Analysis of the Development of Production Capacity Used in the National Agricultural Sector in the Era of the Covid-19 Pandemic

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Abstract. The used production capacity of the national agricultural sector experienced significant growth of 3.5 per cent in the third quarter of 2019 compared to the fourth quarter and began to correct to minus 4.0 per cent, especially in the food crops, plantations, livestock and their products sectors, whether in the forestry and fishery sectors. Will it improve in the third quarter of 2021 to the first quarter of 2022? The survey method with a quantitative approach through multiple regression analysis is used in this study. The findings show that there is a significant positive effect between these factors on increasing production capacity in the national agricultural sector. The expected recommendations for the livestock sector with various supporting factors need to be accompanied by the use of technological innovations supported by superior and competitive human resources as well as government regulations that favour the actors in this sector so that the supply chain from the production process to marketing runs well and smoothly.

Keywords: plantation sector; agriculture sector; fishery sector

1 Introduction

In the past, the Indonesian people were known as an agrarian country, and even in the 1990s food self-sufficiency in the agricultural sector dominated the Asian region. Now, the agricultural sector is still far behind the non-agricultural industrial sector even though in the Covid-19 pandemic era, the agricultural sector is recognized as the most resilient due to the impact of Covid-19 [1]. It is recognized that in this sector food needs must be met in the face of the spread of Covid-19 [2], but unfortunately when this important need peaks, along with controlling the spread of Covid-19, farmers find it difficult to market agricultural products [3].

The world food institute (FAO) admits that the food supply chain in the era of the Covid-19 pandemic is still relatively safe, although, on the other hand, this sector has not improved its fate and condition [4]. In today's digital era, the fate of agriculture is still unclear considering that the agricultural sector plus the processing-based agricultural industry has not been able to compete, especially in the era of the Covid-19 pandemic [5]. In a study of agricultural sector distributors [6], stated that business people in the agricultural sector suffered a lot of losses in this era due to failed collections from distributors.

The distributors failed to pay business actors in this sector due to the closure of operations and the difficulty for farmers to market their products. Even the activities of farmers are limited due to policies that require a reduction in activities outside the home [7]. Now since the spread

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of Coronavirus-19 can be controlled by the government and community activities, especially farmers, it seems that integration in processing and other attributes is becoming a trend, such as the use of the Javanese Farmers Museum in Chandran Village [8].

Amelia & Sagaf in their research explained that it turns out that the increase in the processing industry depends on production results in the agricultural sector [9]. Amid the rampant Covid-19 pandemic, agricultural production is abundant so it can affect the processing industry. According to Ulya that East Java, which is densely populated and has the largest area on the island of Java, is also the most superior in the agricultural sector compared to other regions in Indonesia, especially the livestock, fishery, plantation and forestry sectors [10]. Even in East Java developed agropolitan area. So do not be surprised if in this agricultural sector the performance of export value also experiences an upward trend [11].

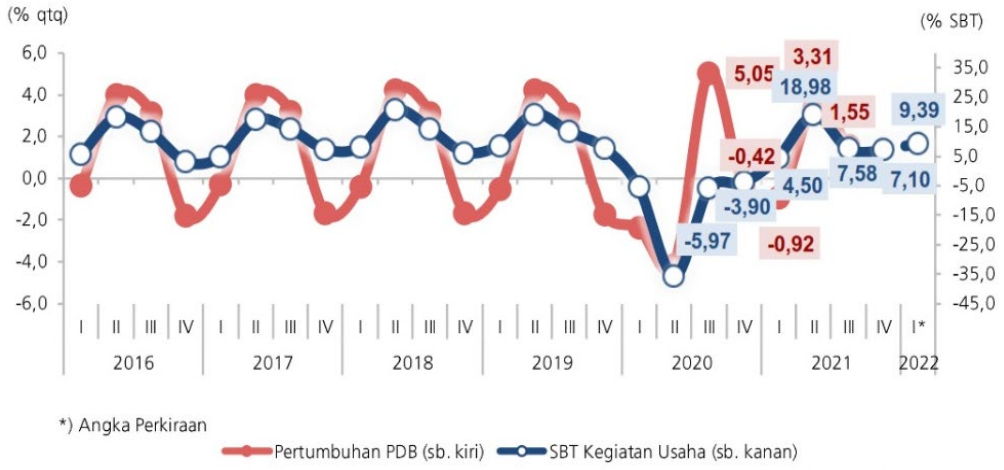
In addition to increasing export value performance, the agricultural sector other than rice can be used for other raw materials [12]. The agricultural sector is indeed promising, not only because the level of demand for rice and others is also promising [13]. This article aims to describe the development of used production capacity nationally in terms of 5 (five) factors in the agricultural sector such as 1) food crops, 2) plantation crops, 3) livestock and their products, 4) forestry, and 5) fisheries.

2 Text Formatting

2.1 The Effect of Food Crops on the Used Production Capacity of the National Agricultural Sector

The agricultural sector is an important part of increasing national economic growth. In fact, Indonesia was once a self-sufficient country in agricultural food ingredients, such as the number one rice in the world. Trisnawan & Hariyanto explained that rice is the staple food of the Indonesian population, and even the world community is the only supplier in the world [14]. However, until now the agricultural sector is no longer self-sufficient in our nation. Many green lands have now been converted into housing so that the increase in farmer productivity and land changing functions causes agricultural yields to decrease. In Sibarani's research in order to increase the productivity of farmers, even though the land is reduced, it is necessary to utilize land and farmers need to take advantage of technological innovations to facilitate marketing [3]. By digitizing resistant products, it can damage the supply chain network of agricultural products, such as rice and other agricultural commodities, and food ingredients to other global consumer communities.

Based on the Quarter IV survey, Bank Indonesia in the report “Operations Results Activities” stated that respondents predict that business activities will increase in quarter I-2022, as indicated by WNB 9.39%, higher than WNB 7.10% in quarter IV-2021 and WNB 4.50% of the results in the first quarter of 2021. The increase, in performance, in a number of sectors including the Agriculture, Livestock, Forestry and Fisheries sector (WNB 1.96%) such as the main harvest season for the Food Crops sub-sector and the Manufacturing Industry sector (WNB 2.74%) such as the estimated normalization of community activities in 2015. 2022.



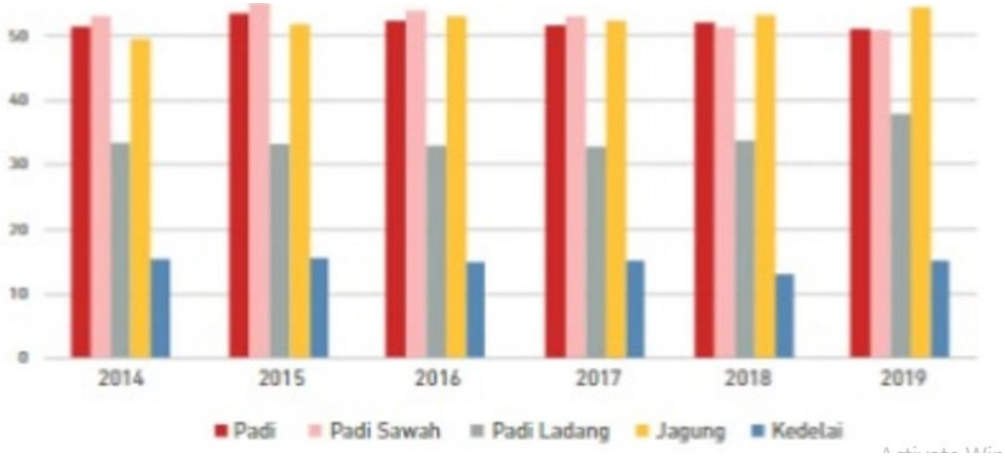
Source: Survey of Business Activities, BI (2022)
Fig. 1. Comparison of GDP Growth and Business Sector 2016 - 2022

The positive results of this report are certainly in contrast to what was conveyed by Kilmanun & Astuti which stated that the majority of Indonesian citizens who work in the agricultural sector are still not able to take advantage of the industrial revolution 4.0 as the world's countries do [15]. This is of course due to 1) human resources, 2) the condition of the land for defence, and 3) the inadequate social culture of the community.

The agricultural sector in the field of food crops has been tested in the midst of global and domestic recessions, which has survived, compared to other sectors. This is evident in the Bank Indonesia survey report related to the development of used production capacity in the national agricultural sector which will be accessed in 2022, confirming that food crops greatly contribute to used production capacity at the national level so that they can directly or indirectly increase national economic growth. This can be seen in the results of the partial test with a t-count of 254,010 with a perfect significance level of less than 0.05.

Upe & Santoso confirmed in their research that food crops in the era of the COVID-19 pandemic had indeed become the main commodity during the recession, especially in order to increase immunity [16]. Pakpahan also reports his research on farmer attitudes in developing organic rice production capacity where the surrounding elements such as knowledge, farming experience, land area, and capital ownership affect production capacity [17]. It is important to understand that production capacity is used nationally due to innovation and the creation of farmers, but it needs to be supported by adequate capital.

It is interesting to quote from the results of Ruslan's research related to food crop productivity in 2019, the national corn productivity is 5.4 tons/ha [18]. In fact, the participation of farmers reached 75.13%, an increase in both large chilli and cayenne pepper commodities. To see the increase and increase in used production capacity as follows:



Source: BPS 2020

Fig. 1. Comparison of GDP Growth and Business Sector 2016 – 2022

Judging from the picture above, it is recorded that before the Covid-19 pandemic recession the increase was very significant, although in the following two years it experienced a corrected decline that began to increase in Quarter IV-2021 to Quarter I-2022 as shown in the graph above.

2.2 The Effect of Crops on the Production Capacity Used by the National Agricultural Sector

The Industrial Era 4.0, which was accompanied by the Covid1-19 pandemic, changed the order of global society, including the agricultural sector, which needed to integrate the production side with the cyber world. According to Haryanti, the pandemic era greatly affected the agricultural sector, especially in oil palm plantations, which is a mainstay commodity that produces state divisions [19]. Therefore, technological innovation is needed in increasing productivity through Smart Agriculture. The Directorate General of Plantations in the 2019-2020 National Superior Plantation Statistics Book stated that Indonesia was listed as the number 1 exporter of palm oil in the world. Therefore, the use of technology with digital platforms in improving the plantation sector in the era of the Covid-19 pandemic is very promising [20].

In order to adapt to technology in the digital era and the Covid-19 pandemic, there needs to be technological literacy for farmers as producers. Putra in his research stated that training for farmers in order to increase their productivity is very important through training on the introduction of digital technology-based tools or instruments so that farmers can take advantage of modern agriculture on large lands and narrow lands to be more productive so as to increase production competitiveness more superior and competitive [21]. According to Kurniawan, the use of digital technology in the big-data era is very important for agricultural actors because it can drive development, especially in rural areas [22].

It is understood that there are still many farmers in Indonesia who do not understand the use of technology so they focus on conventional agriculture, including plantations. Rafli emphasized that the lack of digital literacy, big data, and information technology makes poor farmers low productivity, so they are unable to support SDGs 2030 [23]. For this reason, there needs to be massive digital literacy is needed for farmers in Indonesia, especially plantation farmers, both oil palm plantations, tea, and the like.

The potential of plantations in Indonesia is in line with food security in the era of the Covid-19 pandemic with the potential for the land area that is very potential. Adiva noted that the development of used production capacity nationally showed fluctuating ups and downs [24]. An important contribution in the plantation sector along with the agricultural sector is able to survive in any conditions. Anisain him research explain that the agricultural sector is one of the important components in addition to poverty alleviation as well as able to improve welfare [25].

The plantation sector, in fact, in Quarter IV-2021 and Quarter I-2022, as reported by BI based on statistical figures, shows that the development of used production capacity in the national agricultural sector is strongly influenced by the plantation sector. The t-test partially obtained a t-test of 222.002 with a significance level of 0.000, less than 0.05. This can be seen in the following table:

Table 1. Partial Test Results of Plantation Plants on Used Production Capacity

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
X2	,200	,001	,222	222,002	,000

Source: Processed Secondary Data, 2022

Table 1 above shows the results of the t-test with a significance level that proves a significant effective effect with a strong influence coefficient of 0.222. Thus, the condition of plantation crops in the Covid-19 era before and after was actually able to survive, even though it had been corrected.

2.3 Effect of Livestock and their Products on the Used Production Capacity of the National Agricultural Sector

The livestock sector is also one of the important factors in increasing the country's economic growth. Prior to Covid-19, livestock products had increased growth, such as milk, beef and chicken, and eggs. Ihza researching the behaviour of customers and retail partners of livestock products stated that in the digital era, it is very important to market livestock products by utilizing digital platform applications so that market share is expanding [26].

Livestock and their products can provide a large contribution to the national GDP, even up to 3.81 per cent in 2016 [26], in 2017 an increase of 1.5% by 213.4 trillion of the total GDP [27]. This means that the livestock sector is very promising, not only increasing national income, but the income of business people is also very profitable. According to Guna, the livestock sector and its products such as goat farming and the added value of processed and derived products are very promising if you know the marketing [28]. And even not only the livestock sector and its products other institutions can also take advantage of this sector.

In addition to goat farming which has great potential in the era of the COVID-19 pandemic, chicken farms also have the same opportunity, especially since the need for chicken meat for the Indonesian population is very large. In the research, Amelia stated that the impact of the COVID-19 pandemic on chicken farms greatly disrupted the supply of chicken meat, while the positive impact was a very large prospect in developing frozen food for chicken meat, increasing the issue of ASUH food, and others [9].

In the era of the covid-19 pandemic, the results of the Business Activity Survey (SKDU) of Bank Indonesia (BI) in the Quarter of 2020 showed a decline in the economy in various

sectors, including a decline in livestock and their products. This can be seen from the value of the Weighted Net Balance (SBT) in the first quarter of 2020 of -5.56%, quite deep compared to 7.79% in the fourth quarter of 2019. The decline was caused by a decrease in supply and demand due to the Covid-19 outbreak. Meanwhile, in Quarter IV-2021, and Quarter 1-2022, it showed an increase although slowly from the previous year, as shown in the graph above.

The economic impact of Covid-19 is felt in various sectors, including agriculture and animal husbandry, although the resilience is higher than others. However, the livestock sector in Indonesia is still dominated by smallholder breeders with low production capacity. According to Romjali in the year before Covid-19 livestock production improved with an adequate level of supply chain network [29]. There was a negative contraction at the beginning of the first and second quarters of 2021 along with a downward trend in the economic growth rate.

The increase in the livestock sector with various types of production in the era of the 2022 Quarter I experienced a positive trend. This is evidenced by the results of the t-test partially having an effective significance for the development of used production capacity nationally in the agricultural sector. As can be seen in table 2 below:

Table 2. Livestock Partial Test Results on Used Production Capacity

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
X3	,201	,002	,172	126,728	,000

Source: Processed Secondary Data, 2022

The table above shows that production capacity is used at the national level in the agricultural sector due to a positive increase in livestock. Partial test with a t-count of 126.728 with a significance level of 0.000 less than the standard value of 0.05. This means that the influence of the livestock sector on the effects used production capacity increases. This was confirmed by Hakim that the livestock sector is able to contribute to the socio-economic and welfare of the community to be effective in meeting the high nutritional value of protein and national food security [30].

2.4 The Influence of Forestry on the Used Production Capacity of the National Agricultural Sector

In the fishery sector, surveys show that due to the COVID-19 pandemic, commodity prices in this sector have decreased sharply, by 10%. This not only comes from the decline in commodities but also in terms of delays in the supply of fish commodity products, the number of catches, as well as a decrease in the turnover of fish catches and fishermen's income [31]. This is also felt by fishermen in Remboken Minahasa, cultivators, collectors, retailers, and consumers of Mujair fish. According to him, the disruption of the tilapia fish supply chain was caused by the Covid-19 pandemic [32].

Even in sub-district centres where there are traditional markets, the supply of freshwater fish is abundant but demand has fallen drastically [33]. This sector is very vulnerable due to the Covid-19 pandemic not only in Indonesia but in other parts of the world [32]. In the first quarter of 2020, there was a massive decline in the world fishery sector due to this case [34]. Thus, the occurrence of Covid-19 greatly affected the food system in Indonesia. According to Amanta & Aprilianti employment in the agricultural, plantation, forestry and other sectors decreased by 4.87 per cent, even until the domestic supply was reduced to 6.20 per cent [35]. Although it is

predicted that imports in this sector will decline by around 17.11 per cent, import prices will increase by 1.20 per cent in 2020 and increase by 2.42 per cent in 2022. This kind of fluctuation will also have an impact on domestic supply and imports, food shortages and food price inflation.

Indonesia's natural wealth in the forestry sector provides a source of national income, with tropical conditions and climate, of course, this is very profitable. The location of forest land that stretches from Aceh to Papua provides immeasurable natural beauty. Therefore, it is only natural that the contribution of forestry to used production capacity in the national agricultural sector is promising. BI data (2022) in its report stated that the forestry sector in the 3rd Quarter of 2021 was 71.4 per cent compared to the fourth quarter which fell to 66.0%, however, its contribution to the used production capacity of the national agricultural sector was higher than food crops. plantations and livestock [36].

Based on the partial statistical test, t arithmetic experienced the highest increase, namely 305.841 with a significance level of 0.000 lower than 0.05. Researchers see that what is the determining factor in the forestry sector is of course the products that have high competitive advantages such as oil palm and so on. This can be seen in table 3 below:

Table 3. Forestry Partial Test Results on Used Production Capacity

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
X3	,199	,001	,277	305,841	,000

Source: Processed secondary data, 2022

Table 3 above is evidence that the forestry sector is very promising as a sector that has high competitiveness. Research by Gunawan states that the conversion of forest land functions is significant for economic growth in Aceh [37]. Therefore, it is necessary to manage forest areas as well as agricultural areas as well as natural tourist destinations. Likewise, Hadiansyah stated that forest management with the principle of keeping the forest functioning and competitive needs to be regulated in legislation [38]. This is important because it is to maintain environmental sustainability in the future.

2.5 The Influence of Fisheries on the Used Production Capacity of the National Agricultural Sector

The fisheries sector is also able to increase national economic growth through used production capacity. The results of the study confirm that although it is not dominant in increasing used production capacity, the fishery sector is very important. The results of the t-test of 300.507 with a significance level of 0.000 less than 0.05 further prove that this sector is in line with Indonesia as a maritime country that has been pinned down and still maintained. This is evidenced by the following table 4;

Table 4. Fishery Partial Test Results on Used Production Capacity

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
X3	,200	,001	,234	300,507	,000

Source: Processed Secondary Data, 2022

The table above confirms that the fishery sector is one of the main sectors in realizing national food security, but efforts to develop the potential of aquaculture, especially freshwater aquaculture, have challenges in their management, including declining environmental quality due to pollution, increasing prices of factory-made feed, and the high incidence of disease caused by the improper application of the fish farming system [39].

Sofia & Yunita confirmed in their research that the fisheries sector is able to provide high competitiveness [40]. For example, processing fishery products made from catfish can financially provide sufficient profit for business people. Likewise, nationally, even though in the era of the Covid-19 pandemic, there was a decline when the positive contamination peaked, while when conditions were under control, the agricultural sector began to swell again. The supply chain in this sector can also run well.

3 Conclusion

From the explanations and descriptions described above, it can be concluded that the production capacity of the national agricultural sector is improving its development since the onset of COVID-19 in 2020 to 2022. As a result, it is influenced by food crops, plantations, livestock and their products, forestry, and agriculture. fisheries either partially or simultaneously effectively contribute. This is recognized by a BI survey accessed in January 2022. A significant increase in the variable contribution of food crops, plantations, livestock and their products, forestry, and fisheries in the digital era, especially in Quarter I-2022 making optimism for increasing the used production capacity of the sector of this farm if you look at the previous Quarter. This certainly makes us optimistic that together with the successful handling of COVID-19 and successfully suppressing its spread. This indication can be seen from the increasing number of actors in the agricultural sector and the supply chain of agricultural products that can be absorbed by the community, and even the sectors that can survive the most in the midst of the global pandemic recession.

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