AIDS SOCIAL EXPENDITURES, POVERTY AND INEQUALITY IN TIME OF COVID-19 PANDEMIC IN INDONESIA

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Abstract

The research investigates the correlation between social aid expenditure and poverty, and inequality across 34 Indonesian provinces from 2004 to 2022. Utilizing the two-step Generalized Method of Moments (GMM) estimate, it examines the impact of social aid expenditure on poverty rates and the Gini coefficient during the COVID-19 pandemic. Results show a significant decrease in the proportion of the impoverished population due to social aid expenditure, with minimal effects on inequality. The study highlights a substantial increase in both poverty and inequality during the pandemic, particularly in rural and urban areas. Analyzing the relationship between social welfare spending and COVID-19 impact reveals a positive influence on disadvantaged populations and inequality in Indonesian provinces. This underscores the need for a comprehensive review of social aid programs, especially amidst COVID-19 challenges.

Keywords: COVID-19; Aids Social Expenditures; Poverty; Inequality

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INTRODUCTION

During the COVID-19 pandemic, it is essential to comprehend the extensive ramifications of this health crisis on the social assistance system, the poverty rate, and economic disparities in both urban and rural areas. A key focal point here is Aids Social Expenditures, as these funds are designed to aid vulnerable groups, and the impoverished often experience reductions or resource reallocations during crises. This can exacerbate their socio-economic conditions, particularly in communities with limited access to resources and healthcare services. In-depth studies on social assistance spending can offer insights into aid effectiveness and its distribution among the needy population. Additionally, it provides an overview of policies that can be enhanced to ensure adequate assistance availability for those in need.

The poverty rate is projected to increase from 9.2 percent in September 2019 to 9.7 percent by the end of 2020, with the least amount of economic growth being impacted by COVID-19 (Suryahadi et al., 2020) including on the island of Java (Muta'ali et al., 2024). This implies that 1.3 million individuals will become impoverished. In accordance with the most pessimistic estimate, 12.4 percent of people will live in poverty, or 8.5 million more people. This implies that Indonesia will lose all of the progress it has made in the last ten years to reduce poverty. Drawing from data provided by the Central Statistics Agency of Indonesia (BPS), we observe that the COVID-19 pandemic has significantly impacted poverty rates. September of 2020, A discernible escalation of 2.76 million individuals resided in poverty, bringing the cumulative count to 27.55 million. It is worth noting that the rate of increase in urban poverty has been more rapid in comparison to that of rural poverty. Specifically, the percentage of individuals living in poverty in urban areas has risen by 1.32 percent, whereas in rural regions, the increase has been 0.60 percent since September 2019.

Furthermore, a focus on poverty is of paramount importance as the COVID-19 pandemic has led to increased unemployment rates and income reductions for many families in both urban and rural areas. In urban areas, the closure of non-essential businesses and industries has caused a surge in unemployment, while in rural areas, difficulties in accessing markets and economic resources can exacerbate the conditions of impoverished communities. Therefore, a comprehensive understanding of poverty levels and shifts in economic dynamics during the pandemic can lay the groundwork for developing targeted economic recovery strategies. Moreover, economic inequality has become an increasingly urgent issue, especially in the midst of the COVID-19 pandemic. In urban areas, the gap between the middle-to-upper socioeconomic groups and the less fortunate has widened due to various economic impacts caused by the pandemic. In rural areas, disparities in access to healthcare services and economic resources can further worsen the conditions of marginalized communities. A comprehensive analysis of economic disparities can offer

profound insights into how the pandemic has deepened inequalities and provide policy guidance to reduce social and economic disparities during times of crisis.

The constitution, laws, and expenditure on social aid in Indonesia have played a pivotal role in advancing social equity and welfare, particularly amid the COVID-19 pandemic. In accordance with the 1945 Constitution of Indonesia, specifically Articles 33 and 34, the government is mandated to protect the populace and promote the ideals of social fairness for all citizens. Moreover, Act number 11 in 2009 delineates the allocation of social assistance as a state strategy to tackle social welfare issues. As outlined in Finance Minister Regulation (181) in 2012, social aid refers to the provision of financial resources, goods, or services by either the central or regional government to the general public, aimed at shielding them from social vulnerabilities, enhancing their economic capabilities, and nurturing social well-being. Legal and constitutional regulations emphasize the significance of focused social assistance in alleviating poverty, particularly amid the ongoing pandemic. These actions reflect Indonesia's commitment to maintaining principles of social justice and welfare while reinforcing the socio-economic structure during an unparalleled crisis.

This research investigates the influence of social assistance expenditure on poverty and inequality in both rural and urban regions of Indonesian provinces. The study specifically concentrates on the governance of 34 province governments during the timeframe spanning from 2004 to 2022. This study examines the influence of the COVID-19 pandemic on poverty and inequality in both rural and urban areas. By focusing on these critical aspects in both urban and rural contexts, we can gain a comprehensive understanding of how the COVID-19 pandemic has exacerbated the socio-economic conditions of vulnerable communities. This understanding forms the foundation for more targeted and effective policies to provide assistance and promote inclusive economic recovery, ensuring that no group is left behind during the process of recovery from this unprecedented global health crisis.

This research contributes significantly to the existing body of literature in various ways. First, this study complements prior research on the influence of social aid spending on poverty and inequality. Second, by specifically focusing on the influence during a health crisis (COVID-19). Furthermore, it underscores the necessity of implementing nuanced policy measures that are specifically designed to address the unique circumstances and characteristics of various contexts and regions, with a particular focus on rural and urban areas.

LITERATURE REVIEW
Theoretical evidence suggests a crucial link between public infrastructure investment, particularly in education and healthcare, and poverty and inequality levels. Suboptimal health can hinder productivity and well-being, while sound health enhances human capital and productivity. The COVID-19 pandemic has

exacerbated global health issues, impacting household welfare and highlighting the inverse correlation between poverty and health infrastructure investment. According to (Castro-Leal et al., 2000), this occurrence can be attributed to the intrinsic relationship between household welfare and health status. Consequently, there exists an inverse correlation between the poverty level and advancements in workforce health and infrastructure investment. Studies by Gupta et al., (2002) highlight the positive impact of increased public spending on healthcare and education, leading to improved academic performance, better access to schooling, and reduced infant mortality rates.

Between 1981 and 1997, the Netherlands witnessed a significant uptick in income inequality due to primary income distribution disparities and reduced social assistance payouts following a social security reform, as noted by (Caminada, 2001). Lustig et al., (2014) found that while direct taxes tend to be progressive, their redistributive impact is limited due to their small share of GDP, with cash transfers showing a generally progressive trend across nations except in Bolivia, where targeting for the poor is lacking. Mahler & Jesuit (2004) highlight that social security programs contribute to a 15 percent reduction in the Gini coefficient across Latin American countries, yet targeted education and health transfers are deemed more effective in curbing inequality. Additionally, (He & Sato, 2013) lower the Gini coefficient by 74.6% while highlighting the important role social security programs play in developed nations.

Research across various countries highlights the multifaceted impacts of social security programs on poverty reduction. In India, initiatives such as food subsidies and employment guarantees significantly enhance individual welfare (Drèze & Khera, 2017), while in Aceh Province, Indonesia, the Special Autonomy Fund (SAF) notably improves school enrollment and reduces poverty Yusri (2022). Similarly, social security programs in Vietnam uplift farmers' expenses and alleviate destitution (Cuong, 2013). In southern Africa, retirement schemes in Namibia, financial assistance in Mozambique, and employment aid in Zambia show positive effects on poverty prevalence (Devereux, 2002). In China, urban and rural social security expenditure weakly correlates with income gaps, significantly reducing rural poverty (Yu & Li, 2021). Moreover, rural American communities with higher social capital demonstrate better resilience to disasters, aiding in community food security (Ren-fu et al., 2020). Amidst the COVID-19 pandemic, poverty rates surged initially but partially mitigated by September across various nations, with Italy experiencing the most significant impact and France the least (Ha, 2023; Menta, 2021), accentuating the pandemic's role in exacerbating global poverty and regional disparities.

In Indonesia, projections indicate a potential increase in poverty rates, with estimates ranging from 9.7% to 16.6% by the end of 2020, potentially reversing previous poverty reduction efforts and impacting millions (Suryahadi et al., 2020). Strengthening social protection programs is imperative to support

those newly impoverished and those already struggling. This underscores the critical role of social safety nets in addressing the pandemic's impact on inequality and poverty. Anderson et al., (2018) highlight the nuanced relationship between government spending and poverty reduction, noting variations across regions and contexts. Kiendrebeogo et al., (2017) emphasize the exacerbating effect of financial crises on poverty rates, mitigated by higher social spending levels, underscoring the importance of social protection during crises. De Matteis, (2013) advocates for poverty-focused aid as more effective in poverty reduction and economic growth promotion. These insights underscore the need for targeted and adaptive policies to address the multifaceted challenges of poverty and inequality in Indonesia and beyond.

Mosley et al., (2004) discuss the fungibility of aid and emphasize that the effectiveness of aid in improving welfare depends on its capacity to increase pro-poor spending. Arndt et al., (2015) explore the ways in which aid boosts physical accumulation and human capital while also contributing to economic growth. The study conducted by Zwane et al., (2022) presents empirical findings that support the notion that social grants significantly improve the well-being of households in South Africa, particularly among women. Turning our attention to Indonesia, Firmansyah & Solikin, (2019) show how social assistance can significantly reduce poverty and inequality, with Rastra being the most successful program. However, in order to guarantee effective aid delivery, improvements are required due to distribution challenges. Furthermore, in Central Java, Handayani et al., (2022) show the complex relationship that exists between regional spending and poverty rates. Specifically, health, spending on social protection, and education has a negative impact on poverty rates, while spending in the economic sector has a positive but significant effect.

A number of studies (Achmad et al., 2023; Ahmad et al., 2023; Lestari et al., 2021; Maria et al., 2022; Riadi, Hadjaat, et al., 2022; Riadi, Heksarini, et al., 2022; Yudaruddin, 2023b, 2023a; Zulkarnain et al., 2023; Wahyuni et al., 2024; Hudayah et al., 2024; Irwansyah et al., 2024; Langi, et al., 2024; Lesmana & Yudaruddin et al., 2024; Achmad et al., 2024) demonstrated the detrimental effects of COVID-19. In particular, studies on the effect of COVID-19 on poverty have been carried out by a large number of researchers in various locations, offering insightful information about the complex problems the pandemic has brought about. Research has been carried out, for example, (Ren-fu et al., 2020) in China, (Langi et al., 2023; Suryahadi et al., 2020) in Indonesia, (Rönkkö et al., 2022) in Bangladesh, (Bassey et al., 2022) South America, (da Rosa et al., 2021; Nazareno & de Castro Galvao, 2023) in Brazil, (Meehan & Shanks, 2023; Topcu, 2022) in the United States, (Gungor, 2021; Ha, 2023; Menta, 2021) in Europe, (Bargain & Aminjonov, 2021) in Africa, and internationally (Valensisi, 2020). Together, these studies provide insightful information about the intricate and dynamic relationship between the dynamics of poverty and the pandemic.

Nazareno & de Castro Galvao, (2023) highlighted emergency aid's (EA) crucial role in pandemic relief, serving as income replacement, but noted a correlation between EA and reduced family labor force participation, leading to higher unemployment rates. Likewise, da Rosa et al., (2021) found EA allocation in Brazil favored states with larger populations and lower socioeconomic status initially, but final distribution favored more developed regions. Kochaniak et al., (2023) observed ongoing revenue fluctuations for micro-entities in Poland despite government support, necessitating more targeted assistance to address their specific needs, including prolonged earnings reductions, liquidity challenges, limited market access, and job losses.

H1: *As social aid expenditure increases, both rural and urban poverty and inequality will decrease.*

H2: *The COVID-19 pandemic has further intensified disparities in income and destitution between urban and rural regions.*

H3: *Social aid expenditure reduces poverty and inequality in rural and urban areas during of the COVID-19 Pandemic.*

RESEARCH METHODOLOGY

This paper examines the effect of social aid expenditures on poverty and inequality in rural and urban areas of Indonesian provinces, with a particular focus on 34 province governments. Additionally, the effects of the COVID-19 pandemic on urban and rural inequality and poverty are examined in this study. Furthermore, this research investigates the interplay between social aid expenditure and pendemic COVID-19 in order to assess the effect of social aid spending on inequality and poverty and in both urban and rural regions throughout the COVID-19 pandemic. The financial data of provincial administrations covering the years 2004 to 2022, sourced the Central Bureau of Statistics of Indonesia, serve as the dataset for this research.

The association between social aids expenditure and poverty and inequality in rural and urban areas in provinces in Indonesia was evaluated using a regression analysis. The regression equation is as follows:

$POP_{i,t} = \alpha_{,i,t} + \beta_1 SAE_{i,t} + \beta_2 COVID_t + \beta_3 HDI_{i,t} + \beta_4 GRDP_{i,t} + \beta_5 UNE_{i,t} + \beta_6 JAVA_{i,t} + \varepsilon_{i,t}$
....(1)

$POP_{i,t} = \alpha_{,i,t} + \beta_1 SAE_{i,t} + \beta_2 COVID_t + \beta_3 SAE * COVID_{i,t} + \beta_4 HDI_{i,t} + \beta_5 GRDP_{i,t} + \beta_6 UNE_{i,t} + \beta_7 JAVA_{i,t} + \varepsilon_{i,t}$ .... (2)

$GINI_{i,t} = \alpha_{,i,t} + \beta_1 SAE_{i,t} + \beta_2 COVID_t + \beta_3 HDI_{i,t} + \beta_4 GRDP_{i,t} + \beta_5 UNE_{i,t} + \beta_6 JAVA_{i,t} + \varepsilon_{i,t}$ ....(3)

$GINI_{i,t} = \alpha_{,i,t} + \beta_1 SAE_{i,t} + \beta_2 COVID_t + \beta_3 SAE * COVID_{i,t} + \beta_4 HDI_{i,t} + \beta_5 GRDP_{i,t} + \beta_6 UNE_{i,t} + \beta_7 JAVA_{i,t} + \varepsilon_{i,t}$ .... (4)

Regression analysis was used to assess the relationship between Social Aids Expenditure, inequality and poverty, and COVID-19, in Indonesian provinces' urban and rural areas. Gross Regional Domestic Product (GRDP), The and Java and Bali Islands (JAVA) Unemployment (UNE), Human Development Index (HDI), were among the control variables used in this study (Defung, F., Hadjaat, M., and Yudaruddin, 2023; Deviyanti et al., 2023; Firmansyah & Solikin, 2019; Hilmawan, Aprianti, Vo, et al., 2023; Hilmawan, Aprianti, Yudaruddin, et al., 2023; Kheir, 2018; Musviyanti et al., 2022; Nurlia et al., 2023; Paminto et al., 2023; Pham & Riedel, 2019)

The analysis employed in this investigation was the two-step GMM estimator, which stands for Generalized Methods of Moments. A frequently utilized econometric technique in panel data analysis is the two-step application of the GMM estimator (Arellano & Bover, 1995; Blundell & Bond, 1998). The process encompasses two essential di-agnostic instruments, specifically the Hansen-J test and the AR(2) test, both of which are critical in guaranteeing the precision and dependability of the estimation procedure. During the initial stage, the GMM estimator generates initial parameter estimates by employing moment conditions, which are frequently derived from instruments. Subsequently, autocorrelation in the error terms is evaluated using the AR(2) test, which aids in the identification of possible model misspecification and biased estimates of coefficients. Following that, the Hansen-J test is employed to assess the soundness of the moment conditions and the over-identifying limitations in the model. This verification process guarantees that the instruments selected are suitable and that the model has been accurately specified.

ANALYSIS AND DISCUSSION

This study employs a two-step generalized estimating equation (GMM). The findings show that social aid spending has a negative and significant influence on the proportion of Indonesians living below the poverty line (Columns 1 & 3). This finding supports hypothesis 1 (H1), demonstrating that an increase in social aid expenditure correlates with a decrease in the proportion of the impoverished population in Indonesia. Consistent with earlier research conducted by (Anderson et al., 2018; De Matteis, 2013; Firmansyah & Solikin, 2019; Handayani et al., 2022; Kiendrebeogo et al., 2017; Mosley et al., 2004; Zwane et al., 2022) the results suggest that these initiatives directly benefit the underprivileged by providing financial aid and access to essential services.

The implications of this study are significant for poverty reduction strategies in Indonesia. It highlights the importance of strategically increasing financial resources for social assistance programs, encompassing measures such as food subsidies, cash transfers, and other forms of support, which can elevate the standard of living and help individuals escape poverty. Furthermore, the research emphasizes the critical role of precise and effective execution of social

assistance policies, advocating for a targeted approach to resource allocation. Prioritizing the most marginalized and disadvantaged groups is crucial to optimize the impact of social assistance spending. These findings provide empirical support for the effectiveness of social assistance interventions in combating poverty in Indonesia. They also underscore the role of social aid expenditures in mitigating the social disparities between rural and urban communities. However, the study yields different results regarding the impact of social aid expenditure and the COVID-19 pandemic on inequality in rural and urban areas, highlighting an insignificant influence on the dependent variable inequality.

Table 1. The influence of social aid expenditure on poverty and inequality: a comparison between rural and urban areas.

Exp. Var.	Dependen Variables: POV			
	RURAL		URBAN	
	(1)	(2)	(3)	(4)
Dep. Var(-1)	0.9217***	0.9215***	0.9498***	0.9509***
	(0.0065)	(0.0066)	(0.0068)	(0.0069)
SAE	-0.00009***	-0.0824***	-0.0026*	-0.4926
	(0.00001)	(0.0424)	(0.0013)	(0.3210)
COV	0.5197***	0.5042***	0.4481***	0.4172***
	(0.0428)	(0.0469)	(0.0745)	(0.0053)
SAE*COV		8.23e-11*		4.90e-10
		(4.24e-11)		(3.21e-10)
HDI	-0.0133	-0.01207	-0.0480**	-0.0476**
	(0.0099)	(0.0103)	(0.0001)	(0.0193)
GRDP	6.47e-08***	9.87e-08***	2.67e-07**	2.42e-07**
	(7.37e-08)	(8.59e-08)	(1.05e-07)	(1.10e-07)
UNE	-0.0199	-0.0202	-0.0367*	-0.0333
	(0.0119)	(0.0120)	(0.0211)	(0.0212)
JAVA	0.1189	0.1144	-0.1149	-0.0873
	(0.1063)	(0.1053)	(0.1188)	(0.1132)
CONS.	1.2465*	1.1616	3.7625**	3.7310**
	(0.6909)	(0.7150)	(1.4017)	(1.3792)
AR(2)	0.214	0.494	0.893	0.886
Hansen Test	0.305	0.646	0.205	0.206
Obs.	453	453	438	438
Exp. Var.	Dependen Variables: GINI			
	RURAL		URBAN	
	(5)	(6)	(7)	(8)
Dep. Var(-1)	0.7424***	0.7394***	0.8073***	0.8058***
	(0.0292)	(0.0294)	(0.0311)	(0.0316)
SAE	2.54e-07	-0.0055***	-0.00001	-0.0043
	(7.61e-07)	(0.0021)	(0.00006)	(0.0033)
COV	0.0046**	0.0057***	-0.0014	-0.0017
	(0.0018)	(0.0065)	(0.0014)	(0.0014)
SAE*COV		5.51e-12**		4.32e-12

		(2.19e-12)		(3.36e-12)
HDI	-0.0013**	0.0014**	-0.0007*	-0.0007*
	(0.0005)	(0.0005)	(0.0004)	(0.0004)
GRDP	-2.18e-09	1.64e-10	-3.95e-09	-4.19e-09
	(3.20e-09)	(3.25e-10)	(3.20e-09)	(3.19e-09)
UNE	-0.0016**	-0.0016**	-0.0005	-0.0005
	(0.0006)	(0.0006)	(0.0005)	(0.0005)
JAVA	0.0098**	0.0096**	0.0046*	0.0049*
	(0.0040)	(0.0040)	(0.0027)	(0.0027)
CONS.	0.0061	0.0012	0.1154***	0.1169
	(0.0372)	(0.0382)	(0.0294)	(0.0296)
AR(2)	0.427	0.422	0.370	0.372
Hansen Test	0.521	0.524	0.497	0.497
Obs.	453	453	438	438

Note: ***, **, and * are significant at 1%, 5%, and 10% confidence levels, respectively.
Source: Authors' calculation.

Furthermore, the results of the analysis show that the impact of COVID-19 on poverty and inequality in rural and urban areas of Indonesian provinces is significantly positive (Columns 1, 3 & 5). Thus, it supports hypothesis 2 (H2). This result is consistent with (Bargain & Aminjonov, 2021; da Rosa et al., 2021; Gungor, 2021; Ha, 2023; Meehan & Shanks, 2023; Menta, 2021; Nazareno & de Castro Galvao, 2023a; Ren-fu et al., 2020; Rönkkö et al., 2022; Suryahadi et al., 2020; Topcu, 2022; Valensisi, 2020). Although, specifically for urban areas, the impact of COVID-19 is not significant. The analysis indicates that the impact of the COVID-19 pandemic in urban areas is not significant. This may be attributed to the diverse job market and more readily available economic resources in urban areas, which have helped communities to adapt more easily to the economic changes brought about by the pandemic. Furthermore, these results highlight that the pandemic's impact has been more pronounced in rural areas, leading to an increase in the number of poor people and income inequality. Limited access to healthcare services and restricted economic opportunities in rural areas may have rendered the population more vulnerable to sudden socioeconomic changes. These results indicate that the number of poor people in rural and urban areas and income inequality in rural areas are higher during the COVID-19 period. Therefore, these analysis results underscore the importance of focusing on policy interventions and government programs specifically tailored to alleviate the impact of the COVID-19 pandemic in rural areas.

Table 1 also exhibits the outcomes of the interactional analysis between social welfare disbursement and COVID-19 on poverty and disparity in rural and urban regions of Indonesian provinces. The primary objective is to scrutinize the influence of social welfare disbursement on the percentage of the impoverished populace and Gini coefficient amid the COVID-19 crisis. The study's findings reveal a statistically significant and favorable effect of the interactional variable involving social welfare expenditure and COVID-19 on the proportion of the

indigent population and disparity in rural and urban zones of Indonesian provinces. This outcome contrasts with the conclusions drawn by (da Rosa et al., 2021; Kochaniak et al., 2023). Consequently, Hypothesis 3 (H3) is not upheld. These findings suggest that social welfare expenditure fails to mitigate the adverse repercussions stemming from the COVID-19 pandemic. Consequently, poverty and disparity in rural and urban regions persist at elevated levels during the COVID-19 era.

The research reveals that social aid expenditure has failed to mitigate the negative consequences of the COVID-19 epidemic, resulting in prolonged poverty and inequality in rural and urban regions. This suggests that present social aid tactics and funding may not be addressing the pandemic's complex socio-economic stability and welfare issues. The findings suggest that present social aid programs must be critically assessed to face COVID-19 pandemic issues. This evaluation should identify barriers to social aid resource optimisation. It also emphasizes the need for comprehensive and adaptive social aid programs that can address the particular crisis issues encountered by diverse areas and groups, providing a more fair and inclusive recovery process.

CONCLUSIONS

The investigation examines the correlation between social aid spending and poverty, as well as inequality in rural and urban Indonesian provinces from 2004 to 2022, focusing on 34 province governments. Utilizing the two-step GMM estimator, the study analyzes how social aid expenditure affects the percentage of the population living below the poverty line and the Gini coefficient during the COVID-19 pandemic. Findings indicate that social assistance spending significantly reduces poverty rates but shows varied effects on inequality. The COVID-19 pandemic exacerbates poverty and inequality in both rural and urban areas. Interaction analysis reveals a significant positive impact of the pandemic and social aid expenditure interaction on poverty and inequality across regions.

The research emphasizes the urgent need for a thorough reassessment of social aid programs in Indonesia, particularly amidst the challenges posed by the COVID-19 pandemic. Targeted and adaptable strategies are crucial for addressing poverty and inequality dynamics in both rural and urban areas. Policymakers should prioritize resource allocation to vulnerable populations and foster inclusive frameworks for sustainable socio-economic development, ensuring equitable access to essential services. Strengthening social protection systems is imperative for better crisis response. However, the study's focus on Indonesia limits generalizability, and reliance on quantitative analysis overlooks qualitative nuances. Future research should incorporate qualitative methods, examine long-term effects of aid policies, and explore mechanisms impacting different socio-economic groups to inform more effective interventions.

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