Jurnal REP Vol 6/ No.2/2022

Jurnal REP (Riset Ekonomi Pembangunan)

http://jurnal.untidar.ac.id/index.php/REP

P-ISSN: 2541-433X E-ISSN: 2508-0205

THE ALTERATION OF BALANCE ON AGRICULTURE SECTOR IN CENTRAL JAVA PROVINCE AMIDST COVID-19 PANDEMIC

DOI: 10.31002/rep.v6i2.5453

Sitti Retno Faridatussalam[1]✉, Amalina Lutfi Razan[2],Riana Rika Rohmatin[3]

[1,2,3]Universitas Muhammadiyah Surakarta

✉ srf122@ums.ac.id

Abstract

The infection of the Coronavirus (COVID-19) is tremendously massive, which has never been happened previously in the modern era. In the condition of uncertainty due to COVID-19, the agriculture sector becomes the guarantee to the fulfillment of food for 267 million Indonesian people. Even though the disruption towards food production and agriculture haven't been seen visibly in the field, the results of the analysis mentioned that the impact of COVID-19 infection will cause the limited food supply and the increase of price at the impacted area. For all this time, the agriculture sector is assumed as the only sector that could survive during the turmoil and crisis. In addition, agriculture is considered the strongest sector in maintaining the stability of Indonesian economics. This research aims to identify the performance of the agriculture sector in Central Java Province amidst the COVID-19 pandemic in the period of first to the third quarterly. The assessment applies the Input-Output analysis method. Secondary data are employed in this research. The study indicates that during the pandemic, the agriculture sector demonstrates the demand enhancement of final output, yet the household's income and job opportunities are decreased, as recorded. It is due to this sector becoming a buffer by the existence of the COVID-19 pandemic since the agriculture sector can survive and becomes the focus of economics in Central Java.

Keywords: *COVID-19; Agriculture Sector; Input Output*

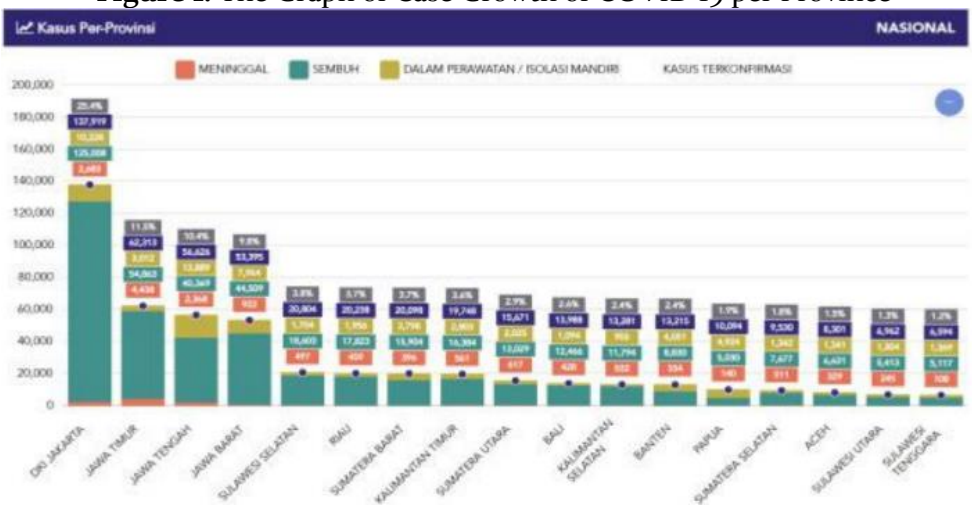
Received: February 15, 2021
Accepted: August, 14, 2021
Published: October 30, 2021

INTRODUCTION

Indonesia is a country well-known as an agriculture country, which relies on the agriculture sector as the source of income and development support. The agriculture sector covers the sub-sector of food plants, horticulture, fishery, farm, and forestry. Agriculture is one of the dominant sectors for the income of Indonesian people since the majority of them are farmers. According to World Bank 2008) agriculture has a role that contributes to development as an economic activity, source of income, and how to preserve the environment. Therefore, this sector is considered a unique instrument for development. As an economic activity, agriculture is the source of growth for the area's economy, the provider of investment for the private sector, and the main mover for industries associated with agriculture fields.

The corona-19 virus commonly called Coronavirus disease (COVID-19) was found as a new variant of virus, originated from Wuhan, Tiongkok. The first appearance of the virus was first detected in China in early December 2019. Coronavirus is a segmented and capsid positive-sense single-stranded RNA virus that infects the respiratory tract. The symptoms include, among others, fever, cough, hard to breathe, and even sudden death. COVID-19 penetrated Indonesia in early March 2020 and was confirmed officially by the President of the Republic of Indonesia (Hadi, 2020).

Figure 1. The Graph of Case Growth of COVID 19 per Province



Source: The Ministry of Health 2020-12-01

Based on Figure 1.1, it can be notified that the Jakarta Province had become the most infected province by COVID-19 with a total of 137,919 people. The COVID-19 spread impacts the agriculture sector as well. For instance, supply disturbance and the rise of the price in the impacted area. These effects are difficult to be predicted due to lack of information, including its rapid spread and the effectiveness of control actions that could be possibly done.

Table 1. Numbers of Goods Flow on the Internal Trading by Sea

Shipping	Commodity	Unit	Flow of Goods August		Flow of Goods September		Change (%)	
			Import	Export	Import	Export	Import	Export
Tanjung Emas (Semarang)	Non Oil	M3	1.394	-	4.493	3.856	222,31	100,00
		Ton	44.893	-	51.259	6.001	14,18	100,00
Tanjung Intan (Cilacap)	Non Oil	M3						
		Ton	60.750	127.167	15.000	137.584	-75,31	8,19
Numbers (LN)	Non Oil	M3	1.394		4.493	3.856	222,31	100
		Ton	4.336	80.214	3.000	157.564	-30,81	96,43

Source: Statistics Indonesia Central Java, 2020 (processed)

Based on Table 1, it can be seen that Tanjung Emas shipping, in August and September, the unloading flow of goods experienced a change of 1,92%, while the flow of loading goods experienced a change of 9,88%. For Tanjung Intan shipping, in August and September, the flow of unloading goods experienced a change of -5,17%, while the flow of loading goods experienced a change of 100%. Tegal shipping in August and September experienced the flow of unloading goods for 83,72%, and -16,11% change for its flow of loading goods. Jepara shipping, in August and September, experienced a change of -5,35,68%, while the flow of loading goods practiced a change of 2,63%. For Karimun Jawa shipping, in August and September, there was a change of 10,81% for unloading goods flow and 28,74%. It can be seen from a total of 5 shipments that in August and September, there was a change in the goods unloading flow of -16,93%, while the loading flow experienced a change of 23,04%.

Table 2. Numbers of Goods Flow on the Internal Trading by Sea

Shipping	Commodity	Unit	Flow of Goods August		Flow of Goods September		Change (%)	
			Import	Export	Import	Export	Import	Export
Tanjung Emas (Semarang)	Non Oil	M3	1.394		4.493	3.856	222,31	100,00
		Ton	44.893		51.259	6.001	14,18	100,00
Tanjung Intan (Cilacap)	Non Oil	M3						
		Ton	60.750	127.167	15.000	137.584	-75,31	8,19
Jumlah (LN)	Non Oil	M3	1.394		4.493	3.856	222,31	100
		Ton	4.336	80.214	3.000	157.564	-30,81	96,43

Sumber: Statistics Indonesia Central Java, 2020 (processed)

Based on Table 2, it could be explained that Tanjung Emas, in August and September, the flow of unloading goods experienced a change of 14,18%, while the flow of loading goods practiced a change of 100%. Tanjung Intan shipping in August and September on the flow of unloading goods experiences a change of -75,31%, whereas the flow of loading goods experienced a change of 8,19%. From the total of both shipments in August

and September, it can be seen that the flow of the imported goods experienced a change of -30,81%, and 96,43% for the flow of the exported goods.

The direct impact that is experienced by the agriculture sector is the increase of the price of food plant commodity and horticulture due to the lack of stocks and the delay of products' marketing due to traveling ban. On the other hand, the indirect impact also experienced by the agriculture sector is associated with the health of the workers that become more vulnerable to COVID-19 virus exposure. The agriculture sector is highlighted due to its correlation with national food security which must be guaranteed by the state (Sasana & Muid, 2018). Indeed, food security should be managed during the difficult times of pandemics to prevent the food crisis feared by the Indonesian people. Many researches on the agricultural sector, especially the linkage of the agricultural sector with other sectors, have been carried out. Nuning Setyowati (2012) using the Location Quotient (LQ) data analysis tool, with the data variables used in the total workforce in Sukoharjo Regency, agricultural and non-agricultural workers, GRDP in the agricultural sector and agricultural sub-sectors in Sukoharjo Regency and Central Java Province. With the results of the research that the performance of the agricultural sector in Sukoharjo Regency is based on the results of LQ analysis, it is known that the sectors which are the base sectors in Sukoharjo Regency are the agricultural sector, the Electricity, Gas and Clean Water sector and the Trade, Hotel and Restaurant sector. The agricultural sector in Sukoharjo Regency is the base sector with an average LQ value of 1.00. This value indicates that the agricultural sector is an independent sector where this sector is able to meet the needs of the local area and the surplus production is able to be exported outside the Sukoharjo Regency area. 4.86. This result means that there is an increase in the absorption of labor in the agricultural sector by 1 person, able to create new jobs that increase the absorption of non-agricultural workers by 5 people so that agricultural development that expands agricultural employment opportunities for 1 person will be a lever for the opening of non-agricultural employment opportunities that are related. with a farm of 5 people. The multiplier rate in Sukoharjo Regency is decreasing from time to time which indicates the role of the agricultural sector in creating job opportunities for the agricultural and non-agricultural sectors is decreasing.

Furthermore, research conducted by Riska Novita Sari, Dedi Herdiansah S and Cecep Pardani (2015) using the Location Quotient (LQ) and Dynamic Location Quotient (DLQ) analysis tools, with the variables Economic Performance, GRDP, Economic Sector and Agricultural Sector with the results of this study 1. Based on the LQ

analysis, the performance of the agricultural sector is the basis for regional economic growth in Banjar City. 2. Based on the LQ analysis, the agricultural sub-sector that has the performance as the base sub-sector is the plantation sub-sector and the livestock sub-sector. 3. Based on the DLQ analysis, the performance of the agricultural sector is estimated to turn into a non-basic sector in regional economic growth in Banjar City. 4. Based on the DLQ analysis, the agricultural sub-sector which is estimated to have the performance as the base sub-sector is the plantation, livestock and fishery sub-sector. 5. Based on shift share analysis, the factors that determine the performance of the agricultural sector and the food crops sub-sector are the economic structure factors, while the factors that determine the performance of the plantation, livestock, forestry and fisheries sub-sectors in the Banjar City area are the location factors.

Subsequent research was carried out by Ahmad Riyadi and Kuntoro Boga Andri (2015) using the Location Quotient (LQ) and Dynamic Location Quotient (DLQ) analysis tools with the GRDP variable in the agricultural sector which showed the results that the trend of the agricultural sector within 5 (five) years tended to move increased and contributed 44.1%, other results showed that the agricultural sector was the basic sector for 5 years with an LQ value of 3.33 and in the future it will also become the base sector with a DLQ value of 2.79.

Ufira Isbah and Rita Yani Iyan (2016) have conducted research using a simple regression analysis tool using panel data with the results that the agricultural sector has a significant role in increasing the value of the GRDP of Riau Province, where an increase of 1 million rupiah in the value of the agricultural sector causes the total value of GRDP increased by 3.096264 million rupiah. The elasticity value of the role of the agricultural sector is inelastic, which is 0.97. Role the agricultural sector in absorbing labor is significant, namely an increase of 1 point in the GRDP of the agricultural sector causing the total number of labor absorption (number of people working) in Riau province to increase by 0.009646. The elasticity of employment in the agricultural sector in Riau Province is 0.4, meaning that the agricultural sector has an effect on increasing employment even though it is inelastic.

Furthermore, Yonette Maya Tupamahu (2014) research using SLQ and DLQ analysis tools which resulted in LQ analysis showed that the agricultural sector in general is the base sector in North Maluku Province, with its sub-sectors namely food crop agriculture, plantations, forestry and fisheries. The other agricultural sector, namely livestock, is a non-basic sector. The non-agricultural sector which is the base sector, namely trade, hotels and restaurants. 2.

DLQ analysis shows that in the future several basic sectors such as agriculture, food crop agriculture, and fisheries will experience an increase in performance. While the livestock sub-sector was originally a non-base sector, it will increase to become a basic sector in the future. The non-agricultural sector also showed an increase in performance so that it became the base sector in the future, namely the mining and quarrying sector, processing industry, electricity, gas and clean water, trade, hotels and restaurants, transportation and communications, finance, leasing and services, and the services sector.

The Covid-19 pandemic, which is still happening until this research is carried out, certainly has an impact on the balance of the agricultural sector. Therefore, this study focuses on changes in the agricultural sector balance in central java province during the covid-19 pandemic. Focus on the theme is also expected to contribute to science

THEORETICAL BACKGROUND

Factors That Involves Economic Growth

According to Todaro & Smith (2003), economic growth could be influenced by several factors, as follows: The growth of population and workforce, capital accumulation, and technological advance. Several measurements on economic growth can be listed, such as Gross Domestic Product (GDP), Gross Regional Domestic Product (GRDP) per capita.

Agriculture Sector Contribution to Economic Growth

The agriculture sector, according to Kuznets (1961) gives four essential contributions to economic growth and national economic development, among others: Product Contribution, Market Contribution, Production Factor Contribution, and Foreign Exchange Contribution.

The Effects of Agricultural Sector on Economic Growth

1) Positive Effects

a. Plenty of resources, especially agriculture-related sectors, such as land, climate, and various plants.

b. Big numbers of people are absorbed in the agriculture field, hence will reduce the numbers in unemployment.

2) Negative Effects

a. Excessive exploration of resources without considering the local wisdom and the environment itself that may lead to the depletion and destruction of the natural resources.

b. An uncontrollable increasing population will lead to serious problems for the fulfillment of foods.

Definition of Agriculture

Agriculture, in limited definition, only covers agriculture as a cultivation process to produce food plants. Furthermore, agriculture activities could be stated as activities that produce both plants and livestock in terms of people's life fulfillment. In a broader definition, it covers not only plants

cultivation, but also cultivates and manages livestock, such as nurturing the livestock that is objected for people's benefits and as the user of the livestock, which can help the farmers' tasks. These are the activities included in the agriculture field (Bukhori, 2014).

The Role of Agriculture Sector

This sector has several roles, such as (a) to provide food that is required by people to guarantee food security (b) to provide the raw material for industry (c) potential market for products that are produced by the industry, (d) The source of workers and to establish the capital, objected to other sectors' development, (e) the source of foreign exchange, (f) to decline the poverty and to increase the food security, and (g) to contribute in the development of the rural area and to preserve the environment

Workers in the Agriculture Sector

Humans and livestock are included as workers in the agriculture sector (Hernanto, 1993). Human workers consist of men, women, and children. The livestock is utilized for soil processing, fertilizing process, treatment, planting, planting, and harvesting. The mechanical appliances are employed as the substitution or replacement of humans or livestock labors. Many of the Indonesian people work in the agriculture sector. Hence, the farmers as human resources, play the main role in agriculture development. They nurture the plants and animals to obtain beneficial results as well as to learn and apply the current methods required to make their agriculture business more productive (A.T. Mosher, 1984).

The Regulation in the Agriculture Sector Amidst COVID-19 Pandemic

Coronavirus is a family of viruses that could be found in humans and animals. Most viruses could infect humans and cause various diseases, starting from the common cold to more fatal diseases, such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The COVID-19 pandemic has the potency to trigger a global food crisis. The food supply chain is threatened by the implementation of large-scale social restrictions (PSBB) and travel warnings.

Based on the Presidential Decree No. 11 of 2020 on the Declaration of Coronavirus Disease (Covid 19) as a Public Health Emergency. The president stated that Corona Virus Disease 2019 (Covid 19) was a type of disease that could trigger a health emergency. It is mandatory to hold a countermeasure as regulated by the law. The Ministry of Agriculture of the Republic of Indonesia issued Ministerial Regulation No. 16 of 2020 on rice provision and distribution concerning the handling of COVID-19 impacts through Automatic Rice Machine (ATMB).

RESEARCH METHODOLOGY

Quantitative descriptive is employed for this study, this research uses secondary data obtained from several sources, which are the data originated from Table of Input-Output total transactions based on Customers

Price of Central Java Province, 2013, Statistics of Indonesia (BPS), Department of Agriculture Central Java, Quarterly report from Bank of Indonesia, previous and relevant journals and scientific articles that eventually analyzed with Input-Output model. Furthermore, this research employs the data analysis technique of Matrix Inverse Leontief, to study the impact of COVID-19 on the final output of the economy and workers in the agriculture sector. An input-Output method is employed as the analysis tool. It can be used to identify the final impact on economic output and the final demand on workers.

Figure 2 . Basic Framework of Input-Output Model

Kuadran I Transaksi antar kegiatan	Kuadran II Permintaan akhir
Kuadran III Input primer sektor produksi	Kuadran IV Input primer permintaan akhir

Source: The Table of Input-Output, Central Java Province, 2013

The first quadrant indicates goods and service flow that are produced and employed by economic sectors. This quadrant demonstrates the distribution of goods and service utilization to meet the production process. The second quadrant indicates the final demand, while the third quadrant reveals the primary input of production sectors. The fourth quadrant establishes the primary inputs that are directly distributed to the final demand sectors.

Definition of Operational Variable

1. Input is the entire goods and services that are required by a certain sector, in terms of the production activity process.
2. Output is defined as goods and services that are produced by a certain economic sector in a related area or country.
3. In-between Input consists of the utilization of goods and services by a certain economic sector that existed in production activity. On the Input-Output model, the input utilization is translated as the connection among sectors and notated with Z_{ij}, readable to establish the products on a certain sector, then it is required an in-between input originated from sector I as many as Z_{ij}.
4. The in-between transaction is defined as a transaction between economic sectors, which have a role as a producer with the sectors that have a role as a customer. In the Input-Output table, the production sector is shown at each line, while the customer sector is pointed by the sector in each column. The in-between transaction only covers the transaction of goods and services that are correlated with the production process.
5. The primary input is a recompensation of production factors utilization, which consists of workers, land, capital, and entrepreneurship. The component of primary input includes (1) wage and hajj: all remunerations that are received by

workers involved in the production process, in the form of money, goods, and services. (2) Business surplus: a difference of the added value of gross with wages, the depreciation, and Netto of indirect tax. The business surplus is also defined as remuneration over capital ownership. (3) Depreciation: is a value of depreciation on fixed capital that is used in a production process (4) Netto of indirect tax: a difference of indirect tax over subsidy. The components of indirect tax include import tax, export tax, import duty, value-added tax, customs, and others.

6. Final demand is the request for goods and services that are used for consumption purposes, not for the production process. The components consist of: the expenses on household consumption, government's consumption, the fixed formation of gross capital, the stock exchange, and export.
7. The expense on household consumption is defined as all expenditures made by a household for goods and services after subtracted by the net sales of second-handed. It covers the expenses spent by non-commercial private institutions, such as social institutions.
8. The component of the expenses on government's consumption covers all goods and services expenditures for all administration activities, either central or local government.
9. The formation of fixed capital, consists of procurement, manufacturing, or the purchasing of new capital in the form of goods, internally or by importing. In the table of Input-Output, the component of fixed capital formation only describes the composition of capital goods that are produced by the production sector.
10. A stock exchange is a difference between the value of the material stock by the end of the year with the value of stock in the early year. Commonly, the stock is regulated by the producer and the result of production that is still unsold to customers.
11. The input-Output table is a table in the form of a matrix that illustrates the connection among several sectors in a region. Several outputs originated from the analysis of the input-output table, which are the connection analysis among sectors (linkages), analysis of impact, and analysis of multiplier eff ect.

RESULTS OF RESEARCH AND DISCUSSION

The Results of Backward Linkages Analysis

Table 3. The Value of Backward Linkages of 9 Sectors in Economy, Central Java

	Backward Linkage	
Sector	**Direct**	**Total**
1n	0,1934	0,9733
2n	0,2569	1,2932
3n	0,3944	1,9850
4n	0,1329	0,6690
5n	0,1384	0,6966
6n	0,1955	0,9840
7n	0,1635	0,8229
8n	0,1649	0,8298
9n	0,1483	0,7462

Source: Statistics Indonesia (BPS), Input-Output Table (processed)

From the result of the research, based on the analysis of backward linkage (BL) input-output, the processing industry sector is the sector with the highest degree for its distribution. The processing industry sector is valued at 1,985, for its total distribution potency. It means that for an increase of Rp. 1 on the final demand of the processing industry sector, while the final demands on other sectors are constant, hence the rise will be able to increase the overall output Rp. 1,985 billion is distributed on the change of output in the processing industry sector. Furthermore, the agriculture sector, based on the backward linkage analysis gives the distribution degree of 0,973, which means that if Rp. 1 increase happens on the final demand of the agriculture sector, while the demands on other sectors are constant, hence the increase will be able to raise the overall output for Rp. 0,973 billion, which is distributed on the change of output in the agriculture sector for Rp. 0,193 billion, while the rest is distributed to other sectors.

The Result of Forward Linkage

Based on the total forward linkage, it is found that the 5n sector (construction) has a backward linkage towards the regional economy in Central Java for 1,249, which means that the construction sector owns the biggest output used as raw materials. Consecutively, forward linkage from the biggest order are 4n sector (electricity supply, gas, and drinking water) with the value of 1,227 and 3n sector (processing industry) with 1,129, 7n sector (tranportation and communication) with 1,116, 9n sector (services) valued with 0,992, 6n sector (trade, restaurant, and hotel) comes up with 0,944, 1n sector (agriculture) with 0,799, 8n sector, (financial institution) valued with 0,782, 2n sector (mining and excavation) with 0,757.

Table 4. The Value of Forward Linkage of 9 Sectors in Economy, Central Java

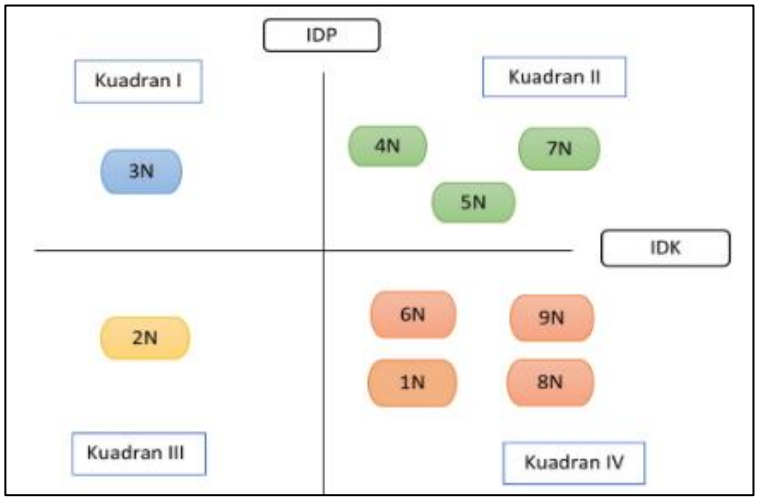
Sector	Backward Linkage	
	Direct	Total
1n	0,1934	0,9733
2n	0,2569	1,2932
3n	0,3944	1,9850
4n	0,1329	0,6690
5n	0,1384	0,6966
6n	0,1955	0,9840
7n	0,1635	0,8229
8n	0,1649	0,8298
9n	0,1483	0,7462

Source: Statistics Indonesia (BPS), Input-Output Table (processed)

According to the calculation of forward linkage, the agriculture sector has a total sensitivity degree of 0,799 and directly 0,158. It means that the agriculture sector holds enough force potency or tends to grow other sectors as 0,158 times once the final demand in the agriculture sector increases as Rp. 1. Through the economic cycle that happens due to repeated interaction towards other sectors, the increase of final demand of Rp. 1, finally could increase the overall economy by 0,799 times.

The Result of Key Sector Analysis

Figure 3. The Chart of Distribution 9 Sectors in Economy, Central Java



The processing industry sector with Input-Output code (3n code) that located at the quadrant 1 is stated as a key sector. It indicates that the industrial sector can only promote upstream and downstream sectors. Quadrant II consists of the electricity supply sector, gas and drinking water (4n code), construction sector (5n code), transportation and communication sector (7n code), which means that the above-mentioned sectors are only capable to promote the downstream sector. Quadrant III covers the mining and

excavation (2n code), which can be notified this sector can only promote the upstream sector. Lastly, associated with quadrant IV, 4 economic sectors that include agriculture sector (1n code), trading, restaurant, and hotel sectors (6n code), financial institution sector (8n sector), services sector (9n code). These all four sectors are indicated incapable to promote the downstream and upstream sectors.

The Results of Shock Scenario Analysis

Table 5. The Change of Final Output on Agriculture Sector towards Economy

Sector	Δ Final Output			Total Δ Output
	Quarterly I	Quarterly II	Quarterly III	of Each Sector
1n	494593.26	553966.32	626885.01	1675444.59
2n	14768.22	16541.06	18718.36	50027.64
3n	79928.29	89523.22	101307.18	270758.69
4n	2296.5	2572.19	2910.76	7779.45
5n	4248.19	4758.16	5384.48	14390.83
6n	22619.43	25334.76	28669.58	76623.77
7n	10923.52	12234.76	13845.3	37003.65
8n	8686.53	9729.29	11009.96	29425.78
9n	4589.27	5140.19	5816.79	15546.25
Total	642653.21	719800.01	814547.43	2177000.65

Source: Statistics Indonesia BPS (processed)

The results by using Shock Scenario indicate that amidst the COVID-19 pandemic in 2020, the 1n sector (agriculture) reveals the total change of final output for Rp 1.675,4 billion out of a final total of output change Rp 2.177,0 billion. 1n sector shows no economic turmoil due to the increase of total output change at the quarterly I to III. Later, 2n sector (mining and excavation) experiences the total change of economic final output for Rp. 50 billion out of the final total of output change Rp 2.177,0 billion. Furthermore, 3n sector (processing industry) indicates the total change of economic final output for Rp 270,7 billion out of the final total of output change Rp. Rp 2.177,0 billion. 4n sector (electricity, gas, and drinking water) shows the total change of economic final output for Rp. 7,7 billion out of the final total of output change 2.177,0 billion. 5n sector (construction) shares the total change of economic final output for Rp 14,3 billion out of a final total of output change Rp 2.177,0 billion. 6n sector (trade, restaurant, and hotel) has the total of economic output change for Rp 76,6 billion out of final total change Rp 2.177,0 billion. 7n sector (transportation and communication) owns total change of economic final output for Rp 37 billion out of total output change Rp 2. 177,0 billion. 8n sector (bank and financial institution) has a total change of economic final output for Rp 29,4 billion out of total

output change Rp 2.177,0 billion. Finally, 9n sector (services) reveals the total change of economic final output for Rp 15,5 billion out of total output change Rp 2.177,0 billion.

The Results of the Analysis on Impact of Household's Revenue Change

Table 6. Multiplier Value of Household's Income for Agriculture Sector

Sector	Multiplier Coefficient Household's Income(Indirect Impact)	The coefficient for Household's Income (Early impact)	Δ Quarterly 1-2 (direct effect)	Δ Quarterly 2-3 (direct effect)
1n	0.28959168	0.166176614	0,2592	-0,442
2n	0.442938614	0.264825509	0.00000	0.00000
3n	0.570150418	0.110529033	0.00000	0.00000
4n	0.110250378	0.078607891	0.00000	0.00000
5n	0.178044157	0.130093732	0.00000	0.00000
6n	0.320455995	0.177340346	0.00000	0.00000
7n	0.264843985	0.172455831	0.00000	0.00000
8n	0.185964947	0.100693813	0.00000	0.00000
9n	0.536865187	0.468495752	0.00000	0.00000

Source: Statistics Indonesia (BPS), Input-Output Table (processed)

The result of research indicates that the agriculture sector has an early income multiplier or early impact of 0,166, which means that if the final demand of the agriculture sector rises for Rp. 1, then the early income in the agriculture sector will raise for Rp. 0,166 billion. Direct income multiplier or a change from direct effect can be defined as the change in additional income due to final demand alteration that happens directly towards the entire economic sector. The direct impact of the agriculture sector for quarterly 1-2 was recorded as 0,259, which means that if the final demand of the agriculture sector rises for Rp. 1, then the overall income of the sector will increase directly for Rp 0,59 billion. So as the direct effect of agriculture sector at the quarterly 2-3 for 0,442, which means if the final demand of the agriculture sector rises for Rp. 1, then the sector's overall income will directly decrease for Rp 0,442 billion. Besides, the agriculture sector encourages the indirect effect or indirect multiplier for 0,289, which means if the final demand of agriculture rises for Rp. 1, then the overall income in the economic sector will increase Rp. 0,289 billion.

The Results of Analysis on Impact of Final Demand towards Job Opprtunity

Table 7. The Change of Final Output on Job Opportunity in the Agriculture Sector

Sector	Δ Quarterly 1-2	Δ Quarterly 2-3
1n	0,4968	-0,8471
2n	0,0227	-0,0387
3n	0,1581	-0,2695
4n	0,0009	-0,0015
5n	0,0026	-0,0045
6n	0,0251	-0,0429
7n	0,01	-0,0171
8n	0,0056	-0,0096
9n	0,0085	-0,0146
Total	**0,7304**	**-1,2454**

Source: Statistics Indonesia (BPS), (processed)

From the result of the analysis, the agriculture sector has a total change of final output towards a job opportunity at quarterly 1-2 for 0,496, which means if the agriculture sector experiences the raise for Rp. 1 billion, hence the agriculture sector will increase the job opportunity of 0,496 people. At the quarterly 2-3, the agriculture sector also has a total change of final output towards job opportunity for -0,847, which means the agriculture sector decreases or reduces the job opportunity of 0,847 people. Therefore, the impact of COVID-19 not only affects the result of output contribution on each economic sector in Central Java but also to the job opportunity declining on each economic sector in Central Java.

CONCLUSION AND SUGGESTION

Conclusion

The conclusion could be withdrawn from the research regarding the analysis of agriculture sector performance amidst the COVID-19 pandemic, in which based on the analysis result on key factors, it is revealed that the processing industry with input-output code is placed in the quadrant 1, and stated as a key sector in Central Java. It is notified that the processing industry could promote the growth of the downstream and upstream sectors. The role of the agriculture sector, based on the analysis of key factors, indicates as a sector that is situated in quadrant IV, in which it is considered less capable to promote both downstream and upstream sectors. Furthermore, The agricultural sector is included in the 10 sectors with the largest contribution to domestic output and part of the 10 sectors with the largest gross value added to the Central Java regional economy. It can be concluded that the agricultural sector is a sector that has the potential to encourage the economy of Central Java, thus the contribution of agriculture is

still dominant in the formation of GRDP in Central Java.

The research by using backward linkage analysis illustrates that the agriculture sector produces the distribution degree for 0,9733. It discloses that if the regional economy in Central Java losses its agriculture sector due to the COVID-19 pandemic, it could decrease the final demand towards other sectors.

The results of the forward linkage analysis state that the agricultural sector has a total sensitivity degree of 0.7991 and a direct value of 0.1588, meaning that the agricultural sector has sufficient driving force or is conducive to the development of other sectors of 0.1588 times. forward linkage has an effect on the building sector which has a degree of sensitivity with a total of 1.2494 and directly 0.2482. This happens because agricultural land is used to build housing that can be commercialized, so this affects the lack of agricultural land and agricultural products. In the end the agricultural sector is not included in the key sector.

The study using shock scenario analysis resulted in the finding that the agricultural sector was the sector that was not affected by the Covid-19 pandemic which was indicated by a significant increase in the demand for the final output of the economy in the first quarter, second quarter and third quarter of 2020.

This study uses a scenario of changes in the final output demand in agricultural sector to the growth rate of GRDP in Central Java. The agricultural sector produced an output of IDR 494593.26 billion in the first quarter of the total final output of IDR 642653.21 billion, the second quarter resulted in an increase of IDR 553966.32 billion from the final total output of IDR 719800.01 billion, and the third quarter of the agricultural sector experienced an increase in changes in the final output of Rp. 626885.01 billion from the total final output of Rp. 814547.43 billion.

The results of the analysis using the multiplier impact of household income stated that the agricultural sector in the first to the second quarter produced a value of amounted to Rp. 0.259 million, and in the second quarter of the third quarter resulted in a decrease in the value of the change in income of Rp. 0.442 million, meaning that the household income of the agricultural sector in the second quarter of the third quarter was included in the sector affected by the spread of the Covid-19 pandemic in Indonesia, especially in Central Java.

The results of the analysis using the multiplier effect of changes in final demand on employment opportunities resulted in the value of the agricultural sector of 0.4968 in the first and second quarters, and -0.8471 in the second and third quarters, meaning that the agricultural sector will increase or increase employment opportunities by 0.496 people in

quarters I-II and the agricultural sector will reduce or reduce employment opportunities for a total of 0.847 people in quarters II-III.

Suggestion

Based on the conclusion, the researchers propose several suggestions that could be referred to by policymakers and further research:

1. The agriculture sector requires attention from the Central Java government, even though this sector is not considered a key sector before the COVID-19 pandemic, moreover, amidst the pandemic, this sector experiences a decrease in final output demand, household income, and fewer job opportunities.
2. The number of workers in the agriculture sector that impacted by the COVID-19 in the quarterly I and II rises to 0,496 people. In quarterly II and III, it decreases as 0,847 people. Therefore, the government of Central Java province should give attention to economic sector workers who experience the direct impact of the COVID-19 pandemic.
3. Sectors aside from the processing industry, such as agriculture, mining, electricity, gas, construction, trading, restaurant, and hotel that are not considered as key sector 2013, could be endorsed to be the following year key sector with the public policy breakthrough.
4. Future researchers could expand the research with additional dependent variables or different research objects that can eventually be used for more accurate decisions considering the limitation of input-output analysis.

BIBLIOGRAFI

A.T. Mosher. (1984). *Menggerakkan dan Membangun Pertanian: Syarat- syarat Pokok Pembangunan dan Modernisasi*. CV. Yasaguna.

Amalia, R. (2019). *Komparatif Pendapatan Diverifikasi Usaha Petani Padi Di Desa Weden Kecamatan Bangilan Kabupaten Tuban Tahun 2018- 2019*. Universitas Bojonegoro.

Arsyad, L. (2004). *Ekonomi Pembangunan* (4th ed.). STIE YKPN.

Badan Pusat Statistik. (2013). *Tabel Input Output Jawa Tengah 2013*.

Bukhori, M. (2014). *Sektor Pertanian Terhadap Pembangunan di Indonesia*. Universitas Pembangunan Nasional "Veteran" Surabaya.

Diwangkara, C. (2020). Upaya Bela Negara Melalui Ketahanan Pangan Dimasa Pandemi Covid-19 (Efforts to Defend Countries through Food Security in the Pandemic COVID-19). *SSRN Electronic Journal*. https://doi.org/10.2139/SSRN.3621404

Hernanto, F. (1993). *Ilmu Usaha Tani*. Penebar Swadaya.

Kaneko, Y. (1985). Some Aspect of Economic Development Process in Indonesia: Input Output Analysis of the Indonesian Economy. *Jurnal Ekonomi Dan Keuangan Indonesia*, *Vol XXXIII*(March 1984).

Kartasapoetra, A. (1988). *Pengantar Ekonomi Produksi Pertanian*. Bina Aksara.

Kodoatie, R. J., & Sjarief, R. (2006). *Pengelolaan Bencana Terpadu: Banjir, Kekeringan, Longsor, & Tsunami*. Yayasan Watampone.

Kuncoro, M. (2009). *Metode Riset untuk Bisnis & Ekonomi: Bagaimana Meneliti & Menulis Tesis*. Erlangga.

Kuznets, S. (1961). Economic Growth and the Contribution of Agriculture: Notes on Measurement. *International Journal of Agrarian Affairs*, *3*(2).

Miller, R. E., & Blair, P. D. (1985). *Input-Output Analysis: Foundations and Extensions*. Prentice-Hall, Inc, Simon & Schuster Company.

Sasana, H., & Muid, D. (2018). the Strategy To Build Food Security and Poverty. *Jurnal REP (Riset Ekonomi Pembangunan)*, *3*(1), 263–276. https://doi.org/http://dx.doi.org/10.31002/rep.v3i1.789

Soekartawi. (2005). *Agroindustri dalam Perspektif Sosial Ekonomi* (1st ed.). PT. Raja Grafindo Persada.

Soekartawi. (2003). *Teori Ekonomi Produksi, Dengan Pokok Bahasan Analisis Fungsi Cobb-Douglas*. PT. Raja Grafindo Persada.

Sukirno, S. (2013). *Makroekonomi Teori Pengantar*. PT. Raja Grafindo Persada.

Sukirno, S. (2000). *Makroekonomi Modern Perkembangan Pemikiran dari Klasik Hingga Keynesian Baru* (3 (Ed.)). PT. Raja Grafindo Persada.

Suryana. (2000). *Ekonomi Pembangunan : Problematika dan Pendekatan*. Salemba Empat.

Todaro, M. P., & Smith, S. C. (2003). *Pembangunan Ekonomi di Dunia Ketiga* (1st ed.). Erlangga.

World Development Report. (2008). *Agriculture for Development*.