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## *Crawford School Dialogue*

# Asia's Economic Transformation:

# Implications for Australia

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# **Global Production Sharing: Implications for the Debate on Global Trade Imbalance**

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# What is global production sharing?

## **Example: Apple iPhone 3G**

The iPhone is ‘made’ (in reality, ‘assembled’) in China:

Entire iPhone production in the world is recorded as exports (at FOB value) from China

and

iPhone imports to any country show up its trade data as imports from China

But, China’s value added in the iPhone production chain is 3.6% of the ex-factory price

Parts and components come from Japan (35.1%), Korea (13.3%), Germany (17.5%) and the USA 6.3%) and other (unclassified) countries (27.8)

(See Table, next slide)

# Apple iPhone: Components and Cost

Component	Manufacturer/country	Cost (US\$)
Flash memory	Toshiba, Japan	24.00
Display module		19.25
Touch screen		16.00
FEM	Murata, Japan	1.35
Application processor	Samsung, Korea	14.46
SDRAM-Mobile		8.50
DDR		13.00
Baseband	Infineon, Germany	9.55
Camera module		2.80
RF Transceiver		2.25
Power IC RF function		1.25
Power IC application processor		1.30
Bluetooth/FM/WLAN	Broadcom, USA	5.95
Memory MCP	Numonyx, USA	3.65
Audio codec	Cirrus Logic, USA	1.15
Other material	Other countries	48.00
Total material		172.46
<b>Manufacturing cost (value added)</b>	<b>China</b>	<b>6.50</b>
Total ex-factory price		178.96

# What is global production sharing?

‘splitting of the production process into discrete activities (tasks) which are then allocated across countries’

Alternative terms:

International production fragmentation

Vertical specialization

Slicing the value chain

Offshoring

# What does the iPhone example tell us?

Global production sharing opens up opportunities for countries to specialise in different slices (tasks) of the production process.

The conventional approach to trade flow analysis, which attributes the commercial value of a product to the last country of origin, is becoming increasingly misleading.

**It is not ‘cloth for wine’ any more!**

# How big is global production sharing?

Apple iPhone 3G is just the tip of the iceberg of global production sharing

It is an important global phenomenon encompassing an ever increasing product coverage

**Trade in network products** (parts and components and final assembly) has been increasing at a much faster rate than total world trade:

1992/3      23.8% of total mfg. exports

2006/7      45.5%

**Network products** accounts for a much higher share of manufacturing trade in East Asia compared to all other major regions in the world.

Table 1: Share of Network Products in Manufacturing Trade, 2006/7 (%)

(a) Exports	Parts and components	Final assembly	Total network trade
East Asia	34.1	26.2	60.3
<b>Japan</b>	<b>34.4</b>	<b>32.6</b>	<b>67.0</b>
Developing East Asia	34.0	24.5	58.5
<b>China (PRC)</b>	<b>25.6</b>	<b>26.2</b>	<b>51.8</b>
Hong Kong, China	33.3	17.8	51.1
Taiwan	44.2	21.6	65.8
Korea, RP	41.1	25.4	69.5
ASEAN	44.2	21.9	66.1
<b>Indonesia</b>	<b>21.5</b>	<b>16.8</b>	<b>38.4</b>
<b>India</b>	<b>10.4</b>	<b>3.8</b>	<b>14.2</b>
Developed countries	25.2	23.6	48.8
Developing countries	29.2	24.3	53.6
World	27.1	23.8	50.9



Table 1: Share of Network Products in Manufacturing Trade, 2006/7 (%) (Continued)

(b) Imports	Parts and components	Final assembly	Total network trade
East Asia	42.1	17.8	59.9
<b>Japan</b>	<b>29.9</b>	<b>21.9</b>	<b>51.7</b>
Developing East Asia	42.2	17.1	61.3
<b>China (PRC)</b>	<b>44.0</b>	<b>19.8</b>	<b>63.7</b>
Hong Kong, China	48.5	13.5	62.1
Taiwan	38.9	16.8	55.7
Korea, RP	31.9	17.4	49.3
ASEAN	47.9	16.2	64.1
<b>Indonesia</b>	<b>21.8</b>	<b>15.8</b>	<b>37.7</b>
<b>India</b>	<b>22.9</b>	<b>17.0</b>	<b>39.9</b>
Developed countries	23.4	25.5	48.9
Developing countries	33.6	19.9	53.5
World	27.3	23.3	50.7

# Implications for the debate on global trade imbalances

- \* Measurement of bilateral trade imbalances
- \* Efficacy of exchange rate policy

# Measurement of bilateral trade imbalances

Conventional trade records (measured in gross value) could depict a distorted picture of bilateral trade imbalances given the possibility of shifting trade among countries within production networks.

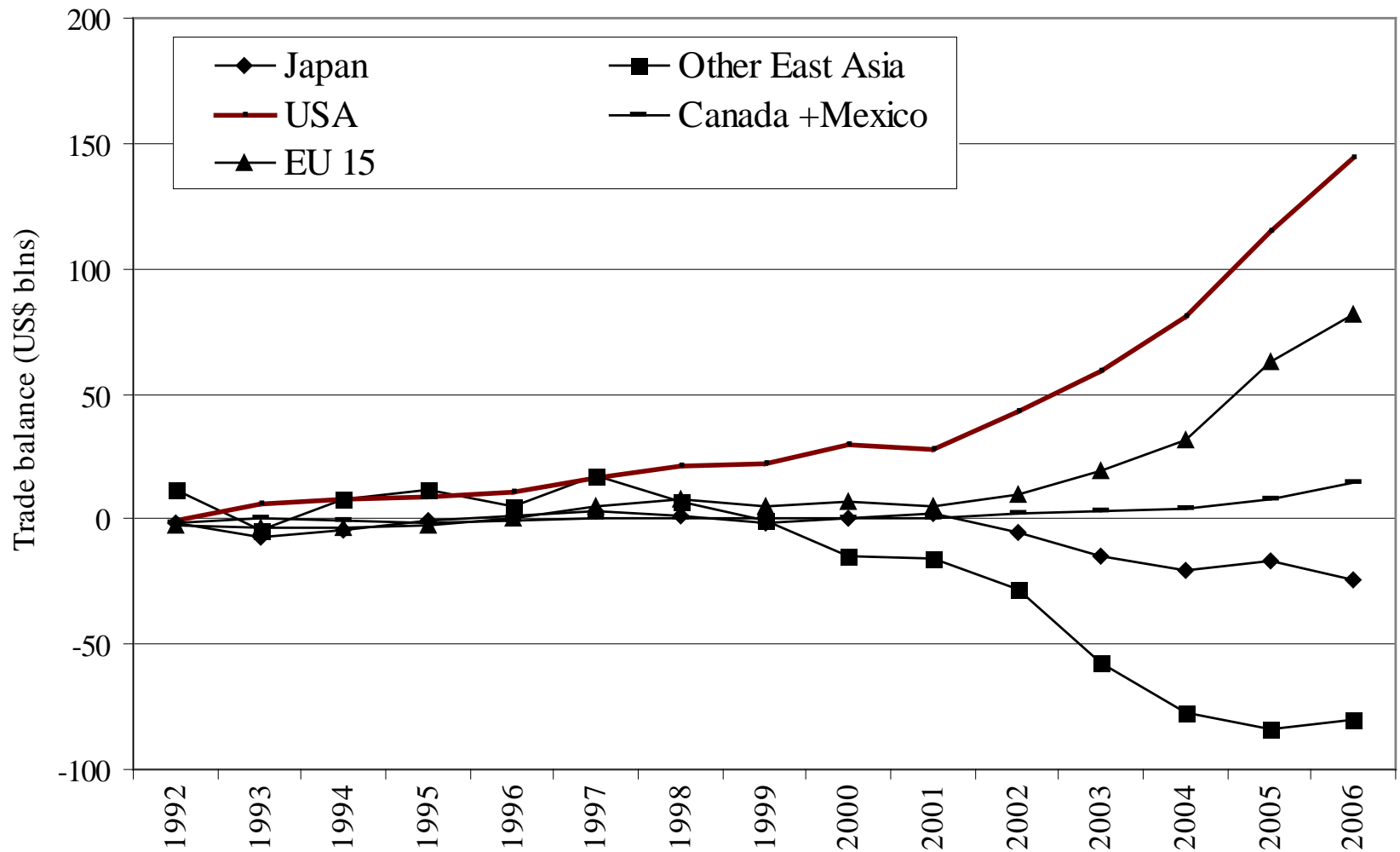
US – China trade imbalance reflects to a significant extent shifting final assembly activities from Japan, Korea, Taiwan and Southeast Asian to China.

Widening of the US trade deficit with China has been accompanied by a narrowing of US's trade deficits with Japan, Korea, Taiwan and China. (Athukorala P. and N. Yamashita (2009), Global production sharing and Sino-US trade relations', *China & World Economy*, 17(1), 39-56)

**“Made in China’ tells us little about global trade”**

Pascal Lamy, Director-General of WTO  
*Financial Times*, 24, January 2011

Figure 2: China's Bilateral Trade Balances  
(US\$ billions), 1992-2007



# Efficacy of exchange rate policy

Global production sharing weakens the link between price and volume of parts and component trade

- Within production networks, production units located in different countries specialise in specific tasks which are not directly substitutable for tasks undertaken elsewhere
- Inter-country price/cost differentials are only one consideration in production location/procurement decisions of firms within production networks (importance of sunk fixed cost and the related 'service-link' costs)
- Production sharing weakens the link between domestic cost of production and export competitiveness
- Changes in exchange rates affect imports and exports differently at different stages of the production process in a given country

## Price elasticity of import demand in the USA

	Total	P&C	Final
Total manufacturing (SITC 5 to 8)	-1.48	-0.86	-2.84
Machinery and transport equipment (SITC 7)	-1.07	-0.72	-3.04
ICT products (SITC 75 + 76 + 772 + 776)	-0.71	-0.53	-3.30
Electrical goods (SITC 77 – 772 – 776)	-0.81	-0.43	-3.42