

# TRADE IN VALUE ADDED: SPATIAL LINKAGES ANALYSIS

## Introduction

This study presents findings on the analysis of Trade in Value Added (TIVA) for Spatial Linkages analysis. Multi Regional Input-Output (MRIO) released by Asian Development Bank (ADB) for reference year 2015 - 2021 is being used for the purpose of this analysis.

This paper aims to focus on Malaysia's interdependencies in the production structure using spatial linkages analysis with its eight major trading partners.

This analysis also able to compute the strength of economic connections among regions in an economy, and its evolution over time, for example, increasing regional self-sufficiency or increasing interregional dependence.

## Concept and Definition

The analysis is used to assess the types and intensities of spatial interdependence or connectedness. There are **two types of linkages** which are forward and backward linkages. Each Linkages consist of two components namely **intra**regional and **inter**regional component.

**Intra**regional Component refers to components within the region itself. It computes the intra regional dependence between all sectors within the same region.

**Inter**regional Component refers to components between the regions. It computes the inter regional dependence between all sectors for all regions.

## Spatial Linkages Analysis

### Overall Domestic and Interregional Consumption and Distribution of Malaysia, 2021

For the production of output, Malaysia uses most of the input that was produced domestically. About 71.2 per cent of the input consumption was domestically produced. While, the balance of 28.8 per cent was imported from other countries with 16.2 per cent was from Malaysia's major trading partners.

## Spatial Linkages Analysis (cont.)

China was Malaysia's main trading partner where 7.6 per cent input consumption for the production of output was imported from China. This was followed by USA (1.9%) and Singapore (1.8%).

In terms of output distribution, Malaysia distributed more than twice of the domestic output compared to exported output. Total domestic output registered at 68.9 per cent while 31.1 per cent was exported to other countries in 2021.

Malaysia's major trading partners received 18.1 per cent of the exported output with China as the main trading partner for exports (8.4%). This was followed by USA (3.5%) and Japan (1.6%).

### Backward Linkage or Consumption of Inputs for Malaysia, 2021

**Table 1.** The **Intraregional** and **Interregional Consumption** of input for Malaysia by Major Trading Partners for the year 2021

Economy	Intraregional Strength	Interregional Strength
<b>MAL</b>	71.2%	28.8%
<b>MTP</b>	<b>Interregional Strength</b>	
<b>HKG</b>	0.2%	
<b>IND</b>	0.6%	
<b>JPN</b>	1.8%	
<b>KOR</b>	1.2%	
<b>PRC</b>	7.6%	
<b>SIN</b>	1.8%	
<b>THA</b>	0.9%	
<b>USA</b>	1.9%	
<b>ROW</b>	12.6%	

\*ROW: Rest of the world

### Forward Linkage or Distribution of Outputs of Malaysia, 2021

**Table 2.** The **Intraregional** and **Interregional Distribution** of output of Malaysia by Major Trading Partners for the year 2021

Economy	Intraregional Strength	Interregional Strength
<b>MAL</b>	68.9%	31.1%
<b>MTP</b>	<b>Interregional Strength</b>	
<b>HKG</b>	0.2%	
<b>IND</b>	1.4%	
<b>JPN</b>	1.6%	
<b>KOR</b>	0.8%	
<b>PRC</b>	8.4%	
<b>SIN</b>	1.5%	
<b>THA</b>	0.8%	
<b>USA</b>	3.5%	
<b>ROW</b>	12.9%	

Source: Calculations using ADB MRIO



China  
(PRC)



Korea  
(KOR)



United States  
(USA)



Japan  
(JPN)



Singapore  
(SIN)



Thailand  
(THA)



India  
(IND)



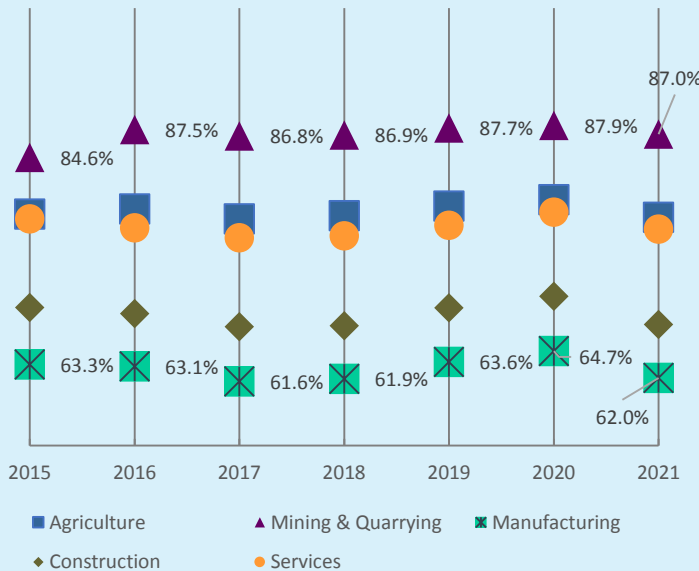
Hong Kong  
(HKG)



## Analysis by Sectors in Malaysia

### Backward Linkage or Input Consumption of Malaysia by Five Main Sectors, 2015 - 2021

**Exhibit 1. Intraregional Consumption** of input of Malaysia by Sectors, 2015 - 2021

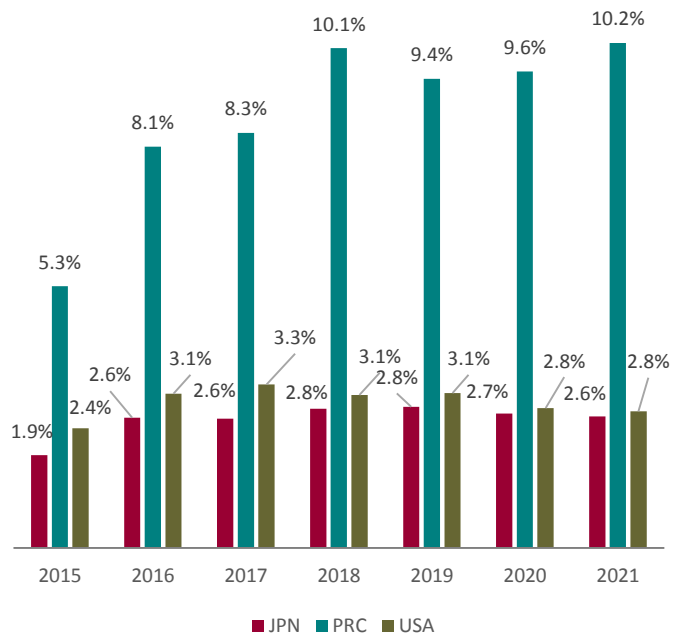


From 2015 until 2021, The **Mining & Quarrying** sector has the **highest intraregional consumption** of input with more than **80 per cent** every year. The intraregional consumption has been steadily increasing from 84.6 per cent in 2015 to 87.0 per cent in 2021. The highest was 87.9 per cent in 2020 with the rest of 12.1 per cent are input that has been imported from other countries.

Source: Calculations using ADB MRIO

**Exhibit 2. Interregional Consumption** of the **Manufacturing Sector** in Malaysia by Top Three Major Trading Partners, 2015 - 2021

The **top three trading partners** were **China, USA and Japan** with total contribution of 15.6 per cent. China has been the major trading partner for Malaysia's Manufacturing sector in supplying input for the output production. Throughout 2015 to 2021, China has the highest share of imported input with the highest contribution of 10.2 percent out of total input needed in 2021.

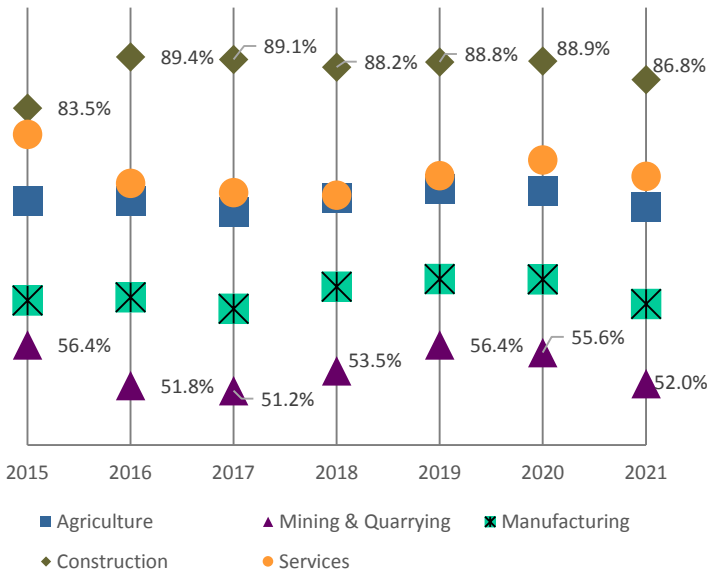


Source: Calculations using ADB MRIO

The interregional consumption of the Malaysia's **Manufacturing sector** was **38.0 per cent** with 21.2 per cent are from the major trading partners in 2021.

## Forward Linkage or Output Distribution of Malaysia by Five Main Sectors, 2015 - 2021

**Exhibit 3. Intraregional Distribution** of Output of Malaysia by Sectors, 2015 - 2021



Source: Calculations using ADB MRIO

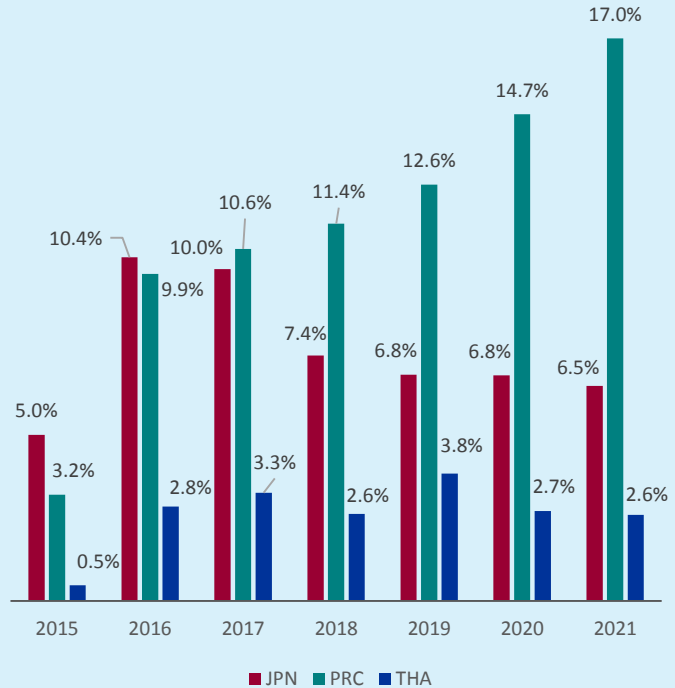
The **Construction** sector has the **highest share output** used for **domestic production**. From 2015 until 2021, **more than 80.0 per cent** of the Construction sector's output were used by other domestic sectors every year.

In 2021, the Construction sector distributed 86.8 per cent of its output to other domestic sectors and 13.2 per cent as exported output to other countries.

**Exhibit 4. Interregional Distribution** of the **Mining & Quarrying** Sector in Malaysia by Top Three Major Trading Partners, 2015 - 2021

For the **Mining & Quarrying** sector, **48.0 per cent** of the output produced was exported to other countries in 2021. More than half of the output was exported to the Malaysia's major trading partners with a share of 33.7 per cent of the total interregional consumption.

The **top three trading partners** were **China, Japan and Thailand** with a total share of interregional distribution of 26.1 per cent. Similar to imported input, China is the major trading partner of Malaysia's export in 2021 as shown in **Exhibit 4**.



Source: Calculations using ADB MRIO

**Disclaimer:**

This article in this newsletter is the initiative of DOSM officers. The views expressed are those of the authors and do not necessarily represent the view of DOSM.



## "Statistics Bloom in Harmony"

Doesn't matter far or near  
Strength in numbers  
we don't live in fear

Birds of feather flock together  
Statistics our form of adour  
We, will always live it up

Prechorus  
So let us live in solidarity  
And in the world arena we'll succeed  
It is statistics that will come to be  
The reason we will bloom in harmony

Chorus

Everybody undivided  
Data's where our hearts reside in  
There will always be a bind

Just like fire that ignites  
That's how brightly lit our dreams are  
We'll reach higher than the stars

Sending love to one another  
Leaving no one in a slumber  
We will stand with unity

Mustering our courage while  
Embracing our disparities  
We'll achieve our victory

One dream with unity  
One love with harmony

## "Statistik Segalanya Pasti"

Tak kira walau apa  
Cabaran dan aral melintang  
Statistik meringankan  
Segala beban yang menjelma  
Gementar tiada

Prechorus  
Bersama kita teguh hadapi  
Bentala dipenuhi misteri  
Namun statistik kan melindungi  
Statistik petunjuk realiti

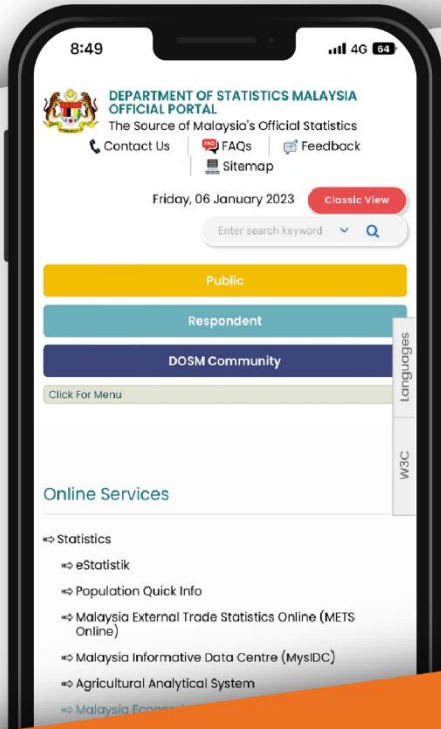
Chorus  
Kesejahteraan negara  
Perpaduan seluruh bangsa  
Dengan irama data  
Tidak hanya berbicara  
Pagi hingga ke senja  
Semangat yang terus membara  
Data dan kehidupan berteraskan harapan  
dan impian kemakmuran  
Segalanya pasti  
Bergalaskan strategi  
Menuju aspirasi

Harapan.. Keamanan  
Impian... Kedamaian..





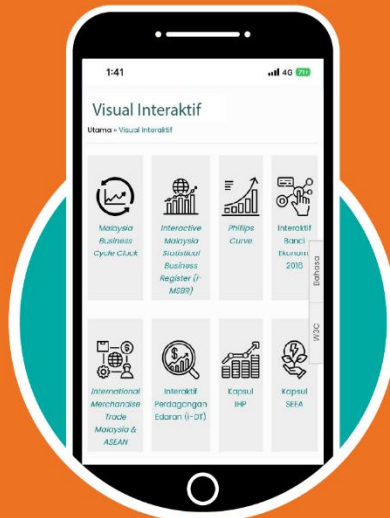
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