

Part I

Price Impact Analysis on Other Industrial Subsectors by Removing Energy Subsidies in Malaysia: Applying the 2010 Malaysian Input-Output Table

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Part I

PRICE IMPACT ANALYSIS ON OTHER INDUSTRIAL SUBSECTORS BY REMOVING ENERGY SUBSIDIES IN MALAYSIA: APPLYING THE 2010 MALAYSIAN INPUT-OUTPUT TABLE

1.1 Introduction

Compared to some of ASEAN members, Malaysia is one of the developed countries with its total primary energy consumption is estimated to increase by 2.9 percent annually from 2012 to 2035 (business-as-usual scenario). The share of demand for fossil fuel-based energy (i.e. coal and oil) will remain the largest (59 percent) in 2035 (ERIA, 2015). This increasing energy demand in Malaysia is largely driven by the stable economic growth as well as the relatively low energy prices due to its previous energy subsidy policy on electricity and transport fuel (gasoline and transport diesel) across sectors. In many countries, including Malaysia, the government administratively determines energy prices instead of using the market mechanisms. The energy subsidy is mainly designed to achieve several objectives, particularly to make energy more affordable for all. Consequently, the government has to pay a high level of subsidy on the consumption of energy. In 2010, energy subsidy in Malaysia accounted for 4.1 percent of the total gross domestic product (GDP) with per-capita subsidy amounting to US\$200 (IEA, 2015). Although electricity and transport fuel are subsidised, the share of the subsidy is now declining due to Malaysia's energy subsidy rationalisation programme implemented since 2010. For the electricity sector, subsidised prices are applied to piped natural gas *per se*. While other types of fuel are charged at the market price such as coal, liquefied natural gas, medium fuel oil, and distillate. However, the subsidy for piped natural gas is being tapered by RM1.50/MMBtu every 6 months. Removing the subsidy in stages for piped natural gas in the electricity sector will be phased out until the price reaches market parity. In the case of transport sector, fuel subsidies were previously given to motorists who use RON95 and diesel. Starting 1 December 2014, fuel prices were floated and pegged according to the market price, which also advocates that transport fuel was no longer receiving government subsidies.

Having the increasing fiscal and environmental pressures generated by energy subsidies, international organisations such as the Asia-Pacific Economic Cooperation (APEC) has been advocating its member states to remove subsidies gradually and completely. Malaysia is one of the member countries challenged to remove its energy subsidies that comprise of subsidy for electricity, petroleum (gasoline), and transport diesel. Energy subsidy reforms will inevitably bring structural changes at all economic levels. In the short run, subsidy removal will increase prices in other industrial subsectors through price infection mechanism. This paper aims to estimate the price impact on other industry subsectors in circumstances where

transport fuel and electricity prices increase due to the removal of energy subsidies using the 2010 Malaysian I-O table. To begin with, this paper will explain the data and methodology used to estimate the price impacts. Subsequently, the paper draws out the result and the last part attempts to conclude based on its findings.

1.2 Data and Methodology

1.2.1 Data

Data used for this analysis are obtained from the 2010 Malaysian I-O Table. This table describes the production and consumption (of goods and services) relationships between producers and consumers within the economy (OECD, 2015). In particular, this study uses a symmetric I-O table (activity by activity) on the Absorption Matrix of Domestic Production at Basic Prices, 2010. The table is a non-competitive import type of I-O table, where the intermediate demand and final demand cover domestic products and exclude imports volume. Therefore, changes in the non-competitive I-O table – for example, the energy subsidy removal – would directly impact domestic production. It is appropriate to use the non-competitive I-O table is for this analysis since imported petroleum products is not significant, accounting for 6.7 percent (RM10.85 billion) from January to March 2016 (MATRADE, 2016). Similar to petroleum products, electricity imports to Malaysia are marginal (IEA, 2014). The table is compiled based on the System of National Accounts (SNA) 2008 and prepared in monetary values. In regards to SNA's recommendations, the Financial Intermediation Services Indirectly Measured in the 2010 I-O table is estimated by using reference rates. While Research and Development as well as Military Weapons Systems are compiled as part of Gross Fixed Capital Formation (Statistics Malaysia, 2014). The I-O table consists of three sectors: intermediate input and demand, final demand, and value-added. The intermediate input and demand calculates the consumption of different inputs used by industries to meet their production needs. The final demand sectors estimate the commodities consumed that are divided into domestic final demand and external demand. The value-added sector shows the distribution of national income, which consists of wages and salary to employees, depreciation of fixed capital, operating surplus, indirect tax, and subsidies.

The general structure of an I-O table is shown in Figure 1.1. There are 124 activities included in the symmetric I-O table used in this study. To avoid the occurrence of negative elements in the matrix structure, the symmetric I-O table is underpinned by the industry technology assumption: i.e. that commodities produced by industries have the same input structure (Statistics Malaysia, 2014).

Figure 1.1. General Structure of the 2010 Malaysian Input-Output Table

FROM \ TO		Activity	INTERMEDIATE DEMAND												FINAL DEMAND							
			1 Agriculture, Fishery & Forestry	2 Mining & Quarrying	3 Manufacturing	4 Electricity, Gas & Water	5 Construction	6 Wholesale & Retail Trade	7 Hotel & Restaurants	8 Transport & Communication	9 Finance & Insurance	10 Real Estate & Ownership of Dwellings	11 Business & Private Services	12 Government Services	TOTAL INTERMEDIATE DEMAND	Private Consumption	Government Consumption	Gross Fixed Capital Formation	Changes in Inventories	DOMESTIC DEMAND	Exports	TOTAL FINAL DEMAND
INTERMEDIATE INPUT	Agriculture, Fishery & Forestry	1	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>QUADRANT 1 INTERMEDIATE INPUT</p> </div> <div style="width: 45%;"> <p>QUADRANT 2 FINAL DEMAND</p> </div> </div>												<p>QUADRANT 3 PRIMARY INPUT</p>		<p>TOTAL INTERMEDIATE DEMAND</p>		<p>TOTAL FINAL DEMAND</p>		<p>TOTAL DEMAND</p>	
	Mining & Quarrying	2																				
	Manufacturing	3																				
	Electricity, Gas & Water	4																				
	Construction	5																				
	Wholesale & Retail Trade	6																				
	Hotel & Restaurants	7																				
	Transport & Communication	8																				
	Finance & Insurance	9																				
	Real Estate & Ownership of Dwellings	10																				
	Business & Private Services	11																				
	Government Services	12																				
	TOTAL INTERMEDIATE INPUT																					
PRIMARY INPUT	Imported Commodities																					
	Taxes on Products																					
	Subsidies on Products																					
	Gross Value Added																					
	Compensation of Employees																					
	Other Net Taxes on Production																					
	Operating Surplus, Gross																					
	Consumption of Fixed Capital																					
	Operating Surplus, Net																					
	TOTAL OUTPUT																					

Source: Statistics Malaysia (2014).

1.2.2 Aggregation to 28 Sectors

Considering that this study aims to assess the price impact to the larger industrial sectors rather than to identify the price impact per activity/ies, the identified activities need to be aggregated into sectors. Table 1.1 shows the aggregation of 124 activities to 28 sectors.

Table 1.1 Aggregation to 28 Sectors

No.	Sector	Activity
1	Agriculture, Fishery and Forestry	1. Paddy
		2. Food Crops
		3. Vegetables
		4. Fruits
		5. Rubber
		6. Oil Palm
		7. Flower Plants
		8. Other Agriculture
		9. Poultry Farming
		10. Other Livestock
		11. Forestry and Logging
		12. Fishing
2	Crude Oil and Natural Gas	13. Crude Oil and Natural Gas
3	Mining and Quarrying	14. Metal Ore Mining
		15. Stone Clay and Sand Quarrying
		16. Other Mining and Quarrying

No.	Sector	Activity
4	<i>Food, Beverage, and Tobacco</i>	17. Meat and Meat Production
		18. Preservation of Seafood
		19. Preservation of Fruits and Vegetables
		20. Dairy Production
		21. Oils and Fats
		22. Grain Mills
		23. Bakery Products
		24. Confectionery
		25. Other Food Processing
		26. Animal Feeds
		27. Wine and Spirit
		28. Soft Drink
		29. Tobacco Products
5	<i>Textile</i>	30. Yarn and Cloth
		31. Finishing of Textiles
		32. Other Textiles
		33. Wearing Apparel
		34. Leather Industries
		35. Footwear
6	<i>Wood and Wood Product</i>	36. Sawmilling and Planning of Wood
		37. Veneer Sheets, Plywood, Laminated & Particle Board
		38. Builders' Carpentry and Joinery
		39. Wooden and Cane Containers
		40. Other Wood Products
7	<i>Paper</i>	41. Paper and Paper Products and Furniture
		42. Publishing
		43. Printing
8	<i>Petroleum Refinery</i>	44. Petroleum Refinery
9	<i>Chemicals</i>	45. Basic Chemicals
		46. Fertilisers
		47. Paints and Varnishes
		48. Pharmaceuticals, Chemicals, & Botanical Product
		49. Soap, Detergents, Perfumes, Cleaning, & Toilet Preparations
		50. Other Chemicals Product
		51. Tyres
		52. Rubber Processing
		53. Rubber Gloves
		54. Rubber Products
		55. Plastics Products
		10
57. Clay and Ceramic		
58. Cement, Lime, and Plaster		

No.	Sector	Activity
		59. Concrete & Other Non-Metallic Mineral Products
11	<i>Iron and Steel Products</i>	60. Iron and Steel Products
12	<i>Basic Precious and Non-Ferrous Metals</i>	61. Basic Precious and Non-Ferrous Metals
13	<i>Metal Product</i>	62. Casting of Metals 63. Structural Metal Products 64. Other Fabricated Metal Products
14	<i>Industrial Machinery</i>	65. Industrial Machinery 66. General Purpose Machinery 67. Special Purpose Machinery
15	<i>Electrical Machinery</i>	68. Domestic Appliances 69. Office, Accounting, and Computing Machinery 70. Electrical Machinery and Apparatus 71. Other Electrical Machinery 72. Insulated Wires and Cables 73. Electric Lamps and Lighting Equipment
16	<i>Precise Machinery</i>	74. Semi-Conductor Devices, Tubes, and Circuit Boards 75. TV, Radio Receivers & Transmitters, & Asso. Goods 76. Medical, Surgical and Orthopaedic Appliances 77. Measuring, Checking & Industrial Process Equipment 78. Optical Instruments and Photographic Equipment 79. Watches and Clocks
17	<i>Transport Machinery</i>	80. Motor Vehicles 81. Motorcycles 82. Building & Repairing of Ships & Boats, Manufacture of Bicycle 83. Other Transport Equipment
18	<i>Other Machinery</i>	84. Other Manufacturing 85. Repair & Maintenance
19	<i>Electricity and Gas</i>	86. Electricity and Gas
20	<i>Water</i>	87. Waterworks 88. Sewerage, Waste Collection, & Remediation Activities
21	<i>Construction</i>	89. Residential 90. Non Residential 91. Civil Engineering 92. Special Trade Works

No.	Sector	Activity
22	<i>Wholesale & Retail Trade, and Motor Vehicle</i>	93. Wholesale & Retail Trade, and Motor Vehicle
23	<i>Hotel and Restaurants</i>	94. Accommodation 95. Restaurants
24	<i>Transport and Communications</i>	96. Land Transport 97. Water Transport 98. Air Transport 99. Other Transport Services 100. Port and Airport Operation Services 101. Highway, Bridge and Tunnel Operation Services 102. Communications 103. Publishing Activity 104. Telecommunications 105. Cinema, Video and Television Activity 106. ICT & Computer Services
25	<i>Finance and Insurance</i>	107. Banks 108. Financial Institution 109. Insurance 110. Other Financial Institution
26	<i>Real Estate and Ownership of Dwellings</i>	111. Real Estate 112. Ownership of Dwellings
27	<i>Business and Private Services</i>	113. Rental and Leasing 114. Research and Development 115. Professional 116. Business Services 117. Private Non-Profit Institutions 118. Amusement and Recreational Services 119. Other Private Services
28	<i>Government Services</i>	120. Public Administration 121. Education 122. Health 123. Defence and Public Order 124. Other Public Administration

Source: Malaysian Input-Output Table (2010), as compiled by authors.

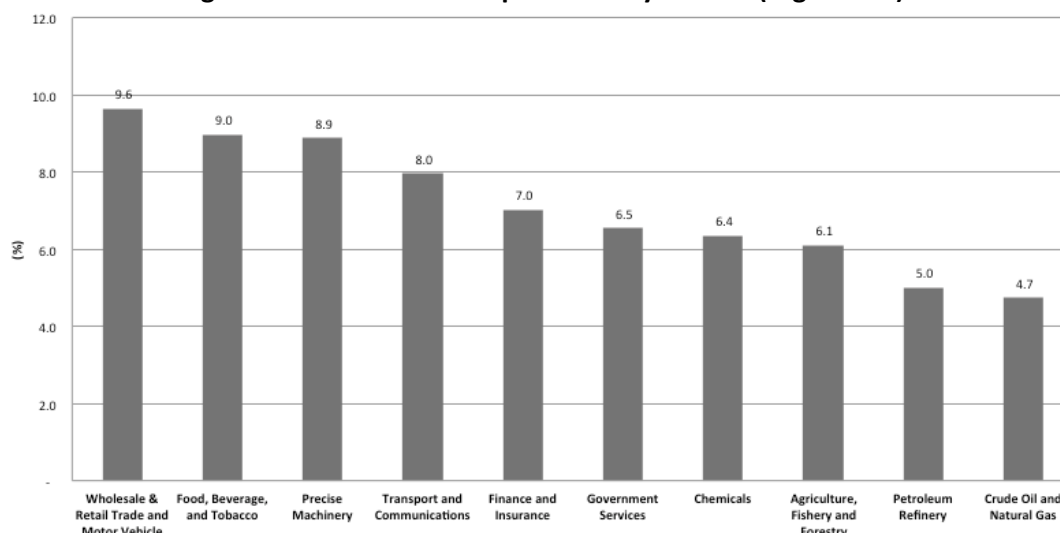
1.2.3 Review of Current Industry Activity in Malaysia

Malaysia's production output in all its industry sectors (including agriculture and service sectors) reached RM2,074 billion in 2010. Looking at the demand side, the intermediate demand accounted for RM866 billion (42 percent) while final demand, including export, reached RM1,212 billion (58 percent). The final demand is broken down into its major components that are including: private consumption, RM356 billion (30 percent); government consumption, RM101 billion (8 percent); capital formation, RM100 billion (8 percent); and export, RM644 billion (53 percent). The fact that the share of export was higher than other

domestic demands implies that Malaysia’s production activities in Malaysia are largely depend on exports. Export demand nearly doubled that of private consumption.

Production output of energy subsectors in Malaysia, which consists of – crude oil and natural gas, petroleum refinery, and electricity & gas – amounted to RM238 billion (12 percent). However, the share of oil and gas sector, both upstream and downstream, was 10 percent despite of this sector being one of the major industry subsectors in Malaysia. The share was only 10 percent at monetary basis due to the low energy pricing as a result of ineffective energy subsidies. The highest production output shares was marked by wholesale & retail trade (9.6 percent); food, beverage and tobacco (9.0 percent); precise machinery (8.9 percent); and transport and communications (8.0 percent). Those numbers demonstrate that Malaysian industrial production was mainly led by the service sector, primary sector, and partly by the manufacturing sector (Figure 1.2).

Figure 1.2. Production Output Share by Sectors (Highest 10)

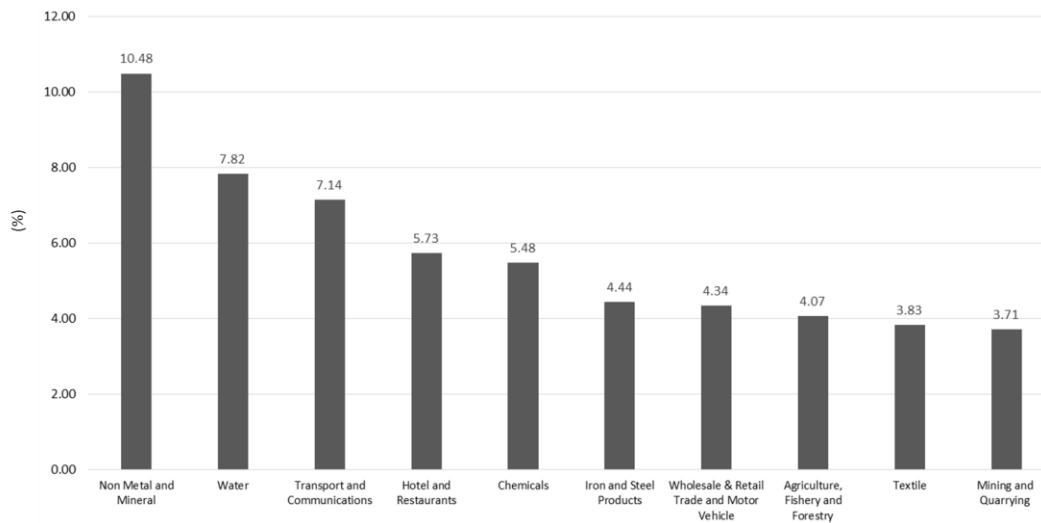


Source: Malaysia’s Input-Output Table (2010).

Figure 1.3 illustrates the extent of Malaysian sectors’ dependence on energy consumption. In this case, energy is defined to consist of petroleum products, electricity, and gas (downstream). The upstream oil and gas types were removed since more than 90 percent of the oil and gas output was inputted by the petroleum refinery sector.

Sectors with high dependency on energy include non-metal and mineral (mainly cement, 10.5 percent); water (7.8 percent); transport and communication (7.1 percent); and hotel and restaurants (5.7 percent). These sectors will be highly affected by price hikes in transport fuel and electricity when energy subsidies are removed.

Figure 1.3. Energy Dependency by Sectors



Source: Malaysia's Input-Output Table (2010).

1.2.4 Segregation of Electricity and Gas Sector

Electricity subsidies in Malaysia are for electricity users and electricity generators (IISD, 2013). In the 2010 Malaysian I-O Table, however, electricity and gas (downstream) are merged into one activity. As the energy subsidy is only applicable to electricity, electricity and gas sector should be separated into electricity sector and gas sector otherwise it would not provide a precise assessment of the impact of electricity subsidy removal. Two steps are needed to split the electricity and gas into electricity sector and gas sector, respectively. Firstly, separate electricity and gas input by other sector into electricity input and gas input, respectively, based on the share of electricity and gas consumption in industry sector. Information on electricity and gas consumption in the industry sector is also available in the Malaysia National Energy Balance Table 2010 (Appendix B). The share of input for electricity and gas is calculated as follows:

- Sector 1
Share of gas = 0.00
Share of electricity = 1.00
- Sector 2-18, 20-21
Gas consumption in industry sector = 5935 Ktoe
Electricity consumption in industry sector = 3994 Ktoe
Share of gas = $\frac{5935}{5935 + 3994} = 0.60$
Share of electricity = $1 - 0.6 = 0.40$
- Sector 19
Gas consumption for power generation = $12553 + 1025 = 13578$ Ktoe
Gas consumption for gas sector = 1431 Ktoe
Electricity consumption for electricity sector = 796 Ktoe

$$\text{Share of gas} = \frac{13578 + 1431}{13578 + 1431 + 796} = 0.95$$

$$\text{Share of electricity} = 1 - 0.95 = 0.05$$

Second, separate the input of other products in the electricity & gas sector into electricity sector and gas sector based on the output share of electricity & gas. Information regarding the output share of electricity and gas can be derived from the Malaysia National Energy Balance Table 2010 (APEC, 2010). The share of output for electricity and gas is calculated as follows:

- Sector 1-18, 20-28

Electricity consumption in final sector = 8993

Gas consumption in final sector = 6217

$$\text{Share of electricity} = \frac{8993}{8993 + 6217} = 0.59$$

$$\text{Share of gas} = 1 - 0.59 = 0.41$$

- Sector 19

Electricity sector

Share of electricity = 1.00

Share of gas = 0.00

Gas sector

$$\text{Share of electricity} = \frac{13578}{1431 + 13578} = 0.90$$

$$\text{Share of gas} = 1 - 0.90 = 0.10$$

1.2.5 Segregation of the Petroleum Refinery Sector

Transport fuel subsidies in Malaysia cover petrol (gasoline) and transport diesel (IISD, 2013). In the 2010 Malaysian I-O Table, note that petroleum products are merged under a single activity (petroleum refinery). Therefore, petroleum refinery should instead be split into: gasoline & transport diesel and other petroleum products so as to identify the price impact of the subsidy removal. Similar to the process used to separate the electricity from the gas, there are two steps undertaken to split petroleum refinery into the gasoline & transport diesel sector and other petroleum sector.

The first step is to separate the input for petroleum products by other sector to gasoline & transport diesel and other petroleum products. Information on the consumption of gasoline and transport diesel is derived from the Malaysia National Energy Balance Table 2010 (APEC, 2010). The shares of input for gasoline & transport diesel and other petroleum products are calculated as follows:

- Sector 1-7, 9-28

Gasoline for transport = 9560 ktoe

Diesel for transport = 4694 ktoe

Total final energy consumption = 24403 ktoe

$$\text{Share of gasoline \& transport diesel} = \frac{9560 + 4694}{24403} = 0.58$$

$$\text{Share of other petroleum products} = 1 - 0.58 = 0.42$$

- Sector 8

$$\text{Share of gasoline \& transport diesel} = 0.00$$

$$\text{Share of other petroleum products} = 1.00$$

Second, separate input of other products in the petroleum refinery sector into gasoline & transport diesel and other petroleum products. Similar to the previous stage, this step also use information on the consumption of gasoline and transport diesel that is available in the Malaysia National Energy Balance Table 2010 (APEC, 2010). Shares of the output for gasoline & transport diesel, and other petroleum products are calculated as follows:

- Sector 1-7, 9-28

$$\text{Gasoline production} = 3873 \text{ Ktoe}$$

$$\text{Transport diesel production} = 4694 \text{ Ktoe}$$

$$\text{Total product amount of refinery} = 21207 \text{ Ktoe}$$

$$\text{Share of gasoline and transport diesel} = \frac{3873 + 4694}{21207} = 0.40$$

$$\text{Share of other petroleum products} = 1 - 0.40 = 0.60$$

- Sector 8

Gasoline and transport diesel

$$\text{Share of gasoline and transport diesel} = 1.00$$

$$\text{Share of other petroleum product} = 0.00$$

Other petroleum products

$$\text{Share of gasoline and transport diesel} = 1.00$$

$$\text{Share of other petroleum products} = 0.00$$

The result of separating electricity & gas sector into electricity and gas, as well as the segregation of petroleum refinery sector into gasoline & transport diesel and other petroleum products is shown at Appendix 1.

1.2.6 Methodology

Based on an input-output matrix, price of j sector is described below (refer to Figure 1.4):

$$p_1 a_{1j} + p_2 a_{2j} + p_3 a_{3j} + \dots + p_{n-1} a_{n-1j} + p_n a_{nj} + v_j = p_j \quad (1)$$

Where:

p_1 : price of sector 1 product

a_{1j} : input coefficient defined as $a_{1j} = x_{1j}/X_j$

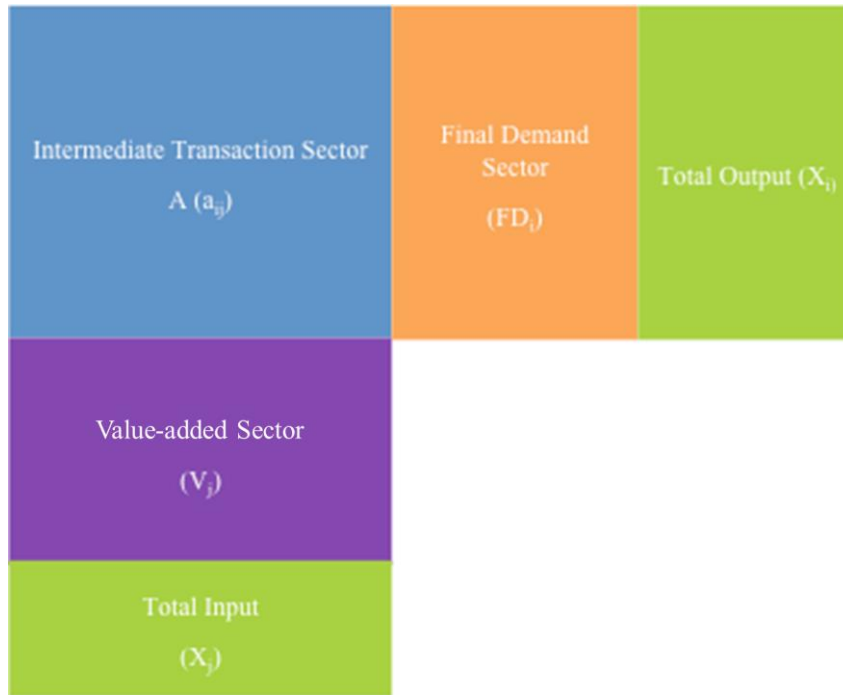
v_j : value-added ratio defined as $v_j = V_j/X_j$

x_{1j} : transaction from 1 sector to j sector (j sector purchase x_{1j} from sector 1)

V_j : total value-added of sector j

X_j : total input of sector j

Figure 1.4. Structure of Input-Output Table



Source: Malaysian Input-Output Table (2010).

After formula (1), change the matrix form and make n sector independent. The following matrix is thus obtained:

$$\begin{bmatrix} a_{11} & a_{21} & a_{31} & \dots & a_{n-11} \\ a_{12} & a_{22} & a_{32} & \dots & a_{n-1,2} \\ \cdot & & & & \\ \cdot & & & & \\ a_{1n-1} & a_{2n-1} & \dots & a_{n-1n-1} \end{bmatrix} \begin{bmatrix} p_1 \\ p_2 \\ \cdot \\ \cdot \\ p_{n-1} \end{bmatrix} + \begin{bmatrix} a_{n1} \\ a_{n2} \\ \cdot \\ \cdot \\ a_{nn-1} \end{bmatrix} \begin{bmatrix} p_n \end{bmatrix} + \begin{bmatrix} v_1 \\ v_2 \\ \cdot \\ \cdot \\ v_{n-1} \end{bmatrix} = \begin{bmatrix} p_1 \\ p_2 \\ \cdot \\ \cdot \\ p_{n-1} \end{bmatrix}$$

It is assumed that an increase of p_n does not affect v_j and change the above formula to relation between p_1, \dots, p_{n-1} and p_n . Then change p_n to Δp_n . The formula now becomes:

$$\begin{bmatrix} \Delta p_1 \\ \Delta p_2 \\ \cdot \\ \cdot \\ \Delta p_{n-1} \end{bmatrix} = \begin{bmatrix} [1 - a_{11} \quad -a_{21} \quad \dots \quad -a_{n-11}] \\ [-a_{12} \quad 1 - a_{22} \quad \dots \quad -a_{n-1,2}] \\ \cdot \\ \cdot \\ [-a_{1n-1} \quad -a_{2n-1} \quad \dots \quad 1 - a_{n-1n-1}] \end{bmatrix}^{-1} \begin{bmatrix} a_{n1} \\ a_{n2} \\ \cdot \\ \cdot \\ a_{nn-1} \end{bmatrix} \Delta p_n$$

Electricity and transport fuel sector will be selected to Δp_n . Subsequently, convert the above formula into the matrix form, as follows:

$$\Delta P = [(I-A)^{-1}]' ICV \Delta p_n$$

Where:

ΔP : Price vector ($\Delta p_1, \dots, \Delta p_{n-1}$)

I : Unit Matrix ($n-1, n-1$)

- A : Input Coefficient Matrix ($n-1, n-1$)
- -1 : Inverse
- $'$: Transpose
- ICV : Input Coefficient Vector of sector n (a_{n1}, \dots, a_{nn-1})

Consequently, the following steps are required:

- a. Remove electricity or transport fuel sector from input coefficient matrix: A (Appendix C and H)
- b. Apply unit matrix: $B = I - A$ (Appendix D and Appendix I)
- c. Inverse matrix: $C = B^{-1}$ (Appendix E and Appendix J)
- d. Transpose matrix: $D = C'$ (Appendix F and Appendix J)
- e. Price impact vector (final solution): $E = C' ICV$ (Appendix G and Appendix L)

1.3 Study Results

1.3.1 Price Impact by Removing Electricity Subsidies

The simulation shows that a removal of electricity subsidies increases price levels in all sectors analysed, in varying degrees. If the subsidy is removed and the electricity price increased by double (100 percent), the highest impact is seen in hotel and restaurants (5 percent). Following this sector are finance and insurance; water; and non-metal and mineral sector, which will all increase by 3 percent. A price hike equal to 2 percent will affect sectors such as government services, iron and steel products, business and private services, textile, and wood and wood products. While for other sectors, such as wholesale & retail trade and motor vehicle, gas, gasoline and transport diesel, other petroleum products, and crude oil and natural gas, the electricity subsidy removal has a small impact.

Under a scenario where electricity and gas sector are merged, an electricity subsidy removal will significantly impact the prices of water (7 percent), non-metals and minerals (6 percent), hotels and restaurants (6 percent), and iron and steel products (5 percent). The prices for some sectors increase due to electricity subsidy removal for some sectors is relatively higher than that under a scenario where the electricity sector is separate from the gas sector. For example, iron and steel products, textile, and wood and wood products are estimated to increase by 5 percent, 4 percent, and 3 percent, respectively. In contrast, if electricity & gas are separated, the price increase will only be 2 percent. Table 1.2 shows the price impact should the electricity subsidy be removed and both electricity and gas are kept as two separate sectors.

Table 1.2. Price Impact of Electricity Subsidy Removal

<i>Sector</i>	<i>Price Impact (%)</i>
1 Hotel and Restaurants	5.00
2 Finance and Insurance	3.00
3 Water	3.00
4 Non-Metal and Mineral	3.00
5 Government Services	2.00
6 Iron and Steel Products	2.00
7 Business and Private Services	2.00
8 Textile	2.00
9 Wood and Wood Product	2.00
10 Transport and Communications	1.00
11 Paper	1.00
12 Metal Product	1.00
13 Chemicals	1.00
14 Real Estate and Ownership of Dwellings	1.00
15 Basic Precious and Non-Ferrous Metals	1.00
16 Food, Beverage, and Tobacco	1.00
17 Construction	1.00
18 Industrial Machinery	1.00
19 Agriculture, Fishery and Forestry	1.00
20 Transport Machinery	1.00
21 Electrical Machinery	1.00
22 Precise Machinery	1.00
23 Mining and Quarrying	1.00
24 Other Machinery	1.00
25 Wholesale & Retail Trade and Motor Vehicle	0.00
26 Gas	0.00
27 Gasoline and Transport Diesel	0.00
28 Other Petroleum Products	0.00
29 Crude Oil and Natural Gas	0.00

Source: Authors.

1.3.2 Price Impact by Removing Transport Fuel Subsidies

According to the simulation, removing the transport fuel subsidy will increase the prices in all sectors included in this study. If transport fuel increases by 100 percent (double), the increase in prices will range from 1 percent to 6 percent. Gas as well as non-metal and mineral will experience the highest price hikes (6 percent) due to such subsidy removal. Increase in price level equivalent to 5 percent is experienced by transport and communications, and electricity sectors, while a 4 percent price increase is only affected chemicals sector. At the same time, transport fuel subsidy removal increased price level equals to 3 percent for wholesale & retail trade and motor vehicle; construction; and agriculture, fishery and forestry. Table 1.3 presents

the impact of transport fuel subsidy removal on prices when the petroleum refinery sector is split into gasoline & transport diesel and other petroleum products.

Table 1.3. Price Impact of Transport Fuel Subsidy Removal

Sector	Price impact (%)
1 Gas	6.00
2 Non-Metal and Mineral	6.00
3 Transport and Communications	5.00
4 Electricity	5.00
5 Chemicals	4.00
6 Wholesale & Retail Trade and Motor Vehicle	3.00
7 Construction	3.00
8 Agriculture, Fishery and Forestry	3.00
9 Wood and Wood Product	3.00
10 Food, Beverage, and Tobacco	2.00
11 Mining and Quarrying	2.00
12 Iron and Steel Products	2.00
13 Hotel and Restaurants	2.00
14 Paper	2.00
15 Water	2.00
16 Crude Oil and Natural Gas	2.00
17 Textile	1.00
18 Metal Product	1.00
19 Business and Private Services	1.00
20 Transport Machinery	1.00
21 Other Petroleum Products	1.00
22 Government Services	1.00
23 Basic Precious and Non-Ferrous Metals	1.00
24 Finance and Insurance	1.00
25 Industrial Machinery	1.00
26 Other Machinery	1.00
27 Electrical Machinery	1.00
28 Precise Machinery	1.00
29 Real Estate and Ownership of Dwellings	1.00

Source: Authors.

If gasoline & transport diesel and other petroleum products are merged under the petroleum refinery sector, the price impact of the subsidy removal is shown to be overstated. For example, a subsidy removal leads to a 6.6 percent price increase in the electrical machinery sector. However, when the petroleum refinery sector is split, price hike for this sector is expected to be 1 percent only. At the same time, price level for non-metal and minerals, and transport and communications will increase by 8.6 percent and 1.5 percent, respectively if transport diesel & other petroleum products are merged under the petroleum refinery sector. On the other hand, if the petroleum refinery sector is splitted into two sectors, the price

increases for non-metal and minerals, and transport and communications will be equal to 6 percent and 5 percent, respectively.

1.4 Conclusion

In many developing countries, demand for electricity and transport fuel (gasoline and diesel) has been increasing rapidly driven by a stable economic growth and by the intentionally low energy prices due to the subsidy policy. Malaysia is among the ASEAN countries that impose energy subsidy for electricity and transport fuel, although the subsidy share has been declining. Currently, piped natural gas price is still subsidised; if this subsidy is removed, electricity prices could almost double. For transport sector, the Automatic Price Mechanism on transport fuel such as gasoline has shifted to the floatation method on 1 December 2014, allowing the retail price of gasoline and diesel to now be influenced by market forces. According to this study using the 2010 Malaysian I-O Table, the price increase in electricity and transport fuel, especially electricity, lead to a serious price impact in other sectors in Malaysia. Looking at other price changes historically, the increase of Production Price Index in Malaysia, such as the Wholesale Price Index (WPI) and Consumer Price Index (CPI) was at 9 percent and 4.9 percent, respectively, from 2000 to 2012 (World Bank, 2014). Compared to these numbers, the price impact of 5 percent to 6 percent are considered significant and; hence, mitigating measures such as phasing out subsidies to highly impacted subsectors are increasingly important. However, this study excludes the final demand sector such as households. Therefore, other approaches – including macroeconomic study or Computable General Equilibrium study – are suggested so as to further examine the impact on the household sector, too.

This study splits the electricity and transport fuel sectors proportional to their share in the 2010 Malaysian Energy Balance Table. As a result, there are differences in the price impact between a scenario where electricity and transport fuel are considered as two separate sectors and a scenario where they are combined as one sector. This study proves that separating the above-mentioned sectors provides a more precise estimate of the price impact following a removal in energy subsidies. However, the energy consumption in the industry and commercial sectors is not broken down by sector here. More precise analysis is recommended once detailed and official data on the industry subsectors (such as energy data and base data from the I-O table) are available.

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Appendices (Part I)

Appendix 1-A. 2010 Malaysian Input-Output Table

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)	Agriculture, Fishery and Forestry	Crude Oil and Natural Gas	Mining and Quarrying	Food, Beverage, and Tobacco	Textile	Wood and Wood Product	Paper	Gasoline and Transport Diesel	Other Petroleum Products	Chemicals	Non Metal and Mineral
Agriculture, Fishery and Forestry	8,258,792.74	3,657.09	1,167.76	61,408,605.95	98,106.74	7,002,303.96	2,656,361.91	3,590.72	5,386.08	1,811,651.82	17,193.15
Crude Oil and Natural Gas	3,049.71	881,148.03	178.21	844,087.06	167.62	446.23	261.27	21,089,228.03	31,633,842.04	1,704,021.56	1,801.41
Mining and Quarrying	44,478.85	32,584.61	39,263.74	77,187.85	3,868.15	2,390.08	29,233.58	5,316.79	7,975.19	546,953.94	3,317,319.21
Food, Beverage, and Tobacco	4,361,917.71	42,383.86	17,903.63	50,206,843.04	69,760.53	25,093.55	36,197.26	33,214.63	49,821.94	4,716,416.36	31,947.04
Textile	9,100.57	3,060.79	7,225.35	53,940.36	1,465,479.58	37,476.95	265,258.09	816.51	1,224.76	364,531.45	22,791.17
Wood and Wood Product	216,072.39	664.66	4,902.00	7,288.23	3,834.95	2,150,525.31	1,888,575.74	209.38	314.07	326,624.95	27,033.57
Paper	5,509.54	2,671.09	4,056.87	278,516.27	36,280.19	63,199.60	3,181,853.91	1,467.07	2,200.60	262,968.71	99,658.14
Gasoline and Transport Diesel	2,641,099.95	1,336,753.98	154,043.16	347,893.27	41,959.22	87,253.83	111,412.54	-	-	2,825,115.81	899,017.90
Other Petroleum Products	1,912,520.65	967,994.26	111,548.49	251,922.71	30,384.26	63,183.80	80,678.05	-	677,180.15	2,045,773.52	651,012.96
Chemicals	4,310,640.68	984,425.82	194,166.81	1,587,574.44	940,891.35	415,214.06	1,351,602.10	195,739.38	293,609.07	34,576,008.63	627,061.04
Non Metal and Mineral	164,426.90	31,113.75	9,874.47	248,539.89	6,440.44	45,537.96	111,564.45	910.39	1,365.58	488,774.00	3,720,976.92
Iron and Steel Products	2,678.60	153,054.25	5,874.87	17,327.01	7,847.04	11,199.08	344,088.51	348.75	523.12	122,796.11	404,157.94
Non-Metals and Non-Ferrous Metals	4,940.23	72,710.86	17,976.11	76,312.29	7,410.20	13,923.57	44,479.92	250.31	375.47	64,870.05	17,925.86
Metal Product	144,882.14	871,626.42	19,258.44	968,414.78	33,335.65	14,718.18	287,429.68	7,656.56	11,484.84	414,318.53	549,582.03
Industrial Machinery	129,996.73	65,773.70	133,539.30	11,473.69	97,149.90	182,818.42	6,337.89	459.34	689.01	47,477.30	13,730.57
Electrical Machinery	12,248.79	30,266.40	628.17	28,248.00	11,209.39	2,569.56	8,895.49	503.47	755.20	30,145.55	14,782.78
Precise Machinery	35,310.43	30,762.73	9,413.47	95,038.07	44,645.58	10,767.02	33,561.67	3,323.62	4,985.44	110,870.06	21,987.60
Transport Machinery	541,117.68	57,779.08	3,352.52	42,765.49	14,386.09	4,114.39	33,950.44	1,434.60	2,151.90	34,592.29	14,422.97
Other Machinery	60,315.19	80,860.53	1,267.15	315,021.24	283,033.38	23,149.10	87,657.84	6,966.85	10,450.27	200,428.62	47,548.70
Electricity	602,260.92	16,138.56	33,749.11	413,034.69	178,034.95	175,283.72	228,026.28	41,299.27	61,948.90	938,122.06	435,683.16
Gas	-	24,207.84	50,623.67	619,552.03	267,052.43	262,925.58	342,039.42	61,948.90	92,923.35	1,407,183.09	653,524.74
Water	413,757.81	14,405.93	8,084.54	599,785.00	49,120.15	23,996.89	77,534.66	11,167.67	16,751.51	1,400,047.96	363,997.59
Construction	846,149.91	818,294.05	6,009.72	618,328.36	28,976.09	81,016.49	124,159.38	33,079.25	49,618.87	376,588.42	175,342.92
Wholesale & Retail Trade and Motor Vehicle	4,248,778.70	1,127,917.96	282,962.68	17,357,081.11	708,267.65	1,469,435.32	1,954,557.91	1,181,044.11	1,771,566.16	10,538,697.89	1,560,260.72
Hotel and Restaurants	234,263.07	3,993.48	5,907.08	42,607.95	11,316.93	13,136.13	32,671.77	1,292.41	1,938.62	82,568.62	20,935.47
Transport and Communications	2,059,709.45	1,106,860.79	277,481.12	3,061,616.03	439,417.23	1,033,062.56	884,652.32	293,346.49	440,019.73	2,736,834.48	1,207,656.13
Finance and Insurance	5,917,361.87	1,251,823.94	135,493.33	3,855,455.12	335,569.47	512,545.79	646,916.15	341,508.22	512,262.33	2,025,788.43	505,448.04
Real Estate and Ownership of Dwellings	103,573.83	-	-	226,264.87	85,960.16	76,428.92	126,961.00	4,571.45	6,857.17	314,200.12	104,229.06
Business and Private Services	957,202.11	395,375.55	200,017.55	743,526.69	174,733.19	188,016.10	330,292.46	73,123.78	109,685.66	1,167,618.46	340,465.47
Government Services	1,738.02	11.82	6.22	4,967.91	762.60	1,349.41	1,120.43	41.48	62.22	3,572.96	1,067.07
total intermediate input (Xi)	38,243,895.17	10,408,321.83	1,735,975.53	144,409,219.37	5,475,401.10	13,993,081.54	15,308,332.10	23,393,859.41	35,767,969.26	71,685,561.72	15,868,561.30
total output (Xi)	126,650,738	98,121,543	9,427,737	186,021,953	13,515,738	19,107,354	30,333,086	40,952,644	62,614,418	131,783,487	25,172,829

Business and Private Services

Appendix 1-A. 2010 Malaysian Input-Output Table (continued)

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)	Iron and Steel Products	Basic Precious and Non-ferrous Metals	Metal Product	Industrial Machinery	Electrical Machinery	Precise Machinery	Transport Machinery	Other Machinery	Electricity	Gas	Water
Agriculture, Fishery and Forestry	11,257.36	6,055.50	17,084.24	29,358.00	53,296.91	163,342.41	1,301,530.35	76,093.34	3,073.54	2,135.85	2,305.83
Crude Oil and Natural Gas	300.13	157.48	181.72	515.27	181.22	453.91	102.29	30.26	959.81	666.99	97.39
Mining and Quarrying	197,874.11	210,277.16	180,171.79	120,476.16	48,232.22	41,129.17	86,165.38	395,241.83	347,030.84	241,157.02	345.81
Food, Beverage, and Tobacco	11,557.64	9,141.55	39,645.83	18,479.79	51,757.95	83,730.57	27,562.18	19,503.31	6,078.30	4,223.90	7,637.74
Textile	12,751.37	5,201.72	19,443.43	19,263.83	35,551.15	126,610.08	161,055.43	28,753.59	463.97	322.42	344.38
Wood and Wood Product	839.39	530.61	44,772.25	21,533.05	464,292.53	289,835.02	114,279.72	24,203.46	512.96	356.46	243.81
Paper	11,128.38	17,221.22	43,996.54	25,389.14	62,500.00	209,575.28	71,910.00	42,275.17	756.85	525.95	657.36
Gasoline and Transport Diesel	197,009.47	43,424.63	77,982.18	18,551.99	55,808.30	154,622.00	52,788.59	16,596.37	827,353.97	574,940.90	84,031.36
Other Petroleum Products	142,662.03	31,445.42	56,469.86	13,434.20	40,412.90	111,967.65	38,226.22	12,018.06	599,118.40	416,336.51	60,850.29
Chemicals	221,091.73	168,371.33	744,383.99	500,958.00	1,168,855.08	3,425,299.88	1,638,873.88	617,046.00	34,448.47	23,938.76	498,728.13
Non-metal and Mineral	1,601,568.96	40,619.26	132,474.14	77,910.60	180,664.43	2,342,496.12	234,617.38	9,342.22	703.85	489.12	591.98
Iron and Steel Products	5,763,331.27	311,264.86	3,057,671.72	1,488,422.10	434,156.17	1,557,012.77	2,473,301.97	185,712.52	1,509.62	1,049.06	185,179.14
Basic Precious and Non-ferrous Metals	1,028,025.11	732,439.46	326,041.42	236,794.16	409,521.86	220,881.45	642,713.46	120,312.69	72,741.87	50,549.43	649.83
Metal Product	586,854.76	801,273.09	2,003,582.41	1,212,156.55	1,331,914.13	1,165,286.96	1,276,373.96	108,918.62	29,007.23	20,157.56	50,709.94
Industrial Machinery	14,044.50	263,301.05	245,303.64	537,084.00	696,648.79	298,259.87	461,793.19	133,701.88	100,920.52	70,131.21	17,455.21
Electrical Machinery	6,449.98	61,529.61	44,737.65	42,441.35	515,714.58	863,871.96	261,519.62	5,541.63	905.08	628.95	1,389.64
Precise Machinery	11,996.12	8,484.82	28,487.13	31,216.29	746,364.02	2,458,234.79	178,206.66	180,685.40	37,164.14	25,825.93	16,227.55
Transport Machinery	5,844.49	8,454.55	34,353.80	121,540.87	113,081.52	55,310.71	6,834,741.17	13,322.91	5,038.24	3,501.15	1,350.58
Other Machinery	12,249.94	7,041.50	52,177.69	45,780.47	62,890.10	426,124.51	137,479.44	1,446,870.35	129.73	90.15	102.29
Electricity	369,355.58	124,518.89	175,472.37	88,162.51	242,012.00	660,414.94	157,653.07	34,539.93	259,297.09	-	288,991.19
Gas	554,033.37	186,778.34	263,208.55	132,243.76	363,018.00	990,622.41	236,479.61	51,809.89	4,433,980.27	492,664.47	433,486.78
Water	51,169.34	137,035.51	215,406.36	24,234.82	55,850.00	147,284.98	75,593.48	14,382.73	98,783.27	68,646.00	651,213.33
Construction	66,634.48	22,179.25	77,867.62	80,272.79	253,336.34	1,897,410.20	104,592.95	22,869.95	3,083.12	2,142.51	16,243.63
Wholesale & Retail Trade and Motor Vehicle	1,745,402.82	756,255.40	1,464,076.44	967,550.83	2,893,774.13	8,374,216.21	3,190,764.39	535,815.41	464,909.05	323,072.39	220,401.76
Hotel and Restaurants	46,562.93	7,317.02	34,847.09	19,489.59	24,747.18	63,026.49	28,787.07	5,569.57	5,657.19	3,931.27	2,406.52
Transport and Communications	718,318.08	378,775.63	662,163.03	356,515.02	1,584,740.07	3,602,454.66	615,563.78	149,511.01	214,305.93	148,924.46	244,085.64
Finance and Insurance	568,089.75	390,513.97	659,834.93	346,232.81	1,072,386.56	3,373,556.93	465,888.03	105,152.28	629,462.51	437,423.10	289,447.66
Real Estate and Ownership of Dwellings	41,138.64	25,102.22	126,112.61	65,554.18	75,707.05	372,909.32	113,299.68	27,377.00	-	-	-
Business and Private Services	147,946.37	97,267.66	354,300.39	264,599.22	381,122.44	1,853,778.17	533,701.91	93,212.22	895,427.16	622,246.00	403,588.64
Government Services	362.61	312.68	1,164.13	964.63	2,111.59	6,834.58	2,063.12	242.46	29.32	20.38	49.45
Total Intermediate Input (Xj)	14,145,850.71	4,852,291.36	11,183,414.95	6,907,125.99	13,420,649.22	35,336,554.02	21,517,627.95	4,476,652.07	9,072,852.31	3,536,097.91	3,478,812.85
Total Output (Xi)	28,435,677	15,951,886	25,982,731	21,087,737	56,366,457	184,287,942	50,145,044	13,374,360	26,072,024	10,161,438	11,085,158

Appendix 1-A. 2010 Malaysian Input-Output Table (continued)

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM' 000)	Construction	Wholesale & Retail Trade and Motor Vehicle	Hotel and Restaurants	Transport and Communications	Finance and Insurance	Real Estate and Ownership of Dwellings	Business and Private Services	Government Services	Total Intermediate Output (Xi)
Agriculture, Fishery and Forestry	56,827.95	3,020,550.17	2,621,709.93	102,908.92	69,813.04	194,941.09	34,247.17	562,332.32	89,595,681.84
Crude Oil and Natural Gas	1,521.95	6,704.02	343.35	9,471.37	136.85	41.11	314.88	393.11	56,180,804.28
Mining and Quarrying	2,318,819.48	5,205.27	2,570.87	3,977.38	1,040.55	1,085.01	2,340.57	11,325.88	8,321,038.49
Food, Beverage, and Tobacco	25,075.11	5,816,361.52	8,627,686.51	42,141.92	20,014.68	22,854.03	247,698.64	845,580.96	75,518,231.69
Textile	13,620.04	441,777.52	63,777.11	40,148.41	17,883.42	12,863.06	10,841.71	219,045.46	3,460,623.71
Wood and Wood Product	3,647,228.54	348,982.17	809.91	6,529.04	6,118.12	7,181.82	8,726.20	45,964.90	9,658,985.22
Paper	36,490.95	3,614,628.13	23,472.21	1,566,714.64	2,477,334.25	118,383.78	800,646.56	1,192,091.95	14,254,080.33
Gasoline and Transport Diesel	1,316,908.42	4,981,258.41	296,814.97	6,181,389.56	118,563.97	36,243.31	272,598.00	311,084.22	24,062,520.27
Other Petroleum Products	953,623.34	3,607,118.16	214,934.97	4,476,178.65	85,856.67	26,245.16	197,398.55	225,267.88	18,101,763.79
Chemicals	998,774.15	4,807,755.45	25,418.00	1,210,407.65	64,392.88	130,923.83	364,456.82	4,070,929.79	66,191,987.19
Non-metal and Mineral	11,164,062.95	295,721.56	1,239.67	63,216.21	4,527.68	19,806.37	6,558.77	63,281.52	21,069,417.52
Iron and Steel Products	7,183,701.03	269,364.63	1,272.96	7,033.78	5,541.51	4,042.67	16,915.68	32,866.82	24,049,245.55
Basic Precious and Non-ferrous Metals	1,173,420.35	25,911.98	10,811.19	3,224.38	1,734.60	1,078.37	6,046.89	11,067.76	5,395,141.16
Metal Product	1,210,740.25	396,588.76	4,280.06	941,777.82	10,406.18	7,781.27	27,616.42	336,115.72	14,844,248.95
Industrial Machinery	479,319.75	184,605.08	427,800.98	195,351.32	4,449.59	5,866.55	58,535.93	82,397.39	4,966,416.32
Electrical Machinery	368,204.01	350,160.78	1,769.40	253,060.99	12,486.11	2,584.61	79,335.65	109,893.72	3,122,478.10
Precise Machinery	71,408.32	385,178.47	20,436.67	368,738.39	80,006.14	29,520.64	251,745.78	828,859.92	6,159,452.87
Transport Machinery	48,821.75	4,618,053.91	4,865.85	1,203,677.33	15,072.22	12,367.92	195,725.00	665,909.19	14,711,100.60
Other Machinery	56,891.09	1,398,051.17	27,705.12	1,450,417.84	166,009.56	21,067.32	1,074,322.71	910,291.73	8,412,391.58
Electricity	119,658.28	92,468.43	2,199,105.50	1,117,394.21	2,870,244.34	198,322.23	949,736.31	2,339,459.40	15,410,387.88
Gas	179,487.42	934.02	22,213.19	11,286.81	28,992.37	2,003.25	9,593.30	23,630.90	12,198,447.75
Water	135,597.07	899,262.62	414,678.75	227,744.76	148,886.48	20,764.99	70,693.07	841,669.90	7,277,547.16
Construction	6,533,345.76	53,060.17	274,306.90	1,624,067.91	471,625.31	1,013,958.93	428,584.16	4,500,041.22	20,603,186.63
Wholesale & Retail Trade and Motor Vehicle	5,455,653.88	7,268,472.23	1,981,608.21	3,862,697.94	771,245.02	149,084.79	826,223.61	812,789.53	84,264,584.26
Hotel and Restaurants	105,727.35	1,839,251.37	3,041,075.95	969,978.14	3,739,669.86	76,911.44	215,424.57	1,523,157.78	12,204,169.89
Transport and Communications	976,439.22	5,137,566.81	1,777,158.98	41,081,103.02	7,578,276.75	733,627.17	4,163,304.17	6,320,891.67	89,984,381.43
Finance and Insurance	1,152,371.16	6,748,864.42	567,836.86	11,155,656.25	43,643,431.60	4,661,970.53	2,609,684.61	3,178,470.74	98,096,447.37
Real Estate and Ownership of Dwellings	971,586.09	2,123,865.36	138,514.11	1,817,695.07	1,536,287.49	4,615,808.51	576,996.35	5,365,134.35	19,042,134.60
Business and Private Services	678,291.52	3,502,146.15	775,383.19	3,129,379.04	1,820,915.20	744,800.90	8,727,544.89	2,380,108.87	32,085,816.94
Government Services	8,373.12	20,255.28	1,686.94	16,020.40	1,224,473.93	39,627.86	72,121.12	1,574,967.18	2,986,380.91
Total Intermediate Input (Xj)	47,441,990.30	62,260,124.05	23,571,288.31	83,139,389.15	66,995,436.37	12,911,758.52	22,305,978.12	39,385,021.79	862,229,094.28
Total Output (Xi)	91,361,903	199,971,866	47,680,539	165,050,536	145,527,523	38,145,463	64,201,474	135,579,295	2,074,170,581.69

Source: Authors.

Appendix 1-B. 2010 Malaysian Energy Balance Tables

Unit: KTOE

	1. Coal	2. Coal Products	3. Crude Oil, NGL and Condensate	4. Petroleum Products	5. Gas	6. Hydro	7. Geothermal, Solar, etc.	8. Others	9. Electricity	Total
1. Indigenous Production	1,511	-	34,653	-	46,628	547	0	58	-	83,399
2. Imports	13,073	-	8,115	10,359	6,971	-	-	-	-	38,519
3. Exports	-62	-	-17,258	-8,429	-26,668	-	-	-	-1	-52,418
4. International Marine Bunkers	-	-	-	-59	-	-	-	-	-	-59
5. International Aviation Bunkers	-	-	-	-	-	-	-	-	-	-
6. Stock Changes	79	-	-337	441	-	-	-	-	-	182
7. Total Primary Energy Supply	14,601	-	25,173	2,312	26,932	547	0	58	-1	69,622
8. Transfers	-	-	-2,491	2,299	-	-	-	-	-	-192
9. Total Transformation Sector	-12,951	-	-22,710	21,572	-17,805	-547	0	-58	10,292	-22,208
9.1 Main Activity Producer	-12,951	-	-	-540	-12,553	-547	-	-58	9,905	-16,745
9.2 Autoproducers	-	-	-	-	-1,025	-	0	-	387	-638
9.3 Gas Processing	-	-	-	905	-4,227	-	-	-	-	-3,322
9.4 Refineries	-	-	-22,710	21,207	-	-	-	-	-	-1,503
9.5 Coal Transformation	-	-	-	-	-	-	-	-	-	-
9.6 Petrochemical Industry	-	-	-	-	-	-	-	-	-	-
9.7 Biofuel Processing	-	-	-	-	-	-	-	-	-	-
9.8 Charcoal Processing	-	-	-	-	-	-	-	-	-	-
9.9 Non-specified Transformation	-	-	-	-	-	-	-	-	-	-
10. Loss & Own Use	-	-	-	-1,682	-1,431	-	-	-	-796	-3,909
11. Discrepancy	176	-	28	-97	-1,480	-	-	-	-502	-1,874
12. Total Final Energy Consumptions	1,826	-	-	24,403	6,217	-	-	-	8,993	41,439
13. Industry Sector	1,826	-	-	4,833	5,935	-	-	-	3,994	16,588
13.1 Iron and Steel	-	-	-	-	-	-	-	-	-	-
13.2 Chemical (incl. Petro-Chemical)	-	-	-	-	-	-	-	-	-	-
13.3 Non Ferrous Metals	-	-	-	-	-	-	-	-	-	-
13.4 Non Metallic Mineral Products	1,826	-	-	-	-	-	-	-	-	1,826
13.5 Transportation Equipment	-	-	-	-	-	-	-	-	-	-
13.6 Machinery	-	-	-	-	-	-	-	-	-	-
13.7 Mining and Quarrying	-	-	-	-	-	-	-	-	-	-
13.8 Food, Beverages and Tobacco	-	-	-	-	-	-	-	-	-	-
13.9 Pulp, Paper and Printing	-	-	-	-	-	-	-	-	-	-
13.10 Wood and Wood Products	-	-	-	-	-	-	-	-	-	-
13.11 Construction	-	-	-	-	-	-	-	-	-	-
13.12 Textiles and Leather	-	-	-	-	-	-	-	-	-	-
13.13 Non-specified Industry	-	-	-	4,833	5,935	-	-	-	3,994	14,762
14. Transport Sector	-	-	-	16,562	245	-	-	-	18	16,826
14.1 Domestic Air Transport	-	-	-	-	-	-	-	-	-	-
14.2 Road	-	-	-	9,476	245	-	-	-	-	9,721
14.3 Rail	-	-	-	-	-	-	-	-	18	18
14.4 Inland Waterways	-	-	-	-	-	-	-	-	-	-
14.5 Pipeline Transport	-	-	-	-	-	-	-	-	-	-
14.6 Non-specified Transport	-	-	-	7,086	-	-	-	-	-	7,086
15. Other Sector	-	-	-	3,008	36	-	-	-	4,981	8,025
15.1 Residential & Commercial	-	-	-	1,958	36	-	-	-	4,957	6,951
15.1.1 Commerce and Public Services	-	-	-	1,246	30	-	-	-	3,020	4,296
15.1.2 Residential	-	-	-	712	6	-	-	-	1,937	2,655
15.2 Agriculture	-	-	-	1,050	-	-	-	-	24	1,074
15.3 Fishing	-	-	-	-	-	-	-	-	-	-
15.4 Non-specified Others	-	-	-	-	-	-	-	-	-	-
16. of which Non-Energy Use except APEC Non-OECD members before 2003	-	-	-	657	1,651	-	-	-	-	2,307
17. Electricity Output in GWh	49,401	-	1,659	-	61,342	6,361	-	911	-	119,674

Source: APEC (2010).

Appendix 1-C. A = Xij/Xj Matrix Excluding Electricity Sector

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)	Agriculture, Fishery and Forestry	Crude Oil and Natural Gas	Mining and Quarrying	Food, Beverage, and Tobacco	Textile	Wood and Wood Product	Paper	Gasoline and Transport Diesel	Other Petroleum Products	Chemicals	Non-metal and Mineral	Iron and Steel Products	Basic Precious and Non-ferrous Metals	Metal Product
Agriculture, Fishery and Forestry	0.07	0.00	0.00	0.33	0.01	0.37	0.09	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Crude Oil and Natural Gas	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.51	0.51	0.01	0.00	0.00	0.00	0.00
Mining and Quarrying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.01	0.01
Food, Beverage, and Tobacco	0.03	0.00	0.00	0.27	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00
Textile	0.00	0.00	0.00	0.00	0.11	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood and Wood Product	0.00	0.00	0.00	0.00	0.00	0.11	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gasoline and Transport Diesel	0.02	0.01	0.02	0.00	0.00	0.00	0.00	-	-	0.02	0.04	0.01	0.00	0.00
Other Petroleum Products	0.02	0.01	0.01	0.00	0.00	0.00	0.00	-	0.01	0.02	0.03	0.01	0.00	0.00
Chemicals	0.03	0.01	0.02	0.01	0.07	0.02	0.04	0.00	0.00	0.26	0.02	0.01	0.01	0.03
Non-metal and Mineral	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.06	0.00	0.01
Iron and Steel Products	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.20	0.02	0.12
Basic Precious and Non-ferrous Metals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.01
Metal Product	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.05	0.08
Industrial Machinery	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
Electrical Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precise Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Machinery	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas	-	0.00	0.01	0.00	0.02	0.01	0.01	0.00	0.00	0.01	0.03	0.02	0.01	0.01
Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Construction	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Wholesale & Retail Trade and Motor Vehicle	0.03	0.01	0.03	0.09	0.05	0.08	0.06	0.03	0.03	0.08	0.06	0.06	0.05	0.06
Hotel and Restaurants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport and Communications	0.02	0.01	0.03	0.02	0.03	0.05	0.03	0.01	0.01	0.02	0.05	0.03	0.02	0.03
Finance and Insurance	0.05	0.01	0.01	0.02	0.02	0.03	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.03
Real Estate and Ownership of Dwellings	0.00	-	-	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Business and Private Services	0.01	0.00	0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Government Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix 1-C. A = Xij/Xj Matrix Excluding Electricity Sector (continued)

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)	Industrial Machinery	Electrical Machinery	Precise Machinery	Transport Machinery	Other Machinery	Gas	Water	Construction	Wholesale & Retail Trade and Motor Vehicle	Hotels and Restaurants	Transport and Communications	Finance and Insurance	Real Estate and Ownership of Dwellings	Business and Private Services	Government Services
Agriculture, Fishery and Forestry	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.02	0.05	0.00	0.00	0.01	0.00	0.00
Crude Oil and Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining and Quarrying	0.01	0.00	0.00	0.00	0.03	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, Beverage, and Tobacco	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.18	0.00	0.00	0.00	0.00	0.01
Textile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood and Wood Product	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.02	0.00	0.01	0.01
Gasoline and Transport Diesel	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.01	0.02	0.01	0.04	0.00	0.00	0.00	0.00
Other Petroleum Products	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.01	0.02	0.00	0.03	0.00	0.00	0.00	0.00
Chemicals	0.02	0.02	0.02	0.03	0.05	0.00	0.04	0.01	0.02	0.00	0.01	0.00	0.00	0.01	0.03
Non-metal and Mineral	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Iron and Steel Products	0.07	0.01	0.01	0.05	0.01	0.00	0.02	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Basic Precious and Non-ferrous Metals	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal Product	0.06	0.02	0.01	0.03	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Industrial Machinery	0.03	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Electrical Machinery	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precise Machinery	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Transport Machinery	0.01	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00
Other Machinery	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.02	0.01
Gas	0.01	0.01	0.01	0.00	0.00	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01
Construction	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.07	0.00	0.01	0.01	0.00	0.03	0.01	0.03
Wholesale & Retail Trade and Motor Vehicle	0.05	0.05	0.05	0.06	0.04	0.03	0.02	0.06	0.04	0.04	0.02	0.01	0.00	0.01	0.01
Hotel and Restaurants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.01	0.03	0.00	0.00	0.01
Transport and Communications	0.02	0.03	0.02	0.01	0.01	0.01	0.02	0.01	0.03	0.04	0.25	0.05	0.02	0.06	0.05
Finance and Insurance	0.02	0.02	0.02	0.01	0.01	0.04	0.03	0.01	0.03	0.01	0.07	0.30	0.12	0.04	0.02
Real Estate and Ownership of Dwellings	0.00	0.00	0.00	0.00	0.00	-	-	0.01	0.01	0.00	0.01	0.01	0.12	0.01	0.04
Business and Private Services	0.01	0.01	0.01	0.01	0.01	0.06	0.04	0.01	0.02	0.02	0.02	0.01	0.02	0.14	0.02
Government Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01

Source: Authors.

Appendix 1-D. B = I-A

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)	Agriculture, Fishery and Forestry	Crude Oil and Natural Gas	Mining and Quarrying	Food, Beverage, and Tobacco	Textile	Wood and Wood Product	Paper	Gasoline and Transport Diesel	Other Petroleum Products	Chemicals	Non-metal and Mineral	Iron and Steel Products	Basic Precious and Non-ferrous Metals
Agriculture, Fishery and Forestry	0.93	0.00	0.00	-0.33	-0.01	-0.37	-0.09	0.00	0.00	-0.01	0.00	0.00	0.00
Crude Oil and Natural Gas	0.00	0.99	0.00	0.00	0.00	0.00	0.00	-0.51	-0.51	-0.01	0.00	0.00	0.00
Mining and Quarrying	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.13	-0.01	-0.01
Food, Beverage, and Tobacco	-0.03	0.00	0.00	0.73	-0.01	0.00	0.00	0.00	0.00	-0.04	0.00	0.00	0.00
Textile	0.00	0.00	0.00	0.00	0.89	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00
Wood and Wood Product	0.00	0.00	0.00	0.00	0.00	0.89	-0.06	0.00	0.00	0.00	0.00	0.00	0.00
Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00
Gasoline and Transport Diesel	-0.02	-0.01	-0.02	0.00	0.00	0.00	0.00	1.00	0.00	-0.02	-0.04	-0.01	0.00
Other Petroleum Products	-0.02	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.99	-0.02	-0.03	-0.01	0.00
Chemicals	-0.03	-0.01	-0.02	-0.01	-0.07	-0.02	-0.04	0.00	0.00	0.74	-0.02	-0.01	-0.01
Non-metal and Mineral	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	-0.06	0.00
Iron and Steel Products	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	-0.02	0.80	-0.02
Basic Precious and Non-ferrous Metals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.04	0.95
Metal Product	0.00	-0.01	0.00	-0.01	0.00	0.00	-0.01	0.00	0.00	0.00	-0.02	-0.02	-0.05
Industrial Machinery	0.00	0.00	-0.01	0.00	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.02
Electrical Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precise Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Machinery	0.00	0.00	0.00	0.00	-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas	0.00	0.00	-0.01	0.00	-0.02	-0.01	-0.01	0.00	0.00	-0.01	-0.03	-0.02	-0.01
Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	0.00	-0.01
Construction	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00
Wholesale & Retail Trade and Motor Vehicle	-0.03	-0.01	-0.03	-0.09	-0.05	-0.08	-0.06	-0.03	-0.03	-0.08	-0.06	-0.06	-0.05
Hotels and Restaurants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport and Communications	-0.02	-0.01	-0.03	-0.02	-0.03	-0.05	-0.03	-0.01	-0.01	-0.02	-0.05	-0.03	-0.02
Finance and Insurance	-0.05	-0.01	-0.01	-0.02	-0.02	-0.03	-0.02	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02
Real Estate and Ownership of Dwellings	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Business and Private Services	-0.01	0.00	-0.02	0.00	-0.01	-0.01	-0.01	0.00	0.00	-0.01	-0.01	-0.01	-0.01
Government Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix 1-D. B = I-A (continued)

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)	Metal Product	Industrial Machinery	Electrical Machinery	Precise Machinery	Transport Machinery	Other Machinery	Gas	Water	Construction	Wholesale & Retail Trade and Motor Vehicle	Hotels and Restaurants	Transport and Communications	Finance and Insurance	Real Estate and Ownership of Dwellings	Business and Private Services	Government Services
Agriculture, Fishery and Forestry	0.00	0.00	0.00	0.00	-0.03	-0.01	0.00	0.00	0.00	-0.02	-0.05	0.00	0.00	-0.01	0.00	0.00
Crude Oil and Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining and Quarrying	-0.01	-0.01	0.00	0.00	0.00	-0.03	-0.02	0.00	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, Beverage, and Tobacco	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.03	-0.18	0.00	0.00	0.00	0.00	-0.01
Textile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood and Wood Product	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	-0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	0.00	-0.01	-0.02	0.00	-0.01	-0.01
Gasoline and Transport Diesel	0.00	0.00	0.00	0.00	0.00	0.00	-0.06	-0.01	-0.01	-0.02	-0.01	-0.04	0.00	0.00	0.00	0.00
Other Petroleum Products	0.00	0.00	0.00	0.00	0.00	0.00	-0.04	-0.01	-0.01	-0.02	0.00	-0.03	0.00	0.00	0.00	0.00
Chemicals	-0.03	-0.02	-0.02	-0.02	-0.03	-0.05	0.00	-0.04	-0.01	-0.02	0.00	-0.01	0.00	0.00	-0.01	-0.03
Non-metal and Mineral	-0.01	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	-0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Iron and Steel Products	-0.12	-0.07	-0.01	-0.01	-0.05	-0.01	0.00	-0.02	-0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Basic Precious and Non-ferrous Metals	-0.01	-0.01	-0.01	0.00	-0.01	-0.01	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal Product	0.92	-0.06	-0.02	-0.01	-0.03	-0.01	0.00	0.00	-0.01	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
Industrial Machinery	-0.01	0.97	-0.01	0.00	-0.01	-0.01	-0.01	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00	0.00	0.00
Electrical Machinery	0.00	0.00	0.99	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precise Machinery	0.00	0.00	-0.01	0.99	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01
Transport Machinery	0.00	-0.01	0.00	0.00	0.86	0.00	0.00	0.00	0.00	-0.02	0.00	-0.01	0.00	0.00	0.00	0.00
Other Machinery	0.00	0.00	0.00	0.00	0.00	0.89	0.00	0.00	0.00	-0.01	0.00	-0.01	0.00	0.00	-0.02	-0.01
Gas	-0.01	-0.01	-0.01	-0.01	0.00	0.00	0.95	-0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	-0.01	0.00	0.00	0.00	0.00	0.00	-0.01	0.94	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	-0.01
Construction	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.93	0.00	-0.01	-0.01	0.00	-0.03	-0.01	-0.03
Wholesale & Retail Trade and Motor Vehicle	-0.06	-0.05	-0.05	-0.05	-0.06	-0.04	-0.03	-0.02	-0.06	0.96	-0.04	-0.02	-0.01	0.00	-0.01	-0.01
Hotels and Restaurants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.94	-0.01	-0.03	0.00	0.00	-0.01
Transport and Communications	-0.03	-0.02	-0.03	-0.02	-0.01	-0.01	-0.01	-0.02	-0.01	-0.03	-0.04	0.75	-0.05	-0.02	-0.06	-0.05
Finance and Insurance	-0.03	-0.02	-0.02	-0.02	-0.01	-0.01	-0.04	-0.03	-0.01	-0.03	-0.01	-0.07	0.70	-0.12	-0.04	-0.02
Real Estate and Ownership of Dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	0.00	-0.01	-0.01	0.88	-0.01	-0.04
Business and Private Services	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.06	-0.04	-0.01	-0.02	-0.02	-0.02	-0.01	-0.02	0.86	-0.02
Government Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.99

Source: Authors.

Appendix 1-E. $C = (I-A)^{-1}$

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM' 000)	Agriculture, Fishery and Forestry	Crude Oil and Natural Gas	Mining and Quarrying	Food, Beverage, and Tobacco	Textile	Wood and Wood Product	Paper	Gasoline and Transport Diesel	Other Petroleum Products	Chemicals	Non-metal and Mineral	Iron and Steel Products	Basic Precious and Non-ferrous Metals
Agriculture, Fishery and Forestry	1.09	0.00	0.00	0.50	0.02	0.46	0.15	0.00	0.00	0.05	0.01	0.01	0.01
Crude Oil and Natural Gas	0.03	1.02	0.02	0.03	0.01	0.02	0.02	0.53	0.52	0.05	0.05	0.02	0.01
Mining and Quarrying	0.00	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.16	0.02	0.02
Food, Beverage, and Tobacco	0.06	0.00	0.01	1.40	0.02	0.03	0.02	0.00	0.00	0.08	0.01	0.01	0.01
Textile	0.00	0.00	0.00	0.00	1.12	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Wood and Wood Product	0.00	0.00	0.00	0.00	0.00	1.13	0.08	0.00	0.00	0.01	0.00	0.00	0.00
Paper	0.00	0.00	0.00	0.01	0.01	0.01	1.12	0.00	0.00	0.01	0.01	0.01	0.00
Gasoline and Transport Diesel	0.03	0.02	0.02	0.02	0.01	0.03	0.02	1.01	0.01	0.04	0.06	0.02	0.01
Other Petroleum Products	0.02	0.01	0.02	0.02	0.01	0.02	0.01	0.01	1.02	0.03	0.04	0.01	0.01
Chemicals	0.06	0.02	0.03	0.05	0.12	0.06	0.09	0.02	0.02	1.37	0.06	0.03	0.02
Non-metal and Mineral	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.01	1.18	0.09	0.01
Iron and Steel Products	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.03	1.26	0.04
Basic Precious and Non-ferrous Metals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	1.05
Metal Product	0.00	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.03	0.03	0.06
Industrial Machinery	0.00	0.00	0.02	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Electrical Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precise Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport Machinery	0.01	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Other Machinery	0.00	0.00	0.00	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00
Gas	0.00	0.00	0.01	0.01	0.03	0.02	0.02	0.00	0.00	0.02	0.04	0.03	0.02
Water	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.02	0.02	0.01	0.01
Construction	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Wholesale & Retail Trade and Motor Vehicle	0.05	0.02	0.04	0.17	0.08	0.13	0.11	0.04	0.04	0.13	0.10	0.10	0.07
Hotels and Restaurants	0.01	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00
Transport and Communications	0.04	0.02	0.05	0.06	0.07	0.11	0.07	0.02	0.02	0.06	0.10	0.06	0.05
Finance and Insurance	0.09	0.02	0.03	0.10	0.06	0.10	0.07	0.03	0.03	0.06	0.07	0.06	0.05
Real Estate and Ownership of Dwellings	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.00
Business and Private Services	0.01	0.01	0.03	0.02	0.03	0.03	0.02	0.01	0.01	0.02	0.03	0.02	0.01
Government Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix 1-E. $C = (I-A)^{-1}$ (continued)

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM' 000)	Metal Product	Industrial Machinery	Electrical Machinery	Precise Machinery	Transport Machinery	Other Machinery	Gas	Water	Construction	Wholesale & Retail Trade and Motor Vehicle	Hotels and Restaurants	Transport and Communications	Finance and Insurance	Real Estate and Ownership of Dwellings	Business and Private Services	Government Services
Agriculture, Fishery and Forestry	0.01	0.01	0.01	0.01	0.04	0.02	0.00	0.01	0.03	0.04	0.16	0.01	0.01	0.01	0.01	0.02
Crude Oil and Natural Gas	0.01	0.01	0.01	0.01	0.01	0.01	0.06	0.02	0.03	0.03	0.02	0.05	0.01	0.00	0.01	0.01
Mining and Quarrying	0.01	0.01	0.00	0.00	0.01	0.03	0.03	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, Beverage, and Tobacco	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.05	0.28	0.01	0.01	0.01	0.01	0.02
Textile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood and Wood Product	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.02	0.01	0.02	0.03	0.01	0.02	0.01
Gasoline and Transport Diesel	0.01	0.01	0.01	0.01	0.01	0.01	0.06	0.02	0.03	0.03	0.02	0.05	0.01	0.01	0.01	0.01
Other Petroleum Products	0.01	0.01	0.01	0.00	0.01	0.01	0.05	0.01	0.02	0.02	0.01	0.04	0.01	0.00	0.01	0.01
Chemicals	0.05	0.04	0.04	0.03	0.06	0.08	0.01	0.07	0.03	0.04	0.02	0.02	0.01	0.01	0.02	0.05
Non-metal and Mineral	0.02	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Iron and Steel Products	0.16	0.10	0.02	0.01	0.08	0.02	0.00	0.02	0.12	0.01	0.00	0.01	0.00	0.00	0.00	0.01
Basic Precious and Non-ferrous Metals	0.02	0.02	0.01	0.00	0.02	0.01	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal Product	1.09	0.07	0.03	0.01	0.04	0.01	0.00	0.01	0.03	0.01	0.00	0.01	0.00	0.00	0.00	0.01
Industrial Machinery	0.01	1.03	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Electrical Machinery	0.00	0.00	1.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precise Machinery	0.00	0.00	0.01	1.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Transport Machinery	0.00	0.01	0.00	0.00	1.16	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.00	0.01	0.01
Other Machinery	0.00	0.00	0.00	0.00	0.01	1.12	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.02	0.01
Gas	0.02	0.01	0.01	0.01	0.01	0.01	1.05	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	0.01	0.00	0.00	0.00	0.00	0.00	0.01	1.06	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01
Construction	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	1.08	0.00	0.01	0.02	0.01	0.03	0.01	0.04
Wholesale & Retail Trade and Motor Vehicle	0.09	0.07	0.07	0.06	0.10	0.06	0.05	0.04	0.10	1.06	0.09	0.05	0.02	0.01	0.03	0.02
Hotels and Restaurants	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.07	0.01	0.04	0.01	0.01	0.01
Transport and Communications	0.06	0.04	0.05	0.04	0.04	0.03	0.04	0.05	0.05	0.05	0.08	1.35	0.11	0.05	0.11	0.08
Finance and Insurance	0.06	0.04	0.04	0.04	0.04	0.03	0.08	0.06	0.05	0.07	0.05	0.14	1.45	0.21	0.09	0.06
Real Estate and Ownership of Dwellings	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.01	0.02	0.02	1.14	0.02	0.05
Business and Private Services	0.03	0.02	0.01	0.02	0.02	0.02	0.08	0.05	0.02	0.03	0.03	0.04	0.03	0.03	1.16	0.03
Government Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	1.01

Source: Authors.

Appendix 1-F. $D = [(I-A)-1]'$

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)	Agriculture, Fishery and Forestry	Crude Oil and Natural Gas	Mining and Quarrying	Food, Beverage, and Tobacco	Textile	Wood and Wood Product	Paper	Gasoline and Transport Diesel	Other Petroleum Products	Chemicals	Non-metal and Mineral	Iron and Steel Products	Basic Precious and Non-ferrous Metals	Metal Product
Agriculture, Fishery and Forestry	1.09	0.03	0.00	0.06	0.00	0.00	0.00	0.03	0.02	0.06	0.00	0.00	0.00	0.00
Crude Oil and Natural Gas	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.02	0.00	0.00	0.00	0.01
Mining and Quarrying	0.00	0.02	1.01	0.01	0.00	0.00	0.00	0.02	0.02	0.03	0.00	0.00	0.00	0.00
Food, Beverage, and Tobacco	0.50	0.03	0.00	1.40	0.00	0.00	0.01	0.02	0.02	0.05	0.01	0.00	0.00	0.01
Textile	0.02	0.01	0.00	0.02	1.12	0.00	0.01	0.01	0.01	0.12	0.00	0.00	0.00	0.01
Wood and Wood Product	0.46	0.02	0.00	0.03	0.00	1.13	0.01	0.03	0.02	0.06	0.01	0.01	0.00	0.00
Paper	0.15	0.02	0.00	0.02	0.01	0.08	1.12	0.02	0.01	0.09	0.01	0.02	0.00	0.01
Gasoline and Transport Diesel	0.00	0.53	0.00	0.00	0.00	0.00	0.00	1.01	0.01	0.02	0.00	0.00	0.00	0.01
Other Petroleum Products	0.00	0.52	0.00	0.00	0.00	0.00	0.00	0.01	1.02	0.02	0.00	0.00	0.00	0.01
Chemicals	0.05	0.05	0.01	0.08	0.00	0.01	0.01	0.04	0.03	1.37	0.01	0.00	0.00	0.01
Non-metal and Mineral	0.01	0.05	0.16	0.01	0.00	0.00	0.01	0.06	0.04	0.06	1.18	0.03	0.00	0.03
Iron and Steel Products	0.01	0.02	0.02	0.01	0.00	0.00	0.01	0.02	0.01	0.03	0.09	1.26	0.05	0.03
Basic Precious and Non-ferrous Metals	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.04	1.05	0.06
Metal Product	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.05	0.02	0.16	0.02	1.09
Industrial Machinery	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.04	0.01	0.10	0.02	0.07
Electrical Machinery	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.04	0.01	0.02	0.01	0.03
Precise Machinery	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.03	0.02	0.01	0.00	0.01
Transport Machinery	0.04	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.06	0.01	0.08	0.02	0.04
Other Machinery	0.02	0.01	0.03	0.01	0.00	0.00	0.01	0.01	0.01	0.08	0.00	0.02	0.01	0.01
Gas	0.00	0.06	0.03	0.00	0.00	0.00	0.00	0.06	0.05	0.01	0.00	0.00	0.01	0.00
Water	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.02	0.01	0.07	0.00	0.02	0.00	0.01
Construction	0.03	0.03	0.05	0.01	0.00	0.05	0.01	0.03	0.02	0.03	0.16	0.12	0.02	0.03
Wholesale & Retail Trade and Motor Vehicle	0.04	0.03	0.00	0.05	0.00	0.00	0.02	0.03	0.02	0.04	0.00	0.01	0.00	0.01
Hotels and Restaurants	0.16	0.02	0.00	0.28	0.00	0.00	0.01	0.02	0.01	0.02	0.00	0.00	0.00	0.00
Transport and Communications	0.01	0.05	0.00	0.01	0.00	0.00	0.02	0.05	0.04	0.02	0.00	0.01	0.00	0.01
Finance and Insurance	0.01	0.01	0.00	0.01	0.00	0.00	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Real Estate and Ownership of Dwellings	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00
Business and Private Services	0.01	0.01	0.00	0.01	0.00	0.00	0.02	0.01	0.01	0.02	0.00	0.00	0.00	0.00
Government Services	0.02	0.01	0.00	0.02	0.00	0.00	0.01	0.01	0.01	0.05	0.01	0.01	0.00	0.01

Appendix 1-F. $D = [(I-A)-1]'$ (continued)

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)	Industrial Machinery	Electrical Machinery	Precise Machinery	Transport Machinery	Other Machinery	Gas	Water	Construction	Wholesale & Retail Trade and Motor Vehicle	Hotels and Restaurants	Transport and Communications	Finance and Insurance	Real Estate and Ownership of Dwellings	Business and Private Services	Government Services
Agriculture, Fishery and Forestry	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.05	0.01	0.04	0.09	0.00	0.01	0.00
Crude Oil and Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.02	0.02	0.00	0.01	0.00
Mining and Quarrying	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.04	0.00	0.05	0.03	0.00	0.03	0.00
Food, Beverage, and Tobacco	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.17	0.01	0.06	0.10	0.01	0.02	0.00
Textile	0.01	0.00	0.00	0.00	0.03	0.03	0.01	0.01	0.08	0.00	0.07	0.06	0.01	0.03	0.00
Wood and Wood Product	0.01	0.00	0.00	0.01	0.00	0.02	0.01	0.01	0.13	0.01	0.11	0.10	0.01	0.03	0.00
Paper	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.01	0.11	0.01	0.07	0.07	0.01	0.02	0.00
Gasoline and Transport Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.00	0.02	0.03	0.00	0.01	0.00
Other Petroleum Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.00	0.02	0.03	0.00	0.01	0.00
Chemicals	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.01	0.13	0.00	0.06	0.06	0.01	0.02	0.00
Non-metal and Mineral	0.00	0.00	0.00	0.00	0.01	0.04	0.02	0.01	0.10	0.00	0.10	0.07	0.01	0.03	0.00
Iron and Steel Products	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.01	0.10	0.01	0.06	0.06	0.01	0.02	0.00
Basic Precious and Non-ferrous Metals	0.02	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.07	0.00	0.05	0.05	0.00	0.01	0.00
Metal Product	0.01	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.09	0.01	0.06	0.06	0.01	0.03	0.00
Industrial Machinery	1.03	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.07	0.00	0.04	0.04	0.01	0.02	0.00
Electrical Machinery	0.01	1.01	0.01	0.00	0.00	0.01	0.00	0.01	0.07	0.00	0.05	0.04	0.00	0.01	0.00
Precise Machinery	0.00	0.01	1.01	0.00	0.00	0.01	0.00	0.01	0.06	0.00	0.04	0.04	0.00	0.02	0.00
Transport Machinery	0.01	0.01	0.01	1.16	0.01	0.01	0.00	0.00	0.10	0.00	0.04	0.04	0.01	0.02	0.00
Other Machinery	0.01	0.00	0.02	0.00	1.12	0.01	0.00	0.00	0.06	0.00	0.03	0.03	0.00	0.02	0.00
Gas	0.01	0.00	0.00	0.00	0.00	1.05	0.01	0.00	0.05	0.00	0.04	0.08	0.00	0.08	0.00
Water	0.00	0.00	0.00	0.00	0.00	0.05	1.06	0.00	0.04	0.00	0.05	0.06	0.00	0.05	0.00
Construction	0.01	0.01	0.00	0.00	0.00	0.01	0.01	1.08	0.10	0.00	0.05	0.05	0.02	0.02	0.00
Wholesale & Retail Trade and Motor Vehicle	0.00	0.00	0.00	0.03	0.01	0.00	0.01	0.00	1.06	0.01	0.05	0.07	0.02	0.03	0.00
Hotels and Restaurants	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.09	1.07	0.08	0.05	0.01	0.03	0.00
Transport and Communications	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.02	0.05	0.01	1.35	0.14	0.02	0.04	0.00
Finance and Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.04	0.11	1.45	0.02	0.03	0.01
Real Estate and Ownership of Dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.01	0.05	0.21	1.14	0.03	0.00
Business and Private Services	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.01	0.03	0.01	0.11	0.09	0.02	1.16	0.00
Government Services	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.04	0.02	0.01	0.08	0.06	0.05	0.03	1.01

Source: Authors.

Appendix 1-G. ICV: Input Coefficient of Electricity Sector

Sectors	S vector
Agriculture, Fishery and Forestry	0.00
Crude Oil and Natural Gas	0.00
Mining and Quarrying	0.00
Food, Beverage, and Tobacco	0.00
Textile	0.01
Wood and Wood Product	0.01
Paper	0.01
Gasoline and Transport Diesel	0.00
Other Petroleum Products	0.00
Chemicals	0.01
Non-metal and Mineral	0.02
Iron and Steel Products	0.01
Basic Precious and Non-ferrous Metals	0.01
Metal Product	0.01
Industrial Machinery	0.00
Electrical Machinery	0.00
Precise Machinery	0.00
Transport Machinery	0.00
Other Machinery	0.00
Gas	-
Water	0.03
Construction	0.00
Wholesale & Retail Trade and Motor Vehicle	0.00
Hotel and Restaurants	0.05
Transport and Communications	0.01
Finance and Insurance	0.02
Real Estate and Ownership of Dwellings	0.01
Business and Private Services	0.01
Government Services	0.02

Source: Authors.

Appendix 1-H. $A = X_{ij}/X_j$ Matrix Excluding Gasoline and Transport Diesel Sector

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)	Agriculture, Fishery and Forestry	Crude Oil and Natural Gas	Mining and Quarrying	Food, Beverage, and Tobacco	Textile	Wood and Wood Product	Paper	Other Petroleum Products	Chemicals	Non-metal and Mineral	Iron and Steel Products	Basic Precious and Non-ferrous Metals	Metal Product
Agriculture, Fishery and Forestry	0.07	0.00	0.00	0.33	0.01	0.37	0.09	0.00	0.01	0.00	0.00	0.00	0.00
Crude Oil and Natural Gas	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.51	0.01	0.00	0.00	0.00	0.00
Mining and Quarrying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.01	0.01
Food, Beverage, and Tobacco	0.03	0.00	0.00	0.27	0.01	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00
Textile	0.00	0.00	0.00	0.00	0.11	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Wood and Wood Product	0.00	0.00	0.00	0.00	0.00	0.11	0.06	0.00	0.00	0.00	0.00	0.00	0.00
Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
Other Petroleum Products	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.01	0.00	0.00
Chemicals	0.03	0.01	0.02	0.01	0.07	0.02	0.04	0.00	0.26	0.02	0.01	0.01	0.03
Non-metal and Mineral	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.06	0.00	0.01
Iron and Steel Products	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.20	0.02	0.12
Basic Precious and Non-ferrous Metals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.01
Metal Product	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.02	0.02	0.05	0.08
Industrial Machinery	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.01
Electrical Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precise Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Machinery	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.02	0.01	0.01	0.01
Gas	-	0.00	0.01	0.00	0.02	0.01	0.01	0.00	0.01	0.03	0.02	0.01	0.01
Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Construction	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Wholesale & Retail Trade and Motor Vehicle	0.03	0.01	0.03	0.09	0.05	0.08	0.06	0.03	0.08	0.06	0.06	0.05	0.06
Hotels and Restaurants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport and Communications	0.02	0.01	0.03	0.02	0.03	0.05	0.03	0.01	0.02	0.05	0.03	0.02	0.03
Finance and Insurance	0.05	0.01	0.01	0.02	0.02	0.03	0.02	0.01	0.02	0.02	0.02	0.02	0.03
Real Estate and Ownership of Dwellings	0.00	-	-	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Business and Private Services	0.01	0.00	0.02	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01
Government Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix 1-H. $A = X_{ij}/X_j$ Matrix Excluding Gasoline and Transport Diesel Sector (continued)

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)											Wholesale & Retail Trade and Motor Vehicle		Hotel and Restaurants		Transport and Communications		Finance and Insurance		Real Estate and Ownership of Dwellings		Business and Private Services		Government Services	
	Industrial Machinery	Electrical Machinery	Precise Machinery	Transport Machinery	Other Machinery	Electricity	Gas	Water	Construction															
Agriculture, Fishery and Forestry	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.02	0.05	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Crude Oil and Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining and Quarrying	0.01	0.00	0.00	0.00	0.03	0.01	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, Beverage, and Tobacco	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Textile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood and Wood Product	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.02	0.00	0.01	0.02	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.01
Other Petroleum Products	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.01	0.01	0.02	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemicals	0.02	0.02	0.02	0.03	0.05	0.00	0.00	0.04	0.01	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.03	0.00
Non-metal and Mineral Iron and Steel Products	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Iron and Steel Products	0.07	0.01	0.01	0.05	0.01	0.00	0.00	0.02	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Basic Precious and Non-ferrous Metals	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal Product	0.06	0.02	0.01	0.03	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Machinery	0.03	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical Machinery	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precise Machinery	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Transport Machinery	0.01	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Machinery	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.01	0.02	0.01	0.01
Electricity	0.00	0.00	0.00	0.00	0.00	0.01	-	0.03	0.00	0.00	0.05	0.01	0.02	0.01	0.02	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02
Gas	0.01	0.01	0.01	0.00	0.00	0.17	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Construction	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.03	0.01	0.01	0.03	0.01	0.03	0.01	0.03
Wholesale & Retail Trade and Motor Vehicle	0.05	0.05	0.05	0.06	0.04	0.02	0.03	0.02	0.06	0.04	0.04	0.02	0.01	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.01
Hotels and Restaurants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.01	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Transport and Communications	0.02	0.03	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.03	0.04	0.25	0.05	0.02	0.06	0.05	0.02	0.02	0.02	0.02	0.06	0.06	0.05	0.05
Finance and Insurance	0.02	0.02	0.02	0.01	0.01	0.02	0.04	0.03	0.01	0.03	0.01	0.07	0.30	0.12	0.04	0.04	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Real Estate and Ownership of Dwellings	0.00	0.00	0.00	0.00	0.00	-	-	-	0.01	0.01	0.00	0.01	0.01	0.12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04
Business and Private Services	0.01	0.01	0.01	0.01	0.01	0.03	0.06	0.04	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
Government Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01

Source: Authors.

Appendix 1-I. B = I-A

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM' 000)	Agriculture, Fishery and Forestry	Crude Oil and Natural Gas	Mining and Quarrying	Food, Beverage, and Tobacco	Textile	Wood and Wood Product	Paper	Other Petroleum Products	Chemicals	Non-metal and Mineral	Iron and Steel Products	Basic Precious and Non-ferrous Metals	Metal Product
Agriculture, Fishery and Forestry	0.93	0.00	0.00	-0.33	-0.01	-0.37	-0.09	0.00	-0.01	0.00	0.00	0.00	0.00
Crude Oil and Natural Gas	0.00	0.99	0.00	0.00	0.00	0.00	0.00	-0.51	-0.01	0.00	0.00	0.00	0.00
Mining and Quarrying	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.13	-0.01	-0.01	-0.01
Food, Beverage, and Tobacco	-0.03	0.00	0.00	0.73	-0.01	0.00	0.00	0.00	-0.04	0.00	0.00	0.00	0.00
Textile	0.00	0.00	0.00	0.00	0.89	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00
Wood and Wood Product	0.00	0.00	0.00	0.00	0.00	0.89	-0.06	0.00	0.00	0.00	0.00	0.00	0.00
Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00
Other Petroleum Products	-0.02	-0.01	-0.01	0.00	0.00	0.00	0.00	0.99	-0.02	-0.03	-0.01	0.00	0.00
Chemicals	-0.03	-0.01	-0.02	-0.01	-0.07	-0.02	-0.04	0.00	0.74	-0.02	-0.01	-0.01	-0.03
Non-metal and Mineral	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	-0.06	0.00	-0.01
Iron and Steel Products	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	-0.02	0.80	-0.02	-0.12
Basic Precious and Non-ferrous Metals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.04	0.95	-0.01
Metal Product	0.00	-0.01	0.00	-0.01	0.00	0.00	-0.01	0.00	0.00	-0.02	-0.02	-0.05	0.92
Industrial Machinery	0.00	0.00	-0.01	0.00	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00	-0.02	-0.01
Electrical Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precise Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Machinery	0.00	0.00	0.00	0.00	-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.01	0.00	-0.01	-0.02	-0.01	-0.01	-0.01
Gas	0.00	0.00	-0.01	0.00	-0.02	-0.01	-0.01	0.00	-0.01	-0.03	-0.02	-0.01	-0.01
Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	0.00	-0.01	-0.01
Construction	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00
Wholesale & Retail Trade and Motor Vehicle	-0.03	-0.01	-0.03	-0.09	-0.05	-0.08	-0.06	-0.03	-0.08	-0.06	-0.06	-0.05	-0.06
Hotels and Restaurants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport and Communications	-0.02	-0.01	-0.03	-0.02	-0.03	-0.05	-0.03	-0.01	-0.02	-0.05	-0.03	-0.02	-0.03
Finance and Insurance	-0.05	-0.01	-0.01	-0.02	-0.02	-0.03	-0.02	-0.01	-0.02	-0.02	-0.02	-0.02	-0.03
Real Estate and Ownership of Dwellings	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Business and Private Services	-0.01	0.00	-0.02	0.00	-0.01	-0.01	-0.01	0.00	-0.01	-0.01	-0.01	-0.01	-0.01
Government Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix 1-I. B = I-A (continued)

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)														Real Estate and Ownership of Dwellings	Business and Private Services	Government Services
	Industrial Machinery	Electrical Machinery	Precise Machinery	Transport Machinery	Other Machinery	Electricity	Gas	Water	Construction	Wholesale & Retail Trade and Motor Vehicle	Hotels and Restaurants	Transport and Communications	Finance and Insurance			
Agriculture, Fishery and Forestry	0.00	0.00	0.00	-0.03	-0.01	0.00	0.00	0.00	0.00	-0.02	-0.05	0.00	0.00	-0.01	0.00	0.00
Crude Oil and Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining and Quarrying	-0.01	0.00	0.00	0.00	-0.03	-0.01	-0.02	0.00	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, Beverage, and Tobacco	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.03	-0.18	0.00	0.00	0.00	0.00	-0.01
Textile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood and Wood Product	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	0.00	-0.01	-0.02	0.00	-0.01	-0.01
Other Petroleum Products	0.00	0.00	0.00	0.00	0.00	-0.02	-0.04	-0.01	-0.01	-0.02	0.00	-0.03	0.00	0.00	0.00	0.00
Chemicals	-0.02	-0.02	-0.02	-0.03	-0.05	0.00	0.00	-0.04	-0.01	-0.02	0.00	-0.01	0.00	0.00	-0.01	-0.03
Non-metal and Mineral	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	-0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Iron and Steel Products	-0.07	-0.01	-0.01	-0.05	-0.01	0.00	0.00	-0.02	-0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Basic Precious and Non-ferrous Metals	-0.01	-0.01	0.00	-0.01	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal Product	-0.06	-0.02	-0.01	-0.03	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
Industrial Machinery	0.97	-0.01	0.00	-0.01	-0.01	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00	0.00	0.00
Electrical Machinery	0.00	0.99	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precise Machinery	0.00	-0.01	0.99	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01
Transport Machinery	-0.01	0.00	0.00	0.86	0.00	0.00	0.00	0.00	0.00	-0.02	0.00	-0.01	0.00	0.00	0.00	0.00
Other Machinery	0.00	0.00	0.00	0.00	0.89	0.00	0.00	0.00	0.00	-0.01	0.00	-0.01	0.00	0.00	-0.02	-0.01
Electricity	0.00	0.00	0.00	0.00	0.00	0.99	0.00	-0.03	0.00	0.00	-0.05	-0.01	-0.02	-0.01	-0.01	-0.02
Gas	-0.01	-0.01	-0.01	0.00	0.00	-0.17	0.95	-0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.94	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	-0.01
Construction	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.93	0.00	-0.01	-0.01	0.00	-0.03	-0.01	-0.03
Wholesale & Retail Trade and Motor Vehicle	-0.05	-0.05	-0.05	-0.06	-0.04	-0.02	-0.03	-0.02	-0.06	0.96	-0.04	-0.02	-0.01	0.00	-0.01	-0.01
Hotels and Restaurants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.94	-0.01	-0.03	0.00	0.00	-0.01
Transport and Communications	-0.02	-0.03	-0.02	-0.01	-0.01	-0.01	-0.01	-0.02	-0.01	-0.03	-0.04	0.75	-0.05	-0.02	-0.06	-0.05
Finance and Insurance	-0.02	-0.02	-0.02	-0.01	-0.01	-0.02	-0.04	-0.03	-0.01	-0.03	-0.01	-0.07	0.70	-0.12	-0.04	-0.02
Real Estate and Ownership of Dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	0.00	-0.01	-0.01	0.88	-0.01	-0.04
Business and Private Services	-0.01	-0.01	-0.01	-0.01	-0.01	-0.03	-0.06	-0.04	-0.01	-0.02	-0.02	-0.02	-0.01	-0.02	0.86	-0.02
Government Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.99

Source: Authors.

Appendix 1-J. C = (I-A)⁻¹

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)	Agriculture, Fishery and Forestry	Crude Oil and Natural Gas	Mining and Quarrying	Food, Beverage, and Tobacco	Textile	Wood and Wood Product	Paper	Other Petroleum Products	Chemicals	Non-metal and Mineral	Iron and Steel Products	Basic Precious and Non-ferrous Metals
Agriculture, Fishery and Forestry	1.09	0.00	0.00	0.50	0.02	0.46	0.15	0.00	0.05	0.01	0.01	0.01
Crude Oil and Natural Gas	0.01	1.02	0.01	0.02	0.01	0.01	0.01	0.52	0.03	0.02	0.01	0.00
Mining and Quarrying	0.00	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.01	0.16	0.02	0.02
Food, Beverage, and Tobacco	0.06	0.00	0.01	1.40	0.02	0.03	0.02	0.00	0.08	0.01	0.01	0.01
Textile	0.00	0.00	0.00	0.00	1.12	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Wood and Wood Product	0.00	0.00	0.00	0.00	0.00	1.13	0.08	0.00	0.01	0.00	0.00	0.00
Paper	0.00	0.00	0.00	0.01	0.01	0.01	1.12	0.00	0.01	0.01	0.01	0.00
Other Petroleum Products	0.02	0.01	0.02	0.02	0.01	0.02	0.01	1.02	0.03	0.04	0.02	0.01
Chemicals	0.06	0.02	0.03	0.05	0.11	0.06	0.09	0.02	1.37	0.05	0.03	0.02
Non-metal and Mineral	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.01	1.18	0.09	0.01
Iron and Steel Products	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.03	1.26	0.04
Basic Precious and Non-ferrous Metals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	1.05
Metal Product	0.00	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.03	0.03	0.06
Industrial Machinery	0.00	0.00	0.02	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.02
Electrical Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precise Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport Machinery	0.01	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Other Machinery	0.00	0.00	0.00	0.01	0.03	0.00	0.01	0.00	0.00	0.01	0.00	0.00
Electricity	0.01	0.00	0.01	0.01	0.02	0.02	0.01	0.00	0.01	0.03	0.02	0.01
Gas	0.00	0.00	0.01	0.01	0.03	0.02	0.02	0.00	0.02	0.04	0.03	0.02
Water	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.02	0.02	0.01	0.01
Construction	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Wholesale & Retail Trade and Motor Vehicle	0.05	0.02	0.04	0.17	0.08	0.12	0.10	0.04	0.13	0.10	0.10	0.07
Hotels and Restaurants	0.01	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00
Transport and Communications	0.04	0.02	0.05	0.06	0.07	0.11	0.07	0.02	0.06	0.10	0.06	0.05
Finance and Insurance	0.09	0.02	0.03	0.10	0.06	0.10	0.07	0.03	0.06	0.07	0.06	0.05
Real Estate and Ownership of Dwellings	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00
Business and Private Services	0.02	0.01	0.03	0.02	0.03	0.03	0.03	0.01	0.02	0.03	0.02	0.02
Government Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix 1-J. $C = (I-A)^{-1}$ (continued)

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)	Metal Product	Industrial Machinery	Electrical Machinery	Precise Machinery	Transport Machinery	Other Machinery	Electricity	Gas	Water	Construction	Wholesale & Retail Trade and Motor Vehicle	Hotels and Restaurants	Transport and Communications	Finance and Insurance	Real Estate and Ownership of Dwellings	Business and Private Services	Government Services
Agriculture, Fishery and Forestry	0.01	0.01	0.01	0.01	0.04	0.01	0.00	0.00	0.01	0.03	0.04	0.16	0.01	0.01	0.01	0.01	0.02
Crude Oil and Natural Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.00	0.00	0.00	0.00
Mining and Quarrying	0.01	0.01	0.00	0.00	0.01	0.04	0.02	0.03	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, Beverage, and Tobacco	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.05	0.28	0.01	0.01	0.01	0.01	0.02
Textile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood and Wood Product	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.02	0.01	0.02	0.03	0.01	0.02	0.01
Other Petroleum Products	0.01	0.01	0.01	0.00	0.01	0.01	0.03	0.05	0.01	0.02	0.02	0.01	0.04	0.01	0.00	0.01	0.01
Chemicals	0.05	0.04	0.04	0.03	0.06	0.08	0.01	0.01	0.07	0.03	0.04	0.02	0.02	0.01	0.01	0.02	0.05
Non-metal and Mineral	0.02	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Iron and Steel Products	0.16	0.10	0.02	0.01	0.08	0.02	0.00	0.00	0.02	0.12	0.01	0.00	0.01	0.00	0.00	0.00	0.01
Basic Precious and Non-ferrous Metals	0.02	0.02	0.01	0.00	0.02	0.01	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal Product	1.09	0.07	0.03	0.01	0.04	0.01	0.00	0.00	0.01	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Industrial Machinery	0.01	1.03	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Electrical Machinery	0.00	0.00	1.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precise Machinery	0.00	0.00	0.01	1.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Transport Machinery	0.00	0.01	0.00	0.00	1.16	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.00	0.01	0.01
Other Machinery	0.00	0.00	0.00	0.00	0.01	1.12	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.02	0.01
Electricity	0.01	0.01	0.01	0.01	0.01	0.01	1.01	0.00	0.03	0.01	0.00	0.05	0.01	0.03	0.01	0.02	0.02
Gas	0.02	0.01	0.01	0.01	0.01	0.01	0.18	1.05	0.05	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Water	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	1.06	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01
Construction	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	1.08	0.00	0.01	0.02	0.01	0.03	0.01	0.04
Wholesale & Retail Trade and Motor Vehicle	0.09	0.07	0.07	0.06	0.10	0.06	0.03	0.04	0.04	0.10	1.06	0.09	0.05	0.02	0.01	0.03	0.02
Hotels and Restaurants	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.07	0.01	0.04	0.01	0.01	0.01
Transport and Communications	0.06	0.04	0.05	0.04	0.04	0.03	0.03	0.04	0.05	0.05	0.05	0.08	1.35	0.11	0.05	0.11	0.08
Finance and Insurance	0.06	0.04	0.04	0.04	0.04	0.03	0.06	0.08	0.06	0.05	0.07	0.06	0.14	1.45	0.21	0.09	0.06
Real Estate and Ownership of Dwellings	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.02	0.01	0.02	0.02	1.14	0.02	0.05
Business and Private Services	0.03	0.02	0.01	0.02	0.02	0.02	0.06	0.08	0.05	0.02	0.03	0.03	0.04	0.03	0.03	1.16	0.03
Government Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	1.01

Source: Authors.

Appendix 1-K. D = [(I-A)-1]'

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)	Agriculture, Fishery and Forestry	Crude Oil and Natural Gas	Mining and Quarrying	Food, Beverage, and Tobacco	Textile	Wood and Wood Product	Paper	Other Petroleum Products	Chemicals	Non-metal and Mineral	Iron and Steel Products	Basic Precious and Non-ferrous Metals	Metal Product
Agriculture, Fishery and Forestry	1.09	0.01	0.00	0.06	0.00	0.00	0.00	0.02	0.06	0.00	0.00	0.00	0.00
Crude Oil and Natural Gas	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.01
Mining and Quarrying	0.00	0.01	1.01	0.01	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00
Food, Beverage, and Tobacco	0.50	0.02	0.00	1.40	0.00	0.00	0.01	0.02	0.05	0.01	0.00	0.00	0.01
Textile	0.02	0.01	0.00	0.02	1.12	0.00	0.01	0.01	0.11	0.00	0.00	0.00	0.01
Wood and Wood Product	0.46	0.01	0.00	0.03	0.00	1.13	0.01	0.02	0.06	0.01	0.01	0.00	0.00
Paper	0.15	0.01	0.00	0.02	0.01	0.08	1.12	0.01	0.09	0.01	0.02	0.00	0.01
Other Petroleum Products	0.00	0.52	0.00	0.00	0.00	0.00	0.00	1.02	0.02	0.00	0.00	0.00	0.01
Chemicals	0.05	0.03	0.01	0.08	0.00	0.01	0.01	0.03	1.37	0.01	0.00	0.00	0.01
Non-metal and Mineral	0.01	0.02	0.16	0.01	0.00	0.00	0.01	0.04	0.05	1.18	0.03	0.00	0.03
Iron and Steel Products	0.01	0.01	0.02	0.01	0.00	0.00	0.01	0.02	0.03	0.09	1.26	0.05	0.03
Basic Precious and Non-ferrous Metals	0.01	0.00	0.02	0.01	0.00	0.00	0.00	0.01	0.02	0.01	0.04	1.05	0.06
Metal Product	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.05	0.02	0.16	0.02	1.09
Industrial Machinery	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.04	0.01	0.10	0.02	0.07
Electrical Machinery	0.01	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.04	0.01	0.02	0.01	0.03
Precise Machinery	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.02	0.01	0.00	0.01
Transport Machinery	0.04	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.06	0.01	0.08	0.02	0.04
Other Machinery	0.01	0.00	0.04	0.01	0.00	0.00	0.01	0.01	0.08	0.00	0.02	0.01	0.01
Electricity	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00
Gas	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.00	0.01	0.00
Water	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.07	0.00	0.02	0.00	0.01
Construction	0.03	0.01	0.05	0.01	0.00	0.05	0.01	0.02	0.03	0.16	0.12	0.02	0.03
Wholesale & Retail Trade and Motor Vehicle	0.04	0.01	0.00	0.05	0.00	0.00	0.02	0.02	0.04	0.00	0.01	0.00	0.00
Hotels and Restaurants	0.16	0.01	0.00	0.28	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.00	0.00
Transport and Communications	0.01	0.02	0.00	0.01	0.00	0.00	0.02	0.04	0.02	0.00	0.01	0.00	0.01
Finance and Insurance	0.01	0.00	0.00	0.01	0.00	0.00	0.03	0.01	0.01	0.00	0.00	0.00	0.00
Real Estate and Ownership of Dwellings	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00
Business and Private Services	0.01	0.00	0.00	0.01	0.00	0.00	0.02	0.01	0.02	0.00	0.00	0.00	0.00
Government Services	0.02	0.00	0.00	0.02	0.00	0.00	0.01	0.01	0.05	0.01	0.01	0.00	0.01

Appendix 1-K. D = [(I-A)-1]' (continued)

ABSORPTION MATRIX OF DOMESTIC PRODUCTION AT BASIC PRICES, 2010 (RM'000)											Wholesale & Retail Trade and Motor Vehicle	Hotels and Restaurants	Transport and Communications	Finance and Insurance	Real Estate and Ownership of Dwellings	Business and Private Services	Government Services
	Industrial Machinery	Electrical Machinery	Precise Machinery	Transport Machinery	Other Machinery	Electricity	Gas	Water	Construction								
Agriculture, Fishery and Forestry	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.05	0.01	0.04	0.09	0.00	0.02	0.00	
Crude Oil and Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.02	0.02	0.00	0.01	0.00	
Mining and Quarrying	0.02	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.04	0.00	0.05	0.03	0.00	0.03	0.00	
Food, Beverage, and Tobacco	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.17	0.01	0.06	0.10	0.01	0.02	0.00	
Textile	0.01	0.00	0.00	0.00	0.03	0.02	0.03	0.01	0.01	0.08	0.00	0.07	0.06	0.01	0.03	0.00	
Wood and Wood Product	0.01	0.00	0.00	0.01	0.00	0.02	0.02	0.01	0.01	0.12	0.01	0.11	0.10	0.01	0.03	0.00	
Paper	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.01	0.01	0.10	0.01	0.07	0.07	0.01	0.03	0.00	
Other Petroleum Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.00	0.02	0.03	0.00	0.01	0.00	
Chemicals	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.13	0.00	0.06	0.06	0.01	0.02	0.00	
Non-metal and Mineral	0.00	0.00	0.00	0.00	0.01	0.03	0.04	0.02	0.01	0.10	0.00	0.10	0.07	0.01	0.03	0.00	
Iron and Steel Products	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.01	0.01	0.10	0.01	0.06	0.06	0.01	0.02	0.00	
Basic Precious and Non-ferrous Metals	0.02	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.07	0.00	0.05	0.05	0.00	0.02	0.00	
Metal Product	0.01	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.09	0.01	0.06	0.06	0.01	0.03	0.00	
Industrial Machinery	1.03	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.01	0.07	0.00	0.04	0.04	0.01	0.02	0.00	
Electrical Machinery	0.01	1.01	0.01	0.00	0.00	0.01	0.01	0.00	0.01	0.07	0.00	0.05	0.04	0.00	0.01	0.00	
Precise Machinery	0.00	0.01	1.01	0.00	0.00	0.01	0.01	0.00	0.01	0.06	0.00	0.04	0.04	0.00	0.02	0.00	
Transport Machinery	0.01	0.01	0.01	1.16	0.01	0.01	0.01	0.00	0.00	0.10	0.00	0.04	0.04	0.01	0.02	0.00	
Other Machinery	0.01	0.00	0.02	0.00	1.12	0.01	0.01	0.00	0.00	0.06	0.00	0.03	0.03	0.00	0.02	0.00	
Electricity	0.01	0.00	0.00	0.00	0.00	1.01	0.18	0.01	0.00	0.03	0.00	0.03	0.06	0.00	0.06	0.00	
Gas	0.01	0.00	0.00	0.00	0.00	0.00	1.05	0.01	0.00	0.04	0.00	0.04	0.08	0.00	0.08	0.00	
Water	0.00	0.00	0.00	0.00	0.00	0.03	0.05	1.06	0.00	0.04	0.00	0.05	0.06	0.00	0.05	0.00	
Construction	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	1.08	0.10	0.00	0.05	0.05	0.02	0.02	0.00	
Wholesale & Retail Trade and Motor Vehicle	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.01	0.00	1.06	0.01	0.05	0.07	0.02	0.03	0.00	
Hotels and Restaurants	0.01	0.00	0.00	0.00	0.00	0.05	0.01	0.01	0.01	0.09	1.07	0.08	0.06	0.01	0.03	0.00	
Transport and Communications	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.02	0.05	0.01	1.35	0.14	0.02	0.04	0.00	
Finance and Insurance	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.01	0.02	0.04	0.11	1.45	0.02	0.03	0.01	
Real Estate and Ownership of Dwellings	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.01	0.01	0.05	0.21	1.14	0.03	0.00	
Business and Private Services	0.00	0.00	0.01	0.01	0.02	0.02	0.00	0.00	0.01	0.03	0.01	0.11	0.09	0.02	1.16	0.00	
Government Services	0.00	0.00	0.01	0.01	0.01	0.02	0.01	0.01	0.04	0.02	0.01	0.08	0.06	0.05	0.03	1.01	

Source: Authors.

Appendix 1-L. ICV: Input Coefficient of Gasoline and Transport Diesel Sector

Sectors	S vector
Agriculture, Fishery and Forestry	0.02
Crude Oil and Natural Gas	0.01
Mining and Quarrying	0.02
Food, Beverage, and Tobacco	0.00
Textile	0.00
Wood and Wood Product	0.00
Paper	0.00
Other Petroleum Products	-
Chemicals	0.02
Non-metal and Mineral	0.04
Iron and Steel Products	0.01
Basic Precious and Non-ferrous Metals	0.00
Metal Product	0.00
Industrial Machinery	0.00
Electrical Machinery	0.00
Precise Machinery	0.00
Transport Machinery	0.00
Other Machinery	0.00
Electricity	0.03
Gas	0.06
Water	0.01
Construction	0.01
Wholesale & Retail Trade and Motor Vehicle	0.02
Hotels and Restaurants	0.01
Transport and Communications	0.04
Finance and Insurance	0.00
Real Estate and Ownership of Dwellings	0.00
Business and Private Services	0.00
Government Services	0.00

Source: Authors.