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The Role of Leading Sectors and Balancing Funds in Reducing Poverty and Improving the Welfare in the Papua Province

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Abstract: This research investigates the role of the primary sector and balancing funds in efforts to reduce poverty and enhance the welfare of the population in the Province of Papua, utilizing a panel data analysis approach. The data utilized spanned from 2018 to 2021, encompassing 29 regencies/cities in the Province of Papua. The data were obtained from the Papua Province Central Statistics Agency and the Directorate General of Fiscal Balance, Ministry of Finance of the Republic of Indonesia, which was collected using documentation techniques. The results of our analysis reveal significant findings. First, it was found that leading sectors, general allocation funds and revenue sharing funds have a significant impact in reducing poverty levels in this region. Second, poverty also has a significant influence on the welfare of the population. Furthermore, our research results also show that leading sectors, general allocation funds and revenue sharing funds have a significant impact in improving the welfare of the population directly, but not significantly through poverty.

Keywords: Leading Sectors, Balancing Funds, Poverty, Welfare.

INTRODUCTION

Papua Province as an integral part of the Republic of Indonesia has enormous natural potential, including high-value mineral resources, abundant forest products, vast marine resources, and stunning natural landscapes, including diverse flora and fauna (Riani & Pudjihardjo, 2012; Udiarto, 2015; Masruri, 2022). The Papua Province Regional Development Planning Agency (2019) noted that within the PT Freeport Indonesia concession area in Mimika Regency, there are estimated mineral reserves worth US\$ 161.15 billion or around Rp 2,352.81 trillion, consisting of 38.6 billion pounds of copper worth Rp 1,690.68 trillion, 33.8 million ounces of gold worth Rp 625.24 trillion, and 152.6 million ounces of silver worth Rp 36.9 trillion. In addition, there are production forest areas that can be considered for large-scale plantation development, capable of producing up to 130,000 barrels of biodiesel oil per day, with an export value of US\$ 5.6 billion per year (Sumule et al., 2019). Of the total forests in Papua Province covering 31.4 million hectares, more than 14 million hectares are protected and conservation forests, which contain tremendous potential for endemic flora and fauna (Sumule et al., 2019). Papua also has a coastline of 1,170

nautical miles, a water area of 228,000 km², and sustainable fisheries potential of up to 1.3 million tons per year (Papua Province Regional Development Planning Agency, 2019).

Indeed, these abundant natural resources are a great opportunity to improve the welfare of local communities and make a positive contribution to the national economy. This potential could be key in improving the quality of life of the people of Papua Province. However, the reality shows that this abundance of natural resources has not fully created a positive impact on the welfare of the Papuan population. The Central Bureau of Statistics of the Republic of Indonesia (2022) even noted that the level of welfare of the Papuan population, as measured by the Human Development Index (HDI), is the lowest compared to other provinces in Indonesia.

The above phenomenon motivates us to investigate efforts to improve the welfare of the population in Papua Province. There are four main aspects at the center of our research, which provide a strong foundation for the relevance and urgency of this study. First, we try to explore the role of leading sectors in improving the welfare of the population in Papua Province, in relation to its natural resources such as mining, agriculture, forestry and marine. From a search through Google Scholar, we found that there are not many studies that explore the response of the leading sector to population welfare in Indonesia. Generally, researchers only relate the leading sector to economic growth (Juhanis, 2012; Syarifuddin & Zulham, 2018; Qubro et al., 2021; Luthfianto, 2023; Meilena & Wahed, 2023), as well as to employment (Ponto et al., 2015; Pratama, F. B. et al., 2021; Putri & Cahyono, 2021). Indeed, the relationship between leading sectors and population welfare is supported by neo-classical growth theory. According to this theory, a leading sector is a sector that can create exports (Agustina & Pamungkas, 2021), is able to grow faster than other sectors (Moedjiono et al., 2021), especially with the presence of supporting elements such as technological progress, increased labor absorption, and capital accumulation (Rajab & Rusli, 2019). Thus, according to the concept of neo-classical growth theory, we believe that leading sectors can play an important role in improving the welfare of the population through measures to reduce unemployment and poverty. Therefore, the identification and development of leading sectors can be considered as a crucial step in improving people's welfare. This is also supported by Nasir's (2017) research which found that the leading sector has a significant effect on people's welfare. Similarly, Budiani et al. (2022), who found that the manufacturing sector as a leading sector has a significant influence on population welfare. Thus, this study will answer the question to what extent can the leading sector have a positive impact on improving population welfare in Papua Province?

Second, we investigate the effectiveness of equalization fund management in supporting population welfare in Papua Province. Since the introduction of regional autonomy, the Government of Indonesia has been working to improve the welfare of Papuans. From the fiscal aspect, each local government receives budget transfers from the central government to implement development and reduce financial imbalances between regions in a more flexible manner. The main instruments in this fiscal realm include the transfer policy to the regions, which involves balancing funds, special autonomy funds, and regional incentive funds (Suratman, 2017). Specifically, the balancing fund is the largest part of the transfer of funds to the regions, derived from APBN revenues allocated to meet regional needs in the context of decentralization. The balancing fund component involves general allocation funds (DAU), special allocation funds (DAK), and revenue sharing funds (DBH), which are sourced from tax revenues and natural resources (Suratman, 2017). This policy fundamentally aims to improve the efficiency of public sector service delivery at the regional level, with the hope that it can have a positive impact on the welfare of the population. A better understanding of the conditions of the population at the local level is considered the basis for empowering local governments to manage this policy (Bjornestad,

2009). Several empirical studies have explored the response of dana perimbangan to improvements in population welfare. For example, Abdillah & Wahyudi (2021), Widodo & Zakiah (2022), and Febrianti (2022) found that equalization funds have a significant effect on population welfare. Meanwhile, Putra & Dewi (2018) and Wardani (2018) found that equalization funds had no effect on population welfare. This shows the different responses of equalization funds to population welfare in various regions. Indeed, with this equalization fund policy, Papua Province can manage its revenues and allocate these funds according to regional needs. However, the question that arises is to what extent can equalization funds have a positive impact on improving the welfare of the population in Papua Province?

Third, we broaden the focus of this study by using poverty as an intervening variable, in mediating the influence of the leading sector and equalization funds on the welfare of the population in Papua Province. By adopting this approach, we seek to understand the extent to which the effectiveness of leading sector development and equalization fund management can directly affect population welfare, and indirectly through the poverty rate in Papua Province. Several researchers, such as Suhendi & Astuti (2023), Chairunnisa & Gunarto (2023), and Trisno et al. (2022) found that poverty has a negative and significant effect on population welfare. These studies imply that there is a strong influence between the level of poverty and the welfare of the population. However, Ningsih & Kara, (2023), and Khikmah et al. (2018) found that poverty has no significant effect on population welfare. This draws attention to the variation in research results and the possibility that certain factors may influence the relationship between poverty and population welfare. Thus, it is important to investigate the extent to which poverty variables play a role in mediating the effect of the leading sector and equalization funds on population welfare in Papua Province.

Fourth, our study uses panel data from 2018-2021 for 29 districts/cities in Papua Province. The use of panel data in this study will provide a more comprehensive and in-depth picture of the dynamics in Papua Province. By involving all districts/municipalities in Papua Province, this study can explore contextual differences that may affect efforts to improve the welfare of the population. The use of panel data also allows for the analysis of trends over time, so that patterns of change and factors that may have contributed to these changes can be identified.

Our research makes a significant contribution to the understanding of the factors that influence the welfare of the population in Papua Province. First, it fills a knowledge gap by investigating the role of leading sectors in economic development and their impact on population welfare. By providing a strong theoretical basis, this study demonstrates that leading sectors can not only contribute to economic growth and employment, but can also play a crucial role in improving population welfare. Second, this study evaluates the effectiveness of equalization fund management in supporting the welfare of Papuans. By examining budget transfers from the central government, this study provides insights into the extent to which equalization fund allocations can be improved to achieve maximum impact on population welfare. The recommendations of this study can provide practical direction for policymakers in improving the efficiency and effectiveness of the use of equalization funds. Third, by including poverty as a mediator in the relationship between the leading sector, equalization funds, and population welfare, this study provides a deeper understanding of how poverty alleviation can be a key strategy to improve population welfare. These findings can lead us to more targeted policies in an effort to improve the welfare of the population in Papua Province.

METHOD

The data used in this study is panel data from 2018 to 2021 for 29 districts/cities in Papua Province. Thus, this study has 116 observations. For the balancing fund variable, we

proxy it through the general allocation fund (DAU), General Allocation Fund (DAU) and revenue sharing fund (DBH). Meanwhile, population welfare is proxied through the Human Development Index (HDI). As for the leading sector variable, we proxy it through the number of leading sectors GRDP, for each district/city. The leading sector in a region is obtained using Location Quotient analysis, with the following formula (Tarigan, 2005, in Bakar, 2017):

$$LQ = \frac{x_i/PDRB}{X_i/PNB} > 1$$

Where: LQ is Location Quotient, xi is the value added of sector i at constant prices in each district/city, GRDP is the total GRDP at constant prices in each district/city, Xi is the value added of sector i at constant prices in Papua Province, and GNB is the total GRDP at constant prices in Papua Province.

All data for this study were obtained from the Central Bureau of Statistics (BPS) of Papua Province and the Directorate General of Fiscal Balance of the Ministry of Finance of the Republic of Indonesia. In this study, the data were tested using statistical analysis using Eviews 12 software. The analytical tool used is path analysis with a panel data regression approach. The model we propose consists of three independent variables, one intervening variable, and one dependent variable. Econometrically, the specification of this model is as follows:

$$\text{Poverty} = \beta_1 \text{Ln GRDP of Leading Sector} + \beta_2 \text{Ln DAU} + \beta_3 \text{Ln DAK} + \beta_4 \text{DBH} + \varepsilon_1$$

$$\text{HDI} = \beta_5 \text{Ln GRDP Leading Sector} + \beta_6 \text{Ln DAU} + \beta_7 \text{Ln DAK} + \beta_8 \text{Ln DBH} + \beta_9 \text{Poverty} + \varepsilon_2$$

Before interpreting the results of the analysis, in accordance with the panel data regression guidelines, we select the best model using the F Test/Cow Test, Lagrange Multiplier Test and Hausman Test (Gujarati, 2003), and test the fulfillment of classical assumptions which include heteroscedasticity and multicollinearity tests. If these classical assumptions are not met, correction measures or data transformation will be applied. However, if Random Effect is the chosen model, classical assumption tests are no longer required. This is because the Random Effect model uses the Generalized Least Square (GLS) approach which allows the model to be Best Linear Unbiased Estimate (Gujarati, 2003; Kosmaryati et al., 2019).

RESULTS AND DISCUSSION

Results

Identification of Leading Sectors

To identify the leading sectors in each district/city in Papua Province during the 2018-2021 period, Location Quotient (LQ) analysis was used. LQ results greater than 1 indicate that the sector is a leading sector, i.e. a sector that is superior at the local level compared to the Papua Province as a whole.

Based on the results of the LQ analysis, the leading sectors of each district/city in Papua Province during the study period were obtained, as shown in the following table:

Table 1. Identification of Leading Sectors by Regency/City in Papua Province 2018-2021

Regency/City	Leading Sector
Biak NumforRegency	(1); (3); (4); (5); (7); (8); (9); (10); (11); (12); (13); (14); (15); (16); (17)
JayapuraRegency	(1); (3); (4); (5); (6); (7); (8); (10); (11); (12); (13); (14); (15); (16); (17)
Kepulauan YapenRegency	(1); (3); (4); (5); (7); (8); (9); (10); (11); (12); (13); (14); (15); (16); (17)
Kota Jayapura	(3); (4); (5); (6); (7); (8); (9); (10); (11); (12); (13); (14); (15); (16); (17)
SarmiRegency	(1); (3); (4); (5); (6); (7); (8); (12); (14); (15); (16); (17)
KeeromRegency	(1); (3); (4); (6); (9); (14); (15); (16); (17)
WaropenRegency	(1); (6); (12); (14); (15); (17)

Regency/City	Leading Sector
SupioriRegency	(1); (4); (6); (12); (14); (15); (16); (17)
Mamberamo RayaRegency	(1); (6); (7); (14); (15); (16); (17)
MeraukeRegency	(1); (3); (4); (5); (6) (7); (8); (9); (10); (11); (12); (13); (14); (15); (16); (17)
Boven DigoelRegency	(1); (3); (6); (14); (16)
MappiRegency	(1); (6); (14); (15); (16); (17)
AsmatRegency	(1); (3); (6); (14); (15); (16); (17)
MimikaRegency	(2)
NabireRegency	(1); (4); (6); (7); (11); (12); (14); (15); (16); (17)
PaniaiRegency	(2); (6); (14)
Puncak JayaRegency	(1); (6); (14); (15); (16); (17)
DogiyaiRegency	(1); (7); (12); (14); (16)
PuncakRegency	(1); (6); (14)
Intan JayaRegency	(1); (6); (14); (15); (16); (17).
DeiyaiRegency	(1); (6); (7); (14); (15); (16)
JayawijayaRegency	(1); (3); (4); (6); (7); (8); (9); (10); (11); (12); (13); (14); (15); (16); (17)
YahukimoRegency	(1); (6); (12); (14); (15); (16); (17)
Kab. Pegunungan Bintang	(1); (6); (14); (15); (16)
TolikaraRegency	(1); (6); (8); (14); (15); (16); (17)
Mamberamo TengahRegency	(1); (6); (7); (8); (14); (15); (16); (17)
YalimoRegency	(1); (6); (7); (8 (14); (15); (16)
Lanny JayaRegency	(1); (6); (7); (8); (12); (14); (15); (16)
NdugaRegency	(1); (6); (7); (12); (14); (15); (16); (17)

Notes:

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| (1) Agriculture, Forestry, and Fisheries | (9) Provision of Accommodation and Drinking Food |
| (2) Mining and Quarrying | (10) Information and Communication |
| (3) Processing Industry | (11) Financial and Insurance Services |
| (4) Electricity and Gas Procurement | (12) Real Estate |
| (5) Water Procurement, Waste Management, Waste and Recycling | (13) Company Services |
| (6) Construction | (14) Government Administration, Defense and Compulsory Social Security |
| (7) Wholesale and Retail Trade; Repair of Cars and Motorcycles | (15) Education Services |
| (8) Transportation and Warehousing | (16) Health Services and Social Activities |
| | (17) Other services |

Based on Table 1, it can be seen that each district/city in Papua Province has its own leading sector, which plays an important role in the regional economy. In general, the Agriculture, Forestry, and Fisheries sector, the Government Administration, Defense and Compulsory Social Security sector, and the Health Services and Social Activities sector are the mainstays in most districts/cities. This reflects the abundant natural resources, improved public services, and social service activities in the region. Meanwhile, Mimika and Paniai stand out as districts with an advantage in the Mining and Quarrying sector, indicating the potential for significant mining natural resources in the area.

Descriptive Statistics

Descriptive statistical analysis was carried out with the main objective of providing a brief description of the data distribution of each variable in this study. The analysis in this descriptive statistic summarizes various important aspects of the data, namely the mean, standard deviation, maximum value, and minimum value. Table 2 presents the results of descriptive statistical output from all variables in this study.

Table 2. Descriptive Statistics

Variabel	N	Minimum	Maximum	Mean	Standard Deviation
Ln GRDP Leading Sector	116	27,235	31,807	28,245	1,078
Ln DAU	116	24,821	26,446	25,753	0,388
Ln DAK	116	24,285	28,520	24,751	0,671
Ln DBH	116	3,382	4,384	4,027	0,204
Poverty	116	10,030	43,650	28,811	9,737
HDI	116	29,420	80,160	57,200	11,193

Table 2 illustrates the descriptive statistics for the six variables of this study. The leading sector variable (Ln GRDP Leading Sector) shows relative stability with limited variation. Similarly, the General Allocation Fund (Ln DAU), Special Allocation Fund (Ln DAK), and Revenue Sharing Fund (Ln DBH) variables show stability with low variation. However, the poverty rate variable shows a high level of variation. This reflects significant disparities in the socioeconomic conditions of people in various districts/cities in Papua Province. Similarly, the population welfare variable (HDI), which also shows considerable variation, indicates differences in the level of human development influenced by various factors.

Analysis of the Best Model Selection

The panel data regression model selection process is a key step in the analysis to determine the best estimation method, among the common effect, fixed effect, and random effect models. This model selection uses various statistical tests, namely the F test/Chow test to determine the use of the common effect or fixed effect model; the Lagrange Multiplier test to determine the use of the common effect or random effect model; and the Hausman test to determine the use of the fixed effect or random effect model.

Table 3. Summary of Best Model Selection Test Results

Sub-structural Model 1			
Uji F/Uji Chow			
Effect Test	Statistic	Degree of Freedom	Probability
Cross-section F	337,289174	(28,83)	0,0000
Cross-section Chi-square	550,194346	28	0,0000
Uji Hausman			
Test Summary	Chi-square Statistic	Chi-square d.f.	Probability
Cross-section random	9,183389	4	0,0567
Sub-structural Model 2			
Uji F/Uji Chow			
Effect Test	Statistic	Degree of Freedom	Probability
Cross-section F	245,833859	(28,82)	0,0000
Cross-section Chi-square	515,270099	28	0,0000
Uji Hausman			
Test Summary	Chi-square Statistic	Chi-square d.f.	Probability
Cross-section random	7,816475	5	0,0737

Based on Table 3, for both structural models, it is concluded that the best model that matches the characteristics of the panel data analyzed is the random effect model. This determination is based on the results of statistical tests that include the F test/Chow test and Hausman test. First, the results of the F test/Cow test of the two structural models show that the p-value of Cross-section F is 0.0000. By considering the significance level used (0.05), the fixed effect model is considered more appropriate than the common effect model. Then, the Hausman test results show that the Cross-section random p-value in both structural

models has a value greater than 0.05. This means that the random effect model is better than the fixed effect model.

Path Analysis

After the best model is selected, the next step in our analysis is to apply path analysis. In the context of this study, path analysis helps us understand the relationship between the leading sector and equalization funds to population welfare directly, as well as indirectly through poverty.

Table 4. Summary of Random Effect Model Analysis Results

Sub-structural Model 1			
Dependent Variable: Poverty			
Variable	Coefficient	t-Statistic	Prob.
C	139,3342	5,725759	0,0000
Ln GRDP Leading Sectors	-1,394633	-2,315523	0,0224
LnDAU	0,466980	1,863726	0,0650
LnDAK	0,341679	1,025090	0,3075
LnDBH	-22,75252	-5,032485	0,0000
R-squared	0,368711	F-statistic	16,20768
Adjusted R-squared	0,345962	Prob(F-statistic)	0,000000
Sub-structural Model 2			
Dependent Variabel: HDI			
Variable	Coefficient	t-Statistic	Prob.
C	-143,2953	-24,18688	0,0000
Ln GRDP Leading Sectors	0,271858	2,964264	0,0320
Ln_DAU	0,239664	4,139000	0,0001
Ln_DAK	0,049617	0,653169	0,5150
Ln_DBH	46,67871	43,51200	0,0000
Poverty	-0,088108	-4,337537	0,0000
R-squared	0,961723	F-statistic	552,7530
Adjusted R-squared	0,959983	Prob(F-statistic)	0,000000

Based on Table 4, the feasibility test results of structural model 1 show that the leading sector variables and equalization funds simultaneously have a significant effect on the poverty rate. This is indicated by the F-statistic probability value that is smaller than 0.05. Meanwhile, the feasibility test results of structural model 2 also show that the leading sector variables, equalization funds and poverty simultaneously affect population welfare, proxied by the HDI value.

The adjusted coefficient of determination (Adj. R-squared) for each structural model is 0.345962 and 0.959983, indicating that about 34.59% of the variation in poverty is explained by the leading sector and equalization fund variables. The remaining 65.41% is the result of other factors that are not included in this research model. On the other hand, 95.99% of the variation in population welfare, proxied by HDI, is explained by the variables of the leading sector, equalization funds and poverty.

Furthermore, partially, from the results of the t statistic test, it is found that the leading sector has a significant effect on poverty. This means that any growth or development in the GDRP of the leading sector can contribute to a reduction in the poverty rate. These results suggest that efforts to strengthen the leading sector can be one of the effective strategies to reduce poverty levels in each district/city in Papua Province. Interestingly, in the context of equalization funds, only the Revenue Sharing Fund component has a significant effect on poverty, while the General Allocation Fund and Special Allocation Fund have no effect on

poverty. This indicates that the mechanism of providing equalization funds through the Revenue Sharing Fund has a greater role in overcoming poverty than the General Allocation Fund and the Special Allocation Fund.

In terms of population welfare, partially, the variables of leading sector, general allocation fund, equalization fund, and poverty rate have a significant impact on population welfare. Growth or development in the leading sector was identified as a positive factor contributing to the improvement of population welfare. The General Allocation Fund and Revenue Sharing Fund were also shown to have a positive impact, indicating that the use of these two funds can improve the welfare of the population. The poverty rate, as expected, also has a significant relationship with the welfare level of the population, where a decrease in poverty contributes to an increase in welfare. Interestingly, the Special Allocation Fund (DAK) did not prove to have a significant effect on people's welfare. This means that an increase or decrease in the Special Allocation Fund does not result in any real change in the welfare of the population in each kabupaten/kota in Papua Province.

To test the ability of the poverty variable, as an intervening variable, in mediating the relationship between the leading sector and equalization funds on population welfare, it is necessary to analyze the indirect relationship with the Sobel test. If the p-value of the Sobel test is less than the specified significance level (0.05), this indicates a significant mediating effect of the poverty variable on the relationship between the leading sector and equalization funds and population welfare indirectly.

Table 5. Direct Effect, Indirect Effect and Sobel Test

Influence between Variables	Direct Effect	Indirect Effect	Sobel Test (Prob)
Ln GRDP Leading Sectors → Poverty	-1,394633	-	-
Ln DAU → Poverty	0,466980	-	-
Ln DAK → Poverty	0,341679	-	-
Ln DBH → Poverty	-22,75252	-	-
Poverty → HDI	-0,088108	-	-
Ln GRDP Leading Sectors → HDI	0,271858	-1,394 x -0,088 = 0,123	0,6696
Ln DAU → HDI	0,239664	0,466 x -0,088 = 0,041	0,7263
Ln DAK → HDI	0,049617	0,341 x -0,088 = 0,030	0,7606
Ln DBH → HDI	46,67871	-22,752 x -0,088 = 2,002	0,6596

Table 5 shows that poverty is not able to mediate the relationship between the leading sector and equalization funds on population welfare. This is indicated by the Sobel test p-value which is greater than 0.05. This result shows that although there is a relationship between the leading sector and equalization funds on population welfare, poverty does not act as a significant intermediary in the influence of these variables on population welfare. The inability of poverty to act as a mediator means that the influence of the leading sector and equalization funds on population welfare is direct.

Discussion

1. The Effect of Leading Sector on Poverty

The results of our study show that there is a negative relationship between the leading sector and poverty, indicating that growth or development in the GDRP of the leading sector

can contribute to improving the socioeconomic conditions of the population, especially in addressing poverty. This finding underscores that as the leading sectors develop, there is a tendency for the poverty rate to decrease in each district/city in Papua Province. This can be caused by a number of factors, such as increased employment, economic diversification, and better access to economic resources and opportunities (Ayomi, 2013). Increased employment in leading sectors can open up better job opportunities, reduce unemployment rates, and directly contribute to poverty reduction (Lahama, Andrew. et al., 2018; Jayadi & Brata, 2016). Economic diversification accompanied by growth in leading sectors also reduces dependence on a particular sector, making a region more resilient to economic fluctuations and having a positive impact on social stability (Uar & Madubun, 2021). The importance of better access to resources and economic opportunities within leading sectors can also have a positive impact on income and poverty (Dewantara & Susanto, 2020). Improved labor skills, training, and infrastructure support provided by leading sectors can open the door to more opportunities for local residents to improve their lives.

The results of this study are in line with research (Trismayanti, 2023), that the leading sector has a significant effect on poverty reduction. The implication is that an in-depth understanding of the role of leading sectors in overcoming poverty can provide a strong basis for the formulation of more inclusive and sustainable economic development policies in Papua Province. Further steps could include increasing investment and development in the identified leading sectors that are key to poverty reduction, as well as ensuring that these policies are integrated with the needs and potential of local communities.

2. The Effect of Fiscal Balance Fund on Poverty

Our results show that there is a positive relationship between equalization funds and poverty, except for the Special Allocation Fund (DAK). This indicates that in general, an increase in equalization funds (General Allocation Fund and Revenue Sharing Fund) tends to correlate with a decrease in the poverty rate. Meanwhile, DAK, which has no impact on poverty reduction, indicates that the effectiveness of the allocation of these funds has not fully produced the expected impact.

The General Allocation Fund (DAU) and Revenue Sharing Fund (DBH) play different but complementary roles in the context of development and poverty reduction in Papua Province. DAU and DBH, with their focus on public services and reducing regional inequality, are closely linked to poverty reduction efforts through improving access to and quality of basic services (Panggabean et al., 2022; Kadafi & Murtala, 2020). DAU and DBH can be directed to support public service programs such as education, health, and social infrastructure. By improving people's access to these services, DAU and DBH can contribute significantly to improving welfare and reducing poverty.

Meanwhile, the insignificant effect of DAK on poverty reduction in Papua Province may be due to inequities in the allocation formula. The mechanism for allocating these funds does not seem to consider equitable factors, especially in terms of population. DAK is supposed to serve as a source of funding to support specific activities that are regional affairs and in line with national priorities. However, inequity arises because the formula is based on population, so regions with larger populations tend to receive larger transfers. Based on a report by the Central Bureau of Statistics of Papua Province (2022), although the number of poor people in Papua Province is greater than that of DKI Jakarta, because DKI Jakarta has a larger population than Papua Province, DKI Jakarta receives more equalization funds than Papua Province. The findings of this study also indicate that the utilization of DAK by local governments has not been maximized. This can be understood by the geographical conditions of Papua Province which are difficult to access, so that public services financed from these funds cannot be enjoyed by all residents in Papua. In addition, prolonged social conflicts and

security challenges in some areas of Papua Province can also contribute to the non-optimality of DAK utilization by local governments. This condition certainly hampers the implementation of development and investment programs that should support poverty reduction in Papua Province.

The results of this study are in line with the research of Rasu et al. (2019) and Nany et al. (2022) who also found that DAK has no effect on poverty alleviation.

3. The Effect of Poverty on Population Welfare

The results of our study show a negative relationship between poverty and population welfare, which indicates that an increase in poverty results in a decrease in population welfare. This is because an increase in the poverty rate inherently leads to a number of adverse consequences for the welfare of the population of each district/city in Papua. An increase in poverty tends to result in limited access to education and health services. Families experiencing poverty will find it difficult to finance the education and health of their family members, which in turn can limit the potential for development and social mobility. This limited access to education and health then leads to a decline in skills and employment opportunities in the future (Nila Isroviyah, 2020).

The significant effect of poverty on the welfare of the population in Papua Province is in line with the principles of the New Growth Theory, which highlights the crucial role of the government in increasing human productivity (Jayadi & Brata, 2016). This theory emphasizes the importance of government intervention and involvement in promoting development, particularly in terms of human capital development and productivity improvement. The New Growth Theory underlines that involving the government in development, especially in the aspect of human capital, can significantly contribute to increasing human productivity. Previous research results by Suhendi & Astuti (2023), Chairunnisa & Gunarto (2023), and Trisno et al. (2022) also corroborate these findings by showing that an increase in the poverty rate can lead to lower welfare levels.

4. The Effect of the Leading Sector on Population Welfare

Our results show a positive relationship between the growth of leading sectors and the welfare of the population, indicating that significant developments in leading sectors have a positive impact on people's welfare. Factors that accompany the growth of leading sectors, such as increased employment, economic diversification, and better access to economic resources and opportunities, can contribute to improved population welfare (Ayomi, 2013). Increased employment in the leading sectors can open up better job opportunities, reduce the unemployment rate, and directly contribute to improved welfare (Lahama, Andrew et al., 2018; Jayadi & Brata, 2016). Economic diversification accompanied by the growth of leading sectors can also reduce dependence on certain sectors, create economic stability, and have a positive impact on social stability. The importance of better access to resources and economic opportunities within the leading sectors can also increase the income and welfare of the population (Uar & Madubun, 2021).

Thus, our research findings provide empirical support to the concept that flagship sectors have a central role in improving people's welfare, filling a void in previous research and embracing the neo-classical growth theory perspective. This research has the potential to provide more comprehensive insights into the impact of leading sectors on population welfare.

5. The Effect of Balancing Funds on Population Welfare

Our results show a positive relationship between balancing funds and population welfare, except for the Special Allocation Fund (DAK). This finding indicates that in general,

an increase in balancing funds, such as the General Allocation Fund (DAU) and Revenue Sharing Fund (DBH), correlates with an increase in population welfare. DAU and DBH, as forms of balancing funds that are directed to support public services and create a balance between national and regional development, have proven to have a positive impact on the welfare of the population. These funds can be used to improve access to and the quality of basic services such as education, health and infrastructure, which in turn can contribute to improvements in people's welfare. However, interestingly, the Special Allocation Fund (DAK) does not show a significant positive impact on population welfare. This could be due to a variety of factors, including perhaps the ineffective or unoptimistic allocation and use of DAK in supporting programs that directly affect community welfare at the local level. Our findings confirm that financial resources derived from dana perimbangan can make a positive contribution to the welfare of the population, provided that the management and allocation of these funds is done effectively and in accordance with the real needs of local communities.

6. The Effect of the Leading Sector and Balancing Funds on Population Welfare through Poverty

Our results show that poverty does not act as a mediator in the relationship between the leading sector and equalization funds on population welfare. This finding indicates that although there is a positive effect of the leading sector and equalization funds on people's welfare, poverty is not the intermediary or factor that conveys this impact. This can be interpreted to mean that the leading sector and equalization funds have a direct impact on the welfare of the population, without involving poverty as an intermediary in the process. Thus, efforts to develop leading sectors and allocate equalization funds appropriately can directly improve people's quality of life without having to go through poverty reduction as an intermediary. This finding provides additional understanding that interventions and policies that focus on the development of leading sectors and optimizing the allocation of equalization funds can have a positive impact that is directly felt by the community, without having to wait for the effect through a reduction in the poverty rate first.

CONCLUSION

The results of this study conclude with significant key findings. First, this study confirms that the growth of the leading sector, as reflected in GRDP, has a positive impact on reducing the poverty rate in various districts/cities in Papua Province. This finding is in line with neo-classical growth theory that highlights the important role of the leading sector in improving the socioeconomic conditions of the population. Second, balancing funds, particularly the General Allocation Fund (DAU) and Revenue Sharing Fund (DBH), play a vital role in improving the welfare of the population in Papua Province. These funds, which are directed to support public services and reduce regional inequality, contribute positively to improving access and quality of basic services. However, another interesting finding is the insignificant effect of the Special Allocation Fund (DAK) on poverty reduction. This indicates that the effectiveness of the allocation and use of DAK in supporting programs that directly affect community welfare has not been fully optimized. Third, poverty plays a crucial role in determining the welfare level of the population in Papua Province. The finding that an increase in the poverty rate can result in limited access to education and health services, which in turn limits the potential for development and social mobility, provides an in-depth understanding of the complexity of factors affecting welfare. Fourth, the positive relationship between the growth of the leading sector and population welfare reinforces the concept that the leading sector has a central role in improving community welfare, in accordance with the perspective of neo-classical growth theory. Fifth, balancing funds, especially the General Allocation Fund (DAU) and Revenue Sharing Fund (DBH), have a positive effect on

population welfare. However, it should be noted that the Special Allocation Fund (DAK) does not show a significant positive impact, indicating the need for evaluation and improvement in its allocation and use. Finally, poverty does not act as a mediator between the leading sector and equalization funds on population welfare. This suggests that the leading sector and equalization funds have a direct impact on the welfare of the population, without involving poverty as an intermediary.

The results of this study provide several recommendations and policy implications that can strengthen efforts to improve population welfare in Papua Province. First, to support the growth of the leading sector, strategic investments need to be made in infrastructure development and labor skills training in sectors that have high potential. Local governments can work with the private sector and educational institutions to create an environment that supports innovation and productivity improvements. Second, an in-depth evaluation of the allocation and use of the Special Allocation Fund (DAK) is needed to ensure its effectiveness in supporting programs that have a direct impact on people's welfare. Reforms in the formulation of DAK allocations can help ensure that the funds actually reach the target and provide maximum benefits to the local population. Third, poverty prevention and reduction programs should be the main focus of policy formulation. This includes improving access to education and health for poor families, as well as providing direct economic support to them. These measures can help reduce the negative impact of poverty on social mobility and individual development. Fourth, local governments can encourage the development of leading sectors through tax incentives, technical assistance, and investment facilitation. Collaboration with the private sector and third parties such as research institutions and universities can also strengthen the capacity of leading sectors. Fifth, it is important to strengthen coordination between central and local governments in managing the General Allocation Fund (DAU) and Revenue Sharing Fund (DBH). Efficient mechanisms in the allocation and use of these balancing funds can contribute significantly to improving access and quality of basic services such as education, health and infrastructure. Finally, local community participation needs to be enhanced through an inclusive development planning process. This approach ensures that development policies and programs truly reflect the needs and aspirations of local communities.

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