

The Rising Influence of Asia-Pacific REI on GVCs

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Presented at 2014 APEC Workshop on Advancing REI in the GVC Era,
September 29, Taipei



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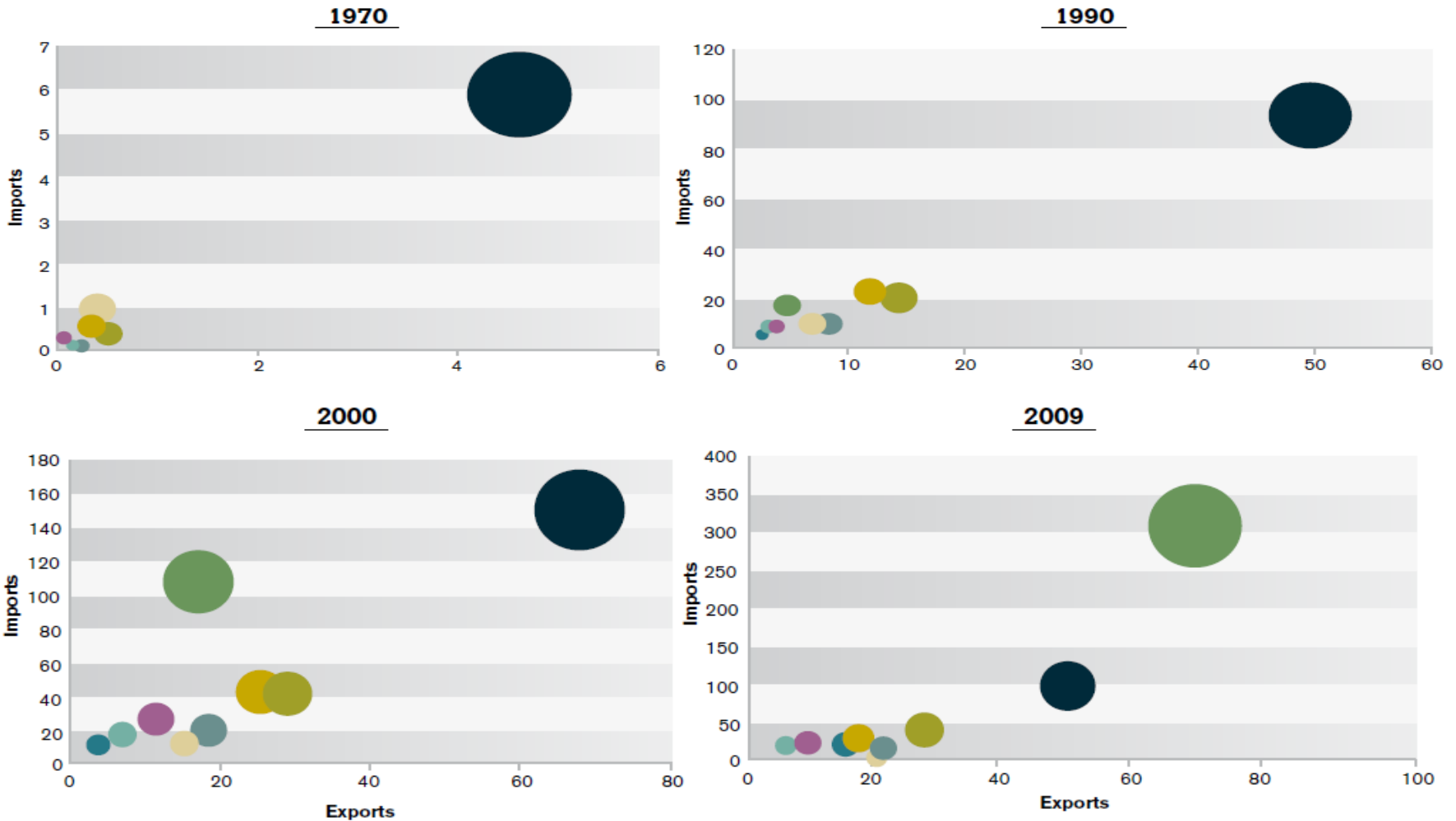
2 | Outline

- **Introduction**
- **Asia-Pacific Regional Economic Integration (REI)**
- **Economic Impact Assessment of Asia-Pacific REI**
- **Trade in Value-Added (TiVA)**
- **Example 1: i-phone 4 Revisited**
- **Example 2: Chinese Taipei Export Dependence on China**
- **On-going projects on the construction of ICIO Tables**

3 | Introduction_1

- With the globalization, commercialization and fragmentation of production, where products are “made in the world”, ‘what you see is not what you get’ (Maurer and Degain, 2010), there is a growing awareness that conventional trade statistics may give a misleading perspective of the importance of trade to economic growth and indicator of trade dependence.
- The emergence of “Factory Asia”: When supply meets demand.

Total US trade with selected Asian partners, 1970, 1990, 2000, 2009 (in billions of US\$)

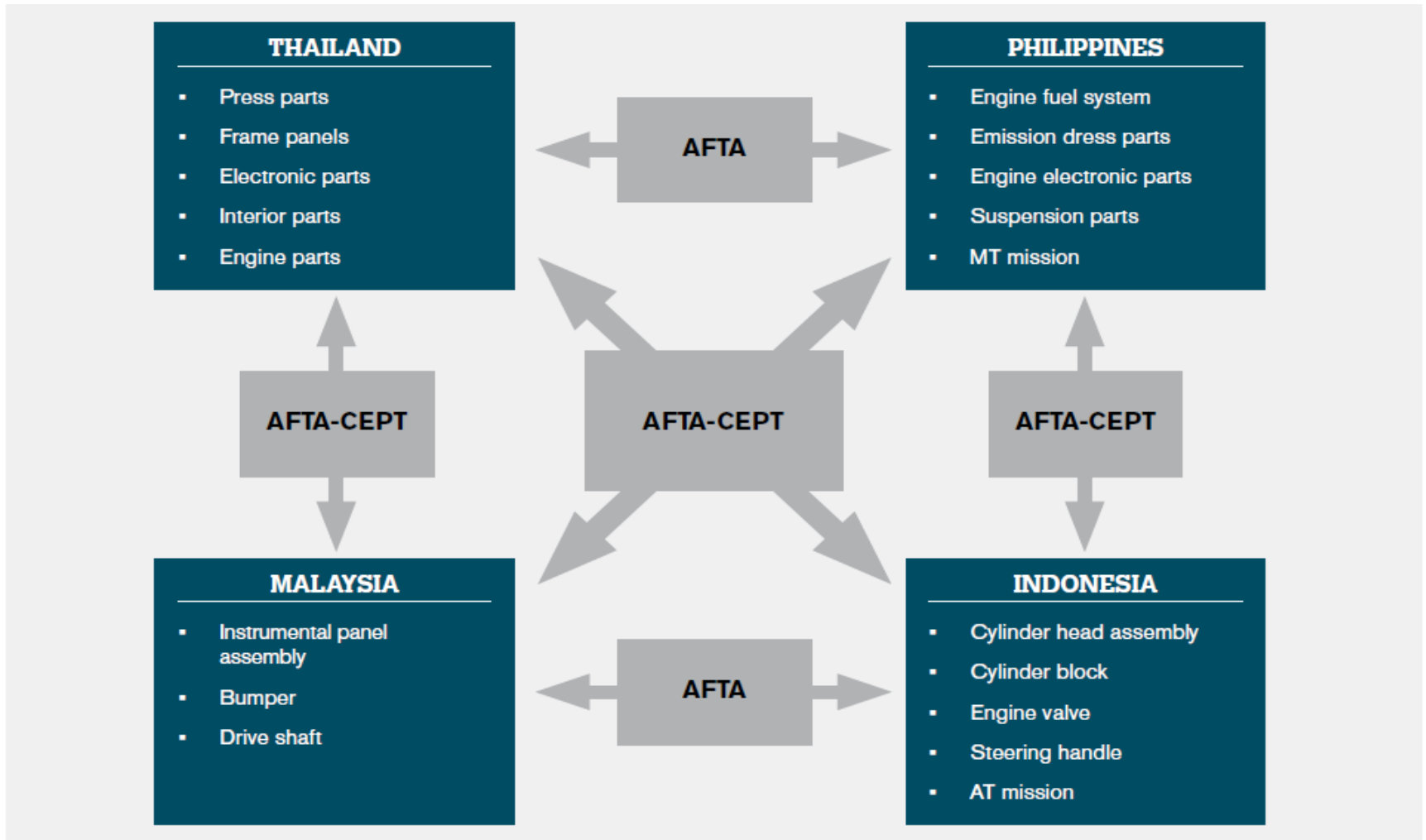


- Japan
- Singapore
- India
- Thailand
- China
- Republic of Korea
- Hong Kong (China)
- Chinese Taipei
- Malaysia

Note: The size of the bubbles represents the sum of US exports and imports to/from its Asian partner.

Source: Based on UN Comtrade Database.

Complementary parts supply system of an automobile assembler in ASEAN



Note: the ASEAN Free Trade Area - Common Effective Preferential Tariff (AFTA-CEPT) is a cooperative arrangement among ASEAN member states to reduce intra-regional tariffs and remove non-tariff barriers.

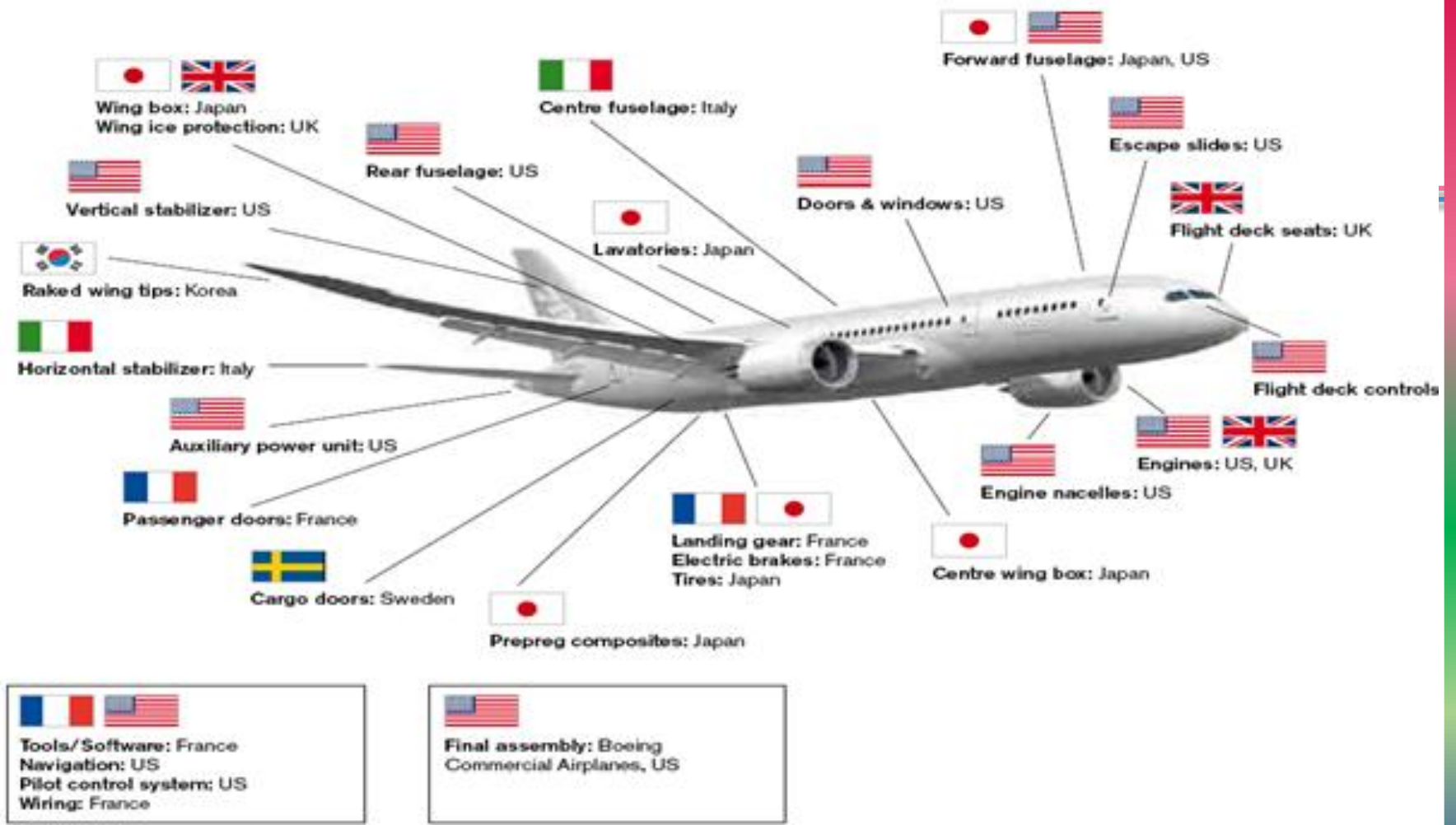
Source: Hiratsuka (2010).

6 | Introduction_2

- ‘Circular trade’: inputs are shipped abroad and then come back as more processed products.
- What initially seemed a concern for **trade statisticians** is now understood as a key issue for the policy debate. **Risk of protectionist responses** that target economies at the end of global value chains on the basis of an inaccurate perception of the origin of trade imbalances.

7 | Introduction_3

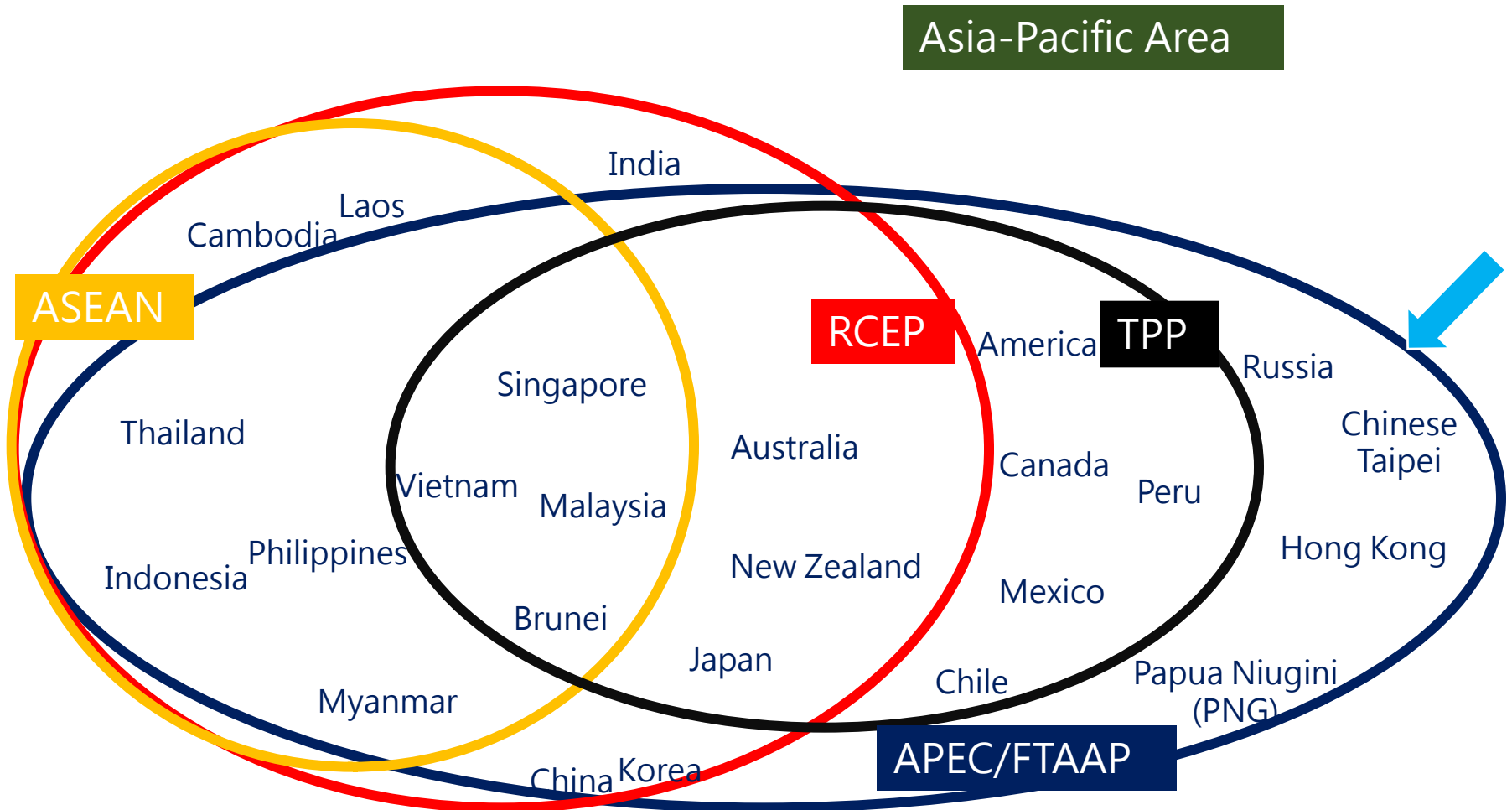
- Growing “**fragmentation of production**” (Jones and Kierzkowski, 2001) due to
 - **Innovations** such as the container ship and the internet have revolutionized trade and supply chain management.
 - **Services trade liberalization** has reduced regulatory barriers in key sectors of the global logistics chain (transport, finance, telecommunications, etc.) and facilitated foreign direct investment.



Source: Meng and Miroudot (2011).

The fragmentation of production: the example of the Boeing 787 Dreamliner

The Asia-Pacific regional economic integration



10 | Infrastructure Services in Global Value Chains



- Innovation and development in infrastructure services facilitate the smooth functioning of the GVC system.
- Container port traffic in Asia has escalated, with China leading, followed by Singapore, Hong Kong (China) and Japan.
- India, the Philippines and Indonesia showed the highest increases in information and communication technology (ICT) expenditure.
- The trading environment that exporters and importers face within their own economies impacts on the cost and timeliness of international trade.



11 | Economic Impact Assessment of Asia-Pacific REI_2

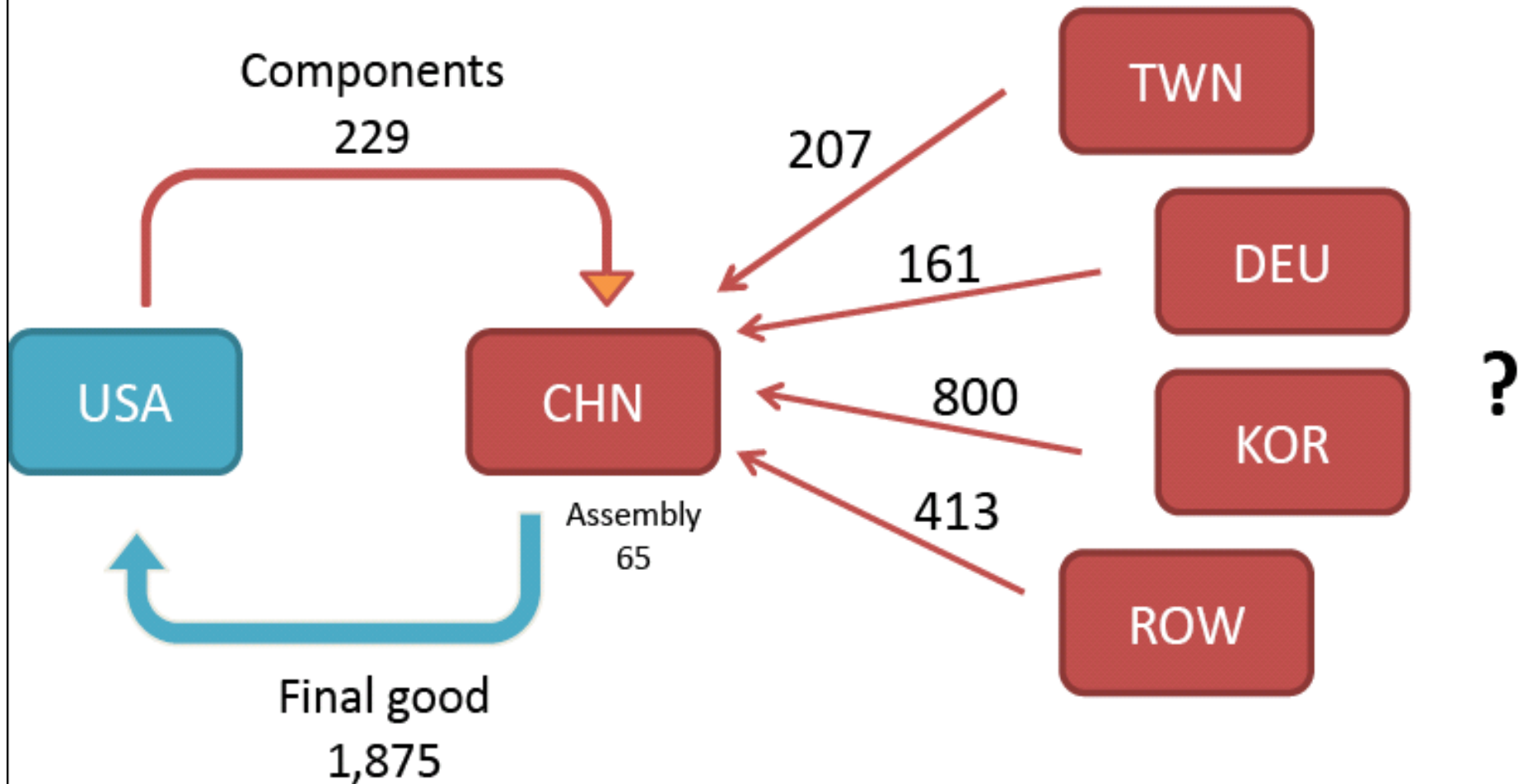
- Policy simulations of TPP or RCEP using GTAP model and database.
- The centerpiece of the Global Trade Analysis Project is a global data base describing bilateral trade patterns, production, consumption and intermediate use of commodities and services.
- The current release, the GTAP 8 Data Base, boasts dual reference years of 2004 and 2007 as well as 129 regions for all 57 GTAP commodities.

12|

Who bites the Apple? The iPhone 4 example revisited

Economy	Components	Manufacturers	Costs
Chinese Taipei	Touch screen, camera	Largan Precision, Wintek	\$ 20.75
Germany	Baseband, power management, transceiver	Dialog, Infineon	\$ 16.08
Korea	Applications processor, display, DRAM memory	LG, Samsung	\$ 80.05
United States	Audio codec, connectivity, GPS, memory, touchscreen controller	Broadcom, Cirrus Logic, Intel, Skyworks, Texas Instruments, TriQuint	\$ 22.88
Other	Other	Misc.	\$ 47.75
		Total	\$ 187.51

13 | The balance of trade in gross and value-added terms (iPhone)



14 | The balance of trade in gross and value-added terms (iPhone)

US trade balance in iPhones with:	CHN	TWN	DEU	KOR	ROW	World
Gross	-1,646	0	0	0	0	-1,646
Value added	-65	-207	-161	-800	-413	-1,646

15 | Chinese Taipei's export dependence on China_1: Table 1 Trade between Chinese Taipei and China

Unit: US\$ million; %

Year	Chinese Taipei's Export to China				China's Export to Chinese Taipei				Net Export	
	Value	Including (Hong Kong, China)	Ratio (%)	Including (Hong Kong, China)	Value	Including (Hong Kong, China)	Ratio (%)	Including (Hong Kong, China)	Value	Including (Hong Kong, China)
1992	1	15,416	0	18.9	747	2,528	1	3.5	-746	12,888
1993	16	18,469	0	21.7	1,016	2,744	1.3	3.6	-999	15,725
1994	132	21,394	0.1	23	1,859	3,392	2.2	4	-1,727	18,002
1995	377	26,482	0.3	23.7	3,091	4,934	3	4.8	-2,715	21,548
1996	623	27,411	0.5	23.6	3,060	4,765	3	4.7	-2,436	22,647
1997	626	29,315	0.5	24	3,915	5,911	3.4	5.2	-3,289	23,403
1998	915	26,313	0.8	23.4	4,114	6,190	3.9	5.9	-3,199	20,123
1999	2,602	29,427	2.1	23.8	4,529	6,752	4.1	6.1	-1,927	22,675
2000	4,391	37,133	2.9	24.4	6,229	8,594	4.4	6.1	-1,838	28,540
2001	4,895	33,608	3.9	26.6	5,903	7,955	5.5	7.4	-1,008	25,654
2002	10,527	43,486	7.8	32.1	7,969	9,883	7	8.7	2,558	33,603
2003	22,891	53,759	15.2	35.7	11,018	12,935	8.6	10.1	11,873	40,824
2004	36,349	69,246	19.9	38	16,792	19,101	10	11.3	19,557	50,144
2005	43,644	77,679	22	39.1	20,094	22,203	11	12.2	23,550	55,476
2006	51,809	89,190	23.1	39.8	24,783	26,664	12.2	13.2	27,025	62,526
2007	62,417	100,396	25.3	40.7	28,015	29,840	12.8	13.6	34,402	70,557
2008	66,884	99,573	26.2	39	31,391	32,884	13.1	13.7	35,492	66,689
2009	54,249	83,694	26.6	41.1	24,423	25,546	14	14.7	29,825	58,148
2010	76,935	114,742	28	41.8	35,946	37,574	14.3	15	40,989	77,169
2011	83,960	124,044	27.2	40.2	43,597	45,272	15.5	16.1	40,363	78,772
2012	80,729	118,666	26.8	39.4	40,910	43,569	15.1	16.1	39,819	75,097

Source : Ministry of Finance R. O. C. (2013) Foreign Trade Statistics.

16 | Chinese Taipei's export dependence on China_2

- We construct a 96-sector inter-country input-output (ICIO) table which consists of China, Chinese Taipei and rest of the world, where trade flows are presented in value-added both on a bilateral economy basis and also at the sectoral level.

17 | Chinese Taipei's export dependence on China_3

- The contribution of exports to total economy output is equal to

$$XE = (I - D)^{-1} * E \quad (1)$$

- The contribution of exports to total economy value-added is equal to

$$VE = \hat{v} * (I - D)^{-1} * E \quad (2)$$

18 | Chinese Taipei's export dependence on China_4: Framework of Cross-strait ICIO Table

Supply \ Demand			Intermediate demand (X)		Final demand (F)			Total Supply			
			(Chinese Taipei) 1,2,...,j,...,n	(China) 1,2,...,j,...,n	(Chinese Taipei) (F^T)	(China) (F^C)	Export (E)			Output (X)	Import (M)
							(Chinese Taipei)	(China)	Rest of the World (R)		
Intermediate input	(Chinese Taipei) 1,2,...,i,...,n	D	$Z_{ij}^{D^{TT}}$		$F_i^{D^{TT}}$			E_i^{TC}	E_i^{TR}	X_i^T	
		M		$Z_{ij}^{M^{TC}}$		$F_i^{M^{TC}}$					$M_i^{S_1^C}$
	(China) 1,2,...,i,...,n	D		$Z_{ij}^{D^{CC}}$		$F_i^{D^{CC}}$	E_i^{CT}		E_i^{CR}	X_i^C	
		M	$Z_{ij}^{M^{CT}}$		$F_i^{M^{CT}}$						$M_i^{S_2^T}$
Rest of the World (R) 1,2,...,i,...,n			$Z_{ij}^{M^{RT}}$	$Z_{ij}^{M^{RC}}$	$F_i^{M^{RT}}$	$F_i^{M^{RC}}$					
International shipping (FI)			FI_j^{ZT}	FI_j^{ZC}	FI_j^{FT}	FI_j^{FC}					
Primary inputs (Value Added) (V)			V_j^T	V_j^C							
Adjustment (A)			A_j^{ZT}	A_j^{ZC}	A_j^{FT}	A_j^{FC}					
Total inputs (X)			X_j^T	X_j^C							

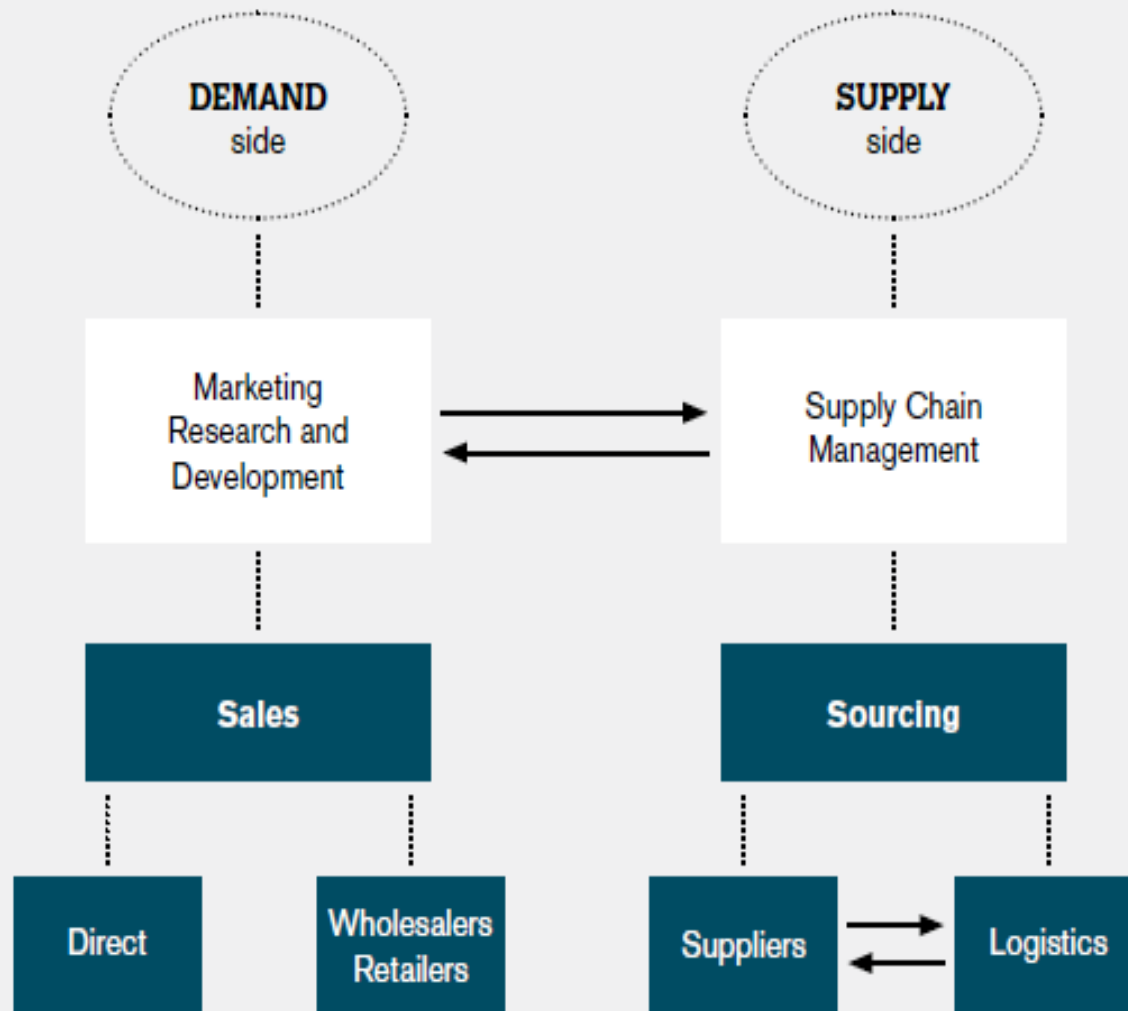
19 | Chinese Taipei's export dependence on China_5

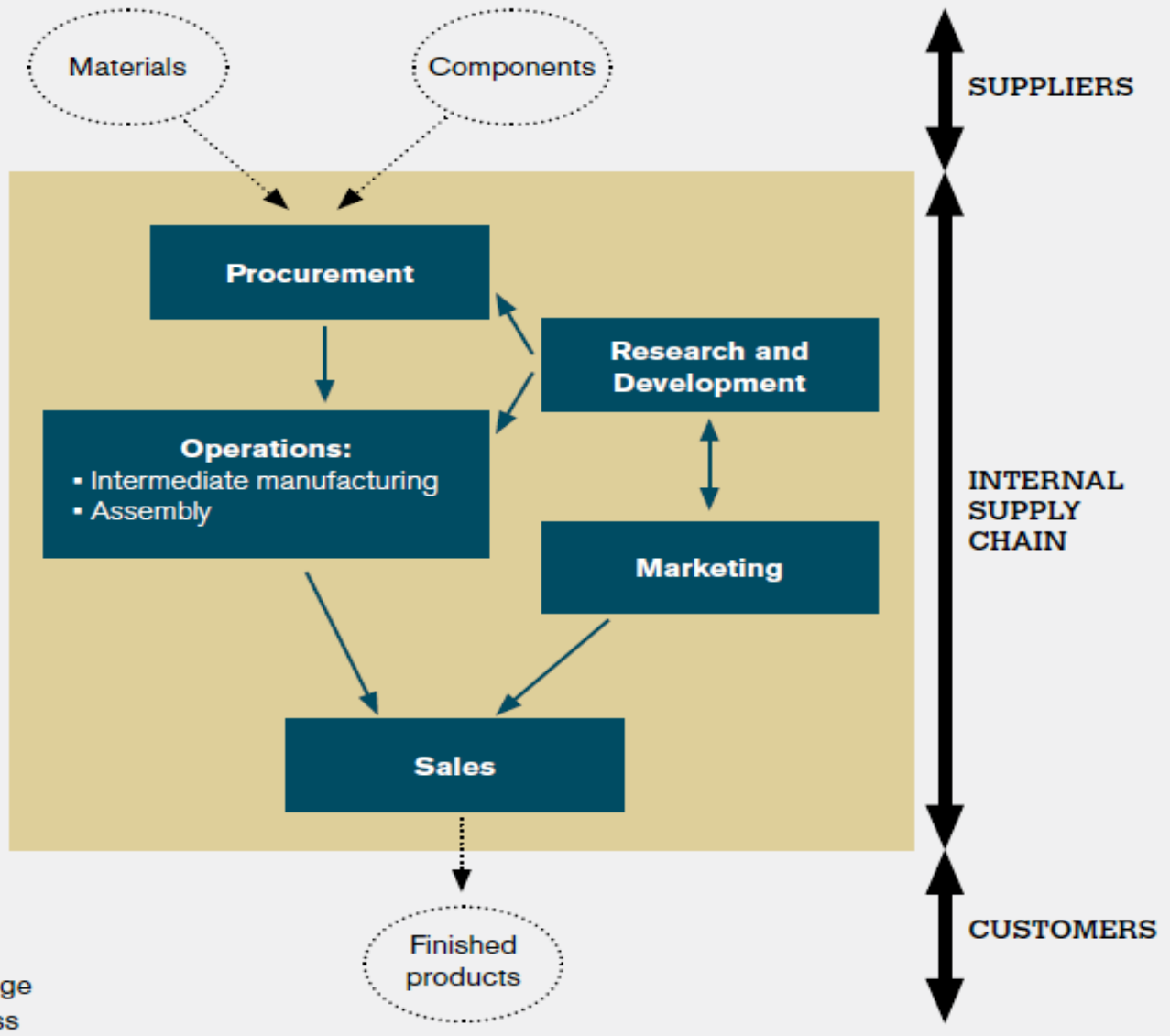
- Empirical results show that Chinese Taipei's export dependence on China in value added in 2006 is only 17.1% which is quite smaller than 39.8% in gross value as recorded in official publications.
- Results indicate that official trade data might not reveal the actual situation of practical trade flow and density of export dependence.
- Domestic Value-added content has fallen as production fragments.

20 | What is Trade in Value-Added?_1

- The world is becoming increasingly interconnected and goods and services that were once produced in their entirety in a single economy are now commonly produced as part of a global production chain, driven by technological progress, cost, access to resources and markets and trade policy reforms.

VALUE CHAIN





.....▶ Market exchange
 —▶ Internal process

Source: WTO Secretariat.

23 | What is Trade in Value-Added?_2

- This **fragmentation of production** has meant that traditional measures of trade that record **gross** flows of goods and services every time they cross borders may present an inaccurate picture of the importance of trade to economic growth and employment and also of the structural nature of bilateral trade balances.
- The **Trade in Value-Added** initiative is an attempt to account for the *double counting* implicit in current gross flows of trade, and instead measure flows related to the **value** that is **added** (labour compensation, taxes and profits) by a economy in the production of any good or service that is exported.

24 | Why is this important?

Policy Drivers_1

- **Global imbalances:**

With respect to a economy's overall trade surplus or deficit with the rest of the world, measures based on gross trade flows and value-added measures are consistent, but **measures of bilateral trade**, based on gross concepts, can present a misleading picture of who ultimately benefits from the trade and exaggerate the importance of producing economies **at the end of value chains**. (a risk of protectionist responses!)

Why is this important?

25 | Policy Drivers_2

- **Market Access and Trade disputes:**

- 1) competition is not between **economies**, but between **firms** (access to competitive inputs and technology)
- 2) Outsourcing and offshoring can only take place in situations where the regulatory frameworks are non-discriminatory, and intellectual property is respected.
- 3) emergence of **'deep' PTAs**: FTAs, RTAs,

Why is this important?

26 | Policy Drivers_2

- **Market Access and Trade disputes:**

3) Conventional measures therefore may create a risk of **protectionist responses** that target those economies at the end of global value chains, on the basis of an inaccurate perception of the origin of trade imbalances. Indeed **'beggar thy neighbour' strategies** can turn out to be **'beggar thyself'** miscalculations.

4) Tariffs, non-tariff barriers and trade measures – such as anti-dumping rights- are likely to impact domestic producers in addition to foreign producers.

Why is this important?

27 | Policy Drivers_3

- **Managing macro-economic shocks:**

The 2008-2009 financial crisis was characterized by a synchronized trade collapse in all economies, as the effects of a drop in demand fed through to economies located upstream in the global value chain. A better understanding of value-added trade flows would provide tools for policymakers to identify the transmission of macro-economic shocks and adopt the right policy responses.

Why is this important?

28 | Policy Drivers_4

- **Trade and employment:**

'Job content' of Trade: while there are concerns that imports threaten domestic jobs, the reality is that jobs are increasingly created as part of global value chains. Trade flows in value-added terms indicate where jobs are created and highlight the benefits of trade for all economies involved in the value chain.

Comparative advantages of 'tasks' rather than 'final goods'

Why is this important?

29 | Policy Drivers_5

- **Trade and the environment:**

Policymaking in the assessment of the environmental impact of trade. The unbundling of production and consumption and the international fragmentation of production require a value-added view of trade to understand where imported goods are produced (and hence where CO₂ is produced as a consequence of trade).

30 | Why is this important?

Policy Drivers_6

- **Trade, growth and competitiveness:**

Indicators of competitiveness such as 'revealed comparative advantage' are affected by the measurement of trade.

China has a RCA in producing iPhones or only in **assembly** work?

identification of export sectors and promotion of industrial policies.

Database

On-going projects on the construction of international input-output tables

Project	Institution	Sources	Number of economies	Number of industries	Available years
AISHA	University of Sydney	Based on national I-O tables optimized and reconciled through a mathematical model	160 <i>economies</i>	25-500 (national number of sectors is kept)	2000-2008 (time series)
Asian International Input-Output Tables	IDE-JETRO	National accounts and firm surveys	10 <i>economies</i>	76 sectors	1975, 1985, 1990, 1995, 2000 and 2005
A new environmental accounting framework using externality data and I-O tools for policy analysis (EXIOPOL)	18 universities and research centers from Europe, China and India	National I-O tables and supply-use tables	43 <i>economies</i>	129 industries and products	2000
Global Trade Analysis Project (GTAP ver 8)	Purdue University, consortium of 27 institutions	Contributions from members of the GTAP network (includes various sources and is not limited to official statistics)	129 regions	57 sectors (GTAP commodities)	2004 / 2007
OECD Inter-country Input-Output database	OECD	National I-O and supply-use tables and National Accounts	55 <i>economies</i> + RoW	37 sectors	1995, 2000, 2005 and 2009
World Input-Output Database	University of Groningen, consortium of 11 institutions	National accounts (supply-use tables)	40 <i>economies</i>	35 industries and 59 products	1995-2009 (time series)

32 | Action Plan on the Strategic Framework on Measurement of APEC TiVA under GVCs_1

- Initiative from China and US.
- The analysis of GVCs and the measurement of TiVA can reveal potentially important aspects of policy and identify strategic implications for decision makers in the public and private sectors of APEC economies.
- Tracking the accumulation of costs in trade due to differing standards, nontariff measures, and barriers to foreign direct investment requires the identification and collection of additional data on global value chains in the APEC region.

33 | Action Plan on the Strategic Framework on Measurement of APEC TiVA under GVCs_2

- Implement APEC Strategic Blueprint for Promoting Global Value Chains Development and Cooperation, and Strategic Framework on Measurement of APEC TiVA under GVCs both endorsed by the 2014 MRT, Qingdao, China, May 18, 2014.
- APEC economies agreed to facilitate the measurement of TiVA for the APEC economies, with an aim to supporting improvements of policy making, enabling private and public stakeholders to benefit from GVCs, and adapting innovative approaches for advancement and expansion of GVC methodologies and applications.

34 | Action Plan on the Strategic Framework on Measurement of APEC TiVA under GVCs_3

- The measurement of TiVA among APEC economies would be based on and linked to the WTO-OECD TiVA database.
- Policy simulations with APEC TiVA database under GVCs may provide more accurate economic assessment of the rising influence of Asia-Pacific REI on GVCs.