DETERMINING INDONESIAN LEADING LOGISTICS SECTOR

Yusuf Munandar

Fiscal Policy Agency, Gd.RM Notohamprojo, Jl.Raya Dr Wahidin No.1 Jakarta Pusat

Email: yusufmunandar@yahoo.co.id

ARTICLE INFORMATION

Received date
[05-04-2021]

Revision
[27-07-2021]

Accepted date
[28-07-2021]

ABSTRACT:

This study aims to determine: (a) in which provisions the Transportation and Warehousing sector is a Basic and (b) in which provinces the Transportation and Warehousing sector is in quadrants I, II, III and IV in the modified Klassen Typology analysis matrix. The method used in this descriptive research is the Klassen Typology analysis matrix which is modified with the Location Quotient number, namely the Gross Regional Domestic Product and its growth in the Klassen Typology analysis matrix, replaced by the Location Quotient number and its growth. The result is a classification of Location Quotient numbers and their growth into 4 quadrants in the Klassen Typology analysis matrix. This study uses the Transportation and Warehousing sector as a proxy for the Logistics sector. This study uses March 2018 and March 2019 Susenas data compiled by Indonesian Central Bureau of Statistics. The research concludes that the Indonesian Logistics sector represented by the Indonesian Transportation and Warehousing sector is a Basic sector in 14 provinces, is a developed economic sector (Quadrant 1) in 9 provinces, is a stagnant economic sector (Quadrant 2) in 5 provinces, is a developing economic sector (Quadrant 3) in 6 provinces, and is an underdeveloped economic sector (Quadrant 4) in 14 provinces. This research recommends that to increase Indonesia's economic growth in the next 5 years (2020-2024) the Indonesian government needs to focusing on strengthening and developing the Transportation and Warehousing Sector in 9 provinces in Quadrant 1.

Keywords: *matrix of Klassen Typology Analysis, location quotient, labor absorption, transportation and warehousing sector.*

1. INTRODUCTION

Indonesia's National Medium-Term Development Plan (Rencana Pembangunan Jangka Menengah Nasional/RPJMN) 2020-2024 establishes 2 (two) targets that will be realized in the next five years (2020-2024) in order to strengthen economic resilience for quality growth, namely: (a) increased carrying capacity and quality economic resources as a modality for sustainable economic development and (b) increasing added value, employment, investment, exports, and economic competitiveness. The second target, namely "increasing added value, employment, investment, exports, and economic competitiveness" has 4 sub targets, namely: (1) Strengthening entrepreneurship and Micro, Small and Medium Enterprises (MSMEs), and cooperatives, (2) Increasing value added, employment and investment in the real sector, and industrialization, (3) Increasing high value added exports and strengthening the Domestic Component Level (Total Komponen Dalam Negeri/TKDN), and (4) Strengthening the pillars of economic growth and competitiveness. To strengthen the pillars of economic growth and competitiveness, Indonesia's RPJMN 2020-2024 targets Indonesia's logistics costs to Gross Domestic Product (GDP) in 2024 at 20% from 23.2% in 2019 (baseline). In addition, Indonesia's RPJMN 2020-2024 also targets Indonesia's Logistic Performance Index (LPI) score in 2024 to be 3.50 from 3.15 in 2018 (President of the Republic of Indonesia, 2020).

In order to achieve this target, Indonesia will continue to improve the performance of the Logistics sector in the coming years. To be able to improve the performance of the Logistics sector in the future, Indonesia needs to know the current performance of the Logistics sector. How is the current performance of Indonesia's Logistics sector? PO Roberts SAIC in his presentation entitled "Presentations on Supply Chain Management: New Directions for Developing Countries" stated that transportation and warehousing costs contribute to 66% of global logistics costs. The remaining 24% was contributed by inventory carrying costs, 6% by order processing costs and 4% by administrative costs (Nofrisel, 2021). Therefore, assuming that the cost structure of the Indonesian Logistics sector is not much different from the cost structure of the global Logistics sector, then how well the Indonesian Logistics sector is performing can be seen from at least how well the Transportation and Warehousing sector is performing in Indonesia. This study uses the Transportation and Warehousing sector as a proxy for the Logistics sector.

Thus, this study aims to determine how well the performance of the Transportation and Warehousing sector in Indonesia in 2019 is seen from: (a) the ability of the Transportation and Warehousing sector to meet domestic demand as indicated by the Location Quotient (LQ)

coefficient and (b) the development trend of the Transportation and Warehousing sector in the future, whether it is progressing and growing rapidly or not, is indicated by its position in the Klassen Typology analysis matrix, whether in quadrant I, II, III, or IV. If the Location Quotient (LQ) coefficient of the Transportation and Warehousing sector is more than one, it is a Basic sector where the production output exceeds domestic demand so that the excess is exported to other countries or to other provinces. Furthermore, the questions of this research are (a) in which provision is the Transportation and Warehousing sector a Basic? and (b) in which provinces the Transport and Warehousing sector is in quadrants I, II, III and IV in the modified Klassen Typology analysis matrix?

2. LITERATURE REVIEW

What is the definition of the Logistics sector? According to the Minister of Manpower of the Republic of Indonesia (2020), the Logistics sector is part of the supply chain that handles the flow of goods, information flow and money flow through the process of procurement, storage (warehousing), transportation, distribution, and delivery services in accordance with the type, quality, quantity, time and place desired by the consumer, effectively and efficiently, starting from the point of origin to the point of destination.

Several parties have conducted studies on the logistics sector in Indonesia. Haryotejo (2013) explains that countries with efficient logistics service sectors will be more competitive than countries with less efficient logistics services. Indonesia's logistics conditions reflect that the total costs before shipping and land transportation account for more than 40% of the total logistics costs. This promotes a high-cost economy and reduces the competitiveness of Indonesia's export products. Haryotejo (2013) found that improving infrastructure, eliminating unofficial fees and harmonizing national and local regulations are policy priorities that must be carried out by the Indonesian Government to realize the smooth flow of goods in order to create the competitiveness of Indonesian export products.

The role of Logistics sectors is considered more important in supporting the development of Indonesia economics and prosperity. Based on this thought, Natalia and Suprayogi (2009) conducted research to analyze the impact of changing income in Logistics sectors on others sector, labor and household income. Based on multipliers analysis, the result show that income changing as an effect of economic stimulus or injection in Logistic sectors has biggest impact on manufacturing industry sector. The result of more intensive research showing that income changing in Logistic sectors can boost Indonesia’s Gross Domestic Product (GDP). This increment achieved as a result of income rising in production factor,

which is salary earning of production worker, transportation operation, manual and unskilled workforce. The impact to household mostly gains by low-class household, both in rural and urban. This means income changing in Logistics sectors will increase the income of most Indonesian low-class society, which also means it could decrease poverty rate in Indonesia at the end. Path structural analysis showing that the biggest economic impact is flew directly from Logistic sector to others sector. The most effective economic stimulus is the sectors that play a role as leading sector, which is Railway Transport Sector, Road Transport Sector and Services Allied to Transport Sector.

Setyowati (2015) conducted a research to find out how big is the role of foreign direct investment and domestic for economic growth in Indonesia during the period 2004 – 2013 by using static model analysis with Ordinary Least Square regression. Sectoral analysis resulted that foreign direct investment and domestic transportation sector does not influence the Indonesian economic growth. It's because of risk in country factor, that is small domestic markets that cause lower rate of return and lack of supporting facilities such as infrastructure and transportation, skilled employees, and technology. Factor inhibiting the influx of investment also is a problem of economic instability, political, security and legal certainty. Multi sector analysis resulted that foreign direct investment and domestic for overall sectors of the economy does influence the Indonesian economic growth with using a significance level of 10%. Besides domestic savings has very strong influence to economic growth both for sectoral and multi sector analysis.

The world today is heading for an era of digitalization and automation. This is the main key in the business competition strategy, including in the Logistics sector. One of the elements used in digitization and automation is the use of data for organizational decision making. Big Data and Blockchain technology are currently being used by various business sectors in increasing the business capabilities of an organization by creating efficient business processes. Of course, this will affect the new business model, namely a new transformation that is fit for the development of the business world. Sutandi (2018) conducted research using Business Model Canvas (BMC) analysis and SWOT analysis. Based on the analysis, the results show that: first, current technological advances, especially Big Data and Blockchain, will continue to disrupt business to improve optimal performance. Second, the application of Big Data and Blockchain shows that there are changes both internally and externally in relation to intra and inter-organizational relations. Third, a SWOT analysis can elaborate on the advantages of Big Data and Blockchain technology in the business sector, especially in logistics.

Micro, Small and Medium Enterprises (MSMEs) are often constrained in distribution and marketing. This cannot be separated from the Logistics sector, which ideally should synergize with MSMEs in network development, but this is not the case. The 2018 Logistic Performance Index (LPI) data released by the World Bank shows Indonesia's position at 46th place, an increase from the previous year. However, logistics costs in Indonesia are still too high, reaching 23.5% in 2017. Research conducted by Sukoco (2019) examines the extent to which the strengthening of the Logistics sector is carried out in order to strengthen distribution and marketing. The results showed that the Logistics sector in the city of Surakarta was not optimal in supporting the development of MSMEs in the city of Surakarta. The Logistics sector has not synergized well with the MSME economic sector. Ironically, from 43,804 MSMEs, only 2,978 businesses have become MSMEs under the guidance of the local government. So, there are still around 93% of MSMEs that have not been touched by government assistance. This condition is exacerbated by weak assistance related to logistics, distribution and marketing.

According to Presidential Regulation Number 26 of 2012 concerning Blueprint for the Development of the National Logistics System, one of the logistics conditions to be achieved is the realization of a key commodities logistics system that is able to increase the competitiveness of national products either in the domestic market, regional market, and in the global market. One of the key drivers of the National Logistics System Blueprint is the Main Driving Commodities, where the action plan related to the main tasks and functions of the Ministry of Trade is the development of a logistics network to support basic and strategic commodities in each economic corridor and the establishment of a supply chain management system for basic and strategic commodities in each economy corridor. According to the National Logistics System Blueprint, the criteria for placing a Regional Distribution Center (Pusat Distribusi Regional/PDR) are population, accessibility, consumer areas (non-producing and non-producer areas), can function as collectors (consolidation centers) and distributors, located in areas near major ports, and has the potential to be developed into a center for inter-island trade.

Based on the above background, Center for Domestic Trade Policy, the Agency for the Study and Development of Trade Policy, the Ministry of Trade of the Republic of Indonesia (Pusat Kebijakan Perdagangan Dalam Negeri, Badan Pengkajian dan Pengembangan Kebijakan Perdagangan, Kementerian Perdagangan RI) (2013) conducted a study on the Analysis of the Establishment of Regional Distribution Centers (Pusat Distribusi Regional/PDR) with the aim of: (1) identifying the support of producer areas for the existence

of Regional Distribution Center in Bitung and Makassar, (2) knowing the potential of the areas served by Regional Distribution Center Bitung and Makassar, (3) analyzing the location determination of the Regional Distribution Center Bitung and Makassar, (4) analyzing the transportation infrastructure support for Regional Distribution Center Bitung and Makassar, and (5) providing input for the preparation of recommendations in the context of implementing a big win National Logistics System for the Trade Sector, namely the realization of the Regional Distribution Center of basic and strategic commodities in each economic corridor.

From the results of the study, the following conclusions were drawn: (1) Regional Distribution Center Bitung and Makassar were needed to support the development of the Sulawesi Economic Corridor, particularly in the development of the Center for Production and Processing of Agricultural, Plantation and Fishery Products. Regional Distribution Center Bitung and Makassar also have strategic potential in supporting trade routes for the Eastern Indonesia region as well as for connecting with the global market, (2) The existence of Regional Distribution Center Makassar is supported by producing regions around the Regional Distribution Center area, especially for superior commodities in South Sulawesi, including rice, maize, cocoa, shallots, chilies, grapefruit, potatoes and fruit processing industries, (3) The existence of Regional Distribution Center Bitung is supported by producing areas around the Regional Distribution Center region, namely North Sulawesi, Maluku and North Maluku, Gorontalo, and Central Sulawesi. The producing areas that support Regional Distribution Center Bitung have the potential to produce various commodities including potatoes, nutmeg, coconut oil, copra, canned fish and seaweed, (4) Regional Distribution Center Makassar has the potential to serve basic and strategic needs for several areas, namely Makassar City and its surroundings. In fact, for rice commodities, for example, distribution is carried out to 21 other provinces, (5) Regional Distribution Center Bitung has the potential to serve basic and strategic needs for several regions, namely Bitung City and its surroundings, small islands around North Sulawesi, and Papua Province, 6) Determination of the location of Regional Distribution Center Bitung and Makassar meets the criteria for placing a Regional Distribution Center, including population, accessibility, consumer areas (non-producing and non-producer areas), can function as collectors (consolidation centers) and distributors, located in areas near the port main, and has the potential to be developed into an inter-island trade center, (7) Makassar's Regional Distribution Center transportation infrastructure is quite adequate, both sea (port) transportation infrastructure, as well as land transportation infrastructure with the availability

of toll roads, (8) Regional Distribution Center Bitung's current transportation infrastructure is inadequate as a whole, except sea transportation. For land transportation, it is planned that the construction of the Manado-Minut-Bitung toll road is expected to be able to better support the needs of land transportation, (9) Regional Distribution Center Makassar, which has been built in two phases, namely in 2004 and 2011, has yet to be used, because there has been no transfer of Regional Distribution Center from the Central Government to the Provincial Government of South Sulawesi.

The recommendations of the study are: (1) Regional Distribution Center development in other areas should pay more attention to the availability of sea and land transportation infrastructure, including roads as a connection to/from the Regional Distribution Center, (2) It needs attention from related parties to fulfill the technical requirements and administrative requirements in planning, construction and transfer of Regional Distribution Center from the Central Government to the Provincial Government, so that the use and utilization of Regional Distribution Center can be carried out according to plan, and (3) The need for socialization of the existence and function of Regional Distribution Centers to related parties, especially to potential users in their respective regions.

Rusastra (2015) explains that the development of a logistics system in maritime development and underdeveloped areas is urgent. The reason is that the underdevelopment of marine transportation has an impact on the low competitiveness of the national logistics chain and the low score and ranking of Indonesia's Logistic Performance Index (LPI) compared to other countries. In addition, the development of disadvantaged areas, besides requiring an understanding of regional characteristics, also requires an understanding of the urgency of a cross-sectoral approach and the urgency of developing a logistics system. According to Rusastra (2015), improving the quality of Indonesia's port infrastructure is very urgent to reduce logistics costs so that it can increase the competitiveness of national fishery product exports. In relation to port infrastructure development as a vital part of marine transportation development, it is necessary to solve the problem of inefficiency in State-Owned Enterprises (Badan Usaha Milik Negara/BUMN) performance in developing ports and logistics systems as a driver of regional economic growth.

Meanwhile, Astuti and Fatma (2018) conducted research on the criteria used by service users in determining the best service provider. According to Astuti and Fatma (2018), logistics activities play an important role in business processes where there is a distribution process to distribute products from producers/sellers to consumers. Currently, more and more companies have been established that are engaged in providing logistics services, with various

advantages and disadvantages. This condition makes service users more flexible in making choices which courier company is trusted to take over some of its business functions. Research is limited to logistics service providers engaged in express delivery services (courier). Respondents are limited to users who use goods delivery services (couriers) for online sales purposes. The purpose of this study is to determine the main criteria that are prioritized as a consideration for service users in selecting logistics service providers. Based on a survey conducted on online sellers, it is known that the criteria that are the main consideration in choosing a courier service are Reliability, which is the reliability of a courier service company in serving the needs and desires of its customers, then Cost and Convenience.

Center for Domestic Trade Policy, Trade Policy Research and Development Agency, Ministry of Trade of the Republic of Indonesia (2014) reviewed the logistics performance of inter-island trade for steel commodities. This study was motivated by the fact that the production centers of steel products are located in Java. Meanwhile, consumers of steel products are scattered throughout Indonesia. The potential demand for construction steel in line with national development projects must of course be met by steel production from the island of Java. The smooth distribution and logistics of steel products is important to ensure that steel needs are met on time at a reasonable cost in order to support the implementation of national development. The purpose of the study is to formulate a policy to address logistics bottlenecks. The study found that steel distribution has the same pattern between route and relatively short. Constraints in the steel distribution are the density of road, poor infrastructure, and the cost of security that causing high distribution costs. Efforts to reduce the cost of logistics can be made through the improvement of road infrastructure to the port, planning transportation path, improved obedience of transportation users, and increasing the use of rail modes in the distribution of goods. Further, steel distribution centers are needed in Jakarta to reduce logistics costs. In the long run, the government and private sector need to increase investment in steel production on the high demand area such as in eastern Indonesia.

The Government of Indonesia has inaugurated the operation of the Bonded Logistics Center (Pusat Logistik Berikat/PLB) in March 2016 as part of the Economic Policy Package of Phase II in September 2015. The Bonded Logistics Center (Pusat Logistik Berikat/PLB) incentives are expected to reduce the national logistics costs by decreasing the seaport dwelling time and creating closer proximity between raw material warehouse and the industry. Center for Domestic Trade Policy, Trade Policy Research and Development Agency, Ministry of Trade of the Republic of Indonesia (2017) conducted study that aims to analyze the extent of benefits obtained by Bonded Logistics Center (PLB) users in term of time efficiency and

logistics costs. The comparison of cost and time is viewed from transportation, inventory and administration aspects obtained from surveys and interviews with companies already utilizing Bonded Logistics Center (PLB) facilities. The result of analysis shows that in general Bonded Logistics Center (PLB) gives 32% improvement in logistics cost and time in terms of: delivery of goods to warehouse, delivery of goods from warehouse to industry, and inspection process of goods by authorized party. Based on the interviews with the Bonded Logistics Center (PLB) users, there are still obstacles in the implementation of the utilization of Bonded Logistics Center (PLB), especially from the administration or the handling of licensing documents related to the restriction rules. The analysis shows that Bonded Logistics Center (PLB) is potential to improve the future of logistics performance.

The Sea Toll Program is one of the government's priority programs that began operating in 2016. Its implementation is expected to have a direct impact, especially on the supply of staple goods by guaranteed availability, reduced price fluctuations and price disparity among regions, and facilitating marketing of regions leading product through payload transportation. However, there are indications that goods that are subsidized through the Sea Toll program are still not effective in helping to reduce the disparity in prices of staple goods in disadvantaged, remote, outermost, and border areas. Center for Domestic Trade Policy, Trade Policy Research and Development Agency, Ministry of Trade of the Republic of Indonesia (2019) conducted a study to analyze the impact of the Sea Toll program on price disparity, and identify problems in its implementation. The study concluded that national commodity price disparity (rice, sugar, cooking oil and chicken meat) improved in the 2016-2019 period with 20% average reduction. Estimation results show that the reduction in the Sea Toll tariff has a significant effect on reducing food price disparity and is statistically significant. However, a 50% subsidy on the cost of shipping goods through the Sea Toll can only reduce food price disparities by 6,9%. The impact of the Sea Toll on the decrease in price disparity remains relatively small. This is thought to be caused by a number of problems including ship departure and arrival schedules that are not appropriate and shipping travel times that are relatively longer than regular ships, uncertainty of the availability of loading and unloading ships, varying loading and unloading labor costs, port infrastructure is still limited, and the low utilization of cargo because of limited commodities. Therefore, it is necessary to improve the route of the Sea Toll ship to improve time efficiency, periodic monitoring of the performance of Sea Toll operators to improve the accuracy of ship schedules, infrastructure needed to improve loading and unloading efficiency, assess the

existence of the Gerai Maritim as a commodity consolidation center, and improve supervision and monitoring the prices of staple goods and other goods transported by the Sea Toll.

Indonesia's economic growth is slowed by poor infrastructure, especially transport infrastructure. Transport difficulties hamper all industries, by imposing extra costs on trade between regions, and on trade with other countries. Regional imbalances are exacerbated, since peripheral regions (which face higher transport costs) tend to be poorer. Horridge, Yusuf, Ginting, and Aji (2016) conducted a study that presented some rough estimates, generated using a regional CGE model (IndoTERM), of the possible benefits to Indonesia of reducing transport costs. The study also simulated the effects of a 5% reduction in the costs of road and sea transport within and between the peripheral regions, or between any peripheral region and Java/Sumatera/Bali-NT and also add a 1% reduction in iceberg trade cost. The study found total benefits of around 5% of GDP. The great bulk of benefits arise in the core regions of Sumatera, Java, and Bali-NT, simply because they account for so much of the Indonesian economy. However, the study also notice that benefits accrued in the core spill over to peripheral regions. The combined transport improvement also reduces the country's poverty incidence by 2.2% (4.7 million people). Interestingly, poverty reduction is higher in the eastern part of Indonesia as those provinces are suffering more from connectivity impediments. In addition, it is also due to a higher poverty base in those provinces.

3. RESEARCH METHODS

This research is a qualitative research and uses descriptive methods. Loeb et al. (2017) explain that the descriptive method aims to conduct a review of an issue by analyzing data and facts and making conclusions that answer the research objectives. This research was conducted in 2021. The data used in the study were sectoral workforce data in the March 2018 Susenas data compiled by Indonesian Central Bureau of Statistics (2018) and the March 2019 Susenas data compiled by Indonesian Central Bureau of Statistics (2019).

The method used in this research is the Klassen Typology analysis matrix which is modified with the Location Quotient number, namely the Gross Regional Domestic Product and its growth in the Klassen Typology analysis matrix, replaced by the Location Quotient number and its growth. The result is a classification of Location Quotient numbers and their growth into 4 quadrants in the Klassen Typology analysis matrix. This study uses the Transportation and Warehousing sector as a proxy for the Logistics sector. Location Quotient (LQ) calculation is according to Manullang, Rusgiyono, and Warsito (2019), Alhowaish, Alsharikh, Alasmail, and Alghamdi (2015), Crawley, Beynon, and Munday (2013), Osly,

Ririhena, Ihsani, and Dwiyandi (2020). Klassen Typology analysis matrix is according to Rajab and Rusli (2019).

The questions of this research are: (a) in which provision is the Transportation and Warehousing sector a Basic? and (b) in which provinces the Transport and Warehousing sector is in quadrants I, II, III and IV in the modified Klassen Typology analysis matrix?

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Based on Manullang, Rusgiyono, and Warsito (2019), Alhowaish, Alsharikh, Alasmail, and Alghamdi (2015), Crawley, Beynon, and Munday (2013), Osly, Ririhena, Ihsani, and Dwiyandi (2020), the LQ formula is as follows:

$$LQ = \frac{\left(E_{i,r} / E_r \right)}{\left(E_{i,N} / E_N \right)}$$

Where:

LQ = Location Quotient Coefficient

Ei,r = the number of workers or Regional Gross Domestic Product (RGDP) in the Transportation and Warehousing sector (i) in a province (r)

Er = total workforce or RGDP of all sectors in a province (r)

Ei,N = total workforce or RGDP of the Transportation and Warehousing sector (i) in Indonesia (N)

EN = total labor force or GDP in Indonesia (N).

If the LQ coefficient is > 1, it is a Basic economic sector, and if the coefficient LQ = 1 or LQ < 1 then it is not a Basic economic sector.

Meanwhile, the sectoral Klassen Typology analysis matrix as explained by Rajab and Rusli (2019) is as follows:

Table 1 Matrix of Sectoral Classification Typology Analysis Before Modification

Sectoral Contribution / RGDP Growth	The Contribution of the Sector in the Provincial GDP is above the Contribution of the Sector in the National GDP	The Contribution of the Sector in the Provincial GDP is below the Contribution of the Sector in the National GDP
The RGDP Growth of the Sector by Province is above the GDP Growth of the Sector Nationally	Economic Sector is Advanced and Growing Fast (Developed Sector) (Quadrant I)	Potential or Still Developing Economic Sectors (Developing Sector) (Quadrant III)
The RGDP Growth of the Sector by Province is below the GDP Growth of the Sector Nationally	Advanced Economic Sector But Depressed (Stagnant Sector) (Quadrant II)	Underdeveloped Economic Sector (Underdeveloped Sector) (Quadrant IV)

Source: Rajab and Rusli (2019).

The modified Klassen Typology analysis matrix from the sectoral Klassen Typology analysis matrix as described by Rajab and Rusli (2019) and used in this study is as follows:

Table 2 Matrix of Sectoral Classification Typology Analysis After Modification

Basic and Non Basic / LQ Growth (ΔLQ)	Economic Sector: Non Basic (LQ<1 or LQ=1)	Economic Sector: Basic (LQ>1)
The LQ Growth (ΔLQ) of the Sector by Province above the LQ Growth (ΔLQ) of the Sector Nationally	Potential or Still Developing Economic Sectors (Developing Sector) (Quadrant III)	Economic Sector is Advanced and Growing Fast (Developed Sector) (Quadrant I)
The LQ Growth (ΔLQ) of the Sector by Province below the LQ Growth (ΔLQ) of the Sector Nationally	Underdeveloped Economic Sector (Underdeveloped Sector) (Quadrant IV)	Economic Sector is Advanced But Depressed (Stagnant Sector) (Quadrant II)

Source: Rajab and Rusli (2019) modified by researcher.

4. ANALYSIS AND DISCUSSION

This study produces figures of the Location Quotient (LQ) 2019, Growth of LQ (2018-2019), Quadrant and Basic/Non Basic for Indonesian Transportation and Warehousing Sector as follows:

Table 3 Location Quotient (LQ), Growth of LQ, Quadrant and Basic/Non Basic for Indonesian Transportation and Warehousing Sector

No	Province	LQ2019	ΔLQ(2018-2019)	Quadrant	Basic/Non Basic
1	Aceh	0,74	-6,67%	Quadrant 4	Non Basic
2	North Sumatera	1,21	7,45%	Quadrant 1	Basic
3	West Sumatera	1,05	5,74%	Quadrant 1	Basic
4	Riau	0,92	5,00%	Quadrant 3	Non Basic
5	Jambi	0,83	-0,74%	Quadrant 4	Non Basic
6	South Sumatera	0,95	4,52%	Quadrant 3	Non Basic
7	Bengkulu	0,59	-10,01%	Quadrant 4	Non Basic
8	Lampung	0,83	-4,78%	Quadrant 4	Non Basic
9	Bangka Belitung Islands	0,49	-20,36%	Quadrant 4	Non Basic
10	Riau Islands	1,00	-18,51%	Quadrant 4	Non Basic
11	DKI Jakarta	2,30	0,06%	Quadrant 1	Basic
12	West Java	1,17	-1,81%	Quadrant 2	Basic
13	Central Java	0,73	-5,82%	Quadrant 4	Non Basic
14	DI Yogyakarta	0,77	-0,85%	Quadrant 4	Non Basic
15	East Java	0,75	-1,70%	Quadrant 4	Non Basic
16	Banten	1,41	17,98%	Quadrant 1	Basic
17	Bali	0,78	-7,07%	Quadrant 4	Non Basic
18	West Nusa Tenggara	0,71	-16,56%	Quadrant 4	Non Basic
19	East Nusa Tenggara	1,09	11,16%	Quadrant 1	Basic
20	West Kalimantan	0,54	-15,90%	Quadrant 4	Non Basic
21	Central Kalimantan	0,78	26,21%	Quadrant 3	Non Basic
22	South Kalimantan	0,97	8,09%	Quadrant 3	Non Basic
23	East Kalimantan	1,22	0,45%	Quadrant 1	Basic
24	North Kalimantan	1,07	-8,48%	Quadrant 2	Basic
25	North Sulawesi	1,70	-7,06%	Quadrant 2	Basic
26	Central Sulawesi	0,64	-11,28%	Quadrant 4	Non Basic
27	South Sulawesi	1,14	11,48%	Quadrant 1	Basic
28	Southeast Sulawesi	0,88	-22,96%	Quadrant 4	Non Basic
29	Gorontalo	1,52	0,12%	Quadrant 1	Basic
30	West Sulawesi	0,70	20,80%	Quadrant 3	Non Basic
31	Maluku	1,74	-10,01%	Quadrant 2	Basic
32	North Maluku	1,39	-7,02%	Quadrant 2	Basic
33	West Papua	1,48	21,57%	Quadrant 1	Basic
34	Papua	0,67	5,61%	Quadrant 3	Non Basic

Source: Indonesian Central Bureau of Statistics (2018 and 2019) calculated by researcher.

The figures generated from this study as shown in Table 1 are then shown in the form of a Klassen Typology analysis matrix as shown in Figure 1. It can be seen in Figure 1 that the Logistics sector represented by the Transportation and Warehousing sector is in Quadrant 1 for 9 (nine) provinces, namely North Sumatra Province (LQ = 1.21, ΔLQ = 7.45%), West Sumatra Province (LQ = 1.05, ΔLQ = 5.74%), DKI Jakarta Province (LQ = 2.30, ΔLQ = 0.06%), Banten Province (LQ = 1.41, ΔLQ = 17.98%), East Nusa Tenggara Province (LQ = 1.09, ΔLQ = 11.16%) , East Kalimantan Province (LQ = 1.22, ΔLQ = 0.45%), South Sulawesi Province (LQ = 1.14, ΔLQ = 11.48%), Gorontalo Province (LQ = 1.52, ΔLQ = 0.12%), and West Papua Province (LQ = 1.48, ΔLQ = 21.57%).

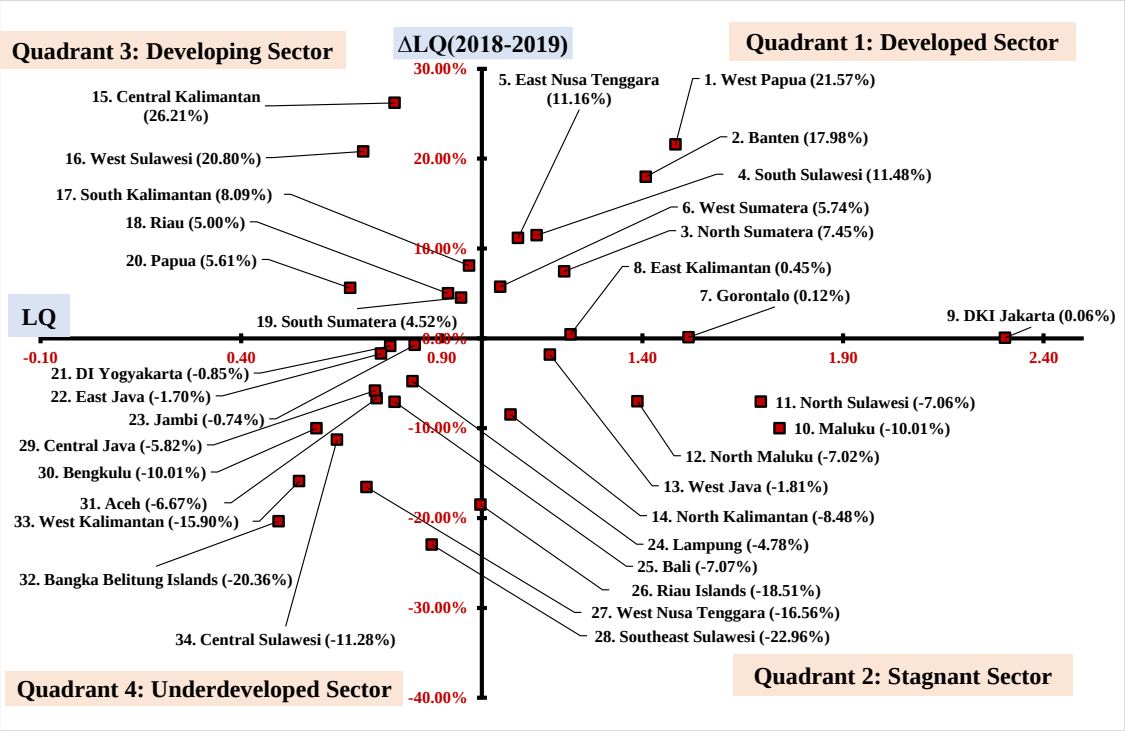

Figure 1. Matrix of Typology Klassen Analysis for Indonesian Transportation and Storage Sector 2019

Source: Indonesian Central Bureau of Statistics (2018 and 2019) calculated by researcher.

The Transportation and Warehousing Sector in the 9 provinces in Quadrant 1 has an LQ number of more than 1 (one) so that it is a Basic. This means that the Transportation and Warehousing sectors in the 9 provinces are able to produce services in an amount that exceeds the demand for services from the population in these 9 provinces or it is also called a production surplus. The excess of the services produced is then exported to other countries or to other provinces.

In addition, the LQ number which is more than one also shows that there is a concentration of workers in the Transportation and Warehousing sector in these 9 provinces.

The workforce absorbed in the Transportation and Warehousing sector in 9 provinces in Quadrant 1 comes from the new workforce as well as from workers who leave other business sectors and then enter to work in the Transportation and Warehousing sector in 9 provinces in Quadrant 1.

As can be seen in Figure 1, Quadrant 1 shows the position of the Transportation and Warehousing sector which is already in a developed position and has a strong tendency to develop more in the future. What is meant by the business sector is already in a developed position, among others, is that the Transportation and Warehousing sector is capable of producing services that exceeds the demand for services in a province where the Transportation and Warehousing sector is located. In addition, it can be stated that the Transportation and Warehousing sector in Quadrant 1 is a business sector that is in a position to have relatively higher growth compared to other business sectors (leading) and is competitive, namely being able to compete with the Transportation and Warehousing sectors from other provinces and also able to compete with other business sectors in the same province in fighting over factors of production and earning a profit.

The Transportation and Warehousing sectors in the 9 provinces in Quadrant 1 have strong competitiveness and are likely to grow in the future so that they can be a driver of economic growth in the future. Therefore, to increase Indonesia's economic growth in the next five years (2020-2024) the Indonesian government needs to focus on strengthening and developing the Transportation and Warehousing sector in 9 provinces in Quadrant 1.

The Logistics sector represented by the Transportation and Warehousing sector is in Quadrant 2 for 5 (five) provinces, namely West Java Province (LQ = 1.17, ΔLQ = -1.81%), North Kalimantan Province (LQ = 1.07, ΔLQ = -8.48%), North Sulawesi Province (LQ = 1.70, ΔLQ = -7.06%), Maluku Province (LQ = 1.74, ΔLQ = -10.01%), and North Maluku Province (LQ = 1.39, ΔLQ = -7.02%).

The Transportation and Warehousing sector in 5 provinces in Quadrant 2 is the Transportation and Warehousing sector which is the Basic so that there is a concentration of workers in the Transportation and Warehousing sector in 5 provinces in Quadrant 2 and the Transportation and Warehousing sector can meet domestic demand even a surplus so that it also meets the demand for transportation and warehousing services from other provinces or other countries. However, in the 2018-2019 period the Transportation and Warehousing sectors in 5 provinces in Quadrant 2 showed a decrease in employment, business activities and production results. The business sector in quadrant 2 is stagnant, that is, it is still competitive but lagging.

The government's actions in overcoming this are looking at the market and identifying why there has been a decrease in demand for transportation and warehousing services by the market in 5 provinces in Quadrant 2. In addition, the government needs to look at the internal side of the business sector in quadrant 2 why it has decreased labor absorption, business activities or a decrease in production. Actions that need to be taken by actors in the Transportation and Warehousing sector in 5 provinces in Quadrant 2 are to hold back investment or even reduce investment so that in the future they do not suffer greater losses.

The Logistics sector represented by the Transportation and Warehousing sector is in Quadrant 3 for 6 (six) provinces, namely Riau Province (LQ = 0.92, ΔLQ = 5.00%), South Sumatra Province (LQ = 0.95, ΔLQ = 4.52%), Central Kalimantan Province (LQ = 0.78, ΔLQ = 26.21%), South Kalimantan Province (LQ = 0.97, ΔLQ = 8.09%), West Sulawesi Province (LQ = 0.70, ΔLQ = 20.80%), and Papua Province (LQ = 0.67, ΔLQ = 5.61%).

The Transportation and Warehousing sector in 6 provinces in Quadrant 3 is a non-Basic business sectors so that there is no concentration of labor and its production results has not been able to meet domestic demand. But it shows an increase in the concentration of workers and shows an increase in the production results that lead to the ability of the Transportation and Warehousing sectors in 6 provinces in Quadrant 3 to meet domestic demand. The Transportation and Warehousing sector in 6 provinces in Quadrant 3 is a developing sector that has an uncompetitive position but shows a leading position, namely experiencing growth in the 2018-2019 period so that it has the potential to become a developed sector in the future.

The government's action in strengthening the Transportation and Warehousing sector in Quadrant 3 is to identify the factors that make the Transportation and Warehousing sector in Quadrant 3 uncompetitive. Once identified, the government makes efforts to solve it so that the Transportation and Warehousing sector in Quadrant 3 becomes competitive. After that, the first steps in developing the Transportation and Warehousing sector in Quadrant 3 is making the Transportation and Warehousing sector in Quadrant 3 as a complement and support for the Transportation and Warehousing sector in Quadrant 1.

The Logistics sector represented by the Transportation and Warehousing sector is in Quadrant 4 for 14 (fourteen) provinces, namely Aceh Province (LQ = 0.74, ΔLQ = -6.67%), Jambi Province (LQ = 0.83, ΔLQ = -0.74%) , Bengkulu Province (LQ = 0.59, ΔLQ = -10.01%), Lampung Province (LQ = 0.83, ΔLQ = -4.78%), Bangka Belitung Islands Province (LQ = 0.49, ΔLQ = -20.36%), Riau Islands Province (LQ = 1.00, ΔLQ = -18.51%), Central Java Province (LQ = 0.73, ΔLQ = -5.82%), DI Yogyakarta Province (LQ = 0.77, ΔLQ = -

0.85%), East Java Province (LQ = 0.75, ΔLQ = -1.70%), Bali Province (0.78, ΔLQ = -7.07%), West Nusa Tenggara Province (LQ = 0.71, ΔLQ = -16.56%), West Kalimantan Province (LQ = 0.54, ΔLQ = -15.90%), Central Sulawesi Province (LQ = 0.64, ΔLQ = -11.28%), and Southeast Sulawesi Province (LQ = 0.88, ΔLQ = -22.96%).

The Transportation and Warehousing sector in 14 provinces in Quadrant 4 is a business sector that is not competitive and is not a Basic so that there is no concentration of workers in the Transportation and Warehousing sector in 14 provinces in Quadrant 4 and its production cannot meet the demand for domestic transportation and warehousing services. So, 14 provinces in Quadrant 4 import transportation and warehousing services from other countries or from other provinces. The Transportation and Warehousing sector in 14 provinces in Quadrant 4 is an underdeveloped business sector which is not competitive and lags behind the Transportation and Warehousing sector in other Quadrant and from other business sectors in Quadrant 4.

Actions that need to be taken by the government regarding the Transportation and Warehousing sector in Quadrant 4 are that the government takes, among other things, preparatory steps to transition labor and economic activities in 14 provinces in Quadrant 4. The transition is in the form of shifting workers to other business sectors and shifting business activities (capital, assets and finance) from the Transportation and Warehousing sector in Quadrant 4 to other business sectors.

5. CONCLUSION

The Indonesian Logistics sector which is represented by the Indonesian Transportation and Warehousing sector is the Basic sector in 14 provinces, namely: (1) North Sumatra Province, (2) West Sumatra Province, (3) DKI Jakarta Province, (4) West Java Province, (5) Banten Province, (6) East Nusa Tenggara Province, (7) East Kalimantan Province, (8) North Kalimantan Province, (9) North Sulawesi Province, (10) South Sulawesi Province, (11) Gorontalo Province, (12) Maluku Province, (13) North Maluku Province, and (14) West Papua Province.

The Indonesian Logistics sector represented by the Transportation and Warehousing sector is a developed or an advanced economic sector (Quadrant 1) for 9 provinces, namely North Sumatra Province, West Sumatra Province, DKI Jakarta Province, Banten Province, East Nusa Tenggara Province, East Kalimantan Province, South Sulawesi Province, Gorontalo Province, and West Papua Province. The Transportation and Warehousing sector is a stagnant economic sector (Quadrant 2) for 5 provinces, namely West Java Province, North

Kalimantan Province, North Sulawesi Province, Maluku Province, and North Maluku Province. The Transportation and Warehousing sector is a growing economic sector (Quadrant 3) for 6 provinces, namely Riau Province, South Sumatra Province, Central Kalimantan Province, South Kalimantan Province, West Sulawesi Province, and Papua Province. The Transportation and Warehousing Sector is an underdeveloped economic sector (Quadrant 4) for 14 provinces, namely Aceh Province, Jambi Province, Bengkulu Province, Lampung Province, Bangka Belitung Islands Province, Riau Islands Province, Central Java Province, DI Yogyakarta Province, East Java Province, Bali Province, West Nusa Tenggara Province, West Kalimantan Province, Central Sulawesi Province, and Southeast Sulawesi Province.

To increase Indonesia's economic growth in the next five years (2020-2024) the Indonesian government needs to focus on strengthening and developing the Transportation and Warehousing sector in 9 provinces in Quadrant 1. The government needs to look at the market and identify why there is a decrease in demand for transportation and warehousing services by the market in 5 provinces in Quadrant 2. In addition, the government needs to look at the internal side of the business sector in Quadrant 2, why it can experience a decrease in labor absorption, business activities or a decrease in production results. Actions that need to be taken by actors in the Transportation and Warehousing sector in the 5 provinces in Quadrant 2 are to hold back investment or even reduce investment so that in the future they do not suffer greater losses.

The government's step in strengthening the Transportation and Warehousing sector in Quadrant 3 is to identify the factors that make the Transportation and Warehousing sector in Quadrant 3 uncompetitive. Once identified, the government makes efforts to solve it so that the Transportation and Warehousing sector in Quadrant 3 becomes competitive. After that, the first steps in developing the Transportation and Warehousing sector in Quadrant 3 is making the Transportation and Warehousing sector in Quadrant 3 as a complement and support for the Transportation and Warehousing sector in Quadrant 1. Step that needs to be taken related to the Transportation and Warehousing sector in Quadrant 4 is the government takes preparatory steps to transition labor and economic activities in 14 provinces in Quadrant 4. The transition is in the form of shifting workers to other business sectors and shifting business activities (capital, assets, and finance) from the Transportation and Warehousing sector in Quadrant 4 to other business sectors.

LIMITATIONS AND SUGGESTIONS.

This study uses labor data in the Transportation and Warehousing sector so that the increase and decrease in business activities in the Transportation and Warehousing sector is solely influenced by the size of the absorption of labor. This study does not take into account the increase or decrease in business activities in the Transportation and Warehousing sector due to capital absorption. To be able to find out the increase or decrease in business activities in the Transportation and Warehousing sector caused by the absorption of capital, the data used to calculate the Location Quotient coefficient for the Transportation and Warehousing sector must be RGDP and GDP data.

ACKNOWLEDGEMENT

The author thanks the Ministry of Finance of the Republic of Indonesia for facilitating the data collection to complete this research.

REFERENCES

Alhowaish, A., Alsharikh, M., Alasmail, M., & Alghamdi, Z. (2015). Location Quotient Technique and Economy Analysis of Regions: Tabuk Province of Saudi Arabia as a Case Study. *International Journal of Science and Research (IJSR), Vol.4, Issue 12, December 2015*, 1756-1761.

Astuti, J., & Fatma, E. (2018). Evaluation of Courier Service Provider Selection Based on Analytical Hierarchy Process Method (Evaluasi Pemilihan Penyedia Jasa Kurir Berdasarkan Metode Analytical Hierarchy Process). *Jurnal Manajemen Industri dan Logistik Vol.1, No.1, Mei 2018*, 14 - 26.

Center for Domestic Trade Policy, the Agency for the Study and Development of Trade Policy, the Ministry of Trade of the Republic of Indonesia. (2013). *Analysis of the Establishment of Regional Distribution Centers (Analisis Pendirian Pusat Distribusi Regional).* Jakarta: Center for Domestic Trade Policy, the Agency for the Study and Development of Trade Policy, the Ministry of Trade of the Republic of Indonesia.

Center for Domestic Trade Policy, the Agency for the Study and Development of Trade Policy, the Ministry of Trade of the Republic of Indonesia. (2014). *Final Report of Inter-Island Trade Logistics Performance Study: Steel Case Study* (*Laporan Akhir Kajian Kinerja Logistik Perdagangan Antar Pulau: Studi Kasus Baja).* Jakarta: Center for Domestic Trade Policy, the Agency for the Study and Development of Trade Policy, the Ministry of Trade of the Republic of Indonesia.

Center for Domestic Trade Policy, the Agency for the Study and Development of Trade Policy, the Ministry of Trade of the Republic of Indonesia. (2017). *Final Report Evaluation of the Benefits of Bonded Logistics Centers in Supporting National Industry Competitiveness (Laporan Akhir Kajian Evaluasi Manfaat Pusat Logistik Berikat Dalam Mendukung Daya Saing Industri Nasional).* Jakarta: Center for Domestic Trade Policy, the Agency for the Study and Development of Trade Policy, the Ministry of Trade of the Republic of Indonesia.

Center for Domestic Trade Policy, the Agency for the Study and Development of Trade Policy, the Ministry of Trade of the Republic of Indonesia. (2019). *Final Report of the*

Study on the Impact of the Sea Toll on Price Disparities (Laporan Akhir Kajian Dampak Tol Laut Terhadap Disparitas Harga). Jakarta: Center for Domestic Trade Policy, the Agency for the Study and Development of Trade Policy, the Ministry of Trade of the Republic of Indonesia.

Crawley, A., Beynon, M., & Munday, M. (2013). Making Location Quotients More Relevant as a Policy Aid in Regional Spatial Analysis. *Urban Studies Journal Limited, Vol.50 (9),* 1854-1869.

Haryotejo, B. (2013). Analysis of the Logistics Sector in the Context of Smooth Flow of Goods and Increasing Competitiveness of Regional Export Commodities (Analisis Sektor Logistik Dalam Rangka Kelancaran Arus Barang dan Peningkatan Daya Saing Komoditi Ekspor Daerah). *Jurnal Borneo Administrator Volume 9 No.3.*, 329-346.

Horridge, M., Yusuf, A. A., Ginting, E., & Aji, P. (2016, August 1). Improving Indonesia's Domestic Connectivity; An Inter-Regional CGE Analysis. *ADB Papers on Indonesia No.17,* pp. 1 - 31.

Indonesian Central Bureau of Statistics. (2019). *National Survey of Social and Economic March 2019.* Jakarta: Indonesian Central Bureau of Statistics.

Indonesian Central Bureau of Statistics. (2018). *National Survey of Social and Economic March 2018.* Jakarta: Indonesian Central Bureau of Statistics

Loeb, S., Dynarski, S., McFarland, D., Morris, P., Reardon, S., & Reber, S. (2017). *Descriptive Analysis in Education: A Guide for Researchers.* Washington DC: US Department of Eduation, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance.

Manullang, D., Rusgiyono, A., & Warsito, B. (2019). Analysis of Aquaculture Leading Commodities in Central Java Using Location Quotient and Shift Share Methods. *IOP Conference Series: Jurnal of Physics: Conference Series 1217 (2019) 012096.*, 1-9.

Minister of Manpower of the Republic of Indonesia. (2020). *Decree of the Minister of Manpower of the Republic of Indonesia Number 170 of 2020 concerning Stipulation of Indonesian National Work Competency Standards for the Categories of Transportation and Warehousing Main Groups of Warehousing and Transportation Support Activities in the Logistics Sector*. Jakarta: Ministry of Manpower of the Republik of Indonesia.

Natalia, C., & Suprayogi. (2009). *Multiplier Analysis and Structural Pathways of Logistics Sectors in the Framework of Indonesia's Socio-Economic Balance System (Analisis Pengganda dan Jalur Struktural Sektor-Sektor Logistik dalam Kerangka Sistem Neraca Sosial Ekonomi/SNSE Indonesia) - Master Thesis.* Bandung: Institut Teknologi Bandung (ITB).

Nofrisel. (2021). *Practitioners' Perspectives on the Future Development of the National Logistics System - Presentation Delivered at the FGD of the Coordinating Ministry for Economic Affairs of the Republic of Indonesia 27 March 2021* (*Perspektif Praktisi Tentang Pengembangan Sislognas ke Depan - Presentasi Disampaikan dalam FGD Kementerian Koordinator Bidang Perekonomian RI 27 Maret 2021).* Jakarta: Nofrisel.

Osly, P. J., Ririhena, R. E., Ihsani, I., & Dwiyandi, F. (2019). Review of Priority and Potential Agricultural Area Development. *Journal of Critical Reviews, Vol.6 (5),* 39-45.

President of the Republic of Indonesia. (2020). *Presidential Regulation of the Republic of Indonesia Number 18 of 2020 concerning the National Medium-Term Development Plan for 2020-2024.* Jakarta: President of the Republic of Indonesia.

Rajab, A., & Rusli. (2019). Determination of Leading Sectors in Takalar District Through Klassen Typological Analysis (Penentuan Sektor-Sektor Unggulan yang Ada Pada Kabupaten Takalar Melalui Analisis Tipologi Klassen). *GROWTH Jurnal Ilmiah Ekonomi Pembangunan Volume 1, No.1,* 16-38.

Rusastra, I. W. (2015). *Indonesia's Maritime Economic Policy: Marine Highway Development as a Base for Growth and Equity (Kebijakan Ekonomi Maritim Indonesia: Pembangunan Tol Laut Sebagai Basis Pertumbuhan dan Pemerataan).* Jakarta: P3DI Setjen DPR RI dan Azza Grafika.

Setyowati, T. M. (2015). Analysis of the Effect of Transportation Sector Investment on Indonesia's Economic Growth in 2004-2013 (Analisis Pengaruh Investasi Sektor Transportasi Terhadap Pertumbuhan Ekonomi Indonesia Tahun 2004-2013). *Jurnal Manajemen Bisnis Transportasi dan Logistik Vol.1, No.3, Mei 2015*, 524 - 551.

Sukoco, J. B. (2019). Strengthening the Logistics Sector in the Distribution and Marketing of Micro, Small and Medium Enterprises (MSMEs) Products in the City of Surakarta (Penguatan Sektor Logistik Dalam Distribusi dan Pemasaran Produk Usaha Mikro Kecil dan Menengah/UMKM di Kota Surakarta). *Fintech and E-Commerce to Encourage the Growth of MSMEs and Creative Industries (Fintech dan E-Commerce untuk Mendorong Pertumbuhan UMKM dan Industri Kreatif)* (pp. 451 - 461). Magelang: Fakultas Ekonomi Universitas Tidar.

Sutandi. (2018). The Influence of Big Data and Blockchain Technology on the Logistics Sector Business Model Using the Business Model Canvas Approach (Pengaruh Big Data dan Teknologi Blockchain Terhadap Model Bisnis Sektor Logistik Dengan Pendekatan Business Model Canvas). *Jurnal Logistik Indonesia Vol.2, No.1, April 2018*, 9 - 20.