Assessing the Role of Sector Growth on Poverty and Inequality In Indonesia

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ABSTRACT
Various economic sectors play different roles in reducing or exacerbating inequality and poverty, depending on their contribution to inclusive growth and job creation. This study analyzes the role of the agricultural, industrial, and services sectors in influencing poverty and inequality levels in Indonesia, using a case study of the Covid-19 period. This study aims to analyze the role of the agricultural, industrial, and service sectors in decreasing inequality and poverty, as well as comparing them in the pre COVID-19 period. This study tries to apply GMM panel estimation to 25 provinces in Indonesia during 2017-2021. The services sector shows the greatest influence on poverty and inequality then followed by the agricultural sector and industrial sector in the pre COVID-19 period. Meanwhile, during COVID-19, the industrial sector tends to increase poverty and inequality. However, the service sector doesn't affect poverty and inequality during COVID-19. On the other hand, the agricultural sector has shown an important role in reducing inequality and poverty during the COVID-19. The results of this study confirm the important role of the agricultural sector during the COVID-19. In addition, this study shows the better role of fiscal policy in reducing inequality and poverty compared to monetary policy.
Keywords: agricultural sector; industrial sector; service sector; poverty; inequality.

INTRODUCTION

The growth of economic sectors plays a crucial role in determining poverty and inequality levels. Changes in economic structure, whether occurring naturally or as a result of policy interventions, can significantly impact income distribution and societal well-being. In some case (Enongene, 2024; Jabani et al., 2024;Ivani & Auwalin, 2024), growth in certain sectors may contribute to poverty and inequality reduction, while others may exacerbate existing disparities.

Further studies indicate that the role of economic sectors is crucial in determining the speed and resilience of economic recovery during times of crisis (Rusmiati et al., 2023). Sectors with high flexibility and relatively stable demand, such as agriculture and digital technology, tend to be more resilient in facing economic shocks. In contrast, sectors that rely on direct interaction, such as tourism and hospitality services, experience greater negative impacts. According to research form (Sánchez & Cuadrado-Roura, 2024), economic sector diversification can enhance a country's resilience to crises by reducing dependence on vulnerable sectors. Therefore, economic recovery strategies should consider the role of each sector in creating job opportunities and supporting the communities most affected by the crisis.

As observed during the COVID-19, which began in late 2019, the crisis caused significant economic shocks across various sectors, leading to increased poverty and inequality(Ginting, 2021) . Mobility restrictions, supply chain disruptions, and declining global demand had a direct impact on key sectors such as agriculture, manufacturing, and services. The inability of certain sectors to adapt quickly further exacerbated social and economic inequalities, particularly among vulnerable groups.

For Indonesia, COVID-19 not only affected public health services but also had a broad impact on the economy. The government implemented various policies to curb the spread of COVID-19, but these measures also contributed to rising inequality and poverty. According to Indonesia's Central Bureau of Statistics, the country's inequality, measured by the Gini Ratio, was 0.385 in 2020, an increase from 0.380 in 2019 at the onset of the pandemic. The province with the highest Gini Ratio was Yogyakarta at 0.437, while the lowest was recorded in the Bangka Belitung Islands at 0.257.

Several studies have highlighted the pandemic's impact on poverty and inequality. For instance, research by(Sumner et al., 2020) revealed that the pandemic could lead to a significant increase in the number of poor people worldwide due to job losses and declining household incomes. Similarly, a study by(Lustig et al., n.d.) showed that the economic impact of COVID-19 was more severe for low-income groups than for high-income groups, further exacerbating pre-existing inequalities.

Several advanced studies have shown that economic sector growth can improve poverty and inequality(Bezemer & Headey, 2008; de Janvry & Sadoulet, 2009; Christiaensen et al., 2010). The composition of economic sectors has different impacts on poverty and inequality across regions (Gordón & Resosudarmo, 2019; Tanjung, 2019; Raeskyesa, 2020; Pham & Riedel, 2019). Growth in the agricultural sector has been linked to poverty reduction, and a similar relationship is found in the industrial sector. Meanwhile, the services sector has the most significant impact on poverty reduction (Loayza & Raddatz, 2006).

However, a deeper understanding is still needed of how the growth of specific sectors can help reduce poverty and inequality in Indonesia during and after the pandemic. Sectors that contribute significantly to job creation and income generation for low-income groups could be key to a more inclusive economic recovery.

This study aims to evaluate the role of sectoral growth in influencing poverty and inequality levels in the context of the COVID-19 pandemic. Using an empirical approach, the research will analyze the impact of sectoral growth on income distribution and societal well-being while identifying sectors with the potential to drive a more equitable economic recovery.

The findings of this study are expected to provide insights for policymakers in designing sector-based economic recovery strategies during economic crises like COVID-19. By understanding the relationship between sectoral growth, poverty, and inequality, more effective and sustainable policies can be developed to accelerate economic recovery. This research compares the impact of agricultural, industrial, and service sector growth on poverty and inequality, offering an overview of the convergence of poverty and inequality changes across Indonesian provinces.

LITERATURE REVIEW

The validation of the relationship between economic growth, inequality and poverty has been confirmed in many previous studies. The study (Marrero & Servén, 2022)) shows that the correlation between growth and poverty reduction is highly influenced by the initial level of inequality; in countries with high inequality, economic growth has a weaker impact on poverty reduction. Meanwhile, (Namini & Siami-Namini, 2017) confirms the Kuznets hypothesis in her study. The relationship between poverty and economic growth is "U" shaped. At the beginning of an increase in economic growth, the level of poverty and inequality tends to increase. However, after various adjustments in the economy, an increase in economic growth leads to decrease in inequality and poverty. The study by (Suparman et al., 2024) shows that the agricultural sector's GDP and the farmers' exchange rate play a significant role in reducing unemployment and inequality in rural areas. Another finding by (Enongene, 2024) provides similar results, indicating that the agricultural sector is more effective in reducing poverty compared to other sectors. A separate study conducted in the Vietnam found that an increase in the proportion of the service sector in the economy can lead to higher poverty levels, whereas growth in the agricultural sector contributes more effectively to poverty reduction (Pham & Riedel, 2019).

a. Poverty

The pattern of the relationship between sector growth and poverty leads to three main conclusions, namely; i) agricultural sector growth promotes poverty reduction, ii) an increases industrial growth reduces poverty levels, and iii) service sector growth has the greatest impact on poverty in the long term. (Loayza & Raddatz, 2006) explain that growth in service sector, agriculture and industry, respectively, have the most influence on poverty reduction. Other studies such as (Bezemer & Headey, 2008), (de Janvry & Sadoulet, 2009)and (Christiaensen et al., 2010) expound different correlation coefficients in different countries.

(Pham & Riedel, 2019a) appearances that an increase in the agricultural sector leads to an increase poverty. Higher economic growth has positive impact on poverty in Vietnam. Furthermore, (Warr, 2009) confirms that the growth of the industrial sector has the greatest impact

on poverty reduction in Taiwan. In the intervening time, (Ravallion & Datt, 2002) shows that economic growth in rural areas has more impact on poverty than economic growth in urban areas.

b. Inequality

The relationship between growth and inequality was shown by (Imai et al., n.d.)), where increase in agricultural growth affect on inequality reduction. (Briones & Felipe, 2013) also confirm that the relationship between agricultural growth and inequality are getting closer in middle and lower-income countries. In addition, (Christiaensen et al., 2010) provided similar results, where the growth of the agricultural sector is more effective in reducing inequality, especially in very poor countries. In Vietnam, (Cuong, 2010) concludes that agricultural activities play an important role in reducing poverty and inequality, especially in rural areas. This study finds that the industrial sector tends to be lower in reducing poverty and tends to increase inequality. On the contrary(de Janvry & Sadoulet, 2009) finds that the non-agricultural sector (industry and services) has the most impact on inequality in China.

(Gordón & Resosudarmo, 2019) displays that the larger effect of sector growth on inequality depends on their access to markets. An increase people's access to markets and the financial sector encourages the effectiveness of growth in reducing inequality in many countries. Recently, Namini (2018) confirms that the relationship between economic growth and inequality is in the "U" shape of the Kuznet hypothesis, especially in the service sector and industry.

In the case study of Indonesia, Gordón and Resosudarmo (2018) confirm that the share of agricultural growth has negative impact on inequality, but the service and manufacturing sectors have positive impact on inequality. The influence of both is stronger when control variables such as education and government spending are included in the model. (Wardhono & Nasir, 2022) determines several other factors such as financial literacy, education level, and total credit have an impact on poverty in Indonesia.

Furthermore, using provincial data in Indonesia, (Akita et al., 2011) does not find a relationship between economic growth and income inequality. These results are different from (Zulfan Tadjoeddin, 2013) find negative relationship between economic growth and inequality.

The various empirical studies above clarify that agricultural, industrial and service sectors play respective roles in poverty and inequality. However, in previous long studies, no one has tried to examine any changes in the role of each sector in poverty and inequality during shocks in the economy, such as crises, pandemic, etc. Therefore, this study tries to assess the impact of sector growth on poverty and inequality in case of COVID-19. Hence, the main contribution of this research

is to assess the changing role of economic sector in poverty and inequality before and during COVID-19.

METHODS

a. Dataset

This study uses secondary data in the form of panel data, with time series of 5 years from 2017-2021. The cross-section data consists of 25 provinces in Indonesia. The 25 countries include Aceh, Jakarta, Riau, Bali, Banten, Bengkulu, Gorontalo, West Java, Central Java, East Java, Yogyakarta, South Kalimantan, Central Kalimantan, East Kalimantan, Riau Islands, NTB, NTT, Papua, Papua West, West Sulawesi, South Sulawesi, Central Sulawesi, Southeast Sulawesi, North Sulawesi and South Sumatra. The variables used in this study along with sources and reference data can be presented in Table 1 as follows:

Table 1. Data description

Data	Unit	Source	Reference
Dependent variable			
Poverty	Index	BPS	Tanjung *et al.* (2019)
Inequality	Index	BPS	Gordon and Resosudarmo (2018)
Independent variable			
Agricultural Production	Log	BPS	Gordon and Resosudarmo (2018)
Industry Production	Log	BPS	Gordon and Resosudarmo (2018)
Service Production	Log	BPS	Gordon and Resosudarmo (2018)
Dummy covid	0=pre covid 1=during covid	-	-
Control variable			
Monetary policy	Percent	BI	Tanjung *et al.* (2019)
Fiscal policy	Log	BPS	Tanjung *et al.* (2019)

The dependent variables used in this study consists of data on poverty and inequality. Poverty is the percentage of the poor as measured by the Head Count Index (HCI-P0), which is the percentage of the population below the Poverty Line. Poverty data is obtained from BPS. Meanwhile, the inequality uses the Gini Ratio. The Gini Ratio values ranged between 0 (zero) and 1 (one). The Gini Ratio value that is closer to 1 indicates a higher level of inequality.

The independent variables consist of GRDP in the agricultural, industry, and service sectors for each province in Indonesia. The control variable consists of the lending interest rate as a proxy for monetary policy and the realized APBD per province as a proxy for fiscal policy. The variables in this study refer to study of (Gordón & Resosudarmo, 2019) and (Tanjung, 2019) with various developments carried out in this study.

b. Modelling

This study uses the system Generalized Method of Moment (GMM) introduced by Arrelano and Bover (1995) to investigate the impact of sector growth and policies on poverty and inequality in 25 provinces in Indonesia. This study uses the interaction variable between sector's production (agriculture, industry, and services) with the COVID-19 dummy to investigate changes in their relationship to poverty and inequality. The dynamic panel model using system GMM can be explained as follows;

1. The impact of sector growth on poverty

$$poverty_{it} = a_0 + \gamma poverty_{it-1} + b\ln agr_{it} + c\ln ind_{it} + d\ln serv_{it} + elendingIR_{it} + f\ln g\exp_{it} + g\ln agr\_covid_{it} + h\ln ind\_covid_{it} + i\ln serv\_covid_{it} + u_{i1} + \varepsilon_{it1}$$

2. The impact of sector growth on inequality

$$inequality_{it} = a_0 + \gamma poverty_{it-1} + b\ln agr_{it} + c\ln ind_{it} + d\ln serv_{it} + elendingIR_{it} + f\ln g\exp_{it} + g\ln agr\_covid_{it} + h\ln ind\_covid_{it} + i\ln serv\_covid_{it} + u_{i2} + \varepsilon_{it2}$$

Poverty	: the percentage of the population below poverty line
Inequality	: Gini ratio
Agr	: agricultural growth
Ind	: industry growth
Serv	: service growth
lendingIR	: lending interest rate
gexp	: APBD realization per province
agr/ind/serv_covid	: interaction of sector growth with dummy COVID-19

Some of the criterias used to find the best dynamic model are:

1. Unbiased. The estimation is between pooled least square and the fixed effect estimator.
2. The instrument is valid. The estimate is said to be valid if there is no correlation between the estimator and the error term. The validity of the model was tested using the Sargan test. H0 in this test is that there is no validity problem or the instrument is valid. Therefore, the estimator is said to be valid if it does not reject H0 or the probability is above 5%. If the estimation results using the difference GMM accept H1 or reject H0, then the model is estimated using the system GMM.
3. Consistent. The estimate is said to be consistent if there is no autocorrelation in the model. This means that the GMM approach used is consistent. The test used is Arellano-Bond with

two criteria, namely m1 and m2. The estimator is consistent if the value of m1 (order 1) rejects H0 and m2 (order 2) does not reject H0.

RESULT AND DISCUSSION

a. Explorative Data analysis

This section shows the descriptive statistics of the headcount index (HCI) as proxy to poverty in Indonesia by rural and urban area in Figure 1. Before the COVID-19 (2017-2019), poverty is tended to decrease. This means that the problems of poverty in Indonesia can be overcome. This Study also confirm that the poverty rate in rural areas is higher than in urban areas. This explains that the severity of the poverty level is concentrated in rural areas in Indonesia. Furthermore, during COVID-19 (2019-2021) there has been an increase in poverty both in rural and urban areas. This indicates that COVID-19 has a direct impact on incomes at all levels of society.

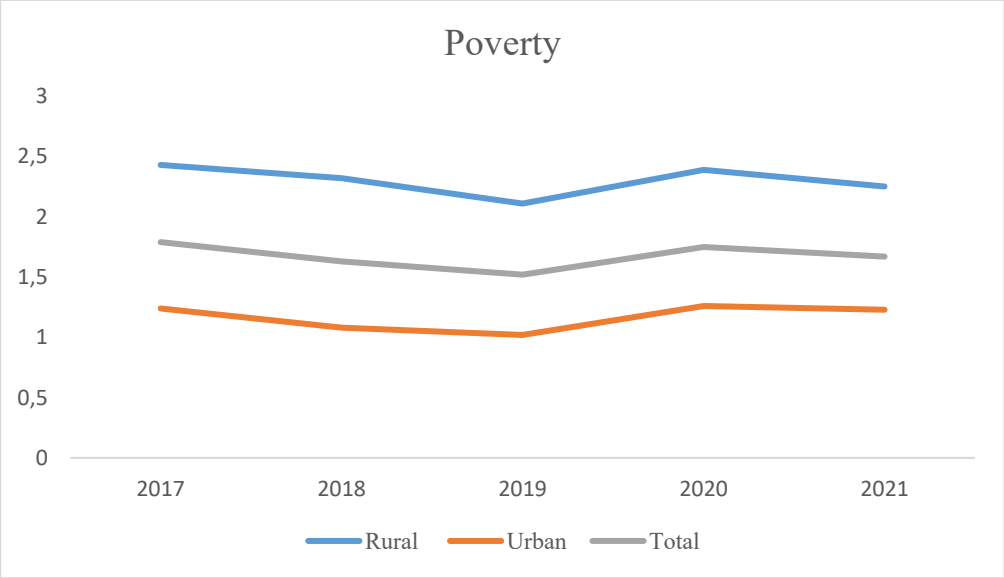

Figure 1. The Dynamic Data for Poverty in Indonesia

Similar to the problem of poverty, the trend of inequality in Indonesia also has the same dynamics of change (see in Figure 2). In the COVID-19 period, income inequality in Indonesia, both in rural and urban areas could be controlled. Some interesting to understand that the greatest level of inequality is found in urban areas. Meantime, in rural areas tends to be lower than other groups. This explains that the dynamics of inequality change are concentrated in the urban areas.

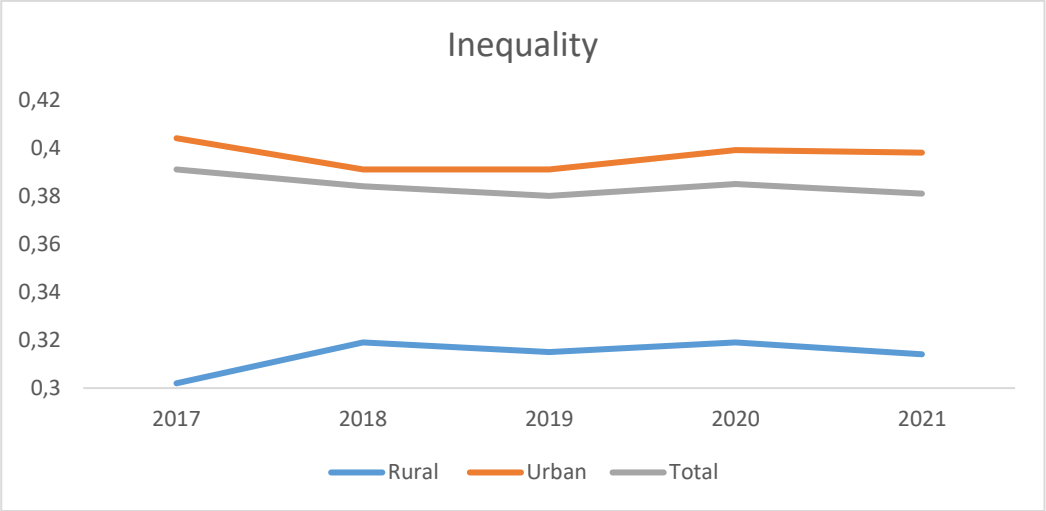

Figure 2. The Dynamic Data for inequality in Indonesia

In the two years later, during COVID-19 has brought an increase in inequality. COVID-19 has brought major changes not only to the health system but also to the economy intensively, including inequality. The existence of various policies to control coronavirus has led to a decline in economic activity. This condition causes an increase gap between the rich and poor people.

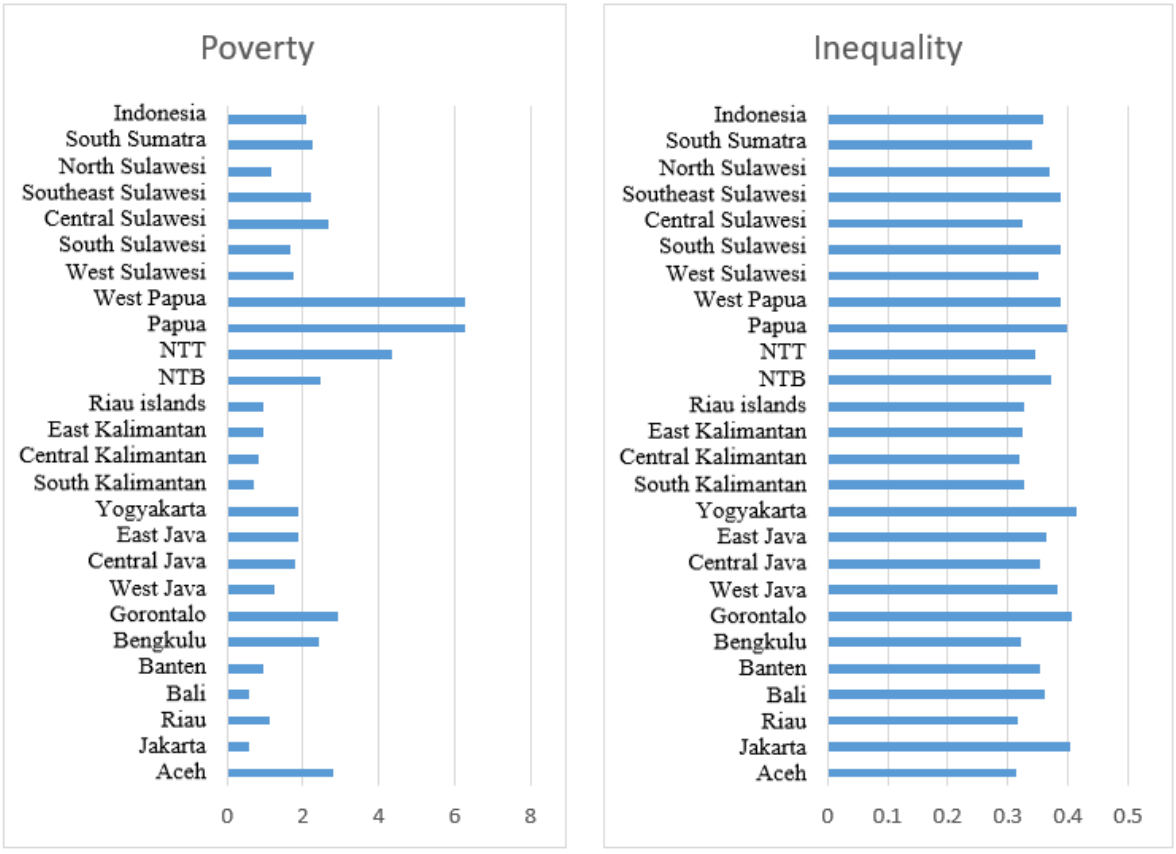

Figure 3. Poverty and Inequaliity data by Provinces

Furthermore, based on the level of poverty and inequality seen by province (see at Figure 3), it shows that the highest poverty rates are found in the provinces of West Papua and Papua. Subsequently, followed by East Nusa Tenggara, Maluku, and Gorontalo respectively. while, Bali is the province with the lowest poverty rate and followed by Jakarta and South Kalimantan. In the other hand, Yogyakarta is still the province with the highest Gini Ratio in Indonesia. The next largest inequality comes from Jakarta, followed by Gorontalo, West Java and Papua. And then, Bangka Belitung is a province that has the lowest inequality level.

On the other hand, the condition of sector growth in Indonesia can be shown in Figure 4. Overall, it can be shown that both the GRDP of the agricultural, industrial, and service sectors have increased over the last 5 years. However, it can be shown that there has been a decline in GRDP during 2019-2020. A significant decline occurred in the industrial and service sectors. In the meantime, the agricultural sector is relatively more stable. This displays that the industrial and service sectors are both affected by the COVID-19. This study found that the agricultural sector is relatively unaffected by the COVID-19. It is suspected that the agricultural sector is still a sector with good resilience in crisis period.

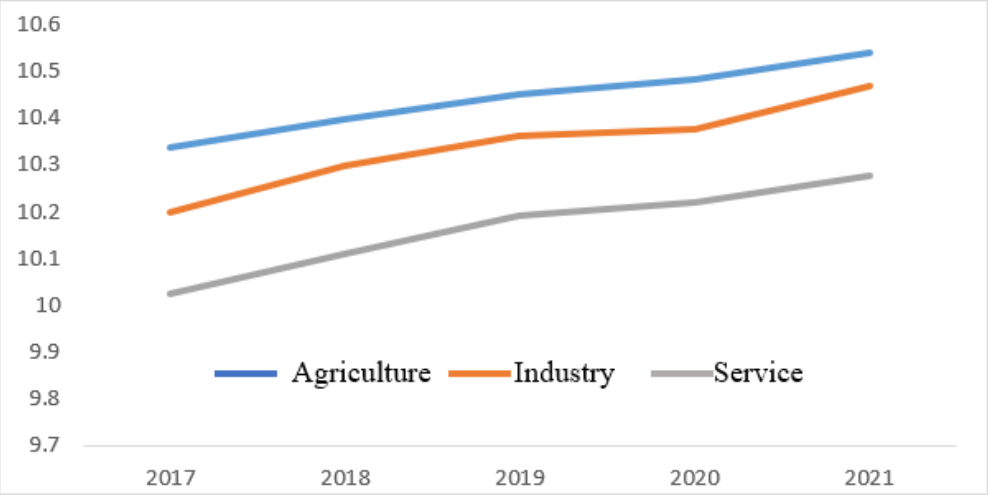

Figure 4. Sector Growth Data for Indonesia

b. Dynamic GMM Panel Interpretation

This section reports the estimation results using the dynamic GMM panel to determine the effect of sector growth on poverty and inequality in Indonesia. Table 2 shows the results of the tests for the goodness of the model. Based on the Sargan and Abond tests, both of them show that the model in this study is valid and consistent.

Table 2. Sargan and Abond Test

Variabel	Poverty	Inequality
Sargan	13.72 (0.132)	11.64 (0.234)
Abond	-0.336 (0.737)	-0.537 (0.591)

Table 3 expressions the impact of sector growth and several other control variables on poverty and inequality. The results show three important parts, (1) before COVID-19, sector growth has a significant negative impact on poverty. The growth of the agricultural, industrial and service sectors has led to reduction in poverty and inequality in Indonesia. (2) macroeconomic policy from the monetary side has a significant positive impact on poverty and tends to be insignificant on the inequality. On the other hand, fiscal policy - government expenditure - has impact on reducing poverty and inequality. (3) During COVID-19, only the agricultural sector has negative and significant impact on poverty and inequality. But in the other side, the industrial sector has positive impact on inequality and poverty in Indonesia.

Table 3. Dynamic GMM panel estimation

Variabel	Poverty	Inequality
Poverty t-1	-0.238*** (0,000)	-0.342*** (0.000)
Agricultural	-0.777** (0.036)	-0.038** (0.085)
Industry	-0.637*** (0.000)	-0.012 (0.469)
Service	-1.115** (0.041)	0.023 (0.194)
Control variable		
Lengding interest rate	0.229*** (0.000)	0.0007 (0.778)
Government expenditure	-0.004* (0.085)	-0.0005** (0.046)
COVID-19 variable		
Agr_covid	-0.049*** (0.000)	-0.0014*** (0.000)
Ind_covid	0.043*** (0.000)	0.0036** (0.001)
Serv_covid	0.018 (0.282)	-0.0004 (0.706)
Constant	2.887*** (0.000)	0.699** (0.008)

Note: *, **, *** is variable was significant at alpha 1%, 5%, and 10%.

1. Relationship between sector growth with poverty and inequality before COVID-19

The agricultural sector has negative impact on poverty and inequality in Indonesia. The coefficient of both is -0.777 on poverty and -0.038 on inequality. An increase in agricultural growth by 1% this year will encourage a reduction in poverty and inequality by 0.77% and 0.03%. Meanwhile, the industrial sectors tend to show different results. The industrial sectors encourage poverty reduction, but they have no effect on inequality. There was an increase in the growth of industry by 1% leading to a reduction in poverty by 0.63%.

In the same case, this study find that the service sector reduces the number of poor people, but it has no effect on inequality. This confirms that the role of the service sector on inequality cannot be proven. However, this research expression that the service sector has the greatest impact to reduce poverty compared to other sectors. An increase in the service growth by 1% was reduce the poverty by 1.11%.

2. Impact of macroeconomics policy on poverty and inequality

In policy analysis, this research shows quite interesting results. Monetary policy through lending interest rates has a positive and significant impact on poverty. A contraction of monetary policy d by a 1% reduction in lending interest rates will lead to 0.22% poverty reduction. Temporarily, monetary policy has no effect on inequality. This result confirmations that monetary policy is more effective in influencing poverty than inequality.

On the other hand, fiscal policy - government expenditure - has negative and significant impact on poverty and inequality. An increase in government expenditure will encourage a reduction in poverty and inequality in Indonesia. An increase in government expenditure of 1% led to a decrease in poverty by 0.004% and a decrease in inequality by 0.0005%. This confirms that the impact of fiscal policy is more effective to reduce poverty than inequality. Furthermore, by considering the impact of monetary and fiscal policies, this study conclude that fiscal policy is more effective in reducing poverty and inequality in Indonesia.

3. Relationship between sector growth with poverty and inequality during COVID-19

Finally, this study confirms that there are different effects of sector growth on poverty and inequality before and during COVID-19. The role of each sector towards poverty and inequality has changed after COVID-19. First, the agricultural sector still contributes to reducing poverty and inequality during COVID-19. An increase in agricultural growth by 1% leds to a reduction in poverty and inequality by 0.049% and 0.0014%, respectively. This shows that the agricultural sector still plays an important role in poverty and inequality during COVID-19. Although the impact of the agricultural sector on poverty and inequality tends to decrease during COVID-19.

In contrast to the agricultural sector, the growth of the industrial sector tends to increase poverty and inequality during COVID-19. The increase in industrial sector growth by 1% tends to encourage an increase in poverty by 0.043% and inequality by 0.0036%. Meanwhile, the service sector tends to be insignificant in influencing poverty and inequality during the COVID-19 period. Therefore, this study has confirmed that the role of each sector on poverty and inequality changed during COVID-19.

c. Research Discussion

The previous section has revealed the relationship between sector growth and poverty and inequality from a statistical perspective. Therefore, the previous results will be explained using theory and empirical studies to provide better conclusions. **First,** before COVID-19 period, the growth of the agricultural, industrial and service sectors led to poverty reduction. The increased growth in these three sectors creates new investment, creates jobs and in turn reduces the number of poor people(Bezemer & Headey, 2008); (de Janvry & Sadoulet, 2009); (Pham & Riedel, 2019);(Sánchez & Cuadrado-Roura, 2024); (Sumner et al., 2020). Sequentially the biggest influence of sector growth on poverty can be shown as follows:

1. An increase in service growth by 1% led to a reduction in poverty of 1.11%
2. An increase in agricultural growth by 1% leads to a reduction in poverty of 0.77%.
3. An increase in industrial growth by 1% reduces the poverty rate by 0.63%.

In the Table 5 show that the service sector has the largest impact on poverty followed by agriculture and services. These results confirm the results of (Loayza & Raddatz, 2006) and (Akita et al., 2011). The development on the service sector has the greatest impact on poverty. The characteristics of the service sector that tend to be able to absorb workers with various educational backgrounds. The service sector contribute a lot to poverty and inequality. On the other hand, workers in the industrial sector tend to require certain educational qualifications and skills. Therefore, the industrial sector does not have a major impact on poverty and inequality.

Table 4. Dynamic GMM panel estimation in the Long Run Analysis

Long term coefficient	Poverty	Inequality
Ariculture	-1.020**	-0.076**
	(0.039)	(0.010)
Industry	-0.836**	-0.013
	(0.001)	(0.465)
Service	-1.465**	-0.084
	(0.044)	(0.21)
Lending IR	0.445***	0.0031
	(0.000)	(0.682)

Government expenditure	-0.0053**	-0.0069**
	(0.046)	(0.032)
During covid		
Agriculture	-0.065***	-0.0026**
	(0.000)	(0.066)
Industry	0.056***	0.0068**
	(0.000)	(0.003)
Service	0.0241	0.0036
	(0.291)	(0.880)

Note: *, **, *** is variable was significant at alpha 1%, 5%, and 10%.

Second, this study show that the agricultural sector is the only sector that has impact on inequality in Indonesia. These results are very interesting to understand. (Imai et al., 2016) also find that agricultural growth is a major factor in reducing income inequality through direct and indirect transmission. The agricultural sector plays an important role, especially in lower-middle income countries such as Indonesia ((Briones & Felipe, 2013)). The agricultural sector which is concentrated in rural areas with a large proportion of unskilled labor can affect inequality. The agricultural sector provides an increase in income for the poorest people. This encourages many households to reach the poor line and reduce the width of inequality ((Christiaensen et al., 2010)). (Cuong, 2010) shows the same results, that agricultural activities play an important role in reducing poverty and inequality, especially in rural areas.

(Gordón & Resosudarmo, 2019) display that the effect of greater sector growth on inequality depends on their access to markets. Higher access can magnify the effect of growth on inequality and *vice versa* for people with lower market access. Therefore, increasing people's access to markets and the financial sector helps the effectiveness of growth in reducing inequality in many countries.

Third, this study can confirm that fiscal policy is more effective in influencing poverty and inequality in Indonesia. Fiscal policy through government expenditure has a greater impact on poverty and inequality. Government expenditures, such as BLT and food subsidies have a direct impact on poverty. The impact of this policy can be specifically directed to the poorest households. Therefore, fiscal policy has a great effect on the problem of poverty and inequality.

Fourth, during COVID-19 period, the agricultural sector has exposed an important role in reducing poverty and inequality. This sector is the only sector that still provides benefits for reducing poverty and inequality. While there has been a decrease in the size of the impact of poverty and inequality from agriculture during COVID-19, the agricultural sector has consistently benefited from both. Therefore, this study emphasizes the important role of the agricultural sector during COVID-19 pandemic crisis.

Meanwhile, the industrial sector tends to increase poverty and inequality. Increased growth in the industrial sector has increased poverty and inequality. The main impact is determined by the reduction of the workforce during COVID-19. Especially workers with lower skills and education. Therefore, the level of poverty and inequality is getting higher during COVID-19 period. On the other hand, the service sector did not have an impact on reducing poverty and inequality during COVID-19.

In the long term, the impact of each sector on poverty and inequality can be described in table 4. The results of the long estimation show the total effect of each independent variable on the dependent variable in several periods. This means that the long-term coefficient is the total short-term coefficient in each period. Therefore, it can be explained that the effect is greater than the short-term effect. Long-term interpretation can be given as follows;

1. Before COVID-19 period, it can be shown that the service sector has the greatest total impact on reducing poverty and inequality. Then followed by the agricultural and industrial sectors.
2. In the long term, monetary policy through interest rate instruments tends to affect poverty more than fiscal policy. Meanwhile, fiscal policy tends to be more effective in reducing inequality.
3. During the COVID-19 period, agriculture has the ability to reduce poverty and inequality. Meanwhile, the industrial and service sectors tend to create poverty and inequality during COVID-19.

CONCLUSION

This study aims to analyze the impact of sector growth on poverty and inequality, in case COVID-19. This study uses 25 provinces in Indonesia during 2017-2021. The results show 3 main results. First, before COVID-19 showed that the agricultural, industrial and service sectors were driving poverty reduction in Indonesia. The Service Sector expressions the greatest impact on poverty. Then followed by the agricultural sector and the last by the industrial sector. On the other hand, the agricultural sector encourage a reduction in inequality. In the contrast, the industrial and service sectors do not affect inequality in Indonesia.

Second, during COVID-19 period, the industrial sector tends to increase poverty and inequality. Meanwhile, the service sector does not have a significant effect on poverty and inequality in Indonesia. On the other hand, the agricultural sector has shown an important role in reducing inequality and poverty during COVID-19. Third, this study shows a better role of fiscal policy in reducing inequality and poverty than monetary policy.

This research has important implications for policy recommendation. The agricultural sector has the biggest impact on poverty and inequality in Indonesia. The agricultural sector is driving poverty and inequality reduction before and during COVID-19. Therefore, the government needs to increase growth in the agricultural sector to accelerate the reduction of poverty and inequality.

The government can take a role in increasing the growth of each sector by optimizing the policy strategies that have been carried out. The policy strategy includes sustainable agriculture programs, facilitating access to credit, and establishing cooperation with other countries. This is expected to encourage the economy to reduce poverty and inequality.

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