	2	0.26
Peru	15	1.87	25	2.35	10	0.48
Philippines	64	2.87	56	2.98	-8	0.11
Russia	125	4.32	113	3.84	-12	-0.48
Singapore	1	1.03	2	1.37	1	0.34
Thailand	113	3.52	98	3.28	-15	-0.24
United States	62	2.83	49	2.84	-13	0.01
Viet Nam	50	2.59	112	3.76	62	1.17
APEC Averages	58.1	2.65	62	2.85	3.9	0.2
EU Averages	88.7	3.29				
World Averages	63.0	2.77				

- Two APEC economies lead the world in market access, but some APEC economies score very poorly in that category.
- Improvements in market access within APEC place it ahead of the European Union.
- From 2009 to 2010, APEC shows a small overall positive improvement in market access.



Source: World Economic Forum (2009, 2010). The Global Enabling Trade Report.

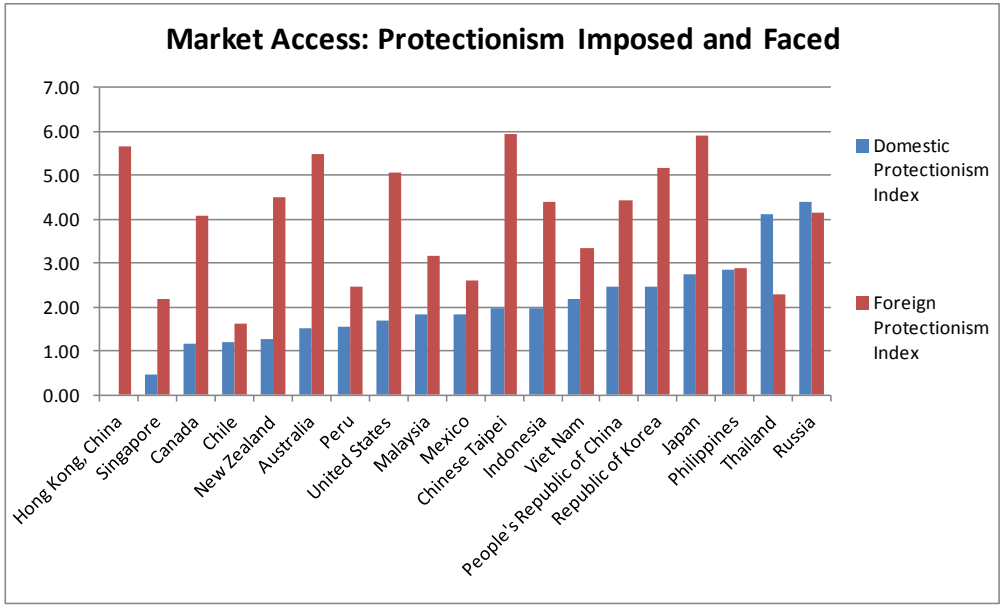
APEC's Market Access Challenge is Asymmetric

The data presented below decomposes market access into its two forms: protectionism imposed by APEC economies on incoming goods and services, and protectionism faced by exporting firms.

Market Access: Protectionism Imposed and Faced

Economy	Domestic Market Access		Foreign Market Access	
	Rank	Domestic Protectionism Index	Rank	Foreign Protectionism Index
Australia	21	1.51	122	5.47
Canada	8	1.18	70	4.09
Chile	11	1.22	4	1.61
Chinese Taipei	44	1.98	125	5.94
Hong Kong, China	1	0	123	5.65
Indonesia	45	1.99	79	4.41
Japan	98	2.76	124	5.89
Malaysia	34	1.85	41	3.17
Mexico	35	1.85	22	2.59
New Zealand	12	1.27	84	4.5
People's Republic of China	81	2.47	83	4.45
Peru	23	1.57	21	2.48
Philippines	100	2.86	31	2.89
Republic of Korea	82	2.48	119	5.16
Russia	125	4.41	72	4.14
Singapore	2	0.45	16	2.2
Thailand	124	4.13	18	2.29
United States	29	1.71	116	5.05
Viet Nam	58	2.2	47	3.36
APEC Average	49.1	1.99	69.3	3.97
EU Average	75.4	2.40	89.7	4.76

- APEC economies collectively face high market access barriers when exporting.
- The challenge of trade barriers faced by exporting firms is larger for the APEC business community than for importing firms.
- The export community within APEC must cope with substantial market access challenges. Firms from developed APEC economies face higher protectionist policies than their competitors in the EU.



Source: World Economic Forum (2009, 2010). The Global Enabling Trade Report.

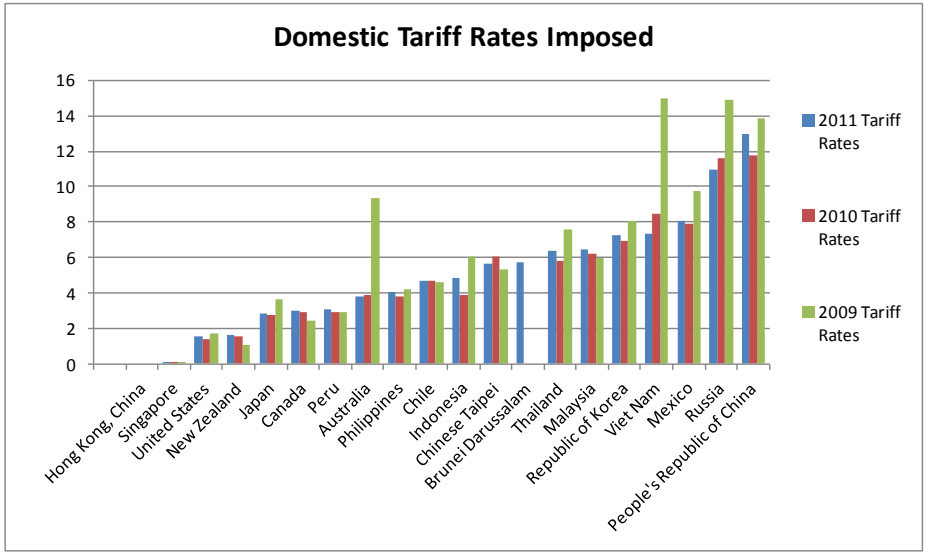
A Small but Systematic Reduction in Imposed Tariffs Across APEC

The table below presents tariff rates imposed by APEC economies on imported goods and services. The table presents imposed tariff rates for 2009 – 2011.

Domestic Tariff Rates Imposed

Economy	2011 Global Rank	2011 Tariff Rates	2010 Global Rank	2010 Tariff Rates	2009 Global Rank	2009 Tariff Rates	Rank change 2010-2011	Tariff Rate Change 2010-2011
Australia	45	3.84	48	3.90	86	9.31	3	0.06
Brunei Darussalam	70	5.75						
Canada	39	3.00	38	2.94	32	2.42	-1	-0.06
Chile	62	4.67	61	4.66	47	4.63	-1	-0.01
People's Republic of China	126	12.97	108	11.75	110	13.88	-18	-1.22
Chinese Taipei	69	5.64	72	6.09	56	5.37	3	0.45
Hong Kong, China	1	0.00	1	0.00	1	0.00	0	0.00
Indonesia	63	4.83	47	3.86	62	6.07	-16	-0.97
Japan	36	2.87	35	2.72	40	3.61	-1	-0.15
Republic of Korea	84	7.24	77	6.94	76	8.03	-7	-0.30
Malaysia	78	6.43	73	6.21	59	5.94	-5	-0.22
Mexico	91	8.06	83	7.88	87	9.77	-8	-0.18
New Zealand	33	1.62	32	1.58	29	1.10	-1	-0.04
Peru	40	3.07	36	2.88	34	2.89	-4	-0.19
Philippines	47	4.03	46	3.84	46	4.23	-1	-0.19
Russia	109	10.97	107	11.56	114	14.92	-2	0.59
Singapore	2	0.04	2	0.03	2	0.04	0	-0.01
Thailand	77	6.37	71	5.79	69	7.57	-6	-0.58
United States	32	1.55	31	1.43	30	1.68	-1	-0.12
Viet Nam	86	7.36	85	8.43	115	14.94	-1	1.07
APEC Average	59.50	5.02	55.42	4.87	57.6	6.13		1.26

- APEC economies, in general, show a general trend toward reducing tariffs in imported goods and services.
- Despite the impact of the global financial crisis there is little evidence of increased protectionism.
- China and Russia remain APEC outliers. However, both economies show some evidence of reducing tariffs.

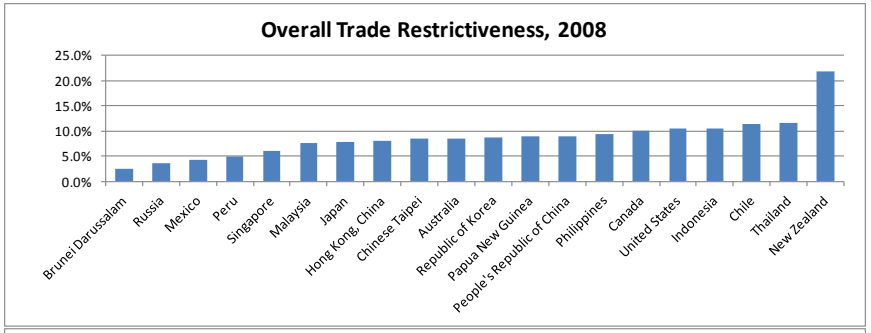


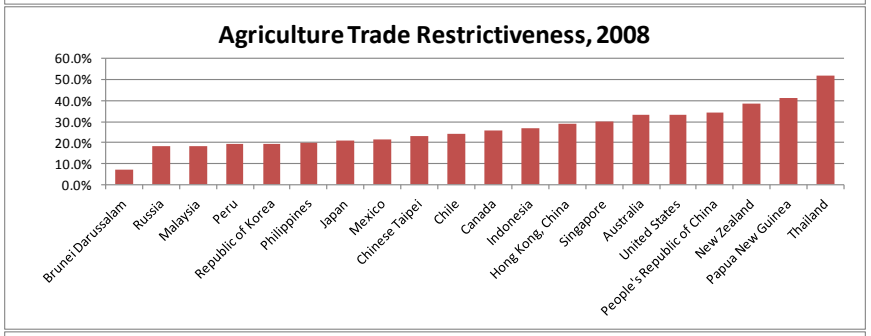
Source: World Economic Forum (2009, 2010). The Global Enabling Trade Report.
World Economic Forum (2011).The Global Competitiveness Report.

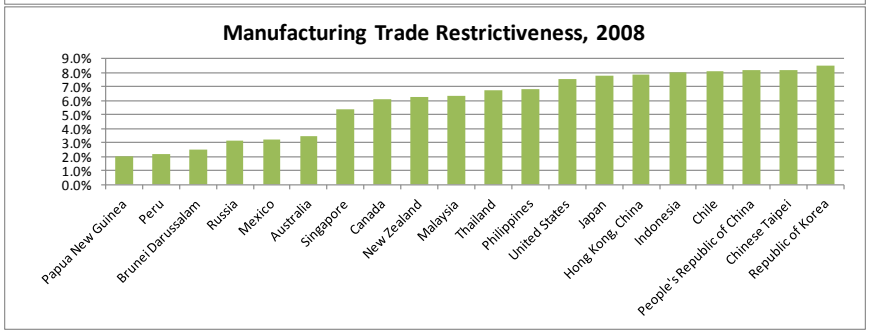
Market Access Trade Restrictions Faced by APEC Economies

The data below presents market access restriction measures faced by APEC economies on exported goods and services. The data is further separated into the restrictiveness faced by agricultural exporters and manufacturing exporters. Restrictiveness is substantially higher than for agricultural goods than for manufactured goods.

Market Access Trade Restrictiveness			
Economy	**Overall Trade Restrictiveness**	**Agriculture Trade Restrictiveness**	**Manufacturing Trade Restrictiveness**
Australia	8.6%	33.2%	3.5%
Brunei Darussalam	2.5%	7.2%	2.5%
Canada	10.1%	25.6%	6.1%
Chile	11.3%	24.3%	8.1%
People's Republic of China	8.9%	34.3%	8.2%
Chinese Taipei	8.4%	23.1%	8.2%
Hong Kong, China	8.2%	29.0%	7.9%
Indonesia	10.6%	26.6%	8.1%
Japan	7.9%	21.1%	7.8%
Republic of Korea	8.7%	19.6%	8.5%
Malaysia	7.6%	18.5%	6.3%
Mexico	4.2%	21.4%	3.2%
New Zealand	21.8%	38.4%	6.3%
Papua New Guinea	8.9%	41.1%	2.0%
Peru	5.1%	19.4%	2.2%
Philippines	9.3%	19.8%	6.8%
Russia	3.6%	18.3%	3.1%
Singapore	6.1%	30.0%	5.4%
Thailand	11.5%	51.7%	6.8%
United States	10.6%	33.4%	7.6%







Source: World Bank (1981-2009). Data on Trade and Import Barriers: Trends in Average Applied Rates in Developing and Industrial Countries.

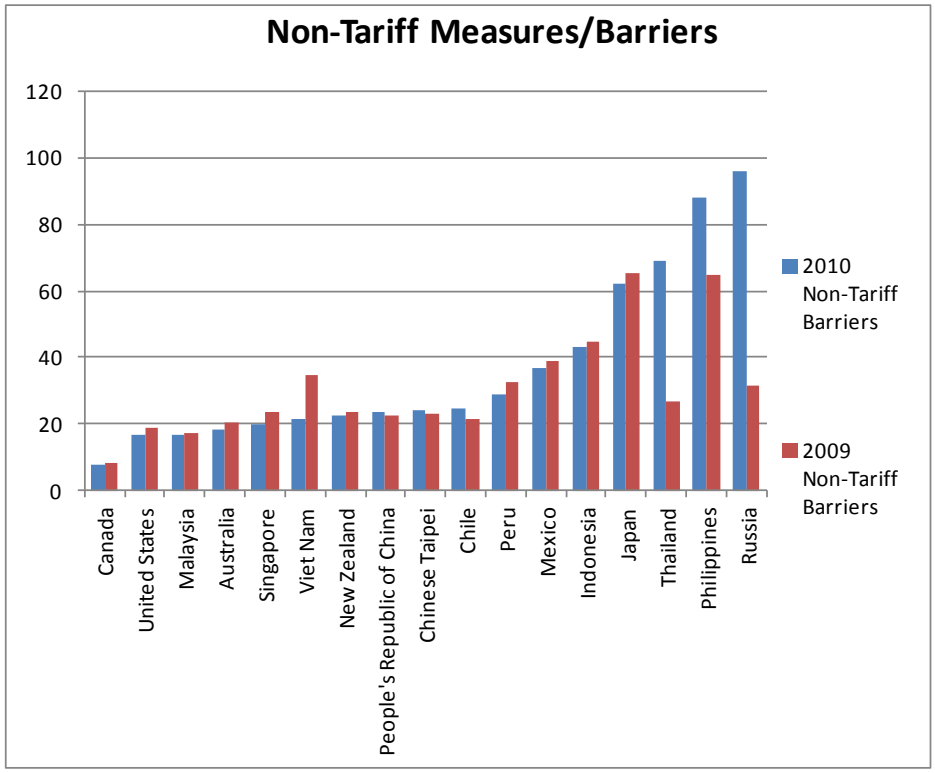
Non-Tariff Measures/Barriers Imposed by APEC Economies

The table below presents the Enabling Trade Index data on NTBs imposed by APEC economies on imported goods and services. Unfortunately this data does not offer cost estimates; but it does provide a relative measure of NTBs imposed by economies.

Non-Tariff Measures/Barriers

Economy	2010 Global Rank	2010 Non-Tariff Barriers	2009 Global Rank	2009 Non-Tariff Barriers	Rank change	Index change
Australia	28	18.02	30	20.16	2	2.14
Canada	19	7.8	21	8.48	2	0.68
Chile	38	24.78	33	21.67	-5	-3.11
People's Republic of China	34	23.77	35	22.63	1	-1.14
Chinese Taipei	35	23.88	36	23	1	-0.88
Hong Kong, China	n.a.	n.a	n.a.	n.a.	-	-
Indonesia	71	43.27	66	44.95	-5	1.68
Japan	84	61.99	88	65.39	4	3.4
Republic of Korea	n.a.	n.a	n.a.	n.a.	-	-
Malaysia	27	16.92	28	17.11	1	0.19
Mexico	55	36.88	55	38.72	0	1.84
New Zealand	33	22.73	37	23.67	4	0.94
Peru	43	28.78	46	32.3	3	3.52
Philippines	90	88.01	86	64.53	-4	-23.48
Russia	94	95.98	44	31.23	-50	-64.75
Singapore	31	19.92	38	23.8	7	3.88
Thailand	86	69.26	40	26.9	-46	-42.36
United States	26	16.89	29	18.61	3	1.72
Viet Nam	32	21.56	50	34.89	18	13.33

- Of note is that only one APEC economy, Canada, ranks among the top 20 global economies with the lowest NTBs.
- Problematically, four APEC economies (Japan, Philippines, Russia, and Thailand, rank in the bottom half of all ranked global economies.



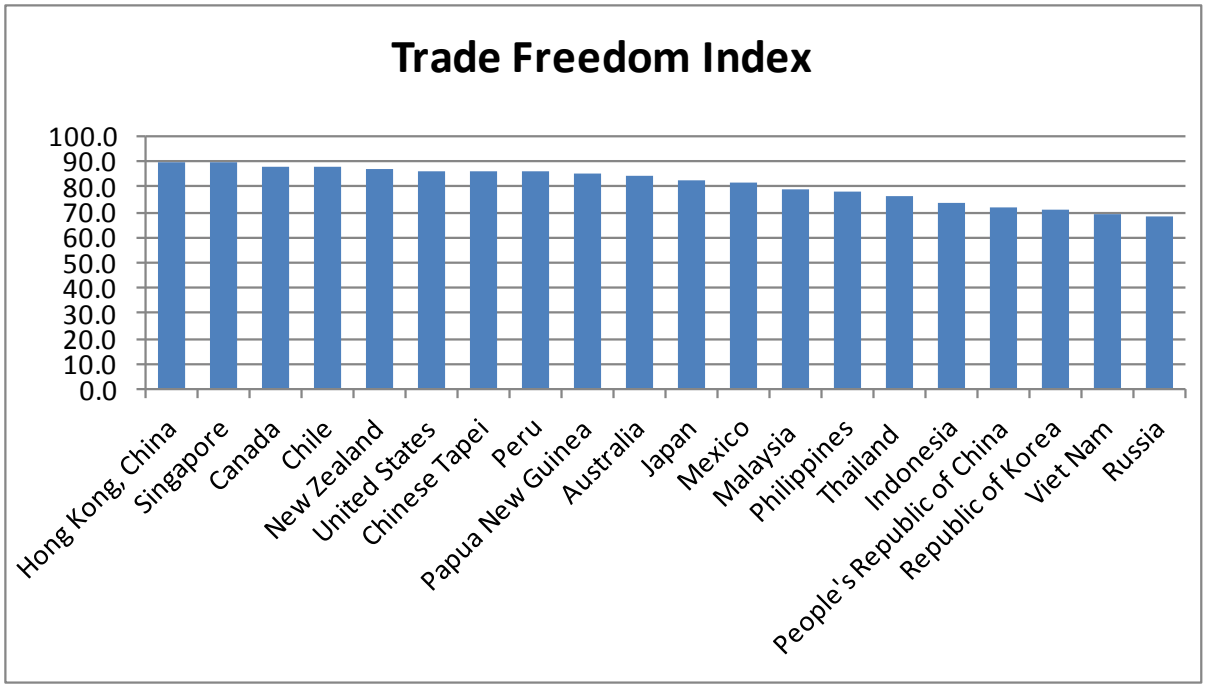
Source: World Economic Forum (2009, 2010). The Global Enabling Trade Report.

Non-Tariff Measures/Barriers Imposed by APEC Economies

The table below presents different estimates of NTBs by the Heritage Foundation. The Index of Trade Freedom combines both tariffs and NTMs to form a composite index.

Economy	Trade Freedom Index
Australia	84.4
Canada	88.1
Chile	88.0
People's Republic of China	71.6
Chinese Taipei	86.2
Hong Kong, China	90.0
Indonesia	73.8
Japan	82.6
Republic of Korea	70.8
Malaysia	78.7
Mexico	81.2
New Zealand	86.6
Papua New Guinea	85.4
Peru	86.0
Philippines	77.8
Russia	68.2
Singapore	90.0
Thailand	75.9
United States	86.4
Viet Nam	68.9
APEC Average	81.0
EU Average	87.1

- Of note is that two developed APEC economies, Korea and Japan, rank in the bottom half of the APEC distribution.



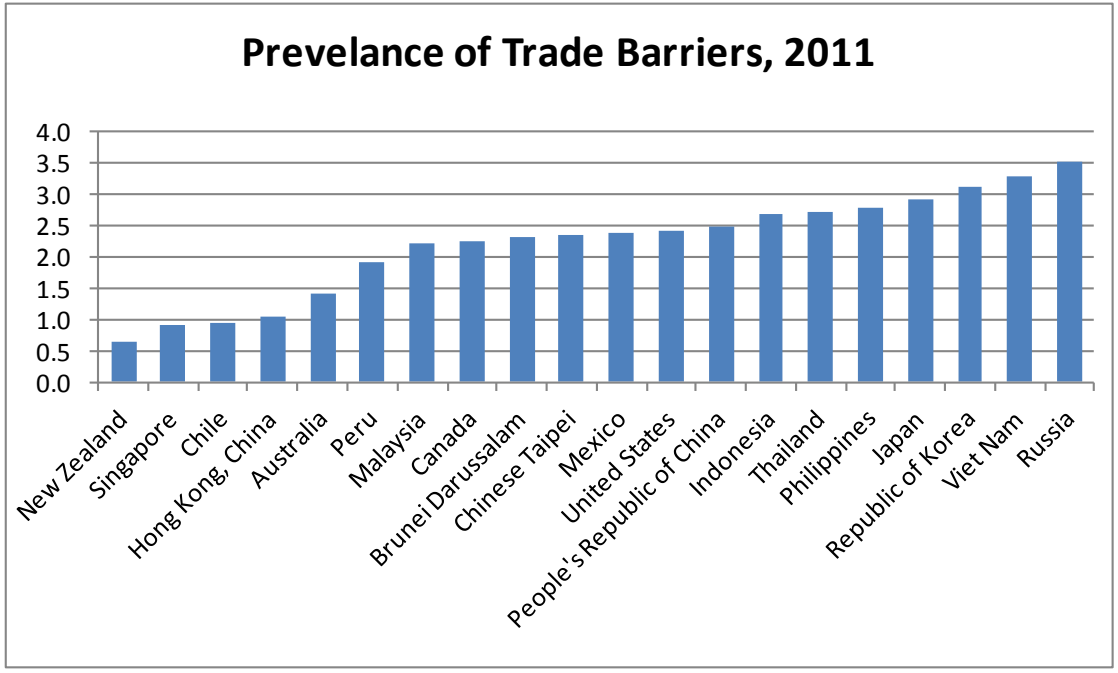
Source: Heritage Foundation (2010). Index of Economic Freedom.

Non-Tariff Measures/Barriers Imposed by APEC Economies

The table below presents new estimates of NTBs by the World Economic Forum reported in the Global Competitiveness Report. The Prevalence of Trade Barriers index also combines both tariffs and NTMs to form a composite index.

Prevalence of Trade Barriers		
Economy	**2011 Global Rank**	**2011 Prevalence of Trade Barriers**
Australia	14	1.41
Brunei Darussalam	53	2.33
Canada	47	2.24
Chile	5	0.96
People's Republic of China	63	2.48
Hong Kong, China	9	1.05
Indonesia	78	2.68
Japan	100	2.91
Republic of Korea	118	3.11
Malaysia	44	2.21
Mexico	57	2.37
New Zealand	1	0.63
Peru	28	1.92
Philippines	89	2.79
Russia	134	3.53
Singapore	3	0.9
Chinese Taipei	55	2.36
Thailand	86	2.73
United States	59	2.42
Viet Nam	129	3.28
APEC Average	58.6	2.2
EU Average	32.1	1.83

- APEC's three largest economies, China, Japan and the United States, all rank in the bottom half of APEC economies. Three developed APEC economies, Korea, Japan and the United States also rank in the bottom half.
- Collectively, APEC compares poorly, in relative terms, with the E.U.
- Except for Korea and Japan, all developed APEC economies compare favorably with the E.U.



Source: World Economic Forum (2011), The Global Competitiveness Report.

New Emerging NTBs

Business reports new challenges in meeting the ever increasing demands and requirements of large multinational enterprises and NGOs. Problematically, some of these new requirements fall outside of the authority of government agencies. Additionally, new technological advances, with unknown potential consequences, are leading to poorly thought out safeguards and requirements. Private sector and non-government initiatives are difficult to coordinate and lead to an ever increasing proliferation of uncoordinated set of new requirements for businesses.

Industry Requirements	Technological Advances	NGO Initiatives
Industry initiatives to establish new requirements are creating unnecessarily costly NTBs. Examples include sustainability initiatives such as carbon foot print initiatives, organic standards, and eco-labeling.	Technical advances, with unknown potential consequences, put monitoring agencies on the defensive. Examples include GMO and new information & communication technologies.	Social activism by influential and well-resourced NGOs, particularly in developed economies, is creating a set of new requirements for business which are raising costs. Examples include fair labor, and fair trade initiatives.

Without collective efforts to set standards across economies, these emerging issues will introduce more divergence and increase transaction costs for business.

Voice of Business on Market Access Issues

Through our interviews with business leaders and subject-matter experts in APEC economies, we collected the following anecdotes:

"In Japan and Korea, there is a dominance by local players. It's rooted in cultural norms and nationalism."

Logistics Company, Hong Kong

"For WTO partners, phytosanitary measures are used as the new way to favor domestic players."

Trade Organization, Australia

"All fabric exported to China must be tested in Chinese labs. China does not recognize certified labs in Peru. This added 36 cents of cost to a $9 garment."

Textile Manufacturer, Peru

"We must register in every country in order to gain access. This is costly and time consuming. There should be an international registry."

Pharmaceutical Company, Thailand

"There are situations where the law is in place for everyone, but only foreigners get audited."

Food and Beverage Company, Singapore

Key Finding

Market access can be deterred for a number of reasons. Some of these require a societal change, whereas country-by-country legislation is more addressable. Also, companies feel that there are unfair practices in place for protectionist purposes.

Market Access Remains a Very Important Issue

Key Findings

- NTBs remain a critical drag on APEC supply chains. Market access barriers are not chokepoints, per se, they are direct barriers to trade, which raise the costs of goods and services.
- APEC agricultural trade barriers average 27 percent compared with 6 percent for manufactured goods.
- APEC has a large number of economies with high restrictiveness scores.
- Emerging NTBs, particularly industry and NGO established NTBs, are problematic because they fall outside the purview of governmental agencies to influence and control.
- Businesses resign themselves to dealing with politically-motivated NTBs, but they complain vigorously about unintended NTBs that arise from unnecessary divergence in standards and from inconsistent implementation.

What ABAC Can Do

- Encourage full transparency by all economies of the bases for applying NTMs to all goods and services
- Work towards standardization and harmonization of standards for all categories of NTMs. Standards must be detailed, inclusive, and comprehensive; not minimal requirements
- Facilitate the adoption of online IT systems for all NTM testing and compliance.
- APEC needs to be proactive in establishing model measures for emerging categories of NTMs.

CONCLUSION AND ACTION AGENDA

Conclusion

This report attempts to make the case for action to improve supply chains within APEC. By removing chokepoints and barriers to trade, real economic benefits to consumers, businesses, and economies are realized. The goal of this report is to provide information to ABAC which will promote dialogue, based on factual data, which can enable positive change within the region.

This study provides empirical evidence that substantial time and cost savings exist within both developed and emerging economy supply chains. However, achieving these potential improvements will require domestic political will, public-private partnerships, and coordinated collective action across APEC. Domestically, government agencies must move towards simplified and coordinated oversight of supply chains. Business and government must work together to jointly identify the best approaches for removing chokepoints and making the necessary investments in capacity improvements and new supply chain systems. Coordinated collective action among APEC economies is needed in the areas of customs requirements, establishing regionally agreed upon NTM provisions, and standardization of documents and regulations.

Frustratingly, this report identifies a very large number of chokepoints with the APEC region. It also makes the observation that different chokepoints are created by different drivers or sources; some are the result of capacity constraints, some stem from a lack of coordination between government agencies, some are caused by institutional inertia against change, some are the result of differences in economic stages of development, and others are a consequence of national differences. Consequently, solutions must be chokepoint-specific. The chain-linked nature of supply chains further complicates the challenge for achieving improvements. Solutions must be implemented in a coordinated way.

APEC has an important leadership role in establishing the framework within which regional supply chains are coordinated and improved. Without an APEC-wide framework, progress towards more efficient regional supply chains will evolve much more slowly. The benefits of standardized documents, harmonized customs standards, coordinated logistics systems, and compatible ICTs will not be obtained without coordinated collective action among APEC economies. This is APEC's role.

Action Agenda

APEC has an important role in improving regional supply chains. Improving supply chains across borders requires collective coordinated action.

- **APEC must expand its role in coordinating the sharing of supply chain best practice information**

  Supply chain best practices for developed and emerging economies do exist within APEC. APEC is home to best-in-the-world supply chains; both within firms and at the economy-level. This study has identified where best practices exist in APEC for each component of the supply chain.

- **Get the Data**

  The analysis and conclusions reached in this study could have been improved if greater granularity of data were available. The data that is currently available is simply not sufficient to provide estimates of impact that can be segmented down to individual chokepoints. Better data collection by both business and government would allow the creation of a stronger business case for change that is not dependent on "black box" economic models.

- **Accelerate harmonization efforts in customs requirements and procedures across APEC**

  Improved customs clearance times will have significant impacts on competitiveness and GDP.

- **APEC must expand its role in the leadership, governance, and oversight of standardization initiatives within supply chains**

  Standardization has broad positive economic consequences. Improved standardization will impact multiple chokepoints including transparency, documentation, customs efficiency, and customs transit arrangements.

- **Develop APEC-wide "model measures/model protocols" for information and communication technology systems (ICTs)**

  Encourage adoption of compatible IT online systems for all parts of the supply chain by all economies in APEC. Simply put, it is an issue of economic competitiveness. Adopting IT systems will "force" coordination among government agencies with responsibility for supply chain activities.

- **Keep the focus on NTBs|**

  APEC must encourage increased transparency by all economies for non-tariff measures (NTM) requirements. APEC must create opportunities for economies to discuss new emerging industry and NGO-initiated NTBs. APEC must produce model measures for all new emerging NTBs. Establishing APEC-wide standards for all NTMs, and procedures for testing and compliance, will greatly reduce cost of NTBs.

Suggested Action Items

#	Suggested Action Items	Chokepoints Addressed
1	Review import and export documents for common themes. Create a "Common ABAC Document" incorporating these findings. This document will be used to standardize the documents necessary for customs within the APEC region. The Common ABAC Document should be a working document that economies collaborate on and modify as needs change.	Transparency Clearance Documentation Connectivity Market Access
2	Work towards standardization of rules and regulations by identifying practices that can be replicated across multiple economies.	Transparency Documentation Transit Market Access
3	Investigating the possibility of establishing an APEC arbitration process for settling disputes and misunderstandings.	Transparency Standards & Regulations Market Access
4	Encourage the adoption and implementation of compatible ICT systems by acting as the central resource on this topic for the 21 economies.	Logistics Services Clearance Connectivity
5	Revisit the issue of the economic impact on APEC economies of restrictive and protectionist policies.	Transparency Standards & Regulations
6	Develop a collaborative wiki-type database that is monitored by ABAC. This database should allow businesses to update their product classifications and identify identical products which may have different classifications across multiple economies. This system should be accessible to customs officers across all economies.	Documentation
7	Create a central database where all necessary documents are available.	Transparency

Suggested Action Items

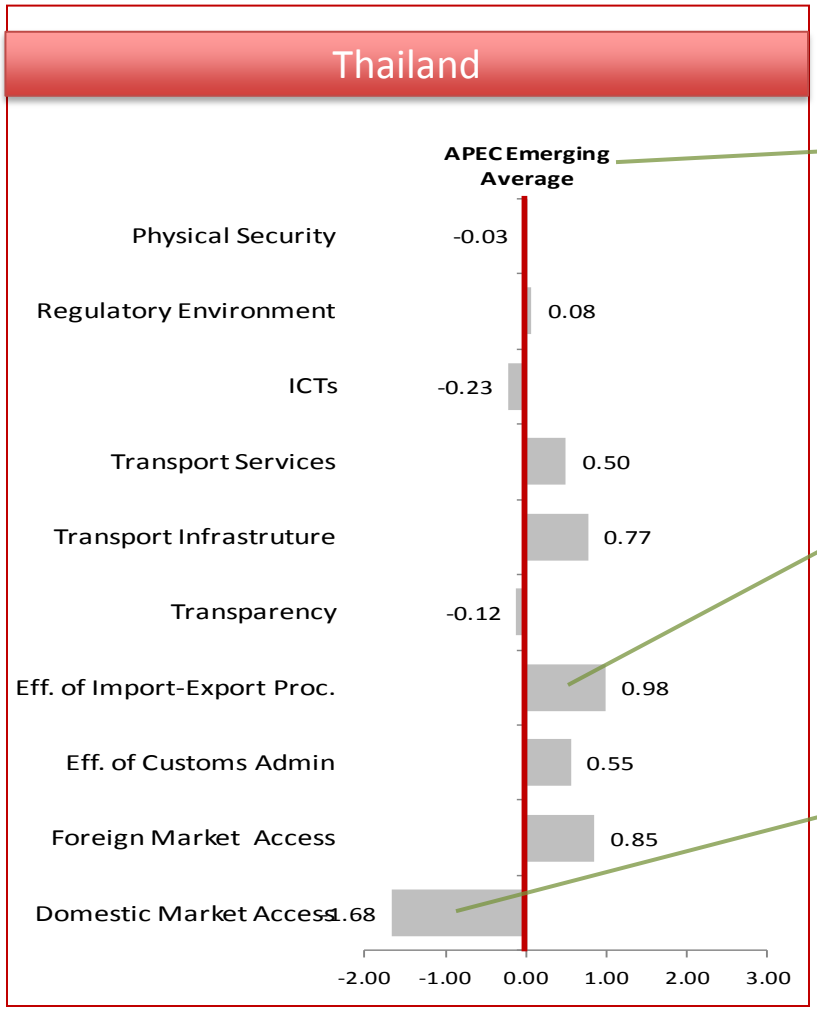
#	Suggested Action Items	Chokepoints Addressed
8	Encourage replication of models that generate recurring revenues directly tied to the use of infrastructure. (e.g. Gas tax established in the U.S., New Zealand, and Australia)	Infrastructure
9	Focus additional research on the critical factors for successful PPP implementations.	Infrastructure
10	Encourage the adoption of PCS systems across the APEC region.	Documentation
11	Address the complexities of existing FTAs by encouraging movement towards fewer FTAs that incorporate larger groups of economies.	Clearance
12	Reach agreement with APEC economies regarding an acceptable set of core languages for which all documents should be translated into.	Transparency
13	Initiate a study to evaluate the effectiveness of two potential methods for addressing skilled labor shortages: 1. Investments in education and its expected impact on labor. 2. Reduction or elimination of regulations that deter labor mobility and its effect on resolving labor shortages and GDP growth.	Logistics Services

APPENDIX

Appendix A: Comparisons of APEC Supply Chains by Economy

Economy Comparison with Peers, by ETI Index Average

In the table below, ETI pillar scores are presented for each APEC economy (ETI data is not available for Brunei or Papua New Guinea). Each economy's ETI index score is presented in comparison to the mean of developed APEC economies or the mean of emerging economies, depending on the economy's economic stage of development.



Comparison Against Peers

As an emerging economy, Thailand is compared against the average scores for emerging economies in the APEC region.

Above Average

Compared to other emerging economies, Thailand has an above average Transport Infrastructure system.

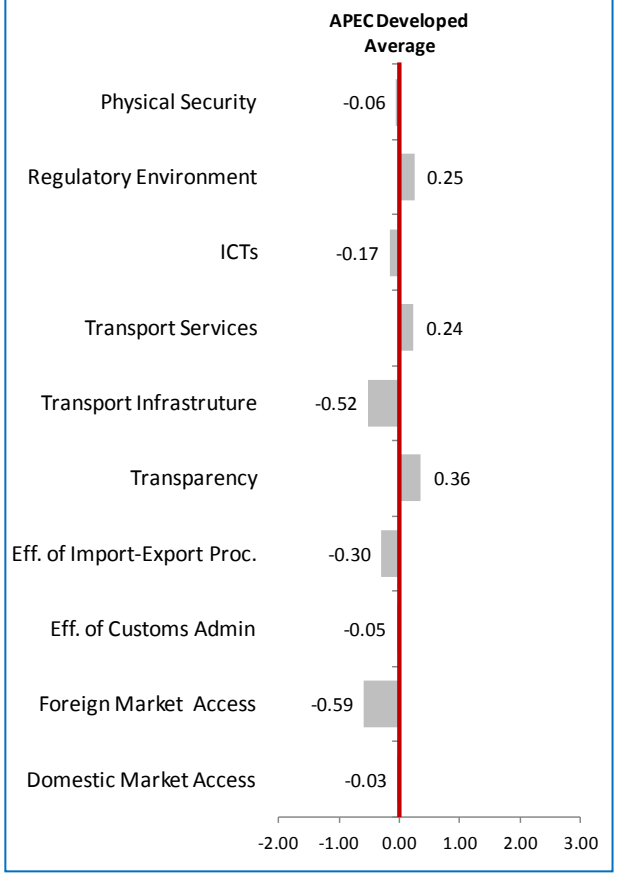
Below Average

Compared to other emerging economies, Thailand has a below average Domestic Market Access system.

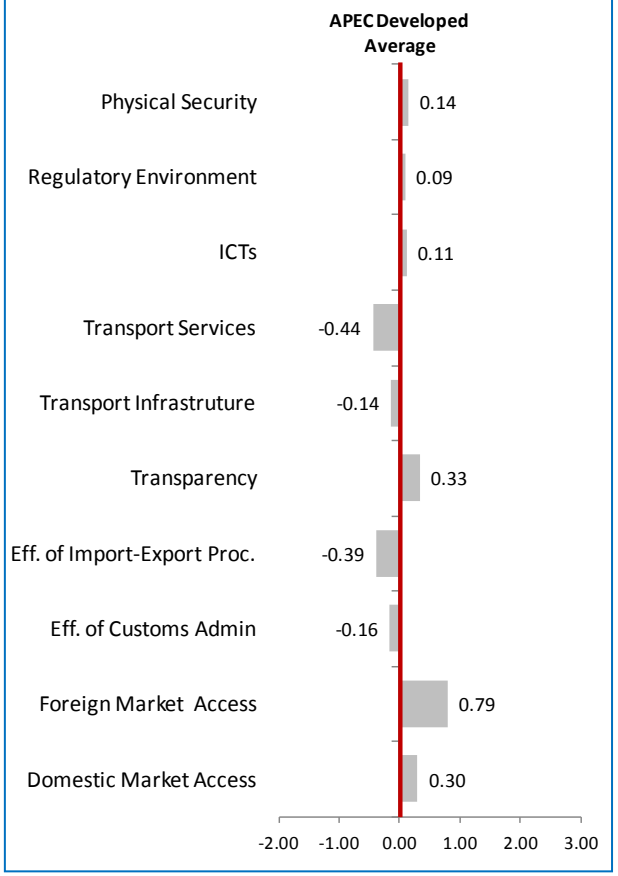
A Closer Look at Developed Economies

The graphs below compare the ETI scores APEC economies to the average ETI scores of developed economies in the APEC region.

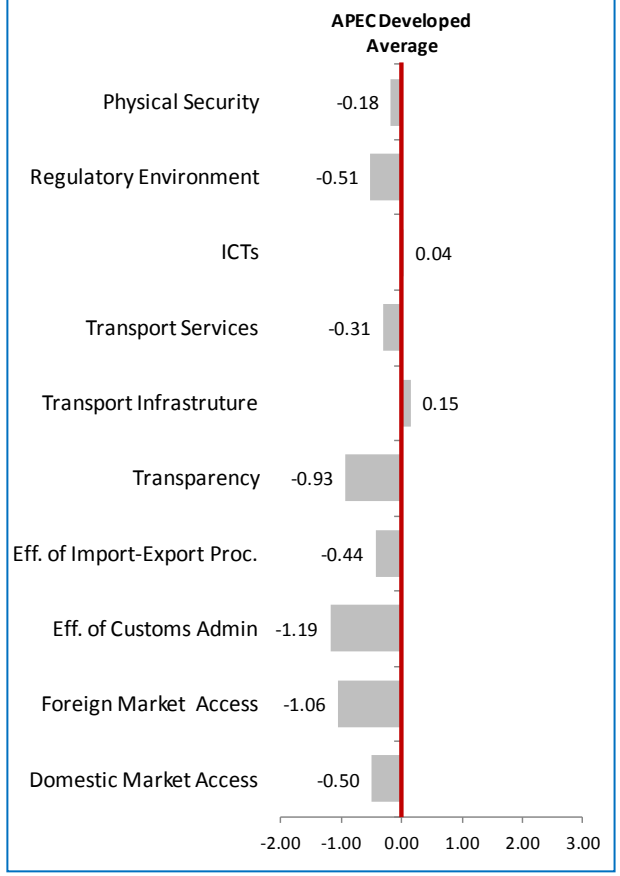
Australia



Canada



Chinese Taipei

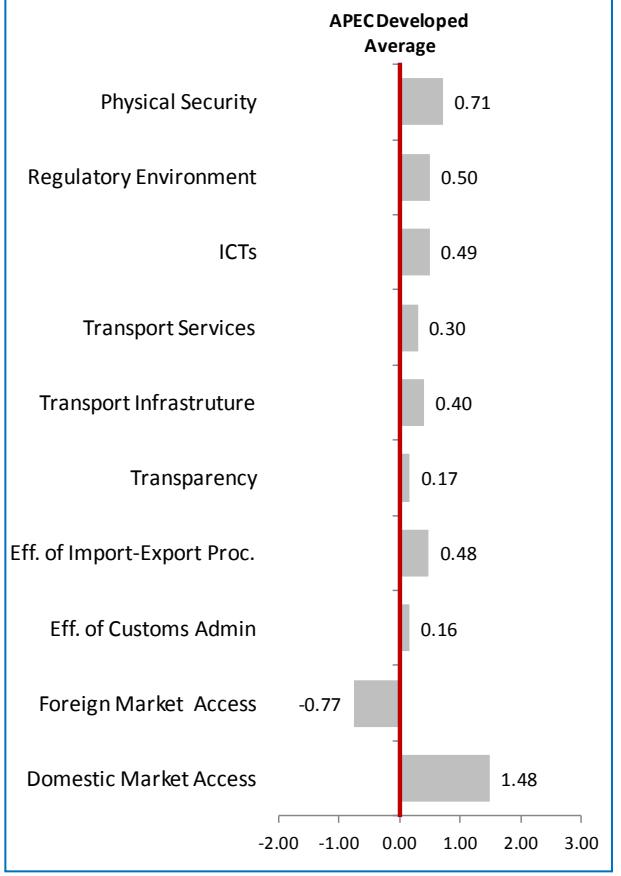


Source: World Economic Forum (2010), *The Global Enabling Trade Report*.

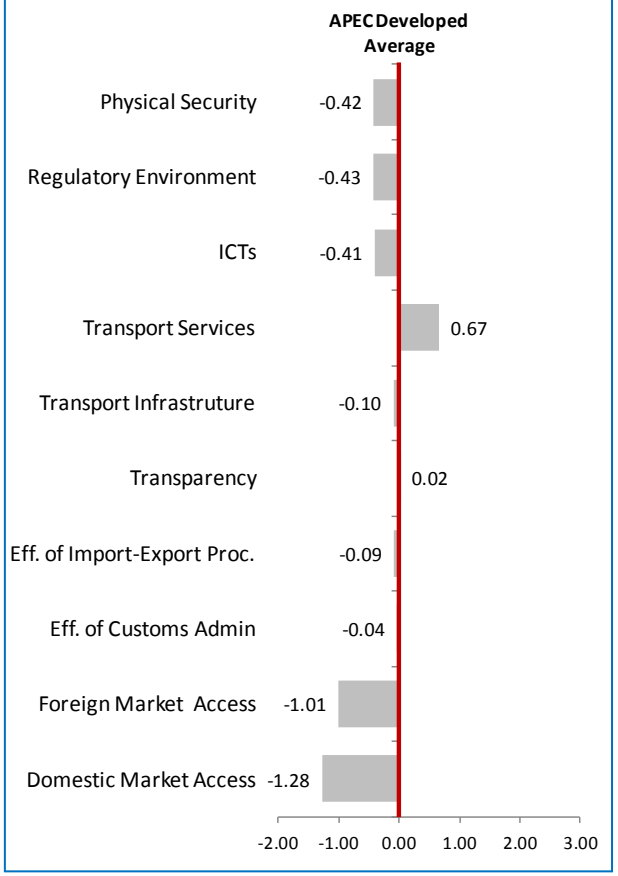
A Closer Look at Developed Economies

The graphs below compare the ETI scores APEC economies to the average ETI scores of developed economies in the APEC region.

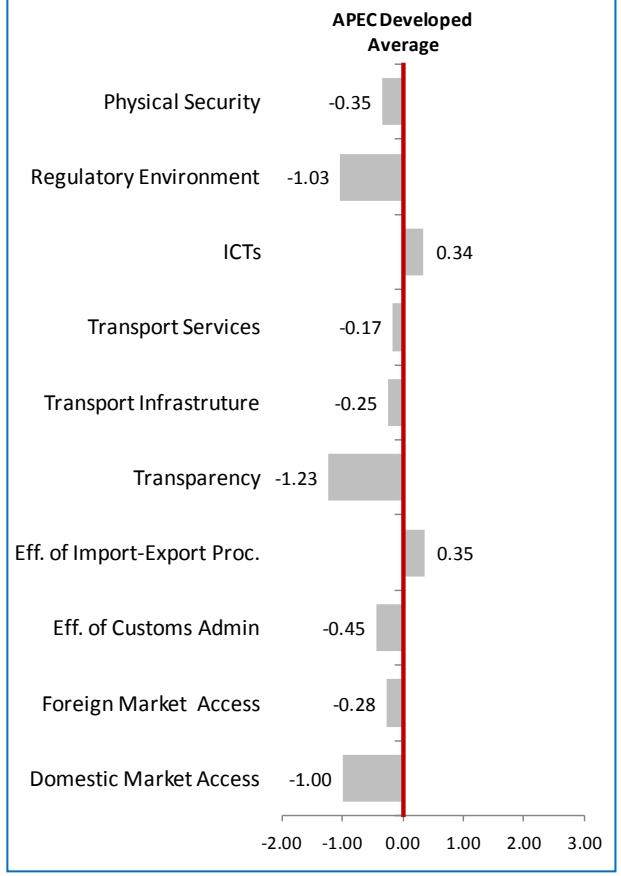
Hong Kong, China



Japan



Republic of Korea

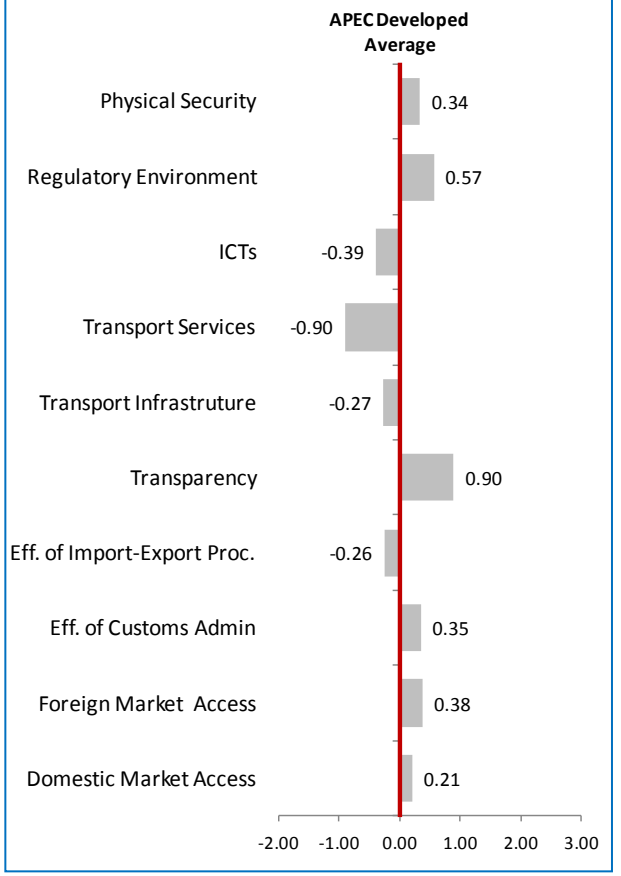


Source: World Economic Forum (2010), *The Global Enabling Trade Report*.

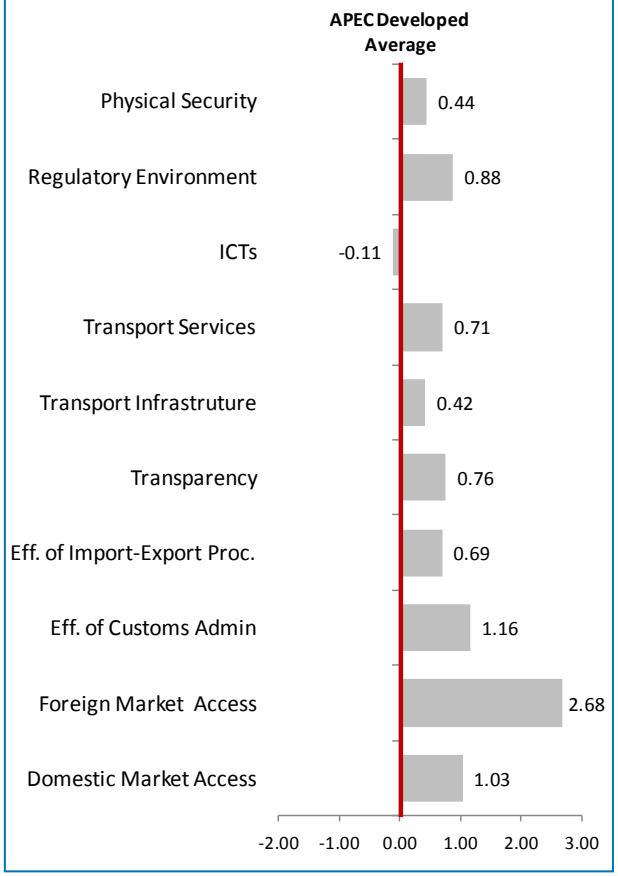
A Closer Look at Developed Economies

The graphs below compare the ETI scores APEC economies to the average ETI scores of developed economies in the APEC region.

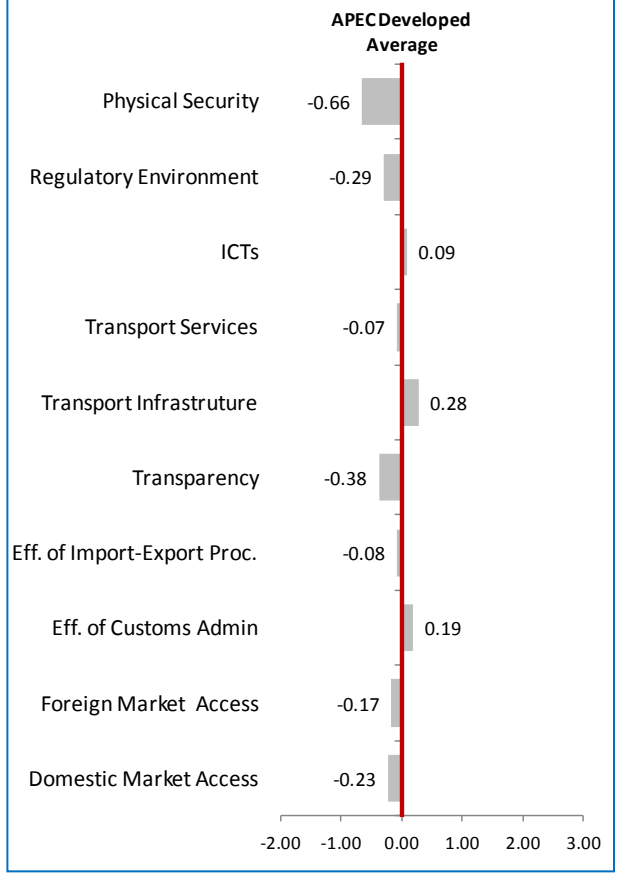
New Zealand



Singapore



United States

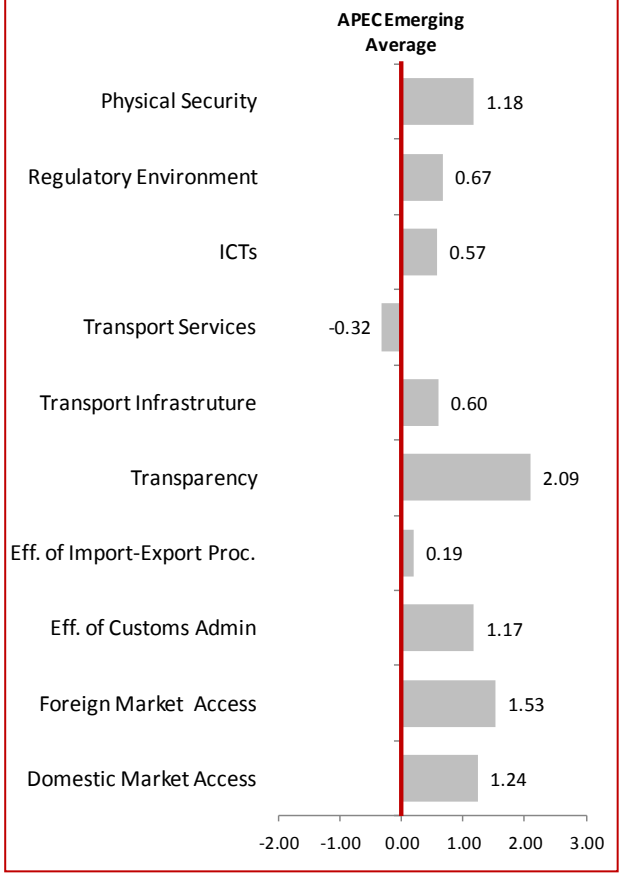


Source: World Economic Forum (2010), *The Global Enabling Trade Report*.

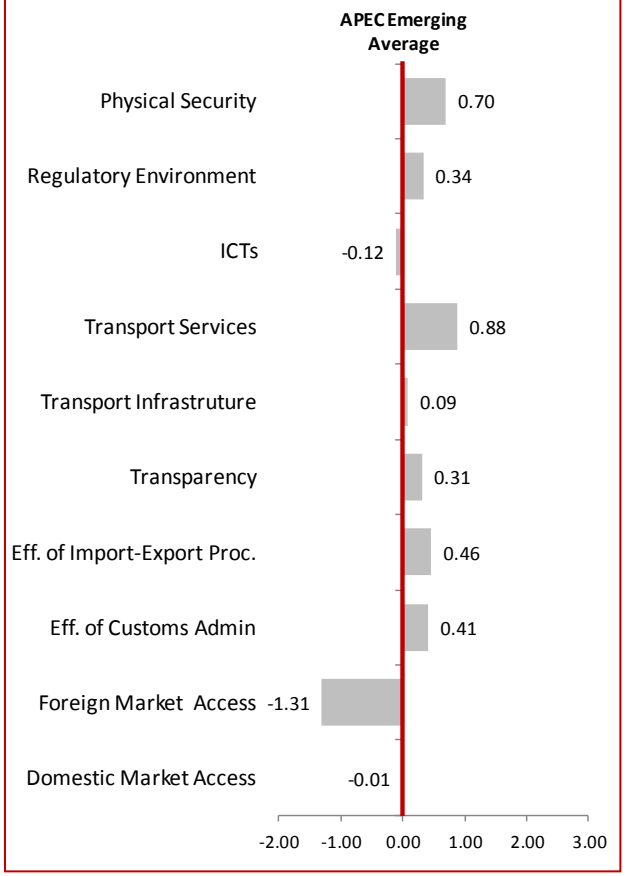
A Closer Look at Emerging Economies

The graphs below compare the ETI scores of APEC economies to the average ETI scores of emerging economies in the APEC region.

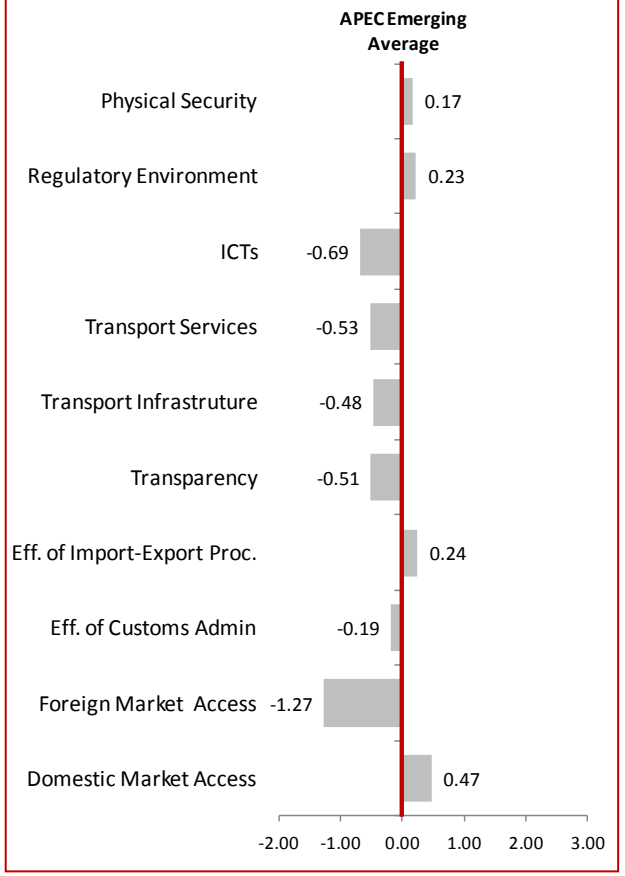
Chile



People's Republic of China



Indonesia

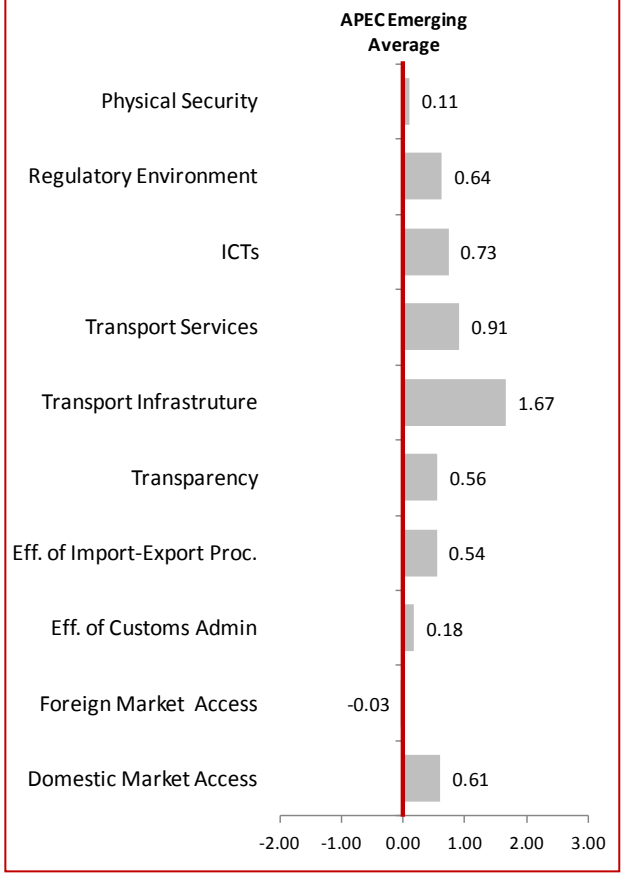


Source: World Economic Forum (2010), *The Global Enabling Trade Report*.

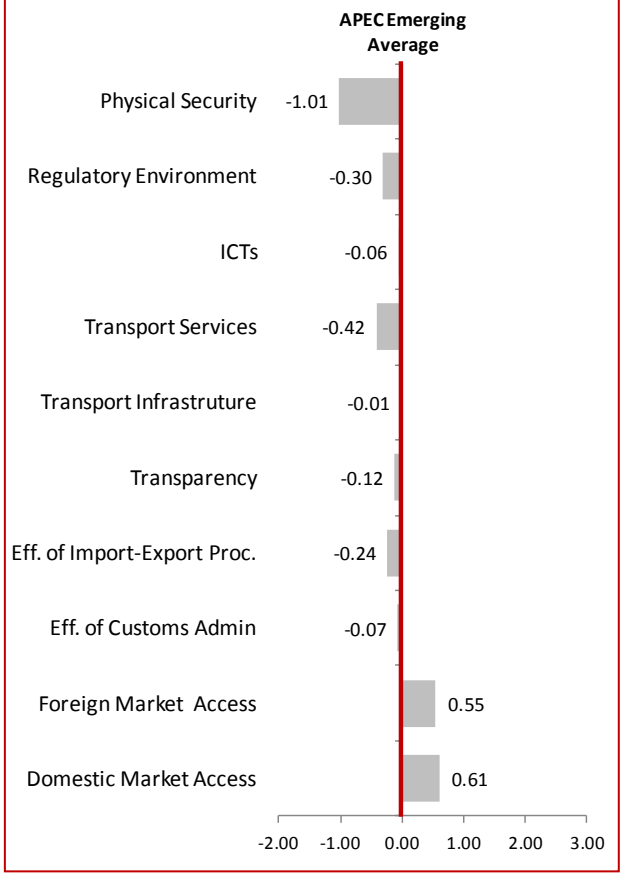
A Closer Look at Emerging Economies

The graphs below compare the ETI scores of APEC economies to the average ETI scores of emerging economies in the APEC region.

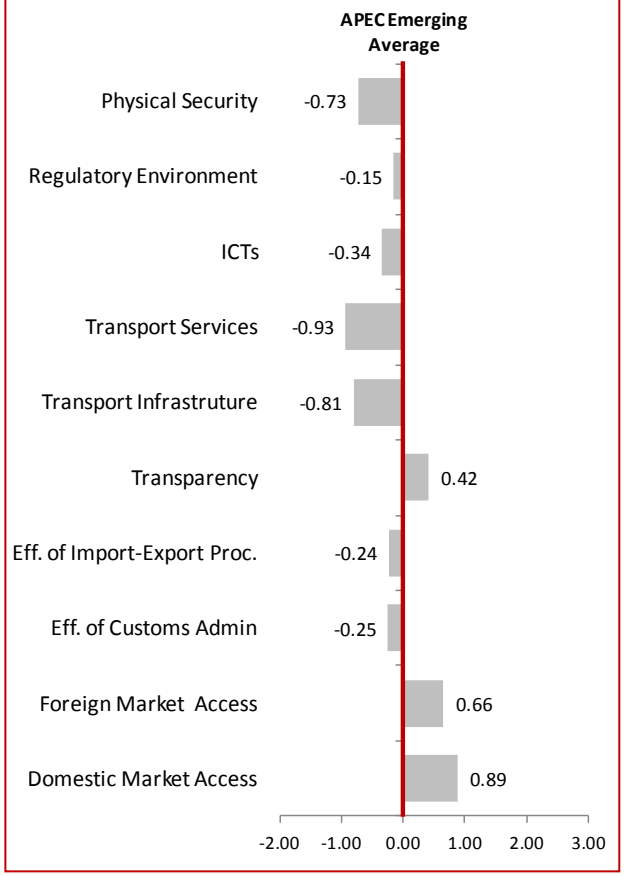
Malaysia



Mexico



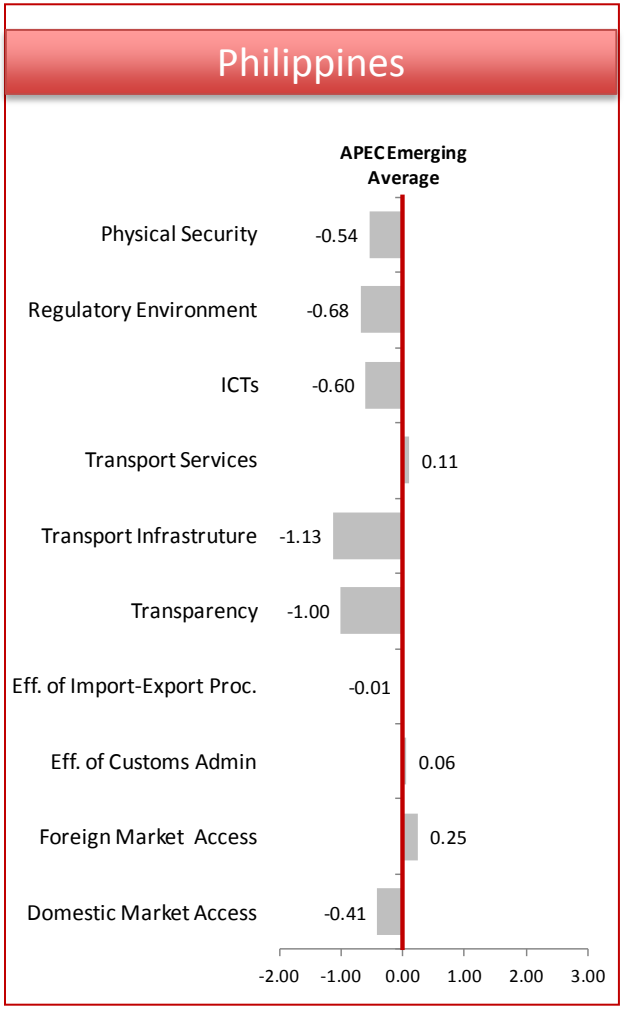
Peru

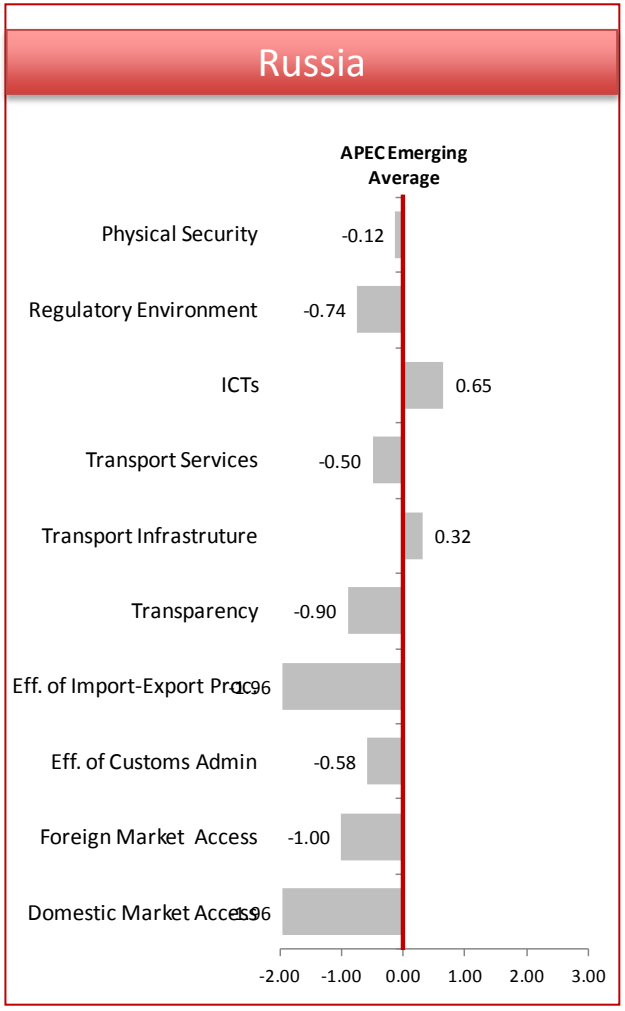


Source: World Economic Forum (2010), *The Global Enabling Trade Report*.

A Closer Look at Emerging Economies

The graphs below compare the ETI scores of APEC economies to the average ETI scores of emerging economies in the APEC region.

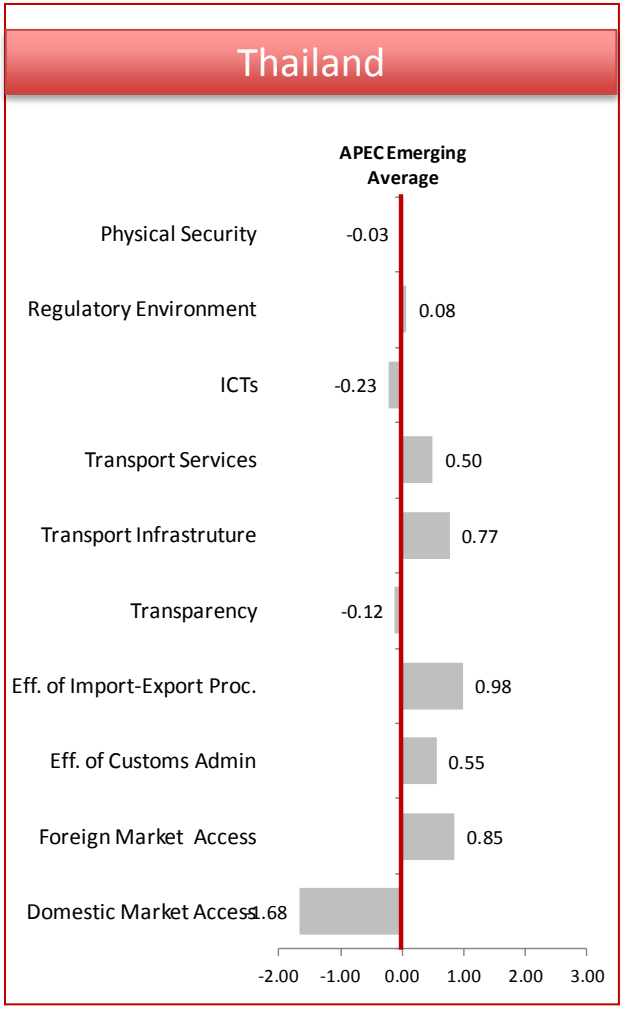


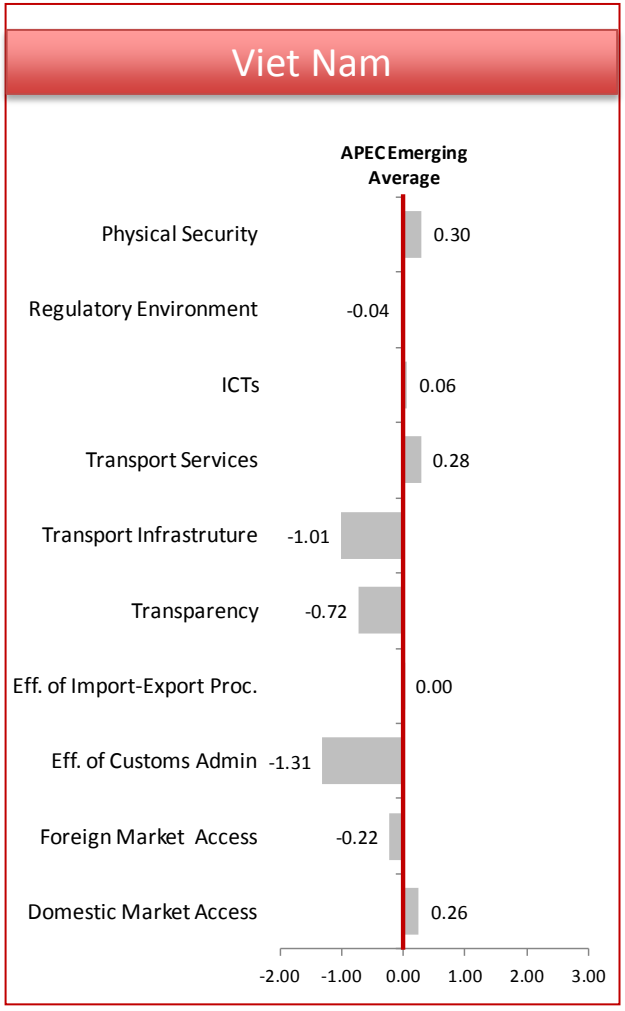


Source: World Economic Forum (2010), *The Global Enabling Trade Report*.

A Closer Look at Emerging Economies

The graphs below compare the ETI scores of APEC economies to the average ETI scores of emerging economies in the APEC region.



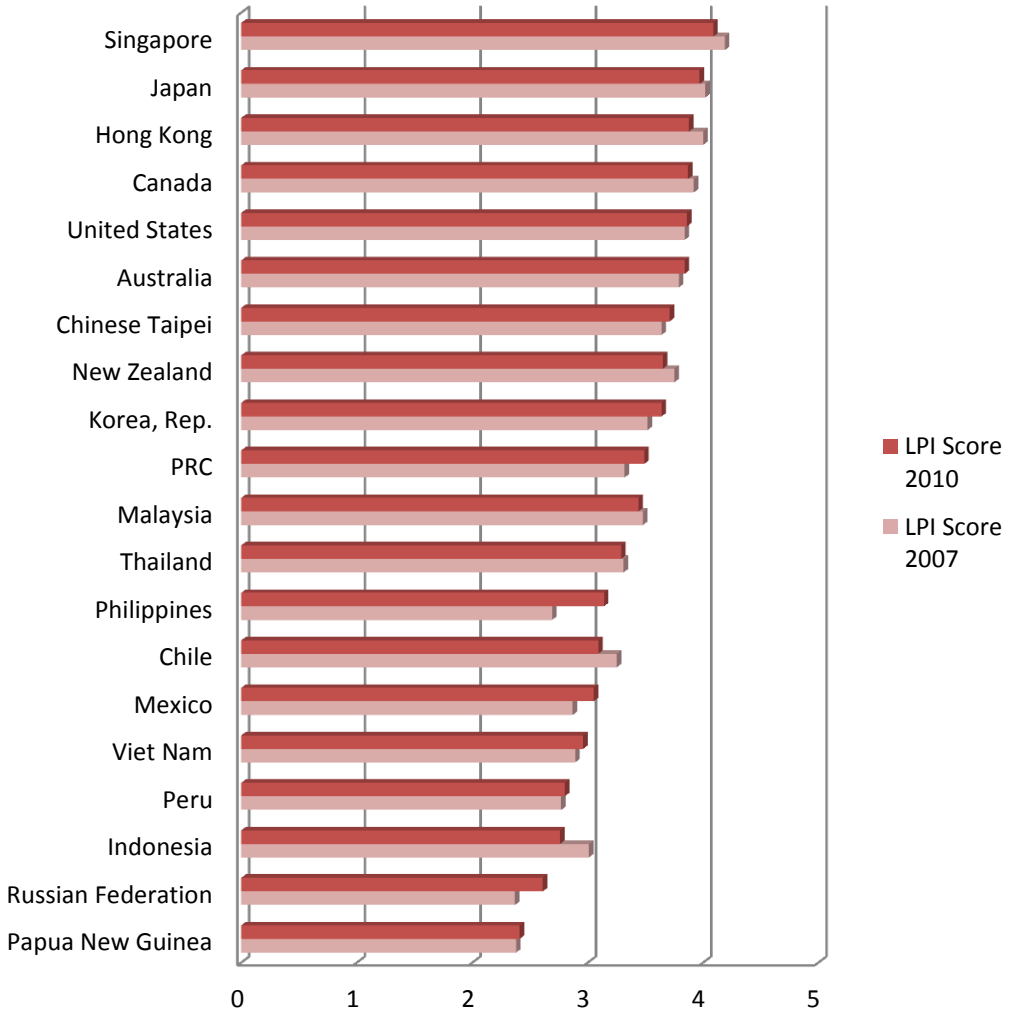


Source: World Economic Forum (2010), *The Global Enabling Trade Report*.

Logistic Performance Index

2010 APEC LPI Overall Ranking

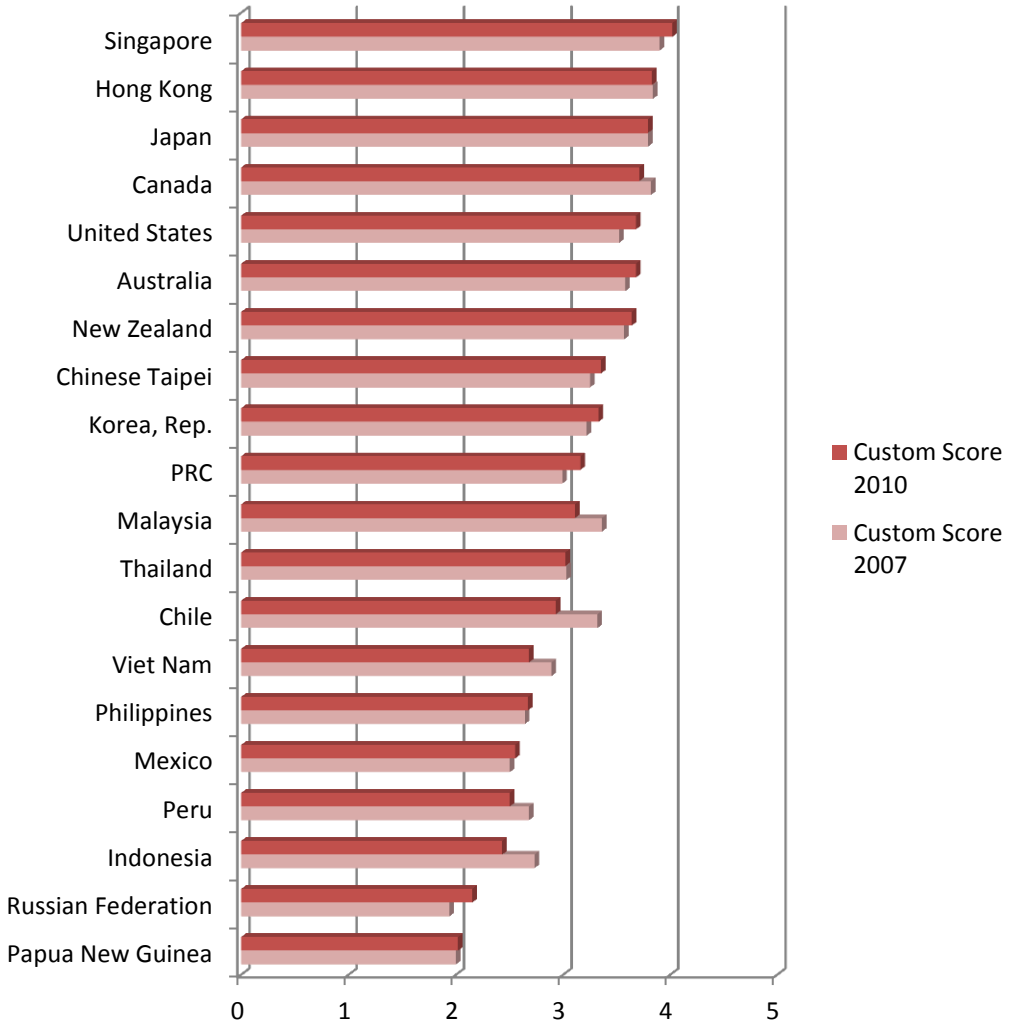
	Rank 2010	LPI Score 2010	LPI Score 2007
Australia	18	3.84	3.79
Canada	14	3.87	3.92
Chile	49	3.09	3.25
Chinese Taipei	20	3.71	3.64
Hong Kong	13	3.88	4
Indonesia	75	2.76	3.01
Japan	7	3.97	4.02
Korea, Rep.	23	3.64	3.52
Malaysia	29	3.44	3.48
Mexico	50	3.05	2.87
New Zealand	21	3.65	3.75
Papua New Guinea	124	2.41	2.38
People's Republic of China	27	3.49	3.32
Peru	67	2.8	2.77
Philippines	44	3.14	2.69
Russian Federation	94	2.61	2.37
Singapore	2	4.09	4.19
Thailand	35	3.29	3.31
United States	15	3.86	3.84
Viet Nam	53	2.96	2.89



Logistic Performance Index

2010 APEC LPI Custom Ranking

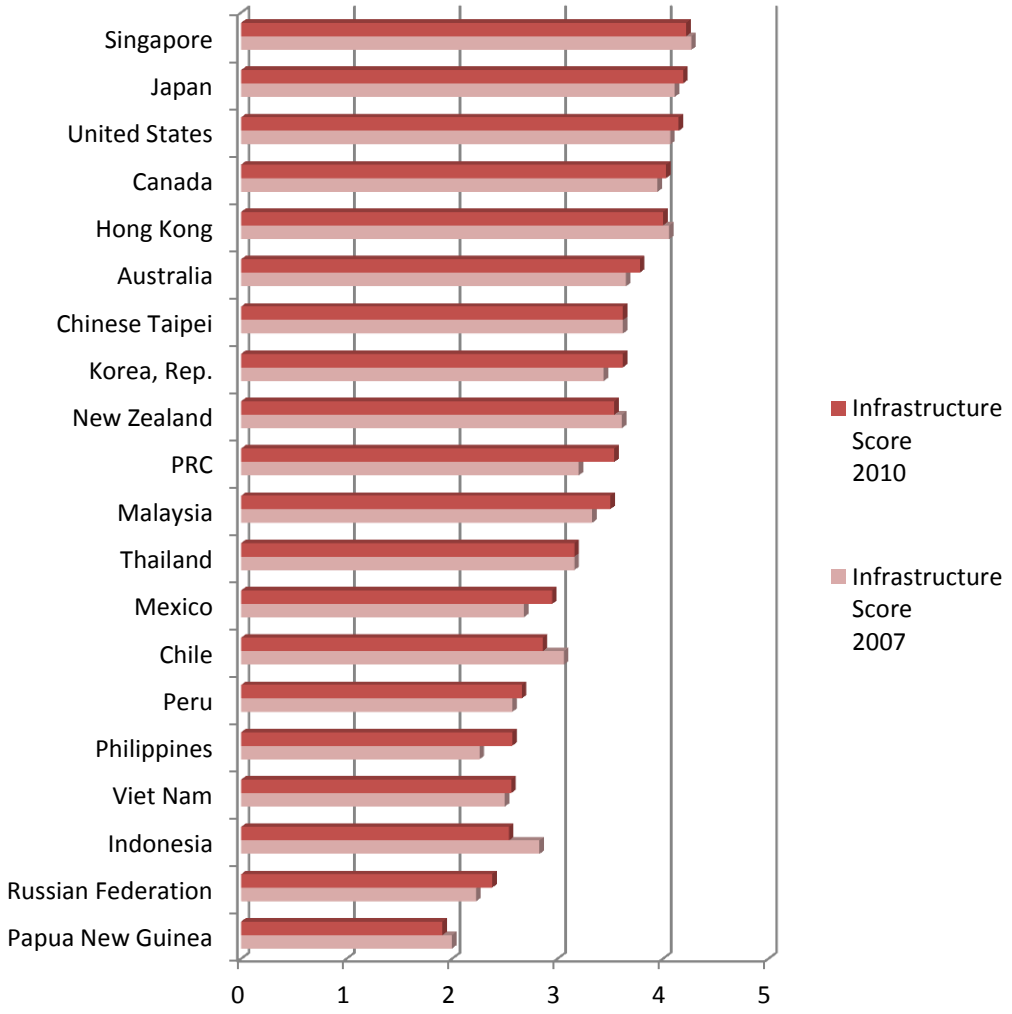
	Rank 2010	Score 2010	Score 2007
Australia	14	3.68	3.58
Canada	13	3.71	3.82
Chile	41	2.93	3.32
People's Republic of China	32	3.16	2.99
Hong Kong	8	3.83	3.84
Indonesia	72	2.43	2.73
Japan	10	3.79	3.79
Korea, Rep.	26	3.33	3.22
Malaysia	36	3.11	3.36
Mexico	62	2.55	2.5
New Zealand	16	3.64	3.57
Papua New Guinea	138	2.02	2
Peru	64	2.5	2.68
Philippines	54	2.67	2.64
Russian Federation	115	2.15	1.94
Singapore	2	4.02	3.9
Chinese Taipei	25	3.35	3.25
Thailand	39	3.02	3.03
United States	15	3.68	3.52
Viet Nam	53	2.68	2.89



Logistic Performance Index

2010 APEC LPI Infrastructure Ranking

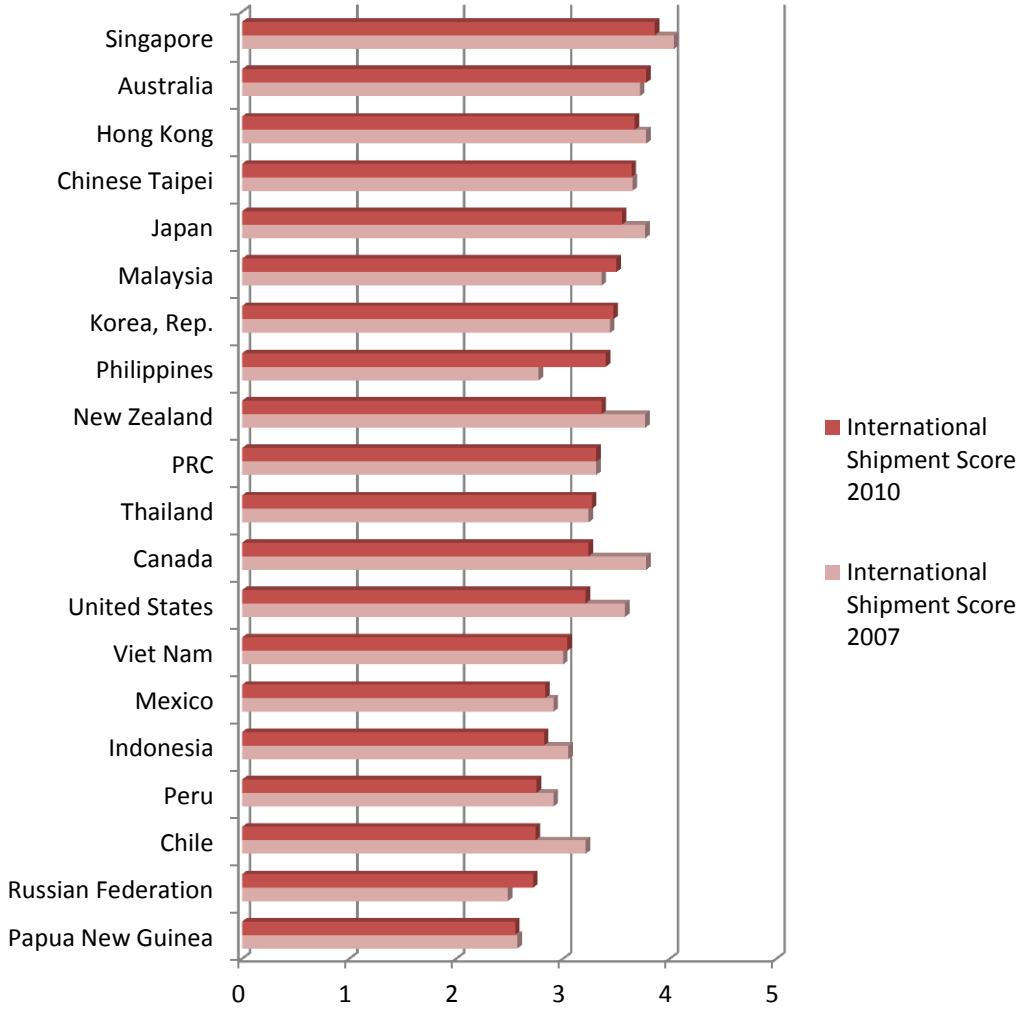
	Rank 2010	Score 2010	Score 2007
Australia	18	3.78	3.65
Canada	11	4.03	3.95
Chile	50	2.86	3.06
People's Republic of China	27	3.54	3.2
Hong Kong	13	4	4.06
Indonesia	69	2.54	2.83
Japan	5	4.19	4.11
Korea, Rep.	23	3.62	3.44
Malaysia	28	3.5	3.33
Mexico	44	2.95	2.68
New Zealand	26	3.54	3.61
Papua New Guinea	135	1.91	2
Peru	56	2.66	2.57
Philippines	64	2.57	2.26
Russian Federation	83	2.38	2.23
Singapore	4	4.22	4.27
Chinese Taipei	22	3.62	3.62
Thailand	36	3.16	3.16
United States	7	4.15	4.07
Viet Nam	66	2.56	2.5



Logistic Performance Index

2010 APEC LPI International Shipment Ranking

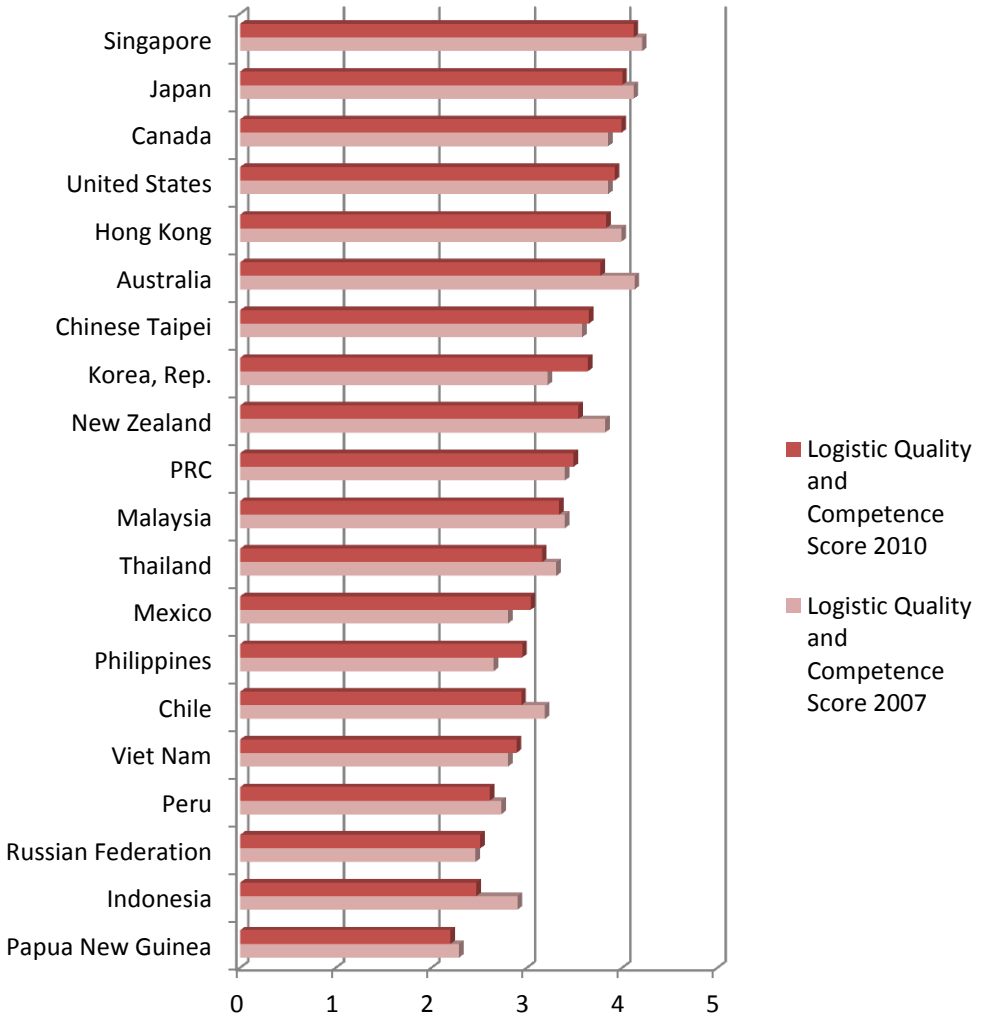
	Rank 2010	Score 2010	Score 2007
Australia	3	3.78	3.72
Canada	32	3.24	3.78
Chile	94	2.74	3.21
People's Republic of China	27	3.31	3.31
Hong Kong	6	3.67	3.78
Indonesia	80	2.82	3.05
Japan	12	3.55	3.77
Korea, Rep.	15	3.47	3.44
Malaysia	13	3.5	3.36
Mexico	77	2.83	2.91
New Zealand	23	3.36	3.77
Papua New Guinea	111	2.55	2.57
Peru	93	2.75	2.91
Philippines	20	3.4	2.77
Russian Federation	96	2.72	2.48
Singapore	1	3.86	4.04
Chinese Taipei	10	3.64	3.65
Thailand	30	3.27	3.24
United States	36	3.21	3.58
Viet Nam	58	3.04	3



Logistic Performance Index

2010 APEC LPI Logistic Quality Ranking

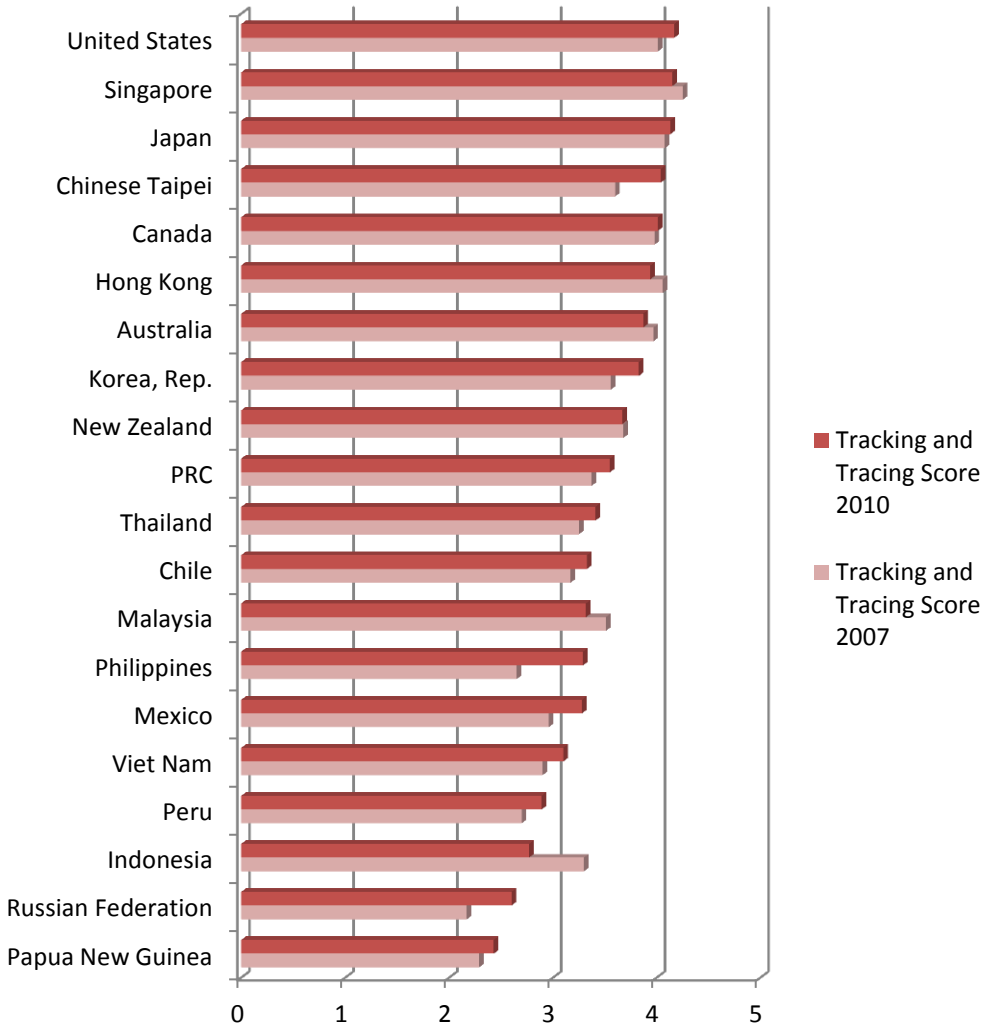
	Rank 2010	Score 2010	Score 2007
Australia	17	3.77	4.13
Canada	8	3.99	3.85
Chile	48	2.94	3.19
People's Republic of China	29	3.49	3.4
Hong Kong	14	3.83	3.99
Indonesia	92	2.47	2.9
Japan	7	4	4.12
Korea, Rep.	23	3.64	3.22
Malaysia	31	3.34	3.4
Mexico	44	3.04	2.8
New Zealand	26	3.54	3.82
Papua New Guinea	131	2.2	2.29
Peru	71	2.61	2.73
Philippines	47	2.95	2.65
Russian Federation	88	2.51	2.46
Singapore	6	4.12	4.21
Chinese Taipei	22	3.65	3.58
Thailand	39	3.16	3.31
United States	11	3.92	3.85
Viet Nam	51	2.89	2.8



Logistic Performance Index

2010 APEC LPI Tracking and Tracing Ranking

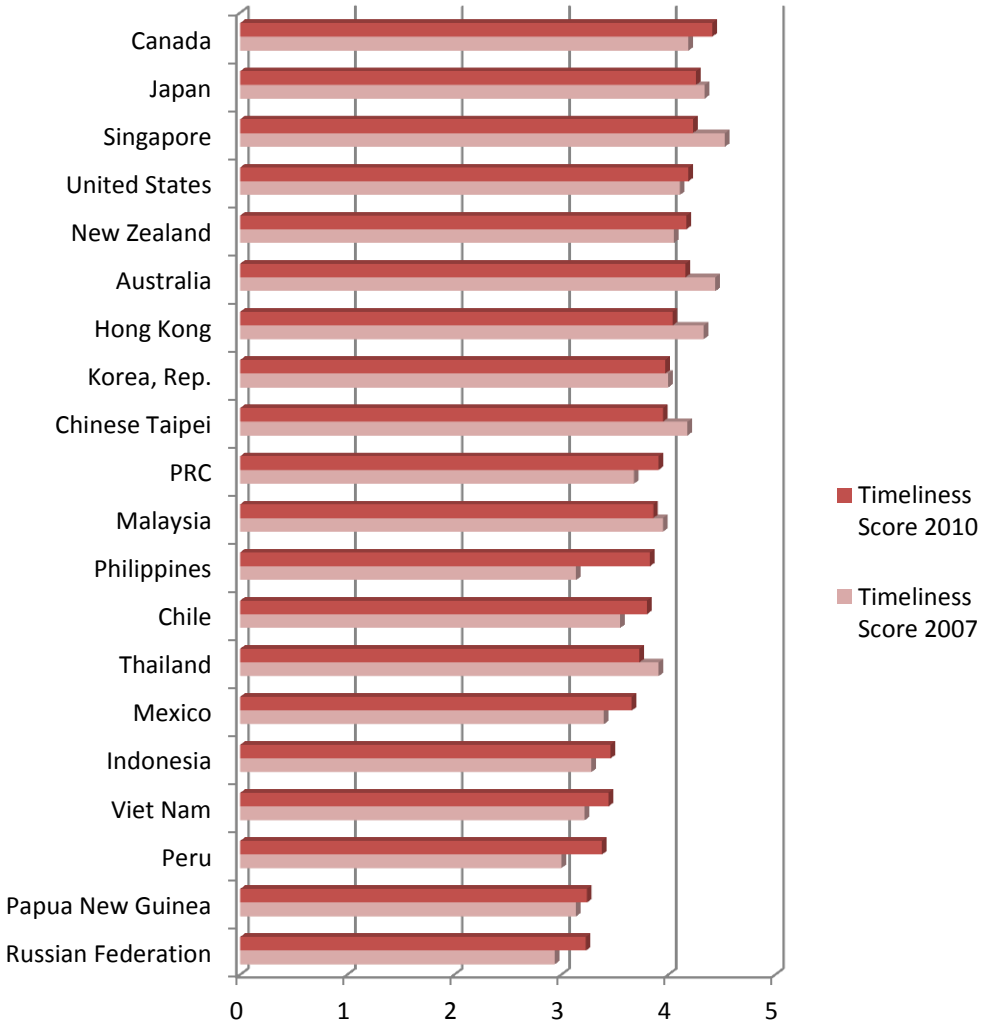
	Rank 2010	Score 2010	Score 2007
Australia	20	3.87	3.97
Canada	15	4.01	3.98
Chile	40	3.33	3.17
People's Republic of China	30	3.55	3.37
Hong Kong	17	3.94	4.06
Indonesia	80	2.77	3.3
Japan	8	4.13	4.08
Korea, Rep.	23	3.83	3.56
Malaysia	41	3.32	3.51
Mexico	45	3.28	2.96
New Zealand	25	3.67	3.68
Papua New Guinea	118	2.43	2.29
Peru	70	2.89	2.7
Philippines	44	3.29	2.65
Russian Federation	97	2.6	2.17
Singapore	6	4.15	4.25
Chinese Taipei	12	4.04	3.6
Thailand	37	3.41	3.25
United States	5	4.17	4.01
Viet Nam	55	3.1	2.9



Logistic Performance Index

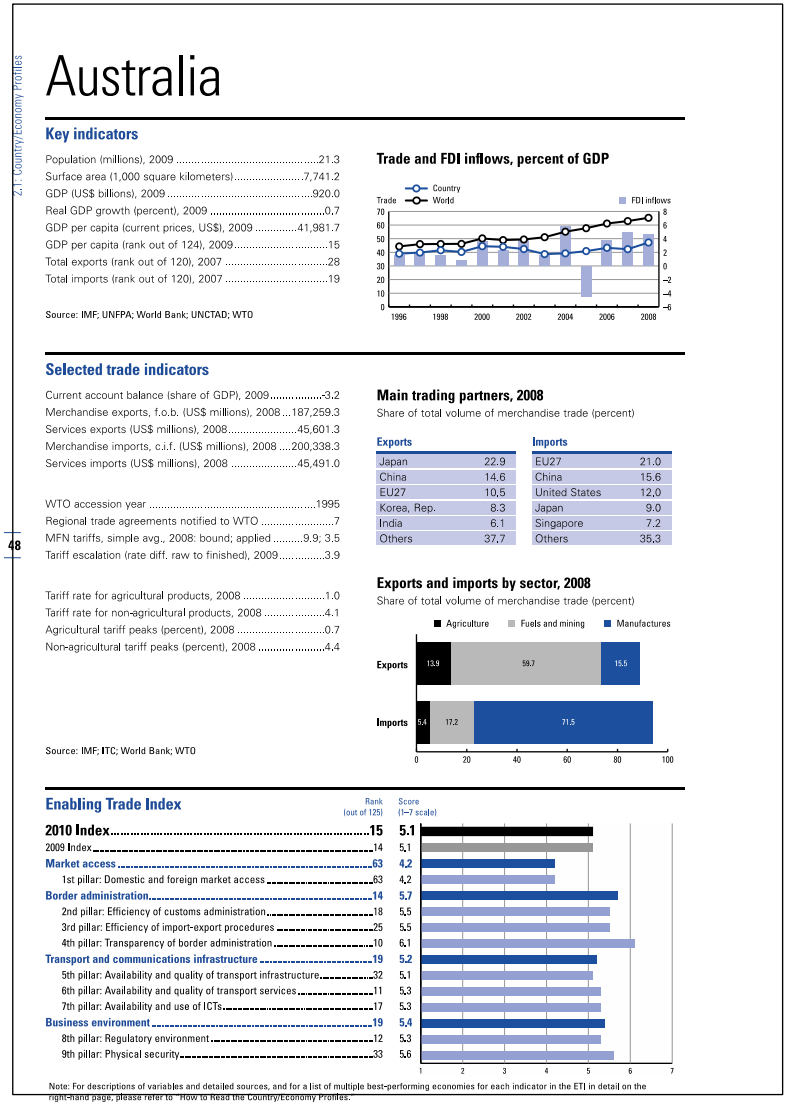
2010 APEC LPI Timeliness Ranking

	Rank 2010	Score 2010	Score 2007
Australia	18	4.16	4.44
Canada	5	4.41	4.19
Chile	44	3.8	3.55
People's Republic of China	36	3.91	3.68
Hong Kong	26	4.04	4.33
Indonesia	69	3.46	3.28
Japan	13	4.26	4.34
Korea, Rep.	28	3.97	4
Malaysia	37	3.86	3.95
Mexico	54	3.66	3.4
New Zealand	17	4.17	4.05
Papua New Guinea	87	3.24	3.14
Peru	79	3.38	3
Philippines	42	3.83	3.14
Russian Federation	88	3.23	2.94
Singapore	14	4.23	4.53
Chinese Taipei	30	3.95	4.18
Thailand	48	3.73	3.91
United States	16	4.19	4.11
Viet Nam	76	3.44	3.22



Appendix B: Regression Analysis of Enabling Trade Index Data

Enabling Trade Index



2.1 Country/Economy Profiles

Australia

Key indicators

Population (millions), 2009	21.3
Surface area (1,000 square kilometers)	7,741.2
GDP (US$ billions), 2009	920.0
Real GDP growth (percent), 2009	0.7
GDP per capita (current prices, US$), 2009	41,981.7
GDP per capita (rank out of 124), 2009	15
Total exports (rank out of 120), 2007	28
Total imports (rank out of 120), 2007	19

Source: IMF; UNFPA; World Bank; UNCTAD; WTO

Trade and FDI inflows, percent of GDP

Selected trade indicators

Current account balance (share of GDP), 2009	-3.2
Merchandise exports, f.o.b. (US$ millions), 2008	187,259.3
Services exports (US$ millions), 2008	45,601.3
Merchandise imports, c.i.f. (US$ millions), 2008	200,338.3
Services imports (US$ millions), 2008	45,491.0
WTO accession year	1995
Regional trade agreements notified to WTO	7
MFN tariffs, simple avg., 2008: bound; applied	9.9; 3.5
Tariff escalation (rate diff. raw to finished), 2009	3.9
Tariff rate for agricultural products, 2008	1.0
Tariff rate for non-agricultural products, 2008	4.1
Agricultural tariff peaks (percent), 2008	0.7
Non-agricultural tariff peaks (percent), 2008	4.4

Source: IMF; ITC; World Bank; WTO

Main trading partners, 2008

Share of total volume of merchandise trade (percent)

Exports		Imports	
Japan	22.9	EU27	21.0
China	14.6	China	15.6
EU27	10,5	United States	12,0
Korea, Rep.	8.3	Japan	9.0
India	6.1	Singapore	7.2
Others	37,7	Others	35,3

Exports and imports by sector, 2008

Share of total volume of merchandise trade (percent)

Enabling Trade Index

	Rank (out of 125)	Score (1–7 scale)
2010 Index	**15**	**5.1**
2009 Index	14	5,1
Market access	**63**	**4,2**
1st pillar: Domestic and foreign market access	63	4,2
Border administration	**14**	**5.7**
2nd pillar: Efficiency of customs administration	18	5,5
3rd pillar: Efficiency of import-export procedures	25	5,5
4th pillar: Transparency of border administration	10	6,1
Transport and communications infrastructure	**19**	**5.2**
5th pillar: Availability and quality of transport infrastructure	32	5,1
6th pillar: Availability and quality of transport services	11	5,3
7th pillar: Availability and use of ICTs	17	5,3
Business environment	**19**	**5,4**
8th pillar: Regulatory environment	12	5,3
9th pillar: Physical security	33	5,6

Note: For descriptions of variables and detailed sources, and for a list of multiple best-performing economies for each indicator in the ETI in detail on the right-hand page, please refer to "How to Read the Country/Economy Profiles."

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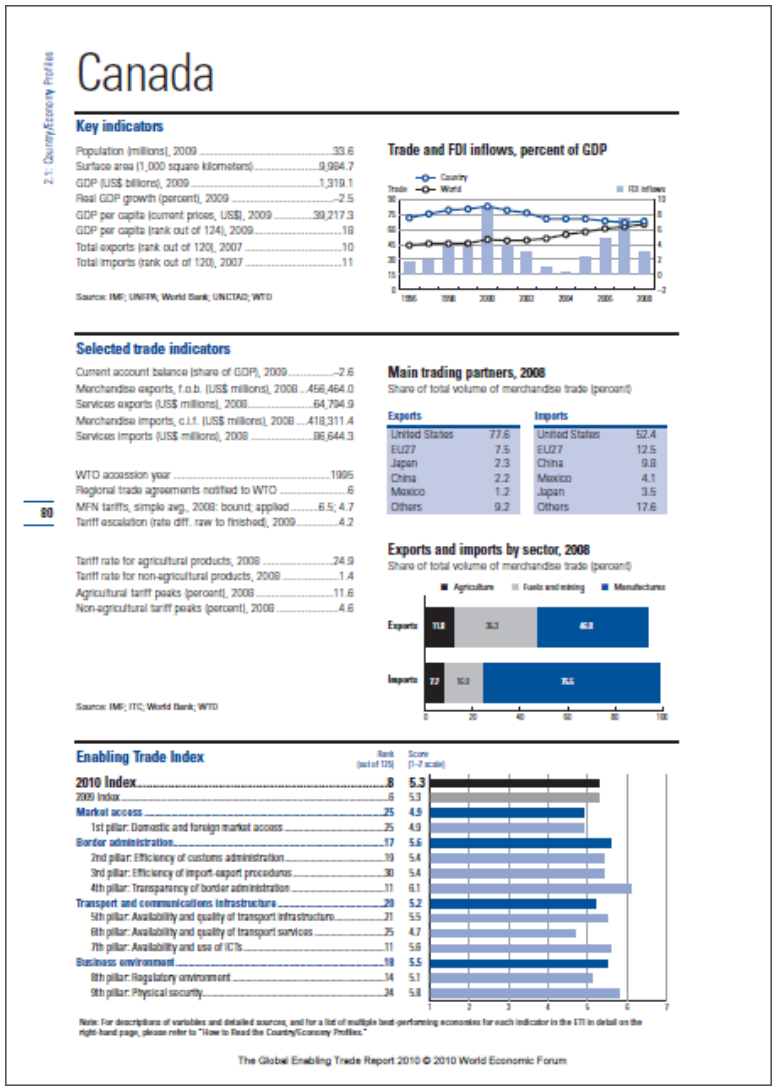
The goal of the ETI score is to summarize ease of trade based on 9 pillars, which roll-up into 4 sub-indices:

- Market Access
  - Domestic and Foreign Market Access
- Border Administration
  - Efficiency of customs administration
  - Efficiency of import-export procedures
  - Transparency of border administration
- Transport and Communications Infrastructure
  - Availability and quality of transport infrastructure
  - Availability and quality of transport services
  - Availability and use of ICTs
- Business Environment
  - Regulatory Environment
  - Physical Security

ETI At-A-Glance

The data is compiled into a two page report per economy, which includes import/export numbers, overall ETI scores, and ETI sub-pillar scores which provide greater details about each economy's competitive advantages



2.1: Country/Economy Profiles

Canada

Key indicators

Population (millions), 2009	33.6
Surface area (1,000 square kilometers)	9,984.7
GDP (US$ billions), 2009	1,319.1
Real GDP growth (percent), 2009	-2.5
GDP per capita (current prices, US$), 2009	39,217.3
GDP per capita (rank out of 124), 2009	18
Total exports (rank out of 120), 2007	10
Total imports (rank out of 120), 2007	11

Source: IMF; UNFPA; World Bank; UNCTAD; WTO

Trade and FDI inflows, percent of GDP

Selected trade indicators

Current account balance (share of GDP), 2009	-2.6
Merchandise exports, f.o.b. (US$ millions), 2008	456,464.0
Services exports (US$ millions), 2008	64,794.9
Merchandise imports, c.i.f. (US$ millions), 2008	418,311.4
Services imports (US$ millions), 2008	86,644.3
WTO accession year	1995
Regional trade agreements notified to WTO	6
MFN tariffs, simple avg., 2008: bound; applied	6.5; 4.7
Tariff escalation (rate diff. raw to finished), 2009	4.2
Tariff rate for agricultural products, 2008	24.9
Tariff rate for non-agricultural products, 2008	1.4
Agricultural tariff peaks (percent), 2008	11.6
Non-agricultural tariff peaks (percent), 2008	4.6

Main trading partners, 2008

Share of total volume of merchandise trade (percent)

Exports		Imports	
United States	77.6	United States	52.4
EU27	7.5	EU27	12.5
Japan	2.3	China	9.8
China	2.2	Mexico	4.1
Mexico	1.2	Japan	3.5
Others	9.2	Others	17.6

Exports and imports by sector, 2008

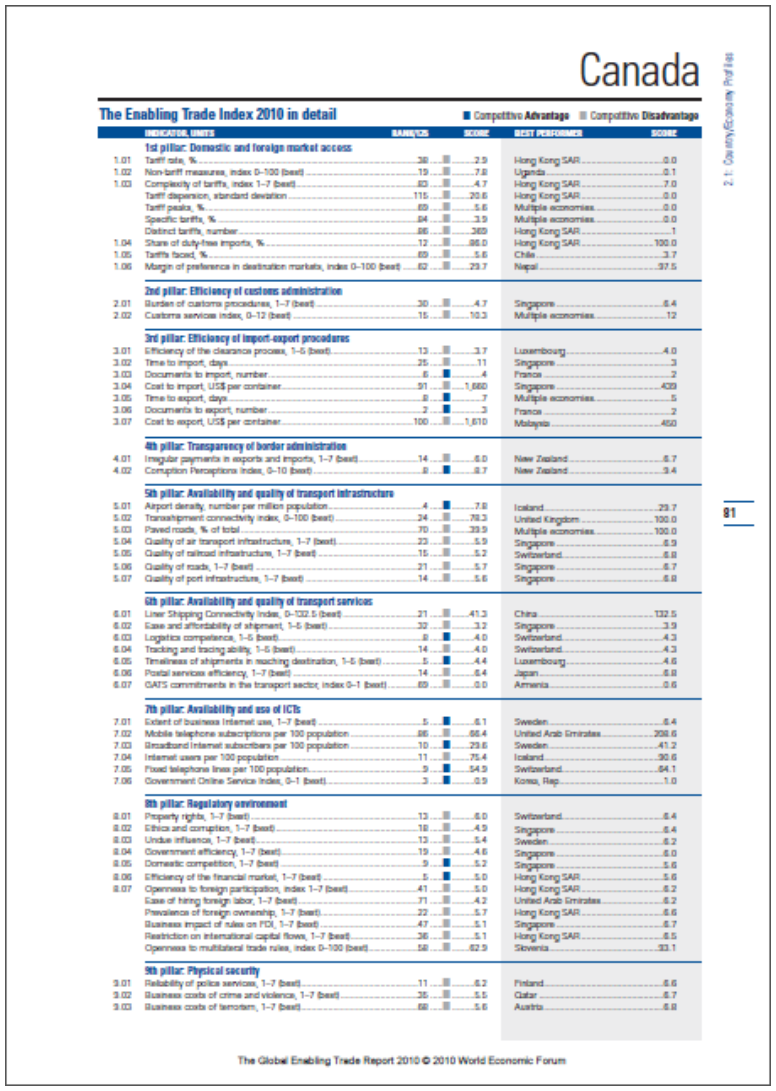
Share of total volume of merchandise trade (percent)

Source: IMF; ITC; World Bank; WTO

Enabling Trade Index

	Rank (out of 125)	Score (1-7 scale)
2010 Index	8	5.3
2009 Index	6	5.3
Market access	25	4.9
1st pillar: Domestic and foreign market access	25	4.9
Border administration	17	5.6
2nd pillar: Efficiency of customs administration	19	5.4
3rd pillar: Efficiency of import-export procedures	30	5.4
4th pillar: Transparency of border administration	11	6.1
Transport and communications infrastructure	20	5.2
5th pillar: Availability and quality of transport infrastructure	21	5.5
6th pillar: Availability and quality of transport services	25	4.7
7th pillar: Availability and use of ICTs	11	5.6
Business environment	18	5.5
8th pillar: Regulatory environment	14	5.1
9th pillar: Physical security	24	5.8

Note: For descriptions of variables and detailed sources, and for a list of multiple best-performing economies for each indicator in the ETI in detail on the right-hand page, please refer to "How to Read the Country/Economy Profiles."



The Enabling Trade Index 2010 in detail

■ Competitive Advantage ■ Competitive Disadvantage

	INDICATOR, UNITS	RANK/125	SCORE	BEST PERFORMER	SCORE
	1st pillar: Domestic and foreign market access				
1.01	Tariff rate, %	38	2.9	Hong Kong SAR	0.0
1.02	Non-tariff measures, index 0–100 (best)	19	7.8	Uganda	0.1
1.03	Complexity of tariffs, index 1–7 (best)	83	4.7	Hong Kong SAR	7.0
	Tariff dispersion, standard deviation	115	20.6	Hong Kong SAR	0.0
	Tariff peaks, %	69	5.6	Multiple economies	0.0
	Specific tariffs, %	64	3.9	Multiple economies	0.0
	Distinct tariffs, number	86	369	Hong Kong SAR	1
1.04	Share of duty-free imports, %	12	86.0	Hong Kong SAR	100.0
1.05	Tariffs faced, %	69	5.6	Chile	3.7
1.06	Margin of preference in destination markets, index 0–100 (best)	62	29.7	Nepal	97.5
	2nd pillar: Efficiency of customs administration				
2.01	Burden of customs procedures, 1–7 (best)	30	4.7	Singapore	6.4
2.02	Customs services index, 0–12 (best)	15	10.3	Multiple economies	12
	3rd pillar: Efficiency of import-export procedures				
3.01	Efficiency of the clearance process, 1–5 (best)	13	3.7	Luxembourg	4.0
3.02	Time to import, days	25	11	Singapore	3
3.03	Documents to import, number	6	4	France	2
3.04	Cost to import, US$ per container	91	1,660	Singapore	439
3.05	Time to export, days	8	7	Multiple economies	5
3.06	Documents to export, number	2	3	France	2
3.07	Cost to export, US$ per container	100	1,610	Malaysia	450
	4th pillar: Transparency of border administration				
4.01	Irregular payments in exports and imports, 1–7 (best)	14	6.0	New Zealand	6.7
4.02	Corruption Perceptions Index, 0–10 (best)	9	8.7	New Zealand	9.4
	5th pillar: Availability and quality of transport infrastructure				
5.01	Airport density, number per million population	4	7.8	Iceland	29.7
5.02	Transshipment connectivity index, 0–100 (best)	24	78.3	United Kingdom	100.0
5.03	Paved roads, % of total	70	39.9	Multiple economies	100.0
5.04	Quality of air transport infrastructure, 1–7 (best)	23	5.9	Singapore	6.9
5.05	Quality of railroad infrastructure, 1–7 (best)	15	5.2	Switzerland	6.8
5.06	Quality of roads, 1–7 (best)	21	5.7	Singapore	6.7
5.07	Quality of port infrastructure, 1–7 (best)	14	5.6	Singapore	6.8
	6th pillar: Availability and quality of transport services				
6.01	Liner Shipping Connectivity Index, 0–132.5 (best)	21	41.3	China	132.5
6.02	Ease and affordability of shipment, 1–5 (best)	22	3.2	Singapore	3.9
6.03	Logistics competence, 1–5 (best)	8	4.0	Switzerland	4.3
6.04	Tracking and tracing ability, 1–5 (best)	14	4.0	Switzerland	4.3
6.05	Timeliness of shipments in reaching destination, 1–5 (best)	5	4.4	Luxembourg	4.6
6.06	Postal services efficiency, 1–7 (best)	14	6.4	Japan	6.8
6.07	GATS commitments in the transport sector, index 0–1 (best)	69	0.0	Armenia	0.6
	7th pillar: Availability and use of ICTs				
7.01	Extent of business Internet use, 1–7 (best)	5	6.1	Sweden	6.4
7.02	Mobile telephone subscriptions per 100 population	86	66.4	United Arab Emirates	208.6
7.03	Broadband Internet subscribers per 100 population	10	29.6	Sweden	41.2
7.04	Internet users per 100 population	11	75.4	Iceland	90.6
7.05	Fixed telephone lines per 100 population	9	54.9	Switzerland	64.1
7.06	Government Online Service Index, 0–1 (best)	3	0.9	Korea, Rep.	1.0
	8th pillar: Regulatory environment				
8.01	Property rights, 1–7 (best)	13	6.0	Switzerland	6.4
8.02	Ethics and corruption, 1–7 (best)	18	4.9	Singapore	6.4
8.03	Undue influence, 1–7 (best)	13	5.4	Sweden	6.2
8.04	Government efficiency, 1–7 (best)	19	4.6	Singapore	6.0
8.05	Domestic competition, 1–7 (best)	9	5.2	Singapore	5.6
8.06	Efficiency of the financial market, 1–7 (best)	5	5.0	Hong Kong SAR	5.6
8.07	Openness to foreign participation, index 1–7 (best)	41	5.0	Hong Kong SAR	6.2
	Ease of hiring foreign labor, 1–7 (best)	71	4.2	United Arab Emirates	6.2
	Prevalence of foreign ownership, 1–7 (best)	22	5.7	Hong Kong SAR	6.6
	Business impact of rules on FDI, 1–7 (best)	47	5.1	Singapore	6.7
	Restriction on international capital flows, 1–7 (best)	36	5.1	Hong Kong SAR	6.5
	Openness to multilateral trade rules, index 0–100 (best)	58	62.9	Slovenia	93.1
	9th pillar: Physical security				
9.01	Reliability of police services, 1–7 (best)	11	6.2	Finland	6.6
9.02	Business costs of crime and violence, 1–7 (best)	35	5.5	Qatar	6.7
9.03	Business costs of terrorism, 1–7 (best)	60	5.6	Austria	6.8

2.1: Country/Economy Profiles

Canada

Key indicators

Population (millions), 2009 ..... 33.6
Surface area (1,000 square kilometers) 9,984.7
GDP (US$ billions), 2009 ..... 1,319.1
Real GDP growth (percent), 2009 ..... -2.5
GDP per capita (current prices, US$), 2009 ..... 39,217.3
GDP per capita (rank out of 124), 2009 18
Total exports (rank out of 120), 2007 10
Total imports (rank out of 120), 2007 11

Source: IMF; UNFPA; World Bank; UNCTAD; WTO

Trade and FDI inflows, percent of GDP

Selected trade indicators

Current account balance (share of GDP), 2009 ..... -2.6
Merchandise exports, f.o.b. (US$ millions), 2008 ..... 456,464.0
Services exports (US$ millions), 2008 ..... 64,794.9
Merchandise imports, c.i.f. (US$ millions), 2008 ..... 418,311.4
Services imports (US$ millions), 2008 ..... 86,644.3

WTO accession year 1995
Regional trade agreements notified to WTO 6
MFN tariffs, simple avg., 2008: bound; applied 6.5; 4.7
Tariff escalation (rate diff. raw to finished), 2009 ..... 4.2

Tariff rate for agricultural products, 2008 ..... 24.9
Tariff rate for non-agricultural products, 2008 ..... 1.4
Agricultural tariff peaks (percent), 2008 ..... 11.6
Non-agricultural tariff peaks (percent), 2008 ..... 4.6

Source: IMF; ITC; World Bank; WTO

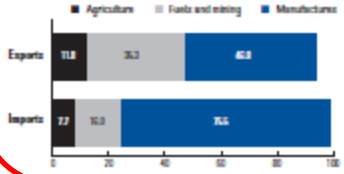
Main trading partners, 2008

Share of total volume of merchandise trade (percent)

Exports		Imports	
United States	77.6	United States	52.4
EU27	7.5	EU27	12.5
Japan	2.3	China	9.8
China	2.2	Mexico	4.1
Mexico	1.2	Japan	3.5
Others	9.2	Others	17.6

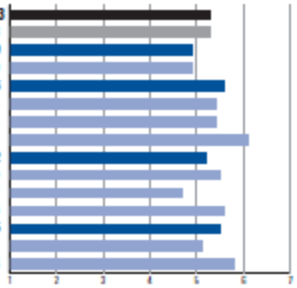
Exports and imports by sector, 2008

Share of total volume of merchandise trade (percent)



Enabling Trade Index

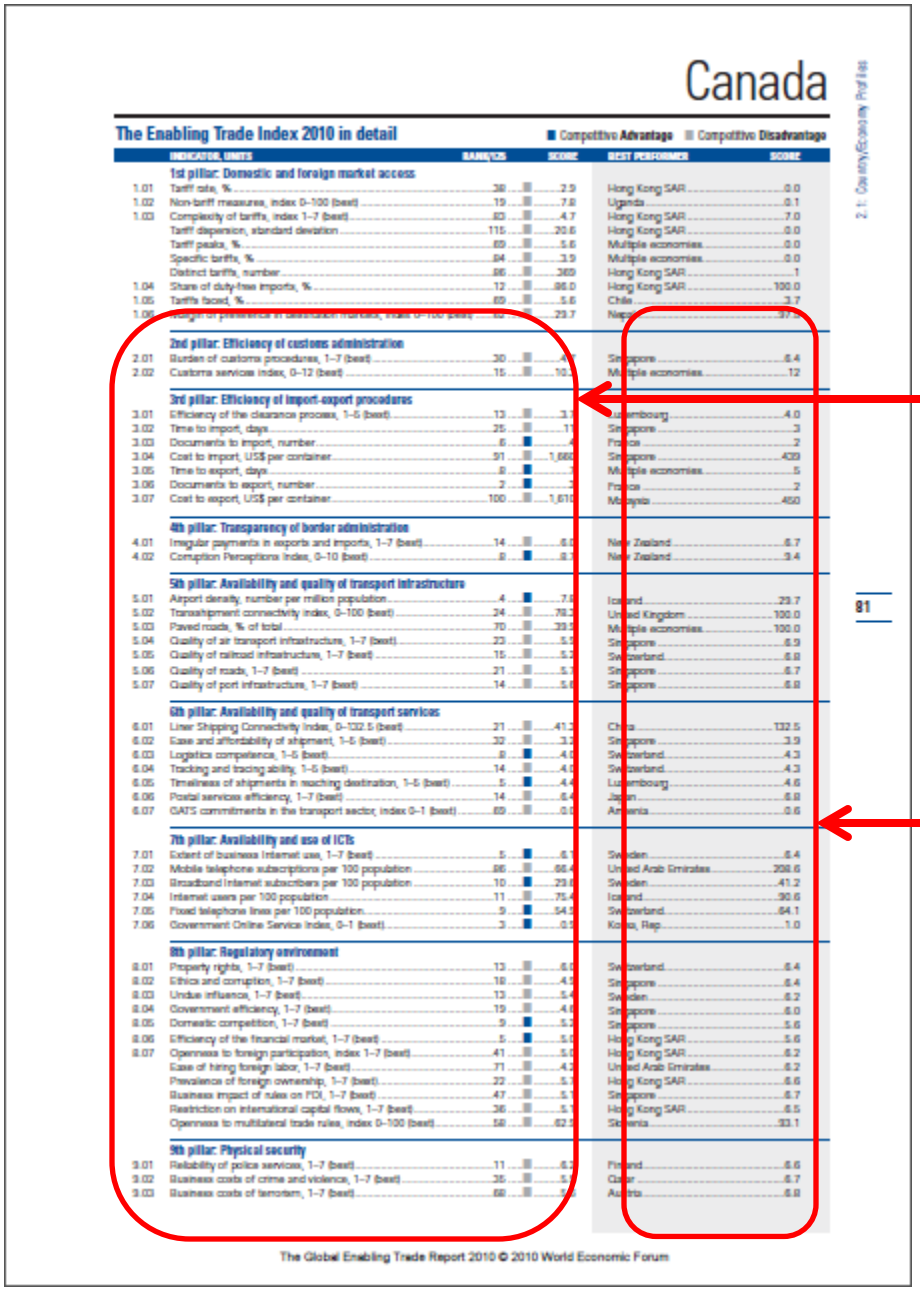
	Rank (out of 125)	Score (1-7 scale)
2010 Index	8	5.3
2009 Index	6	5.3
Market access	25	4.9
1st pillar: Domestic and foreign market access	25	4.9
Border administration	17	5.6
2nd pillar: Efficiency of customs administration	19	5.4
3rd pillar: Efficiency of import-export procedures	30	5.4
4th pillar: Transparency of border administration	11	6.1
Transport and communications infrastructure	20	5.2
5th pillar: Availability and quality of transport infrastructure	21	5.5
6th pillar: Availability and quality of transport services	25	4.7
7th pillar: Availability and use of ICTs	11	5.6
Business environment	18	5.5
8th pillar: Regulatory environment	14	5.1
9th pillar: Physical security	24	5.8



Note: For descriptions of variables and detailed sources, and for a list of multiple best-performing economies for each indicator in the ETI in detail on the right-hand page, please refer to "How to Read the Country/Economy Profiles."

Background info about the economy's imports/exports

Enabling Trade Index



Canada

The Enabling Trade Index 2010 in detail

■ Competitive Advantage ■ Competitive Disadvantage

	INDICATOR, UNITS	RANK/126	SCORE	BEST PERFORMER	SCORE
	1st pillar: Domestic and foreign market access				
1.01	Tariff rate, %	38	2.9	Hong Kong SAR	0.0
1.02	Non-tariff measures, index 0–100 (best)	19	7.8	Uganda	0.1
1.03	Complexity of tariffs, index 1–7 (best)	83	4.7	Hong Kong SAR	7.0
	Tariff dispersion, standard deviation	115	20.6	Hong Kong SAR	0.0
	Tariff peaks, %	69	5.6	Multiple economies	0.0
	Specific tariffs, %	84	3.9	Multiple economies	0.0
	Distinct tariffs, number	86	369	Hong Kong SAR	1
1.04	Share of duty-free imports, %	12	86.0	Hong Kong SAR	100.0
1.05	Tariffs faced, %	69	5.6	Chile	2.7
1.06	Weight of preference in destination markets, index 0–100 (best)	62	29.7	Nepal	97.1
	2nd pillar: Efficiency of customs administration				
2.01	Burden of customs procedures, 1–7 (best)	30	4.7	Singapore	6.4
2.02	Customs services index, 0–12 (best)	15	10.1	Multiple economies	12
	3rd pillar: Efficiency of import-export procedures				
3.01	Efficiency of the clearance process, 1–6 (best)	13	3.1	Luxembourg	4.0
3.02	Time to import, days	25	11	Singapore	3
3.03	Documents to import, number	6	4	France	2
3.04	Cost to import, US$ per container	91	1,660	Singapore	439
3.05	Time to export, days	8	3	Multiple economies	5
3.06	Documents to export, number	2	3	France	2
3.07	Cost to export, US$ per container	100	1,610	Malaysia	450
	4th pillar: Transparency of border administration				
4.01	Irregular payments in exports and imports, 1–7 (best)	14	6.0	New Zealand	6.7
4.02	Corruption Perceptions Index, 0–10 (best)	8	8.7	New Zealand	9.4
	5th pillar: Availability and quality of transport infrastructure				
5.01	Airport density, number per million population	4	7.5	Iceland	29.7
5.02	Transshipment connectivity index, 0–100 (best)	24	78.2	United Kingdom	100.0
5.03	Paved roads, % of total	70	39.9	Multiple economies	100.0
5.04	Quality of air transport infrastructure, 1–7 (best)	23	5.2	Singapore	6.9
5.05	Quality of railroad infrastructure, 1–7 (best)	15	5.2	Switzerland	6.8
5.06	Quality of roads, 1–7 (best)	21	5.7	Singapore	6.7
5.07	Quality of port infrastructure, 1–7 (best)	14	5.8	Singapore	6.8
	6th pillar: Availability and quality of transport services				
6.01	Liner Shipping Connectivity Index, 0–132.5 (best)	21	41.2	China	132.5
6.02	Ease and affordability of shipment, 1–5 (best)	32	3.7	Singapore	3.9
6.03	Logistics competence, 1–5 (best)	8	4.2	Switzerland	4.3
6.04	Tracking and tracing ability, 1–5 (best)	14	4.0	Switzerland	4.3
6.05	Timeliness of shipments in reaching destination, 1–5 (best)	5	4.4	Luxembourg	4.6
6.06	Postal services efficiency, 1–7 (best)	14	6.0	Japan	6.8
6.07	GATS commitments in the transport sector, index 0–1 (best)	69	0.0	Armenia	0.6
	7th pillar: Availability and use of ICTs				
7.01	Extent of business Internet use, 1–7 (best)	5	6.1	Sweden	6.4
7.02	Mobile telephone subscriptions per 100 population	86	66.4	United Arab Emirates	208.6
7.03	Broadband Internet subscribers per 100 population	10	23.0	Sweden	41.2
7.04	Internet users per 100 population	11	75.4	Iceland	90.6
7.05	Fixed telephone lines per 100 population	9	54.3	Switzerland	64.1
7.06	Government Online Service Index, 0–1 (best)	3	0.9	Korea, Rep.	1.0
	8th pillar: Regulatory environment				
8.01	Property rights, 1–7 (best)	13	6.0	Switzerland	6.4
8.02	Ethics and corruption, 1–7 (best)	10	4.9	Singapore	6.4
8.03	Undue influence, 1–7 (best)	13	5.4	Sweden	6.2
8.04	Government efficiency, 1–7 (best)	19	4.8	Singapore	6.0
8.05	Domestic competition, 1–7 (best)	9	5.2	Singapore	5.6
8.06	Efficiency of the financial market, 1–7 (best)	5	5.0	Hong Kong SAR	5.6
8.07	Openness to foreign participation, index 1–7 (best)	41	5.0	Hong Kong SAR	6.2
	Ease of hiring foreign labor, 1–7 (best)	71	4.2	United Arab Emirates	6.2
	Prevalence of foreign ownership, 1–7 (best)	22	5.1	Hong Kong SAR	6.6
	Business impact of rules on FDI, 1–7 (best)	47	5.1	Singapore	6.7
	Restriction on international capital flows, 1–7 (best)	36	5.1	Hong Kong SAR	6.5
	Openness to multilateral trade rules, index 0–100 (best)	58	62.2	Slovenia	93.1
	9th pillar: Physical security				
9.01	Reliability of police services, 1–7 (best)	11	6.2	Finland	6.6
9.02	Business costs of crime and violence, 1–7 (best)	35	5.1	Qatar	6.7
9.03	Business costs of terrorism, 1–7 (best)	60	5.6	Austria	6.8

2.1: Country/Economy Profiles

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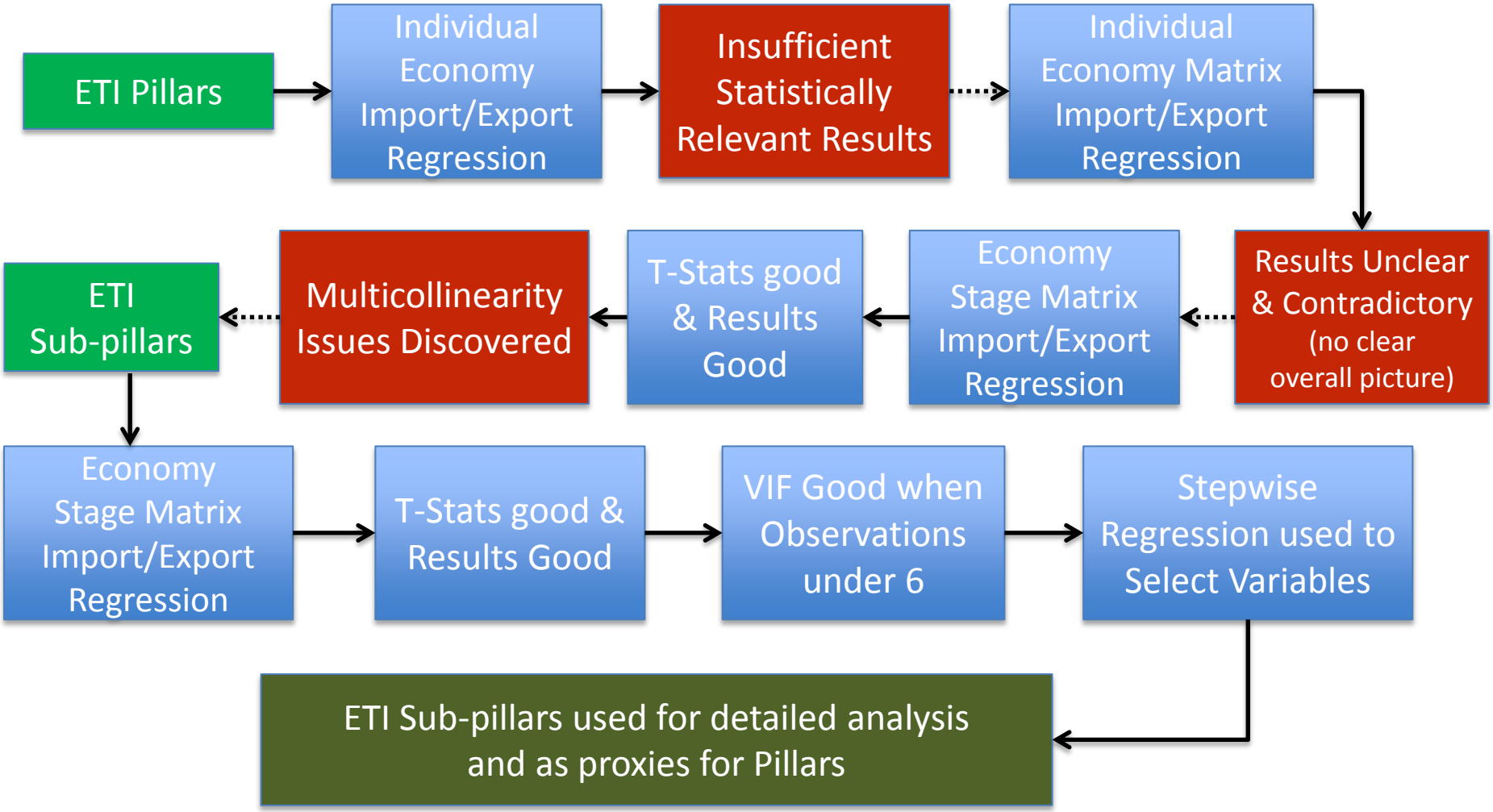
Sub-pillar ETI data (used in our regression analysis of the ETI)

Nations with best practices have been identified by the ETI

Note: As each nation is at a different stage in development and may not be prepared to adopt the best practice, a transitional stage is recommended in the Valuation section of our report

Regression Analysis – Process

A number of different approaches were used for the regression analysis. The diagram below depicts failed attempts and the progression towards using sub-pillars as proxies.



Regression Analysis – Sub-pillars (Time)

The sub-pillar regression analysis gives us a more detailed look at the components within each pillar. As shown below, improvements to many of the sub-pillars have varying benefits to shipping times, however there are a few areas that negatively impact shipping times (but may positively affect variables that were not identified in our regression analysis).

ETI Sub-pillars – Impact on Shipping Time		Economies by Stage of Development			
		D to D	D to E	E to D	E to E
3.03	Documents to import & export (decreasing number)	-2.81	-3.26	-3.28	-4.54
5.02	Transshipment connectivity index, 0–100 (best)	-2.65			
5.04, 5.06, 5.07	Quality of Air, Road, Port				-2.58
6.02	Ease and affordability of shipment, 1–5 (best)			-2.26	-8.12
6.04	Tracking and tracing ability, 1–5 (best)		-8.45	-7.34	
7.04	Internet users per 100 population	-6.39	-3.73		
7.05	Fixed telephone lines per 100 population				-5.73
8.01	Property rights, 1–7 (best)			3.94	
8.03	Undue influence, 1–7 (best)		2.33		
8.05	Domestic competition, 1–7 (best)	-2.87			7.17
8.07	Openness to foreign participation, index 1–7 (best)	-1.34	3.36		
8.07	Restriction on international capital flows, 1–7 (best)		-6.10	-3.87	-6.04

Note: Data shown above has been standardized to allow relative comparisons to be made: $\frac{X - \mu}{\sigma}$

- Regression coefficients are shown above, with green highlighted fields representing sub-pillars that reduce shipping times when improvements to the ETI sub-pillar scores are made.
- Red highlighted fields represent sub-pillars that increase shipping times when improvements to the ETI sub-pillar scores are made.

D to D: Developed to Developed; D to E: Developed to Emerging; E to D: Emerging to Developed; E to E: Emerging to Emerging

Regression Analysis – Sub-pillars (Cost)

The sub-pillar regression analysis gives us a more detailed look at the components within each pillar. As shown below, improvements to many of the sub-pillars can potentially yield cost increases or decreases.

ETI Sub-pillars – Impact on Shipping Cost		Economies by Stage of Development			
		D to D	D to E	E to D	E to E
2.01	Burden of customs procedures, 1–7 (best)	-621	-463	-560	
2.02	Customs services index, 0–12 (best)				-194
3.02	Time to import & export (decreasing time)			-255	
4.02	Corruption Perceptions Index, 0–10 (best)		865	941	
5.01	Airport density, number per million population	46		137	
5.05	Quality of railroad infrastructure, 1–7 (best)				-446
7.02	Mobile telephone subscriptions per 100 population	-280			
8.03	Undue influence, 1–7 (best)			-440	
8.06	Efficiency of the financial market, 1–7 (best)	504	-531		
8.07	Ease of hiring foreign labor, 1–7 (best)		-335		-641
8.07	Prevalence of foreign ownership, 1–7 (best)		559		
9.02	Business costs of crime and violence, 1–7 (best)				-303
9.03	Business costs of terrorism, 1–7 (best)	117			783

Note: Data shown above has been standardized to allow relative comparisons to be made: $\frac{X - \mu}{\sigma}$

- Regression coefficients are shown above, with green highlighted fields representing sub-pillars that reduce shipping costs when improvements to the ETI sub-pillar scores are made.
- Red highlighted fields represent sub-pillars that increase shipping costs when improvements to the ETI sub-pillar scores are made.

D to D: Developed to Developed; D to E: Developed to Emerging; E to D: Emerging to Developed; E to E: Emerging to Emerging

Appendix C: Survey & Results

Survey Introduction & Instructions

SURVEY OF SUPPLY CHAIN CHOKEPOINTS IN THE ASIA-PACIFIC REGION

Project Overview

The APEC Business Advisory Council (ABAC) has commissioned the University of Southern California Marshall School of Business to identify and quantify the most significant supply chain chokepoints in the APEC region. There is significant consensus within the APEC business community that focused collective effort to remove critical chokepoints could do much to improve speed and lower the cost of trade.

Research findings and conclusions will be presented to the APEC Business Advisory Council's 4th Meeting of 2011, preceding the APEC 2011 Leaders Meetings in Honolulu, Hawaii. More information about the APEC organization can be found at http://www.apec.org.

Objectives

This questionnaire has two primary objectives:

- Identify the key chokepoints impacting the efficient flow of goods or services through regional supply chains
- Gather quantifiable data on how these chokepoints impact businesses and economies

Additionally, we would like to solicit your recommendations for improvements in regional supply chains, which will be reported to the ABAC executives.

Instructions

This survey includes seven sections in which we ask you to assess various issues surrounding supply chains. There are two options for completing the questionnaire.

- You can type responses directly into the questionnaire and return via email
- You can print a copy of the questionnaire, complete it by hand, and return via fax

Email……. Kevin.Syslo.2012@marshall.usc.edu

Fax……. +1 (213) 740 3582 [Attn: Carl Voigt]

Confidentiality of Information

All identifying information is strictly confidential. You and your organization will not be identified by name in any of our reports. Any quotes or data included will not be attributed to you by name.

Thanks and Appreciation

On behalf of ABAC and the USC Marshall Research Team, we thank you for your participation in this survey. The information you provide is invaluable in helping us understand what issues are most pertinent to the business communities you represent.

Best regards,

USC Marshall Research Team

Section 1: Assessing Regional APEC Supply Chain

SECTION 1: ASSESSING REGIONAL APEC SUPPLY CHAINS

Please check the box that best describes your view of regional APEC supply chains.

1. **Which of the following statements best describes your assessment of changes in the efficiency (speed, reliability, and cost) and capacity of regional supply chains over the last 3-5 years? (check one)**

   ☐ Regional supply chains have remained essentially unchanged
   ☐ There have only been *minor* improvements in the efficiency and capacity of regional supply chains
   ☐ There have been *major* improvements in the efficiency and capacity of regional supply chains
   ☐ Supply chains are less efficient today

2. **In what areas have regional supply chains improved the most? (check one)**

   ☐ Behind the border (e.g. transport infrastructure, transport services, etc.)
   ☐ At the border (e.g. customs efficiency, import/export procedures, transparency, etc.)
   ☐ Across borders (e.g. transport connectivity, harmonization of customs regulations, improved market access)

3. **In what areas have regional supply chains improved the least? (check one)**

   ☐ Behind the border (e.g. transport infrastructure, transport services, etc.)
   ☐ At the border (e.g. customs efficiency, import/export procedures, transparency, etc.)
   ☐ Across borders (e.g. transport connectivity, harmonization of customs regulations, improved market access)

4. **Please estimate the overall level of unnecessary costs incurred across regional supply chains because of continuing inefficiencies, barriers, and chokepoints. (check one)**

   ☐ No increased costs
   ☐ 0 – 5% increased costs
   ☐ 6 – 10% increased costs
   ☐ 11 – 15% increased costs
   ☐ 16 – 20% increased costs
   ☐ 21 – 25% increased costs
   ☐ Over 25% - please specify: _____

!

5. **Please rank these suggestions from 1 (most important) to 4 (least important) on the relative priority APEC should assign to improve regional supply chains (use each number once):**

   _____ Improving supply chain efficiency – lowering costs and/or improving timeliness and speed of delivery
   _____ Improving the reliability of delivery – reducing uncertainty (e.g. unexpected delays, unexpected costs) and lower risks (e.g. damage or loss of product)
   _____ Improving safety and security
   _____ Making supply chains "greener"

6. **Do you utilize the provisions of any Free Trade Agreements (FTAs) or Regional Trade Agreements in your supply chains?**

   ☐ Yes ☐ No

If yes, how have the provisions of the Free Trade Agreements (FTAs) or Regional Trade Agreements impacted your supply chains?

   ☐ They have had no impact on our supply chains
   ☐ There have led to *minor* improvements in our supply chains
   ☐ There have led to *major* improvements in our supply chains
   ☐ Complex and burdensome documentation has led to a weakened supply chain

Section 2 : Identified Chokepoints Assessment

SECTION 2: IDENTIFIED CHOKEPOINTS ASSESSMENT

In the September 2009 meeting of APEC, eight primary chokepoints were identified. Integrating this information with preliminary field interviews, a comprehensive list of the most impactful chokepoints across regional supply chains was developed. Please identify which of these are the most significant barriers to trade for your industry in the APEC region on a scale of 1 (not at all a significant barrier) to 5 (extremely significant barrier):

- Please list the industry of your company or organization _____
- If you work for a government agency, university, or other organization that isn't affiliated with a particular industry, which industry are you most familiar with? _____
- Please answer questions from the perspective of your economy, regarding the industry with which you are most familiar.

		NOT AT ALL SIGNIFICANT				EXTREMELY SIGNIFICANT
		1	2	3	4	5
	TRADE BARRIERS					
1	Presence of overly restrictive import regulations (phytosanitary, etc).	☐	☐	☐	☐	☐
2	Complex and burdensome documentation for accessing preferential trade agreements	☐	☐	☐	☐	☐
3	Different regulations and standards established by economies for the same goods	☐	☐	☐	☐	☐
	INFRASTRUCTURE					
4	Inefficient or inadequate transport infrastructure	☐	☐	☐	☐	☐
5	Inadequate capacity of multi-modal transportation (truck to rail, rail to ship, etc)	☐	☐	☐	☐	☐
6	Inefficient air, land, and multi-modal connectivity (truck to rail, rail to ship, etc)	☐	☐	☐	☐	☐
	TRANSPORTATION SERVICES & LOGISTICS					
7	Lack of expertise in local/regional transportation and logistics providers	☐	☐	☐	☐	☐
8	Lack of capacity in local/regional transportation and logistics providers	☐	☐	☐	☐	☐
9	Lack of transparency and awareness of full scope of regulatory issues affecting transportation and logistics	☐	☐	☐	☐	☐
10	Numerous parties with jurisdiction over the transportation sector making supply chains unnecessarily complex and costly.	☐	☐	☐	☐	☐
	CUSTOMS					
11	Burdensome customs documentation	☐	☐	☐	☐	☐
12	Inefficient customs clearance of goods at the border	☐	☐	☐	☐	☐
13	Inefficient paper-based systems	☐	☐	☐	☐	☐
14	Lack of coordination among border agencies (single window), especially relating to clearance of regulated goods 'at the border'	☐	☐	☐	☐	☐
15	Lack of customs procedures for goods that should benefit from preferential treatment (FTA provisions)	☐	☐	☐	☐	☐
16	Capacity of customs to handle peak trade volumes	☐	☐	☐	☐	☐
17	Lack of adoption of globally accepted customs standards	☐	☐	☐	☐	☐
	SECURITY					
18	Terrorism prevention costs or fees	☐	☐	☐	☐	☐
19	Cost of theft and crime prevention	☐	☐	☐	☐	☐
	IMPORT AND EXPORT PROCEDURES					
20	Lack of adequate IT infrastructure (lack of online documentation, payment of fees, tracking, etc.)	☐	☐	☐	☐	☐
21	Poor, numerous, and cumbersome regulations that lead to confusion and high costs	☐	☐	☐	☐	☐
22	Poor, confusing, non-transparent regulations that create opportunities for corruption.	☐	☐	☐	☐	☐

Section 3: Quantifying the Business Impact

SECTION 3: QUANTIFYING THE BUSINESS IMPACT

ABAC wants to build the business case for making real improvements in regional supply chains. To make this case, real data on the economic costs/losses of supply chain inefficiencies, chokepoints, and unnecessary barriers must be collected. While we recognize that few businesses have ready access to this information, we would like your best estimates of these costs in terms of increased expenses, time delays, and increased staffing requirements for the chokepoints listed below.

Please indicate what perspective you are using to answer these questions (if your organization is both an exporter and importer, please answer as an exporter):

☐ EXPORTER ☐ IMPORTER

If you work for a government agency, university, or other organization that isn't affiliated with a particular industry, please answer from the perspective of the industry you are most familiar with (same as Section 2)

PART I - Listed below are broad categories of chokepoints. Please fill out as many columns as you can, but we understand that you may not have the information for all columns.

		Additional Cost (% of Sales preferred)	Additional Time (Hours)	Additional Employees Required
1	**Customs Processes:** The costs incurred for services, or lack thereof, provided at customs (*e.g:* single window, amount of documentation, hours of service, inspections, etc.)		+	+
2	**Customs Clearances:** The costs and delays of customs clearances (*e.g:* dispute resolution, number of customs employees, imposed wait times, paperwork, etc).		+	+
3	**Barriers to Trade and Market Access:** Additional costs in order to import goods (Tariffs, Non-Tariff Barriers (*e.g:* phytosanitary (SPS), technical requirements, quotas, etc)		+	+
4	**Import/Export Procedures**: Cost due to clearance processes, time delays, documents required	+	+	+
5	**Border Transparency** – Costs incurred due to poor, numerous and confusing regulations and their application (*e.g:* irregular payments, unnecessary delays, etc).	+	+	+
6	**Transportation Infrastructure:** Costs, delays and losses incurred to inadequate or poorly maintained physical infrastructure	+	+	+
7	**Regulatory Environment:** Cost of burdensome and restrictive regulations, costs and delays meeting requirements of inadequately coordinated government agencies with jurisdiction over imports/exports	+	+	+
8	**Transportation Services / Logistic Providers:** Costs, delays and losses incurred due to a lack of availability and/or inefficiency of logistics and transportation services involved in moving goods (e.g*:* search time, delays at ports or hubs, cost premiums for quality, cost increase due to lack of available routes, etc).	+	+	+
9	**Physical Security and Safety:** Additional costs incurred to ensure the security of goods and personnel, and additional costs to meet terrorism prevention requirements	+	+	+
10	**Regional Relations** - Trade agreements, or lack thereof, when transporting goods across economies (*Examples:* excessive documentation to comply, increased tariffs or requirements, etc).	+	+	+

Section 3: Quantifying the Business Impact

PART II - The questions below ask for very specific cost and time data. These data are essential to our research project in developing a comprehensive quantitative model of APEC supply chains. Please fill out the information below on a per container basis.

		Monetary Cost or Time
1	What is the expected daily fee per container for transport between production site and port?	
2	What is the average time to transport goods between production site and port?	
3	Average distance traveled per container between production site and port?	+
4	How long do you expect your products to take to clear customs in your economy (from port arrival to departure)?	
5	For goods delayed at the port, what is the resulting increase in inventory (as % of sales)?	+
6	For this increase in inventory, what is the added interest expense (as % of sales)?	+
7	What is the expected daily storage cost per container for goods delayed at port?	+
8	What are the customs fees associated with pass border administration per container?	+
9	What is the cost of irregular payments encountered with pass border administration per container?	+
10	If you experienced a 10% improvement in transport time between production sites to ports, what would you expect the related increase in sales revenues and profit margin to be?	+
11	If you experienced a 10% improvement in transport cost from production sites to ports, what would you expect the related increase in sales revenues and profit margin to be?	+
12	How much time does it take to prepare customs documentation per container?	+
13	What does it cost to prepare customs documentation per container (materials cost, labor cost)?	+
14	How much do you spend on altering products to comply with varying import requirements (packaging, standards, testing) across economies? Please list out by issue, economies involved, and cost per issue.	+ +
15	If your economy has a free trade agreement with an economy you export to, what are the cost and time savings/losses of that agreement per container? (N/A for importers)	+
16	Do local/regional logistics providers have sufficient capacity to meet your needs?	☐YES ☐NO
17	If no, what percentage of your demand is unmet or handled internally?	
18	What percentage of products is delivered to/from the port by air freight?	
19	If you use international air transport for goods, how much time savings is required to switch to shipping via sea?	

Section 4: Improvements in Regional APEC Supply Chain

SECTION 4: IMPROVEMENTS IN REGIONAL APEC SUPPLY CHAINS

Understanding how supply chains have changed over time is important. This section focuses on understanding the trends in time and cost savings or losses observed in the recent past in supply chains, and understand the potential savings available in the future.

How much time and cost savings have you seen in the past 10 years due to transport and customs improvements? What were the triggering factors for these savings?

Transport and Logistics (Infrastructure, Logistics Efficiency, Logistics Availability, etc.):

Customs and Documentation (Customs Clearance Efficiency, Customs Procedures, IT Infrastructure, etc.):

Looking forward, what percentage of improvement in transport and customs clearance costs do you estimate could be achieved in the next 5 years in a situation with ideal government policies? 10 years? What do you anticipate will drive these changes?

Transport and Logistics (Infrastructure, Logistics Efficiency, Logistics Availability, etc.):

Customs and Documentation (Customs Clearance Efficiency, Customs Procedures, IT Infrastructure, etc.)

Section 5: Emerging Issues within the APEC Region

SECTION 5: EMERGING ISSUES WITHIN THE APEC REGION

In our interview research some executives made reference to new emerging barriers and chokepoints. Examples included:

- Complaints about new non-tariff barriers.
- Customs classifications of new technologies
- Private industry initiated requirements

Please describe any other emerging chokepoints that are impacting your business or economy:

List any known financial costs or additional man-hours spent as a result of these chokepoints:

How do you think these issues can be resolved?

Section 6: Making Improvements in APEC Supply Chains

SECTION 6: MAKING IMPROVEMENTS IN APEC SUPPLY CHAINS

Executives and other thought leaders in different industries and different APEC economies have shared their suggestions for creating significant improvements in regional supply chains. Please evaluate the suggestions below in terms of their potential for creating significant region-wide improvement on a scale of 1 (minimal business impact) to 5 (substantial business impact) for APEC to focus its energy. Then, please provide any other recommendations you have to improve APEC supply chain efficiencies:

		MINIMAL BUSINESS IMPACT				SUBSTANTIAL BUSINESS IMPACT
		1	2	3	4	5
1	Harmonizing customs requirements and procedures across APEC economies	☐	☐	☐	☐	☐
2	Share best practices and failures across all chokepoints	☐	☐	☐	☐	☐
3	Adoption of fully online supply chain system (e.g. customs documents, payments, import/export documents, tracking)	☐	☐	☐	☐	☐
4	Improve coordination across "silo-ed" government agencies	☐	☐	☐	☐	☐
5	Improve human capital mobility across the APEC region	☐	☐	☐	☐	☐

Please offer your recommendations/suggestions for improvements where APEC should be encouraged to take a leadership role.

Section 7: Participant's Perspective

SECTION 7: PARTICIPANT'S PERSPECTIVE

The following information is being collected to understand your perspective on supply chain chokepoints.

All identifying information is strictly confidential. You and your organization will not be identified by name in any of our reports. Any quotes or data included will not be attributed to you by name.

Please check the box that best describes your organization (check one):

☐ I represent a business that operates in the APEC region
☐ I represent an organization that assists businesses operating in my economy
☐ I represent an academic or research institution in my economy
☐ I represent the government in my economy
☐ Other. Please describe: _____

In which APEC economy is your organization based (check one):

☐ Australia	☐ Brunei Darussalam	☐ Canada	☐ Chile
☐ China	☐ Hong Kong, China	☐ Indonesia	☐ Japan
☐ Republic of Korea	☐ Malaysia	☐ Mexico	☐ New Zealand
☐ Papua New Guinea	☐ Peru	☐ The Philippines	☐ Russia
☐ Singapore	☐ Chinese Taipei	☐ Thailand	☐ The United States
☐ Viet Nam	☐ Other _____		

What other APEC economies do your organization do business in (i.e. trade partners, customers, etc.) (check all that apply):

☐ Australia	☐ Brunei Darussalam	☐ Canada	☐ Chile
☐ China	☐ Hong Kong, China	☐ Indonesia	☐ Japan
☐ Republic of Korea	☐ Malaysia	☐ Mexico	☐ New Zealand
☐ Papua New Guinea	☐ Peru	☐ The Philippines	☐ Russia
☐ Singapore	☐ Chinese Taipei	☐ Thailand	☐ The United States
☐ Viet Nam	☐ Other _____		

Which of these categories describes your primary industry (check all that apply):

☐ Agriculture ☐ Mining & Minerals ☐ Manufactured Goods ☐ Logistics
☐ Other. Please describe: _____

Organization Information:

Organization Name: _____ Organization Website: _____
Annual Revenue: _____
Brief Description of Operations: _____
Gross Margin: ☐ 0-20% ☐ 21-40% ☐ 41-60% ☐ 61-80% ☐ 80%+

To what degree does the time associated with transport to market affect the value of your products?	(NOT AT ALL) 1	2	3	4	5 (SIGNIFICANTLY)
	☐	☐	☐	☐	☐

Participant Information:

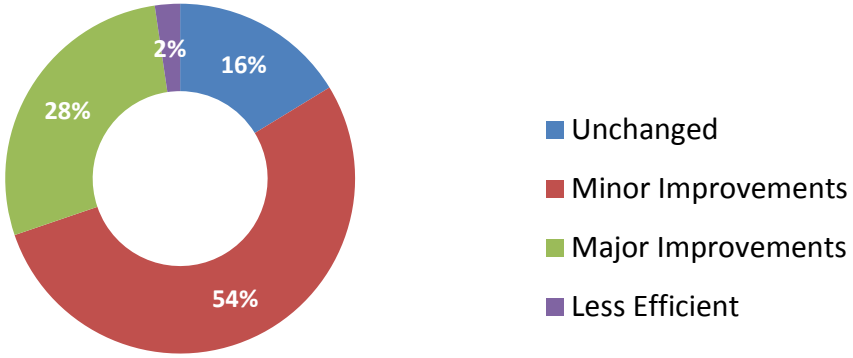
Name: _____ Title: _____
Phone Number: _____ Email Address: _____

END OF SURVEY
THANK YOU FOR YOUR PARTICIPATION

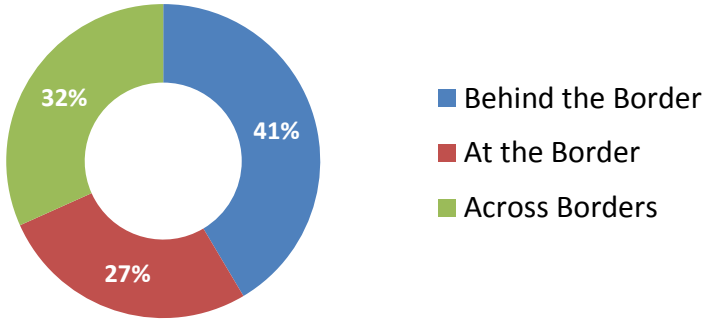
Survey Results: Section 1

Assessing Regional APEC Supply Chains

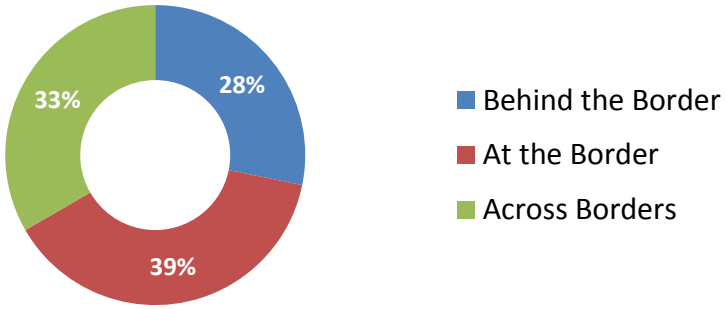
Q1. Which of the following statements best describes your assessment of changes in the efficiency (speed, reliability, and cost) and capacity of regional supply chains over the last 3-5 years? (check one)



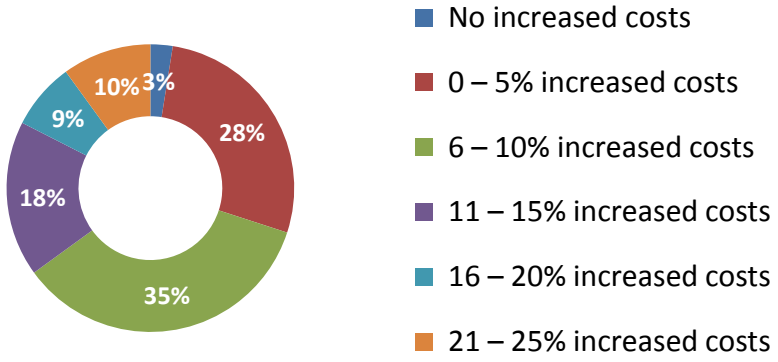
Q2. In what areas have regional supply chains improved the most? (check one)



Q3. In what areas have regional supply chains improved the least? (check one)



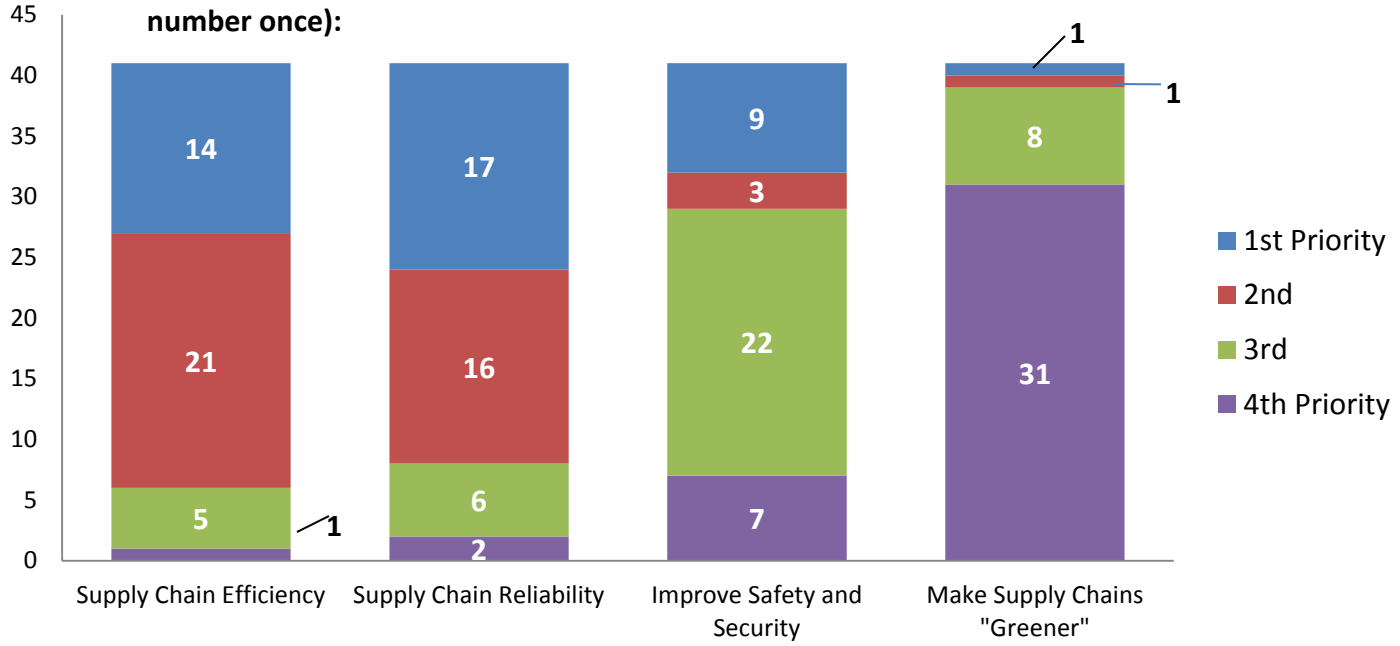
Q4. Please estimate the overall level of unnecessary costs incurred across regional supply chains because of continuing inefficiencies, barriers, and chokepoints. (check one)



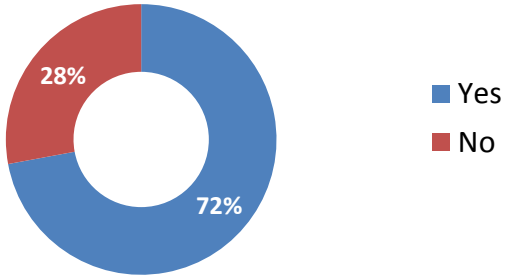
Survey Results: Section 1

Assessing Regional APEC Supply Chains

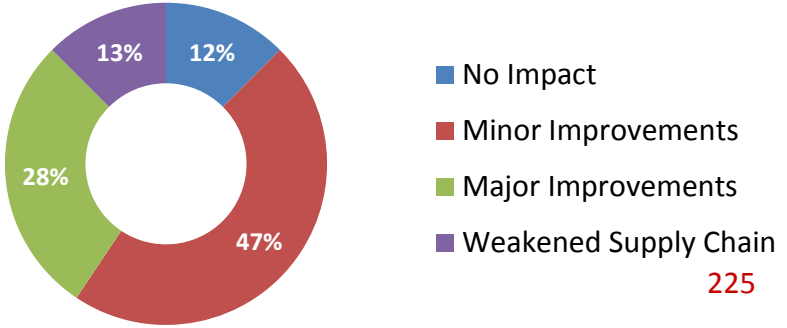
Q5. Please rank these suggestions from 1 (most important) to 4 (least important) on the relative priority APEC should assign to improve regional supply chains (use each number once):



Q6. Do you utilize the provisions of any Free Trade Agreements (FTAs) or Regional Trade Agreements in your supply chains?



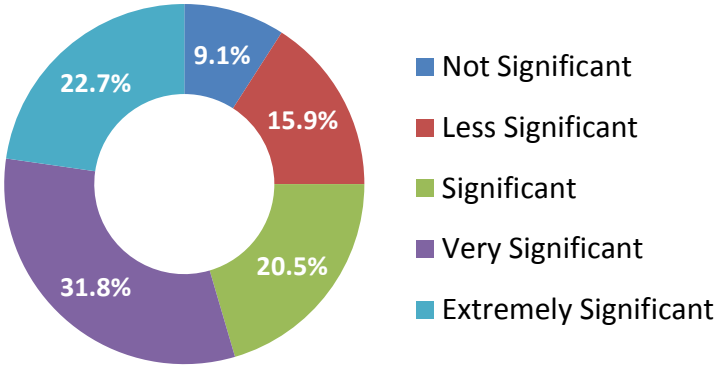
Q6a. If yes, how have the provisions of the Free Trade Agreements (FTAs) or Regional Trade Agreements impacted your supply chains?



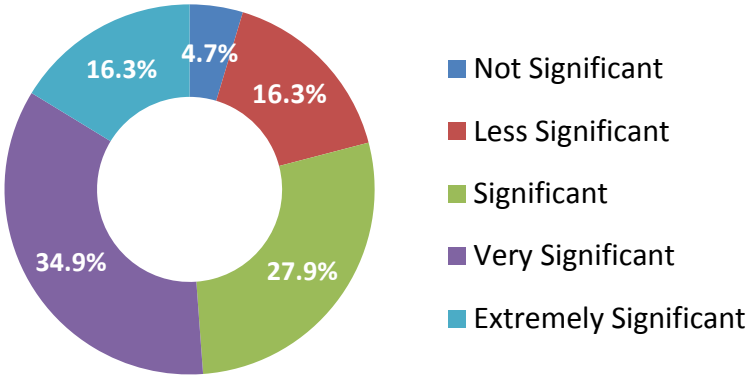
Survey Results: Section 2

Identified Chokepoints Assessment: Please identify which of these are the most significant barriers to trade for your industry in the APEC region on a scale of 1 (not at all a significant barrier) to 5 (extremely significant barrier)

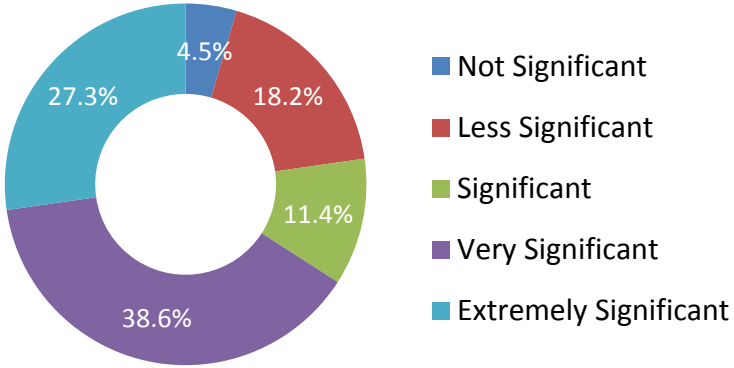
Q1. Presence of overly restrictive import regulations (phytosanitary, etc).



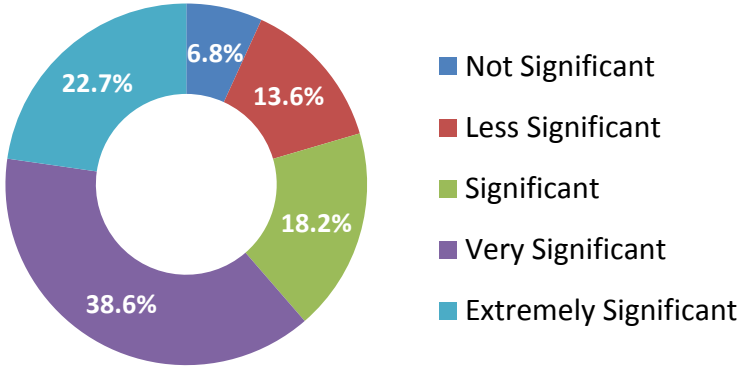
Q2. Complex and burdensome documentation for accessing preferential trade agreements.



Q3. Different regulations and standards established by economies for the same goods.



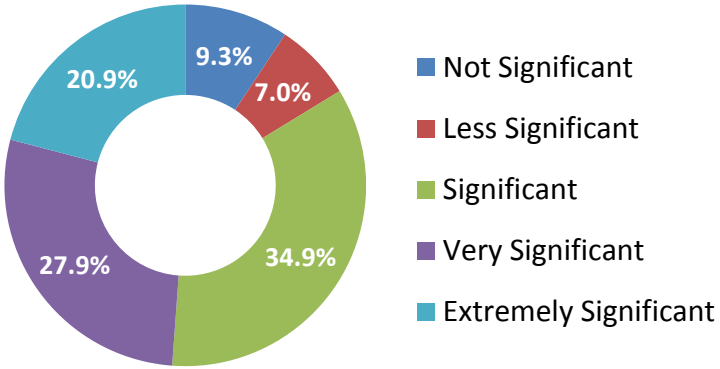
Q4. Inefficient or inadequate transport infrastructure.



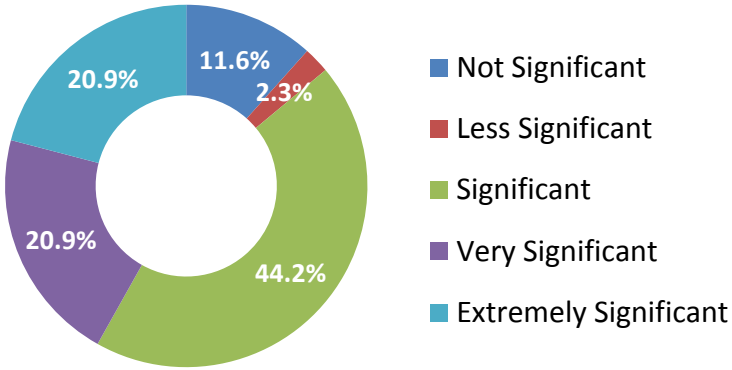
Survey Results: Section 2

Identified Chokepoints Assessment: Please identify which of these are the most significant barriers to trade for your industry in the APEC region on a scale of 1 (not at all a significant barrier) to 5 (extremely significant barrier)

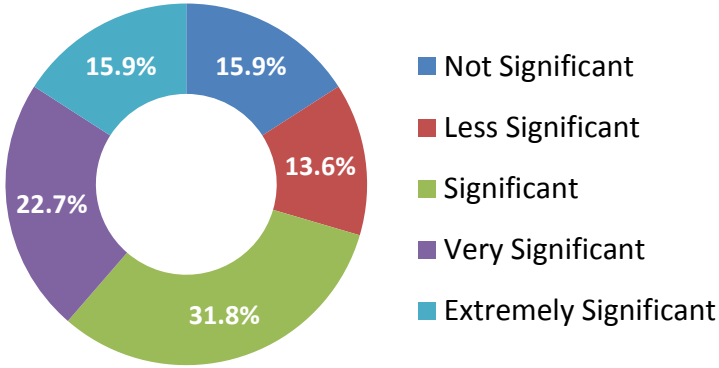
Q5. Inadequate capacity of multi-modal transportation.



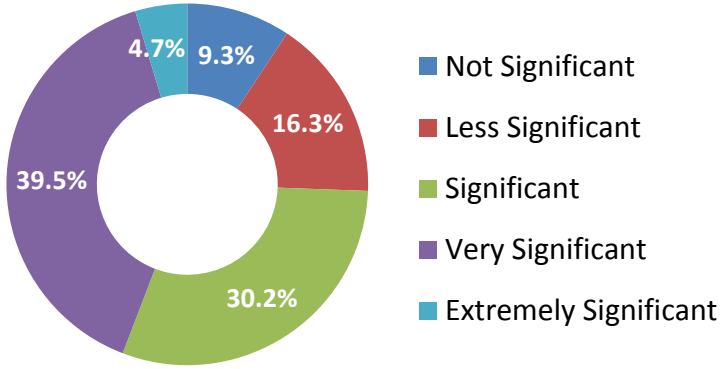
Q6. Inefficient air, land, and multi-modal connectivity.



Q7. Lack of expertise of local/regional transportation and logistics providers.



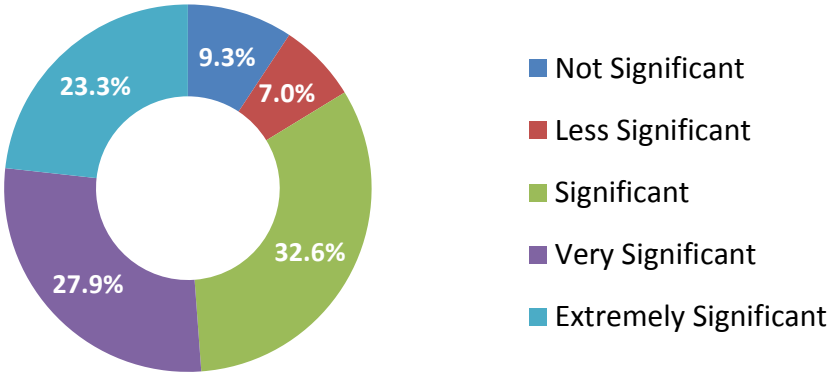
Q8. Lack of capacity of local/regional transportation and logistics providers.



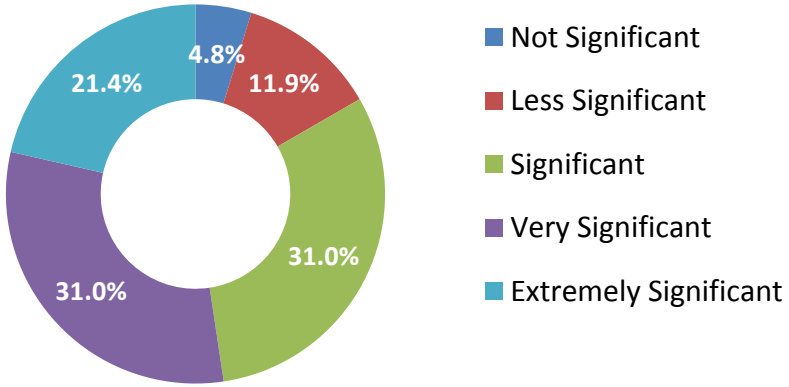
Survey Results: Section 2

Identified Chokepoints Assessment: Please identify which of these are the most significant barriers to trade for your industry in the APEC region on a scale of 1 (not at all a significant barrier) to 5 (extremely significant barrier)

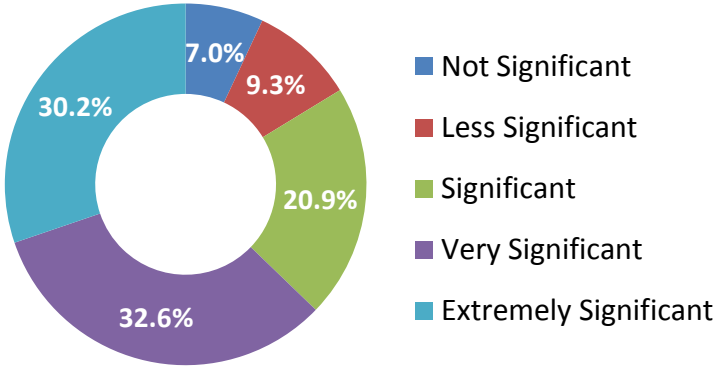
Q9. Lack of transparency and awareness of full scope of regulatory issues affecting transportation and logistics.



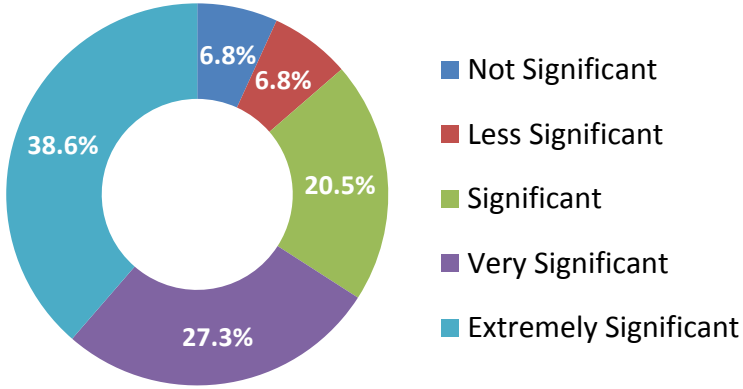
Q10. Numerous parties with jurisdiction over the transportation sector making supply chains unnecessarily complex and costly.



Q11. Presence of burdensome customs documentation.



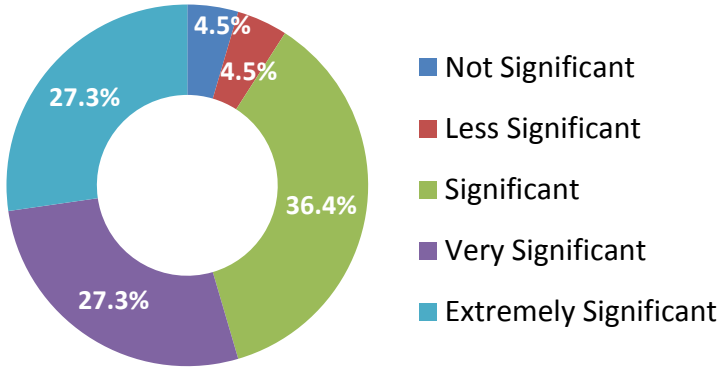
Q12. Inefficient customs clearance of goods at the border.



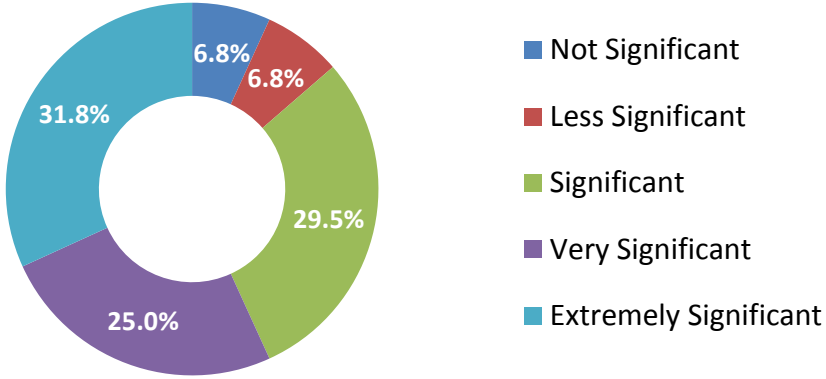
Survey Results: Section 2

Identified Chokepoints Assessment: Please identify which of these are the most significant barriers to trade for your industry in the APEC region on a scale of 1 (not at all a significant barrier) to 5 (extremely significant barrier)

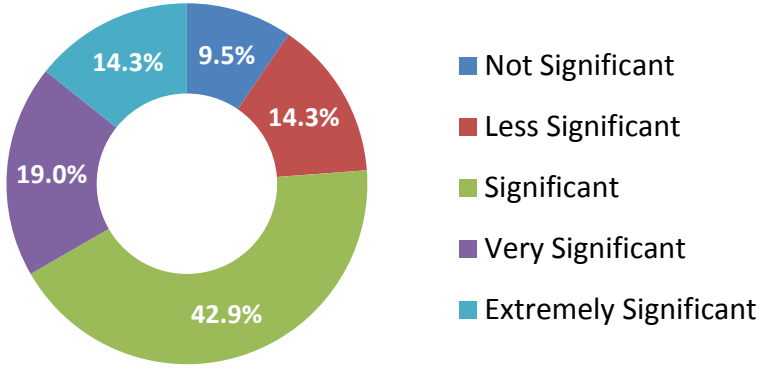
Q13. Inefficient paper-based systems.



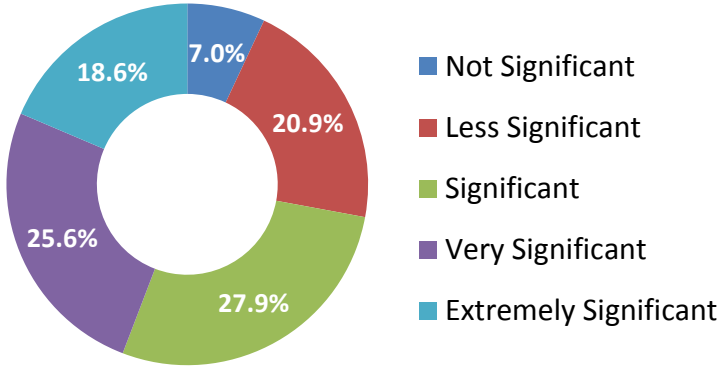
Q14. Lack of coordination among border agencies (single window), especially relating to clearance of regulated goods 'at the border.'



Q15. Lack of customs procedures for goods that should benefit from preferential treatment.



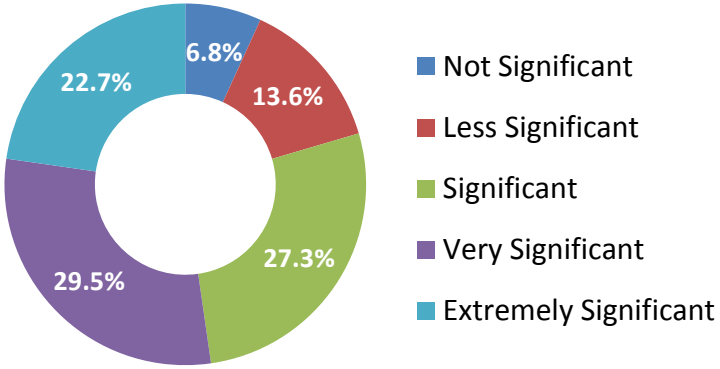
Q16. Capacity of customs to handle peak trade volumes.



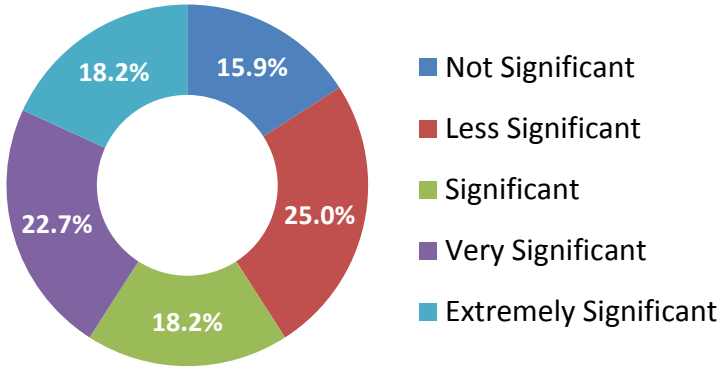
Survey Results: Section 2

Identified Chokepoints Assessment: Please identify which of these are the most significant barriers to trade for your industry in the APEC region on a scale of 1 (not at all a significant barrier) to 5 (extremely significant barrier)

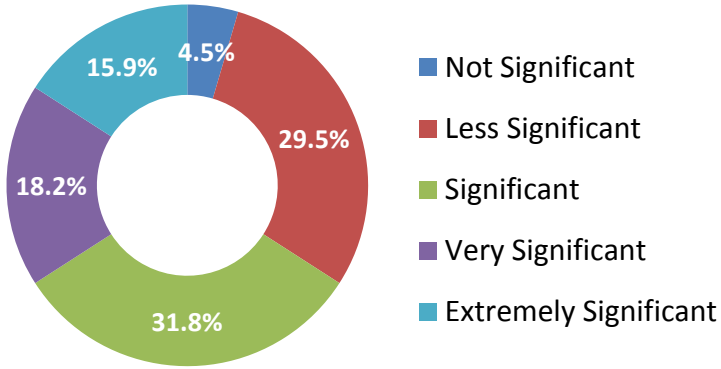
Q17. Lack of adoption of globally accepted customs standards.



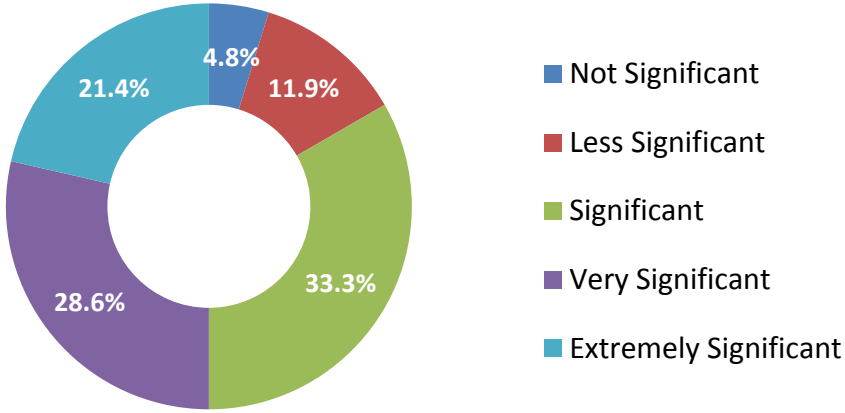
Q18. Terrorism prevention costs or fees.



Q19. Cost of theft and crime prevention.



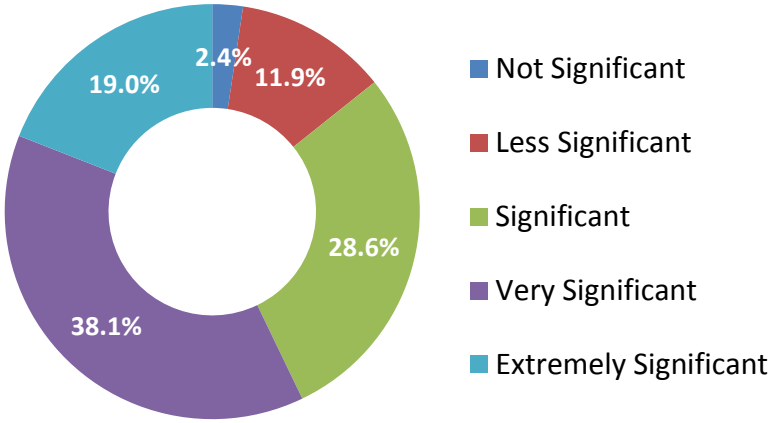
Q20. Lack of adequate IT infrastructure (lack of online documentation, payment of fees, tracking, and etc.)



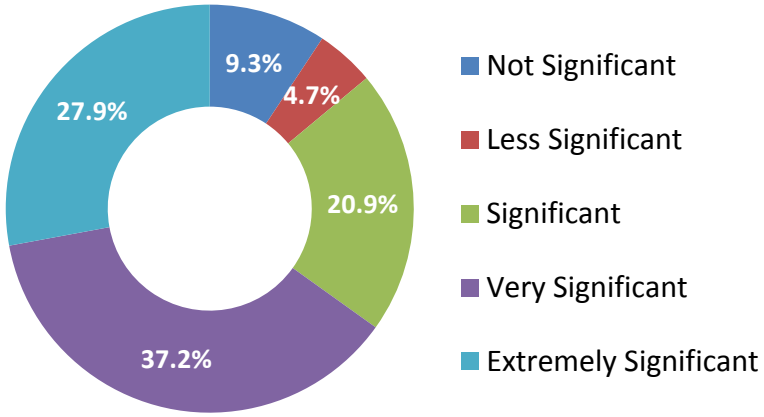
Survey Results: Section 2

Identified Chokepoints Assessment: Please identify which of these are the most significant barriers to trade for your industry in the APEC region on a scale of 1 (not at all a significant barrier) to 5 (extremely significant barrier)

Q21. Poor, numerous, and cumbersome regulations that lead to confusion and high costs.

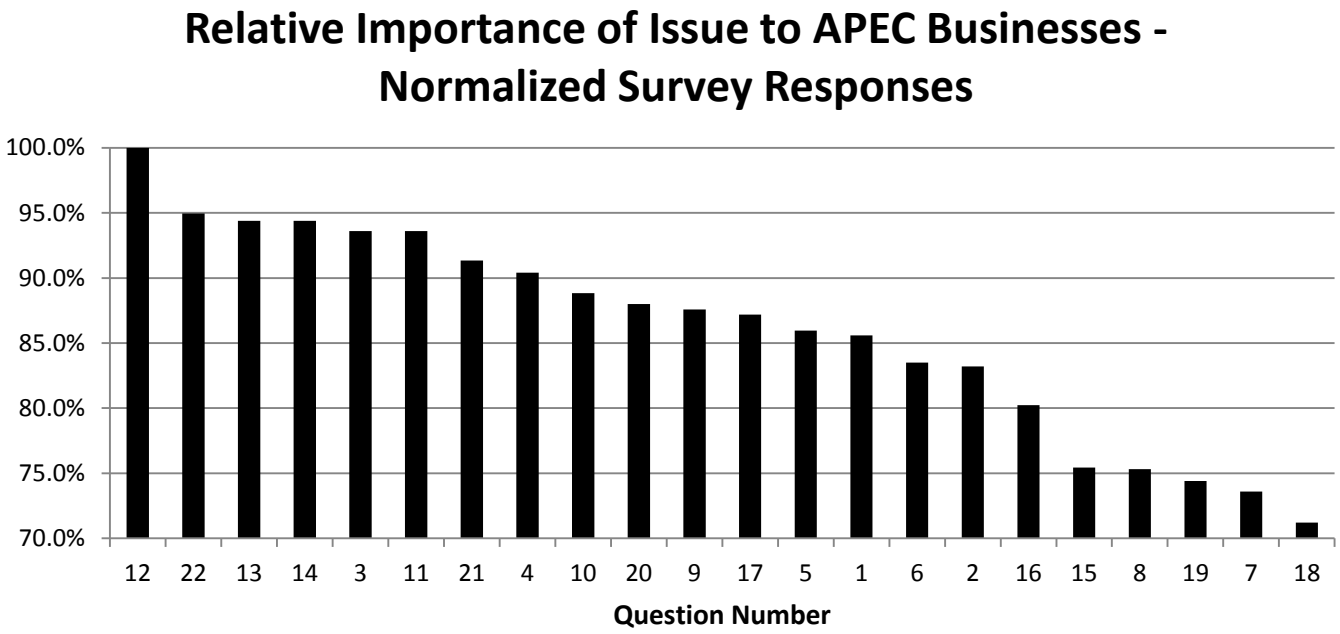


Q22. Poor, confusing, non-transparent regulations that create opportunities for corruption.



Survey Results: Section 2

Identified Chokepoints Assessment



Our respondents identified all of the chokepoints as significant in impacting trade. In order to compare the relative importance of the issues to each other, we used a multiplier for each of the numerical 1 – 5 responses showing significance. We then summed these values and normalized to the question with the greatest sum.

This shows the relative importance of each question – while all are significant, APEC business respondents felt that some were *more* significant than others.

Survey Results: Section 3

Quantifying the Business Impact

PART I – Additional Cost, Time, or Employees due to Chokepoints

Listed below are broad categories of chokepoints. We would like your best estimates of these costs in terms of increased expenses, time delays, and increased staffing requirements for the chokepoints listed below.

- **Customs Processes:** The costs incurred for services, or lack thereof, provided at customs (*e.g:* single window, amount of documentation, hours of service, inspections, etc.)
- **Customs Clearances:** The costs and delays of customs clearances (*e.g:* dispute resolution, number of customs employees, imposed wait times, paperwork, etc.)
- **Barriers to Trade and Market Access:** Additional costs in order to import goods (Tariffs, Non-Tariff Barriers (*e.g:* phytosanitary (SPS)), technical requirements, quotas, etc.)
- **Import/Export Procedures**: Cost due to clearance processes, time delays, and documents required.
- **Border Transparency** – Costs incurred due to poor, numerous, and confusing regulations and their application (*e.g:* irregular payments, unnecessary delays, etc.)
- **Transportation Infrastructure:** Costs, delays, and losses incurred due to inadequate or poorly maintained physical infrastructure
- **Regulatory Environment:** Cost of burdensome and restrictive regulations; costs and delays in meeting requirements of inadequately coordinated government agencies with jurisdiction over imports/exports.
- **Transportation Services / Logistic Providers:** Costs, delays, and losses incurred due to a lack of availability and/or inefficiency of logistics and transportation services involved in moving goods (e.g*:* search time, delays at ports or hubs, cost premiums for quality, cost increase due to lack of available routes, etc.)
- **Physical Security and Safety:** Additional costs incurred to ensure the security of goods and personnel, and additional costs to meet terrorism prevention requirements.
- **Regional Relations** - Trade agreements, or lack thereof, when transporting goods across economies (*Examples:* excessive documentation to comply, increased tariffs, or requirements, etc.)

This section was free response. We received responses in this section from 16 respondents.

Survey Results: Section 3

Quantifying the Business Impact

PART II – Cost and Time of Supply Chain Steps

The questions below ask for very specific cost and time data. These data are essential to our research project in developing a comprehensive quantitative model of APEC supply chains. Please fill out the information below on a per container basis.

- What is the expected daily fee per container for transport between production site and port?
- What is the average time to transport goods between production site and port?
- Average distance traveled per container between production site and port?
- How long do you expect your products to take to clear customs in your economy (from port arrival to departure)?
- For goods delayed at the port, what is the resulting increase in inventory (as % of sales)?
- For this increase in inventory, what is the added interest expense (as % of sales)?
- What is the expected daily storage cost per container for goods delayed at port?
- What are the customs fees associated with pass border administration per container?
- What is the cost of irregular payments encountered with pass border administration per container?
- If you experienced a 10% improvement in transport time between production sites to ports, what would you expect the related increase in sales revenues and profit margin to be?
- If you experienced a 10% improvement in transport cost from production sites to ports, what would you expect the related increase in sales revenues and profit margin to be?
- How much time does it take to prepare customs documentation per container?
- What does it cost to prepare customs documentation per container (materials cost, labor cost)?
- How much do you spend on altering products to comply with varying import requirements (packaging, standards, testing) across economies? Please list out by issue, economies involved, and cost per issue.
- If your economy has a free trade agreement with an economy you export to, what are the cost and time savings/losses of that agreement per container? (N/A for importers)
- Do local/regional logistics providers have sufficient capacity to meet your needs?
- If no, what percentage of your demand is unmet or handled internally?
- What percentage of products is delivered to/from the port by air freight?
- If you use international air transport for goods, how much time savings is required to switch to shipping via sea?

This section was free response. We received responses in this section from 20 respondents.

Survey Results: Section 4

Improvements in Regional APEC Supply Chains

Q1. How much time and cost savings have you seen in the past 10 years due to transport and customs improvements? What were the triggering factors for these savings?

- Transport and Logistics (Infrastructure, Logistics Efficiency, Logistics Availability, etc.)
- Customs and Documentation (Customs Clearance Efficiency, Customs Procedures, IT Infrastructure, etc.)

Q2. Looking forward, what percentage of improvement in transport and customs clearance costs do you estimate could be achieved in the next 5 years in a situation with ideal government policies? 10 years? What do you anticipate will drive these changes?

- Transport and Logistics (Infrastructure, Logistics Efficiency, Logistics Availability, etc.)
- Customs and Documentation (Customs Clearance Efficiency, Customs Procedures, IT Infrastructure, etc.)

This section was free response. We received responses in this section from 27 respondents.

Survey Results: Section 5

Emerging Issues Within the APEC Region

- **Please describe any other emerging chokepoints that are impacting your business or economy.**

- **List any known financial costs or additional man-hours spent as a result of these chokepoints.**

- **How do you think these issues can be resolved?**

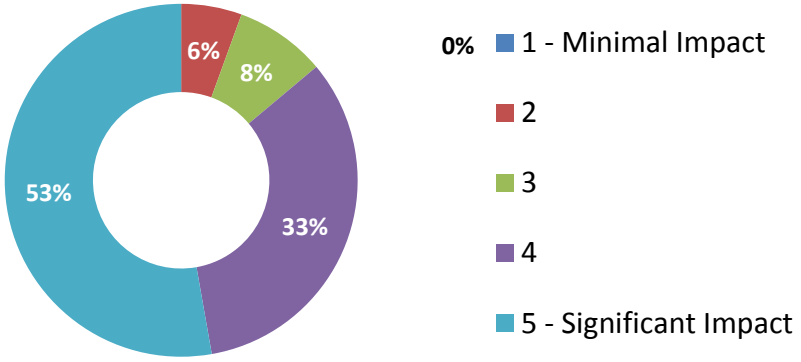
This section was free response. We received responses in this section from 31 respondents.

Survey Results: Section 6

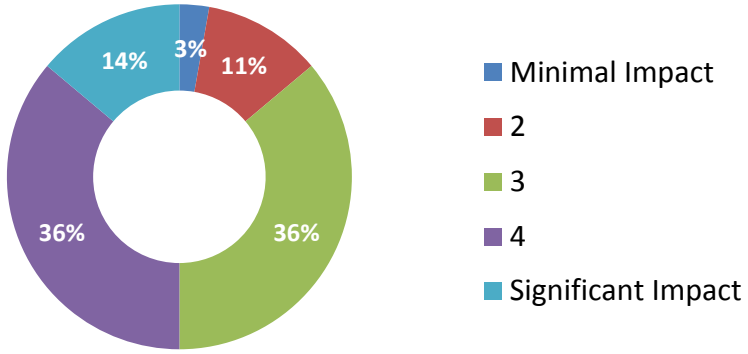
Making Improvements in APEC Supply Chains

Please evaluate the suggestions below in terms of their potential for creating significant region-wide improvement on a scale of 1 (minimal business impact) to 5 (substantial business impact) for APEC to focus its energy.

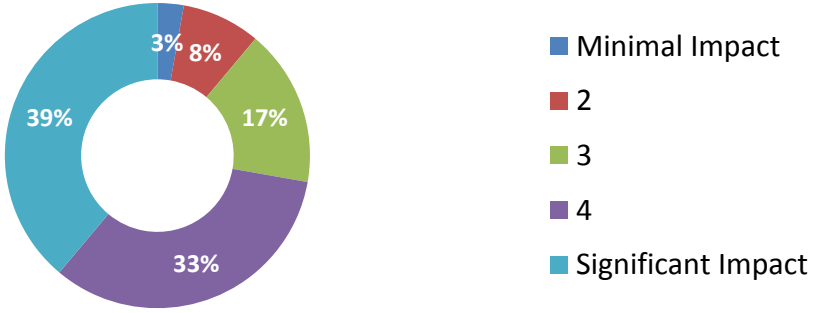
Q1. Harmonizing customs requirements and procedures across APEC economies.



Q2. Share best practices and failures across all chokepoints.



Q3. Adoption of fully online supply chain system (e.g. customs documents, payments, import/export documents, tracking.)



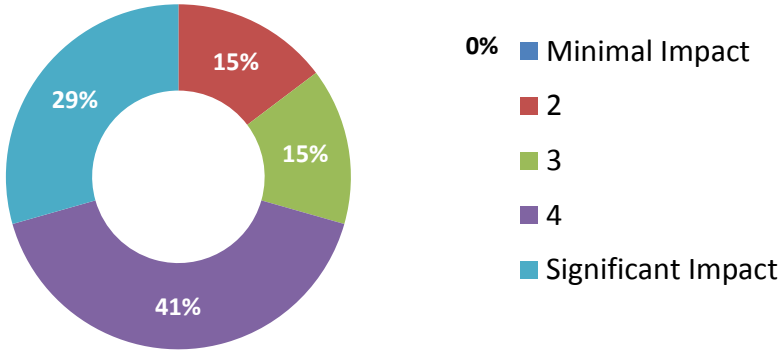
We received responses in this multiple choice section from 36 respondents.

Survey Results: Section 6

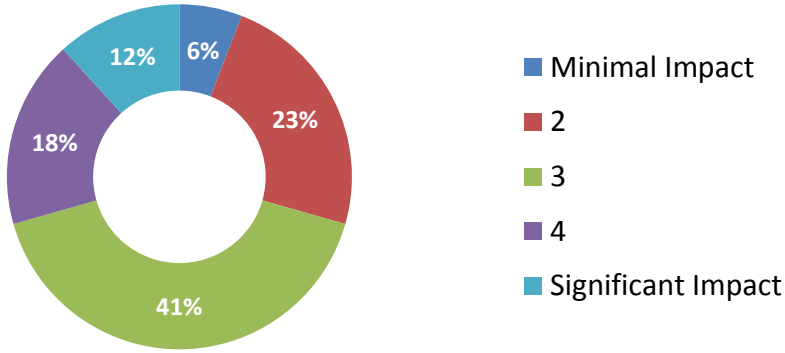
Making Improvements in APEC Supply Chains

Please evaluate the suggestions below in terms of their potential for creating significant region-wide improvement on a scale of 1 (minimal business impact) to 5 (substantial business impact) for APEC to focus its energy.

Q4. Improve coordination across "silo-ed" government agencies.



Q5. Improve human capital mobility across the APEC region.



Q6. Please offer your recommendations/suggestions for improvements where APEC should be encouraged to take a leadership role.

This question was free response. We received responses on this question from 11 respondents.

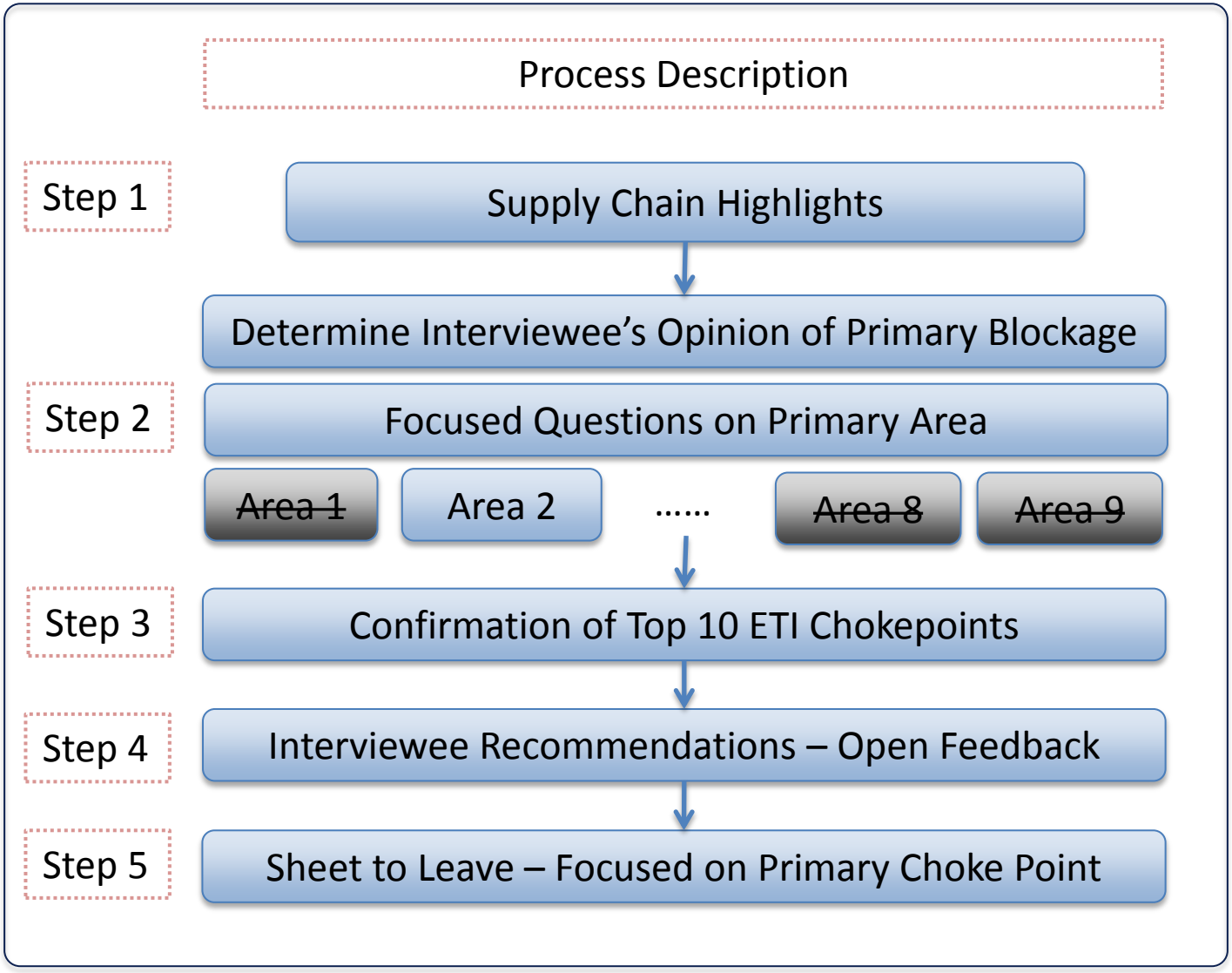
Appendix D: Interview Protocol

Interview Overview

Industry Slants:
The following procedure is a guide only. Every interview and question was tailored for company and industry issues.

Example:
"Tariffs and NTBs" question when speaking with a kiwi producer in New Zealand.

How is spoilage rates during import/export affected by specific NTBs and could this be reduced? How do you estimate this cost for your business?

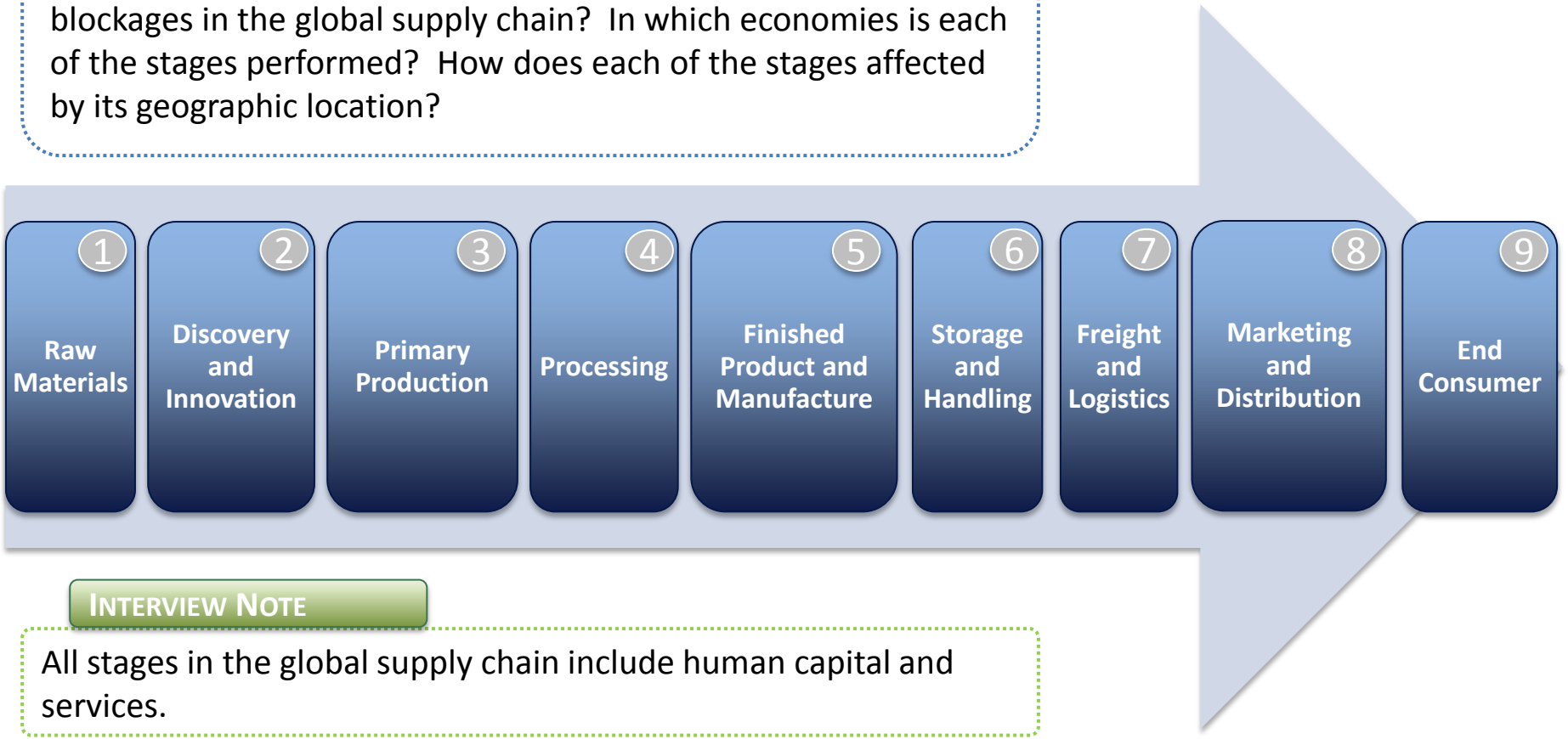


Interview Setup: Supply Chain

STEP 1

STEM QUESTION

For the lifecycle of your product, where are there significant blockages in the global supply chain? In which economies is each of the stages performed? How does each of the stages affected by its geographic location?



INTERVIEW NOTE

All stages in the global supply chain include human capital and services.

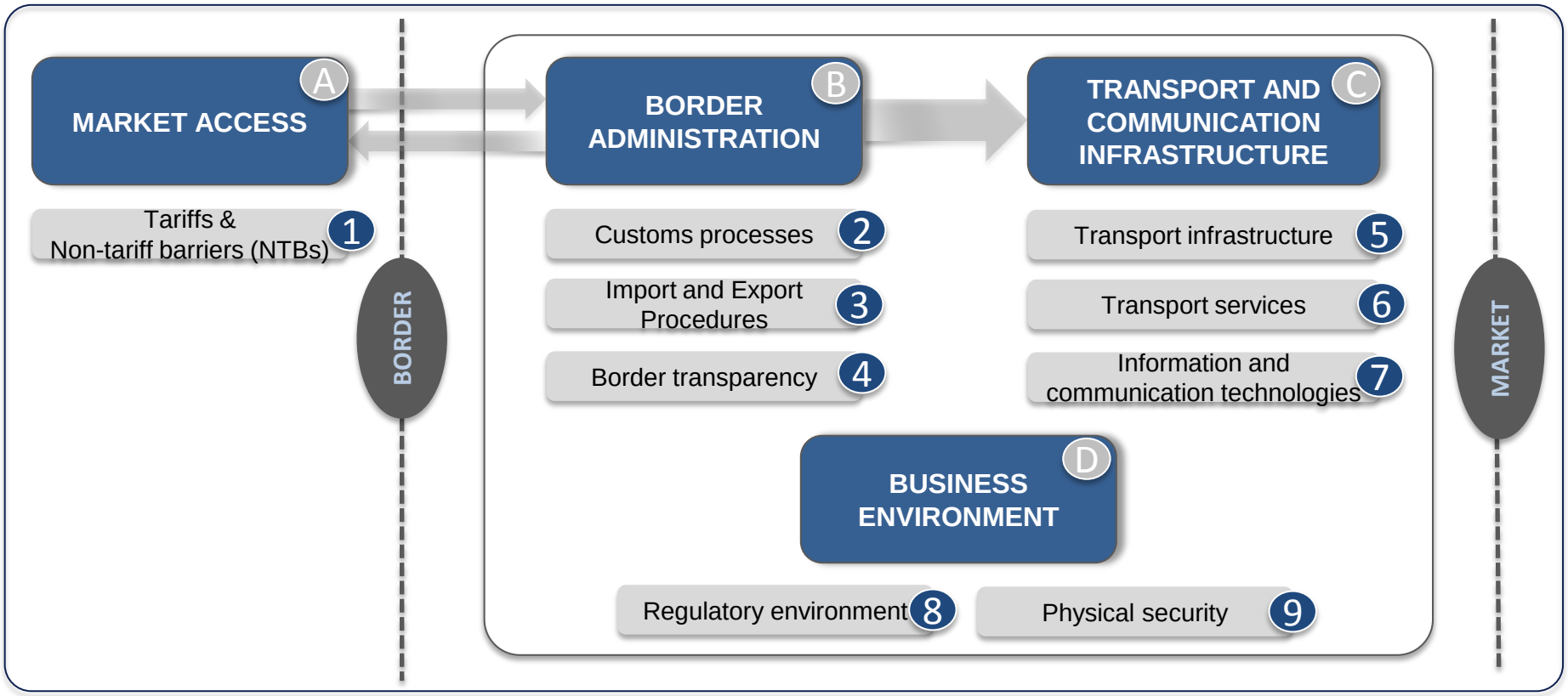
Source: Adapted from ABAC REI Working Group Model (submitted by Jane Drake-Brockman for ABAC, REIWG, February 2011).

Chokepoint Diagram

STEP 1

STEM QUESTION

Our secondary research adopts the framework below to bucket blockages in the supply chain. Is one of these areas particularly problematic for your company or industry? Can you rank these blockages in terms of difficulty? What methods have you used to value these blockages in terms of dollars or hours? How does this vary by economy trading partner (emphasis on top five)?

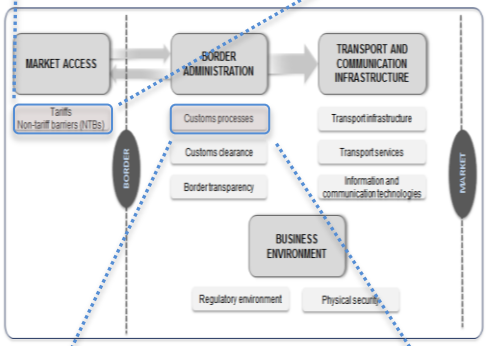


Source: World Economic Forum (2010). The Global Enabling Trade Report.

Interview Questions

STEP 2

Tariffs
Non-tariff barriers (NTBs)



Customs Processes

STEM QUESTION

Focus in this question is to establish the level of protection in your economy's market. What are the top three complaints regarding market access (reference to tariffs and non-tariff barriers) you hear from trading partners? Top three complaints from your experience? Can you estimate the cost of NTBs and tariffs on your operations?

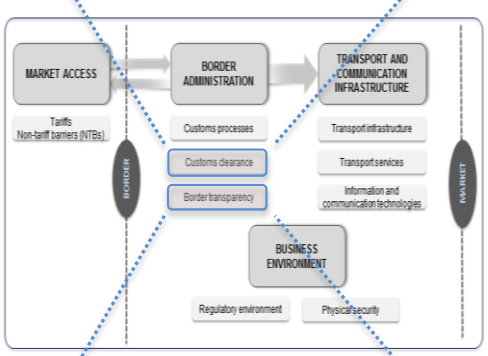
STEM QUESTION

Focus in this question is to establish whether services and processes associated with customs provide unnecessary blockages. What are two significant changes in regards to customs administration you would like to see implemented over the next five to ten years (top five trading economies)?

Interview Questions

STEP 2

Import and Export Procedures



Border Transparency

STEM QUESTION

Focus in this question is to establish the cost of clearing items through customs and related border agencies (in terms of hours, documents required, etc). Can you walk me through the process for one of your products as it crosses borders (by trading partner economies)? What procedure or agency is the most problematic?

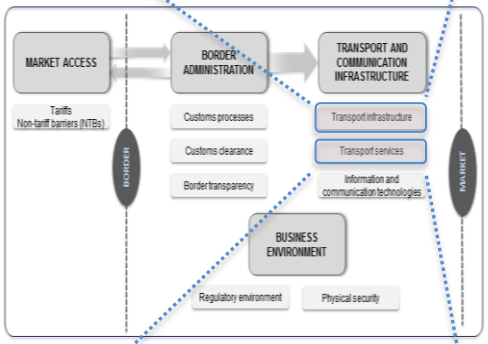
STEM QUESTION

Focus in this question is to establish the financial impact of undocumented or irregular costs during import and export transactions (please be explicit by economy if possible)?

Interview Questions

STEP 2

Transport Infrastructure



Transport Services

STEM QUESTION

Focus in this question is to determine how the quantity and quality of physical infrastructure affect transactions. How is your choice of transportation method affected by government policy and cost?

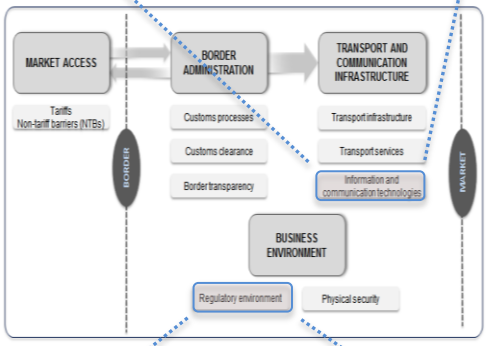
STEM QUESTION

Focus in this question is to determine if transport service providers in your economy are able to meet your company's needs (this could be measures of cost, timeliness, traceability, etc.). How does your trade counterpart economy influence your ability to locate acceptable providers?

Interview Questions

STEP 2

Information and Communication Technology



Regulatory Environment

STEM QUESTION

Focus in this question is to determine how advances in technology have been utilized to decrease the time and cost of import and export transactions. How do you plan on integrating new communication methods into your business? How will these changes affect relationships with your top five trading partners?

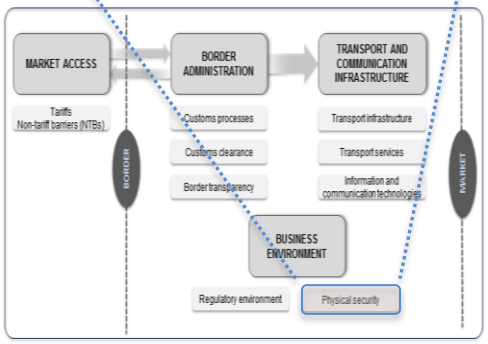
STEM QUESTION

Focus in this question is establish how government regulations affect trade and foreign direct investment. How do regulatory concerns affect the cost of doing business?

Interview Questions

STEP 2

Physical Security



STEM QUESTION

Focus in this question is to look at whether violence and security issues create a blockage to the flow of goods and services. Are you comfortable with the level of security in doing business in this economy?

ETI Top Chokepoints – New Zealand

STEP 3

STEM QUESTION

The WEF has established a scoring method for various trade blockages. Highlighted items indicate areas where your economy experiences the largest pain points. Considering your industry and trade partners, what is your perspective on the scores shown below. Do you agree? Why or why not?

Sample photocopy of select ETI Rankings with problem areas highlighted. These issues should be the largest concerns that can be easily described (no technical jargon) and do not overlap.

New Zealand

The Enabling Trade Index 2010 in detail

■ Competitive **Advantage** ■ Competitive **Disadvantage**

	INDICATOR, UNITS	RANK/125	SCORE	BEST PERFORMER	SCORE
	1st pillar: Domestic and foreign market access				
1.01	Tariff rate, %	32	1.6	Hong Kong SAR	0.0
1.02	Non-tariff measures, index 0–100 (best)	33	22.7	Uganda	0.1
1.03	Complexity of tariffs, index 1–7 (best)	54	6.3	Hong Kong SAR	7.0
	Tariff dispersion, standard deviation	5	3.2	Hong Kong SAR	0.0
	Tariff peaks, %	68	5.6	Multiple economies	0.0
	Specific tariffs, %	46	0.1	Multiple economies	0.0
	Distinct tariffs, number	28	9	Hong Kong SAR	1
1.04	Share of duty-free imports, %	34	67.6	Hong Kong SAR	100.0
1.05	Tariffs faced, %	55	5.5	Chile	3.7
1.06	Margin of preference in destination markets, index 0–100 (best)	115	8.8	Nepal	97.5
	2nd pillar: Efficiency of customs administration				
2.01	Burden of customs procedures, 1–7 (best)	4	5.9	Singapore	6.4
2.02	Customs services index, 0–12 (best)	17	10.0	Multiple economies	12
	3rd pillar: Efficiency of import-export procedures				
3.01	Efficiency of the clearance process, 1–5 (best)	16	3.6	Luxembourg	4.0
3.02	Time to import, days	17	9	Singapore	3
3.03	Documents to import, number	18	5	France	2
3.04	Cost to import, US$ per container	28	850	Singapore	439
3.05	Time to export, days	26	10	Multiple economies	5
3.06	Documents to export, number	73	7	France	2
3.07	Cost to export, US$ per container	38	868	Malaysia	450
	4th pillar: Transparency of border administration				
4.01	Irregular payments in exports and imports, 1–7 (best)	1	6.7	New Zealand	6.7
4.02	Corruption Perceptions Index, 0–10 (best)	1	9.4	New Zealand	9.4
	5th pillar: Availability and quality of transport infrastructure				
5.01	Airport density, number per million population	6	6.4	Iceland	29.7
5.02	Transshipment connectivity index, 0–100 (best)	49	71.5	United Kingdom	100.0
5.03	Paved roads, % of total	49	65.6	Multiple economies	100.0
5.04	Quality of air transport infrastructure, 1–7 (best)	15	6.1	Singapore	6.9
5.05	Quality of railroad infrastructure, 1–7 (best)	37	3.7	Switzerland	6.8
5.06	Quality of roads, 1–7 (best)	40	4.6	Singapore	6.7
5.07	Quality of port infrastructure, 1–7 (best)	21	5.5	Singapore	6.8
	6th pillar: Availability and quality of transport services				
6.01	Liner Shipping Connectivity Index, 0–132.5 (best)	68	10.6	China	132.5
6.02	Ease and affordability of shipment, 1–5 (best)	22	3.4	Singapore	3.9
6.03	Logistics competence, 1–5 (best)	25	3.5	Switzerland	4.3
6.04	Tracking and tracing ability, 1–5 (best)	25	3.7	Switzerland	4.3
6.05	Timeliness of shipments in reaching destination, 1–5 (best)	17	4.2	Luxembourg	4.6
6.06	Postal services efficiency, 1–7 (best)	7	6.6	Japan	6.8
6.07	GATS commitments in the transport sector, index 0–1 (best)	69	0.0	Armenia	0.6

Interviewee Recommendations

STEP 4

STEM QUESTION

If you were the key decision maker in your economy, what would you do to improve supply chain efficiency and lower costs of import/export transactions?

INTERVIEW NOTE

Each interviewer had access to a list of additional questions, sorted by ETI pillar.

POST-INTERVIEW NOTE

Each interviewer left behind (or followed up with) a list of additional detailed questions. These questions were focused on obtaining quantitative information (dollars, hours, etc) that was not accessible during the interview.

Appendix E: USC Marshall Research Team

2011 USC Marshall Research Team

Kevin Syslo (Team Lead). Kevin joins the ABAC Research Team with five years of experience in engineering design, project management, and operations strategy. Kevin holds a Bachelor of Science degree in Mechanical Engineering from Texas A&M University and is currently pursuing an MBA from the University of Southern California.

Jennifer Chang. Jennifer is a Southern California native of Korean descent. She has over five years of experience in the entertainment and technology sectors through roles at large companies including KPMG LLP, the Walt Disney Company and Apple Inc. and as cofounder of two digital media startups. Jennifer received her B.S. in Business Administration from UC Berkeley's Haas School of Business and her M.A. in Cultural and Creative Industries from King's College London. She is currently pursuing an MBA from the University of Southern California with an emphasis in technology commercialization.

Alex (Lek) Chee. Alex joins the ABAC team with six years of experience in software engineering and project management in the technology sector. Prior to entering USC Marshall, Alex worked at Apache Design Solutions developing software applications for power and signal analysis of microprocessors. During Summer 2011, Alex interned at Stonnington Group, LLC in the Alternative Assets division. Alex holds a Bachelor of Science degree in Computer Science from the University of California, Santa Barbara. He is currently pursuing a business degree from the Full-Time MBA program at the University of Southern California's Marshall School of Business.

Takuya Hoshino. After graduating with a degree in Law from the University of Tokyo, Takuya began work at the Ministry of Finance of Japan. Through various policy projects including tariff policy and privatization, Takuya became interested in how public finance policy can enhance private capital flow to the social sector. He came to the Marshall School of Business to study finance and currently works as a teaching assistant for and advanced corporate finance course. After graduation, Takuya will return to Japan and hopes to use his knowledge to contribute to more innovative policies.

2011 USC Marshall Research Team

Jiro Kawakami. Jiro Kawakami is a second year student in the full-time MBA program at USC Marshall with a concentration in Accounting and Finance. During Summer 2011, Jiro interned with the Depositary Receipts division at The Bank of New York Mellon. Prior to entering Marshall, Jiro worked for a Financial Communications and Investor Relations agency in New York City and Tokyo, Japan. He holds a BA in Economics from Johns Hopkins University and is a native of the Washington, DC area.

Shashank Sundareshan. Shashank joins the ABAC Research Team with experience in both the healthcare and biotechnology fields. He has worked at Epic Systems Corporation in an Implementation Consultant role, and at CellASIC in an engineering capacity. During Summer 2011, Shashank interned with the Anklesaria Group, conducting cost modeling analyses. He holds an SB in Materials Science and Engineering from the Massachusetts Institute of Technology, and is currently pursuing an MBA from the University of Southern California's Marshall School of Business.

Samuel Trimble. Sam is an MBA candidate at the University of Southern California's Marshall School of Business. Originally from Orange County in Southern California, Sam attended Dickinson College in Pennsylvania and majored in International Business & Management. After graduation, he worked at Wells Fargo Bank in the Private Bank and Alternative Investments divisions for 5 years. His hobbies include golf, swimming, and sailing.

Edward Tseng. Edward joins the ABAC team with five years of engineering and management experience. In the semiconductor industry, his work focused on the development of cost reduction methodology and the control of quality standards. Most recently, he traveled to Shanghai to assist an automobile manufacturer startup with business development and telematics service definition. Edward earned his Bachelor of Science in Electrical Engineering with Honors from the University of California, Davis. He has finished his first year in the MBA program at University of Southern California's Marshall School of Business.