P-ISSN: 2303-2898 | E-ISSN: 2549-6662 Vol. 11, No. 3, Desember 2022
Received: 23 Mei 2022 | Accepted: 23 Oktober 2022 | Published: 01 Desember 2022

IMPACT OF THE COVID-19 PANDEMIC ON THE SOCIO-ECONOMIC CONDITIONS OF FARMERS AND ALTERNATIVES FOR THEIR RECOVERY IN DISTRICT OF DELI SERDANG

Hotden Leonardo Nainggolan[1]*, Albina Ginting[1], Susana Tabah Trina[1], Yanto Raya Tampubolon[1],Tavi Supriana[2]

[1]Universitas HKBP Nommensen Medan, Indonesia
[2]Universitas Sumatera Utara, Indonesia

*e-mail: hotdenleonardo76@gmail.com

Abstract

The COVID-19 pandemic has caused various negative impacts on people, both those living in urban areas and farmers in rural areas. This study aims to determine the socio-economic impact of the COVID-19 pandemic on farmers and to find alternative approaches to recovering the socio-economic conditions of farmers in the District of Deli Serdang, North Sumatra Province. The research was conducted from June to November 2021 in the District of Deli Serdang. The data used in this research are primary and secondary data, which were analyzed by descriptive methods with qualitative and quantitative approaches to determine the pandemic's impact on social and economic conditions. Statistical tests were carried out to compare the socio-economic conditions of farmers before and during the pandemic with the t-test. Based on the study's findings, it was determined that the COVID-19 pandemic had negatively impacted farmers' socio-economic conditions, which are demonstrated by a decline in their frequency of social interactions, frequency of community visits, family income, and level of savings during the pandemic. Moreover, the recovery of the social-economic conditions of farmers during the COVID-19 pandemic has been achieved through farmer empowerment activities, market development, and institutional and capital sources aspects. Based on the research results, there are three recommendations. Restoration of the socio-economic conditions of farmers will be optimal if carried out collaboratively between the government, the private sector, and the farmers themselves. The government must optimize the empowerment of farmers through training, counseling, and innovation in farming technology. Private institutions are expected to participate in socialization and counseling about optimal farming development during the COVID-19 pandemic.

Keyword: COVID-19; Socio-economic; Farmers

INTRODUCTION

The impact of the COVID-19 pandemic not only disrupts the export and import sectors, but also disrupts the trade sector, namely that tax revenue has also decreased (Nasution et al., 2020) both central and regional. Not only has an impact on the global economy, but the COVID-19 pandemic has also had a negative impact on all levels of society, both in urban and rural areas, including farmers.

The spread of COVID-19 is very dangerous and has a wide impact on various sectors, including the agricultural sector (Hartati & Susanto, 2020). The agricultural sector must be strong in facing the COVID-19 pandemic because it is directly related to basic human needs, namely the provision of food needs. In a situation like this, there is no guarantee of easy access to food at normal prices for the whole community (Ulfa et al., 2021).

The impact of the COVID-19 pandemic that has been felt the most by farmers is that the prices of agricultural products have decreased drastically as a result of the people's declining purchasing power. This condition causes farmers to be unable to cover operational costs incurred by farmers when developing their farms (Sarni & Sidayat, 2020). The COVID-19 pandemic has had a fairly large negative impact on farm households and is more severe than that experienced by general households in Thailand. Farmers suffer

losses and decrease in income by up to 39% due to COVID-19 in Thailand (Sapbamrer et al., 2022).

Due to the COVID-19 pandemic, the agricultural sector in India has also suffered a serious impact. This sector employs 263 million workers, of which 45% are farmers and 55% work as agricultural labourers. The implementation of activity restrictions that were carried out some time ago caused agricultural activities to stop as a result of labor shortages and limited agricultural inputs(Menon & Schmidt-Vogt, 2022), this caused the socio-economic conditions of farmers to be unfavorable.

As a result of the COVID-19 pandemic, the economy of North Sumatra Province was also affected. The Central Statistics Agency noted that North Sumatra's economic growth in the second quarter of 2020 was minus 2.37%, although still below the national level of -5.32%, this realization was far above the prediction, in the range of -1.6% to -2 %. North Sumatra's economic contraction in the second quarter of 2020 was triggered by the sluggishness of a number of business fields due to the COVID-19 pandemic (Simamora, 2020).

District of Deli Serdang is the second area with the highest COVID-19 spread after Medan City in North Sumatra Province. District of Deli Serdang and Medan City are directly adjacent, so that the movement of people in these two areas is so massive with a very close distance (Efendi, 2020). The number of COVID-19 cases in District of Deli Serdang as of December 4, 2020 was recorded as 86 suspects, 2,066 confirmations with positive *polymerase chain reaction* (PCR), 126 people died with positive PCR, recovered 1,634 positive with PCR (Covid19.deliserdangkab.go.id, 2021). The COVID-19 pandemic also affected various sectors in District of Deli Serdang, such as; the industrial sector, agriculture, livestock, tourism, micro, small and medium enterprises and transportation are the mainstays in this area. Data from the Central Statistics Agency of Deli Serdang District in April and May 2020 released in June 2020 stated that the economic growth of Deli Serdang district had decreased from the previous year (Metro, 2020).

The economic recovery of the community due to the COVID-19 pandemic must be carried out comprehensively in all areas, both in urban, rural and including farmers in village. Olshansky & Chang, (2009) conveyed that an effort to reduce the negative impact of disasters on a social order is needed, with various efforts to promote a sustainable life through the recovery process. The recovery phase can provide an opportunity to rebuild the physical, social and economic systems of the affected communities.

The recovery process of a disaster is classified into; recovery of economic resources such as agricultural activities (Nurhidayah, 2019), personal resources, social and political resources. Affected individual resources can be recovered through; improve health, physical abilities, psychology, education, knowledge and skills. So that people can take advantage of opportunities, access resources and face difficulties after a disaster occurs (Jeong & Yoon, 2018). Research conducted (Prawoto et al., 2020) stated that the trend of community mobility also showed a significant decline due to the COVID-19 pandemic due to the Government's call to stay at home.

Furman et al.,(2020) conveyed that the government has an important role in implementing community economic recovery. One of the things that can be done is to provide loans to people affected by COVID-19. The target of the loan program provided by the government during post-pandemic recovery must support the development of productive businesses such as; micro small businesses and other types of businesses, which play a role in supporting economic conditions.

Deloitte (2020) conveying scenario-based strategic planning is one way that can be done for the process of economic recovery. Government intervention is important in the process of community economic recovery, including increasing access to capital, small and medium enterprises based on negative externalities arising from community businesses due to the COVID-19 pandemic. Economic recovery must be carried out quickly, the banking sector, which has large capital, must play an active role in driving the wheels of the people's economy seriously (Furman et al., 2020). One of them is running short-term business activities and encouraging each economic unit to defend itself (Alipour et al., 2015). For this reason, corrective action is needed to restore the economic condition of the community in the long term through increasing the productivity of economic activities and

social recovery of the local community, therefore, this research was carried out to determine the socio-economic impact of the COVID-19 pandemic and to find out alternative approaches to recovering the farmers socio-economic conditions in Deli Serdang DIstrict, North Sumatra Province.

METHODS

This research was conducted using qualitative and quantitative approaches. The qualitative approach emphasizes the aspect of in-depth understanding of the problems studied using descriptive methods (Widiastuti & Tuti, 2022). In this study, a descriptive analysis was conducted using a semantic differential scale to find out alternatives to the recovery of farmers' social and economic conditions during the COVID-19 pandemic. Quantitative approach is a research approach using certain instruments, in conducting the analysis process (Hayati et al., 2017). In this study, a paired sample test analysis was carried out to see the socio-economic conditions of farmers in the research area before and during the COVID-19 pandemic.

The research location is Distict of Deli Serdang which was determined purposively on the grounds that this area is also affected by the COVID-19 pandemic and is the second largest after Medan City in North Sumatra Province.This research is important to do, considering that Deli Serdang District is one of the region in North Sumatra Province as an agricultural center, and as a rice barn. BPS data from North Sumatra Province 2022, shows that the production of lowland rice in District of Deli Serdang was recorded at 413,634 tons in 2020, and is the largest production if out of 32 regencies/cities in North Sumatra Province, followed by District of Serdang Bedagai of 385,867.8 tons (BPS, 2022), and the majority of farmers are developing paddy rice farming and are also affected by the COVID-19 pandemic.

District of Deli Serdang is also an area that was seriously affected during the COVID-19 pandemic. The number of COVID-19 cases in District of Deli Serdang as of December 4, 2020, there were 86 suspects, 2,066 confirmed positive based on the results of the polymerase chain reaction (PCR) test, 126 died (positive PCR test), 1,634 recovered with a positive PCR test (Covid19.deliserdangkab.go.id, 2021). The study was carried out from June to November 2021, in 3 sub-districts whose communities were affected by COVID-19 and the highest in Deli Serdang District, namely Sub-district of Percut Sei Tuan, 538 people confirmed COVID-19, Sub-district of Pancur Batu, confirmed 167 people and Sunggal Sub-district, 316 confirmed COVID-19 (Covid19.deliserdangkab.go.id, 2021), besides these 3 areas are bordering the Medan City.

The population of this research is farming communities in 3 Sub-districts, namely Percut Sei Tuan with 12,178 people (BPS, 2020b), Sub-district of Pancur Batu with 8,681 people (BPS, 2020a) and Sub-district of Sunggal with 17,744 people (BPS, 2020c), the three sub-districts this was determined purposively as the location for sampling with the consideration that this area was heavily affected by the COVID-19 pandemic in District of Deli Serdang. The determination of the sample in the study must be representative with various considerations, with the assumption that the sample is normally distributed (Lehmann et al., 2013). In this study the method used to determine the number of samples is to use the Slovin formula, with the formula:

$$n_C = \frac{N}{1 + Ne^2} \quad \text{.....1)}$$

where: nc = sample size, e = error interval (∞=10%), N = amount of population.

Based on the calculations carried out, with a population of 38.603 families, with an error interval ∞ = 10%, a sample of 99.742 is obtained and then rounded to 100 respondents. Furthermore, the number of samples in the three sub-districts as the place of data collection is determined proportionally, with details; Percut Sei Tuan Sub-district as many as 32 respondents, Pancur Batu Sub-district as many as 22 respondents and Sub-district of Sunggal as many as 46 respondents.

This study uses data consisting of; primary data and secondary data. Primary data is data obtained from interviews with respondents in the field using a questionnaire and focus group discussion (FGD) with the respondent and community. Secondary data is data obtained from the publication of the Central Statistics Agency District of Deli Serdang, Department of Agriculture in District of Deli Serdang and other official publications related to this research topic.

The data obtained from the field is then analyzed descriptively to see the

impact of the COVID-19 pandemic on the social conditions of farmers with indicators; how is the frequency of farmer social interactions before and during the COVID-19 pandemic/month, and how is the frequency of family visits and meetings/ month in the community before and during the COVID-19 pandemic. And the economic condition of farmers is also analyzed using indicators; how was the level of farmer household income (IDR)/month before and during the COVID-19 pandemic, and what was the condition of farmer family savings (IDR)/month before and during the COVID-19 pandemic.

The data obtained from the field were also tested statistically, namely by using the paired t-test using SPSS software. Paired t-test is one method of testing the hypothesis where the data used are not independent or in pairs (Montolalu & Langi, 2018), using a significance of 5%. Then to find out the important aspects in formulating a model for the recovery of the socio-economic conditions of farmers in Distict of Deli Serdang, a descriptive analysis was carried out using a semantic differential scale, with a score of 1-100, with the decision criteria, if: score < 60 = bad; score 61-70 = quite good; score > 71 = good (Nainggolan et al., 2019). Prihadi, (2010) said semantic differential is a form of measurement in the form of a score that can be used to measure reactions to concepts that can be adapted to the social and cultural conditions of society (Oktavianti et al., 2016). Each respondent is given the freedom to answer questions with predetermined answers, namely; not important (weight 1), important (weight 2), moderately important (weight 3) very important (weight 4) and most important (weight 5). Then the calculation is carried out to get a score based on the differential semantic scale (Oktavianti et al., 2016). The score is calculated using a formula:

$$The\ value\ of\ score = \frac{\left(\sum S1+\sum S2+\sum S3+\sum S4+\sum S5\right)x\,20}{100} \quad .....2)$$

Where: ∑ S1 = total score on the answers of respondents who choose the answer "not important" with a weight of 1, ∑ S2 = total score on the answers of respondents who chose the answer "important" with a weight of 2, ∑ S3 = total score on respondents' answers who chose the answer "moderately important" with a weight of 3, ∑ S4 = total score on the answers of respondents who chose the answer "very important" with a weight of 4, ∑ S5 = total score for respondents' answers who chose the “most important” answer with a weight of 5, and the multiplier weight value = 20.

RESULT AND DISSCUSSION

The Impact of the COVID-19 Pandemic on Farmers' Social Conditions

The impact of the COVID-19 pandemic on the social conditions of farming communities in District of Deli Serdang was analyzed based on two indicators, namely; the frequency of farmer social interactions before and during the COVID-19 pandemic/month, and the frequency of family visits and meetings/ month in the community before and during the COVID-19 pandemic.

Based on the research, it is known that the impact of the COVID-19 pandemic on the social conditions of the farming community in District of Deli Serdang is based on; frequency of farmer's social interaction/ month before and during the COVID-19 pandemic. The results showed that the average frequency of farmers' social interactions in the community before the pandemic was 4.07 times per month and during the COVID-19 pandemic the average frequency of farmers' social interactions with other people fell to 0.74 times per month. This means that the COVID-19 pandemic has caused a decrease in the frequency of social interactions of farmers in District of Deli Serdangby 81.8%. Based on the data analysis, it is known that the description of the frequency of farmer social interactions/ months before and during the COVID-19 pandemic is presented in Table 1.

Table 1. Description of the frequency of farmer social interactions per months before and during the COVID-19 pandemic

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
Before the COVID-19 Pandemic	4,0700	100	1,22479	,12248
During the COVID-19 Pandemic	,7400	100	,64542	,06454

Source: Primary data (2021)

Based on Table 1, it is known that the average value of the frequency of farmer social interactions before the COVID-19 pandemic was 4.0700/ month with a standard deviation of 1.22479, while the average value of the frequency of farmer social interactions during the COVID-19 pandemic was 0.7400/ month with a standard deviation of 0.64542.

In this study, the following hypotheses were proposed; H0: there is no significant difference in the impact of the COVID-19 pandemic on the social conditions of farmers based on the indicator of the frequency of farmer social interactions before and during the COVID-19 pandemic. H1: There is a significant difference in the impact of the COVID-19 pandemic on the social conditions of farmers based on the indicator of the frequency of farmer social interactions before and during the COVID-19 pandemic. Then a paired sample test (sig-2 tailed) was performed, and the results of the analysis were obtained as shown in Table 2.

Table 2. Paired sample test
(farmers' social interactions before and during the COVID-19 pandemic)

Paired Samples Test								
	Paired Differences							
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Before the COVID-19 Pandemic-During the COVID-19 Pandemic	3,33000	1,32615	,13262	3,06686	3,59314	25,110	99	,000

Source: Primary data (2021)

Based on Table 2, the results of the Paired Sample Test show that the significance value is 0.000, which means it is smaller than 0.05, then H0 is rejected. This means that the frequency of farmer social interactions/months before and during the COVID-19 pandemic is different. Thus, it can be said that there is a decrease in the frequency of farmer social interactions/ month during the COVID-19 pandemic and this indicates that the COVID-19 pandemic has had a negative impact on the social conditions of farmers in District of Deli Serdang. The results of this study are in line with the findings Verma & Prakash, (2020) conveying social distancing (actually physical distance) as an effort to reduce the transmission rate of COVID-19, requiring new habits to survive. This actually creates a gap between the community and relatives which has an impact on the social conditions of society in general.

The results of this study are in line with the findings (Djalante et al., 2020) the impact of the pandemic cannot be ascertained when it will end, while it has caused various social impacts. Social distancing arrangements must be maintained to avoid various risks. This condition has an impact on social visits in the midst of society. Social change in the form of the application of the physical environment in many countries to prevent prevention has a positive impact. However, the implementation of social distancing, self-quarantine and self-isolation has a negative impact on community social communication (Suppawittaya et al., 2020).

Furthermore Elmer et al., (2020) conveyed that the COVID-19 pandemic caused changes in social networks and social relationships between individuals. Social relationships are channels of social support and in times of crisis, social support is very important and needed. But at the same time, physical closeness and opportunities for interaction are important in developing and fostering social bonds (Stansfeld, 2002).

Cheval et al., (2020) said that the COVID-19 pandemic also had an impact on the socio-ecological system of society and also had a broad impact, starting from changes in individual lifestyles to society in general. The COVID-19 outbreak affects all segments of society and harms social groups. Even in the most vulnerable situations, it greatly affects the interaction between residents, especially people living in situations of poverty, without exception in rural and urban areas who live in slum areas (Verma & Prakash, 2020).

In addition to indicators of farmer social interaction before and during the COVID-19 pandemic, the impact of the COVID-19 pandemic on farmers' social conditions in District of Deli Serdang was

also analyzed, based on indicators; frequency of family visits and farmer meetings/month in the community before and during the COVID-19 pandemic.

The results showed that the average frequency of family visits and farmer meetings before the COVID-19 pandemic was 5.18 times per month, and during the COVID-19 pandemic the average frequency of farmer visits and meetings was 1.31 times per month. This means that the COVID-19 pandemic has caused a decrease in the frequency of family visits and farmer meetings with the community in District of Deli Serdang by 74.7%. Based on the data analysis, it is known that there is a description of the frequency of family visits and farmer/ month community meetings before and during the COVID-19 pandemic, presented in Table 3.

Table 3. Description of the frequency of family visits and farmer meetings in the community before and during the COVID-19 pandemic

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
Before the COVID-19 Pandemic	5,1800	100	2,03693	,20369
During the COVID-19 Pandemic	1,3100	100	1,54197	,15420

Source: Primary data (2021)

Based on Table 3, it is known that the average value of the frequency of family visits and farmer meetings with their communities before the COVID-19 pandemic was 5.1800/ month with a standard deviation of 2.03693, while the average value of the frequency of family visits and farmer meetings with their communities was in During the COVID-19 pandemic, it was 1.3100/month with a standard deviation of 1.54197.

In this research, the following hypothesis is proposed; H0: there is no significant difference in the impact of the COVID-19 pandemic on the social conditions of farmers based on the indicator of the frequency of family visits and farmer meetings with their communities before and during the COVID-19 pandemic. H1: There is a significant difference in the impact of the COVID-19 pandemic on the social conditions of farmers based on the indicator of the frequency of family visits and farmer meetings with their communities before and during the COVID-19 pandemic. Next, a paired sample test (sig-2 tailed) was performed, and the analysis results were obtained as presented in Table 4.

Table 4. Paired sample test (frequency of family visits and farmer meetings in the community before and during the COVID-19 pandemic)

Paired Samples Test								
	Paired Differences							
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Before the COVID-19 Pandemic-During the COVID-19 Pandemic	3,87000	2,49304	,24930	3,37533	4,36467	15,523	99	,000

Source: Primary data (2021)

Based on Table 4, the results of the Paired Sample Test show that the significance value is 0.000, which means it is smaller than 0.05, then H0 is rejected. This means that the frequency of family visits and farmer meetings/ month with their communities before and during the COVID-19 pandemic is different. Thus, it can be said that there is a decrease in the frequency of family visits and farmer/ month meetings with their communities during the COVID-19 pandemic. This also shows that the COVID-19 pandemic has had a negative impact on the social conditions of farmers in Deli Serdang District. The results of this study are in line with the findings Baldwin & Mauro, (2020) which stated that personal communication, visits between people and meetings when COVID-19 is disrupted. In fact, visits between peers are necessary for a process to improve communication between people. Personal communication is created through direct meeting as one of the cultures of the community and at the same time showing how to behave and our hospitality in the midst of society.

The COVID-19 pandemic cannot be ascertained when it will end, and until now, this pandemic has had various social impacts on society. Djalante et al., (2020) conveyed that the implementation of social distancing is carried out to avoid various risks to the community. Socially, this condition has a negative impact on the implementation of social visits in the community. Social change in the form of applying distancing in many countries to prevent prevention has a positive impact, and on the one hand the application of social distancing, self-carantine and self-isolation has a negative impact on visits and social gatherings of the community (Suppawittaya et al., 2020). The results of this study are also in line with findings (UNFPA, 2020)**,** where the COVID-19 pandemic not only causes a global public health crisis but also poses a frightening socio-economic challenge and also impacts all social activities in various communities.

The Impact of the COVID-19 Pandemic on Farmers' Economic Conditions

The impact of the COVID-19 pandemic on the economic conditions of farmers in District of Deli Serdang was analyzed based on two indicators, namely; farmer family income level (IDR)/month before and during the COVID-19 pandemic and total farmer family savings (IDR)/month before and during the COVID-19 pandemic.

Based on research, it is known the impact of the COVID-19 pandemic on the economic conditions of farmers in District of Deli Serdang, based on the level of family income of farmers (IDR)/month before and during the COVID-19 pandemic. The results showed that the average income level of farming families before the COVID-19 pandemic was IDR2,707,700 per month, and during the COVID-19 pandemic the average income level of farming families was IDR1,334,750 per month. This means that the COVID-19 pandemic has caused a decrease in the income level of farming families in District of Deli Serdang by 50.7%. Based on the data analysis, it is known that the description of the average income level of farmer families (IDR/month) before and during the COVID-19 pandemic, as presented in Table 5.

Table 5. Description of the average family income of farmers (IDR/month) before and during the COVID-19 pandemic

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
Before the COVID-19 Pandemic	2707700,0000	100	1054461,76131	105446,17613
During the COVID-19 Pandemic	1334750,0000	100	541846,06586	54184,60659

Source: Primary data (2021)

Based on Table 5, it is known that the average income level of farmer families before the COVID-19 pandemic was IDR2,707,700,000/ month with a standard deviation of 1054461,76131. Meanwhile, the average value of the income level of farming families during the COVID-19 pandemic was IDR1,334,750,000/ month with a standard deviation of 541846,06586.

In this study also proposed the following hypotheses; H0: there is no significant difference in the impact of the COVID-19 pandemic on the economic condition of farmers based on indicators of farmer family income before and during the COVID-19 pandemic. H1: there is a significant difference in the impact of the COVID-19 pandemic on the economic condition of farmers based on indicators of farmer family income before and during the COVID-19 pandemic. Then the paired sample t test (sig-2 tailed) was carried out, and the analysis results were obtained as presented in Table 6.

Table 6. Paired sample test (income level of farming families before and during the COVID-19 pandemic)

Paired Samples Test								
	Paired Differences							
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Before and During the COVID-19 Pandemic	1372950,00000	903261,23356	90326,12336	1193723,37487	1552176,62513	15,200	99	,000

Source: Primary data (2021)

Based on Table 6, the results of the Paired Sample Test show that the significance value is 0.000, which means it is smaller than 0.05, then H0 is rejected. This means that the income level of farming families (IDR/month) before and during the COVID-19 pandemic was different. Thus, there is a decrease in the income level of farmer families during the COVID-19 pandemic, this also shows that the COVID-19 pandemic has a negative impact on the economic conditions of farmers in District of Deli Serdang.

The results of this study are in line with the findings of ILO, (2020) which states that the COVID-19 pandemic has caused demand for goods and services to be disrupted and dropped, economic activity for households and companies also stopped, production fell, jobs were lost and income decreased. In the long run, it causes supply shocks and demand shocks in the market. Supply chains and trade in markets are disrupted and have a global impact on people's economies.

Research conducted by Diao & Mahrt, (2020) also states that people who earn from wage labor are most vulnerable to being affected by COVID-19. Communities who work as wages, such as in the agricultural sector, construction workers, factory workers, hawkers are very shaken due to COVID-19, so that the level of household income is very disturbed. The decline in the level of household income caused by the COVID-19 pandemic in the long term will lead to an increase in the poverty rate (Suryahadi et al., 2020).

Furthermore (Treasury, 2020) states that the impact of the COVID-19 pandemic on household income is very dangerous and will worsen the condition of the community. The COVID-19 pandemic has caused massive economic shocks around the world with the disruption of business and economic activity due to social distancing measures. This causes each individual to lose income (Martin et al., 2020). The results of this study are in line with the findings of Jeehoon et al., (2002) who stated that the beginning of the COVID-19 pandemic in the United States had occurred decreasing economic activity rapidly. In mid-March 2020 more than 49 million people applied for unemployment insurance. The GDP of this country in the first quarter of 2020 fell by 1.2%. The sharp decline occurred in employment, which meant that the income level fell significantly.

Apart from being based on indicators of the income level of farmer families before and during the COVID-19 pandemic, an analysis of the impact of the COVID-19 pandemic on the economic conditions of farmers in District of Deli Serdang was also carried out, based on indicators; farmer family savings rate (IDR/month) before and during the COVID-19 pandemic.

The results showed that the average savings rate for farming families before the COVID-19 pandemic was IDR 270,770 per month, and during the COVID-19 pandemic the average savings rate for farming families was IDR 63,750 per month. This means that the COVID-19 pandemic has caused a decrease in the savings rate of farmer families in District of Deli Serdang by 76.5%. Based on the data analysis, it is known that the description of the average level of savings for family farmers (IDR/month) before and during the COVID-19 pandemic, as presented in Table 7.

Table 7. Description of the average level of savings for family farmers (IDR/month) before and during the COVID-19 pandemic

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
Before the COVID-19 Pandemic	2707700,0000	100	1054461,76131	105446,17613
During the COVID-19 Pandemic	63750,0000	100	56113,04877	5611,30488

Source: Primary data (2021)

Based on Table 7, it is known that the average value of farmer family savings before the COVID-19 pandemic was IDR 270.7700.0000/month with a standard deviation of 1054461.76131, while the average value of the savings rate of farmer families during the COVID-19 pandemic was IDR 63.750,000/ month with a standard deviation of 56113,04877. In this study also proposed the following hypotheses; H0: there is no significant difference in the impact of the COVID-19 pandemic on the economic condition of farmers with the indicator of the savings rate of farming families before and during the COVID-19 pandemic. H1: there is a significant difference in the impact of the

COVID-19 pandemic on the economic condition of farmers, with the indicator of the level of savings of farming families before and during the COVID-19 pandemic. Then a paired sample test (sig-2 tailed) was performed, and the analysis results were obtained as presented in Table 8.

Table 8. Paired sample test (farming family savings rate (IDR/month) before and during the COVID-19 pandemic)

Paired Samples Test								
	Paired Differences							
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	Df	Sig. (2-tailed)
Before the COVID-19 Pandemic-During the COVID-19 Pandemic	207020,00000	85151,79316	8515,17932	190124,03685	223915,96315	24,312	99	,000

Source: Primary data (2021)

Based on Table 8, the results of the Paired Sample Test show that the significance value is 0.000, which means it is smaller than 0.05, then H0 is rejected. This means that the level of savings for farming families (IDR/month) before and during the COVID-19 pandemic was different. Thus, there is a decrease in the savings rate of farmer families during the COVID-19 pandemic, this also shows that the COVID-19 pandemic has a negative impact on the economic conditions of farmers in District of Deli Serdang.

The results of this study are in line with the findings of Martin et al., (2020) who stated that various shocks occurred due to the COVID-19 crisis, which forced most households to use their savings to meet their daily needs, so that the savings rate was low and depleting, things like this usually occur in Countries with sweak social protection systems. ILO, (2020a) also said that the COVID-19 pandemic in 2020, caused more than 2 billion workers in the informal economy to experience economic difficulties. Those who work in the informal sector have low productivity, and the savings rate is very limited during the COVID-19 pandemic. This condition makes them very vulnerable to economic shocks, and is often neglected.

The existence of restrictions on the movement of people on a certain scale in stemming the spread of COVID-19, has a very significant impact on the informal economy sector, which causes loss of income which can lead to an increase in poverty (ILO, 2020a). The COVID-19 pandemic has caused economic shocks and other social impacts for communities and individuals, the immediate impact of which is a decrease in household income, consumption and savings. In fact, the poverty rate has temporarily increased from 17.1% to 25.9% in the Bay Area because they generally have low income in the region (Martin et al., 2020). The results of this study are also in accordance with the findings of Soseco, (2020) also said that during the crisis, families need support to maintain living standards. Emergency finance in the short term usually borrows from other parties or uses savings. This condition causes a low level of public savings and even experiences a minus during the pandemic.

An alternative approach in recovering the socio-economic conditions of farmers affected by COVID-19 through community empowerment

The COVID-19 pandemic currently occurring has seriously disrupted people's economic activities (Estrada, 2020; Ranasinghe et al., 2020) including activities and farmers activities in District of Deli Serdang. So that the recovery process is needed through cross-sectoral, one of which is the role of the government and private institutions. Aldrich, (2010) conveyed that the role of government and actors outside the community system such as private institutions is very important to carry out the post-disaster recovery process. The role of government is needed since the planning, regulatory process, empowering the community as well as synergizing recovery efforts and strategies by considering the duration of the recovery process (Olshansky & Chang, 2009).

Based on the results of data analysis using the semantic differential scale method in District of Deliserdang, it is known that the role of the government and private institutions in the process of restoring the social and economic conditions of farmers through the aspect of community empowerment is very important, which is indicated by a score (scale 1-100) as presented in Table 9.

Table 9. The scores of indicators for farmer empowerment aspects in recovery the social and economic conditions of farmers affected by COVID-19

Aspects of community empowerment	Score value based on semantic scale differential
Development of productive and potential economic activities (agriculture, fisheries, trade)	90,6
Counseling and training for new entrepreneur communities	94,2
Development of social and community organizations	91,4
Training on the use of digital technology for social and economic development	84,0

Source: Primary data (2021)

Table 9 shows that the farmers in District of Deli Serdang, really need; a) Development of productive and potential economic activities such as; agriculture, fisheries, trade with a score of 90.6, b) Counseling and training for new entrepreneur communities with a score of 94.2, c) Development of social and community organizations with a score of 91.4 and d) Training on the use of digital technology for social and economic development to support the process of restoring social and economic activities of farmers.

Based on the results of data analysis presented in Table 9, it is known that the indicator score of the aspect of community empowerment in restoring the social and economic conditions of farmers determined as the impact of COVID-19 in District of Deli Serdang is categorized as good, the score between 84.0-94.2, meaning that the empowerment program for the process of economic recovery has been going well. The results of this study are in line with the findings of Gupta & Sharma, (2006) that community empowerment will affect the social and economic activities of the post-disaster community. This empowerment process must be supported by social capital that will encourage collective action to utilize economic resources in the recovery process (Nakagawa & Shaw, 2004).

Social capital acts as an informal mechanism that helps disaster victims share resources, and reduces dependence on external assistance (Gupta & Sharma, 2006). Even Aldrich, (2010); Nakagawa & Shaw, (2004) conveyed that the resources needed by disaster victims in recovery depend on how they use social networks, and social capital will encourage collective action to utilize resources in restoring the community's economy itself. This includes using a local wisdom approach to present economic activities and activities that are in-direct contact with the systems and structures of the community in order to restore the socio-economic conditions of the community (Hannan, 2018).

The results of this study are also in line with the findings Olshansky & Chang, (2009) who conveyed that the socio-economic recovery process of the community must be carried out comprehensively, so that the role of the government as a recovery strategy planner is needed, because the process of improving the social conditions of the affected community is often neglected (Chhotray & Few, 2012). Besides, the socio-economic impact is difficult to measure, but it can cause social and economic deterioration in the long term (Gordon, 2004).

An alternative approach in recovering the socio-economic conditions of farmers affected by COVID-19 through aspect of market, institutional and sources capital

The process of community economic recovery has been carried out in various regions through various programs, for example by providing direct cash assistance, pre-work cards, social assistance and others (Tapung et al., 2020). However, it is necessary to pay attention to avoid misappropriation of funds, to avoid corruption by building public trust, maintaining integrity, transparency, and compliance with transparency of fund management in each sector.

Amir & Bin Amir, (2020) argues that the government must provide optimal fiscal and monetary support for society by considering the unemployed population. In line with this, the government plays an important role in guaranteeing a market for the results of the community's business through market and institutional aspects as well as sources of capital in the context of restoring the economic conditions of all communities.

Based on the results of data analysis using the semantic differential scale method in

District of Deliserdang, that the government including private institutions cooperates in carrying out the process of farmers economic recovery through market, institutional and capital sources aspects as indicated by a score (on a scale of 1-100) as presented in Table 10.

Table 10. The score of indicators for market, institutional and capital sources in the context of economic recovery for farmers affected by COVID-19

Aspects of community empowerment	Score value based on semantic scale differential
access to price and market information for community products	90,2
Participation of government and private institutions in community business development	88,4
Access to cooperation with third parties for the production market	85,2
Access to partnerships for more advanced business development	86,2
Capital assistance in the form of credit from government banks and private banks for business development	90,8

Source: Primary data (2021)

The results of data analysis in **Table 10** show that the farmers in Deli Serdang Regency really need the role of government and private institutions in the context of their economic recovery after the COVID-19 pandemic which is marked by; a) access to price and market information for community products with a score of 90.2, b) participation of government and private institutions in community business development with a score of 88.4, c) access to cooperation with third parties for the production market with a score of 85.2, d) access to partnerships for more advanced business development with a score of 86.2 and e) capital assistance in the form of credit from government banks and private banks for business development with a score of 90.8.

Based on the results of data analysis as presented in Table 10, it is known that the score of market indicators, institutions, and sources of capital in the context of economic recovery for farmers affected by COVID-19 in District of Deli Serdang is categorized as good, the score between 85.2-90.8, meaning that the farmers' economic recovery program by improving market, institutional, and economic indicators sources of capital in the context of economic recovery for farmers affected by COVID-19 are going well.

The results of this study are in line with Andriansyah, (2015) who conveyed that the post-disaster economic recovery in Yogyakarta was running well because of the role of the local government, as well as the monetary policy implemented by the central bank related to providing loans to disaster victims. In line with that research Rahmiyati et al., (2015) also conveyed that appropriate technology-based partnership model is needed by the community, especially for those who work as farmers, fishermen and breeders on a daily basis to help develop their farming.

The existence of financial policies such as; the purchase of compensation for business activities that are not running, job creation, skills training, tax relief, offering low interest credit and others, including the development of alternative livelihoods, improving business and entrepreneurial skills and other activities will accelerate the process of social recovery and the economy of people affected by the COVID-19 pandemic.

Results of research Usadhi & Sudibia, (2019) also convey that the role of government has a positive and significant effect on disaster management. Local governments have the responsibility and authority to integrate disaster impact management to protect communities through social and economic recovery of communities. Efforts made by the government are implementing various efforts including aspects of planning, institutions, funding and capacity building (Zhang et al., 2019). In terms of funding, the government is obliged to allocate and being accountable for the use of the budget for disaster management, such as the preparation of operational funds, emergency funds that are ready to use and used for emergency response, and rehabilitation and reconstruction recovery funds (Wiguna & Ketut, 2019).

Alternative of collaboration models for socio-economic recovery for farmers affected by COVID-19.

The process of economic recovery is something that must be planned across sectors so that COVID-19 can be completely resolved. Several countries have relaxed their economic policies and increased integration between companies in the process of accelerating economic recovery (Amir & Bin Amir, 2020) but the problem is that COVID-19 cannot yet be predicted when it will end, so the government must equip the facilities and infrastructure to support economic activity properly (Cusack et al., 2020) and the community continues to carry out its activities with due observance of strict health protocols to prevent the spread of COVID-19 through individual movements, tourist trips, and other activities.

Amir & Bin Amir, (2020) conveyed that to optimize economic recovery from the COVID-19 shock, the government must have a strong capital market, an independent central bank, a healthy banking sector. In addition, the government must have a good risk management mechanism, as well as the concept of developing small and medium enterprises and micro, small and medium enterprises (MSMEs) that are ready to be implemented in the midst of communities affected by COVID-19. Taiwo et al., (2013) conveyed that the acceleration of economic recovery is in the hands of small, micro and medium enterprises, so that the government must support in terms of capital through the banking sector, in addition because MSMEs are effective in absorbing jobs and continuing production lines (Maryanti et al., 2019).

In accordance with the research results as presented in Table 2,4,6,8,9,10 and referring to the literature,Witarsa, (2015); Alains et al*.,* (2009) conveyed that the recovery of the economic condition of the community must involve the government by empowering the community. Nurhidayah, (2019) also conveyed economic recovery, related to political policies. Economic recovery is also related to the availability of resources that will be used by the government in the recovery process (Zhang et al., 2019). Furthermore Furman et al*.,* (2020) conveyed that the government through banking must take a role in restoring the economy of the community by providing capital assistance, as well Deloitte, (2020) and Alipour et al*.*, (2015) also said that the private sector must play a role in the economic recovery of communities affected by the disaster, thus the framework for the recovery of the social-economic conditions of farmers affected by COVID-19 in District of Deli Serdang, can be illustrated in Figure 2.

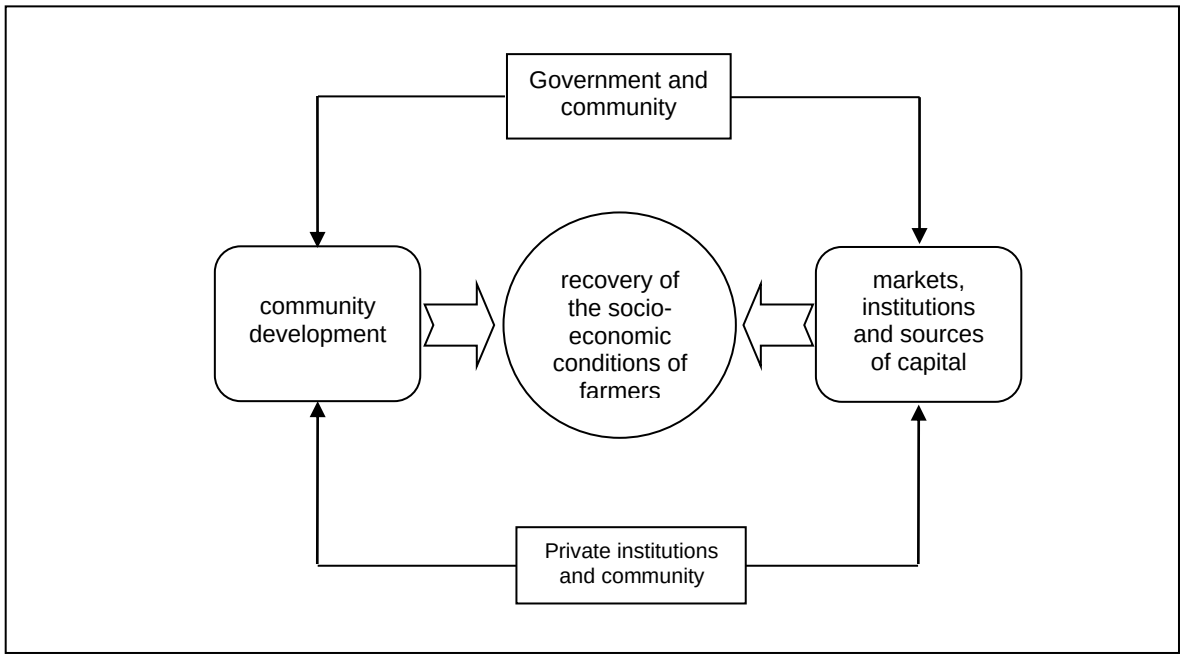

Figure 2. Alternative of collaboration models for socio-economic recovery for farmers affected by COVID-19 in District of Deli Serdang

Figure 2 shows that the process of economic recovery for the farmers in District of Deli Serdang, must be carried out collaboratively between the parties involved. The process of economic recovery will be successful with cooperation between various parties, including the government, private institutions and the community. Local governments must focus on community empowerment, market development, institutional and capital sources as well as disaster mitigation and strict supervision of the implementation of health protocols. Private institutions focus on; community empowerment (socialization, mentoring, counseling and training) and market development, institutional and capital assistance.

The results of this study are in line with the findings Santoso, (2010) the goal of socio-economic recovery is to improve people's welfare, through increasing income, increasing consumption and people's purchasing power. Thus a collaborative model of socio-economic recovery for farmers affected by COVID-19 in District of Deli Serdang.

CONCLUTION AND RECOMNDATION

Based on the results of the study concluded; a) The COVID-19 pandemic had a negative impact on the social conditions of farmers, which was marked by a decrease in the frequency of farmer social interactions by 81.8% per month and a decrease in the frequency of family visits and meetings between farmers and their communities by 74.7% per month during the COVID-19 pandemic; b) The COVID-19 pandemic also had a negative impact on the economic conditions of farmers, marked by a decrease in the income of farming families by 50.7% per month and a decrease in savings of farmer families by 76.5% per month during the COVID-19 pandemic; c) The social recovery of farmers during the COVID-19 pandemic in District of Deli Serdang has been running through farmer empowerment activities as indicated by the semantic differential score between 84.0-94.2; d) The recovery of farmers' economic conditions during the COVID-19 pandemic in District of Deli Serdang has been running through the development of market, institutional and capital sources as indicated by the semantic differential score between 85.2-90.8; e)The process of economic recovery for farmers will be optimal if it is carried out collaboratively between the government, the private sector and the community. The government focuses on community empowerment, market and capital development. The private sector focuses on; empowerment and counseling of farmers. Based on the research results, it is recommended; a) Restoration of the socio-economic conditions of farmers will be optimal if carried out collaboratively between the government, the private sector and the farmers themselves; b) The government must optimize the empowerment of farmers, through training, counseling and innovation in farming technology; c) private institutions are expected to play an active role in socialization and counseling about optimal farming development in the time of the COVID-19 pandemic.

ACKNOWLEDGMENTS

Thank you to the respondent in Sub-district of Percut Sei Tuan, Sub-district of Pancur Batu and Sub-district of Sunggal, District of Deli Serdang who have provided the data and information needed in this research.

REFERENCES

Alains, A. M., Putri, S. E., & Haliawan, P. (2009). Pengelolaan Sumberdaya Perikanan Berbasis Masyarakat (PSPBM) Melalui Model Co-Management Perikanan. *Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi Dan Pembangunan*, *10*(2), 172–198. https://doi.org/10.23917/jep.v10i2.799

Aldrich, D. P. (2010). The power of people: social capital's role in recovery from the 1995 Kobe earthquake. *Natural Hazards*, *56*(3), 595–611. https://doi.org/DOI: 10.1007/s11069-010-9577-7

Alipour, F., Khankeh, H., Fekrazad, H., Kamali, M., Rafiey, H., & Ahmadi, S. (2015). Social issues and post-disaster recovery: A qualitative study in an Iranian context. *International Social Work*, *58*(5), 689–703. https://doi.org/10.1177/0020872815584426

Amir, M. K. Bin, & Bin Amir, M. Z. (2020). COVID-19 Pandemic: Socio-Economic Response, Recovery and Reconstruction Policies on Major Global Sectors. *SSRN Electronic Journal*, *101244*. https://doi.org/10.2139/ssrn.3629670

Andriansyah, Y. (2015). Post-disaster economic recovery in Yogyakarta, Indonesia. *Interdisciplinary Behavior and Social Sciences - Proceedings of the 3rd International Congress on Interdisciplinary Behavior and Social Sciences, ICIBSoS 2014*, *November*, 349–353. https://doi.org/10.1201/b18146-62

Baldwin, R., & Mauro, B. W. di. (2020). Economics in the Time of COVID-19. In *Economics in the Time of COVID-19*. www.cepr.org

BPS. (2020a). *Kecamatan Pancur Batu Dalam Angka (Pancur Batu Subdistrict in Figures*. Badan Pusat Statistik Kabupaten Deli Serdang. https://deliserdangkab.bps.go.id/

BPS. (2020b). *Kecamatan Percut Sei Tuan Dalam Angka (Percut Sei Tuan Sub-district in Figures)*. Badan Pusat Statistik Kabupaten Deli Serdang. https://deliserdangkab.bps.go.id/

BPS. (2020c). *Kecamatan Sunggal dalam angka 2020 (Sunggal Subdistrict in Figures*. Badan Pusat Statistik Kabupaten Deli Serdang. https://deliserdangkab.bps.go.id/

BPS. (2022). *Propinsi Sumatera Utara Dalam Angka (Sumatera Utara Province in Figure)*. Badan Pusat Statistik Propinsi Sumatera Utara.

Cheval, S., Adamescu, C. M., Georgiadis, T., Herrnegger, M., Piticar, A., & Legates, D. R. (2020). Observed and potential impacts of the COVID-19 pandemic on the environment. *International Journal of Environmental Research and Public Health*, *17*(11), 1–25. https://doi.org/10.3390/ijerph17114140

Chhotray, V., & Few, R. (2012). Post-disaster recovery and ongoing vulnerability: Ten years after the super-cyclone of 1999 in Orissa, India. *Global Environmental Change*, *22*(3), 695–702. https://doi.org/10.1016/j.gloenvcha.2012.05.001

Covid19.deliserdangkab.go.id. (2021). *Data Real Time Berdasarkan Rumah Sakit atau Puskesmas (Real Time Data Based on Hospital or Puskesmas)*. Gugus Tugas Pencegahan Dan Penyebaran COVID-19 Kabupaten Deli Serdang (COVID-19 Prevention and Spreading Task Force District of Deli Serdang). https://covid19.deliserdangkab.go.id/

Cusack, P. T. E., BScE, & Dule. (2020). Economic Recovery After Covid -19 Pandemic. *JOURNAL OF ADVANCES IN SOCIAL SCIENCE AND HUMANITIES*, *6*(5), 1197–1198. https://doi.org/https://doi.org/10.15520/jassh.v6i5.488

Deloitte. (2020). *Impact of the COVID-19 crisis on short- and consumer behavior*. https://www2.deloitte.com/content/dam/Deloitte/de/Documents/consumer-business/Impact of the COVID-19 crisis on consumer behavior.pdf

Diao, X., & Mahrt, K. (2020). *Assessing the impacts of COVID-19 on household incomes and poverty in Myanmar: A microsimulation approach* (Issue July). www.ifpri.org

Djalante, R., Lassa, J., Setiamarga, D., Sudjatma, A., Indrawan, M., Haryanto, B., Mahfud, C., Sinapoy, M. S., Djalante, S., Rafliana, I., Gunawan, L. A., Surtiari, G. A. K., & Warsilah, H. (2020). Review and analysis of current responses to COVID-19 in Indonesia: Period of January to March 2020. *Progress in Disaster Science*, *6*, 100091. https://doi.org/10.1016/j.pdisas.2020.100091

Efendi, R. (2020). *Penyebaran COVID-19 di Medan dan Deli Serdang Tertinggi se-Sumut*. Liputan6.Com. https://www.liputan6.com/regional/read/4251776/penyebaran-COVID-19-di-medan-dan-deli-serdang-tertinggi-se-sumut

Elmer, T., Mepham, K., & Stadtfeld, C. (2020). Students under lockdown: Comparisons of students' social networks and mental health before and during the COVID-19 crisis in Switzerland. *PLoS ONE*, *15*(7 July), 1–22. https://doi.org/10.1371/journal.pone.0236337

Estrada, M. A. R. (2020). A Post-Wuhan-COVID-19 Economic Recovery Proposal: The National Domestic Economic Auto-Sustainability Model (NDEAS-Model). *SSRN Electronic Journal*, *1*(March). https://doi.org/10.2139/ssrn.3558883

Furman, J., Geithner, T. F., Hubbard, R. G., & Kearney, M. S. (2020). Promoting economic recovery after COVID-19. *Economic Strategy Group*, *COVID 19 Resources*. https://economicstrategygroup.org/wp-

content/uploads/2020/06/Promoting-Economic Recovery- After-COVID-0615-FINAL.pdf

Gordon, R. (2004). The social system as site of disaster impact and resource for recovery. *The Australian Journal of Emergency Management*, *19*(4), 16–22.

Gupta, M., & Sharma, A. (2006). Compounded loss: the post tsunami recovery experience of Indian island communities. *Disaster Prevention and Management*, *15*(1), 67–78. https://doi.org/DOI:10.1108/09653560610654248

Hannan, A. (2018). Strategi Penguatan Pembangunan Madura yang Berkelanjutan Melalui Pemberdayaan Nilai Kearifan Lokal. *Simulacra*, *1*(1), 19–42.

Hartati, P., & Susanto. (2020). Peran Pemuda Tani Dalam Pencegahan Penyebaran COVID-19 di Tingkat Petani (Kasus di Kabupaten Magelang). *BASKARA : Journal of Business & Entrepreneurship*, *2*(2), 107–112. https://doi.org/10.24853/baskara.2.2.107-112

Hayati, M., Elfiana, & Martina. (2017). Peranan Sektor Pertanian Dalam Pembangunan Wilayah Kabupaten Bireuen Provinsi Aceh. *Jurnal S. Pertanian*, *1*(3), 213–222. https://media.neliti.com/media/publications/210910-peranan-sektor-pertanian-dalam-pembangun.pdf

ILO. (2020a). *COVID-19 crisis and the informal economy Immediate responses and policy challenges: Vol.* (Issue May).

ILO. (2020b). *The impact of the COVID-19 pandemic on jobs and incomes in G20 economies: Vol.* (Issue August). https://www.ilo.org/global/docs/WCMS_753607/lang--en/index.htm

Jeehoon, H., Meyer, B. D., & Sullivan, J. X. (2002). Income and poverty in the COVID-19 pandemic. In *Brookings Papers On Economic Activity: Vol.* (Issue).

Jeong, S., & Yoon, D. K. (2018). Examining vulnerability factors to natural disasters with a spatial autoregressive model: The case of south Korea. *Sustainability (Switzerland)*, *10*(5), 1–13. https://doi.org/10.3390/su10051651

Lehmann, N., Finger, R., Klein, T., & Calanca, P. (2013). Sample Size Requirements for Assessing Statistical Moments of Simulated Crop Yield Distributions. *Agriculture (Switzerland)*, *3*(2), 210–220. https://doi.org/10.3390/agriculture3020210

Martin, A., Markhvida, M., Hallegatte, S., & Walsh, B. (2020). Socio-economic impacts of COVID-19 on household consumption and poverty. *Economics of Disasters and Climate Change*, *4*, 453–479. https://doi.org/https://doi.org/10.1007/s41885-020-00070-3

Maryanti, S., Netrawati, I. O., & Faezal. (2019). Menggerakan perekonomian melalui pemulihan usaha dan industri mikro kecil menengah pasca bencana gempa bumi di Nusa Tenggara Barat. *Ejurnal Binawakya*, *14*(4), 2321–2336. file:///C:/Users/Hotden/AppData/Local/Temp/MENGGERAKAN_PEREKONOMIAN_MELALUI_PEMULIHAN_USAHA_D.pdf

Menon, A., & Schmidt-Vogt, D. (2022). Effects of the COVID-19 Pandemic on Farmers and Their Responses: A Study of Three Farming Systems in Kerala, South India. *Land*, *11*(1), 1–30. https://doi.org/10.3390/land11010144

Metro. (2020). *Pandemi COVID-19, Pertumbuhan Ekonomi Kabupaten Deliserdang Menurun*. Metro-Online.Co. https://www.metro-online.co/2020/08/pandemi-COVID-19-pertumbuhan-ekonomi-deliserdang-menurun.html

Montolalu, C. E. J. C., & Langi, Y. A. R. (2018). Pengaruh Pelatihan Dasar Komputer dan Teknologi Informasi bagi Guru-Guru dengan Uji-T Berpasangan (Paired Sample T-Test). *Jurnal Matematika Dan Aplikasi DeCartesiaN*, *7*(1), 44–46. https://doi.org/10.35799/dc.7.1.2018.20113

Nainggolan, H. L., Ginting, A., Tampubolon, J., Aritonang, J., & Hutagalung, M. (2019). Dampak Erupsi Sinabung Terhadap Kondisi Sosial Ekonomi Petani Hortikultura di Kecamatan Simpang Empat Kabupaten Karo. *Sosiohumaniora*, *21*(3), 287–295. https://doi.org/10.24198/sosiohumaniora.v21i3.22382

Nakagawa, Y., & Shaw, R. (2004). Social capital: a missing link to disaster recovery. *International Journal of Mass Emergencies and Disasters*, *22*(1), 5–

34. http://ijmed.org/articles/235/download/

Nasution, D. A. D., Erlina, E., & Muda, I. (2020). Dampak Pandemi COVID-19 terhadap Perekonomian Indonesia. *Jurnal Benefita*, *5*(2), 212. https://doi.org/10.22216/jbe.v5i2.5313

Nurhidayah, N. (2019). Pemberdayaan Ekonomi Masyarakat Berbasis Pertanian Terpadu Di Joglo Tani. *Jurnal Pemberdayaan Masyarakat: Media Pemikiran Dan Dakwah Pembangunan*, *2*(1), 129–148. https://doi.org/10.14421/jpm.2018.021-07

Oktavianti, A., Sugeng, W., & Agusta, A. (2016). Implementasi Aplikasi Hijab Berbasis Android dengan Metode Canny Operator dan Template Matching Correlation. *Jurnal Teknik Informatika Dan Sistem Informasi*, *2*(2), 186–195. https://doi.org/10.28932/jutisi.v2i2.456

Olshansky, R. B., & Chang, S. (2009). Planning for disaster recovery: Emerging research needs and challenges. *Progress in Planning*, *72*(4), 200–2009. https://www.researchgate.net/publication/284047944_Planning_for_disaster_recovery_Emerging_research_needs_and_challenges

Prawoto, N., Purnomo, E. P., & Zahra, A. A. (2020). The Impacts of COVID-19 Pandemic on Socio-Economic Mobility in Indonesia The Impacts of COVID-19 Pandemic on Socio-Economic Mobility in Indonesia. *International Journal of Economics and Business Administration*, *VIII*(3), 57–71. https://doi.org/10.35808/ijeba/486

Prihadi, B. (2010). Pengukuran Respon Estetik Siswa Dengan Semantic Diffrential. *Imaji*, *8*(2), 117–132.

Rahmiyati, N., Andayani, S., & Panjaitan, H. (2015). Model pemberdayaan masyarakat melalui penerapan teknologi tepat guna di Kota Mojokerto. *Jurnal Ilmu Ekonomi & Manajemen*, *2*(2), 48–62. http://jurnal.untag-sby.ac.id/index.php/jmm17/article/view/506/463

Ranasinghe, R., Karunarathna, C., & Pradeepamali, J. (2020). After Corona (COVID-19) Impacts on Global Poverty and Recovery of Tourism Based Service Economies: An Appraisal. *SSRN Electronic Journal*, *May*. https://doi.org/10.2139/ssrn.3591259

Santoso, I. (2010). Pengembangan Model Pemberdayaan Ekonomi Masyarakat Petani Tepian Hutan Berbasis Perilaku Adaptif: Analisis Sosio Kultural. *Ekonom*, *13 No. 3*(Juli), 92–98.

Sapbamrer, R., Chittrakul, J., Sirikul, W., Kitro, A., Chaiut, W., Panya, P., Amput, P., Chaipin, E., Sutalangka, C., Sidthilaw, S., Promrak, P., Kamolsan, P., & Hongsibsong, S. (2022). Impact of COVID-19 Pandemic on Daily Lives, Agricultural Working Lives, and Mental Health of Farmers in Northern Thailand. *Sustainability (Switzerland)*, *14*(3), 1–15. https://doi.org/10.3390/su14031189

Sarni, & Sidayat, M. (2020). The Impact of the COVID-19 Pandemic on the Income of Vegetable Farmers in Ternate City (Dampak Pandemi Covid 19 Terhadap Pendapatan Petani Sayuran Di Kota Ternate). *Prosiding Seminar Nasional Agribisnis 2020*, *21*, 144–148. https://ejournal.unkhair.ac.id/index.php/semnasagribisnis/article/view/2460

Simamora, E. (2020). *Dampak Pandemi COVID-19, Ekonomi Sumut Minus 2,37%*. Medanbisnisdaily.Com. https://medanbisnisdaily.com/news/online/read/2020/07/24/114776/dampak_pandemi_covid_19_ekonomi_sumut_minus_2_37/

Soseco, T. (2020). Lessons from COVID-19 : Small and financially strong family (Pembelajaran dari Covid19 : Keluarga kecil dengan kemampuan keuangan yang Kuat). *Jurnal Kependudukan Indonesia, Edisi Khusus Demografi Dan COVID-19*, 49–52.

Stansfeld, S. (2002). Social Support Measurement and Intervention: A Guide for Health and Social Scientists. *International Journal of Epidemiology*, *31*(3), 698–698. https://doi.org/10.1093/ije/31.3.698

Suppawittaya, P., Yiemphat, P., & Yasri, P. (2020). Effects of Social Distancing , Self-Quarantine and Self-Isolation during the COVID-19 Pandemic on People ' s Well -Being , and How to Cope with It. *International Journal of Science and Healthcare Research*, *5*(June), 12–20.

Suryahadi, A., Al Izzati, R., & Suryadarma, D. (2020). The impact of COVID-19 outbreak on poverty: An estimation for Indonesia. *SMERU Working Paper*,

April, 1–20. http://smeru.or.id/en/content/impact-COVID-19-outbreak-poverty-estimation-indonesia

Taiwo, M. A., Ayodeji, A. M., & Yusuf, B. A. (2013). Impact of Small and Medium Enterprises on Economic Growth and Development. *American Journal of Business and Management*, *2*(1), 18. https://doi.org/10.11634/216796061706 44

Tapung, M. M., Regus, M., Payong, M. R., Rahmat, S. T., & Jelahu, F. M. (2020). Bantuan sosial dan pendidikan kesehatan bagi masyarakat pesisir yang terdampak sosial-ekonomi selama patogenesis COVID-19 di Manggarai. *Transformasi: Jurnal Pengabdian Masyarakat*, *16*(1), 12–26.

Treasury, H. (2020). *Impact of COVID-19 on working household incomes: Distributional analysis as of May 2020: Vol.* (Issue). www.gov.uk/official-documents.

Ulfa, A., Nugroho, A., Pospos, T. H., Suherman, G., & Ariyati, N. (2021). Global pandemic and agriculture in Aceh Province, Indonesia: An initial impact. *IOP Conference Series: Earth and Environmental Science*, *667*(1), 1–11. https://doi.org/10.1088/1755-1315/667/1/012099

UNFPA. (2020). Impact of the COVID-19 Pandemic on Family Planning and Ending Gender-based Violence, Female Genital Mutilation and Child Marriage. *Interim Technical Note*, *April*, 7. https://www.unfpa.org/sites/default/files/resource-pdf/COVID-19_impact_brief_for_UNFPA_24_April_2020_1.pdf

Verma, A. K., & Prakash, S. (2020). Impact of COVID-19 on Environment and Society. *Journal of Global Biosciences Vol*, *09*(5), 7352–7363. https://www.mutagens.co.in/jgb/vol.09/05/090506.pdf

Widiastuti, N., & Tuti, R. W. D. (2022). Kepemimpinan Strategis dalam Penanggulangan Pandemi COVID-19 di Provinsi Bali. *Jurnal Ilmu Sosial Dan Humaniora*, *11*(1), 56–65. https://doi.org/10.23887/jish.v11i1.3827 4

Wiguna, & Ketut, S. I. (2019). Analysis of the Effect of Government Role and Social Capital in Disaster Management on Economic Recovery of Disaster Victims in the Sarbagita Area of Bali Province. *Russian Journal of Agricultural and Socio-Economic Sciences*, *91*(7), 235–247. https://doi.org/10.18551/rjoas.2019-07.27

Witarsa. (2015). Model Pengembangan Ekonomi Masyarakat Pesisir Berbasis Co-Management Sumberdaya Perikanan Di Kabupaten Pontianak. *Jurnal Economia*, *11*(1), 26. https://doi.org/10.21831/economia.v11i1.7752

Zhang, H., Dolan, C., Jing, S. M., Uyimleshi, J., & Dodd, P. (2019). Bounce forward: Economic recovery in post-disaster Fukushima. *Sustainability (Switzerland)*, *11*(23), 1–24. https://doi.org/10.3390/su11236736