Indonesia's Extreme Poverty Eradication 2024, Which Poverty Standard Is Good To Use?: Input-Output Table Analysis

Yuvensius Sri Susilo[1], Jonathan Ersten Herawan[2]
{ sri.susilo@uajy.ac.id[1], erstenjonathan@gmail.com[2]}

Universitas Atma Jaya Yogyakarta, Indonesia[1,2]

Abstract. This study aims to find out and analyze the best poverty standards that can be applied by Indonesia in supporting extreme poverty alleviation programs through INPRES Number 4 of 2022, currently, the Indonesian Government uses a PPP poverty standard reference of $ 1.9 per day where the World Bank has initiated PPP poverty standards new. Furthermore, this research is expected to obtain the best poverty standards that can be applied by the Government to alleviate poverty, especially extreme poverty that occurs in Indonesia by using Input-Output tables that go through iteration stages and use the RAS Partial Survey in several scenarios in this study which also record population growth trends. The result of this research is the World Bank poverty line standard scenario of US$ 2.15 PPP. These results are the best scenario that can be run by the Government of Indonesia to support INPRES Number 4 of 2022. If this scenario is implemented, it will make a positive contribution to output (6.02% in the optimization scenario), tax revenue (6.61% in the optimization scenario), added value in 17 Sectors (FLER), and the strength of the spread of economic sectors in 17 Sectors (BLER). The recommendation from this study is that the Government of Indonesia needs to make adjustments to the poverty standards initiated by the World Bank to produce optimal poverty alleviation programs.

**Keywords:** Extreme Poverty; Input-Output Analysis; PPP; INPRES

1 Introduction

The issuance of Presidential Instruction (INPRES) No. 4. 2022 regarding the alleviation of extreme gravel has become a new basis for Indonesia in its seriousness in alleviating extreme debris to reach 0% by 2024. Various policy interventions are carried out in 3 (three) implementation stages contained in the National Team Roadmap Poverty Reduction Acceleration (2022), which is in the following stages.
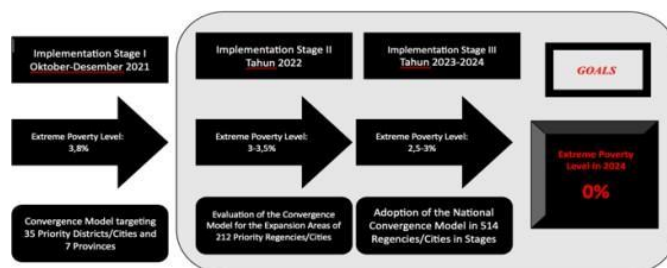
Fig. 1.. Work Plan for the Acceleration of Extreme Poverty Management
Source: TP2NK and Coordinating Ministry for Economic Affairs (2022)

Through the roadmap above, Indonesia's position in ASEAN countries is currently lagging behind compared to Singapore, Malaysia, and Thailand which have "zero extreme poverty". Indonesia's position is also lagging behind Vietnam which in 2018 has reached 1.8% and Myanmar which in 2017 has reached 1.4%. According to the World Bank (2013), to eradicate the problem of poverty, a road map is needed that regulates various institutions covering social, economic, and institutional arrangements that are intangible in helping these various poverty problems. During the time of the COVID-19 pandemic, various poverty trends occurred in Asian and African countries (OECD, 2022). Even based on Susenas data (2020) there are conditions that are concerning the distribution of Indonesian people's income, without intervention from the Government, then in the D1-D4 period there will be a deficit of people's income to meet their daily needs, of which an average of 90% is spent on consumption. This is a serious problem that must be addressed by the Government because of the large opportunities for underground poverty that the Government cannot read and will be very vulnerable to dealing with various volatility, uncertainty, complexity, and ambiguity which are the current global trends.
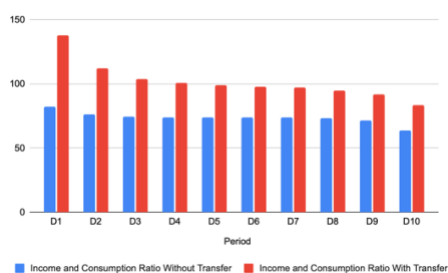

Fig. 2. Distribution of Indonesian People's Income in 2020
Source: National Socio-Economic Survey (2020)

The adjustments by World Bank regarding the poverty standard must be a focus because initially using a poverty standard of $1.9 PPP per day to $2.15. PPP per day even if Indonesia

is serious about intervening in poverty, it is not impossible to be able to use a poverty standard of $3.65 PPP per day to get maximum results by carrying out economic transformation for the resilience of the Indonesian economy (World Bank, Indonesian Ministry of Finance, and Indonesian Coordinating Ministry for the Economy (2023). However, the poverty standard change policy carried out by the Indonesian Central Bureau of Statistics (2023) until now still uses a poverty standard of $ 1.9, which means that Indonesia is still using the old standard in intervening in policies for dealing with extreme poverty and poverty.

Data obtained from the World Bank shows that there is a fairly wide gap when using a poverty standard of $2.15 and $3.65 PPP per day as shown below
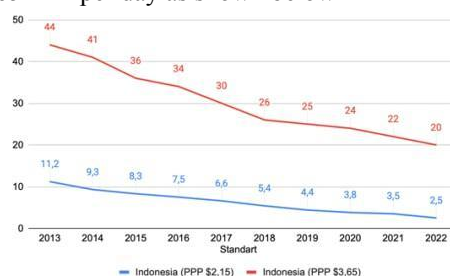
Fig. 3. Indonesia Gap Poverty
Source: World Bank (2023)

2.   Literature Review

Research conducted by Murdiyana and Mulyana (2017) using descriptive methods with library studies design conducted an analysis of extreme poverty alleviation programs starting from the Old Order, New Order, first period of President Joko Widodo's administration and poverty strategy policies in Indonesia showed that there were 2 types of policies. Research by Guswandi (2022) using the Data Envelopment Analysis for the 2016-2020 period the aim is to determine the efficiency of the development strategy and regional disparities in Dharmasraya Regency. The results of this study show the diversity of results, namely the calculation of efficiency shows that investment, infrastructure, and business empowerment can significantly reduce poverty and regional disparities in Dharmasraya Regency, this study also recommends the allocation of funds for industrial development, expanding investment and providing financial assistance for the development of creative businesses The Poverty & Equity Brief East Asia & Pacific report (2019) states that at a value of US$1.9 PPP per person per day, a change in the CPI for the current year period is required and Indonesia's extreme poverty rate is at 4 percent so that poverty alleviation can be carried out in accordance with SDGs and recommended in the short term The government is asked to focus the program on targeting extreme poor families by using a standard US$ 2.15 PPP per person per day to make it easier to complete.

Research by Lilik et al (2022), aims to determine the severity of poverty that occurs in Indonesia by using an equal distribution of poverty method and tracking households in Indonesia from 2007-2014. The results of this study indicate that the poverty component of 77% is dominated by households using the quantile regression approach and finds that age, gender, employment status, and education are the dominant factors causing poverty. Groups of people who experience chronic poverty are dominated by difficulties in accessing financial services, electricity, information, and transportation. therefore improving the quality of setting

living standards needs to be a concern and the need to make improvements to agriculture, manufacturing, services, and transportation sectors (World Bank, 2022).

3. Research Method

3.1 Data and Data Sources

This study uses secondary data, namely in the form of Input-Output table data of the Republic of Indonesia for 2016, Indonesia's Gross Domestic Product data for 2022 to carry out iterations sourced from the Central Bureau of Statistics of the Republic of Indonesia (BPS RI). This study also uses the Standard Classification of Indonesian Business Fields to aggregate 52 business fields into 17 sectors in Indonesia.

3.2 Analysis Tool

In this study, the analytical tools used in the Input-Output table are formulated as follows (BPS RI, 2010):

$Zi = Mi + Xi = ..Wi + Yi$ .... (1) (supply) (demand)

$(I = 1,2,3,...)$

Equation 2 will be derived in table I, namely:

$Xj = ..Xij + Vj = Uj + Vj$ ....(2)

$(j = 1,2,3,...)$

According to BPS RI (2010), contains the equilibrium between production quantities in each sector for input prices in other sectors and is added up to carry out added value analysis and as projectivity in economic activity then, the following stages:

1. Perform a breakdown of activity sectors that have links with the sector to be analyzed, namely backward linkage or forward linkage;
2. Perform an analysis of the effect of activities projected in the I-O table and modified through aggregation and iteration to analyze backward linkage or forward linkage;
3. Analyze the projected impact of the development of activities as a whole, both direct impact and indirect impact to analyze static and dynamic economic impacts.

3.3 Scenario Simulation

This study using a poverty standard scenario sourced from BPS RI and the World Bank, namely $ 1.9 PPP (standard used by Indonesia), $ 2.15 PPP (adjustment standard) and $ 3.2 PPP (standard expected to be applied by the World Bank in Indonesia). per day per head taking into account the trend of population growth, namely the scenario of trend, moderate, and optimism for the Indonesian people in the direction of a demographic bonus.

4 Results and Discussion

4.1 Results and Projections of Output and Tax Revenue

In 2023, it can be seen that the increase in output will grow significantly in the scenario that is expected to be implemented in Indonesia by the World Bank, namely in the trend scenario, output will increase by 5.20% but taking into account the fiscal space in the moderate and

optimistic scenario, the adjustment scenario made by the World The bank can be applied because it does not have a big effect on implementing the scenario expected by the World Bank ($3.2 per capita per day).
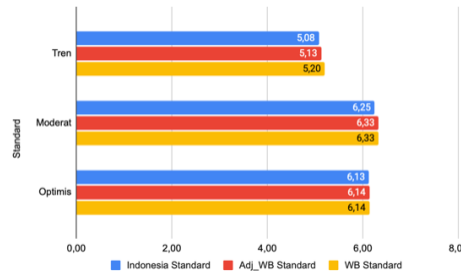
Fig. 4. Results of the 2023 Poverty Standard Output Analysis
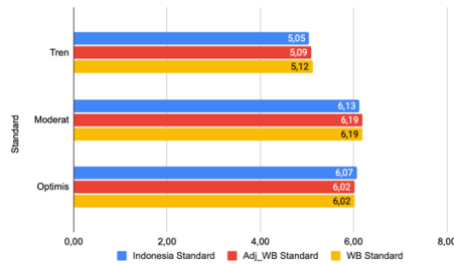Source: Data processed

In the calculation of tax revenues, there is a difference in the impact of implementing the various scenarios that have been made, namely in the trend scenario there is no strong difference in tax revenues, but it appears to have a strong impact in the moderate scenario when applying the standard adjustments made by the World Bank ($2.15 per capita per day) which grew by 9.53%. However, the optimistic scenario that has been implemented in Indonesia ($1.9 per capita per day) is the best scenario because large population growth will result in greater subsidies and have an impact on reducing tax revenues.
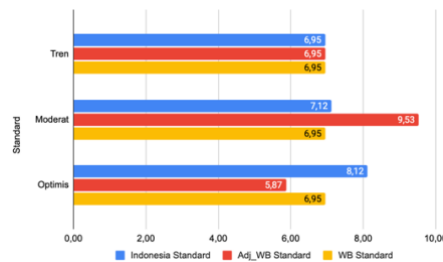
Fig. 5. Results of the 2023 Poverty Standard Tax Revenue Analysis
Source: Data processed

In 2024, where the INPRES will be the last year to eradicate extreme poverty of 0%, the results show that in the WB standard trend scenario ($3.2 per capita per day) it is the best scenario but in the moderate and optimistic scenario it is better to use the Adj_WB standard ($2.15 per capita per day) because there will be an increase in output of 6.19% and 6.02% in the existing scenario.

Fig. 6. Results of the 2024 Poverty Standard Output Analysis

Source: Data processed

In 2024 tax revenues, mixed results are obtained where in the trend scenario, the Indonesian standard ($1.9 per capita per day) is the best scenario that can be implemented because there is a potential for tax revenue growth of 7.02% in this scenario to be implemented, but in moderate and optimistic scenarios can use the Adj_WB scenario ($2.15 per capita per day) to be a scenario that can be used by taking into account the available fiscal space.
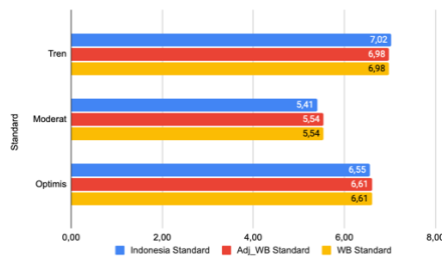
Fig. 7. Results of the 2024 Poverty Standard Tax Revenue Analysis

Source: Data processed

4.2 FLER and BLER Analysis Results

In the analysis of the Trend, Moderate, and Optimistic scenarios, the best FLER and BLER values occur in the World Bank adjustment scenario where all sectors have added value and the power of distribution is large and equally strong as indicated by a value > 1.00 in all sectors where the food and drink accommodation provision sector became the strongest sector. Results of the FLER and BLER analysis for 2024, similar results were also obtained where in all sectors in the poverty adjustment standard the World Bank provided added value and strong economic spread in various trend, moderate and optimistic scenarios. The food and drink accommodation provision sector provides an added value of 50.72 times and this sector provides a distribution of economic power to other sectors of
13.02 times.

Table 1. Results of Poverty Standard FLER and BLER Analysis

Sector	Tahun 2023						Tahun 2024					
	Trend		Moderat		Optimis		Trend		Moderat		Optimis	
	Adj_WB Standard		Adj_WB Standard		Adj_WB Standard		Adj_WB Standard		Adj_WB Standard		Adj_WB Standard	
	FLER	BLER	FLER	BLER	FLER	BLER	FLER	BLER	FLER	BLER	FLER	BLER
Agriculture, Forestry and Fisheries	4,66	25,18	1,08	4,55	1,72	2,73	4,97	27,67	4,66	25,18	5,20	2,26
Mining and excavation	9,45	9,11	1,44	4,30	0,50	3,91	10,09	10,31	9,45	9,11	0,00	1,79
Processing industry	9,74	8,02	12,47	4,75	3,55	4,50	10,31	9,01	9,74	8,02	13,59	6,46
Procurement of Electricity and Gas	9,82	9,00	10,81	5,74	1,65	5,49	1,04	9,99	9,82	9,00	4,96	1,86
Water Procurement, Waste Management, Waste and Recycling	9,57	7,16	9,37	6,47	4,61	1,64	1,01	7,93	9,57	7,16	4,69	2,66
Construction	13,80	5,05	3,74	5,28	2,63	10,41	14,72	53,29	13,80	5,05	36,59	2,61
Wholesale and Retail Trade; Car and Motorcycle Repair	34,21	10,06	5,51	4,80	2,43	6,12	36,33	11,49	34,21	10,06	36,26	3,41
Transportation and Warehousing	42,40	10,70	4,29	3,90	0,23	5,20	45,03	12,10	42,40	10,70	31,69	2,45
Provision of Accommodation and Food and Drink	47,80	11,62	1,91	3,35	7,19	4,69	50,72	13,02	47,80	11,62	0,59	1,55
Information and Communication	4,54	11,06	3,52	2,87	8,71	4,11	4,83	1,24	4,54	11,06	3,59	0,76
Financial Services and Insurance	3,90	1,17	4,23	2,42	8,80	3,68	4,15	1,31	3,90	11,71	6,06	0,10
Real Estate	43,28	12,27	8,22	1,39	13,67	2,61	46,08	13,64	43,28	12,27	25,92	1,11
Company Servi	4,03	1,35	8,69	0,55	13,86	1,81	4,30	1,49	4,03	1,35	28,14	2,09
Government Administration, Defense and Compulsory Social Security	2,74	1,29	7,13	0,72	10,77	0,37	2,93	1,43	2,74	1,29	27,58	3,25
Education Serv	4,47	11,64	2,74	1,37	3,50	0,47	4,88	12,97	4,47	11,64	16,20	4,79
Health Services and Social Activities	1,10	3,45	1,71	1,26	2,02	1,77	1,22	36,93	1,10	3,45	5,39	14,07
Other Services	1,38	3,97	0,85	2,91	1,08	33,66	1,52	4,13	1,38	3,97	1,41	6,61

Source: Data processed

4.3. Output Multiplier and Income Multiplier Analysis

Results of the income multiplier analysis, various results were obtained from the impact of each sector, both in terms of increasing income and also output for the community. However, overall the World Bank's adjustment scenario of $2.15 per capita per day is the best standard in the trend, moderate and optimistic scenario because it impacts 4 sectors, namely the wholesale and retail trade sector; car and motorbike repair, transportation, and warehousing, provision of food and drink accommodation, and real estate which are essential sectors in helping to eradicate poverty (World Bank, 2022). The same results are also found in the poverty scenario in 2024, where the four sectors are the wholesale and retail trade sector; car and motorcycle repair, transportation and warehousing, provision of food and drink accommodation, and real estate are sectors that contribute to increasing people's income and output when poverty standards are applied with reference to the World Bank's standard adjustment of $2.15 per capita per day.

Table 2. Results of Poverty Standard Income and Output Multplier Analysis

Sector	Tahun 2023						Tahun 2024					
	Trend		Moderat		Optimis		Trend		Moderat		Optimis	
	Adj_WB Standard		Adj_WB Standard		Adj_WB Standard		Adj_WB Standard		Adj_WB Standard		Adj_WB Standard	
	Income Multiplier	Output Multiplier	Income Multiplier	Output Multiplier	Income Multiplier	Output Multiplier	Income Multiplier	Output Multiplier	Income Multiplier	Output Multiplier	Income Multiplier	Output Multiplier
Agriculture, Forestry and Fisheries	0,87	0,63	0,88	0,85	0,88	1,01	0,88	0,71	0,88	0,71	0,23	3,13
Mining and excavation	1,87	0,50	1,88	0,90	1,88	1,31	1,88	0,52	1,88	0,52	1,23	0,80
Processing industry	0,73	9,81	0,74	12,61	0,74	15,57	0,74	10,24	0,74	10,24	0,19	9,77
Procurement of Electricity and Gas	0,25	0,74	0,45	0,78	0,46	0,79	0,26	0,77	0,26	0,77	0,64	5,67
Water Procurement, Waste Management, Waste and Recycling	0,92	0,24	1,42	0,26	1,47	2,87	0,98	0,26	0,98	0,26	1,81	1,03
Construction	2,46	0,05	1,15	0,59	1,45	1,28	2,04	0,01	2,04	0,01	1,75	1,29
Wholesale and Retail Trade; Car and Motorcycle Repair	5,92	2,90	0,87	3,64	1,43	4,37	5,14	3,03	5,14	3,03	1,48	5,39
Transportation and Warehousing	9,31	1,50	0,64	1,73	1,35	1,94	8,16	1,57	8,16	1,57	1,23	3,77
Provision of Accommodation and Food and Drink	9,90	5,28	0,42	5,56	1,17	5,58	8,71	5,55	8,71	5,55	0,98	20,56
Information and Communication	11,57	0,66	0,18	0,71	0,65	0,74	10,24	0,69	10,24	0,69	0,61	1,94
Financial Services and Insurance	13,65	0,36	0,87	0,41	0,08	0,44	1,22	0,39	1,22	0,39	0,21	1,13
Real Estate	16,23	3,48	16,65	3,66	0,57	3,69	14,56	3,65	14,56	3,65	0,20	13,26
Company Servi	1,88	0,48	2,44	0,53	1,20	0,57	16,92	0,50	1,69	0,50	0,62	1,30
Government Administration, Defense and Compulsory Social Security	2,10	0,03	3,08	0,02	1,71	0,01	1,90	0,02	1,90	0,02	1,02	0,90
Education Serv	23,53	0,14	3,82	0,11	2,30	0,10	21,36	0,11	21,36	0,11	1,44	2,05
Health Services and Social Activities	25,97	0,39	4,52	0,37	2,84	0,37	23,64	0,37	23,64	0,37	1,85	0,07
Other Services	2,74	0,66	4,70	0,64	2,92	0,63	24,94	0,65	2,49	0,65	2,15	0,53

Source: Data processed

5. Conclusions and Policy Recommendation

5.1 Conclusion

From the various results of the analysis in this study, several conclusions can be drawn regarding poverty standards, namely:

1. Based on the results of dynamic economic analysis, it can be concluded that there is a potential increase in output in 2023 of 5.13 - 6.14% by applying the best scenario by the Government using a poverty standard of $ 1.9 per capita per day and in 2024 the potential for increasing output of 5.09-6.19% by applying a poverty standard of $2.15 per capita per day which is the best scenario. To receive the best tax revenue, the poverty standard of $2.15 per capita per day can be the standard applied in 2023 with a potential increase in tax revenue of 6.95-9.53% and in 2024 of 5.54-6.98%.

2. Based on the results of the FLER and BLER analysis, the results of the best poverty standard that can be applied by the Government are scenarios of $2.15 per capita per day because both in 2023 and 2024 because all sectors can provide added value and the best economic dissemination power, especially in the supply sector food and drink accommodation.

3. Based on the results of the analysis of the income multiplier and output multiplier, there are 4 sectors that have been positively affected by the implementation of the World Bank's poverty adjustment standard of $2.15 per capita per day, where the four sectors are related and essential sectors for alleviating poverty, namely the wholesale trade sector and retail; car and motorcycle repair, transportation and warehousing, provision of food and drink accommodation, and real estate

5.2. Policy Recommendation
Based on the conclusions above, the policy recommendations that can be made are as follows:
1. Theoretically, the Government considers that implementing adjustments to the World Bank's poverty standards will place a burden on fiscal space. However, it can have an impact on increasing output and tax revenues which can also become Government funding for subsidies by implementing the new poverty standards.
2. Practically, the results of this study can be used as material for policy recommendations for the Central Government to be able to apply the World Bank's adjustment poverty standard of $2.15 per capita per day and abandon the poverty standard of $1.9 per capita per day which can also boost the national economy.

References
[1] Hamari, J., Sjoklint, M., & Ukkonen, A. (2015). The Sharing Economy: Why People Participate in Collaborative Consumption. JOURNAL OF THE ASSOCIATION FOR INFORMATION SCIENCE AND TECHNOLOGY, 67. https://doi.org/10.1002/asi
[2] Porter, M. E. (1980). Competitive Strategy: Techniques for Analyzing Industries and Competitors. New York : Free Press.
[3] The World Bank (2013). End Extreme Poverty and Promote Shared Prosperity. The World Bank Group.
[4] Suharto, Wahyu (2022). Penguatan Kapasitas Daerah Dalam Penghapusan Kemiskinan Ekstrem. Direktorat Sinkronisasi Urusan Pemerintahan Daerah III, Direktorat Jenderal Bina Pembangunan Daerah, Kementerian Dalam Negeri.
[5] Social Justice Ireland (2020). Poverty and Inequality In The European Union- Submission to The UN Special Rapporteur On Extreme Poverty and Human Rights
[6] BPS. (2016). Indonesia - Survei Angkatan Kerja Nasional 2016 Agustus. Badan Pusat Statistik. https://mikrodata.bps.go.id/ mikrodata/index.php/catalog/798.
[7] Infid. (2018). Laporan publik 2017-2018. International NGO Forum on Indonesian Development. https://www.infid.org/wp- content/uploads/2019/05/ 2018-Buku-Laporan-INFID-web.pdf.
[8] Miyazawa, K. (2012). Input-output analysis and the structure of income distribution. Lecture notes ini economics and mathe matical systems,
116. Springer Science & Business Media.
[9] Sonis, M., & Hewings, G. J. (2000). LDU-factorization of Miyazawa income multipliers in multiregional systems. The Annals of Regional Science, 34(4), 569-589. doi: https://doi.org/10.1007/s001680000022.
[10] Embassy Of Sweden (2022). Multidimensional Poverty Analysis For The Asia Pasific Region 2022. Development Cooperation Section Bangkok.
[11] McCord, Carlos Gordon (2018). Extreme Poverty. University of California, San Diego
[12] Sugiharti, Lilik., Purwono, Rudi., Esquivias, Miguel Angel, Jayanti, Ari Dwi (2022). Poverty Dynamics In Indonesia: The Prevelance and Causes Of Chronic Poverty. Journal Of Population and Social Stuides. Universitas Airlangga, Indonesia.
[13] Pape, Utz Johan (2023). Poverty and Equity Brief in East Asia and Pasific: Indonesia. World Bank Group.
[14] Kharas, Homi., Dooley, Meagan (2022). The Evolution Of Global Poverty, 1990-2030. Brooking Global Working Paper #166
[15] Sumarto, Sudarno., Moselle, Sarah (2015). Addresing Poverty and Vulnerability In ASEAN: An Analysis Of Measures and Implications Going Forward. ERIA Discussion Paper Series: The SMERU Research Institute.

[16] Hill, Hal (2021). What's Happened To Poverty and Inequality In Indonesia Over Half A Century?. Asian Development Bank Institute.

[17] Tim Nasional Percepatan Penanggulangan Kemiskinan (2022). Penentuan Wilayah Prioritas Kemiskinan Ekstrim 2021-2024. Australian Government

[18] Guswandi (2022). Strategic Area Development To Reduce Poverty and Regional Gaps In The District. Jurnal Ilmu Ekonomi.