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Compilation of Korea-Indonesia International Input-Output Table and Analysis of Economic Structure and Interdependence

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This study constructs a Korea-Indonesia international input-output table (IIOT) linking Korea, Indonesia, and the Rest of the World (ROW) using a harmonized industry classification consisting of 124 sectors. Based on this framework, the study analyzes the industrial structure and economic interdependence of the two economies for the benchmark years 2016 and 2020. The empirical analysis focuses on production and value-added inducement effects derived from the Leontief inverse matrix.

The results show that Korea and Indonesia exhibit complementary industrial structures. Korea is characterized by a manufacturing- and service-oriented economy, while Indonesia maintains relatively larger shares in agriculture, mining, and infrastructure-related sectors. The analysis of production inducement coefficients indicates that domestic industrial linkages increased slightly in both economies during the period, whereas bilateral spillover effects between the two countries declined. In addition, the value-added inducement analysis shows that Indonesia generates relatively higher value-added effects than Korea, reflecting its higher labor intensity.

Overall, the findings suggest that the Korea-Indonesia economic relationship is embedded in broader global value chains rather than being driven solely by direct bilateral trade. The IIOT constructed in this study provides a useful analytical framework for examining industrial linkages and evaluating the economic impacts of bilateral economic cooperation between the two countries.

JEL Classification: C67, F63, O14

Keywords: international input-output table, trade matrix, Korea-Indonesia economic interdependence, production inducement effects

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1. INTRODUCTION

Over the past several decades, Korea and Indonesia have gradually developed a close economic partnership based on their complementary economic structures. Indonesia's abundant natural resources and relatively low labor costs have served as important factors attracting foreign direct investment from Korean firms. At the same time, Korea's rapid industrialization, technological upgrading, and advanced manufacturing capabilities provide valuable policy implications for Indonesia's efforts toward economic modernization and industrial transformation. Against this background, economic relations between the two countries have expanded beyond trade-oriented interactions toward broader industrial cooperation and production network integration.

Since the 2010s, economic cooperation between Korea and Indonesia has further deepened amid strengthened policy coordination and changes in the global economic environment. Indonesia's industrial development strategy, Making Indonesia 4.0, aims to enhance manufacturing competitiveness through digitalization and technological upgrading. In Korea's external economic cooperation strategy, Indonesia has also emerged as a key partner in Southeast Asia. In addition, the restructuring of global supply chains following the U.S.-China trade conflict and the COVID-19 pandemic has further increased Indonesia's importance as both a production base and an investment destination for Korean firms. The Korea-Indonesia Comprehensive Economic Partnership Agreement (CEPA), which entered into force in 2019, has significantly improved bilateral trade and investment conditions by reducing tariffs and strengthening institutional cooperation, thereby reinforcing economic ties between the two countries.

As economic cooperation between Korea and Indonesia expands beyond simple trade relations toward industrial collaboration and integration within global value chains (GVCs), it becomes increasingly important to quantitatively analyze the industrial linkages and interdependence between the two economies. In particular, evaluating the economic effects of trade agreements and industrial cooperation requires a quantitative analytical framework capable of systematically capturing cross-country production networks and inter-industry relationships.

International input-output analysis provides a useful analytical framework for addressing this issue. An international input-output table (IIOT), constructed by linking national input-output tables across countries, enables systematic analysis of international production networks, inter-industry linkages, and participation in global value chains. Through such a framework, it becomes possible to quantitatively assess how economic cooperation and trade agreements influence production structures, value-added creation, and economic interdependence across industries.

Against this background, the main objective of this study is to construct a bilateral international input-output table between Korea and Indonesia and to analyze the industrial structures and economic interdependence of the two economies. To achieve this objective, the study reviews the compilation systems of national input-output tables in both countries and constructs the IIOT by considering issues such as sector classification harmonization, reference year selection, and the treatment of bilateral trade statistics. In particular, the analysis focuses on two benchmark

years — 2016 and 2020 — in order to capture recent structural changes in the global economy and supply-chain reconfiguration.

A distinctive feature of this study is the construction of a more disaggregated industry classification system that reflects the structural characteristics of the two economies and the needs of policy analysis. Korea's economy is characterized by a manufacturing-oriented industrial structure, whereas Indonesia possesses abundant natural resources associated with primary sectors such as agriculture and mining. By disaggregating these sectors, the study enables a more detailed analysis of production networks and industrial linkages in sectors where bilateral industrial cooperation is particularly relevant. This approach contributes to establishing a tailored analytical framework that allows a more precise examination of industrial linkages and supply-chain structures between the two countries.

Based on the constructed international input-output table, this study compares and analyzes the characteristics of the input-output structures and trade structures of the two economies and identifies inter-industry production linkages. In addition, by applying the input-output analytical framework, various inducement coefficients are derived to provide a basis for evaluating the production and value-added effects of industrial cooperation between Korea and Indonesia.

2. EXISTING MRIO DATABASE AND THE CONTRIBUTIONS OF THIS STUDY

2.1. Limitations of Existing MRIO Databases

Several major international or multi-regional input-output (MRIO) databases include both Korea and Indonesia, such as the World Input-Output Database (WIOD), the OECD Inter-Country Input-Output (ICIO) Database, the Eora-MRIO Database, and the Asian Development Bank MRIO (ADB-MRIO).[1)] These databases were developed to construct internationally consistent input-output tables for analyzing global value chains and measuring trade in value added.

Despite their important contributions to global economic analysis, existing MRIO databases differ substantially in terms of compilation methods, sector classifications, and time coverage. For example, WIOD provides data for 43 countries and 56 industries but has not been updated recently, while OECD-ICIO covers approximately 77 countries with 45 industries for the period 1995-2020. The Eora-MRIO database provides broader country coverage and long time-series data but relies heavily on statistical estimation for countries with limited official statistics. The ADB-MRIO database focuses on Asia-Pacific economies but adopts relatively aggregated industry classifications.

[1)] In this study, these databases are collectively referred to as "existing international MRIOs."

Although these databases are widely used for global value-chain analysis, they exhibit several limitations when applied to bilateral policy analysis between specific countries.[2)]

First, statistical consistency and data reliability can be problematic because national statistical systems differ in compilation standards, industrial classifications, and publication schedules. As a result, MRIO databases frequently rely on estimation techniques such as interpolation, extrapolation, or model-based balancing when constructing time-series data.

Second, the sector classifications used in many MRIO databases are relatively aggregated. Most MRIO datasets include fewer than 60 industries, whereas national input-output tables often contain more than 150 sectors. This aggregation reduces the analytical precision of industrial structure analysis and limits the ability to examine industry-specific production networks.

Third, MRIO databases are primarily designed for global comparative analysis rather than detailed bilateral studies. Within a large multi-country production network, it is difficult to isolate and analyze industrial linkages between two specific economies. Consequently, bilateral spillover effects and asymmetric interdependence may not be fully captured.

Overall, while existing MRIO databases provide valuable tools for global economic analysis, their limitations highlight the need for a bilateral international input-output framework with greater sectoral detail and improved statistical consistency.

2.2. Contributions of This Study

Against this background, this study contributes to the literature in several important ways. First, the study constructs a bilateral international input-output table between Korea and Indonesia rather than relying on existing MRIO databases. By linking the official national input-output tables of the two countries, the analysis improves statistical consistency and data reliability.

Second, the study adopts a more disaggregated industry classification that reflects the structural characteristics of both economies. Korea's manufacturing-oriented structure and Indonesia's resource-based sectors, including agriculture and mining, are explicitly considered, allowing a more detailed analysis of bilateral production networks.

Third, the study focuses on examining the structural interdependence between the two economies. Using a bilateral block-matrix framework, the analysis evaluates production linkages, value-added transfer structures, and spillover effects between Korea and Indonesia.

Through these contributions, this study provides a statistical and analytical framework for examining industrial cooperation and supply-chain linkages between the two economies and offers policy-relevant insights for strengthening bilateral economic cooperation.

[2)] A more detailed comparison can be found in *National Research Council for Economics, Humanities and Social Sciences* (2025, Chapter 2, Section 4; 2026, Chapter 2, Section 2).

3. COMPILATION OF THE KOREA–INDONESIA INTERNATIONAL IO TABLE

3.1. Base Years and Table Format

The selection of base years is a key methodological decision in constructing a bilateral international input-output table (IIOT), as it affects both the comparability of industrial structures and the statistical reliability of the analysis. In this study, 2016 and 2020 were selected as the benchmark years, considering the publication status of national input-output tables in Korea and Indonesia.

As of early 2025, Korea has released extended tables up to 2019 based on the 2015 benchmark and extended tables up to 2022 based on the 2020 benchmark. Indonesia published its 2016 input-output table in 2022 and its 2020 table in early 2025. The availability of benchmark tables for both countries enables the construction of a statistically consistent bilateral IIOT reflecting recent economic structures. The 2016 table serves as a reference benchmark, while the 2020 table allows an examination of structural changes associated with recent global economic developments, including supply-chain restructuring and the COVID-19 pandemic.

Both Korea and Indonesia compile Supply Tables, Use Tables, and Symmetric Input-Output Tables in accordance with the 2008 System of National Accounts (SNA). Although linking supply-use tables is theoretically possible, this study adopts a product-by-product symmetric input-output table as the basic framework for constructing the bilateral IIOT.

This format offers several advantages. It facilitates linkage with trade statistics based on the Harmonized System (HS), simplifies matrix operations and block decomposition, and allows straightforward estimation of multiplier effects such as production and value-added inducement. For these reasons, the symmetric input-output table provides an appropriate framework for constructing the Korea-Indonesia IIOT.

Table 1 Recent Compilation Status of Input-Output Tables in Korea and Indonesia

<table>
<tr><th>Category</th><th>Korea</th><th>Indonesia</th></tr>
<tr><td rowspan="2">Reference Years</td><td>2015 Benchmark Table
(Updated Tables for 2016-2019)</td><td>2016 Benchmark Table</td></tr>
<tr><td>2020 Benchmark Table
(Updated Tables for 2021-2023)</td><td>2020 Benchmark Table</td></tr>
<tr><td>Guideline</td><td colspan="2">2008 System of National Accounts</td></tr>
<tr><td>Valuation</td><td colspan="2">Basic prices, producer’s prices, and purchaser’s prices</td></tr>
<tr><td>Table Structure</td><td colspan="2">Supply, Use and Input-Output Tables</td></tr>
<tr><td rowspan="2">Sector Classification</td><td>2015-2019: Supply (278×381), Use (381×278), IOT (381×381)</td><td rowspan="2">2016 & 2020: Supply (81×244), Use (244×81), IOT (185×185)</td></tr>
<tr><td>2020-2023: Supply (278×380), Use (380×278), IOT (380×380)</td></tr>
</table>

Source: Bank of Korea; BPS Statistics Indonesia.

3.2. Harmonized Sector Classification

Harmonizing sector classifications is a key step in constructing a bilateral international input-output table (IIOT). Korea's input-output table contains 380 sectors (381 in 2016), whereas Indonesia's table consists of 185 sectors. Therefore, a common sector classification is required to ensure comparability while reflecting the structural characteristics of both economies.

A comparison of the two national tables shows that Korea provides more detailed classifications in manufacturing, social overhead capital (SOC), and service sectors, whereas Indonesia has relatively finer classifications in agriculture, forestry and fisheries, and mining sectors. To accommodate these differences, this study adopts a hybrid harmonization approach. Manufacturing, SOC, and service sectors are primarily aligned with the Indonesian classification, while agriculture and mining sectors follow the Korean classification system.

Based on this approach, a harmonized classification consisting of 124 sectors was constructed and applied consistently to both 2016 and 2020 to ensure time-series comparability. The concordance structure includes 45 one-to-one matches, 49 cases where Korean sectors are aggregated, 11 cases where Indonesian sectors are aggregated, and 19 cases where sectors from both countries are aggregated simultaneously. Table 2 summarizes the 124 harmonized sectors into five major sector groups, while the detailed concordance table is provided in the Appendix.

Table 2 Summary of Harmonized Sector Classification

Sector	Common Sectors	Korea		Indonesia	
		2016 Year	2020 Year	2016 Year	2020 Year
Agriculture	13	25	25	36	36
Mining and Quarrying	6	9	9	14	14
Manufacturing	71	233	232	91	91
Social Overhead Capital	6	28	28	9	9
Services	28	86	86	35	35
Total	124	381	380	185	185

3.3. Treatment of Final Demand and Value-Added Components

In addition to sector harmonization, consistency in final demand and value-added components is required when constructing an international input-output table. Although both Korea and Indonesia follow the 2008 System of National Accounts (SNA), some differences remain in the detailed structure of these accounts.

First, Korea reports consumption of fixed capital (CFC) as a separate component within value added, whereas Indonesia appears to include it within operating surplus. Second, Korea reports net acquisition of valuables as an independent item in final demand, while Indonesia includes it within gross fixed capital formation (GFCF).

To address these discrepancies, this study adopts a conservative adjustment approach. A dummy category is introduced to align Indonesia's value-added structure with that of Korea, while the item for net acquisition of valuables is retained within Indonesia's capital formation category. This approach maintains statistical consistency while minimizing distortions in the original data.

3.4. Construction of the Trade Matrix

The Korea-Indonesia international input-output table (IIOT) constructed in this study adopts a closed three-region framework consisting of Korea, Indonesia, and the Rest of the World (ROW). This structure allows feedback effects across economies to be captured, unlike an open-type framework in which transactions with other countries are treated simply as exports.

The industrial structure of the ROW is based on the ADB-MRIO database for 2020. Because the ADB-MRIO classification includes only 35 sectors, which is more aggregated than the 124-sector classification used in this study, additional disaggregation was conducted using national input-output tables of the United States and Japan. These tables were first reclassified into the harmonized 124-sector structure and then used to derive sectoral shares for disaggregating the ROW sectors.

Within this framework, bilateral trade flows among Korea, Indonesia, and the ROW are estimated using a trade matrix based on the UN Comtrade Database. Because Comtrade provides product-level trade statistics at the HS 6-digit level, it enables detailed linkage between merchandise trade data and the industry classification used in the IIOT.

The construction procedure involves three main steps. First, export and import statistics are used to classify trading partners into Korea, Indonesia, and the ROW. Second, the Broad Economic Categories (BEC) classification is applied to group HS products into intermediate goods, consumption goods, and capital goods. Third, an HS-IO concordance table is used to link HS products to the 124-sector classification. As services trade is not included in merchandise trade statistics, the trade matrix is constructed only for goods sectors.

Table 3 reports the concordance between 90 goods sectors and 5,052 HS products. The number of HS items linked to each sector varies considerably, with the largest numbers observed in basic chemicals, machinery and equipment, textile fabrics, fabricated metal products, and basic iron and steel products. These results indicate that the linkage between trade classifications and the input-output industry structure is particularly detailed in manufacturing sectors.

Table 3 Concordance between Common Sectors and HS 6-Digit Items

Common Sector	HS 6 Items	Common Sector	HS 6 Items	Common Sector	HS 6 Items
1	1	31	21	61	32
2	14	32	5	62	17
3	9	33	6	63	53
4	5	34	145	64	215
5	34	35	265	65	183
6	23	36	138	66	4
7	76	37	232	67	25
8	3	38	49	68	222
9	5	39	26	69	26
10	45	40	38	70	439
11	19	41	9	71	22
12	24	42	10	72	31
13	0	43	26	73	13
14	6	44	21	74	65

15	1	45	69	75	108
16	2	46	36	76	37
17	3	47	9	77	35
18	21	48	19	78	165
19	67	49	511	79	57
20	82	50	92	80	19
21	25	51	83	81	22
22	106	52	30	82	16
23	29	53	6	83	14
24	24	54	17	84	8
25	17	55	14	85	22
26	5	56	15	86	6
27	57	57	117	87	22
28	99	58	67	88	17
29	9	59	65	89	0
30	26	60	60	90	79

Based on the concordance described above, the country-level import share is defined as

$$m_i^{rs} = \frac{X_i^{rs}}{\sum_s X_i^{rs}}$$

where X_i^{rs} denotes the value of imports of commodity *i* by country *r* from country s, and m_i^{rs} represents the share of imports from country *s* in the total imports of commodity *i* by country *r*. Using these shares, the total imports recorded in the national input-output table can be allocated across partner countries as

$$T_i^{rs} = m_i^{rs} \cdot M_i^r$$

where M_i^r denotes the total imports of commodity *i* by country *r*, and T_i^{rs} represents the value of imports of commodity *i* by country r from country *s*.

The resulting trade matrix is used to estimate bilateral trade flows in both the intermediate and final demand blocks of the international input-output table, ensuring consistency between bilateral trade flows and the total imports recorded in the national tables. Based on this framework, import shares by partner country and by consumption category were calculated for the common goods sectors of Korea, Indonesia, and the Rest of the World (ROW) using the BEC classification.

The detailed results for the 90 goods sectors are reported in the Appendix due to their large size. Table 4 summarizes the overall trade relationships between Korea and Indonesia. In 2016, total imports of the common goods sectors amounted to USD 406.2 billion for Korea and USD 135.3 billion for Indonesia, increasing to USD 467.1 billion and USD 141.3 billion, respectively, by 2020. During this period, Korea's imports from Indonesia declined slightly from USD 8.3 billion (2.0%) to USD 7.6 billion (1.6%), whereas Indonesia's imports from Korea remained relatively stable at around USD 6.7-6.8 billion (approximately 5%).

A comparison by consumption category shows that Indonesia's imports from Korea are relatively higher in intermediate and capital goods sectors. This pattern reflects the

complementary production structures of the two economies, where Korea mainly exports manufactured intermediate and capital goods while Indonesia exports resource-based products.

At the same time, both countries import the majority of their goods from the ROW, with import shares exceeding 90 percent in most sectors. This indicates that direct bilateral trade between Korea and Indonesia accounts for only a small proportion of their total trade flows. Instead, both economies are more strongly integrated into global production networks through trade with third countries.

These results suggest that Korea-Indonesia economic interdependence operates not only through direct bilateral trade but also through indirect linkages embedded in global supply chains, highlighting the importance of analyzing bilateral relations within a broader international input-output framework.

Table 4 Summary of the Three-Country Trade Matrix for 2016 and 2020

(units: USD billion, % in parentheses)

Good Type	Partner Country	2016			2020		
		Korea	Indonesia	ROW	Korea	Indonesia	ROW
Total Imports	Korea	–	8.3 (2.0)	397.9 (98.0)	–	7.6 (1.6)	459.5 (98.4)
	Indonesia	6.7 (4.9)	–	128.6 (95.1)	6.8 (4.8)	–	134.5 (95.2)
	ROW	488.8 (78.1)	137.4 (21.9)	–	505.2 (76.3)	156.6 (23.7)	–
Intermediate Goods	Korea	–	6.7 (2.6)	255.1 (97.4)	–	5.9 (2.0)	286.6 (98.0)
	Indonesia	4.9 (5.8)	–	80.0 (94.2)	4.9 (5.5)	–	84.5 (94.5)
	ROW	249.9 (73.9)	88.2 (26.1)	–	296.5 (73.9)	104.9 (26.1)	–
Final Consumption Goods	Korea	–	1.2 (2.5)	47.9 (97.5)	–	1.3 (2.2)	60.3 (97.8)
	Indonesia	0.2 (2.2)	–	10.7 (97.8)	0.3 (2.5)	–	13.3 (97.5)
	ROW	26.5 (44.3)	33.2 (55.7)	–	34.9 (49.4)	35.8 (50.6)	–
Capital Goods	Korea	–	0.2 (0.3)	73.4 (99.7)	–	0.2 (0.2)	87.8 (99.8)
	Indonesia	0.7 (2.5)	–	26.8 (97.5)	1.2 (4.0)	–	27.8 (96.0)
	ROW	149.6 (91.9)	13.1 (8.1)	–	114.7 (90.0)	12.7 (10.0)	–

Note: ROW denotes the Rest of the World. Values in parentheses represent the share of imports from each partner country in total imports of the corresponding sector. Import values are aggregated for the 90 common goods sectors classified according to the BEC-based consumption categories (intermediate goods, consumption goods, and capital goods).

Source: Author's calculation based on the UN Comtrade Database, Bank of Korea Input-Output Tables, and BPS Statistics Indonesia.

To examine the structural characteristics of bilateral trade in greater detail, Table 5 reports import shares by industry and by use category for Korea, Indonesia, and the Rest of the World (ROW) in 2016 and 2020. Overall, both economies exhibit a trade structure in which the majority of imports originate from the ROW, a pattern particularly pronounced in manufacturing industries.

For Korea, imports from Indonesia remain relatively small. The share of Indonesian imports in intermediate goods declined slightly from 2.56 percent in 2016 to 2.02 percent in 2020, while

the shares in final consumption and capital goods remained around 2 percent. In contrast, the ROW accounts for approximately 97-99 percent of Korea's imports across most industries and use categories, indicating that Korea's import structure is strongly embedded in global supply chains.

A similar pattern is observed for Indonesia. Imports from Korea account for approximately 5-6 percent of intermediate goods, which is higher than Korea's imports from Indonesia. This reflects the complementary industrial structures of the two economies, where Korea exports manufactured intermediate and capital goods while Indonesia's exports are more concentrated in resource-based products. Nevertheless, the ROW remains the dominant import source for Indonesia as well, indicating that its production structure is also closely integrated into global production networks.

At the sectoral level, the dominance of the ROW is particularly evident in manufacturing industries such as chemicals, electronics, and automobiles, where imports from third countries account for the majority of industrial inputs and capital goods.

Overall, these results suggest that direct bilateral trade between Korea and Indonesia remains relatively limited. Instead, the economic relationship between the two economies is largely mediated through global supply chains involving third countries. This underscores the importance of analyzing bilateral industrial linkages within a broader international input–output framework.

Table 5 Import Shares by Industry and Use Category for Three-Country

(unit: percent)

Industry	2016						2020					
	Intermediate		Final Consumption		Capital		Intermediate		Final Consumption		Capital	
< Korea>	IND	ROW	IND	ROW	IND	ROW	IND	ROW	IND	ROW	IND	ROW
Agriculture	4.07	95.93	0.31	99.69	0.00	100.0	3.53	96.47	0.36	99.64	0.00	100.0
Mining	4.87	95.13	4.87	95.13	4.87	95.13	2.74	97.26	2.74	97.26	2.74	97.26
Manufacturing	1.49	98.51	2.67	97.33	0.27	99.73	1.66	98.34	2.24	97.76	0.21	99.79
· Food & Bev.	5.98	94.02	0.99	99.01	5.98	94.02	6.42	93.58	0.75	99.25	6.42	93.58
· Textiles	5.49	94.51	5.47	94.53	5.49	94.51	3.74	96.26	4.89	95.11	3.74	96.26
· Chemicals	1.42	98.58	0.59	99.41	1.42	98.58	1.21	98.79	0.41	99.59	0	100
· Electronics	0.23	99.77	1.49	98.51	0.43	99.57	0.29	99.71	1.87	98.13	0.22	99.78
· Automobiles	0.05	99.95	0	100	0.01	99.99	0.02	99.98	0	100	0.02	99.98
· Other Man.	1.87	98.13	3.83	96.17	0.21	99.79	2.65	97.35	2.99	97.01	0.22	99.78
All Industries	2.56	97.44	2.54	97.46	0.27	99.73	2.02	97.98	2.17	97.83	0.21	99.79
<Indonesia>	KOR	ROW	KOR	ROW	KOR	ROW	KOR	ROW	KOR	ROW	KOR	ROW
Agriculture	0.03	99.97	0.35	99.65	0	100	0.04	99.96	0.2	99.8	0.00	100.0
Mining	0.91	99.09	0.91	99.09	0.91	99.09	0.15	99.85	0.15	99.85	0.15	99.85
Manufacturing	6.90	93.1	2.51	97.49	2.53	97.47	6.37	93.63	2.9	97.1	4.03	95.97
· Food & Bev.	0.73	99.27	2.14	97.86	0.73	99.27	0.71	99.29	2.81	97.19	0.71	99.29
· Textiles	19.11	80.89	3.54	96.46	19.11	80.89	13.74	86.26	1.56	98.44	13.74	86.26
· Chemicals	6.69	93.31	2.91	97.09	34.98	65.02	6.85	93.15	6.63	93.37	0.00	100.0
· Electronics	5.75	94.25	1.41	98.59	2.22	97.78	6.46	93.54	1.01	98.99	2.41	97.59
· Automobiles	0.45	99.55	0	100	1.55	98.45	5.26	94.74	89.78	10.22	1.29	98.71

· Other Man.	6.27	93.73	2.82	97.18	2.82	97.18	6.07	93.93	1.88	98.12	5.06	94.94
All Industries	5.81	94.19	2.18	97.82	2.53	97.47	5.48	94.52	2.46	97.54	4.03	95.97
< Row>	KOR	IND	KOR	IND	KOR	IND	KOR	IND	KOR	IND	KOR	IND
Agriculture	4.78	95.22	33.11	66.89	0.00	100	6.18	93.82	25.84	74.16	100.0	0.0
Mining	0.89	99.11	0.89	99.11	0.89	99.11	2.4	97.6	2.4	97.6	2.4	97.6
Manufacturing	81.59	18.41	44.29	55.71	91.92	8.08	79.58	20.42	49.88	50.12	90.02	9.98
· Food & Bev.	3.65	96.35	42.06	57.94	3.65	96.35	3.55	96.45	41.18	58.82	3.55	96.45
· Textiles	70.97	29.03	22.84	77.16	70.97	29.03	72.95	27.05	27.03	72.97	72.95	27.05
· Chemicals	84.7	15.3	75.98	24.02	100.0	0.00	84.29	15.71	83.12	16.88	100.0	0.00
· Electronics	98.27	1.73	73.23	26.77	94.21	5.79	98.87	1.13	57.01	42.99	89.25	10.75
· Automobiles	51.59	48.41	7.84	92.16	91.08	8.92	68.31	31.69	50.86	49.14	89.98	10.02
· Other Man.	80.86	19.14	36.05	63.95	90.94	9.06	70.88	29.12	47.7	52.3	90.34	9.66
All Industries	73.92	26.08	43.93	56.07	91.92	8.08	73.87	26.13	49.12	50.88	90.02	9.98

Note: Import shares represent the proportion of imports sourced from each partner country within total imports of the corresponding industry and use category. Use categories follow the Broad Economic Categories (BEC) classification.

Source: Author's calculations based on UN Comtrade Database, Bank of Korea Input-Output Tables, and BPS Statistics Indonesia

3.5. Compilation and Balancing of the Integrated Table

The construction of the Korea-Indonesia international input-output table involves several methodological steps following the determination of key preliminary settings, including the base year, the linkage framework, the harmonized sector classification, and the structure of exogenous accounts.

First, the national input-output tables of Korea, Indonesia, and the Rest of the World (ROW) were harmonized according to the common 124-sector classification. The original non-competitive import-type tables for 2016 and 2020 were reconstructed by aggregating industry sectors into 124 sectors, value-added components into four categories, and final demand components into six categories.

Second, the national tables were converted from domestic currencies into a common unit expressed in U.S. dollars using annual average exchange rates for each benchmark year.

Third, import components recorded in the national tables were decomposed into bilateral trade flows among Korea, Indonesia, and the ROW using the trade matrix constructed in the previous section. Through this procedure, total imports recorded in each national table were allocated across partner countries.

Fourth, the three national tables were integrated into a single international input-output framework. The intermediate transaction matrix takes the form of a block matrix representing production linkages among the three regions:

$$Z = \begin{bmatrix} Z_{KK} & Z_{KI} & Z_{KR} \\ Z_{IK} & Z_{II} & Z_{IR} \\ Z_{RK} & Z_{RI} & Z_{RR} \end{bmatrix}$$

where K, I, and R denote Korea, Indonesia, and the Rest of the World (ROW), respectively. Under this structure, the intermediate transaction matrix has a dimension of 372 × 372 (=124 sectors × 3 regions), while value-added and final demand matrices are structured as 4 × 372 and 372 × 12, respectively.

Finally, the integrated table was balanced to satisfy the supply-demand identity of the input–output framework,

$$x = Ze + f$$

where x denotes the vector of total output, Z is the intermediate transaction matrix, e is a unit vector, and f represents the final demand vector. Because discrepancies may arise during the integration process due to differences in statistical sources, currency conversion, and trade allocation, the RAS method was applied to iteratively adjust the matrix and ensure consistency between row and column totals. 2020 Benchmark Table

The resulting balanced international input-output table provides the statistical basis for analyzing industrial linkages and economic interdependence between Korea and Indonesia.

4. ANALYSIS BASED ON THE KOREA-INDONESIA INTERNATIONAL IO TABLE

4.1. Comparison of Economic Size

Using the Korea-Indonesia international input-output table constructed in the previous section, this subsection compares the economic size of the two economies in terms of total output, value added, and demand structure for the benchmark years 2016 and 2020.

During this period, the economic size of both countries expanded steadily. Korea's total output increased from USD 3.38 trillion in 2016 to USD 3.74 trillion in 2020, representing an increase of 14.1 percent. Indonesia's total output also grew from USD 1.75 trillion to USD 1.97 trillion, corresponding to an increase of 13.1 percent. Despite this expansion, the relative size of the two economies remained largely stable, with Korea's total output remaining approximately 1.9 times larger than that of Indonesia in both years.

A similar pattern is observed in value-added creation. Korea's value added increased from USD 1.38 trillion to USD 1.60 trillion, while Indonesia's value-added rose from USD 0.92 trillion to USD 1.04 trillion. As a result, Korea's value-added level remained roughly 1.5 times larger than that of Indonesia throughout the period.

From the demand perspective, both intermediate and final demand increased in the two economies. Korea's intermediate demand grew from USD 1.89 trillion to USD 2.08 trillion, while final demand increased from USD 1.39 trillion to USD 1.66 trillion. Indonesia also

experienced similar growth, with intermediate demand rising from USD 0.84 trillion to USD 0.94 trillion and final demand increasing from USD 0.91 trillion to USD 1.04 trillion.

In contrast, bilateral trade between the two countries declined slightly. Korea's intermediate demand for Indonesian products fell from USD 9.2 billion to USD 7.9 billion, resulting in a modest decrease in total bilateral trade from USD 18.6 billion in 2016 to USD 17.8 billion in 2020.

Overall, while both economies expanded in terms of output and value added, their relative economic scale remained stable, and bilateral trade linkages weakened slightly during the period.

Table 6 Integrated Korea-Indonesia International Input-Output Table: 2016 and 2020

(unit: USD 100 million)

2016

	Intermediate Demand				Final Demand				Total Output
Intermediate Input	Korea	Indonesia	ROW	Subtotal	Korea	Indonesia	ROW	Subtotal	
Korea	14,788	63	4,050	18,901	11,943	13	1,905	13,861	32,761
Indonesia	92	7,030	1,244	8,366	18	8,649	433	9,100	17,466
ROW	3,725	1,144	786,840	791,709	1,221	520	716,341	718,082	1,509,790
Net taxes on products	402	77	9,145	9,624	845	277	19,972	21,094	30,718
Value Added	13,754	9,151	708,512	731,417					
Total Input	32,761	17,466	1,509,790	1,560,790					

2020

	Intermediate Demand				Final Demand				Total Output
Intermediate Input	Korea	Indonesia	ROW	Subtotal	Korea	Indonesia	ROW	Subtotal	
Korea	16,838	64	3,916	20,818	14,478	17	2,073	16,568	37,386
Indonesia	79	8,064	1,240	9,383	18	9,836	510	10,364	19,747
ROW	3,974	1,194	892,663	897,831	1,356	391	805,503	807,250	1,705,082
Net taxes on products	472	70	9,899	10,441	949	320	21,490	22,759	33,200
Value Added	16,023	10,355	797,364	823,742					
Total Input	37,386	19,747	1,705,082	1,762,215					

4.2. Comparison of Industrial Structure

4.2.1. Gross output structure

A comparison of industrial structures based on total output reveals clear structural differences between Korea, Indonesia, and the Rest of the World (ROW). Korea's economy is dominated by manufacturing and services, whereas Indonesia maintains relatively larger shares in primary industries such as agriculture and mining together with services. In contrast, the ROW economy exhibits a more diversified industrial structure in which manufacturing and services jointly account for the largest share of production.

In Korea, manufacturing and services together account for nearly 90 percent of total output. During the period from 2016 to 2020, the share of manufacturing declined from 43.1 percent to

40.0 percent, while the share of services increased from 46.3 percent to 49.7 percent. This pattern reflects the continued expansion of the service sector and a gradual structural shift toward service-oriented economic activities.

Indonesia exhibits a different industrial composition. Manufacturing accounts for approximately 29 percent of total output, which is significantly lower than in Korea. Instead, agriculture, mining, and social overhead capital (SOC) — related sectors together account for roughly 28 percent of total output, reflecting Indonesia's relatively resource-based economic structure. This industrial structure remained broadly stable over the period examined. The ROW economy shows a more diversified production structure in which manufacturing and services dominate, while primary industries account for relatively smaller shares.

Differences are also evident within the manufacturing sector. In Korea, technology-intensive industries such as electronics, chemicals, and automobiles account for relatively large shares of manufacturing output. Electronics represents the largest manufacturing industry, accounting for about 8 percent of total output, followed by chemicals and automobiles. These industries form the core of Korea's advanced manufacturing structure.

In Indonesia, however, the manufacturing structure is more concentrated in resource-based and consumer-goods industries. The food and beverage industry accounts for the largest share of manufacturing output, increasing slightly from 9.5 percent to 9.9 percent of total output. Chemical industries also maintain a significant share, whereas textiles, electronics, and automobiles remain relatively small, each accounting for around 1 percent of total output.

Overall, these structural differences indicate a complementary relationship between the two economies: Korea specializes in technology-intensive manufacturing, while Indonesia maintains comparative advantages in resource-based and labor-intensive industries.

Table 7 Gross Output by Industry and Share in Korea and Indonesia

(units: USD 100 million, %)

Industry	Korea 2016		Korea 2020		Indonesia 2016		Indonesia 2020	
	Volume	Share	Volume	Share	Volume	Share	Volume	Share
Agriculture	51,934	1.59	54,505	1.46	142,711	8.17	177,777	9.00
Mining	3,964	0.12	3,421	0.09	81,599	4.67	99,298	5.03
Manufacturing	1,410,230	43.05	1,496,074	40.02	511,099	29.26	557,627	28.24
· Food & Bev.	96969	2.96	112486	3.01	165804	9.49	195959	9.92
· Textiles	56102	1.71	45817	1.23	31751	1.82	38485	1.95
· Chemicals	212613	6.49	225412	6.03	91514	5.24	96934	4.91
· Electronics	262006	8	298557	7.99	24232	1.39	24187	1.22
· Automobiles	160353	4.89	158020	4.23	25747	1.47	27965	1.42
· Other Man.	622188	18.99	655782	17.54	172050	9.85	174097	8.82
Social Overhead Capital	292,843	8.94	327,980	8.77	272,927	15.63	293,889	14.88
Services	1,517,161	46.31	1,856,661	49.66	738,224	42.27	846,148	42.85
Total	3,276,133	100.00	3,738,641	100.00	1,746,561	100.00	1,974,739	100.00

4.2.2. Intermediate input structure

A comparison of industry-level intermediate input coefficients between Korea and Indonesia reveals that Korea exhibits a relatively higher dependence on intermediate inputs than Indonesia. During the period from 2016 to 2020, Korea experienced a slight decline in both the overall intermediate input coefficient and the share of imported intermediate inputs, whereas Indonesia maintained a relatively stable production structure.

At the aggregate level, Korea's average intermediate input coefficient declined from 56.8 percent in 2016 to 55.9 percent in 2020, while Indonesia's remained unchanged at 47.2 percent. This indicates that Korea has gradually reduced its reliance on intermediate inputs in production, whereas Indonesia's production structure has remained largely stable.

Both countries also recorded declines in the share of imported intermediate inputs, although the reduction was more pronounced in Korea. Korea's import-related intermediate input share fell from 11.7 percent in 2016 to 10.8 percent in 2020, while Indonesia's declined more modestly from 6.9 percent to 6.4 percent.

Bilateral intermediate goods linkages between the two economies remain limited. The share of Indonesian intermediate goods used in Korea's production decreased from 0.28 percent to 0.21 percent, while the share of Korean intermediate goods used in Indonesia's production declined slightly from 0.36 percent to 0.33 percent. These results suggest that direct production linkages through intermediate goods trade between Korea and Indonesia remain relatively weak.

Table 8 Intermediate Input Coefficients by Industry in Korea and Indonesia

(unit: %)

Industry	Korea 2016			Korea 2020			Indonesia 2016			Indonesia 2020		
	Dom.	IND	ROW	Dom.	IND	ROW	Dom.	KOR	ROW	Dom.	KOR	ROW
Agriculture	42.56	0.13	2.74	45.32	0.16	2.98	19.54	0.07	2.52	19.29	0.09	2.28
Mining	44.72	0.01	0.60	56.72	0.01	0.68	28.87	0.14	3.94	31.7	0.13	4.63
Manufacturing	52.21	0.36	19.78	53.63	0.31	19.39	48.63	0.75	11.68	50.23	0.61	9.86
· Food & Bev.	67.21	0.4	12.49	67.23	0.48	12.67	58.82	0.36	5.52	57.19	0.27	4.67
· Textiles	53.28	0.99	26.64	53.95	0.73	24.7	42.52	3.03	19.21	53.5	1.46	13.03
· Chemicals	37.25	0.39	36.74	41.81	0.24	36.87	40.27	0.48	15.38	44.95	0.38	11.50
· Electronics	37.97	0.19	27.23	40.71	0.17	24.6	33.93	1.83	25.34	35.25	1.50	22.64
· Automobiles	71.74	0.08	9.26	71.77	0.09	9.65	36.19	0.37	13.91	45.39	0.52	9.38
· Other Man.	55.84	0.42	14.06	56.85	0.39	14.14	48.32	0.77	12	47.45	0.83	12.41
SOC	47.29	1.00	9.37	47.37	0.59	9.08	54.62	0.43	7.51	54.26	0.47	8.41
Services	38.24	0.08	4.27	37.67	0.07	4.09	34.4	0.15	3.71	35.58	0.16	3.67
All Industries	45.14	0.28	11.37	45.04	0.21	10.63	40.25	0.36	6.55	40.84	0.33	6.05

4.2.3. Value-added structure

A comparison of industrial structures based on value-added shares shows that services account for more than twice the share of manufacturing in both Korea and Indonesia, and this dominance has strengthened over time. In both economies, the share of manufacturing in value added has gradually declined, while the service sector has expanded.

In Korea, the manufacturing share decreased from 28.1 percent in 2016 to 24.6 percent in 2020, whereas the share of services increased from 61.2 percent to 65.3 percent. Indonesia shows a

similar trend: the manufacturing share declined from 19.1 percent to 16.7 percent, while the service sector increased from 52.9 percent to 55.0 percent during the same period.

The composition of value added within manufacturing also differs between the two economies. In Korea, industries such as electronics, chemicals, and automobiles account for relatively large shares of manufacturing value added. In contrast, Indonesia's manufacturing structure is more concentrated in food and beverage industries and chemicals, while industries such as textiles, electronics, and automobiles remain relatively small.

Manufacturing value-added ratios are generally lower than those of other sectors in both economies. However, Indonesia maintains a value-added ratio roughly 10 percentage points higher than Korea, largely reflecting its relatively abundant labor supply and the higher share of labor compensation in value added.

Sectoral differences are also evident across industries. In Korea, value-added ratios exceed 50 percent in agriculture, mining, and services, although most sectors show a gradual decline except for services. In Indonesia, agriculture records a particularly high value-added ratio approaching 80 percent, followed by mining and services, both of which remain higher than in Korea.

Within manufacturing, Korea's average value-added ratio declined slightly from 27.4 percent in 2016 to 26.4 percent in 2020, while Indonesia's increased marginally from 38.0 percent to 38.6 percent. Indonesia also shows relatively high value-added ratios in industries such as automobiles and chemicals, while the food and beverage industry recorded a notable increase during the period.

Table 9 Value-Added by Industry, Share, and Value-Added Ratio in Korea and Indonesia

(units: Million USD, percent)

Industry	Korea 2016			Korea 2020			Indonesia 2016			Indonesia 2020		
	Volume	Share	VA Ratio	Volume	Share	VA Ratio	Volume	Share	VA Ratio	Volume	Share	VA Ratio
Agriculture	27,882	2.0	53.7	27,536	1.7	50.5	112,683	12.6	79.0	141,110	13.1	79.4
Mining	2,148	0.2	54.2	1,448	0.1	42.3	54,593	3.6	66.9	62,796	3.6	63.2
Manufacturing	386,201	28.1	27.4	394,834	24.6	26.4	193,969	19.1	38.0	215,297	16.7	38.6
· Food & Bev.	17,991	1.3	18.6	20,680	1.3	18.4	57,296	4.4	34.6	73,122	4.1	37.3
· Textiles	10,565	0.8	18.8	9,272	0.6	20.2	10,854	1.4	34.2	12,166	1.2	31.6
· Chemicals	53,666	3.9	25.2	46,647	2.9	20.7	39,740	2.2	43.4	41,524	2.1	42.8
· Electronics	90,364	6.6	34.5	102,801	6.4	34.4	9,209	1.2	38.0	9,352	1.0	38.7
· Automobiles	30,108	2.2	18.8	28,967	1.8	18.3	12,221	1.7	47.5	12,228	1.5	43.7

· Other Man.	183,505	13.3	29.5	186,468	11.6	28.4	64,649	8.2	37.6	66,905	6.8	38.4
SOC	117,062	8.5	40.0	132,263	8.3	40.3	100,253	11.8	36.7	106,159	11.7	36.1
Services	842,098	61.2	55.5	1,046,204	65.3	56.4	453,600	52.9	61.4	510,108	55.0	60.3
All Industries	1,375,391	100.0	42.0	1,602,285	100.0	42.9	915,098	100.0	52.4	1,035,472	100.0	52.4

4.3. Economic Interdependence between Korea and Indonesia

4.3.1. Analytical framework

In the input-output framework, production in each industry requires intermediate inputs from other industries as well as value added generated through primary factors of production. Accordingly, input coefficients can be divided into intermediate input coefficients and value-added coefficients. Let Z denote the matrix of intermediate transactions, F the vector of final demand, and X the vector of total output. The equilibrium condition of the input–output system can be written as

$$AX + F = X$$

where A is the matrix of input coefficients. Rearranging the equation yields

$$X = (I - A)^{-1}F$$

The matrix $(I - A)^{-1}$ is known as the Leontief inverse matrix, which represents the total production required—both direct and indirect—to satisfy a given level of final demand. In the Korea–Indonesia international input–output table, the Leontief inverse matrix can be decomposed into a block matrix representing production linkages among Korea (K), Indonesia (I), and the Rest of the World (R):

$$B = \begin{bmatrix} B_{KK} & B_{KI} & B_{KR} \\ B_{IK} & B_{II} & B_{IR} \\ B_{RK} & B_{RI} & B_{RR} \end{bmatrix}$$

Where $B = (I - A)^{-1}$.

Each sub-matrix represents the production effects generated in one region in response to final demand changes in another region. The matrices B_{KK}, B_{II} and B_{RR} represent domestic production effects within Korea, Indonesia, and the Rest of the World, respectively. The matrices B_{KI}, B_{IK} capture bilateral spillover effects between Korea and Indonesia. The remaining matrices B_{KR}, B_{IR}, B_{RK} and B_{RI} — represent spillover effects transmitted through the Rest of the World. This block structure enables the identification of both direct bilateral economic linkages and indirect production spillovers transmitted through global supply chains.

4.3.2 Production and value-added inducement coefficients

The production inducement coefficient measures the amount of production generated throughout the economy when final demand increases by one unit. Using the Leontief inverse matrix, total output can be expressed as

$$X = (I - A)^{-1}F = BF$$

where B represents the matrix of production inducement coefficients. In the international input-output framework, the total output of each region can be expressed as

$$X_K = B_{KK}F_K + B_{KI}F_I + B_{KR}F_R$$
$$X_I = B_{IK}F_K + B_{II}F_I + B_{IR}F_R$$
$$X_R = B_{RK}F_K + B_{RI}F_I + B_{RR}F_R$$

where X_K, X_I and X_R denote the gross output of Korea, Indonesia, and the Rest of the World, respectively, and F_K, F_I and F_R represent their respective final demand vectors. The value-added inducement coefficient measures the amount of value added generated in response to an increase in final demand.

Let A_i^v denote the vector of value-added coefficients defined as

$$A_i^v = \frac{V_i}{X_i}$$

where V_i represents value added and X_i represents gross output of sector *i*. Using the diagonal matrix of value-added coefficients $\hat{A}_i^v$, the value-added inducement effect can be expressed as

$$V = \hat{A}_i^v(I - A)^{-1}F$$

This formulation enables the estimation of value added generated across industries and regions in response to changes in final demand.

4.3.3. Comparative analysis of production inducement effects

A comparison of production inducement coefficients for Korea and Indonesia in 2016 and 2020 indicates that domestic production linkage effects strengthened slightly in both economies. Korea's average domestic inducement coefficient increased from 1.8637 in 2016 to 1.8841 in 2020, while Indonesia's rose marginally from 1.6647 to 1.6698.

In contrast, bilateral spillover effects between the two economies declined during the same period. The production effect of Indonesia's final demand on Korea decreased from 0.0120 to

0.0109, while the effect of Korea's final demand on Indonesia also declined from 0.0122 to 0.0109. This suggests that direct bilateral production linkages weakened slightly over time.

At the sectoral level, Korea experienced increases in production inducement coefficients across most industries except services. Notable increases were observed in mining, manufacturing, and social overhead capital (SOC) sectors. Within manufacturing, relatively high inducement coefficients were recorded in automobiles, food products, and textiles, while chemicals and electronics exhibited noticeable increases over the period.

Indonesia displayed a more mixed pattern. Moderate increases were observed in mining and manufacturing, while agriculture and SOC experienced slight declines. Within manufacturing, textiles recorded a relatively high inducement coefficient, exceeding the manufacturing average, while chemicals and automobiles showed notable increases.

Overall, Korea's domestic production inducement coefficients are generally higher than those of Indonesia, particularly in manufacturing and SOC sectors. In most manufacturing industries, Korea maintains stronger production linkage effects than Indonesia, with the textile industry representing one of the few exceptions.

In addition, the production inducement effects generated by Korea in Indonesia tend to be larger than those generated by Indonesia in Korea. While Indonesia's spillover effects on Korea declined in industries such as textiles and electronics, a slight increase was observed in the automobile sector.

Table 10 Comparison of Production Inducement Coefficients between Korea and Indonesia

(unit: coefficient)

Industry	Korea 2016		Korea 2020		Indonesia 2016		Indonesia 2020	
	Domestic	Indonesia	Domestic	Indonesia	Domestic	Korea	Domestic	Korea
Agriculture	1.818	0.010	1.868	0.009	1.310	0.004	1.295	0.004
Mining	1.812	0.007	2.043	0.006	1.461	0.008	1.520	0.009
Manufacturing	2.008	0.020	2.042	0.020	1.770	0.031	1.786	0.029
· Food & Bev.	2.330	0.021	2.344	0.025	1.894	0.009	1.834	0.005
· Textiles	2.015	0.025	2.032	0.022	1.732	0.085	1.986	0.048
· Chemicals	1.651	0.015	1.749	0.012	1.623	0.019	1.713	0.015
· Electronics	1.682	0.010	1.735	0.009	1.571	0.058	1.592	0.049
· Automobiles	2.591	0.011	2.609	0.010	1.577	0.016	1.746	0.020
· Other Man.	2.066	0.022	2.094	0.022	1.793	0.026	1.763	0.029
SOC	1.909	0.018	1.928	0.014	1.973	0.014	1.959	0.015
Services	1.694	0.006	1.689	0.005	1.569	0.007	1.589	0.007
All Industries	1.864	0.012	1.884	0.011	1.665	0.012	1.670	0.011

4.3.4. Comparative analysis of value-added effects

A comparison of value-added inducement coefficients for Korea and Indonesia reveals contrasting trends between the two economies. Korea's average domestic value-added inducement coefficient remained largely unchanged, declining slightly from 0.7705 in 2016 to 0.7700 in 2020. In contrast, Indonesia's coefficient increased from 0.8838 to 0.8943 during the same period.

Cross-country value-added spillover effects declined in both directions. The value-added effect of Indonesia's final demand on Korea decreased from 0.0066 to 0.0057, while the effect of Korea's final demand on Indonesia declined from 0.0041 to 0.0036, indicating a modest weakening of bilateral value-added linkages.

At the sectoral level, Korea recorded increases in value-added inducement coefficients in social overhead capital (SOC) and services, while declines occurred in mining and chemicals. Within manufacturing, increases were observed in electronics and textiles, whereas chemicals and automobiles experienced slight decreases.

Indonesia, by contrast, experienced broader increases across several industries. Notable increases were observed in agriculture and manufacturing, as well as in manufacturing sectors such as textiles, automobiles, and chemicals. The food industry also recorded a moderate increase during the period.

Overall, Indonesia's domestic value-added inducement coefficients are generally higher than those of Korea, particularly in manufacturing industries. This pattern reflects Indonesia's relatively higher labor intensity and the larger contribution of labor compensation to value added.

Table 11 Comparison of Value-Added Inducement Coefficients between Korea and Indonesia

(unit: coefficient)

Industry	Korea 2016		Korea 2020		Indonesia 2016		Indonesia 2020	
	Domestic	Indonesia	Domestic	Indonesia	Domestic	Korea	Domestic	Korea
Agriculture	0.843	0.005	0.839	0.005	0.966	0.001	0.973	0.001
Mining	0.888	0.004	0.855	0.003	0.925	0.003	0.915	0.003
Manufacturing	0.647	0.010	0.646	0.010	0.816	0.010	0.845	0.009
· Food & Bev.	0.718	0.011	0.717	0.013	0.901	0.003	0.921	0.002
· Textiles	0.589	0.012	0.600	0.009	0.656	0.028	0.738	0.015
· Chemicals	0.490	0.009	0.467	0.006	0.803	0.006	0.845	0.004
· Electronics	0.610	0.005	0.634	0.004	0.668	0.020	0.689	0.017
· Automobiles	0.706	0.006	0.694	0.005	0.783	0.005	0.834	0.006
· Other Man.	0.696	0.012	0.691	0.012	0.796	0.008	0.806	0.009
SOC	0.743	0.010	0.749	0.008	0.856	0.005	0.846	0.005
Services	0.861	0.003	0.867	0.002	0.921	0.003	0.925	0.003
All Industries	0.771	0.007	0.770	0.006	0.884	0.004	0.894	0.004

5. CONCLUSION AND POLICY IMPLICATIONS

This study constructed a Korea-Indonesia international input-output table (IIOT) linking three regions — Korea, Indonesia, and the Rest of the World — based on a harmonized industry classification consisting of 124 sectors. Using this framework, the study examined the industrial structures and economic interdependence between the two economies by analyzing production and value-added inducement effects for the benchmark years 2016 and 2020. By integrating national input-output tables and bilateral trade statistics within a unified analytical framework,

the study provides a quantitative basis for understanding industrial linkages and cross-country production networks between Korea and Indonesia.

The empirical results reveal several key characteristics of the economic relationship between the two countries. First, the industrial structures of Korea and Indonesia exhibit clear differences reflecting their complementary economic characteristics. Korea shows relatively high shares of manufacturing and services, whereas Indonesia maintains comparatively larger shares in agriculture, mining, and infrastructure-related sectors. Within manufacturing, Korea's production structure is centered on technology-intensive industries such as electronics, chemicals, and automobiles, while Indonesia shows relatively larger shares in food processing and resource-based industries. These structural differences suggest that the two economies possess complementary production structures that may support the expansion of bilateral industrial cooperation.

Second, the comparison of production inducement coefficients indicates that domestic production linkages strengthened slightly in both economies between 2016 and 2020. Korea's average domestic production inducement coefficient increased from 1.8637 to 1.8841, while Indonesia's coefficient rose from 1.6647 to 1.6698. Overall, Korea exhibits stronger domestic production linkages than Indonesia, particularly in manufacturing and social overhead capital (SOC) sectors. However, bilateral production spillover effects between the two economies declined somewhat during the same period, suggesting that direct production linkages between Korea and Indonesia remain relatively limited.

Third, the analysis of value-added inducement coefficients shows that Indonesia generates relatively higher value-added effects than Korea, especially in manufacturing industries. Indonesia's average domestic value-added inducement coefficient increased from 0.8838 in 2016 to 0.8943 in 2020, while Korea's remained almost unchanged at around 0.77. This difference largely reflects the relatively higher labor intensity of Indonesia's production structure, where labor compensation accounts for a larger share of value added.

Overall, the results indicate that the economic relationship between Korea and Indonesia is embedded within broader global value chains rather than being driven solely by direct bilateral trade. A substantial portion of production spillovers between the two economies occurs indirectly through the Rest of the World, highlighting the importance of global production networks in shaping bilateral economic interdependence.

From a policy perspective, the Korea-Indonesia international input-output table developed in this study provides a useful analytical framework for examining industrial linkages and evaluating the economic effects of bilateral economic cooperation. The detailed industry classification adopted in this study enables more precise analyses of global value chains in key industries of the two economies, thereby supporting policy efforts aimed at strengthening strategic economic cooperation.

Despite these contributions, several limitations remain. First, the service sector is excluded due to limitations in available bilateral trade data. However, as services play an increasingly important role in global value chains, incorporating service sectors would allow for a more comprehensive analysis of economic interdependence between Korea and Indonesia.

Second, while a harmonized sector classification is employed for comparability, future studies may consider asymmetric sector classifications that better reflect country-specific industrial structures. This approach would allow a more detailed representation of bilateral production linkages.

In particular, improvements in the statistical construction of the Rest of the World sector are necessary to enhance the representativeness of the international input-output table. In addition, further refinement of certain components of the national input-output tables of Korea and Indonesia would improve the overall consistency of the database.

Moreover, further methodological extensions — such as the application of Cross-Entropy techniques and benchmarking against international MRIO databases (e.g., OECD-ICIO, ADB-MRIO) — would enhance the robustness and comparability of the results.

Finally, the continued compilation of the Korea-Indonesia international input-output table will be essential for ensuring statistical continuity and enabling the analysis of structural changes in bilateral economic relations over time.

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APPENDIX

Table A1 Detailed Concordance Table for the Common Sector Classification between Korea and Indonesia

Common Sector		Indonesia Commodity Code (185 sectors)	Korea Commodity Code (381 sectors in 2016, 380 in 2020)
1	Rice	1	111
2	Barley, Wheat, and Other Grains	002, 009	112
3	Legumes	006-008	113
4	Potatoes	003-005	114
5	Vegetables	10	121
6	Fruits	016, 019	122
7	Other Crops	011, 012, 014, 015, 017, 020-025	0191, 0192, 0195, 0196, 0199
8	Tobacco Leaves	13	193
9	Natural Rubber	18	194
10	Live Animals	026-029	0211, 0212, 0291, 0292, 0299
11	Forestry Products	031, 032	0301-0303, 0309
12	Fishery Products	033-036	0401, 0402
13	Agriculture, Forestry, and Fishery Services	30	500
14	Coal	37	0611, 0612
15	Crude Oil	38	621
16	Natural Gas	39	622
17	Iron Ore	40	711
18	Non-Ferrous Metal Ores	041-047	719
19	Non-Metallic Mineral Mining	048-050	0721, 0722, 0729
20	Meat Products	053, 054	0811-0813
21	Dairy Products	60	814
22	Fish and Edible Seaweed	055, 056	0821, 0822
23	Milled Rice	061-063	0831, 0832
24	Starch and Sugar	65	0841-0843
25	Rice Cakes and Confectionery	064, 066	851
26	Noodles	67	852
27	Fats and Oils	58	862
28	Canned and Preserved Fruits and Vegetables	057, 059, 070	871
29	Coffee and Tea	068, 069	872
30	Other Food Products	071, 072	0861, 0873, 0879, 0880
31	Alcoholic Beverages	73	0911–0913, 0919
32	Non-Alcoholic Beverages and Ice	74	920
33	Tobacco Products	075, 076	1000
34	Textile Yarn	77	1111, 1119
35	Textile Fabrics	78	1121-1123, 1130
36	Textile Products	079-081	1141, 1142, 1149
37	Apparel	82	1151-1155
38	Leather Products (Excluding Footwear)	083, 084	1201-1203, 1209
39	Footwear	85	1204
40	Wood (excluding plywood)	86	1311, 1313
41	Plywood	87	1312
42	Wood Products for Construction	88	1321
43	Other Wood Products	89	1322, 1329
44	Pulp	90	1410
45	Paper	91	1421, 1429
46	Paper Products	92	1431-1434, 1439
47	Printing and Reproduction of Recorded Media	93	1500
48	Refined Petroleum and Gas Products	95	1621-1628, 1631, 1639
49	Basic Chemicals (excluding fertilizers)	96	1711-1713, 1719, 1721-1723
50	Synthetic Resins and Synthetic Fibers	98	1801, 1802, 1900
51	Pharmaceutical Products	105, 106	2000
52	Fertilizers and Nitrogen Compounds	97	2101
53	Pesticides and Agrochemical Products	99	2102
54	Paints and Printing Ink	100	2211, 2212
55	Soap, Detergents, and Toothpaste	102	2221
56	Cosmetics	103	2222

57	Other Chemical Products	101, 104	2291, 2292, 2299
58	Plastic Products	110	2310, 2391-2393, 2399
59	Rubber Products	107-109	2410, 2491, 2499
60	Glass Products	111	2501-2503, 2509
61	Clay, Ceramic, and Porcelain Products	112	2611-2614
62	Cement	113	2620, 2631, 2632, 2691
63	Other Non-Metallic Mineral Products	94	1611, 1612, 2692–2694, 2699
64	Basic Iron and Steel	114	2711-2713, 2721-2727, 2730, 2791, 2799
65	Primary Non-Ferrous Metals	115	2811-2814, 2819, 2821, 2822, 2829
66	Metal Castings	116	2900
67	Structural Metal Products	117	3011-3014
68	Fabricated Metal Products (excluding structural)	118-120	3021, 3022, 3031, 3032, 3091-3095, 3099
69	Engines and Turbines	128	3810
70	Machinery and Equipment	129, 130	3820-3999
71	Motors and Generators	123	3710
72	Capacitors, Rectifiers, and Distribution Equipment	124	3721-3724
73	Batteries	125	3730
74	Other Electrical Equipment and Supplies	126	3740, 3791, 3792, 3799
75	Electronic and Communication Equipment	121	3101-3523
76	Household Electrical Appliances	127	3751, 3752, 3759
77	Medical Equipment and Supplies	142	3611
78	Precision Instruments	122	3612-3693
79	Motor Vehicles	131	4011-4032
80	Ships	132	4101-4103
81	Railway Vehicles and Parts	133	4210
82	Aircraft and Parts	134	4220
83	Motorcycles and Parts	136	4291
84	Other Transport Equipment	135	4299
85	Household and Office Furniture	137	4311, 4319
86	Toys and Games	141	4391
87	Sporting Goods	140	4392
88	Musical Instruments	139	4393
89	Jewelry and Plated Products	138	4395
90	Other Manufactured Products	143	4394, 4396, 4399
91	Electricity Supply	145	4501-4505
92	Gas, Steam, and Hot Water Supply	146	4610, 4620
93	Water Supply and Sewage Services	147	4700, 4801, 4802
94	Waste Management Services	148	4911, 4912, 4920
95	Building Construction and Repair	149	5010-5030
96	Civil Engineering Construction	150-153	5111-5190
97	Wholesale and Retail Trade	154, 156	5200
98	Rail Transport	157	5310
99	Road Transport	158	5321, 5322
100	Coastal and Inland Water Transport	160	5401
101	Deep-Sea Transport	159	5402
102	Air Transport	161	5500
103	Transport Support Services	162	5611-5690
104	Food Service Activities	165	5811-5814
105	Accommodation Services	164	5820
106	Postal and Courier Services	163	5710, 5720
107	Telecommunication Services	168	5911, 5912, 5991, 5999
108	Broadcasting, Film, and Recording	167	6001, 6002, 6401, 6402
109	Computer and IT Services	169	6100-6290
110	Publishing	166	6300
111	Financial and Insurance Services	170-173	6510-6700
112	Real Estate Services	174	6800-6920
113	Rental and Business Support Services	176	7300-7490
114	Professional, Scientific, and Technical Services	051, 052, 175	7001-7299
115	Government Services (excluding education and health)	177, 180	7511-7901
116	Government Education Services	178	7601
117	Private Education Services	181	7602, 7603
118	Government Health Services	179	7701
119	Private Health Services	182	7702, 7703
120	Arts, Culture, and Entertainment Services	183	7902-8002

121	Motor Vehicle Repair Services	155	8211
122	Machinery Repair Services	144	4402
123	Other Personal Repair Services	184	8212
124	Other Services	185	8101-8300