

**GLOBAL VALUE CHAIN & ECONOMIC
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**MALAYSIA GVC ECONOMIC IMPACT AND ITS
IMPLICATIONS**

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Introduction

- ◆ There is an impending trend in the globalization of production and trade, leading to vertical disintegration of trans-national corporation(TNCs).
- ◆ Consequently, there is a need to re-examine the shifting governance structure in sectors producing global markets;
- ◆ This is because the trend is affecting not only firms but also countries.
- ◆ A country, therefore, may benefit from this trend if it can craft a set of appropriate policy to spur industrial upgrading, economic development, employment creation and poverty alleviation.

What's GVC and Why?

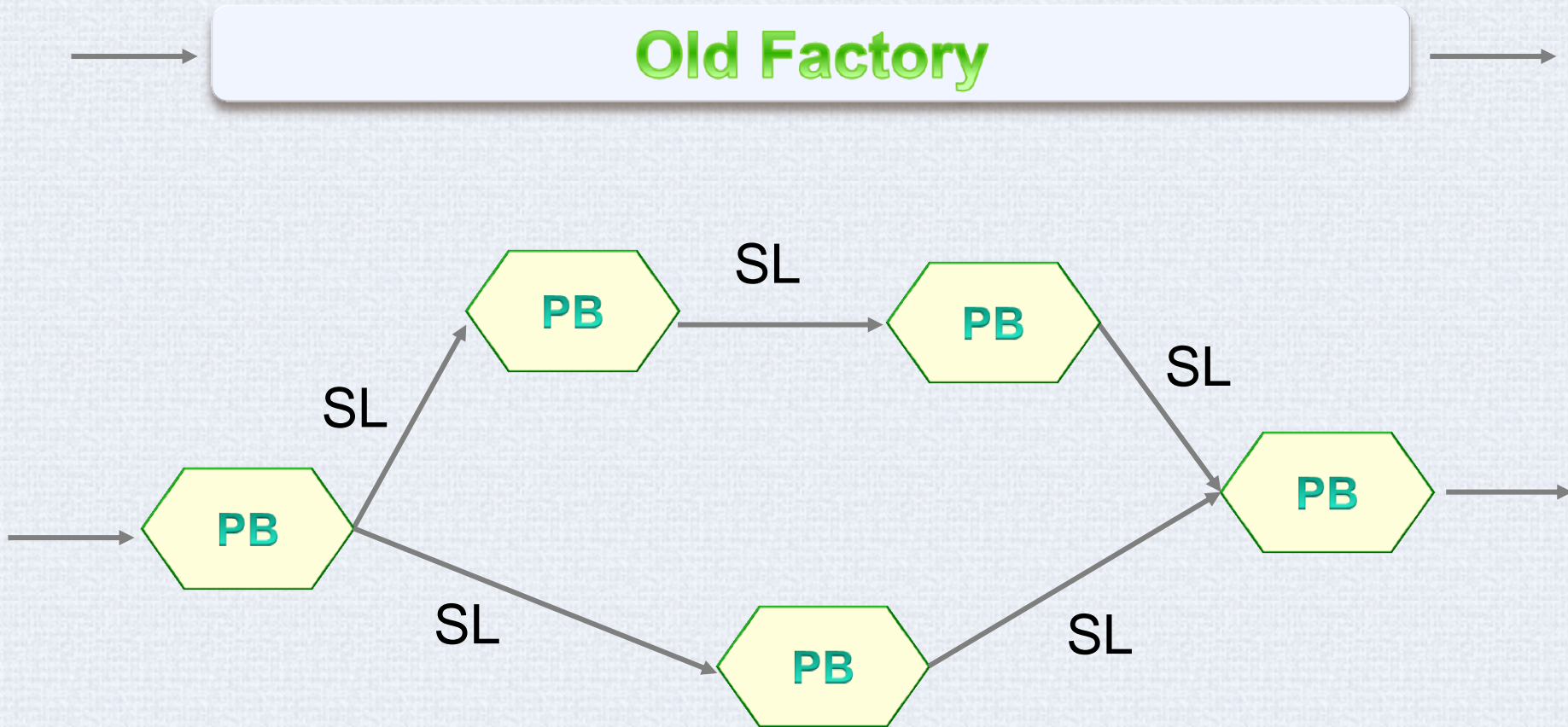
- ◆ GVCs are new concepts in international trade.
- ◆ Trades has certainly make Malaysia becomes more globally integrated. Since its number one major export product, E&E, is GVC product it offers many interesting development issues to be urgently addressed.
- ◆ Participation in GVC should be looked at a broader development and growth perspective.
- ◆ A good grasp of GVC requires fundamental understanding of the value-added concept, its value-added content in production of output and value-added and import multipliers concepts.

- ◆ Malaysia's domestic value-added content in production and value-added multiplier in export oriented products; and its import multiplier.
- ◆ GVC products and key sectors: inter-industrial linkages and production technology.
- ◆ *Crafting* an appropriate/optimal industrial policy that can spur sustainable economic growth.
- ◆ capturing of GVC in E&E..

Introducing GVC Concept

- ◆ Many people feel think that Ricardian and Heckscher-Ohlin models are **completely** inadequate whenever GVC phenomenon is discussed in international trade literature.
- ◆ Since 1990s trade flows were not entirely dependent on factor endowments this is because production network is now characterized by unbundling production and fragmentation in production technology, affecting the old patterns of investments.
- ◆ Value chain reflects full range of activities that firms and countries perform to bring a product from its conception to end-use.

Before Fragmentation



PB: production block
SL: service link

Objectives of the paper

- ◆ to inquire into Malaysia's economic and development impacts of GVC.
- ◆ to explore policy implications
- ◆ focus would be on the E&E with a general discussion on other export oriented products.

Methodology

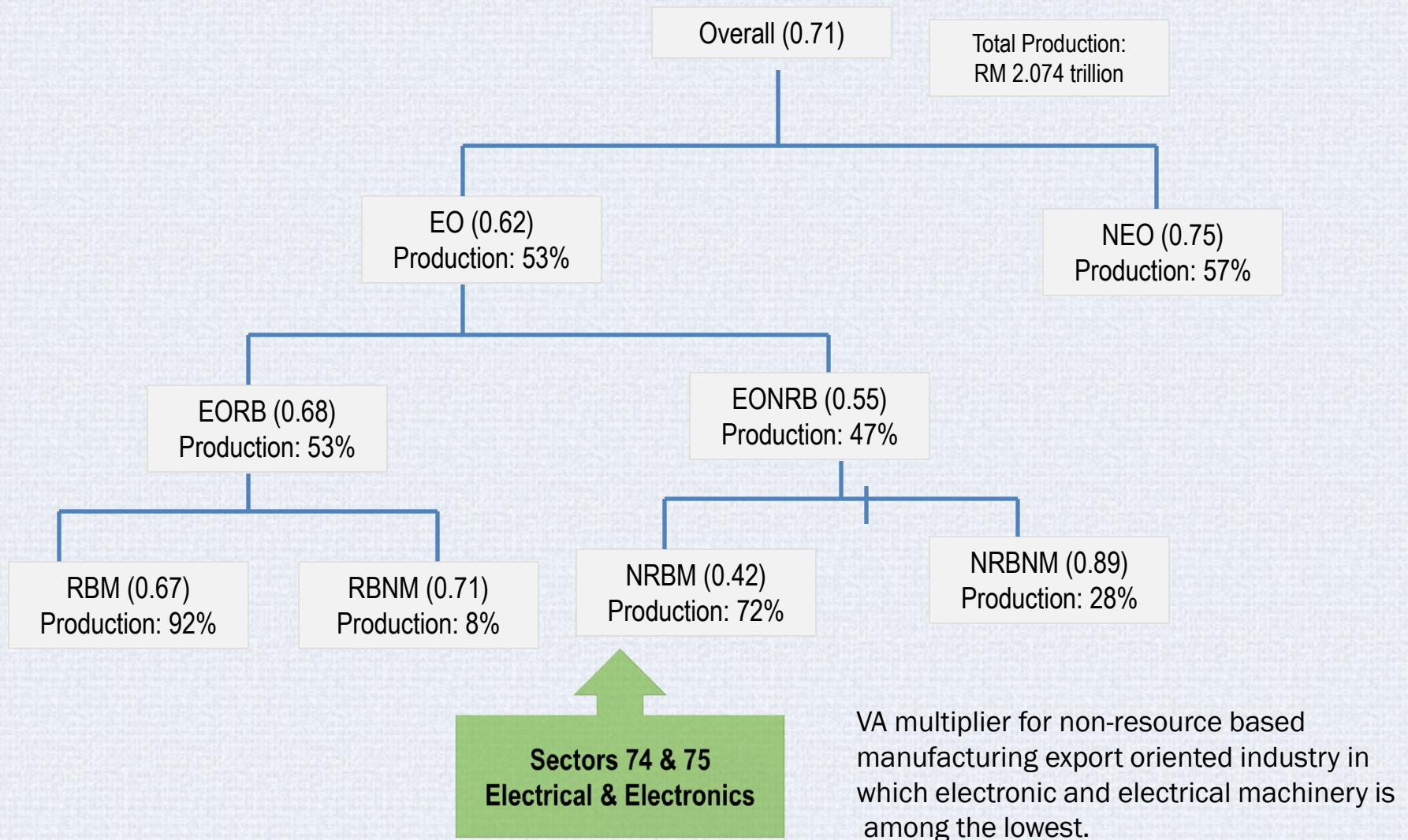
- Output of a firm or of a country is used as intermediate input by another firm or country. Production of a commodity by a commodity, the appropriate concept used to look at the issue of GVCs
- International fragmentation of production focuses on the imported materials used in the production of gross output, i.e. imported input per unit of output.
- Value-added and import multipliers can be calculated by using the following formula:

$$\sigma_k = \sum_{i,j}^n v_j b_k$$

where $i, j = 1, 2, 3, \dots, n$

- Using Malaysian input-output data for 2005 and 2010

Value Added Multiplier of Export Oriented



Calculated from Input-output Table Malaysia 2010

Various Categories of Export Oriented

- ◆ EO Export Oriented
- ◆ NEO Non Export Oriented
- ◆ EORB Export Oriented Resource Based
- ◆ EONRB Export Oriented Non Resource Based
- ◆ RBM Export Oriented Resource Based Manufacturing
- ◆ RBNM Export Oriented Resource Based Non Manufacturing
- ◆ NRBM Export Oriented Non Resource Based Manufacturing
- ◆ NRBNM Export Oriented Non Resource Based Non manufacturing

Empirical Study

Malaysia major export sectors

- ◆ Electrical and electronics (E&E)
- ◆ Palm oil and palm-oil based industries (PO)
- ◆ Oil & gas (O&G)

identifying their sub-sectors give clearer pictures about GVC:

Empirical Study

Main Sectors and Sub-Sectors

Electrical and Electronics	
Input-Output Commodity Code	Commodity Name
70	Electrical machinery and Apparatus
71	Other electrical machinery
72	Insulated wires and cables
73	electrical lamps & lighting equipment
74	Semiconductor devices, tubes and circuits
75	TV, radio receivers & transmitters

Palm Oil	
Input-Output Commodity Code	Commodity Name
21	Oil & fats
49	Soap, detergents

Empirical Study

Oil and Gas	
Input-Output Commodity Code	Commodity Name
13	Crude oil & natural gas
44	Petroleum refinery
46	Fertilizers
47	Paint & varnishes

From Input-output Table Malaysia 2010

Manufacturing Sectors: domestic-oriented vs export-oriented.

- ◆ The manufacturing sectors are represented by sectors codes 17 to 84 in the input-output table, of which
- ◆ **Export Oriented (Manufacturing) Sectors** with code numbers 34, 37, 40. 53-54, 61 and 65-84 while the rest are the
- ◆ **Domestic Oriented Sectors (Manufacturing)** with the following sector codes 17-33, 36, 38-39, 41-52, 55-60 and 62-64.

From Input-output Table Malaysia 2010

Export-output ratio and Value-added multiplier

1. Production ratio of domestic oriented sectors
 $X: Q_D = 0.34$
2. Production ratio of export-oriented sectors
 $X: Q_X = 0.898$
3. VA multiplier for domestic oriented sectors
 $VAM_D = 0.636$
4. VA multiplier for export-oriented sectors
 $VAM_X = 0.416$

X and Q stand for export and domestic production while sub-scripts X and D stand for export and domestic production. VA and VAM stand for value-added and value-added multiplier.

Calculated from Input-output Table Malaysia 2010

Semi Conductors (74) and TV and Radio Receivers (75).

They are number one major export items in the economy, representing 90% of E & E export and are also GVC products.

Malaysia is an active participant in GCV in the above two products which have low domestic value-added content but generate strong growth to the economy due to high volume of trades but not from its multiplier effect.

An Export-oriented manufactures that contribute strongly to economic growth would require not only volume of export but also high value-added multiplier.

E&E Products

Domestic Value-added Content.

Electrical and Electronics					
	Input-Output Commodity Name	Domestic VA % Ratio	Exports (RM '000)	Export Production Ratio	Domestic VA generated from Export
70	Electrical Machinery and Apparatus	0.1010	3,284,601	1.4524	331,745
71	Other Electrical Machinery	0.2740	4,738,169	0.9241	1,298,258
72	Insulated Wires and Cables	0.0710	7,621,136	0.8970	54,101
73	Electric Lamps and Lighting Equipment	0.3310	1,674,184	0.8104	554,155
74	Semi-Conductor Devices, Tubes and Circuit Boards	0.2180	91,371,653	0.9348	19,919,120
75	TV, Radio Receivers & Transmitters & Asso. Goods	0.3700	63,515,511	0.9143	23,500,739

VA multiplier for E&E = 0.40. Sectors 74 and 75 contributed the highest VA from their exports due to high value of export and strong VA multiplier. More than 90% of the E&E export are represented by these sectors and also more than 90% of their production are for export. Calculated from Input-output Table Malaysia 2010

Findings

Palm Oil & Palm Oil-based		VA multiplier for PO & PO-based = 0.80			
	Input-Output Commodity Code	Domestic VA (%)	Exports (RM '000)	Export Production (%)	Domestic VA Generated from Export (RM '000)
21	Oils and Fats	6.1	51,716,691	40	3,154,718
49	Soap, Detergents, Perfumes, Cleaning & Toilet Preparations	26.7	1,693,683	47	452,213

Calculated from Input-output Table Malaysia 2010

Oil & Gas VA multiplier for O & G = 0.81					
Input-Output Commodity Code	Commodity Name	Domestic VA (%)	Export (RM '000)	Export Production Ratio	Domestic VA Generated from Export (RM'000)
13	Crude Oil and Natural Gas	83.9	42,204,480	.43	35,409,559
44	Petroleum Refinery	21.9	42,893,923	.41	9,393,769
46	Fertilizers	23.1	1,567,431	.38	362,076
47	Paints and Varnishes	30.6	952,869	.24	291,578

Highest domestic VA content is in the upstream activity

The VA content and volume of export determine impact on economic growth.

Calculated from Input-output Table Malaysia 2010

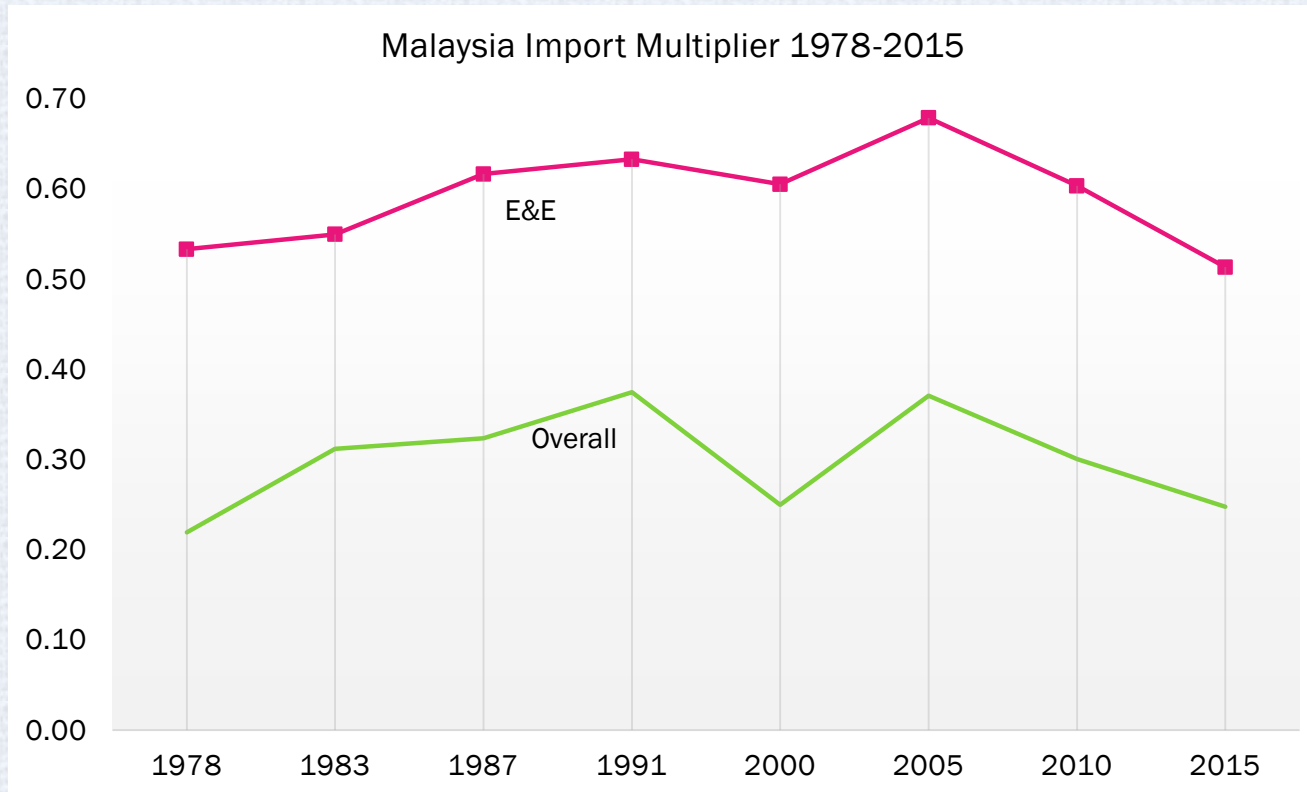
Export Oriented Non Resource Based Manufacturing

#1 leading export commodity

Input-output Commodity code	74 Semiconductor Devices, Tubes and Circuits	75 TV, Radio Receivers & Transmitters	Overall Average (weighted)
Production (RM'000)	97,745,496.49	69,468,629.83	
a) Export Production Ratio	0.9348	0.9143	0.3114
b) Multipliers			
VA Ratio	0.3578	0.4767	0.6963
CE Ratio	0.10	0.16	0.20
Import Ratio	0.64	0.52	0.3005
Gross profit Ratio	0.31	0.38	0.4862
Taxes on prdn Ratio	0.0019	0.0015	0.0086
Taxes on product Ratio	0.0049	0.0033	
Subsidies Ratio	0.0022	0.0013	

Calculated from Input-
output Table Malaysia 2010

Import Dependency



Remained high import dependent, especially in E&E over the period shown.

Calculated from Input-output Tables Malaysia 1978 to 2015

Malaysia Import Generated by Export, 2015

Sector*	I-O Code	Import multiplier	Import Generated by Export		Export share %
			Value ('000)	Share %	
Crude Oil and Natural Gas	13	0.038	1,866,395	0.89	7.61
Petroleum Refinery	44	0.205	16,713	0.01	0.01
Oil Palm	6	0.108	257	0.00	0.00
Oils and Fats	21	0.240	14,184,949	6.78	9.27
Electrical Machinery and Apparatus	70	0.464	860,017	0.41	0.29
Other Electrical Machinery	71	0.500	4,730,055	2.26	1.48
Insulated Wires and Cables	72	0.465	2,813,807	1.34	0.95
Electric Lamps and Lighting Equipment	73	0.467	1,524,556	0.73	0.51
Semi-Conductor Devices, Tubes and Circuit Boards	74	0.515	42,627,190	20.36	12.96
TV, Radio Receivers & Transmitters & Asso. Goods	75	0.522	14,487,539	6.92	4.34

Calculated from Input-output Table Malaysia 2015

Note: *

Sectors 13 & 44 represent the Oil & Gas

Sectors 6 & 21 represent the Palm Oil

Sectors 70 - 75 represent the E&E

Import generated by export in E&E is bigger than that in PO and OG. Export share in each of all E&E sub-sectors are smaller than their amount of import generated by export while in each of all palm oil and crude oil and natural gas sector is bigger than their amount of import generated by export.

Malaysia-China bilateral trades in E&E products in 2005.

- ◆ China is Malaysia's major trading nation, including in E&E. In 2005, Malaysia enjoyed 74% surplus in intra-industry balance of E&E trade with China.
- ◆ The commodity composition was concentrated in two products, namely Semiconductors & integrated circuits and Electronic computing equipment.
- ◆ Malaysian commodity composition of E&E export was more concentrated (93.21%) than its import (76.63%).

Calculated from International Input-output Table, IDE 2005



Malaysia-China: Gross Value-added and Compensation of Employee in E&E products in 2005.

- ◆ Malaysia and China share similar distributional pattern of gross value-added (GVA) and compensation of employee (CE) among all the E&E products
- ◆ Concentrating in Semiconductors & integrated circuits, Electronic computing equipment, Television sets, radios, audios & communication equipment, and Lighting fixtures, batteries, wiring & others.
- ◆ Malaysia's gross value-added (GVA) coefficient and unit labour cost (ULC) was one-half of those of China; implying that Malaysia produced lower value-added products and employed higher ratio of lower skilled workers.
- ◆ Similar pattern is also observed in the manufacturing of Television sets, radios, audios & communication equipment.
- ◆ In other E&E products, it shows the opposite pattern where GVA coefficient is higher but ULC is lower, implying that although productivity is higher but workers are not being paid higher.

Calculated from International Input-output Table, IDE 2005



THANK YOU

