



## RESEARCH ARTICLE

# THE IMPACT OF SOCIAL PROTECTION PROGRAM TOWARD EXTREME POVERTY ALLEVIATION IN INDRAMAYU

<sup>1</sup>Roya Hayatina Latua Silawane, <sup>2</sup>Jaenal Effendi and <sup>3</sup>Bambang Juanda

<sup>1</sup>Economics Department, Faculty of Economics and Management, Bogor Agricultural University, Indonesia  
<sup>2</sup>Lecturer at Department of Islamic Economics, Faculty of Economics and Management, Bogor Agricultural University, Indonesia; <sup>3</sup>Lecturer at Economics Department, Faculty of Economics and Management, Bogor Agricultural University, Indonesia

### ARTICLE INFO

#### Article History:

Received 28<sup>th</sup> April, 2023  
Received in revised form  
20<sup>th</sup> May, 2023  
Accepted 16<sup>th</sup> June, 2023  
Published online 24<sup>th</sup> July, 2023

#### Key words:

Extreme Poverty,  
Social Assistance, DID.

### ABSTRACT

The problem of extreme poverty is one of the most crucial issues affected in every country. This research aims to analyze the distribution model of social assistance funds for beneficiary households among those affected by extreme poverty in Indramayu. As well as the implication of accuracies in updating data for effectiveness in distributing the social protection funds. Currently, the data used for this study are primary data with classification in lowland and coastal zones. Furthermore, the analysis method uses Difference in Difference (DID), which R-studio processes as the application software. In addition, according to the results, there is an increase in income within the extreme poverty society (*treatment group*) that equals 1106262 rupiahs when other variables are constant. In addition, another phenomenon was found that groups who did not receive any social assistance (*control group*) also had an increased revenue throughout the period. The other point worth underlining is based on the DID model analysis. It was found that the large number of household members proved to significantly influence the increasing level of income towards the treatment group.

## INTRODUCTION

The poverty issue is one of the most crucial problems. Filho *et al.* (2021) showed that research conducted by professors and representatives from the administrative sector in 34 developed and developing countries suggested that poverty is one of the threats to implementing SDGs in each of those countries. For example, poverty is also manifested in poor people's behaviour who are inactive and unwilling to improve their finances. Thus, a person's behaviour is highly relevant to their future (Laajaj, 2017). The Indonesian government provides treatment for poverty alleviation, especially in the form of extreme poverty, through the provision of social assistance. The government tries to support the social protection program by giving financial aid to reduce the number of poverty in Indonesia by optimizing SMEs and MSMEs because these sectors have contributed to opening up opportunities for employment and decreasing the unemployment rate (Vekelita, 2021). In addition, social assistance is also implemented in several developing countries. Referring to Barrientos (2012) emphasized how a well-designed social welfare program would be able to solve the poverty problem, considering that social transfers bring positive growth potential in both the short and long term.

\*Corresponding author: *Roya Hayatina Latua Silawane*, Economics Department, Faculty of Economics and Management, Bogor Agricultural University, Indonesia.

Poverty intervention by introducing and providing education on the importance of investment and future benefits is one strategy that can be implemented to reduce poverty rates and provide social assistance to the impoverished who cannot even meet their daily needs. Tanguy *et al.*, (2014) explained in their research that poor communities are often not interested in investing, even when the potential returns are high. The aspirations or understanding of the models and future opportunities of individuals inclined to invest can be very advantageous, especially considering the numerous investment options available. However, surprising findings emerged six months after the education intervention, showing that there were impacts on the treatment group regarding credit usage, savings, children's school enrollment, and expenditure in the education sector, indicating a change in aspirations that translates into future-oriented behavioural changes.

## METHODOLOGY

**Type and source of data:** The Data of this research used primary data obtained through in-depth interviews and the distribution of questionnaires with a total of 300 respondents in 3 sub-districts located in Indramayu Regency based on the regional classification (Lowland and Coastal Zones) using a case and field study. This research includes secondary data from the Central Statistics Bureau (BPS), the National Team

for Accelerating Poverty Alleviation (TNP2K), and other relevant government ministry data.

Furthermore, this research focuses on analyzing the extremely poor society in detail as a scientific object study.

### The Method of Sample Determination

Cochran Formula:

$$n = \frac{Z^2 pq}{e^2}$$

Note:

n= The number of samples required

Z<sup>2</sup> = The Confidence level required in the sample, which is 95% (Z value 1.96)

p = Chance of being Correct (50%)

q = The False Opportunity (50%)

e = The sampling error rate in the study was 10%.

Referring to the formula above, the minimum number of samples is required, such as:

$$n = \frac{(1,96)^2 (0,5)(0,5)}{(0,1)^2}$$

$$n = 96,04$$

**Analytical Method:** The Difference in Differences (DID) model is an estimator method used to conduct an impact evaluation analysis of a program based on changes in variables due to time effects, policy impacts, or interaction of both effects. DID is related to the analysis of differences in results between the variables studied before and after pre-post programs have been implemented to see the differences in the two variables examined (Warton & Permanente 2020; Bacon, 2021).

According to E. M. Warton & Parker, (2018), DID modelling is closely related to comparing 2 observation groups (*Treatment Group and Control Group*). The 2 groups in this study are the extremely poor who get social assistance (*Treatment Group*) and the Indramayu community who do not get social assistance (*Control Group*) in the same period before and after the social assistance program is obtained in 2022 after the re-focusing of the social assistance program for the highest extreme poverty in the West Java region. The basic equation Difference-in-Differences model, according to research conducted by Warton & Permanente, (2020) is considered as follows:

$$\mu_{it} = \beta_0 + \beta_{post} * Post + \beta_{exp} * Exposure + \beta_{interaction} * Post * Exposure + \epsilon_{it}$$

Where:

$\mu_{it}$ : the mean expected rate for the subject  $i$  at the time  $t$ .

Post : An indicator that is estimated based on post-period measurements.

Exposure: An indicator that shows the research subject in the form of intervention or treatment during the research.

$\epsilon_{it}$ : describes the level of errors in the results of the research subject in period  $t$ . Generally, the errors are normally distributed within a zero mean.

The analytical methods that are utilized in this research follow:

$$Y_{it} = \alpha + \beta T_{it} + \gamma t_i + \delta [T_i * t_i] + C_{it} + \epsilon_{it}$$

Where:

$Y_{it}$ : Income of the Extreme Poverty in HouseHold who gets as a treatment Group, and the income of communities that did not receive assistance as a control Group.

$\alpha$  : Constant Term

$BT_{it}$ : Treatment Group Specific Effect for Control and Treatment Group

$T_i$  : The Individual Variable  $i$  in both Control = 0 and Treatment Group = 1

$\gamma$ : Time Trend Common to Control and Treatment Group

$\delta$ : True Effect of Treatment

$t_i$ : Time Period Individual  $i$

Before Social Assistance Program (0)

After Social Assistance Program (1)

$C_{it}$  : Covariates Effect

$\epsilon_{it}$ : Error Term

## RESULTS AND DISCUSSION

**Extreme Poverty in Indramayu:** Poverty alleviation is one of the government's focuses in every country. The negative impacts of poverty are closely related to the well-being of society. The Deprivation Trap is one of the approaches to address poverty. Chambers, (2013) states in his book that rural poverty and rural development are closely related to five elements: physical weakness, exclusion from protection and economic conditions, household vulnerability, powerlessness, and poverty itself. Poverty is closely associated with psychological issues. One of the reasons is that poverty leads to stress and unstable emotional states and often influences a person's decision-making to break free from the cycle of poverty. This research also shows that government interventions should consider psychological factors. Poverty alleviation programs can be designed to reduce stress and negative affective states, provide renewed motivation for long-term life improvements, and offer support to individuals in low-income communities to develop clear and directed life goals (Haushofer & Fehr, 2014).

Haushofer & Fehr, (2014) also comprehensively explain in their research that poverty is associated with psychological and behavioural instability. Individuals experiencing poverty may exhibit narrow-mindedness and a tendency to avoid risks in their decision-making. This behaviour is influenced by limited preferences and directions related to the importance of having future-oriented perspectives, which in turn affects the behaviour patterns of the community, making them reluctant to break free from the chains of poverty. Overall, this section emphasizes the importance of considering the psychological aspects of poverty and the need for further in-depth research regarding government interventions in the country to break the cycle of poverty. The issue discussed in this research pertains to the high poverty rate in Indramayu, one of the districts with a high level of extreme poverty, as reflected in the local poverty line. The local government of Indramayu states that poor individuals are those whose average per capita expenditure falls below the poverty line every month (BPS Indramayu, 2022).

The Covid-19 pandemic has led to an increase in the number of people living in poverty, which was previously 220.31 thousand individuals and rose to 228.59 thousand individuals. Similarly, the Poverty Depth Index (P1) has increased from 2.18 in 2020 to 2.46 in 2021. The percentage of poverty rates in Indramayu has also increased during the Covid-19 pandemic. In 2020, the poverty rate in Indramayu was 12.70%, while in 2021, it rose to 13.04%. A more detailed breakdown of poverty indicators is presented in Table 1 below:

**Table 1. Poverty Indicators in Indramayu District (2020 - 2021)**

Indicators	Years	
	2020	2021
Poverty Rate (%)	12.70	13.04
Number of Poor Population (Thousand Individuals)	220,31	228,59
Poverty Depth Index (P1)	2,18	2,46
Poverty Severity Index (P2)	0,56	0,66
Poverty Line (Rupiah/Month)	474,81	481,75

Source: Central Statistics Bureau (BPS) of Indramayu District, 2023

**The Impact of Social Protection Program:** Social protection programs are recognized as one of the efforts to alleviate poverty and are widely adopted by governments and non-governmental organizations (NGOs) in almost every country. According to Fiszbein *et al.*, (2014) in their research, social protection programs are designed to protect households and individuals with low income while creating job opportunities and enhancing social cohesion while reducing social inequality. These programs have been proven to benefit various groups within society. The types of social protection programs vary depending on the objectives of the country implementing them, where local spending on social protection is a fundamental component of individual well-being and financial efficiency (Frenda *et al.*, 2021). Generally, in developing countries, these programs take the form of social insurance, programs for pensioners, and programs aimed at creating new job markets through training. Additionally, there are non-contributory social assistance programs in the form of social safety nets that focus on humanitarian assistance, disaster response, cash transfers, provision of basic food needs, labour incentives, subsidies, and various forms of assistance such as electricity cost subsidies for vulnerable economic groups or those below the poverty line (Fiszbein *et al.*, 2014)

**The Income Estimation Results using the Difference in Differences (DID) Model:** The results of running the data to examine the difference in income between the treatment group (those who received social assistance) and the control group (the population who did not receive any assistance), considering the income levels before and after the government's social assistance program, while also taking into account the covariate variable of the number of dependents in the household, are as follows:

The estimation results of the Difference in Difference (DID) in the above table indicate that income will increase by 532,955 Rupiah after the government provides social assistance to the impoverished population, compared to before the assistance program was implemented, assuming other variables remain constant and before adding the location interaction. Furthermore, the indigent population in Indramayu who receive social assistance (Treatment Group), compared to those who do not receive any assistance (Control Group), will

experience a decrease in income by 2,844,048 million Rupiah, assuming other variables remain constant. In this DID estimation, it was also found that the impoverished population who receive social assistance will experience an increase in income by 1,396,263 Rupiah after receiving the assistance, assuming other variables remain constant. The number of household dependents remains a covariate variable affecting the population's income from social assistance. If there is an increase of 1 dependent in a household, it will increase the income of the impoverished population by 681,045 Rupiah. The social assistance provided includes various types of assistance, such as the Family Hope Program (PKH), where the amount of financial aid depends on the number of dependents and their education level (e.g., primary school, junior high school, and also senior high school), resulting in varying amounts of assistance provided. The estimated results of the Difference In Difference (DID) analysis in the table above indicates that income is projected to increase by 532,670 Indonesian rupiahs after the government implements a social assistance program for the indigent population, assuming other variables remain constant.

Additionally, the destitute individuals in Indramayu who receive social assistance (*Treatment Group*), compared to those who do not get the social aid (*Control Group*), are expected to experience a decrease in income by 2,858,023 rupiahs, assuming other variables remain constant. The DID estimation also reveals that the inferior individuals who receive social assistance will see an income increase of 1,395,226 rupiahs, assuming other variables remain constant. Another factor influencing the income increase identified in this study is that for each additional dependent in a beneficiary household, the income of the impoverished social assistance recipients will increase by 737,944 rupiahs, assuming other variables remain constant. Furthermore, the research conducted in four districts of Indramayu province indicates varying economic cycles that impact the income levels of the local communities. The DID results show that income will decrease by 847,686 rupiahs in location 2, assuming other variables remain constant. Similarly, in location 3, income is projected to decrease by 1,116,351 rupiahs, assuming other variables remain constant. Finally, in location 4, income is projected to decrease by 1,929,086 rupiahs, with no change in other variables. Lastly, the crucial point that has been the gender of workers variable indicates that the difference in income between male and female workers is not significantly correlated. It is estimated to have a coefficient of 163755, with a standard error of 185407 because of the P-value > 0.005 (0.377385). Considering the DID framework, these coefficients provide insights into the estimated effects of the additional variables on income levels. The standard errors indicate the precision of these estimates. A p-value greater than 0.05 indicates that neither male nor female workers significantly influence the magnitude of income obtained. It suggests that in Indramayu, women also hold the position of being parents who must work to meet the needs of their families, and in many cases, they are the primary breadwinners. However, it is essential to consider that the statement regarding women in Indramayu working hard to meet the needs of their families is an assumption or interpretation that may be based on a social understanding or local context. This information needs further research to validate or gain a deeper understanding of Indramayu's specific circumstances and dynamics.

**Table 2. Results of the Analysis of the Difference in Differences (DID) Income between Treatment and Control Groups without Gender and Location Interactions Variable**

Variabel	Estimate Std.	Error	t value	Pr (> t )
Constant (Intercept)	2665217	277782	9.595	< 2 x 10 <sup>-16</sup> ***
Time After Receiving social assistance	532955	270072	1.973	0.048798 *
Intervention Treatment group	-2844048	270740	-10.505	< 2 x 10 <sup>-16</sup> ***
Number of Household Dependents	681045	73089	9.318	< 2 x 10 <sup>-16</sup> ***
Time After: Intervention Treatment Group	1396263	381953	3.656	0.000273 ***

Source: Data Management Output using R-Studio Software Note: Significant Code 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ''

**Table 3. Estimated Results of Difference In Difference (DID) Model with Additional Variables of Location and Gender of Workers**

Variabel	Estimate Std.	Error	t value	Pr (> t )
(Intercept)	3399578	328378	10.353	< 2 x 10 <sup>-16</sup> ***
Time After Receiving Social Assistance	532670	261879	2.034	0.0207 *
Intervention Treatment Group	-2858023	262544	-10.886	< 2 x 10 <sup>-16</sup> ***
Additional Dependent	737944	71858	10.269	< 2 x 10 <sup>-16</sup> ***
Gender	163755	185407	0.883	0.377385
Location 2	-847686	262446	-3.230	0.001289 **
Location 3	-1116351	262289	-4.256	2.33 x 10 <sup>-05</sup> ***
Location 4	-1929086	263050	-7.334	5.56 x 10 <sup>-13</sup> ***
Post- Treatment	1395226	370598	3.765	0.000179 ***
Residual Standard Error:	2619000 on 790 degrees of freedom (4 observations deleted due to missingness)			
Multiple R-squared:	0.288 and Adjusted R-squared: 0.2808			
F-statistic:	39.94 on 8 and 790 DF, p-value: < 2.2 x 10 <sup>-16</sup>			

Source: Data Management Output using R-Studio Software Note: Significant Code 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ''

Conducting direct research will provide more accurate and comprehensive insights into the experiences and roles of women in Indramayu regarding their efforts to support their families. Social, economic, and cultural factors can indeed play a significant role in influencing work decisions and gender roles within a population. Therefore, further research or specific information regarding the situation in Indramayu is necessary to understand the gender dynamics in economic activities and their impact on regional income. By conducting more extensive research, gathering specific data, and considering the socio-economic and cultural context, a more comprehensive understanding of gender roles and their implications for income can be obtained in Indramayu. It will contribute to a better understanding of the factors at play and potentially inform policies and interventions that address gender disparities and promote economic empowerment in the region.

## CONCLUSION

Difference In Difference (DID) Estimation: The research utilized the Difference In Difference (DID) method to estimate the impact of a social assistance program on income. DID allows for comparing outcome changes between a treatment group (those receiving social assistance) and a control group (those not receiving social assistance). Income Increase After Social Assistance: The research found that the social assistance program increased income for the extremely poor population in Indramayu. The estimated increase was 532,670 rupiah, assuming other variables remain constant. Based on the information provided, some crucial aspects encountered in this research are decreasing Income for Non-Recipients: The research also identified a decrease in income for the impoverished population in Indramayu who did not receive social assistance. The estimated decrease was 2,858,023 rupiahs, assuming other variables remain constant. Gender and Work: The research mentioned the significance of gender and work in the context of Indramayu. It highlighted that both men and women who work did not significantly impact their income.

Women in Indramayu play a crucial role as parents who work to meet the needs of their families and often serve as the primary breadwinners. Other Factors Affecting Income: The research also identified other factors that affect income, such as the increase in the number of dependents in a recipient family. It found that for each additional dependent, the income of impoverished social assistance recipients increased by 737,944 rupiahs, assuming other variables remain constant. Location-specific Economic Cycles: The research highlighted that the income changes varied across different locations within Indramayu, indicating that the local economic cycles impact the local population's income. Specifically, it mentioned income decreases of 847,686 rupiahs in location 2 and 1,116,351 rupiahs in location 3, while no changes occurred in other variables. These findings emphasize the importance of understanding the impact of social assistance programs, gender dynamics, and local economic conditions on income levels in Indramayu. Further research is recommended to explore these factors in more detail and gain a deeper understanding of the complex interactions involved.

## Acknowledgment

The Author would like to gratefully extend this deepest gratitude to the Indonesia Endowment Fund for Education (LPDP), the Indonesia Ministry of Finance for supporting the publication of this article and the Author's postgraduate education.

## REFERENCES

- Barrientos, A., & Hulme, D. 2008. *Social Protection for the Poor and Poorest: Concepts, Policies and Politics*. BPS Kabupaten Indramayu. 2022. *Kabupaten Indramayu dalam Angka: Vol. Volume 13*.
- Chambers, R. 2013. *Rural development: putting the last first*. Routledge.
- Fiszbein, A., Kanbur, R., & Yemtsov, R. 2014. *Social protection and poverty reduction: Global patterns and some*

- targets. *World Development*, 61, 167–177. <https://doi.org/10.1016/j.worlddev.2014.04.010>
- Frenda, A., Sepe, E., & Scippacercola, S. 2021. Efficiency analysis of social protection expenditure in the Italian Regions. *Socio-Economic Planning Sciences*, 73. <https://doi.org/10.1016/j.seps.2020.100965>
- Haushofer, J., & Fehr, E. 2014. On the psychology of poverty. In *Science* (Vol. 344, Issue 6186, pp. 862–867). American Association for the Advancement of Science. <https://doi.org/10.1126/science.1232491>
- Laajaj, R. 2017. Endogenous time horizon and behavioural poverty trap: Theory and evidence from Mozambique. *Journal of Development Economics*, 127, 187–208. <https://doi.org/10.1016/j.jdeveco.2017.01.006>
- Leal Filho, W., Lovren, V. O., Will, M., Salvia, A. L., & Frankenberger, F. 2021. Poverty: A central barrier to the implementation of the UN Sustainable Development Goals. *Environmental Science and Policy*, 125, 96–104. <https://doi.org/10.1016/j.envsci.2021.08.020>
- Tanguy, B., Dercon, S., Orkin, K., Taffesse, A. S., Bhalotra, S., Camfield, L., Collin, M., Dalton, P., Haushofer, J., Hoddinott, J., Heady, D., Vargas Hill, R., Hoff, K., Quinn, S., & Ray, D. 2014. *The Future In Mind: Aspirations And Forward-Looking Behaviour In Rural Ethiopia*. SSRN Electronic Journal. doi: 10.2139/ssrn.2514590.
- Vekelita Revi Maudy, Y. A. (n.d.). *Bantuan UMKM: Cara Daftar, Syarat, hingga Cek Penerima BLT*. Retrieved February 10, 2022
- Warton, E. M., & Parker, M. M. 2018. Oops, I DID it again! Advanced difference-in-differences models in SAS®. *Kaiser Permanente Division of Research*, 2, 1–17.
- Warton, M., & Permanente, K. 2020. *Time After Time: Difference-in-Differences and Interrupted Time Series Models in SAS* ®.

\*\*\*\*\*