



**Asia-Pacific
Economic Cooperation**

Advancing
Free Trade for Asia-Pacific
Prosperity

Services in Global Value Chains: Manufacturing-Related Services

5 Nov 2015 – ADBI-ESCAP Workshop

APEC Policy Support Unit

Background information



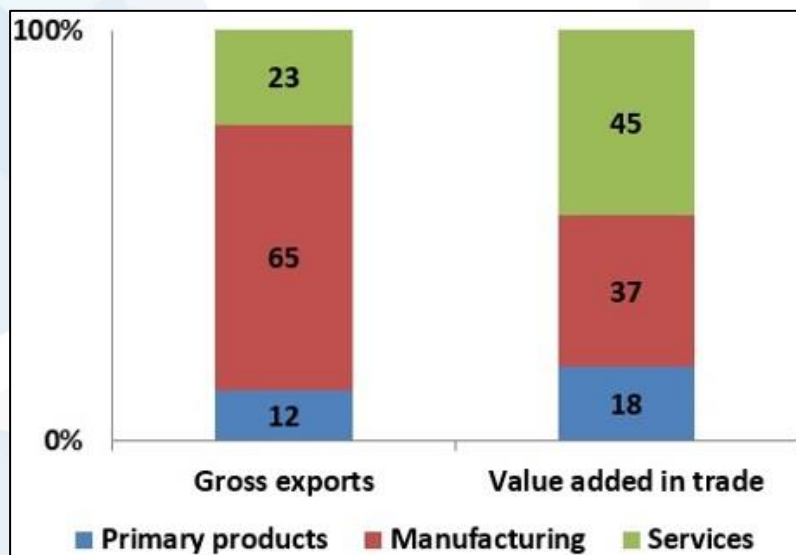
- An APEC Next Generation Trade and Investment (NGETI) project.
- To understand the **importance of services in global trade** using a **case-study approach** (22 studies were compiled in total).
- Presentation to focus on:
 1. Understanding **manufacturing-related services** from the lens of various case studies.
 2. **Implications of policies** on configuration, operation and location of value chains **with emphasis on contribution of services**.

'Servicification'



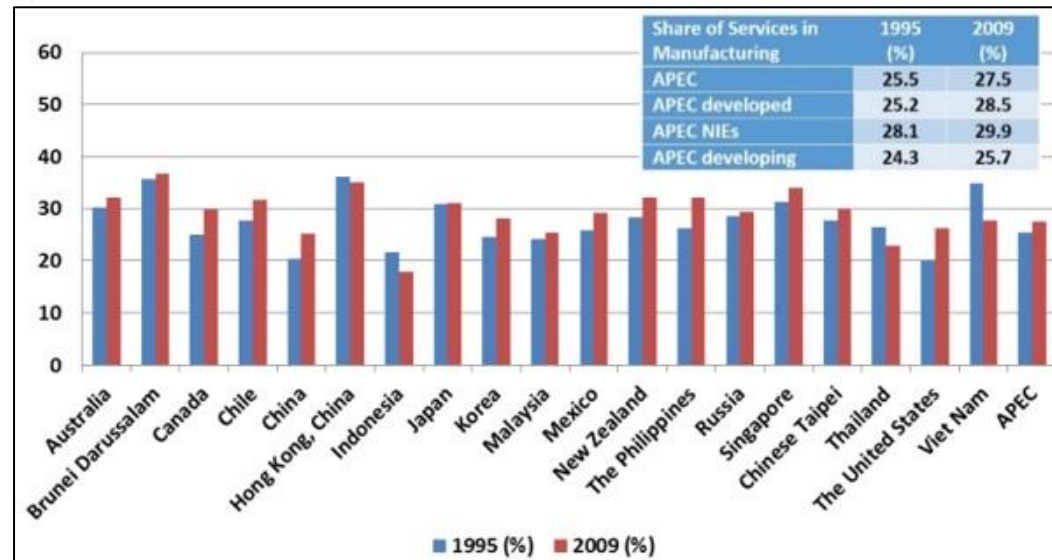
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Sector composition of global gross exports and value added trade, 2008



Source: OECD-WTO Trade in Value Added (TiVA) database

Share of services value added in manufacturing exports (1995 and 2009)



Source: APEC Policy Support Unit computation based on OECD-WTO Trade in Value Added (TiVA) database

Case study approach



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Advantages

Allow for fine level of detail considering:

- 1. intangibility of services**
- 2. consequent challenges with services data**

Complement firm surveys and secondary data sources

Provides insights on where to delve further

Disadvantages

Results are not readily generalized or extrapolated, particularly for small number of samples.

List of Case Studies



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<i>Sector</i>	<i>Economy where firm is located</i>
Aircraft control systems	Philippines
Automotive components	Japan
Brake hose end fittings	Mexico
Car antenna	Mexico
Car assembly	Philippines
Chassis parts	Mexico
Computer servers	Chinese Taipei
Construction machinery	United States
Consumer electronic appliances	Indonesia
Industrial welding	Thailand
Mining and construction equipment	Japan
Oil and gas equipment	Singapore
Power generation equipment	Japan
Precision die and machine parts	Thailand
Printed circuit boards	Canada
Refrigerators	Japan
Telecommunications equipment	China
Wastewater treatment	Thailand
Watch	Hong Kong, China
Wine	Chile
<i>Fresh cherry</i>	<i>Chile</i>
<i>Integrated logistics</i>	<i>Mexico</i>

Source: APEC Policy Support Unit compilations.

Case study approach

22 firms

**14 from Asian economies, 8 from North American and Chilean economies
9 MNCs, 10 medium-to-large, 1 SME, 2 non-manufacturing**

A

Define the parameters of the value chain:

- 1) Identification of product**
- 2) Determining the start and end-point of the chain**

B

Mapping services inputs:

- 1) Identification of services (UN Central Product Classification as guide)**
- 2) Separation of services into 6 stages (establishment; pre-manufacture; manufacture; post-manufacture; post-sales; back office)**

C

Additional information (if possible):

- | | |
|---|------------------------------|
| 1) In-house or outsourced services | 3) Share of employees |
| 2) Bundling | 4) Cost or price data |

Sample case study: Aircraft control systems (A)



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- **Designer and manufacturer of high performance precision motion control products and systems.**
- **Headquartered in United States** but has its **largest manufacturing site for aircraft controls in Philippines.**
- A **servo actuator** – a device that transforms an input signal (usually electrical) into motion.
- Comes in **various sizes** and the largest one can weigh **up to 200 pounds.**

Servo actuator and its locations in B787



Primary Flight Control System

- 1) Aileron servo actuator
- 2) Flaperon actuator and control module
- 3) Inboard spoiler servo actuator
- 4) Outboard spoiler servo actuator
- 5) Electromechanical spoiler actuator and motor control unit
- 6) Horizontal stabilizer trim actuator and motor control unit
- 7) Elevator servo actuator
- 8) Rudder servo actuator

A primary flight control actuator



Source: Courtesy of the firm

Sample case study: Aircraft control systems (A)



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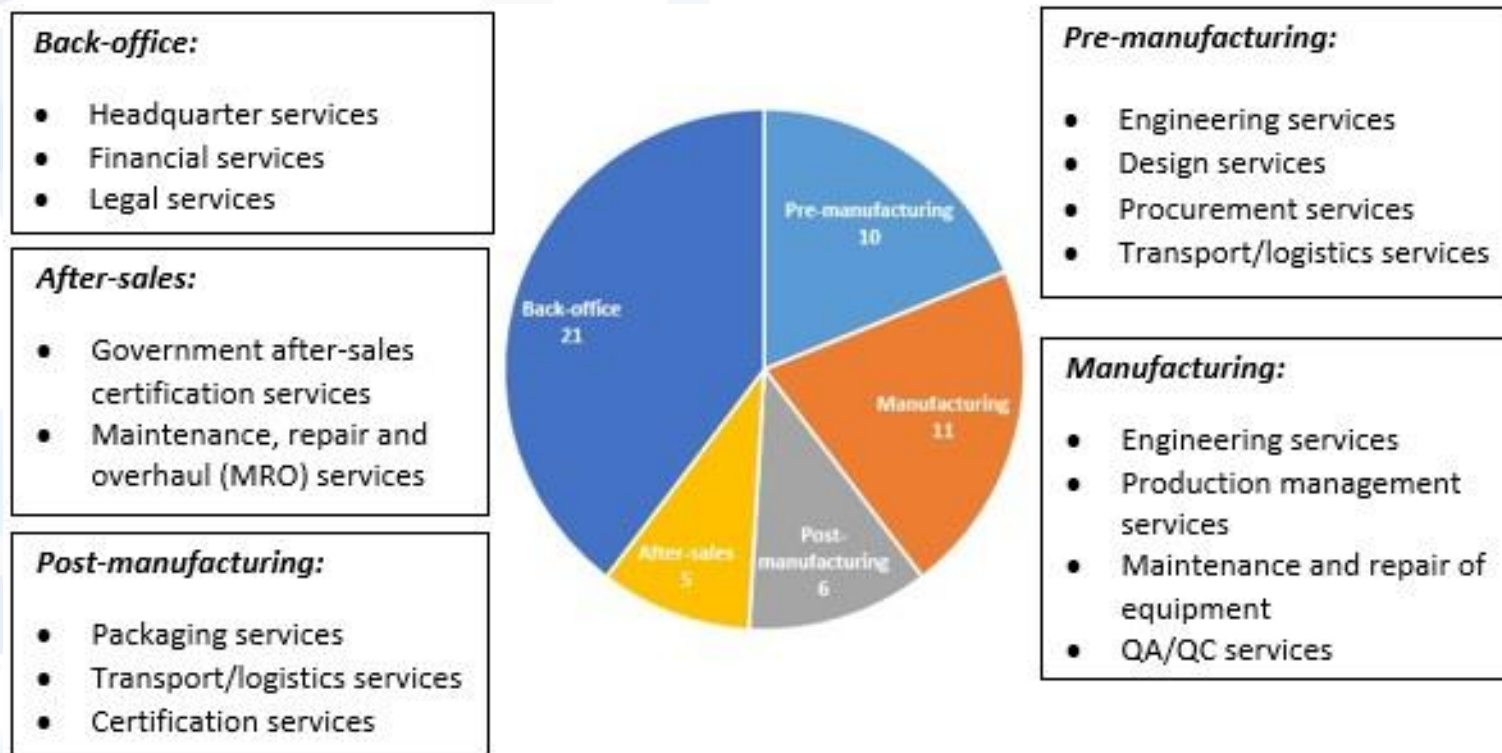
Dimension of the value chain covered by the case study



Note: Optional activities in the value chain are indicated by green boxes. Source: APEC Policy Support Unit based on firm interview.

Sample case study: Aircraft control systems (B)

Breakdown of services by stages and examples of key services



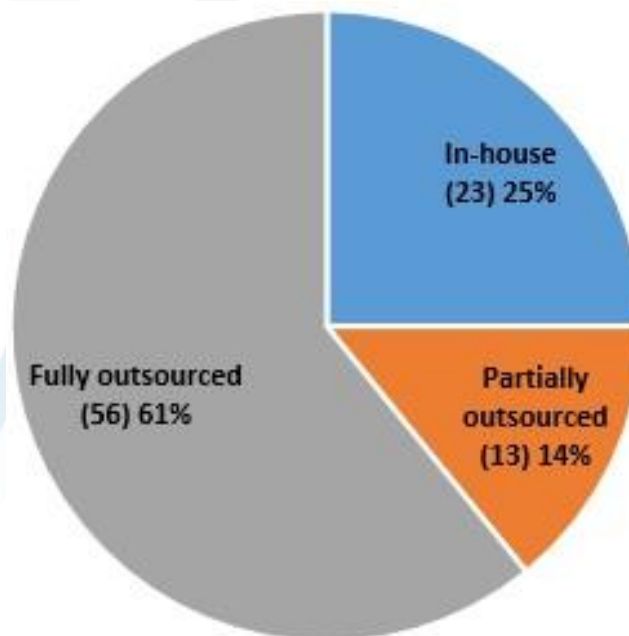
Source: APEC Policy Support Unit based on firm interview.

Sample case study: Aircraft control systems (C)

In-house vs. outsourced services

Reasons for outsourcing:

- Government services
- Required by laws and regulations
- Lack of expertise or specialization in-house
- Need access to best services
- Lack of feasibility to supply services in-house
- Economies of scale
- Need strong relationship with government agencies
- Network economies



Reasons for not outsourcing:

- Core services activities
- Necessary to ensure quality
- Involve proprietary technology

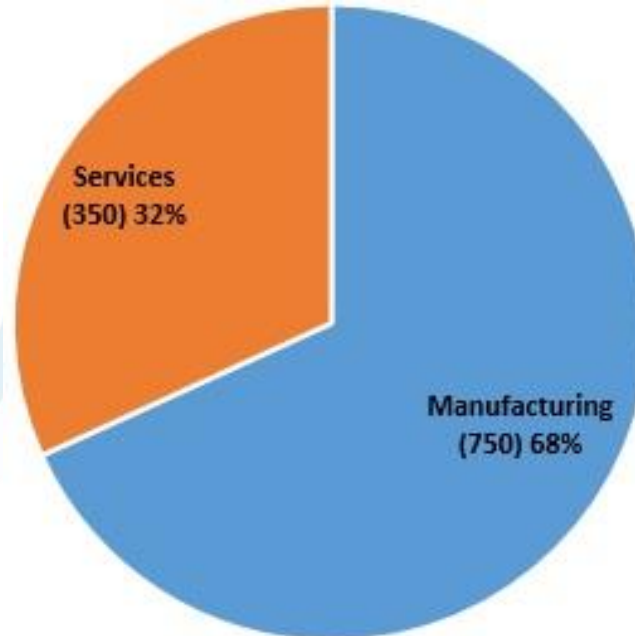
Source: APEC Policy Support Unit based on firm interview.

Sample case study: Aircraft control systems (C)

Services vs. manufacturing employees

Services employees:

- A third of firm's full-time workforce
- Includes management, planning, supply chain services, facilities maintenance, security, etc.
- Likely to account for more than one-third of value-added



Manufacturing employees:

- Two-thirds of firm's full-time workforce
- Includes machinists but also those producing services such as testing, inspection and QA/QC

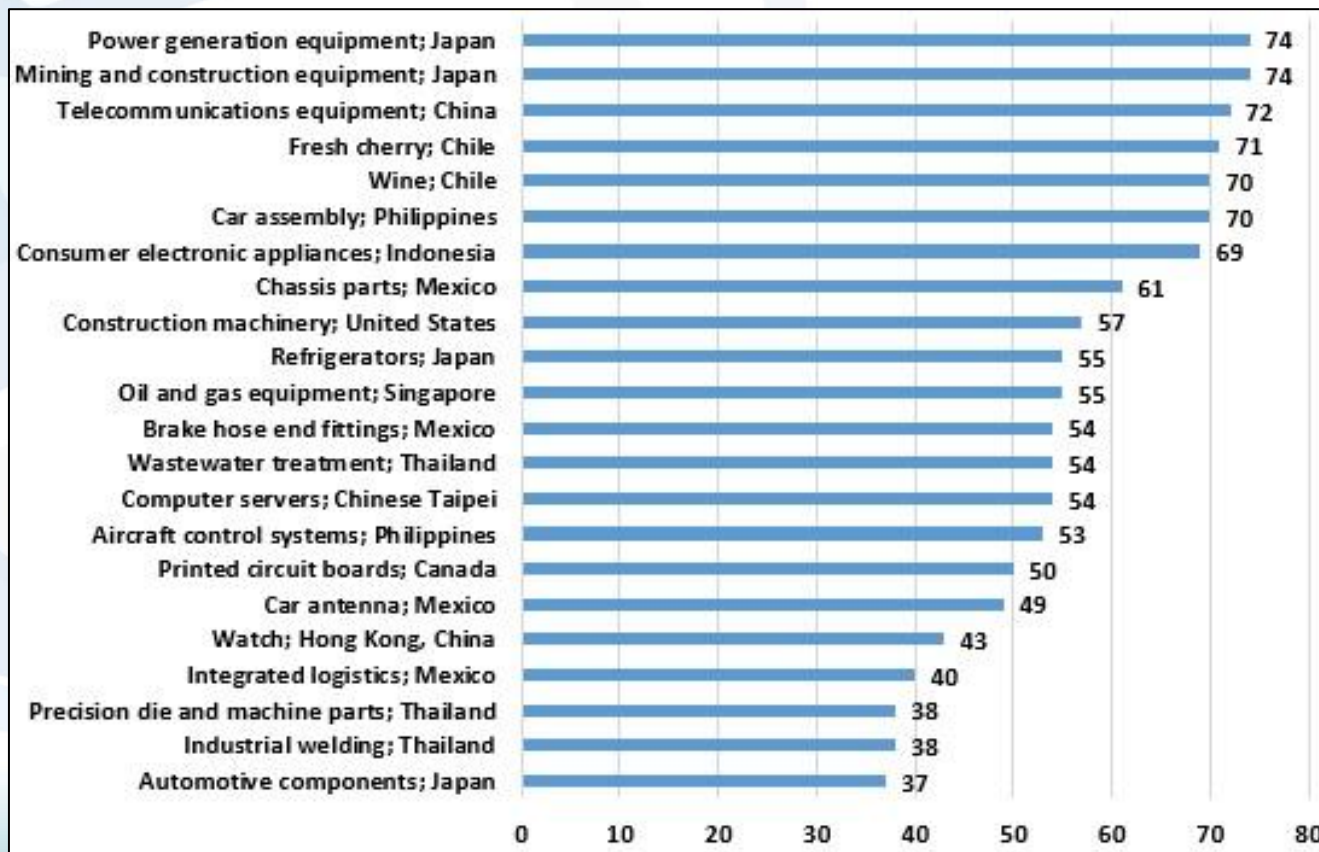
Source: APEC Policy Support Unit based on firm interview.

Results of case studies



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No. of services entering the case study value chains

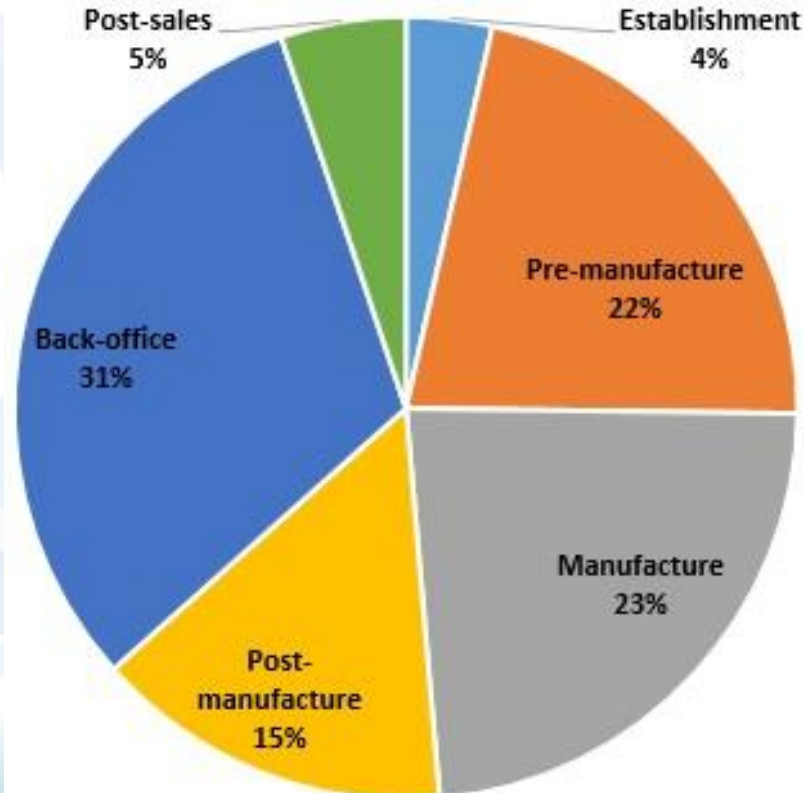


Comparisons
among the case
studies should be
treated with
caution.

Source: APEC Policy Support Unit computation.

Results of case studies

Incidence of services at different stages in the case study value chains



- Shares refer to **number of services**, not value contribution.
- **Value contribution** – significant in post-sales stage for some products.

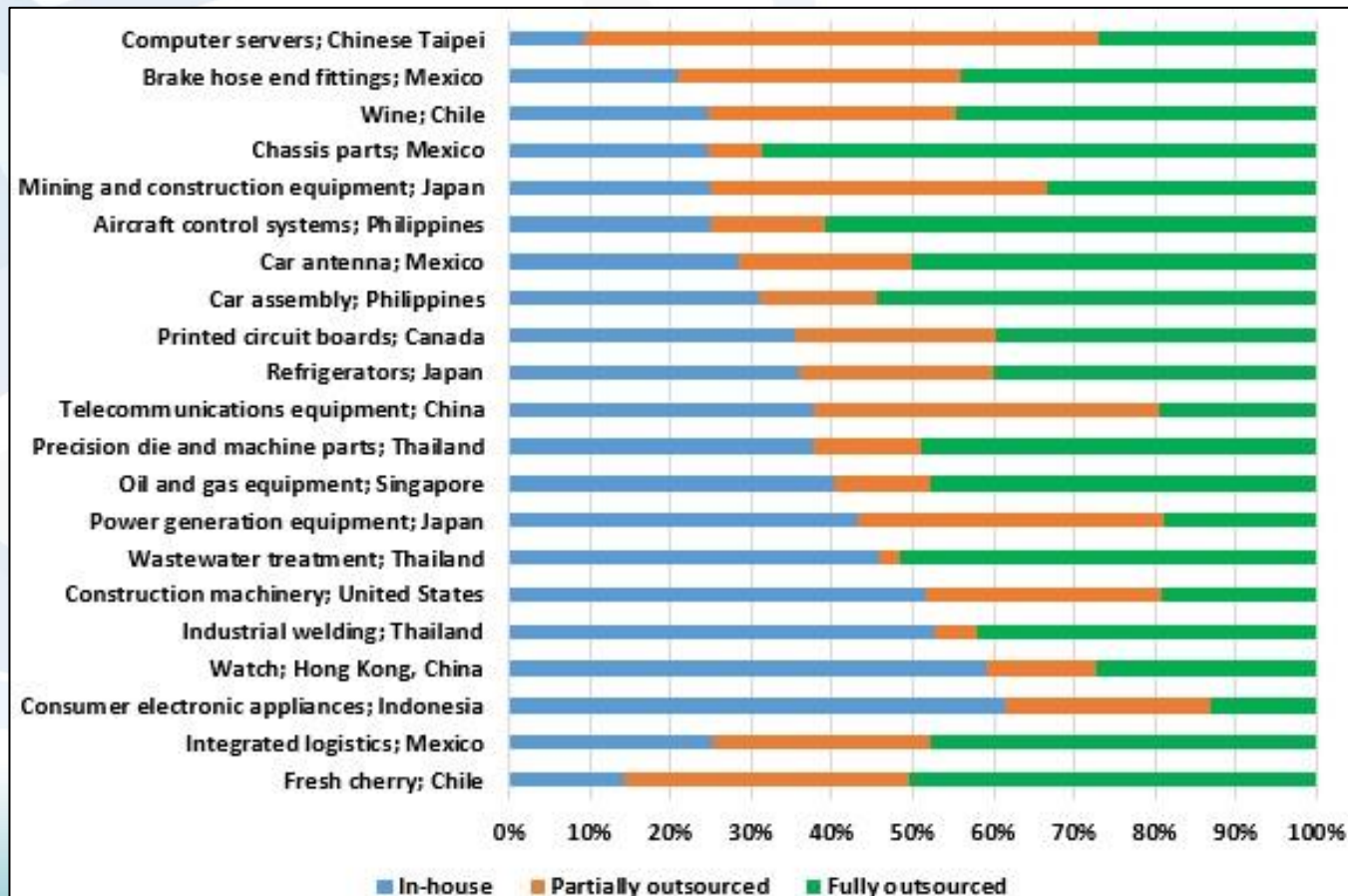
Source: APEC Policy Support Unit computation.

Results of case studies



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In-house vs. outsourced services



Outsourced services range between **38 to 91 percent** of total services.

Results of case studies



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Reasons to outsource

Mandatory outsourcing

Cost considerations

External economies

Networks

Reasons not to outsource

Strategic factors

Unavailability of qualified supplier

Transactions costs

Risk factors

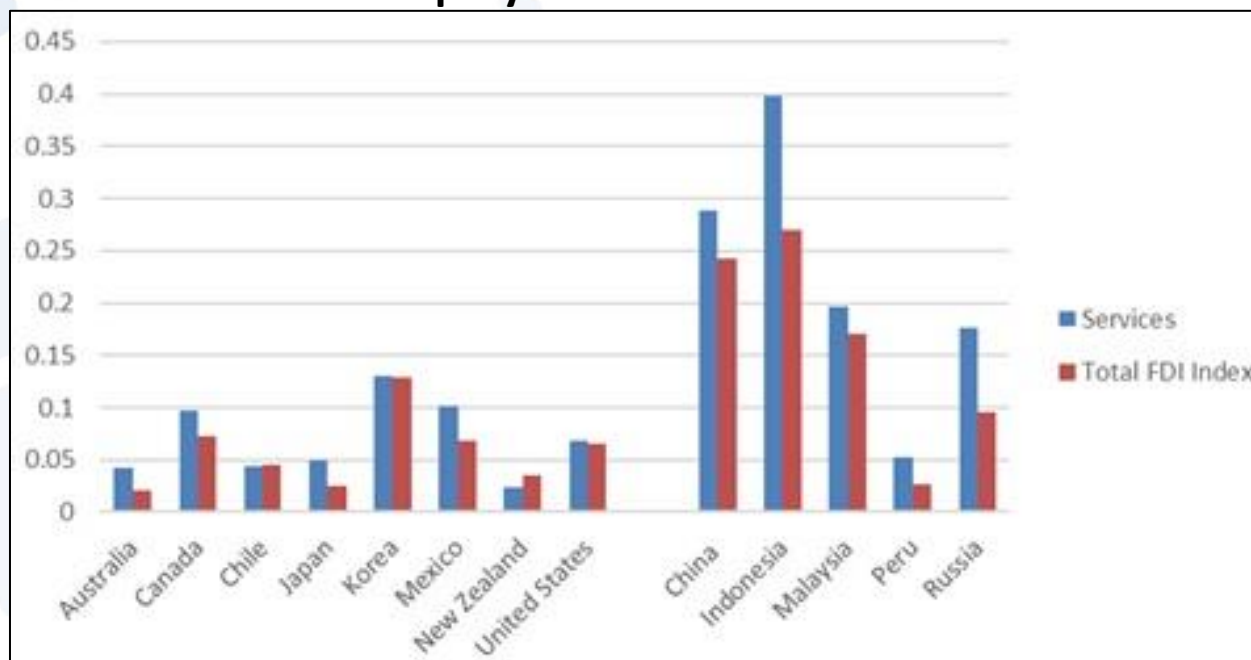
Policy implications

1) Investment policy incoherence



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FDI equity restrictiveness index



Source: OECD FDI Regulatory Restrictiveness Index

- With the exception of Chile and New Zealand, **FDI equity restrictions are higher in services (relative to all sectors).**
- Besides equity limitations, other forms of FDI restrictions include **screening of foreign investments, restrictions on key personnel** and **limitations on firm's operations.**

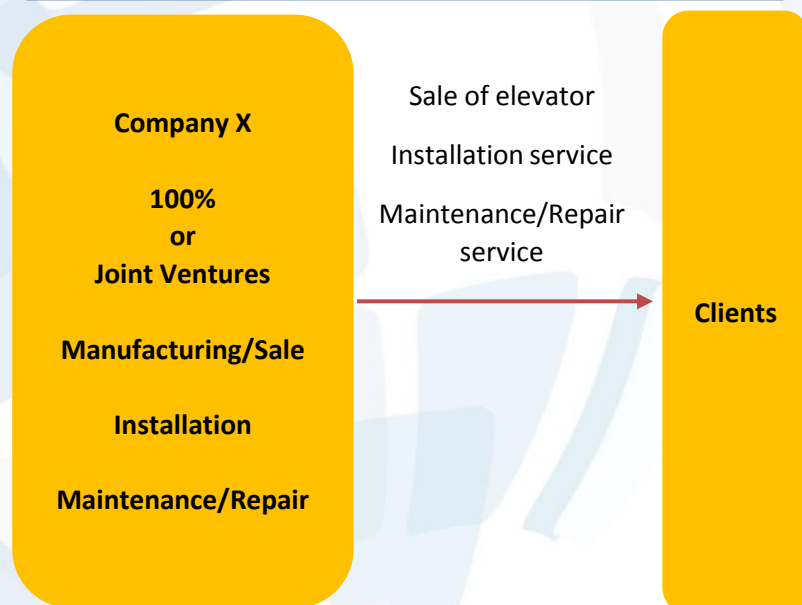
Policy implications

1) Investment policy incoherence

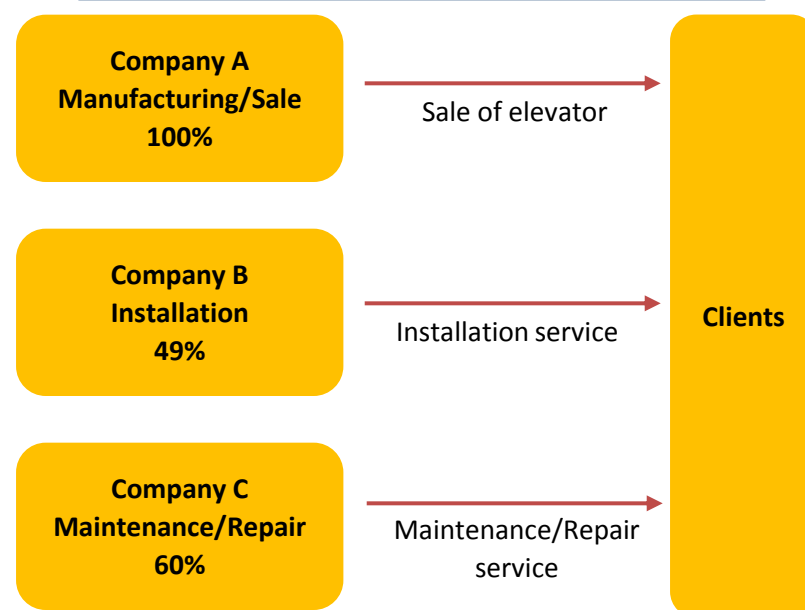


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Without investment restrictions



With investment restrictions



Source: Adapted from Shiino (2015).

- **Prevent** firms from operating **the most efficient business model**.
- **Prevent** services **providers from following the footsteps** of their lead firms.
- An alternative would be to **partner with domestic providers** but it is **challenging to find the right ones**.

Policy implications

2) Labor-related restrictions

Types of restrictions

Quotas

Economic needs test/conditions

Complex entry requirements &
discretionary decisions

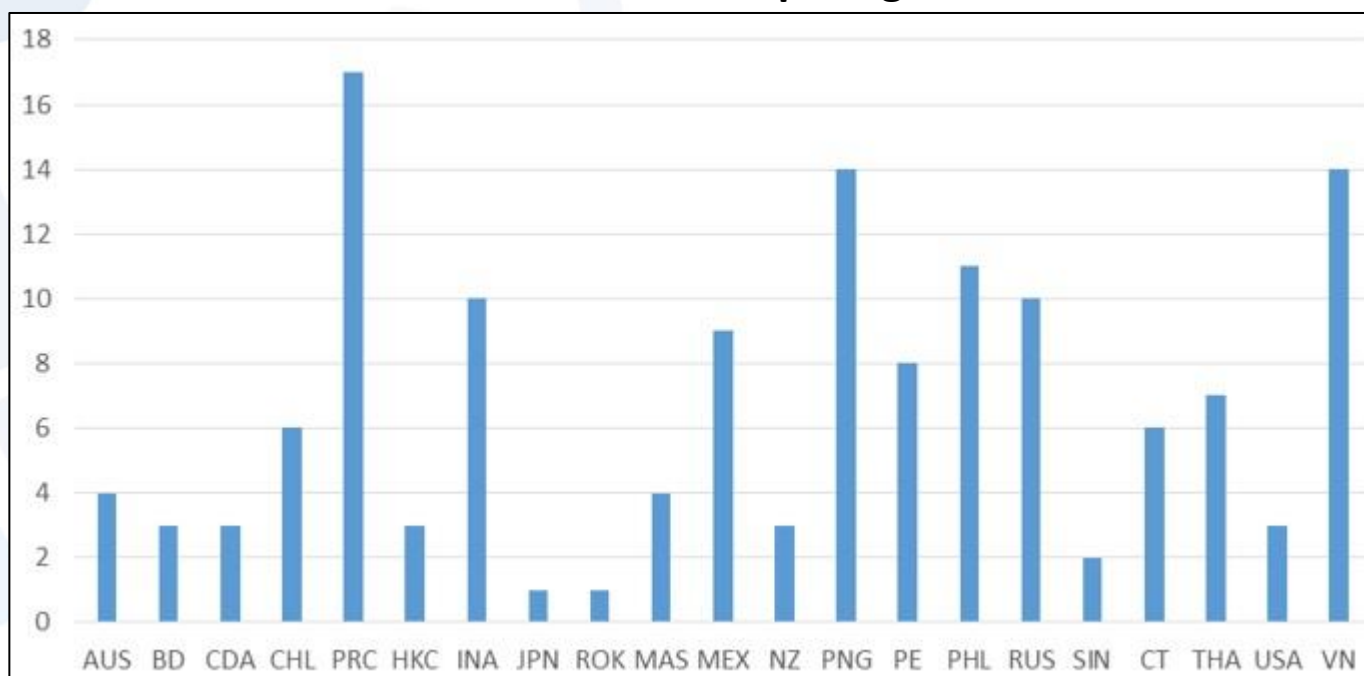
Recognition of qualifications

- Lead to an **uneven level playing field** e.g. in activities such as contract bidding, possibly **causing missed opportunities**.
- **Hamper** firm's ability to **provide the best service** for their customers.

Policy implications

2) Labor-related restrictions

Number of APEC economies requiring visa for nationals



Source: APEC Policy Support Unit computations based on data from various national sources.

- **Visa requirements** among APEC economies **vary**.
- The number of APEC economies requiring visa for specific nationals can **range from 1 to 17**.

Policy implications

3) Localization and human capital constraints



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Local contents
requirements

often do not
come with

Competitive production costs

Strong local capability

- Lead to **higher production costs** and hence **less competitive products**.
- **Human capital** constraints: Need to pay **significantly higher remuneration** due to **scarcity value**.

Policy implications

3) Localization and human capital constraints



But there are success stories...

Provision of in-house training and upgrading opportunities

**Collaboration with vocational schools in terms of curriculum inputs
and internship opportunities**

Implementation of skills certification system

Policy implications

4) SMEs in GVCs and standards conformity



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	SMEs	MNCs
Standards conformity is considered positively	✓	✓
Compliance with process is relatively easy	✗	✓
Repeated audits are acceptable	✗	✗

- **Some MNCs find lack of capability among local companies** (including SMEs) while **SMEs find participation in GVCs beyond reach** because of high compliance cost (sector-specific standards, MNC own standard, etc)
- Frequent and multiple audits **impose additional cost** which in some cases are considered merely as **‘regulatory bureaucracy’**.

Policy implications

5) Technology transfer



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Local transfer of
technology and
intellectual property
policies

often do not
come with



Clear guidelines

Ease of compliance

Strong enforcement

- Effect of some regulations **end up depriving local economy of advanced technology**
- **Lengthy patent applications.**
- Wide availability of **counterfeit products** and **numerous infringements.**

Policy implications

6) Infrastructure bottlenecks

Examples of infrastructure bottlenecks

Congested ports

Insufficient roads

Power outages

- Add significantly to **cost and time delays**.
- **Disruption** to **manufacturing operations**.

Policy implications

7) Government services and trade policy affecting goods trade



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Common issues

Transparency of regulations

Multiple layers of authority

Predictability of regulations

**International definition of certain
goods (e.g. re-manufacturing)**

Security-related matters

Concluding words

- Project seeks to understand **importance of manufacturing-related services** in different firms.
- Policy issues: **perspectives of firms**. Study does not attempt to analyze the public policy objectives underlying the interventions of governments. It is understood that such objectives are diverse and no judgement is intended as to the legitimacy of the objectives behind these interventions. Approach is about **efficiency and effectiveness**, not legitimacy.
- **Final words:** Policies carrying unnecessary costs merit careful consideration in economy's political and economic calculus as it crafts its vision and plans for generating growth, jobs and development.