



Institute for Trade Studies and Research
Ministry of Industry, Mine and Trade
Islamic Republic of Iran

**High-Level Symposium on Industrial and Trade policies:
Promoting Exports and Developing Employment**

***Malaysian Experience in Moving up Global
Value Chains in Resource-Based Industries***

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عطاگضاظاح طاغوقق كطابظا كظال هل غل لقة قضا لوضف ضث

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Outline

- ◆ Introduction
- ◆ Background
- ◆ Methodology
- ◆ Findings
- ◆ Policy implications
- ◆ Conclusion

Introduction

- ◆ Ricardian and Heckscher-Ohlin models are insufficient to explain trade and industrial development as regards to the differences between resource and non-resource based industries.
- ◆ Since 1990s trade not dependent only on differences in factor endowments and technology but also on regional production networks and GVC.
- ◆ Fragmented production networks and global value chains (GVCs) characterize trade and investments
- ◆ GVCs are the norm now

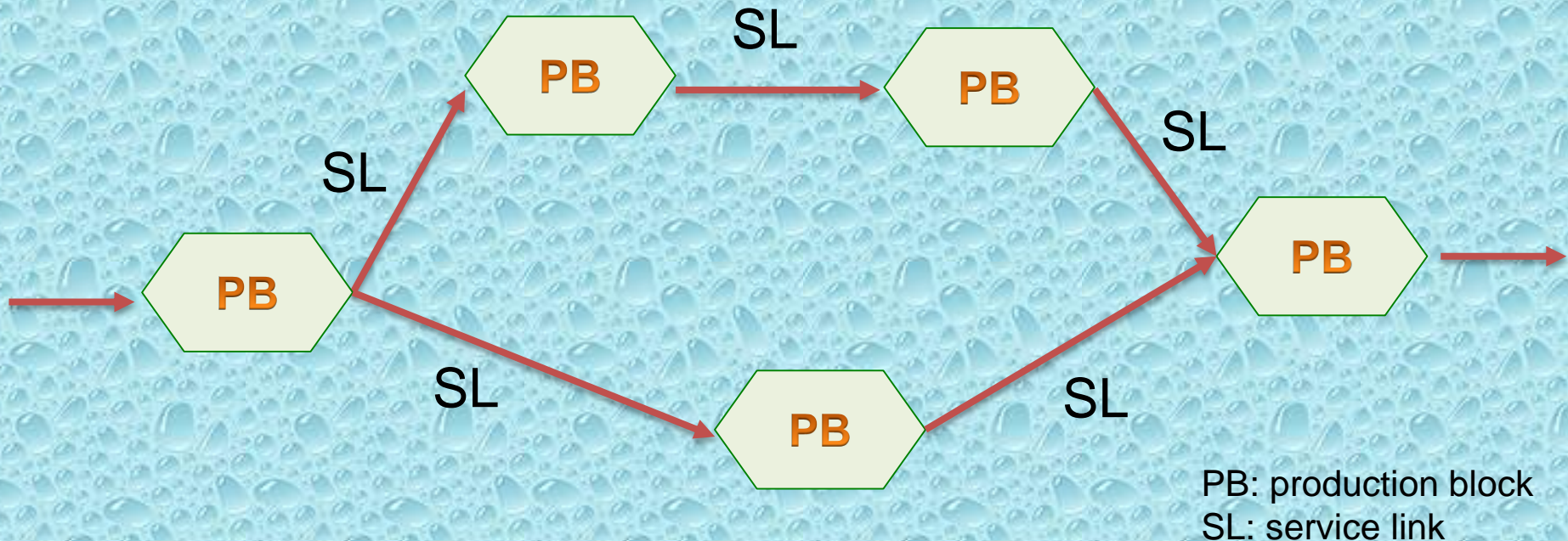
What are GVCs?

- ◆ Value chain - full range of activities that firms perform to bring a product from its conception to end-use and beyond
- ◆ The activities that comprise a value chain can be contained within a single firm or divided among different firms

Before Fragmentation



After Fragmentation



Objectives

- ❑ **The overall objective is to explain the industrial and trade policy within the context of broader national economic policy objectives.**
- ❑ **It explains how the differences in the production performance between resource and non-resource based industries are affected by GVC.**
- ❑ **Specifically, it will explain the contribution of components of final demand to output growth and estimate their primary inputs multipliers.**

Methodology

- ◆ The paper uses standard decomposition of output growth analysis, attributing output growth to Domestic demand expansion, Export demand expansion, Intermediate demand expansion and Import substitution

Methodology

- ◆ Under equilibrium conditions, open input-output relation can be postulated as:

$$X = D + W + E - M,$$

where

X = vector of gross output

D = vector of domestic final demand

W = matrix of intermediate demand

E = vector of export demand

M = vector of imports

Methodology

Output growth (1)

$$\Delta X = R \mu_1 \Delta D + R \Delta E + R \mu_1 \Delta A X_0 + R \Delta \mu (A_0 X_0 + D_0)$$

(1) (2) (3) (4) (5)

is decomposed into that due to

(2) domestic demand expansion

(3) export demand expansion

(4) intermediate demand expansion

(5) import substitution demand

Methodology

- ◆ I-O analysis is appropriate for study of GVCs
- ◆ The input from one firm or a subsidiary of the firm is used as an input for another firm
- ◆ The international fragmentation of production focuses on the imported input shares of gross output, total inputs or exports
- ◆ Multipliers calculated using following formula:

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

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

Where v = primary input including value added coefficient,

; b = Leontief coefficient, and
 σ = multiplier for sector k

Sources of Data

- ◆ Malaysia's input-output tables for the years 1991, 2005 and 2010.
- ◆ deflate all the tables into a common base year.
- ◆ Aggregating and conforming all the three years' classifications
- ◆ Weighted average using sectoral output as weight
- ◆ GVC analysis examines products exported from Malaysia
- ◆ Propose to examine exports to major export markets such as China, Singapore, USA, Europe and Japan

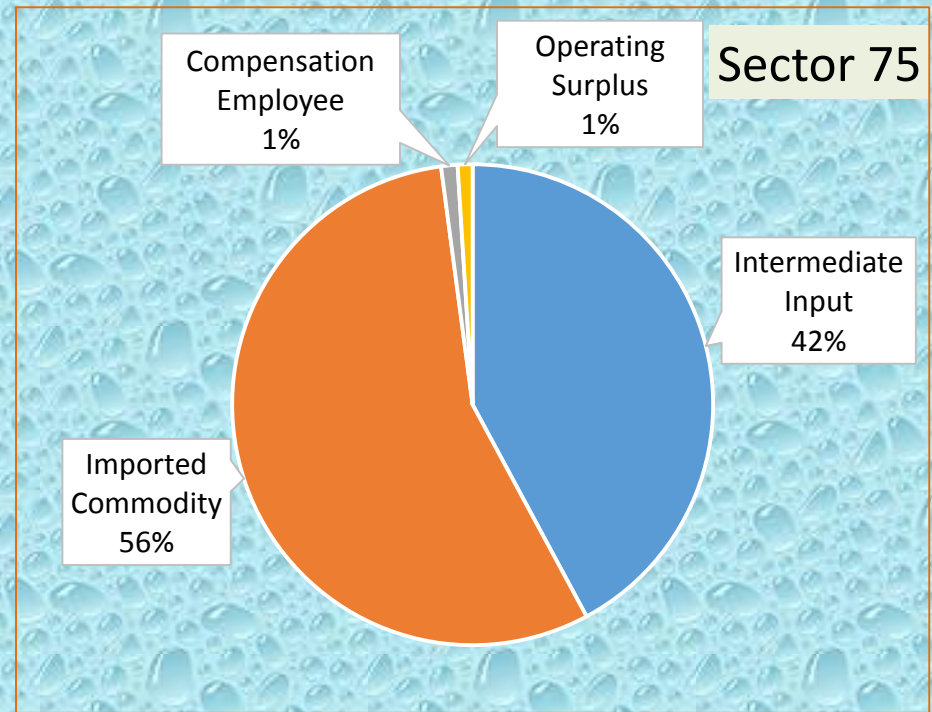
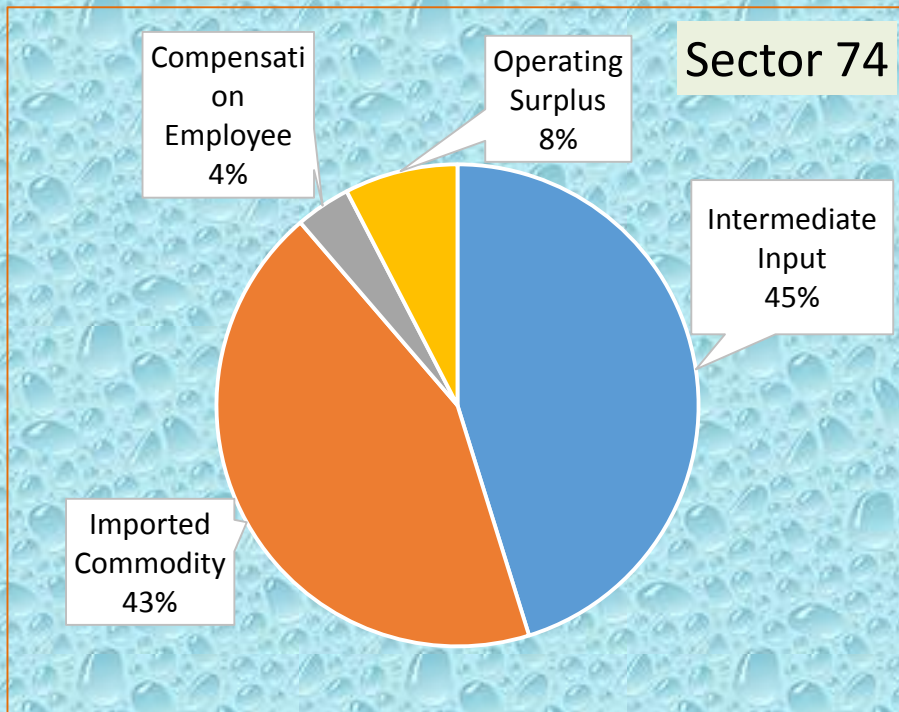
Methodology

- ◆ The following will be calculated
 - Value added of main export categories
 - Value of compensation of employee and operating surpluses
 - Key multipliers
 - Value added multiplier
 - Compensation of employee multiplier
 - Operating surplus multiplier
 - Output multiplier
 - Imported commodity multiplier
- ◆ We are proposing for policy recommendations to undertake focus groups discussion (FGD), which will be held with:
 - Government agencies (i.e. MITI, SME Corp)
 - Trade associations (FMM)
 - Chambers of commerce

Methodology

- ◆ Classification of sectors by Export Oriented (EO) and Non-Export Oriented (NEO), also by Resource Base (RB) and Non-Resource Base (NRB).
- ◆ Legend:
 - EO = export oriented
 - NEO = non-export oriented
 - EORB = export oriented resource base
 - EONRB = export oriented non-resource base
 - NEORB = non-export oriented resource base
 - NEONRB = non-export oriented non-resource base
 - RBM = resource base manufacturing
 - RBNM = resource base non-manufacturing
 - NRBM = non-resource base manufacturing
 - NRBNM = non-resource base non-manufacturing

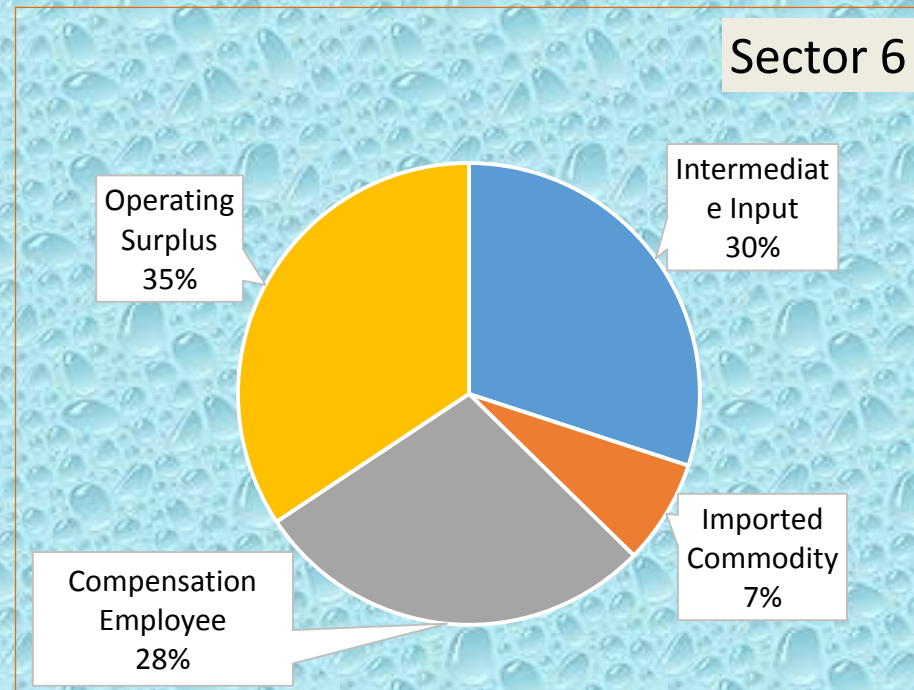
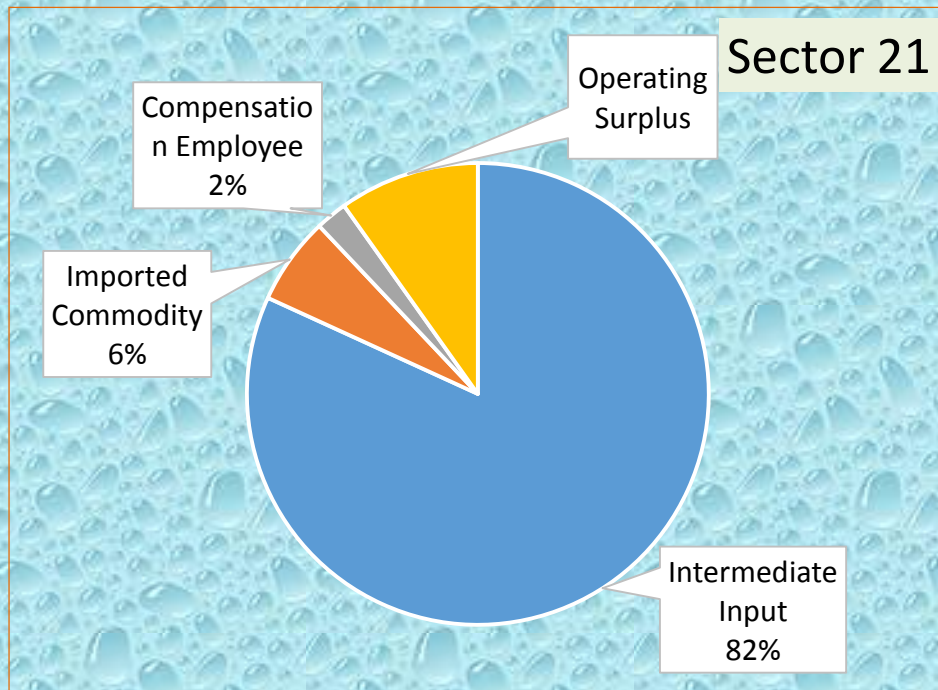
Input Structure



2005

*NOTE: Sector 74 = Semi-Conductor Devices, Tubes and Circuit Boards
Sector 75 = TV, Radio Receivers & Transmitters & Asso. Goods*

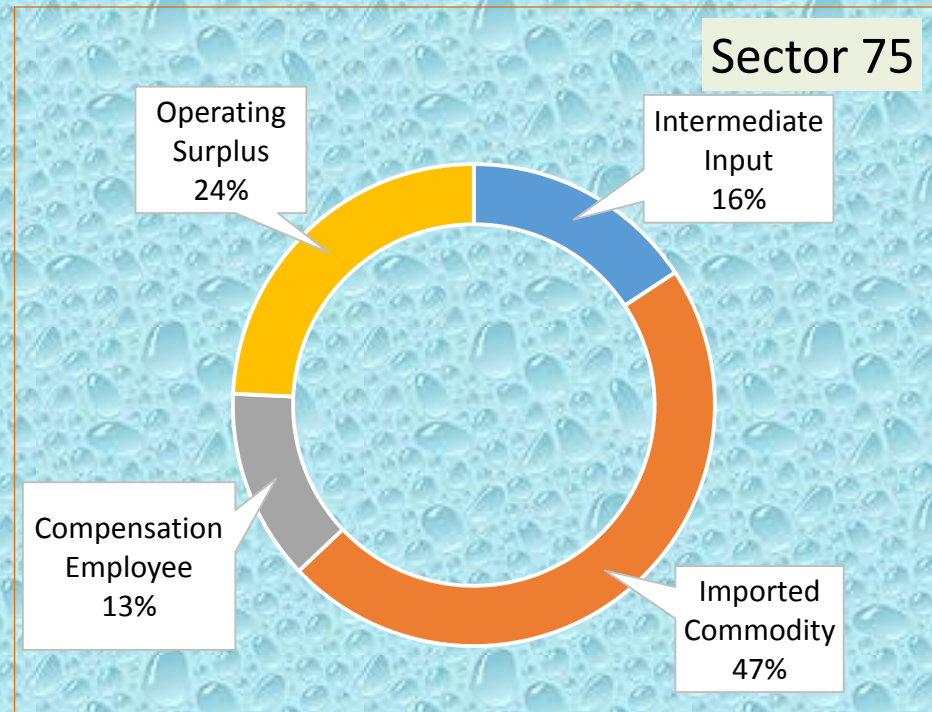
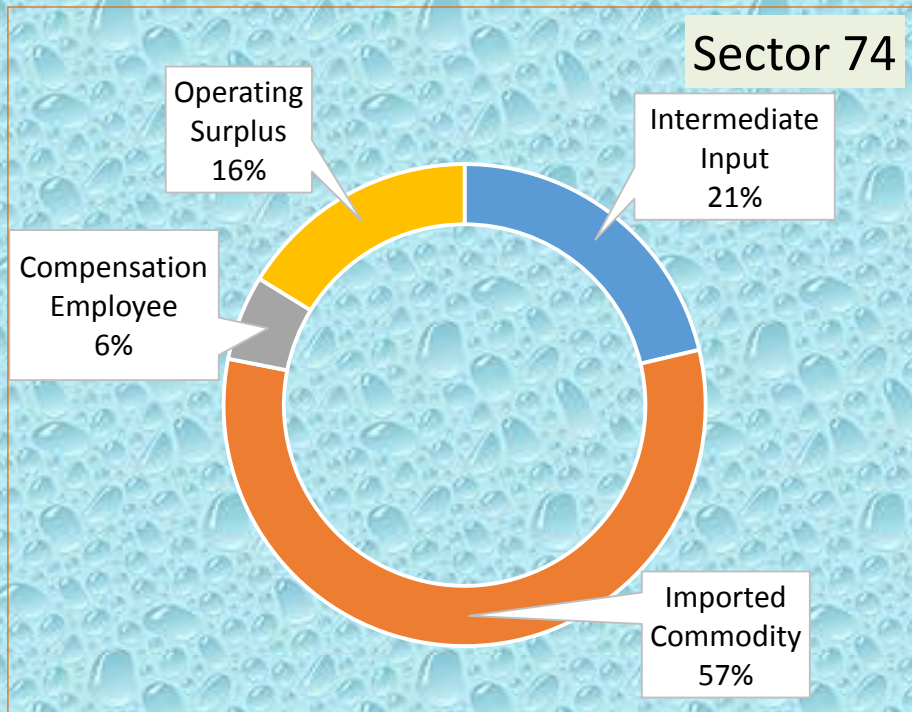
Input Structure



2005

*NOTE: Sector 21 = Oils and Fats
Sector 6 = Oil Palm*

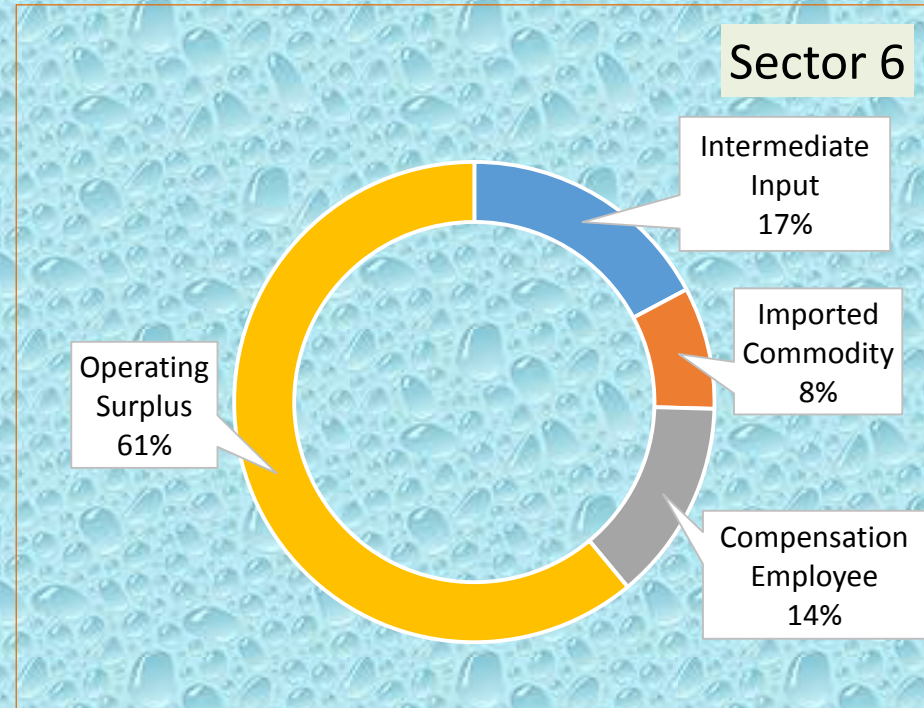
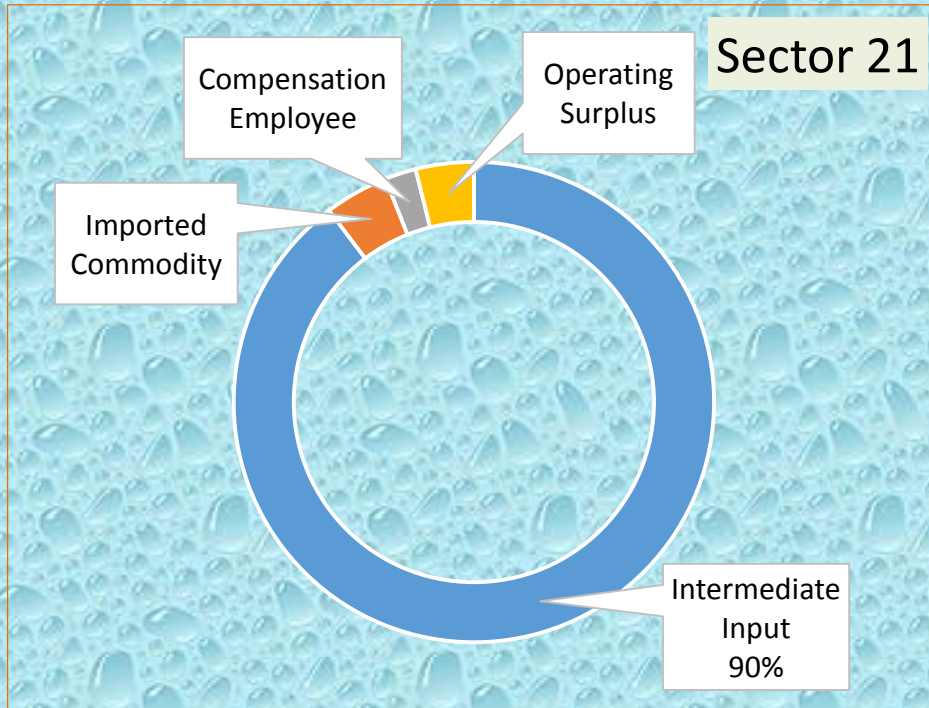
Input Structure



2010

*NOTE: Sector 74 = Semi-Conductor Devices, Tubes and Circuit Boards
Sector 75 = TV, Radio Receivers & Transmitters & Asso. Goods*

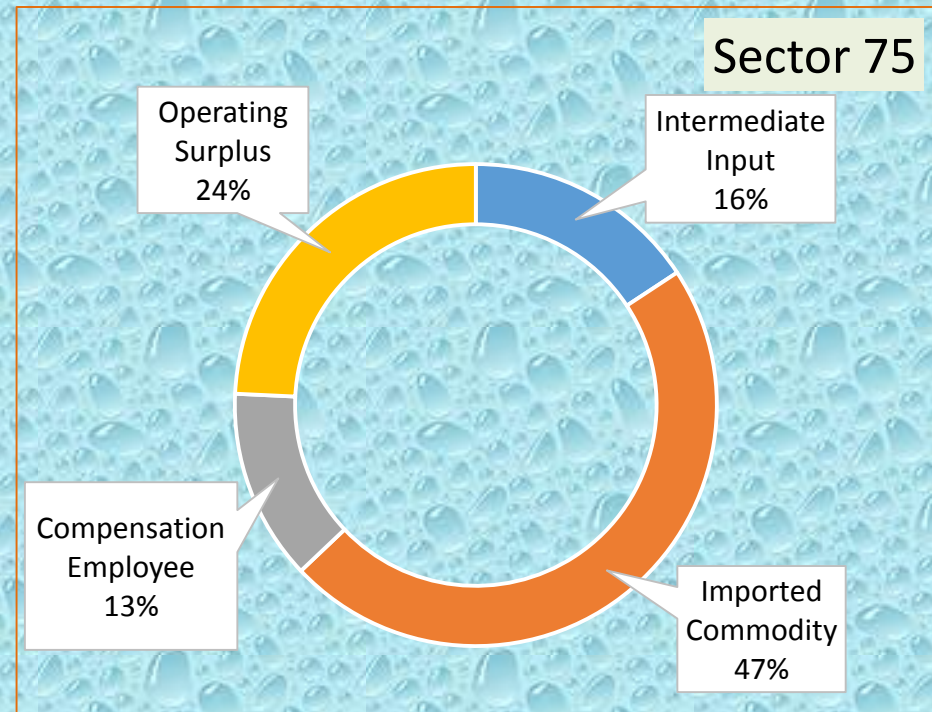
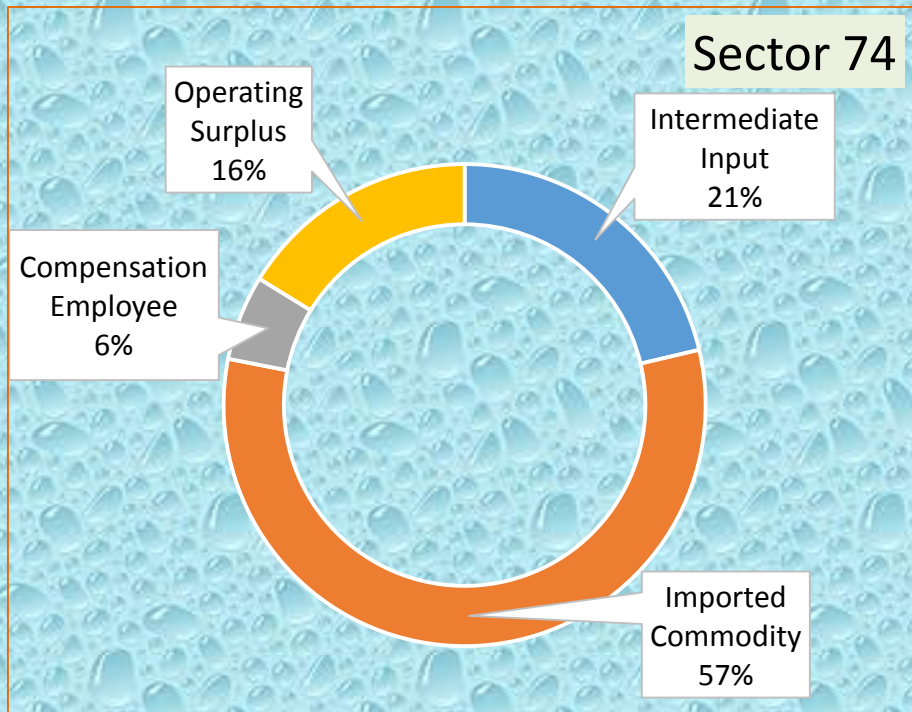
Input Structure



2010

*NOTE: Sector 21 = Oils and Fats
Sector 6 = Oil Palm*

Input Structure



2010

*NOTE: Sector 74 = Semi-Conductor Devices, Tubes and Circuit Boards
Sector 75 = TV, Radio Receivers & Transmitters & Asso. Goods*

Source of Overall Output Growth

Source of Demand	Formula	OVERALL	
		1991-2005	1991-2010
Export DD	$R(E1-E0)\%$	51.04%	43.62%
Domestic DD	$R(\mu1(D1-D0))\%$	12.44%	25.98%
Intermediate DD	$R(\mu1(A1-A0)X0)\%$	7.73%	9.36%
Import Subs	$R((\mu1-\mu)(A0X0+D0))\%$	28.80%	21.05%
TOTAL		100.00%	100.00%

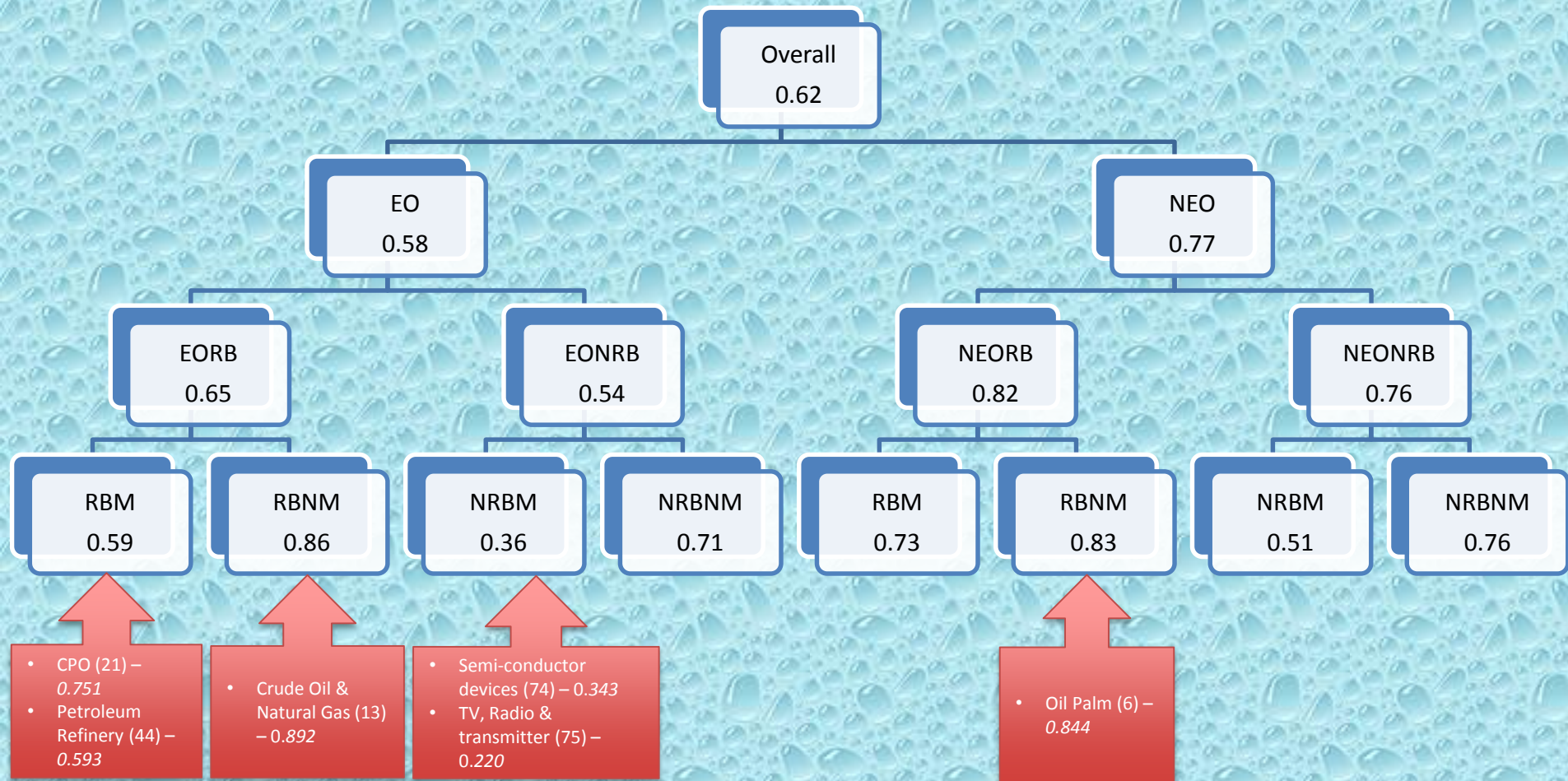
- ◆ In 1991-2005, export demand has shown the highest contribution to output growth, followed by Import substitution.
- ◆ While in 1991-2010, it is slightly decrease in export demand contribution to output growth,

Important to identify source of output growth in Resource Based & Non-Resource Based Industries

Source of Demand	Resource Based		Non-Resource Based	
	1991-2005	1991-2010	1991-2005	1991-2010
Export DD	57.33%	49.87%	48.39%	39.64%
Domestic DD	4.04%	17.86%	15.98%	31.14%
Intermediate DD	8.02%	6.90%	7.60%	10.91%
Import Subs	30.60%	25.37%	28.04%	18.30%
TOTAL	100.00%	100.00%	100.00%	100.00%

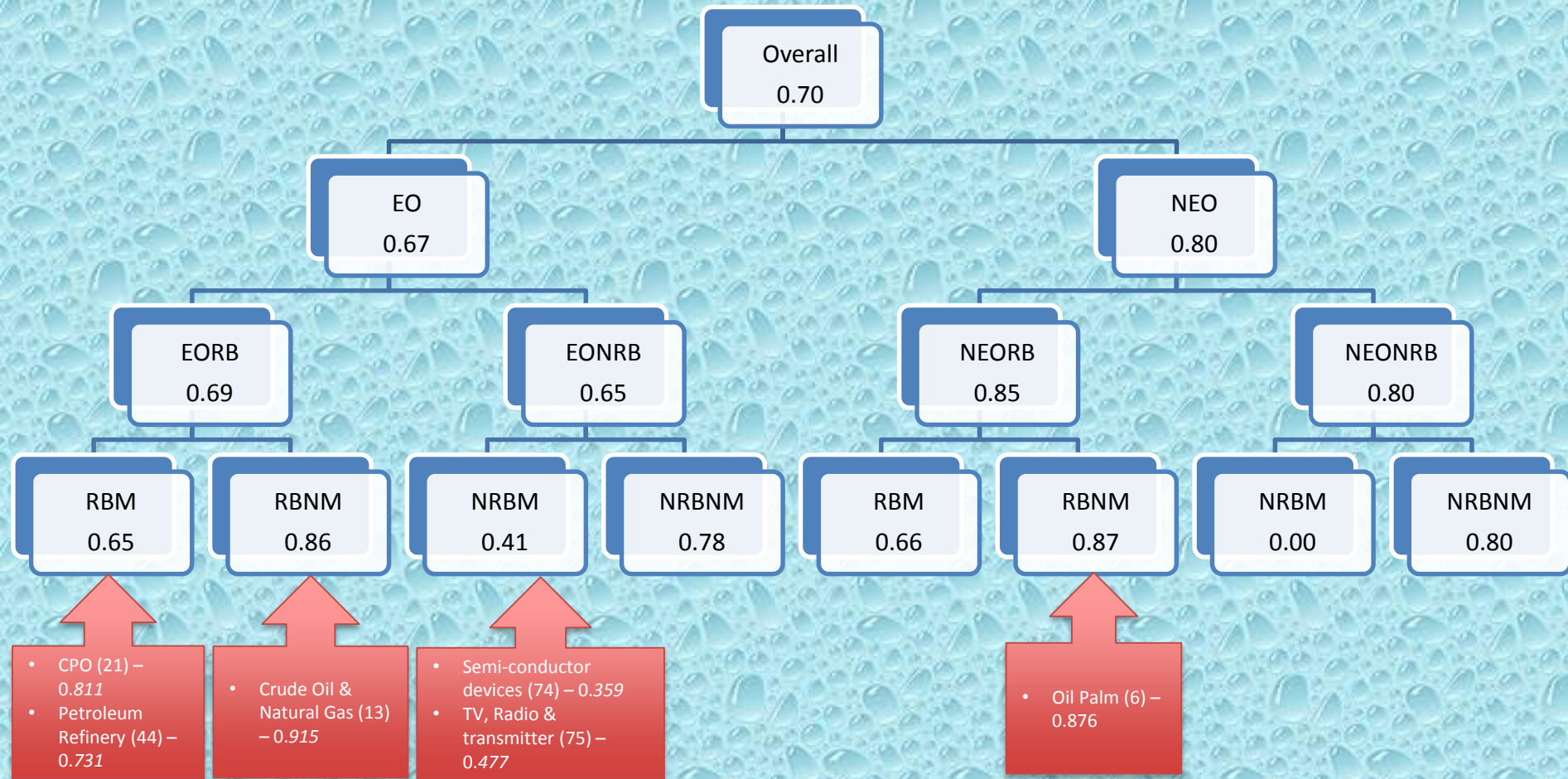
- ◆ With respect to sources of output growth, *Resource Based* industry is more dependent on export demand, while *Non-Resource Based* industry is more dependent on domestic demand.
- ◆ In both industries, *Domestic Demand* become more significant over the period in contributing to output growth.

Important to know the primary input multiplier: Value Added (VA) Multiplier 2005



NOTE: Number in parentheses represent the number of sector
Number in italics represent the VA multiplier of the activity

Important to know the primary input multiplier: Value Added Multiplier 2010

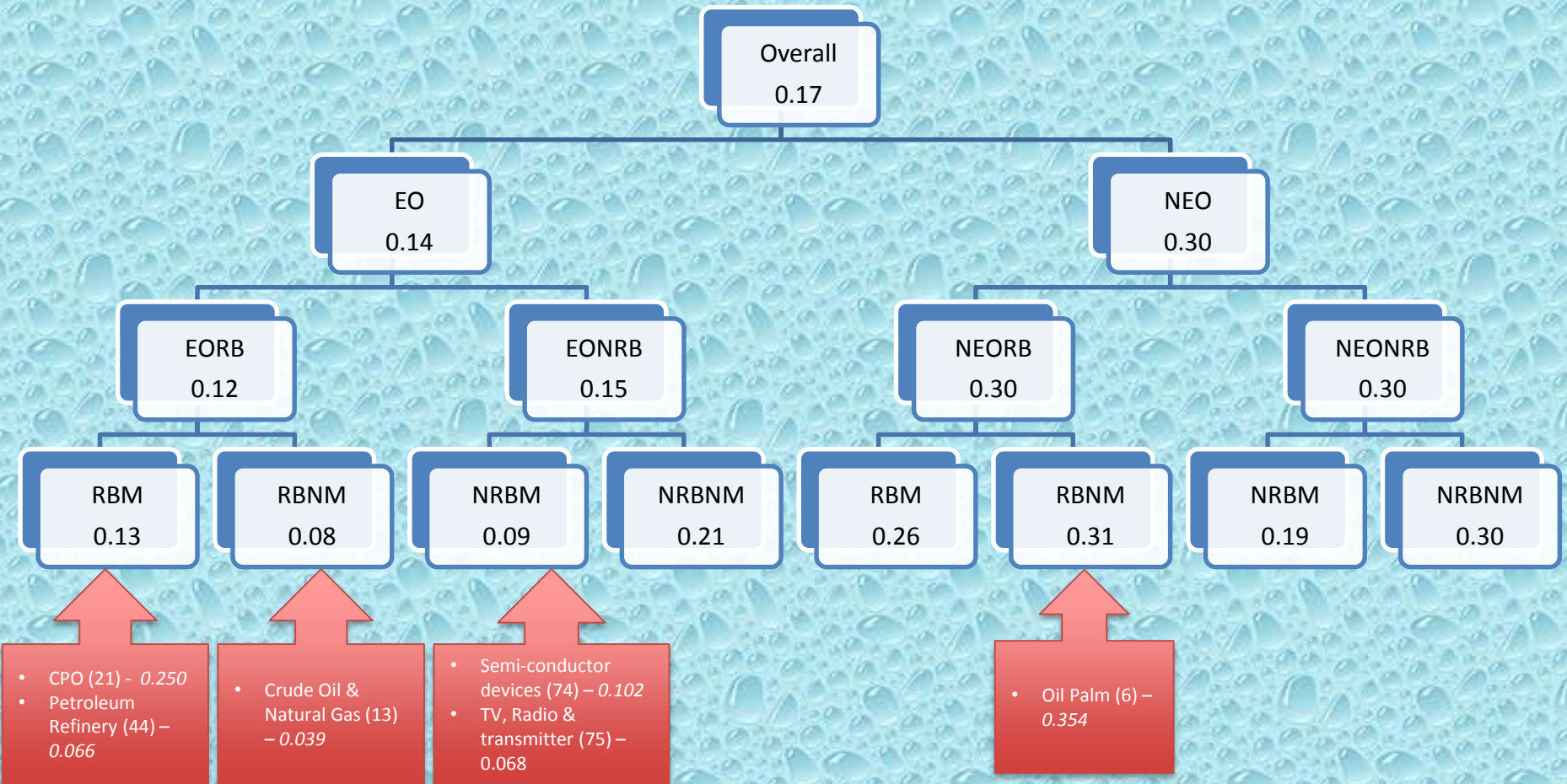


NOTE: Number in parentheses represent the number of sector
Number in italics represent the VA multiplier of the activity

Discussion

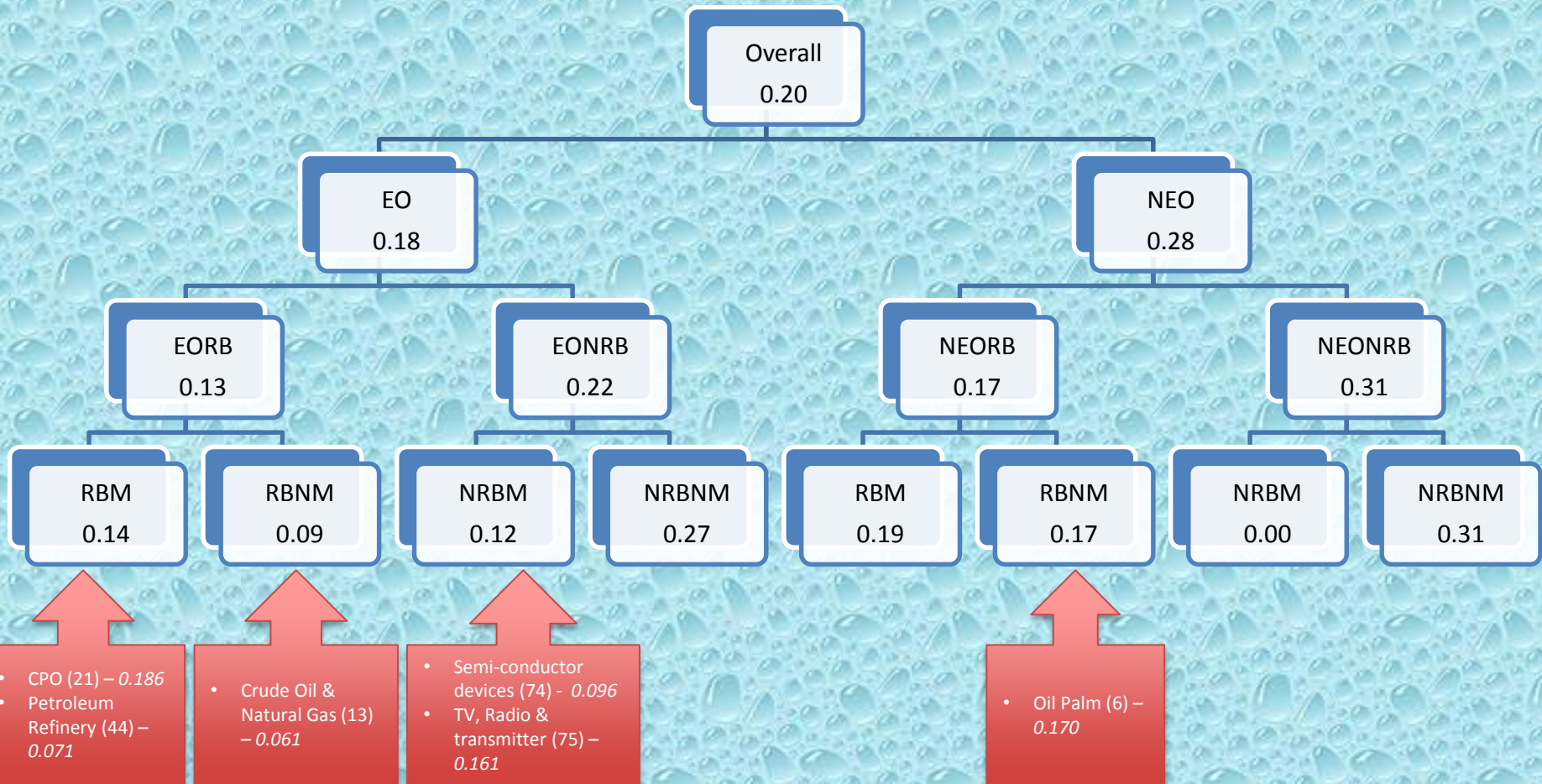
- ◆ Value added (VA) multiplier over time period has increased
- ◆ NEO has bigger VA multiplier
- ◆ Resource base multiplier bigger than non-resource base
- ◆ RBNM bigger than RBM
- ◆ NRBM is smallest

Important to know the primary input multiplier: Compensation Employee (CE) Multiplier 2005



NOTE: Number in parentheses represent the number of sector
Number in italics represent the CE multiplier of the activity

Important to know the primary input multiplier: Compensation Employee Multiplier 2010

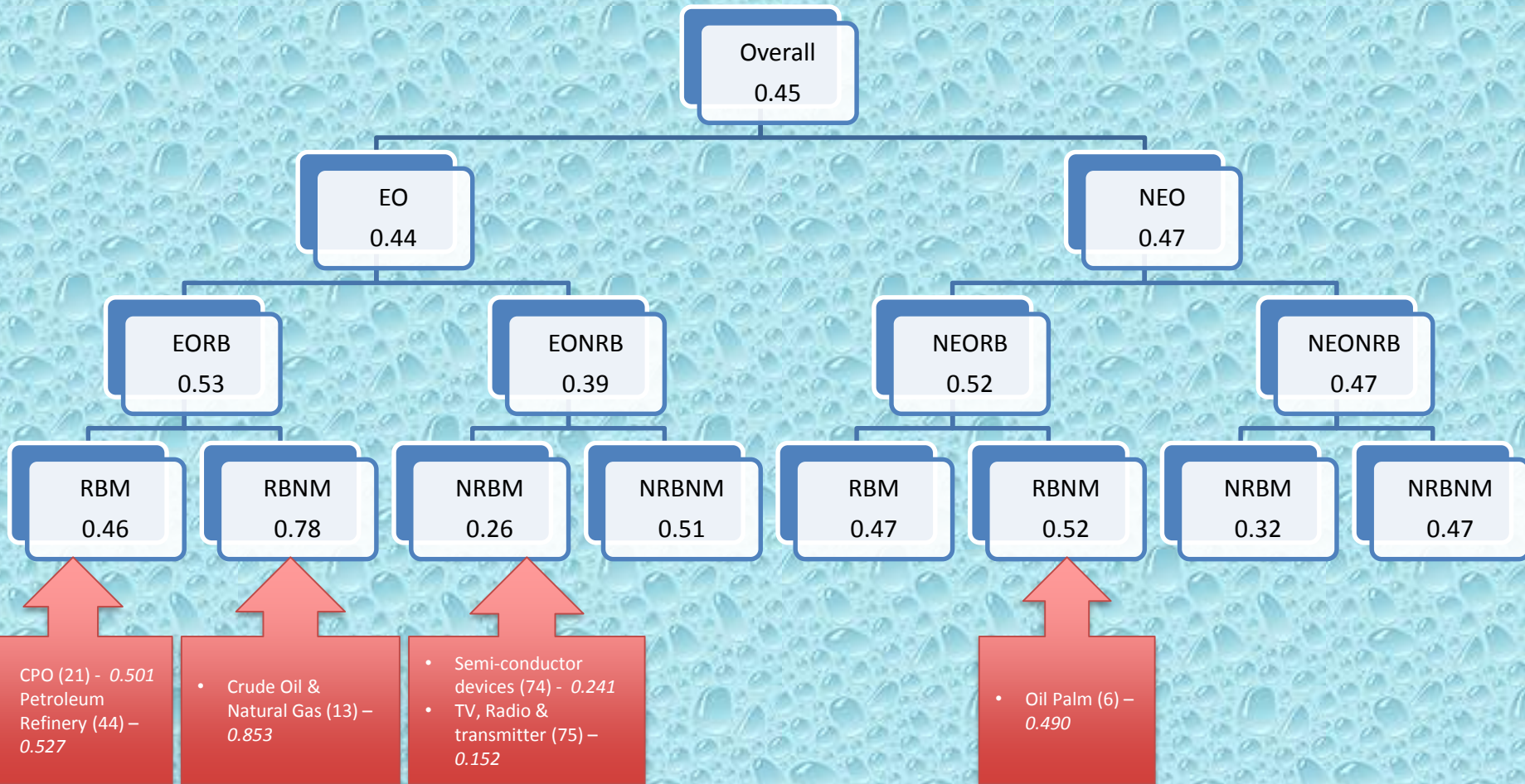


NOTE: Number in parentheses represent the number of sector
Number in italics represent the CE multiplier of the activity

Discussion

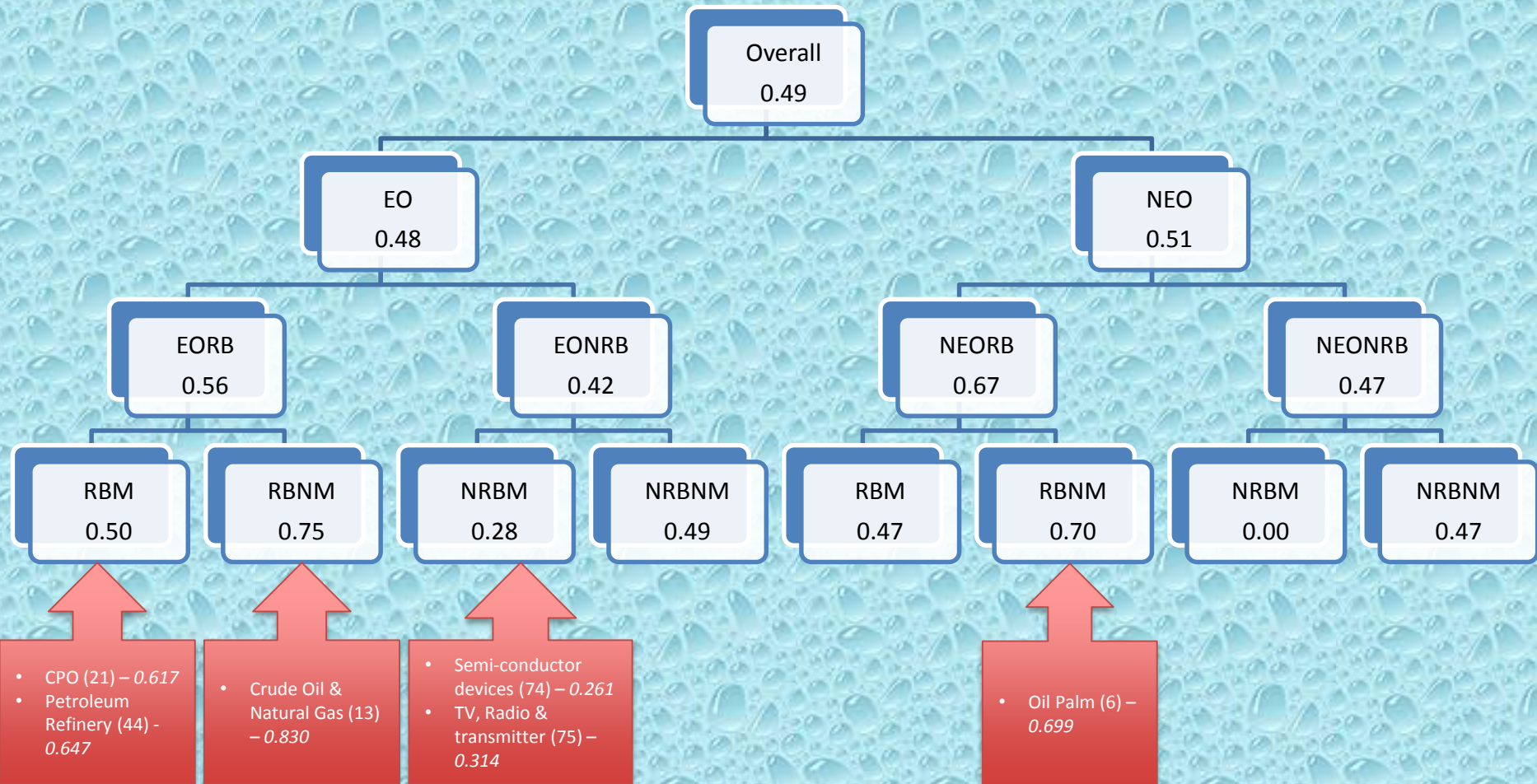
- ◆ Compensation employee (CE) multiplier has increased from 2005 to 2010
- ◆ NEO has bigger CE multiplier
- ◆ NEORB and NEONRB has bigger CE multiplier
- ◆ RBNM has smallest CE multiplier

Important to know the primary input multiplier: Operating Surplus (OS) Multiplier 2005



NOTE: Number in parentheses represent the number of sector
Number in italics represent the OS multiplier of the activity

Important to know the primary input multiplier: Operating Surplus Multiplier 2010

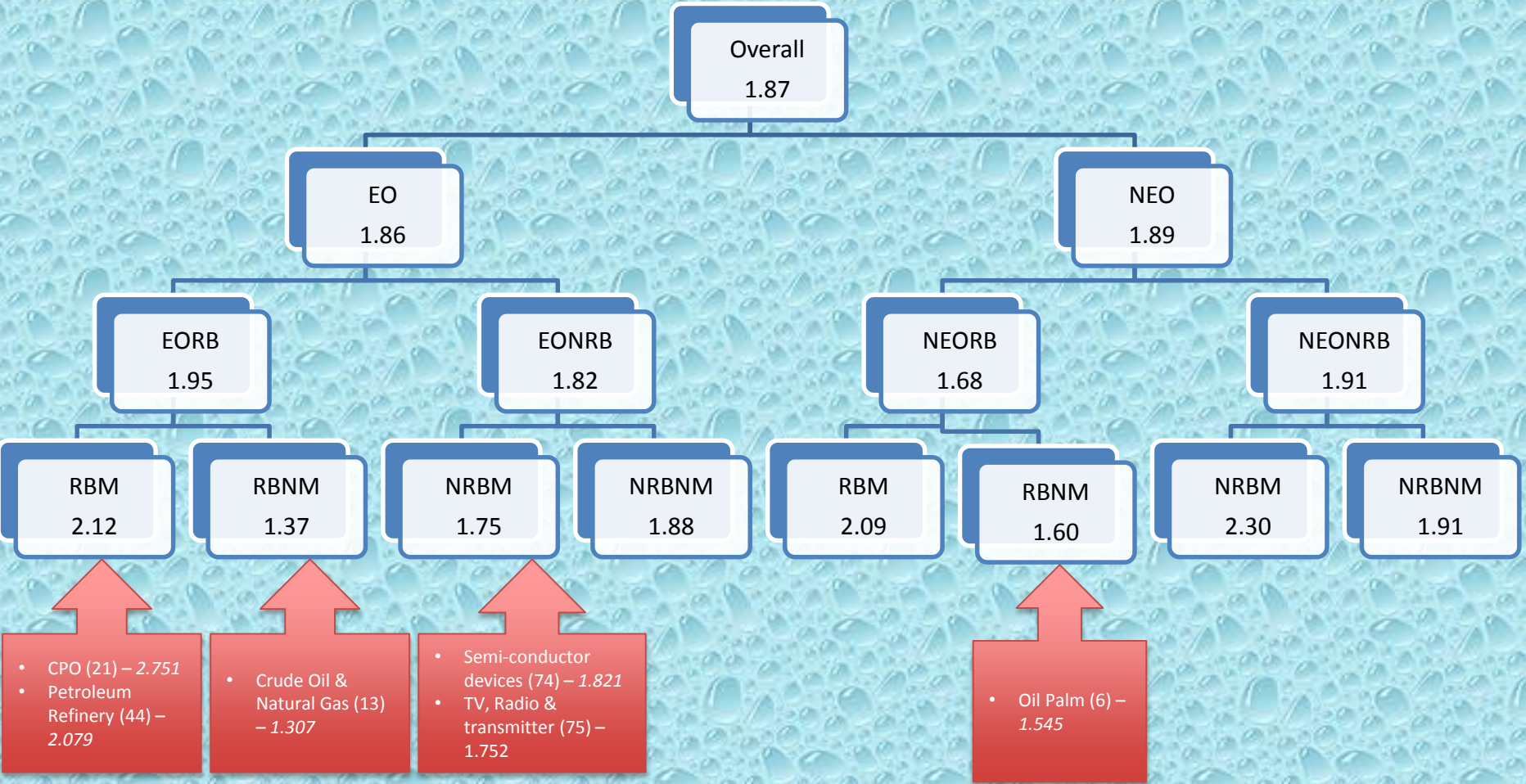


NOTE: Number in parentheses represent the number of sector
Number in italics represent the OS multiplier of the activity

Discussion

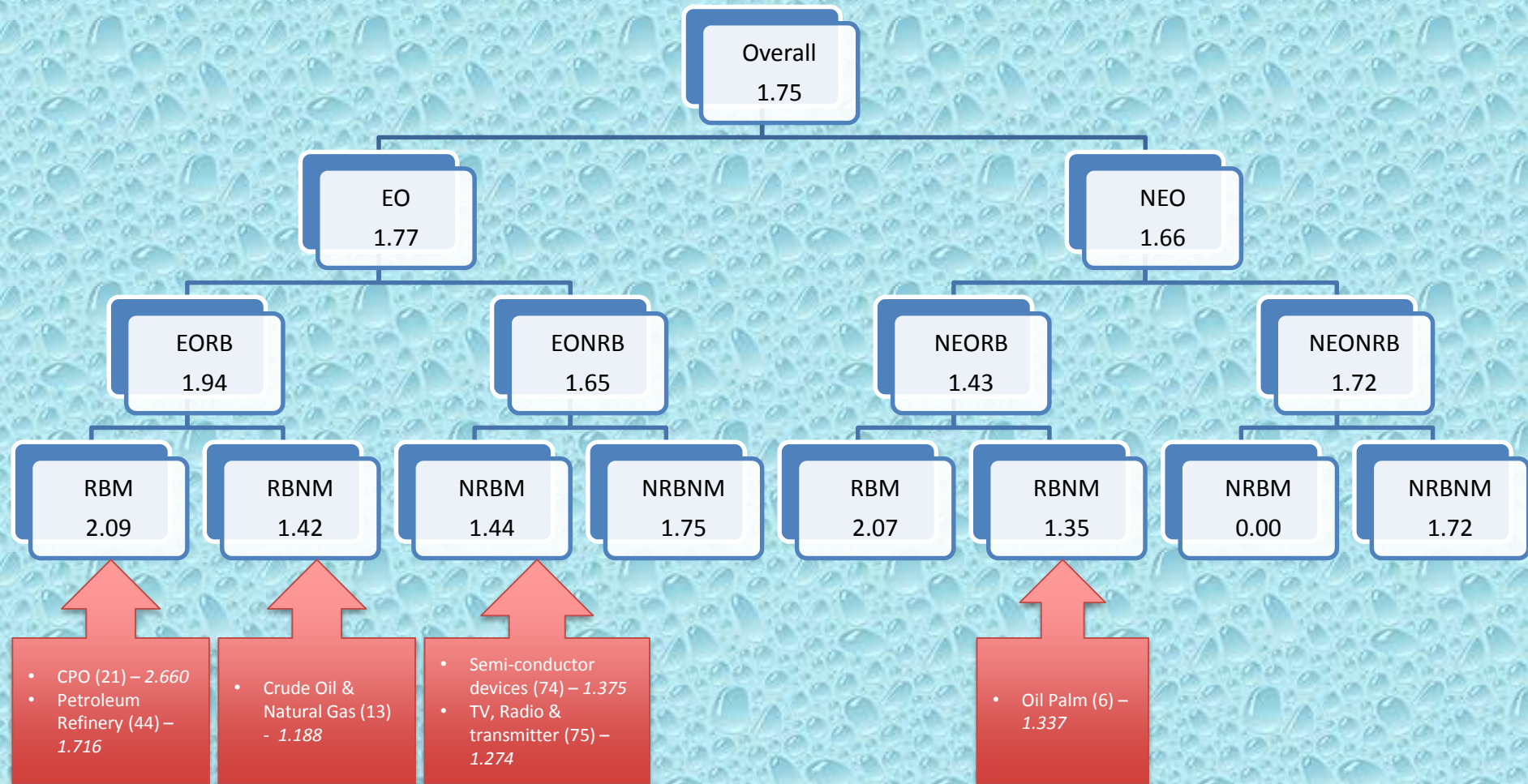
- ◆ Operating surplus (OS) multiplier has increased slightly from 2005 to 2010
- ◆ NEO has bigger OS multiplier
- ◆ NEORB has bigger OS multiplier in 2010

Important to know the primary input multiplier: Output Multiplier 2005



NOTE: Number in parentheses represent the number of sector
Number in italics represent the output multiplier of the activity

Important to know the primary input multiplier: Output Multiplier 2010

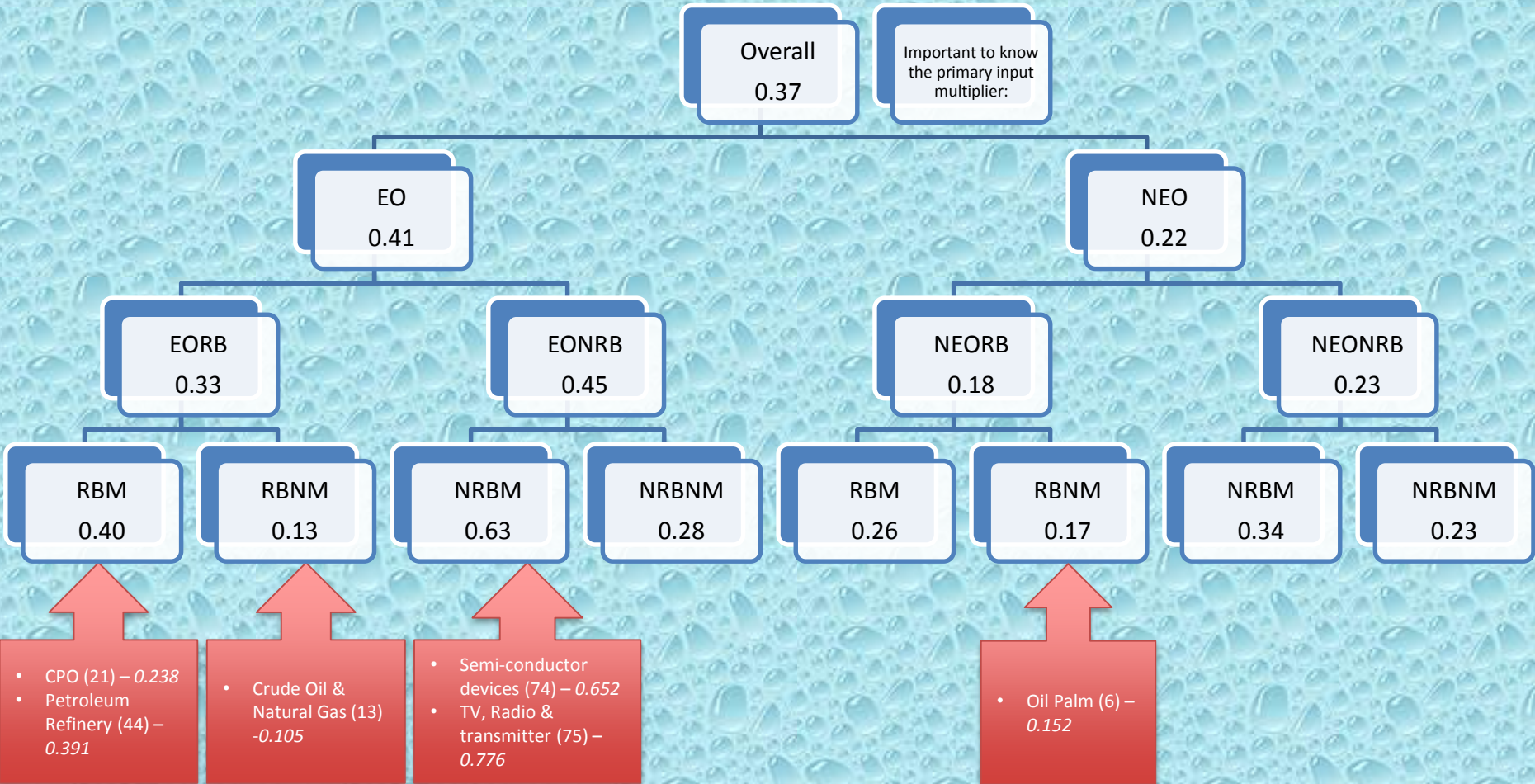


NOTE: Number in parentheses represent the number of sector
Number in italics represent the output multiplier of the activity

Discussion

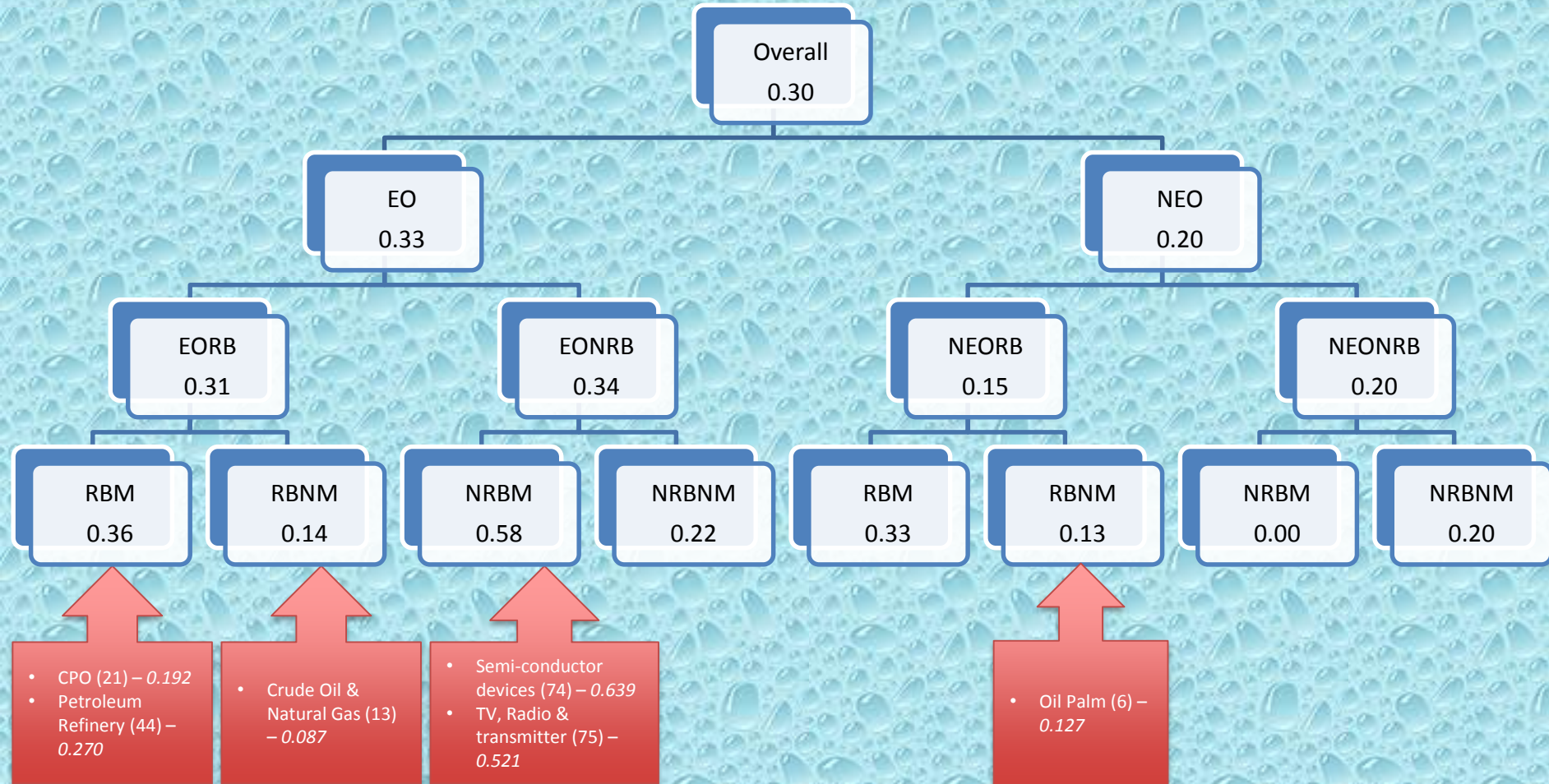
- ◆ Output multiplier has decreased from 2005 to 2010 – from 1.87 to 1.75
- ◆ NEO has larger output multiplier than EO in 2005; but in 2010 the output multiplier for EO is larger than NEO

Important to know the primary input multiplier: Imported Commodity Multiplier 2005



NOTE: Number in parentheses represent the number of sector
Number in italics represent the imported commodity multiplier of the activity

Important to know the primary input multiplier: Imported Commodity Multiplier 2010



NOTE: Number in parentheses represent the number of sector
Number in italics represent the imported commodity multiplier of the activity

Discussion

- ◆ Import multiplier over time period has decreased
- ◆ EO has bigger multiplier
- ◆ Non--Resource base multiplier bigger than resource base
- ◆ RBM bigger than NRBM
- ◆ RBNM is smallest in both EO and NEO

Policy Implications

- ◆ It is necessary to increasing participation in GVCs: VA for 74 and 75 low; but VA for 21 high
- ◆ Multiplier lowest for 74 and 75
- ◆ It is crucial to increase VA to ensure economic growth
- ◆ Sophistication index in those products is low
- ◆ While ideally we should aim for high ranked in both VA and sophistication index of our exports, most of ours are high in VA but low in sophistication index (normally found in primary commodity) or worse still low in both (normally found in E&E and wearing apparels).
- ◆ Productivity and technological sophistication should be upgraded
- ◆ If above not done, then there will be participation in GVCs without much gain to the country that hosts GVCs

Policy Implications

- ◆ Strategies taken in Malaysia to increase benefit from participation in GVCs:
 - Fostering environment for knowledge-intensive production
 - Enhancing investment incentives, including those for FDI
 - Upgrading human capital by reforming the labor market and its supply side, the education sector
 - Attracting knowledge-intensive and technology-intensive investments and discouraging labor-intensive investments
 - Encouraging technology transfer
 - Enhancing SME development for a more sustainable and inclusive industrialization
 - Setting up science and technology parks

Conclusion

- ◆ Industrial and trade policy should be viewed as part and parcel of national economic policy, especially with regards to value creation.
- ◆ Fragmented production networks and global value chains (GVCs) characterize trade and investments today
- ◆ Key sectors in the economy may be based on factor endowments in determining comparative advantage, which under dynamic setting can be created through structural reform.
- ◆ While structural reform is always relevant at all time, phasing out its implementation and prioritize amongst its varieties is more critical
- ◆ It is not enough to promote a country to participate in GVCs whose economic and social implications must also be looked into
- ◆ While VA is important in ensuring economic growth product sophistication will ensure sustainability in economic development and growth

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THANK YOU