Indonesian Economic Review
Volume 5, Number 2, August 2025
e-ISSN: 2774-8073; Page 52-66
DOI: https://doi.org/10.53787/iconev.v5i2.71
Available online at: https://iconev.org/index.php/ier

The Role of the Manufacturing Industry in the Economy of West Java Province : An Input-Output Analysis Approach

Lukman[1*], Princess Nurjanah[2], Awani Ceria Luksita[3], Hepi Prayudiawan[4], Suhendra[5]
[1-2, 4-5] Universitas Islam Negeri Jakarta, Indonesia
[3] Kementerian Kesehatan Republik Indonesia, Indonesia

**Author Correspondence: lukman@uinjkt.ac.id [1]*

Abstract *The West Java government is directing the development of an industrial-based economy. This study analyzes the relationship between the manufacturing industry sector and other economic sectors, identifying the multiplier effect and leading sectors in the manufacturing industry to be developed in West Java. This study is a quantitative descriptive study using the input-output analysis method in 2016. The results of the study indicate that the manufacturing industry sector can encourage the construction sector as its downstream sector and attract the wholesale and agricultural sectors as its upstream sectors. When viewed from the multiplier effect side, the manufacturing industry sector has not been able to become a sector with the highest income multiplier value and workforce multiplier in West Java. The manufacturing industry sub-sectors that are key sectors in the economy of West Java Province are the Textile and Apparel Industry; Metal Goods, Computers, Electronic Goods, Optics and Electrical Equipment Industry; Transportation Equipment Industry; Chemical, Pharmaceutical and Traditional Medicine Industry Sub-sector; Machinery and Equipment Industry (YTDL).*

Keywords*: Input-Output Analysis; Key Sectors; Linkage Analysis; Manufacturing Industry; West Java.*

1. INTRODUCTION

Economic development plays a crucial role in improving various aspects of a country's prosperity, especially in developing nations. Adhikari and Raj (2021) highlight the significance of a balanced economic structure in reducing poverty and income inequality, which ultimately leads to more job opportunities and better income distribution. They stress that economic development is key to fostering a prosperous society, with a focus on equitable growth. This idea is supported by Li and Zhang (2019), who explore the relationship between regional economic integration and job creation. They argue that such integration can address regional disparities and provide better employment opportunities, emphasizing the need for equitable development. In a similar vein, Hassan and Kumar (2020) discuss how sustainable economic development not only boosts social welfare but also improves employment prospects in developing countries, particularly in sectors that can directly reduce regional inequalities. Williams and Johnson (2018) further elaborate on this by examining the interplay between economic growth, poverty reduction, and income inequality, pointing out that inclusive economic development is crucial for reducing societal disparities. Zhang and Wu (2021) also underline the importance of government policies in promoting inclusive development, highlighting their role in ensuring equitable distribution of resources and opportunities, which is fundamental to achieving overall economic prosperity in developing countries. These studies collectively emphasize that a well-structured and inclusive approach to economic development

Received: July 25, 2025; Revised: August 11, 2025; Accepted: August 27, 2025; Published: August 31, 2025

is essential for fostering long-term, sustainable growth that benefits all sectors of society.

Indonesia's Gross Domestic Product (GDP) has shown consistent growth over the years, with a notable increase from IDR 10.4 trillion in 2018 to IDR 11.71 trillion in 2022 (BPS, 2023). The World Bank (2023) reports that the country's economic growth is expected to be around 5% in 2023, supported by strong private consumption and favorable terms of trade. In 2024, Reuters (2025) projected a 5.03% economic growth rate for Indonesia, driven by higher levels of investment and government expenditure. The Financial Times (2024) underscores that during President Joko Widodo's administration, Indonesia's economy has consistently grown at around 5% annually, except for the contraction experienced during the COVID-19 pandemic. These figures reflect Indonesia's resilience, despite the challenges posed by the global health crisis.

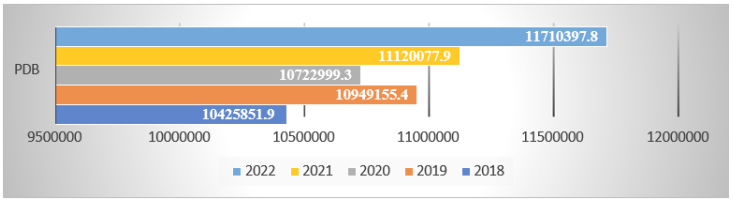

Figure 1. Indonesia's Gross Domestic Product (GDP) at Constant 2010 Prices (Billion) 2018-2022.

Figure 1 clearly shows that Indonesia's GDP continues to grow year after year. In 2022, the manufacturing sector contributed 22% of Indonesia's GDP, the highest contribution among business sectors when adjusted to constant 2010 prices. The Gross Regional Domestic Product (GRDP) of each region is undeniably important for overall GDP growth. With the manufacturing sector as its main engine, West Java Province has become one of the most economically dynamic regions in Indonesia, ranking third in terms of Gross Regional Domestic Product (GRDP).

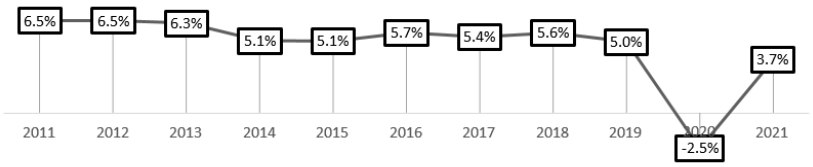

Figure 2. Growth of Gross Regional Domestic Product (GRDP) of the Manufacturing Industry Sector of West Java Province ADHK 2010 (%) by Business Field 2011-2021.

Figure 2 shows that the growth of the manufacturing industry sector's contribution to the GRDP of West Java province has always increased, with the manufacturing industry sector contributing 43% of the total economy in 2022. The rapid contribution of the manufacturing sector to the economy of West Java province makes this province categorized as an industrial province.

Industrialization is seen as a shift or change in livelihoods from agriculture or the use of agricultural resources to industrial work that utilizes technology. Developing countries believe that the industrial sector can drive other economic sectors to achieve economic development (Anas, 2015). Developing the economy through the industrial sector is one of the government's main initiatives to stimulate economic growth. Industrialization is believed to be able to overcome the economic problems of developing countries, including Indonesia (Mulyani et al., 2022). Thus, the industrial sector is not only poised to spur the growth of related industries, but also to take the lead in driving the expansion of other economic sectors.

In the West Java provincial economy, there is still quite a striking disparity between economic sectors. This raises questions about whether the manufacturing industry, as the leading sector, is capable of driving the development of other economic sectors. Furthermore, Pitaloka et al., (2020) in his research, he stated that the relatively high contribution of the manufacturing sector to GRDP would also result in high labor remuneration and employment rates in the manufacturing sector. However, this contrasts with the reality in West Java province; in fact, the wholesale and retail trade sector is the sector that absorbs the most labor in West Java. This can be seen in table 1.

Table 1. Number of Workers by Industry in West Java Province in 2022 (People).

No	Sector	Labor
1	Mining and Quarrying	147242
2	Processing industry	4522840
3	Electricity and Gas Procurement	58362
4	Water Supply	149206
5	Construction	1710514
6	Wholesale and Retail Trade	5439021
7	Transportation and Warehousing	1218505
8	Accommodation and Food and Drink	2148541
9	Information and Communication	260602
10	Financial Services and Insurance	352782
11	Real Estate	136561
12	Corporate Services	503286
13	Government Administration	566135
14	Educational Services	1024834
15	Health Services and Social Activities	333273
16	Other Services	1295013
17	Other Services	1203140

Table 1 shows that the largest labor-absorbing sector in West Java is the wholesale and retail trade sector, employing 5,439,021 people. The manufacturing sector, considered a key sector and the largest contributor to GRDP, is in fact the second largest labor-absorbing sector, employing 4,522,840 people. In third place is the agriculture, forestry, and fisheries sector, employing 3,585,851 people, followed by other sectors.

In this context, to encourage economic growth and reduce inequality in West Java Province, the government must utilize sectoral multiplier effects to identify appropriate policies for potential economic sectors. Currently, it is unclear how the manufacturing industry in West Java Province interacts with other economic sectors, or whether the manufacturing industry can increase employment, income, and output from other economic sectors. Therefore, further analysis is needed regarding this matter. With these problems, the author undertook this research with the title "The Role of the Manufacturing Industry Sector in the Economy of West Java Province: An Input-Output Analysis Approach."

2. METHOD

Types and Sources of Research Data

This study employs a quantitative descriptive strategy for its analysis and utilizes secondary data sourced from the Central Statistics Agency (BPS). The analysis was conducted using the IO (input-output) model in Microsoft Excel 2021. Domestic transactions in West Java Province are represented by an input-output table based on 2016 producer prices for the purposes of this study. The table covers 17 economic sectors and 52 economic sectors.

Operational Definition of Output Variables

When measured in rupiah, output is the total value of goods and services produced by a region's production sector, regardless of the origin of the producers. Demand is then met with all production output. The units used for this variable are millions of rupiah.

Gross Value Added

The production factors generated as a result of production operations are rewarded with gross value added. The amount of output produced and the costs incurred during the production process determine the GNP for each sector. The units used for this variable are millions of rupiah.

Labor

Anyone who is able to work to meet their own or the community's material needs is considered a worker according to Law No. 13/2003, Chapter 1, Article 1, Paragraph 2. Anyone who is able to work as a laborer is included in this criteria.

Data Processing Analysis Techniques Input-Output Analysis

A comprehensive analysis of a region's economy that considers the relationships between its various economic sectors is known as input-output analysis, or IO. Consequently, changes in the output level of one sector inevitably affect other sectors. Furthermore, the level of societal welfare related to primary inputs (value added) is also related to this study. This means

it can determine how much societal welfare increases or decreases due to changes in production in these sectors. Every product requires inputs to produce it. Each of the four sections of the input-output (IO) transaction table is located in a different quadrant: quadrants I, II, III, and IV.

Table 2. Input-Output Transaction Table Format.

	Output Allocation					Total Provision
Input Source	Intermediate Request				Request End	Output Amount
a. Input Between	Production Sector				Quadrant II	
	Quadrant I					
Food Crop Farming	x_1	x_{12}	x_{13}	…	F_1	X_1
Horticultural Crop Farming Seasonal	x_2	x_{22}	x_{23}	…	F_2	X_2
Annual and Perennial Plantations	x_3	x_{32}	x_{33}	…	F_3	X_3
Farm	x_4	x_{42}	x_{43}	…	F_4	X_4
…	…	…	…	…	…	…
	Quadrant III					
b. Primary Input	V_1	V_2	V_3	…	Quadrant IV	
Number of Inputs	X_1	X_2	X_3	…		

Relationship Analysis

The economy is not structured, but rather an integrated whole. Therefore, what enters one sector becomes input to another, and vice versa. Sectors can become interdependent and form relationships as a result. For each intersectoral relationship, there are two components: diffusion power for backward linkages and diffusion sensitivity for forward linkages.

Power of Dispersion for Backward Linkage (Spreading Power)

The power of diffusion is an analysis method used to see the extent of backward linkages and is able to explain how the sector can advance its upstream industrial sector. The power of diffusion provides a useful tool for assessing the extent of distribution in the utilization of one sector for the development of other sectors, which differs from the transaction process in the input market. The formula used to calculate the power of diffusion index is:

$$a_j = \frac{\sum_i a_{ij}}{(\frac{1}{n}) \sum_i \sum_j a_{ij}}$$

Where aj is the distribution index of sector j, while $\sum i\ aij$ is the impact on output all sectors due to changes in final demand in sector I, and n is the total sector.

Sensitivity of Dispersion for Forward Linkage (Degree of Sensitivity)

The sensitivity index is a method used to assess how much a sector is likely to increase production in sectors that will benefit from investment. The sensitivity index is crucial for

understanding how sensitive an industry is to other industries. The formula used to calculate the sensitivity coefficient is:

$$\beta_j = \frac{\sum_i a_{ij}}{(\frac{1}{n}) \sum_i \sum_j a_{ij}}$$

Where βj is the sensitivity coefficient of sector I, while $\sum i\ aij$ is the impact on output all sectors due to changes in final demand in sector I, and n is the number of sectors.

Multiplier Effect Analysis

To determine the impact of changes in exogenous factors, such as final demand, on endogenous variables, such as sectoral production, multiplier analysis is used. Thus, multipliers are a way to measure causal-based stimulus for economic development.

Output Multiplier

In response to a change in the final demand of a sector in units, the output multiplier shows the total amount of production produced by the economy (Daryanto & Hafizrianda, 2010). A shift in production units occurs when output increases or decreases by one monetary unit. For the output multiplier, the formula is written as:

$$O_j = \sum aij$$

Where O_j is the output multiplier while a_{ij} is the inverse Leontif matrix.

Revenue Multiplier

One way to determine how much money people will earn in wages or salaries when the final demand of a particular economic sector changes is to use an income multiplier (Yulianto et al., 2022). The income multiplier formula is as follows:

$$H_j = \sum aij + pi$$

Where H_j is the revenue multiplier, while aij is the leontif inverse matrix, and pi is the household income coefficient

Labor Multiplier

According to Yulianto et al., (2022) the labor multiplier measures the impact of shifts in an economic system's labor requirements caused by adjustments in final demand within a particular economic sector. The formula for the labor multiplier is as follows:

$$E_j = \sum aij + ti$$

Where E_j is the labor multiplier, aij is the leontif inverse matrix, and ti is the labor coefficient.

Key Sector Analysis

Daryanto & Hafizrianda (2010) states that the assessment of intersectoral linkages can be used to identify important sectors, especially if the forward linkages (sensitivity index) and

backward linkages (distribution power index) have relatively high values. Therefore, there are ranking standards for selecting priority or important sectors in the economy. The following are the standards listed (Wildan Rafiqah et al., 2018).

Table 3. Classification of Priority Sectors and Types of Industrial Sectors.

Backward linkage **(spreading power)**	***Forward linkage*****(degrees sensitivity)**	**Sector Type Industry**	**Information**
High (>1)	High (>1)	Intermediate Industry	Key Sectors
High (>1)	Low (<1)	Downstream Industry	Potential/Developing Sectors
Low (<1)	High (>1)	Upstream Industry	Potential/Developing Sectors
Low (<1)	Low (<1)	Consumer Industry	Underdeveloped Sector

3. RESULT AND DISCUSION

Relationship Analysis

Power Of Dispersion for Backward Linkage (Spreading Power)

The distribution capacity coefficient has the potential to influence both direct and indirect relationships between economic sectors. A sector can increase its own production by directly or indirectly using the output of another sector as input. This means that the distribution capacity coefficient can influence market mechanisms, where distribution is used to help one sector compete with another. The distribution capacity coefficient for the processing industry sector can be seen in Table 4.

Table 4. Backward Linkages of the Manufacturing Industry with Other Sectors in West Java Province.

Economic Sector	**Backward Linkage/Spreading Power**
Agriculture, Forestry, and Fisheries	0.0522
Mining and Quarrying	0.0197
Processing industry	1.3890
Electricity and Gas Procurement	0.0427
Water Supply, Waste Management, Waste and Recycling	0.0002
Construction	0.0084
Wholesale and Retail Trade; Automobile and Motorcycle Repair	0.0856
Transportation and Warehousing	0.0359
Provision of Accommodation and Food and Beverages	0.0027
Information and Communication	0.0121
Financial Services and Insurance	0.0141
Real Estate	0.0040
Corporate Services	0.0181
Government Administration, Defense and Compulsory Social Security	0.0002
Educational Services	0.0011
Health Services and Social Activities	0.0014
Other Services	0.0037
Total Spreading Power	**1.6911**

Based on table 4, the manufacturing industry sector can attract 1.3890 from the manufacturing industry sector itself; 0.0856 from the wholesale and retail trade sector; 0.0522 from the agriculture, forestry, and fisheries sector; and 0.0427 from the electricity and gas supply sector. This means that the manufacturing industry sector can attract these sectors in the economy of West Java Province as its upstream sector.

The relationship between the manufacturing industry sector and wholesale and retail trade as its upstream sector is due to the fact that some manufacturing industries use the output of wholesale and retail trade as input in their production, in which context wholesale and retail trade act as suppliers of raw materials, components, or semi-finished products. In the textile and garment industry in West Java Province, namely in the areas of Bandung, Cimahi, Sumedang, Bekasi, Karawang and Bogor. This sector purchases fabric, thread, and clothing accessories (such as buttons and zippers) from wholesalers and retailers which are then processed by the production industry into finished garments.

The relationship between the processing industry sector and the agricultural sector as its upstream sector is due to the agricultural sector as a provider of raw materials for the processing industry and the processing industry processes these raw materials into finished or semi-finished materials that are distributed to the market for consumption. In the food processing industry, especially tea processing in the West Java region, the industry uses local tea for the domestic and export markets, such as PT Perkebunan Nusantara VIII which manages tea plantations and tea processing factories in West Java Province. In addition, West Java is one of the provinces with the largest rice production in Indonesia, so the rice milling and rice processing industries are very important, such as PT Sinta Prima Feedmil and PT Jatisari Srirejeki.

In addition to attracting these two sectors, the manufacturing sector can also attract all economic sectors in West Java Province. Therefore, the existence of the manufacturing sector is crucial. Become very important in the economy of West Java province, especially in attracting its upstream sectors.

Sensitivity of Dispersion for Forward Linkage (Degree of Sensitivity)

One way to measure the strength of the relationship between future output and other sectors is to look at its sensitivity, that is, the ability of a sector to induce other sectors to increase their production by using its output as an input.

Table 5. Future Linkages of the Processing Industry with Other Sectors in West Java Province.

Economic Sector	Forward Linkage / Degree of Sensitivity
Agriculture, Forestry, and Fisheries	0.0725
Mining and Quarrying	0.0634
Processing industry	1.3890
Electricity and Gas Procurement	0.0806
Water Supply, Waste Management, Waste and Recycling	0.1720
Construction	0.3462
Wholesale and Retail Trade; Automobile and Motorcycle Repair	0.1368
Transportation and Warehousing	0.3104
Provision of Accommodation and Food and Beverages	0.1504
Information and Communication	0.0686
Financial Services and Insurance	0.0456
Real Estate	0.0381
Corporate Services	0.1792
Government Administration, Defense and Compulsory Social Security	0.1177
Educational Services	0.1252
Health Services and Social Activities	0.2211
Other Services	0.1536
Total Sensitivity Degree	**3.6706**

Based on table 5, the manufacturing industry sector can drive the manufacturing industry sector itself by 1.3890; drive the construction sector by 0.3462; drive the transportation and warehousing sector by 0.3104; and can drive the Health Services and Social Activities sector by 0.2211. This can be interpreted that the manufacturing industry sector can drive these sectors in the economy of West Java Province as its downstream sector.

The future link between the manufacturing industry and the construction sector is due to the construction sector's heavy reliance on manufacturing output for various building materials and components, such as cement, steel, ceramics, glass, and pipes. West Java Province is home to the largest cement factories in Indonesia, namely PT Semen Indonesia and PT Holcim Indonesia Tbk, as well as steel and iron factories such as PT Krakatau Steel Tbk. The products produced by these industries are widely used in construction projects, from housing to large infrastructure. The link between the manufacturing industry and the construction sector can support economic growth and regional development in West Java.

The transportation and warehousing sectors are closely linked and interdependent with the manufacturing sector. The production process in West Java's manufacturing industries, such as cement, steel, and food factories, requires the delivery of raw materials from various sources by truck, train, and ship. Arriving raw materials are often stored in warehousing facilities before being processed, and finished products are often stored in distribution warehouses before being shipped to consumers or retailers. Warehousing plays a role in

managing inventory and facilitating timely delivery. Large warehouses in West Java, such as the Bandung Logistics Warehouse and the Deltamas Warehouse, serve as distribution centers for various products.

In addition to boosting these two sectors, the manufacturing industry can also drive all other economic sectors in West Java. Therefore, the manufacturing industry is crucial to the West Java provincial economy, particularly in driving its downstream sectors.

Multiplier Effect Analysis

Output Multiplier

The increase in output per unit of change caused by a one-unit increase in final demand is known as the output multiplier. According to output multiplier analysis, a sector can be called a leading sector if its contribution to economic production is greater than its multiplier value.

Table 6. Output Multiplier of West Java Province.

Description	Output Multiplier	Ranking
A. Agriculture, Forestry, Fisheries	1.20952	XVI
B. Mining and Excavation	1.30496	XIV
C. Processing Industry	1.69111	II
E. Water Supply, Waste Management, Waste and Recycling	1.51266	VIII
F. Construction	1.66206	III
G. Wholesale and retail trade; Car and motorcycle repair	1.34595	XII
H. Transportation and Warehousing	1.64373	IV
I. Provision of Accommodation and Food and Drink	1.55071	V
J. Information and Communication	1.39951	X
K. Financial Services and Insurance	1.24130	XV
L. Real Estate	1.17007	XVII
MN. Corporate Services	1.51391	VII
O. Government Administration, Defense and Social Security	1.47703	IX
P. Educational Services	1.34338	XIII
Q. Health Services and Social Activities	1.52654	VI
RSTU. Other Services	1.39178	XI

Based on the output multiplier analysis in table 6, the sector with the highest multiplier is the electricity and gas procurement sector with a multiplier value of 2.515, which means that if there is an increase of one unit of final demand in the electricity and gas procurement sector, it will cause an increase in total output of 2.515. The second highest multiplier value is the manufacturing industry sector (1.691), and the third highest is the construction sector (1.662). This means that with each additional unit of final demand, other sectors will increase their output because of the extensive reciprocal relationship between these sectors and other sectors as suppliers of raw materials for their production.

Revenue Multiplier

The income multiplier is the increase in income resulting from changes in output in the economy. In the input-output table, income refers to wages and salaries received by households, including dividends and bank interest. The input-output table shows a linear relationship, meaning an increase or decrease in output will be proportionally followed by an increase or decrease in income levels. The presence of final demand in an economy will encourage the creation of new output and will encourage demand for new inputs in the form of labor, and the remuneration received by labor in the form of wages and salaries. Therefore, an increase in final demand will increase people's income.

Table 7. West Java Province Income Multiplier.

Description	Revenue Multiplier	Ranking
A. Agriculture, Forestry, Fisheries	0.461795997	III
B. Mining and Excavation	0.202910127	XVI
C. Processing Industry	0.318365156	IX
D. Procurement of Electricity and Gas	0.237362932	XIV
E. Water Supply, Waste Management, Waste and Recycling	0.214292511	XV
F. Construction	0.248911124	XII
G. Wholesale and retail trade; Car and motorcycle repair	0.357167088	VII
H. Transportation and Warehousing	0.263722208	XI
I. Provision of Accommodation and Food and Drink	0.323121278	VIII
J. Information and Communication	0.309360454	X
K. Financial Services and Insurance	0.378254521	VI
L. Real Estate	0.073921836	XVII
MN. Corporate Services	0.435527743	IV
O. Government Administration, Defense and Social Security	0.530010326	II
P. Educational Services	0.549349368	I
Q. Health Services and Social Activities	0.395967606	V
RSTU. Other Services	0.244668513	XIII

The income multiplier analysis for West Java Province is shown in Table 7. The education services sector has the highest multiplier value of 0.5493, meaning that all other economic sectors will experience an increase in income of one unit of increase in final demand in this sector. The agriculture, forestry, and fisheries sector ranks third with an income multiplier of 0.4617, followed by the government administration, defense, and social security sector with a value of 0.5300. With a value of 0.3183, the income multiplier for the manufacturing industry sector is in ninth place. Therefore, the manufacturing industry sector has not been able to become the largest income multiplier in West Java Province.

Labor Multiplier

Economically, a one-unit shift in final demand in this sector has a one-unit effect on the employment multiplier. A region's employment multiplier can be calculated by summing the rows representing the industries in that region.

Table 8. Labor Multiplier of West Java Province.

Description	Labor Multiplier	Ranking
A. Agriculture, Forestry, Fisheries	0.022843102	II
B. Mining and Excavation	0.003378807	XV
C. Processing Industry	0.00653577	XIII
D. Procurement of Electricity and Gas	0.003308384	XVI
E. Water Supply, Waste Management, Waste and Recycling	0.03265901	I
F. Construction	0.008560065	XI
G. Wholesale and retail trade; Car and motorcycle repair	0.015256265	V
H. Transportation and Warehousing	0.009923632	X
I. Provision of Accommodation and Food and Drink	0.019857742	IV
J. Information and Communication	0.004959026	XIV
K. Financial Services and Insurance	0.006693132	XII
L. Real Estate	0.002101471	XVII
MN. Corporate Services	0.012007727	VIII
O. Government Administration, Defense and Social Security	0.014070216	VI
P. Educational Services	0.012912838	VII
Q. Health Services and Social Activities	0.011635379	IX
RSTU. Other Services	0.021462327	III

According to the employment multiplier study, the water, waste, garbage, and recycling sector in West Java has the highest value at 0.03265. The total number of jobs in the economy will increase by 0.03265 for every one unit increase in final demand from this sector. In second place with an employment multiplier of 0.02284 is the agriculture, forestry, and livestock sector, followed by the other services sector at 0.0214. Meanwhile, the manufacturing sector's employment multiplier of 0.0065 ranks sixth. The manufacturing industry sector has not yet become the largest workforce in West Java Province.

Key Sector Analysis

Based on the study of intersectoral linkages in the economy of West Java Province, leading or important sectors are defined as those with high backward linkages and sensitivity to forward linkages. Promising or developing sectors are those with higher linkages, while less developed sectors are those with lower spreadability and sensitivity. The classification of sectors into leading, promising, developing, and underdeveloped categories can be obtained by identifying the results of their spreadability and sensitivity levels. The classification results of the sectors included in the leading sectors in West Java Province are the manufacturing industry sector, this result is in line with Hirchman's opinion that the growth of leading sectors will encourage the growth of other sectors and

the development of other industries that are closely related to the industry that is currently experiencing development (Anas, 2015).

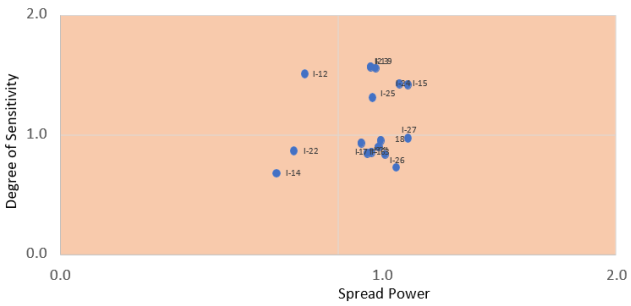

Figure 3. Map of Distribution of Priority Sectors in the Manufacturing Industry Sub-Sector of West Java Province

Quadrant I (Primary/Priority)

Based on Figure 3, the processing industry subsectors that occupy positions in the first quadrant are as follows: Textile and Apparel Industry; Metal Goods, Computer, Electronic Goods, Optical and Electrical Equipment Industry; Transportation Equipment Industry; Chemical, Pharmaceutical and Traditional Medicine Industry Subsector; Machinery and Equipment Industry (YTDL). This shows that the processing industry subsectors that fall into the first quadrant should be treated and receive special attention from the West Java Provincial government to be maximized. Although both have a linkage value above the average of other sectors and are categorized as superior subsectors in the input-output analysis, each of these sectors has different characteristics. Therefore, it is advisable to prioritize the government budget on these subsectors that can contribute maximally in the future, and if the regional government seriously pays attention to these industrial subsectors with appropriate policies, these subsectors will be even more optimal in the future.

Quadrant II (Potential)

Based on figure 3, the processing industry sub-sector that occupies the position in the second quadrant is the Coal and Oil and Gas Refinery Industry sub-sector with a power of dispersion for backward linkage of 0.9 and a sensitivity of dispersion for forward linkage of 1.5, which means that the output of the sector is used as input for other sectors. In terms of production, of course, to be able to generate electricity, input is needed, one of which comes from the output produced by the coal and oil and gas mining industry sectors, therefore the output from the industrial sub-sector is very useful for other sectors.

Quadrant III (Developing)

Sectors included in quadrant three are developing sectors with power of dispersion values for backward linkage (power of dispersion) greater than the sensitivity of dispersion values for forward linkage (degree of sensitivity). The food and beverage industry, leather, leather goods and footwear, rubber, rubber and plastic goods, non-metallic mining, and furniture industries

are all processing industry subsectors included in quadrant three. It would be beneficial if the subsectors in this quadrant were further maximized in their development with support from the local government to have an impact on increasing output.

Quadrant IV (Retarded)

Sectors in the fourth quadrant have a linkage value below the average for other sectors, meaning their ability to drive other sectors is still below the average for the overall economy, making them less favored. The processing industry subsectors included in this quadrant are the Basic Metal Industry and the Tobacco Processing Industry. To improve this situation, government involvement and appropriate policies are needed for these relatively underdeveloped subsectors.

4. CONCLUSION

The research results show that the manufacturing industry sector can drive the construction sector as its downstream sector and attract the wholesale trade and agriculture sectors as its upstream sectors. When viewed from the multiplier effect side, the manufacturing industry sector has not been able to become the sector with the highest income multiplier value and workforce multiplier in West Java. The manufacturing industry sub-sectors that are key sectors in the economy of West Java Province are the Textile and Apparel Industry; Metal Goods, Computers, Electronic Goods, Optics and Electrical Equipment Industry; Transportation Equipment Industry; Chemical, Pharmaceutical and Traditional Medicine Industry Sub-sector; Machinery and Equipment Industry (YTDL). This shows that the industries in West Java Province have the capacity to drive and develop their upstream and downstream industries. There is a need for further research whose research objects do not only focus on West Java Province but also compare it with other nearby regions that have regional and economic links, such as the relationship between the flow of goods, services and people, so that the linkages between sectors in each region, multiplier effects and priority sectors in each region are obtained.

REFERENCES

Adhikari, R., & Raj, S. (2021). Economic development and its impact on poverty alleviation in developing countries. *International Journal of Economic Development, 9*(2), 112-128. https://doi.org/10.1111/ijed.2021.9.2.112

Anas, M. A. (2015). Peranan sektor industri pengolahan dalam perekonomian Provinsi Jawa Tengah. *Economics Development Analysis Journal, 4*(3), 282-291. https://journal.unnes.ac.id/sju/index.php/edaj/article/view/14835

Daryanto, A., & Hafizrianda, Y. (2010). *Analisis Input-Output & Social Accounting Matrix*. Bogor: IPB PRESS. ISBN 978-979-493-254-1. https://repository.ipb.ac.id/bitstream/handle/123456789/42648/Analisis%20input-output.pdf?sequence=2&isAllowed=y

Derison, M. B., & Surani, W. (2016). Latihan range of motion (ROM) terhadap rentang sendi pasien pasca stroke. *Idea Nursing Journal, 7*, 12-18.

Fajri, S., & Nisa, A. (2020). Implementasi mikroskop digital berbasis Raspberry Pi 3 untuk pembelajaran biologi. *Jurnal Ilmu Pendidikan, 26*(3), 120-134. https://doi.org/10.32140/jip.2020.26.3.120

Hassan, M. K., & Kumar, A. (2020). Sustainable economic development and its impact on social welfare in developing countries. *Journal of Development Economics, 30*(4), 285-302. https://doi.org/10.1016/j.jdeveco.2020.04.010

Huang, A. S., & Rudolph, L. (2007). *Bluetooth essentials for programmers*. Cambridge University Press. https://doi.org/10.1017/CBO9780511546976

Junaedi, A., Puspitasari, D., & Maulidina, M. (2021). Pengaruh (intensor) induktor heater menggunakan thermal sensor berbasis mikrokontroler Arduino Nano dalam mengolah logam. *Jurnal NOE, 4*(2). https://doi.org/10.29407/noe.v4i2.16754

Li, Y., & Zhang, X. (2019). Regional economic integration and employment generation: The case of developing countries. *Development and Policy Review, 23*(1), 55-72. https://doi.org/10.1111/dpr.2019.23.1.55

Litscher, G. (2016). A laser watch for simultaneous laser blood irradiation and laser acupuncture at the wrist. *Integrative Medicine International, 3*, 75-81. https://doi.org/10.1159/000448099

Mulyani, F., Rizal, M., & Kamarni, N. (2022). Peran industri pengolahan dalam perekonomian Sumatera Barat. *Menara Ilmu, 1*(1), 30-39. https://doi.org/10.31869/mi.v16i1.3271

Permadhi, B. A., Ludiana, & Ayubbana, S. (2022). Penerapan ROM pasif terhadap peningkatan kekuatan otot pasien dengan stroke non-hemoragik. *Jurnal Cendekia Muda, 2*(4), 443-446. Retrieved from http://www.jurnal.akperdharmawacana.ac.id/index.php/JWC/article/view/370/231

Pitaloka, C. P., Jumiati, A., & Wibisono, S. (2020). Analisis keterkaitan dan multiplier efek sektor industri pengolahan terhadap perekonomian nasional. *Jurnal Ekonomi Ekuilibrium (JEK), 4*(2), 11-28. https://jurnal.unej.ac.id/index.php/JEK

Rydwik, E., Eliasson, S., & Akner, G. (2006). The effect of exercise of the affected foot in stroke patients - A randomized controlled pilot trial. *Clinical Rehabilitation, 20*(8), 645-655. https://doi.org/10.1191/0269215506cre986oa

Stoykov, M. E., & Corcos, D. M. (2009). A review of bilateral training for upper extremity hemiparesis. *Occupational Therapy International, 16*(3-4), 190-203. https://doi.org/10.1002/oti.277