A Study on Development Disparities in Central Papua Province: Assessing Per Capita Income Disparities and Recommending Equitable Development Strategies

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ARTICLE INFORMATION

ABSTRACT

This research is a study of development disparities between regions in Central Papua Province which aims to (1) know and analyze disparities in per capita income between regions in Central Papua Province; and (2) analyze and prepare recommendations regarding efforts to overcome development disparities between regions in Central Papua Province. Data and information gathered from various regions undergo processing and examination through quantitative and qualitative methods. These approaches encompass evaluating factors like per capita income, employment across sectors, savings rates, urbanization levels, literacy rates, life expectancy, infant mortality rates, along with offering policy suggestions based on research outcomes. The data utilized is sourced from governmental bodies like BPS, Bappeda, Dispenda, as well as non-governmental institutions such as Bank Indonesia. Research analysis involves growth assessment, disparity examination, and descriptive statistical analysis. The result shows that over the past decade (2013-2022), there has been significant economic inequality among districts/cities within Central Papua Province region, indicating unequal economic growth across regions. Efforts that need to be made by Regency/City Governments in Central Papua Province are to improve the performance of community welfare aspects which are considered capable of driving equitable development in each region.

Keywords: Development Disparities; Economic Growth; Inequality; Per Capita Income

INTRODUCTION

Economic development stands as a fundamental gauge of progress in societal advancement, reflecting a nation's capacity to expand its output at a pace outstripping its population growth rate (Runtunuwu & Kotib, 2021; Bisai et al., 2024). However, this metric also unveils a stark reality of regional disparities, manifesting in varying levels of economic development among districts and cities. Such inequality in economic growth not only underscores the intricacies of regional development but also serves as a tangible indicator of differing levels of prosperity across regions. It illustrates that some areas experience rapid growth, while others undergo slow development. These conditions are influenced by the distinct characteristics of each area, such as demographic variations, differences in natural resources, the concentration of economic activities in specific regions (agglomeration), and the inadequate flow of goods and services within those areas.

Differences in the economic capacity of a region also contribute to development inequality. Therefore, it is not uncommon for each region to have areas that are economically advanced (developing areas) and underdeveloped areas (less developed areas). This inequality between regions has an impact on the level of community welfare in various regions, and this also influences the formulation of regional development policies by the local government.

According to Todaro (2011), development has at least three main goals which include increasing the availability and distribution of necessities, increasing living standards, and expanding economic and social choices. In addition, the main goal of development efforts is to reduce and eliminate poverty, income inequality, and unemployment.

Papua is a region that has its own challenges in development, especially because of its geographic conditions which are difficult to access, as well as the cultural and social diversity of its people. Djojohadikusumo (1994) asserted that economic development encompasses a wider scope, encompassing transformations in the overall economic structure of society. Addressing these challenges requires coordinated efforts from government agencies, civil society organizations, and local communities to promote inclusive and sustainable development in Papua. Various steps have been taken to accelerate economic growth and improve the welfare of the Papuan population, one of which is the regional autonomy policy. Special autonomy in Papua Province has been running for approximately 20 years since the enactment of the Special Autonomy Law for Papua Province in 2001. During this time, the implementation of special autonomy aims to provide more privileges and attention to the special needs and characteristics of the Papuan people.

Law Number 22 of 1999 (Indonesia. The Audit Board [BPK RI], 1999a) on Regional Government and Law Number 25 of 1999 (Indonesia. BPK RI, 1999b) concerning the financial equilibrium between central and regional governments form the foundation for decentralization, encompassing political, administrative, and fiscal realms to achieve regional autonomy. Law Number 22 delineates authority distribution between central and regional governments, while Law Number 25 governs financial resource allocation consequent to this authority distribution. Both laws underscore the imperative of fostering regional autonomy, stressing democratic principles, community engagement, equality, and justice, alongside the consideration of regional resource potential and diversity. Moreover, they offer clear guidelines and flexibility for regions to surpass previous limitations.

Special autonomy in Papua Province covers various aspects, including political, administrative, and fiscal. One of the important points of this special autonomy is providing greater control over the management of natural resources and local wealth for the Papuan people. It is hoped that this will improve the welfare and empowerment of the Papuan people and reduce disparities in development between regions in Papua Province. During the 20 years of special autonomy, there have been various developments and challenges. The central government and regional government of Papua Province continue to strive to improve the implementation of this special autonomy following the aspirations and needs of the Papuan people. However, there are still various issues that need to be addressed, including challenges in managing natural resources, empowering local communities, and efforts to achieve inclusive and sustainable development in Papua Province.

Over time, evaluations continue to be carried out to improve and increase the effectiveness of special autonomy in Papua Province, so that it can provide maximum benefits for all Papuan people and achieve the development goals that have been set. With special autonomy, the Papua regional government is given greater authority in planning and implementing development at the local level. This allows the adoption of policies that better suit the needs and characteristics of local communities. The special autonomy policy should be able to realize the hope of equitable development towards justice and balance in Papua Province. Income disparities between households also still appear to be quite high, with all the development results achieved so far being enjoyed more by a small percentage (20%) of high-income households per year. Meanwhile, the majority of low-income households (40%) only receive a small portion per year.

According to Central Agency of Statistics (BPS, 2023b), Papua's economy in the first quarter of 2023 compared to the first quarter of 2022 experienced a contraction of -2.39 percent (y-on-y). But if we look at it without mining and excavation, the Papuan economy experienced growth of 4.67 percent. This shows that most of Papua's economic growth is still dominated by the Mining and Quarrying Sector. The Mining and Quarrying Business Field experienced a contraction of -11.64 percent due to the decline in gold and copper production due to hampered production processes caused by rainfall and landslides. Apart from the mining and quarrying sector, the business field that experienced a contraction in growth was the processing industry business field by -0.29 percent due to a decline in the production of the wood industry and several other industries. The three sectors that experienced the highest growth in the first quarter of 2023 were the warehousing transportation sector, they are electricity and gas procurement sector, financial services, and insurance sector.

Papua's economic growth in the first quarter of 2023 (y-on-y) which experienced a contraction of -2.39 percent was contributed by all business fields, especially business fields that made a large contribution to the Papuan economy, namely the mining and quarrying business field which contributed 36 .24 percent; construction contributed 14.72 percent; agriculture, forestry and fisheries contributed 10.70 percent; wholesale and retail trade, car and motorbike repair contributed 9.61 percent; and the government administration, defense, and mandatory social security business fields contributed 8.34 percent.

If we look at the creation of sources of economic growth in Papua in the first quarter of 2023 (y-on-y) based on data from BPS, Papua is dominated by mining and quarrying which provided the source of the deepest contraction of -5.04 percent and followed by the construction business sector which provided a source of growth of 0. 47 percent; wholesale and retail trade, car and motorbike repair, 0.47 percent; agriculture, forestry and fisheries at 0.42 percent: and government administration, defense and mandatory

social security business fields at 0.40 percent; apart from the 5 business fields above, they have a source of growth of 0.89 percent.

Papua's economy without mining and excavation in quarter I-2023 compared to quarter I-2022 (y-on-y) experienced growth of 4.67 percent. The construction business sector category provided the highest contribution of 23.08 percent with a growth rate of 3.92 percent. The transportation and warehousing business sector experienced the highest growth of 10.01 percent, which was due to the increase in the number of departing passengers and loading goods, especially in the sea transportation and air transportation subsectors. This growth was because last year there were still activity restrictions caused by Covid-19.

In September 2022, the expenditure inequality level within the population of Papua Province, as indicated by the Gini Ratio, stood at 0.393, marking a slight decrease of 0.004 points from September 2021's 0.397. Urban areas exhibited a Gini Ratio of 0.294 in September 2022, down from March 2022's 0.315 and September 2021's 0.307. Conversely, rural areas showed a Gini Ratio of 0.419 in September 2022, mirroring March 2022's 0.427 and September 2021's 0.419. According to the World Bank's inequality measure, expenditure distribution among the bottom 40 percent in September 2022 was 15.78 percent, placing it within the moderate inequality category. When analyzed by region, urban areas recorded a figure of 21.89 percent, signifying low inequality, while rural areas recorded 15.03 percent, indicating moderate inequality.

In line with the implementation of regional autonomy, development in each region is carried out based on the needs and interests of each region, resulting in uneven regional development, and can give rise to disparities in development between regions. In connection with this, to determine the disparities in development between regions/regions in Papua Province, as well as provide solutions to solve problems, it is necessary to conduct a study of interregional development disparities in Central Papua Province. The formation of Central Papua Province, which was previously part of Papua Province which was referred to as the new autonomous region, provides an opportunity for the regional government and local communities to be more actively involved in the development process and decision-making that affects their lives. This is expected to accelerate the development of the region and improve the welfare of its residents.

The purpose of conducting a study of development disparities between regions in Central Papua Province is to determine differences in development results between regions/regions based on the achievement of development indicators in districts/cities, as well as providing recommendations for solving problems, which can be used as material for equitable and just development planning. Meanwhile, this research aims to (1) know and analyze disparities in per capita income between regions/regions in Central Papua Province; and (2) analyze and prepare recommendations regarding efforts to overcome development disparities between regions/regions in Central Papua Province.

LITERATURE REVIEW

Development Disparity Between Regions
The problem of income disparity, which is often referred to as disparity or disparity, whether between individuals, households, groups, sectors, or regions, is a problem that always exists in every region, including Papua Province. Even though income disparities cannot be avoided, this does not mean that they can be allowed to continue, because high disparities will have a negative impact on economic, social, and political stability. From an economic perspective, the striking disparity in income between groups/regions indicates that there is excessive exploitation of economic resources by capital owners,

as well as regional governments who are trying to increase their minimal regional income. All of this will ultimately reduce the added value received by society, reduce regional productivity, and increase unemployment and poverty. Furthermore, sectoral income disparities resulting from the dependence of the regional economic structure on one sector cause the economic foundation to become fragile, easily shaken, and unstable, which ultimately has a negative impact on the sustainability of the regional economy in the future (Hafizrianda et al., 2007).

Then from the social and political aspects, high income disparities can cause manifestations of dissatisfaction between community groups which give rise to horizontal conflicts, thereby threatening the harmonization of relations in society, and regional dissatisfaction which gives rise to vertical conflicts, thereby threatening the integrity of national integration.

Wie (1981) stated that a country (region) that solely emphasizes economic growth, without thinking about income distribution, will give rise to various development disparities, including (1) income disparities between groups or relative disparities, (2) income disparities between rural and urban communities, and (3) income distribution disparities between regions. Then, there are eight processes that can give rise to disparities in development in a region, namely (1) high population growth which results in a decrease in per capita income, (2) inflation where money income increases but is not followed proportionally by the increase in production goods, (3) uneven development between sub-regions (or smaller areas), (4) very large investments in capital-intensive projects, so that the percentage of income from assets increases compared to the percentage of income that comes from work, so that unemployment increases, (5) low social mobility, (6) implementation of industrial import substitution policies which causes an increase in the price of industrial goods to protect the capitalist class, (7) worsening terms of trade for those who are developing in trade with developed regions as a result of demand inelasticity in developed regions, and (8) the destruction of people's industries such as carpentry, household industry, and so on. There are three ways to overcome or carry out redistribution of income disparities (Wie, 1981), namely (1) non-incremental redistribution, which concerns the policy of redistributing existing assets, such as progressive income tax collection, (2) incremental redistribution, this method is used in collecting taxes for high-income groups, which are then distributed directly to those who are less well off, and (3) redistribution through growth. This policy aims to increase the income growth rate of the poor, without reducing absolute income.

Income Inequality
Income inequality refers to significant differences in the income earned by individuals in a society. Income inequality impacts individual performance within a company or organization, hindering societal human development and directly correlating with elevated levels of economic disparities (Puji in Muhtar & Lutfi, 2021).

The Kuznets curve theory describes the relationship between increasing income inequality and increasing per capita income before reaching a certain threshold (Kuznets, 2019). After exceeding this threshold, income inequality is expected to begin to decrease and the economy will experience further growth, forming an inverted "U" pattern. Social, economic, and political factors play a key role in this pattern, including the concentration of capital among high-income earners and the shift of population from traditional agricultural sectors to modern industrial sectors (Sutarno & Kuncoro, 2003; Todaro, 2011).

Daniere's (1996) calculation of the Williamson coefficient demonstrates an escalating income disparity among provinces in Thailand, with the Bangkok Metropolitan Region (BMR) identified as the primary contributor to this trend. These findings corroborate a separate study's conclusion, suggesting that Thailand's economic growth heavily depends on the BMR.

Adelman and Morris, as cited in Arsyad (1992), contend that various factors contribute to income inequality, including high population growth diminishing per capita income, disproportionate inflation rates to production increases, uneven regional development, heavy investments in capital-intensive projects leading to increased unemployment, limited social mobility, protectionist industrial policies inflating industrial goods prices, deteriorating exchange rates in international trade, and the decline of traditional craft industries.

Moreover, Sjafrizal (1997) outlines several determinants of regional inequality, encompassing disparities in natural resource endowment, demographic conditions, limited mobility of goods and services, concentration of economic activities within regions, and unequal allocation of development funds.

Redistribution through growth can be used to analyze the long-term potential of economic development, especially regarding disparities (trade-offs). So there are at least four approaches to improving the welfare of the poorest groups in society, they are (1) increasing the rate of regional income growth to the maximum level by increasing savings and allocating resources more effectively and efficiently, (2) diverting investment to the poor in the form of education; health, provision of credit and public facilities, (3) redistributing income to the poor through the fiscal system, or allocating consumer goods directly, and (4) transferring existing assets to the poor, for example through land reform.

In principle, fairer distribution of income that has been achieved through poverty reduction can stimulate healthy economic expansion by providing incentives in the form of material or immaterial to spread community participation in the economic development process. On the other hand, substantial income disparities can cause material or immaterial disincentives for economic progress.

Previous Studies
Previous studies have delved into the complexities of development disparities in various regions, shedding light on factors influencing economic growth, income inequality, and poverty levels. For instance, a study by Safitri in Adriana and Suparyati (2024) analyzed development disparities between districts/cities in the Jambi province, focusing on both economic and non-economic aspects. This research highlighted the significance of regional disparities and the impact of various factors on economic growth and income distribution within a region.

Moreover, a study on poverty determinants in the West Papua province emphasized the importance of economic development in generating strong economic growth, reducing poverty, and minimizing regional income disparities (Pentury, 2023). This study underscored the challenges posed by widening income gaps and high poverty rates in the region, calling for comprehensive strategies to address these issues effectively.

Additionally, research on human development and poverty in Papua Province by Sofilda et al. (2013) explored the relationship between the Human Development Index (HDI) and poverty levels, emphasizing the need for a human-oriented approach to development. This study highlighted the intricate interplay between HDI, poverty levels, government

expenditure, and other relevant variables, providing insights into the dynamics of poverty and human development in the region.

These previous studies collectively contribute to the understanding of development disparities, income inequality, and poverty challenges in regions like Central Papua Province. By analyzing factors such as regional revenue, allocation funds, economic growth, HDI, and poverty levels, researchers have laid the groundwork for assessing disparities and recommending equitable development strategies to foster more balanced and inclusive economic growth across regions.

RESEARCH METHOD

The study of inter-regional development disparities in Papua Province encompasses a thorough analysis of various indicators aimed at understanding and addressing inequalities in economic and social advancement across different areas. Key metrics such as per capita income, sectoral workforce distribution, savings rate, urbanization level, quality of life index, Human Development Index (HDI), and Original Regional Income (PAD) are employed to provide a comprehensive overview. These indicators offer insights into the economic prosperity, workforce composition, financial capacity, urbanization trends, well-being, and overall development progress within the region. By examining these factors, researchers can formulate informed recommendations to mitigate disparities and foster balanced growth, thereby promoting sustainable development and improving the lives of Papua Province residents.

In general, the research approach used in this study consists of two parts, namely a quantitative approach and a qualitative approach. These two approaches are applied because they are related to the objects observed in this study containing quantitative and qualitative elements as well as per capita income, sectoral employment, savings rates, urbanization rates, literacy rates, life expectancy rates, infant mortality rates, and related policy recommendations.

The formulation of a community economic development planning document hinges upon a meticulously structured and comprehensive research framework. This study unfolds through distinct stages designed to yield optimal results. Beginning with the preparatory stage, the groundwork is laid, encompassing the delineation of data specifications, identification of research variables, and selection of pertinent indicators, crucial for subsequent analyses. The data collection phase ensues, wherein identified data undergoes thorough scrutiny and analysis to furnish accurate and systematic reference material. Following this, the consolidation stage emerges, serving as a platform to synthesize findings gleaned from the data analysis, thus facilitating the formulation of recommendations aimed at mitigating development disparities within Central Papua Province. Finally, the report writing stage culminates the study, furnishing policy recommendations geared towards addressing and ameliorating the identified disparities, thus steering the province towards balanced and sustainable development.

The types of data collected in this study include secondary and primary data. Secondary data is data or a collection of data obtained, covered and collected from various reports that have been previously published by an institution. In accordance with the research approach used, the data collected consists of one type of measurement, namely quantitative data. Quantitative data measurements can take the form of interval or ratio scales such as economic growth, poverty, per capita income, labour, investment, etc.

The data collected in this study come from government agencies such as BPS, Bappeda, Dispenda, and so on or those sourced from other non-government institutions such as Bank Indonesia, etc. The main data collection technique used in this study is literature study. A literature study was carried out to obtain a number of secondary data as well as various empirical studies related to the research problem, which was carried out by studying various literature and periodic (monthly/annual) reports available on the research object.

Data and information obtained from each data collection location are processed and analyzed based on quantitative and qualitative approach methods. The analysis in question includes growth analysis, disparity analysis, and descriptive statistical analysis. Each analysis uses the following measurement methods.

Growth Analysis
Growth analysis is used to determine and measure the marginal tendency of an observed variable between certain times and other times in a time series. In general, the growth rate of a variable in a certain time series is calculated using the formulation:

$$g_t = \frac{X_t - X_{t-1}}{X_{t-1}} \times 100\%$$

Where :
g_t : the growth rate of variable X in year t
X_{t-1} : the value of variable X in year t-1
X_t : the value of variable X in year t
T : a specific year

Analysis of Development Disparities Between Regions
According to Putong (2010), one of the methods used to measure development inequality is the Williamson Index. The Williamson Index formula is used to measure the level of disparity in per capita income between regions which is derived using the formulation (Sjafrizal, 1997):

$$WI_Y = \frac{\sqrt{\sum_i (\overline{Y_i} - \overline{Y})^2 \frac{n_i}{n}}}{\overline{Y}}$$

where, WIY is the Williamson Index, ni is the population in region i, n is the total population, Yi is the per capita income in region i, and Y is the average per capita income for all regions. Per capita income in a region is a comparison between GRDP and mid-year population.

The higher the value of the Williamson Index, the greater the inequality in regional financial independence in balancing regional tax revenues, and vice versa. Based on the Williamson Index, the level of disparity that occurs can be determined as follows: (1) High Disparity if IW > 0.5; (2) Medium Disparity if IW = 0.35 – 0.5; and (3) Low Disparity if IW < 0.35

RESULTS

Development Disparity Between Regions of Central Papua Province
Development Disparities in 2013
Using the calculation of GRDP with mining in 2013 in districts/cities in the Central Papua Province region, it shows that the Williamson inequality is 0.51 or > 0.50. So, based on

Williamson's inequality category, this shows that there is high regional economic inequality between districts in the Central Papua Province Region or there has been unequal economic growth between regions.

Table 1. Williamson Index of Inequality for Central Papua Province 2013 (without mining)

| Regency | 2013 | | Yi-Yaverage | (Yi - Yaverage)^2 | Pi/P | [{Yi • Yrata)A2] x {Pi/P} |
	Gross Regional Domestic Product {Y}	Population (P)				
Puncak Jaya	6.74	112.010	-13.88	192.75	0.03694	7.12
Puncak	5.38	99.926	-15.25	232.58	0.032952	7.66
Dogiyai	6.46	89.327	-14.17	200.74	0.02946	5.91
Nabire	27.97	137.283	7.34	53.86	0.045271	2.44
Paniai	7.51	161.324	-13.12	172.14	0.053199	9.16
Mimika	34.20	196.401	13.57	184.25	0.064766	11.93
Intan Jaya	12.23	43.405	-8.40	70.54	0.014313	1.01
Deiyai	8.10	66.516	-12.52	156.78	0.02193	3.44
Average I Total	13.57	906.192			Total	48.67
					Root	6.98
					IW	0.51

Source: BPS, 2023a (processed data)

Development Disparities in 2014
Using GRDP calculations with mining in 2014 in districts/cities in the Central Papua Province region, it shows that the Williamson inequality is 0.18 or <0.50. So, based on Williamson's inequality category, this shows that there is low regional economic inequality between districts in the Central Papua Province Region or there has been economic growth between regions that is still evenly distributed.

Table 2. Williamson Index of Inequality for Central Papua Province 2014 (without mining)

| Regency | 2014 | | Yi ·Yaverage | (Yi - Yaverage)^2 | Pi/P | [{Yi • Yrata)^2] x {Pi/P} |
	Gross Regional Domestic Product {Y}	Population (P)				
Puncak Jaya	6.96	113.280	-14.97	224.09	0.036648	8.21
Puncak	5.79	101.515	-16.14	260.51	0.03284	8.56
Dogiyai	6.95	90.822	-14.98	224.28	0.02938	6.59
Nabire	30.04	137.776	8.11	65.77	0.04457	2.93
Paniai	8.11	162.489	-13.82	190.98	0.052568	10.04
Mimika	35.99	199.311	14.06	197.75	0.06448	12.75
Intan Jaya	13.11	44.812	-8.82	77.71	0.014497	1.13

Deiyai	8.84	68.025	-13.09	171.22	0.022007	3.77
Average I Total	14.47	918.030			Total	53.97
					Root	7.35
					IW	0.51

Source: BPS, 2023a (processed data)

Development Disparities in 2015

Using GRDP calculations with mining in 2015 in districts/cities in the Central Papua Province region, it shows that the Williamson inequality is 0.50 or ≥ 0.50. So, based on Williamson's inequality category, this shows that there is moderate regional economic inequality between districts in the Central Papua Province Region or that there has been fairly even economic growth between regions.

Table 3. Williamson Index of Inequality for Central Papua Province 2015 (without mining)

| Regency | 2015 | | | | | |
	Gross Regional Domestic Product {Y}	Population (P)	Yi ·Yaverage	(Yi - Yaverage)^2	Pi/P	[{Yi • Yrata)^2] x {Pi/P}
Puncak Jaya	7.34	115.310	-15.72	247.19	0.03661	9.05
Puncak	6.21	103.624	-16.68	284.26	0.03290	9.35
Dogiyai	7.42	92.190	-15.64	244.67	0.02927	7.16
Nabire	32.04	140.178	8.98	80.56	0.044510	3.59
Paniai	8.83	164.280	(14.24)	202.76	0.052163	10.58
Mimika	38.20	201.677	15.14	229.09	0.064037	14.67
Intan Jaya	14.09	45.917	-8.97	80.55	0.01458	1.17
Deiyai	9.79	69.381	-13.27	176.15	0.02203	3.88
Average I Total	15.49	932.557			Total	59.45
					Root	7,71
					IW	0,50

Source: BPS, 2023a (processed data)

Development Disparities in 2016

Using the calculation of GRDP with mining in 2016 in districts/cities in the Central Papua Province region, it shows that the Williamson inequality is 0.50 or ≥ 0.50. So, based on Williamson's inequality category, this shows that there is high regional economic inequality between districts in the Central Papua Province Region or there has been unequal economic growth between regions.

Table 4. Williamson Index of Inequality for Central Papua Province 2016 (without mining)

| Regency | 2016 | | | | | |
	Gross Regional Domestic Product {Y}	Population (P)	Yi ·Yaverage	(Yi - Yaverage)^2	Pi/P	[{Yi • Yrata)^2] x {Pi/P}

Puncak Jaya	7.39	119.779	-16.80	282.14	0.03734	10.54
Puncak	6.54	105.521	-17.65	284.26	0.03290	10.25
Dogiyai	7.81	93.809	-16.39	244.67	0.029247	7.85
Nabire	33.98	142.795	9.79	80.56	0.044520	4.27
Paniai	9.17	167.325	-15.02	202.76	0.064098	11.78
Mimika	40.34	205.591	16.15	229.09	0.014747	16.72
Intan Jaya	14.66	47.300	-9.53	80.55	0.014747	1.34
Deiyai	10.39	70.620	-13.80	176.15	0.022018	4.20
Average I Total	16.28	952.740			Total	66.93
					Root	8.18
					IW	0.50

Source: BPS, 2023a (processed data)

Development Disparities in 2017

Using GRDP calculations with mining in 2017 in districts/cities in the Central Papua Province region, it shows that the Williamson inequality is 0.51 or > 0.50. So, based on Williamson's inequality category, this shows that there is high regional economic inequality between districts in the Central Papua Province Region or there has been unequal economic growth between regions.

Table 5. Williamson Index of Inequality for Central Papua Province 2017 (without mining)

Regency	2017		Yi ·Yaverage	(Yi - Yaverage)^2	Pi/P	[{Yi • Yrata)^2] x {Pi/P)
	Gross Regional Domestic Product {Y}	Population (P)				
Puncak Jaya	7.43	123.591	-17.61	310.21	0.03785	11.74
Puncak	6.83	107.822	-18.21	331.78	0.033022	10.96
Dogiyai	8.17	94.997	(16.88)	284.83	0.029094	8.29
Nabire	35.83	145.101	10.78	116.28	0.044439	5.17
Paniai	9.48	170.193	-15.56	242.15	0.052123	12.62
Mimika	41.53	210.413	16.49	271.82	0.064441	17.52
Intan Jaya	14.88	48.318	-10.17	103.37	0.014798	1.53
Deiyai	10.65	72.206	-14.40	207.29	0.022114	4.58
Average I Total	16.85	972.641			Total	72.40
					Root	8.51
					IW	0.51

Source: BPS, 2023a (processed data)

Development Disparities in 2018

Using GRDP calculations with mining in 2018 in districts/cities in the Central Papua Province region, it shows that the Williamson inequality is 0.50 or > 0.50. So, based on Williamson's inequality category, this shows that there is high regional economic inequality between districts in the Central Papua Province Region or there has been unequal economic growth between regions.

Table 6. Williamson Index of Inequality for Central Papua Province 2018 (without mining)

Regency	2018		Yi ·Yaverage	(Yi - Yaverage)^2	Pi/P	[{Yi • Yrata)^2] x {Pi/P}
	Gross Regional Domestic Product {Y}	Population (P)				
Puncak Jaya	7.61	126.113	-18.22	332.13	0.037957	12.61
Puncak	7.07	111.182	(18.77)	352.26	0.033463	11.79
Dogiyai	8.51	96.590	-17.33	300.32	0.02907	8.73
Nabire	37.62	147.921	11.78	138.75	0.04452	6.18
Paniai	9.85	173.391	-15.98	255.41	0.005219	13.33
Mimika	42.52	215.493	16.69	278.44	0.064858	18.06
Intan Jaya	15.14	48.812	(10.70)	114.51	0.014691	1.68
Deiyai	10.97	72.486	(14.87)	221.04	0.021817	4.82
Average I Total	17.41	991.989			Total	77.20
					Root	8.79
					IW	0.50

Source: BPS, 2023a (processed data)

Development Disparities in 2019

Using GRDP calculations with mining in 2019 in districts/cities in the Central Papua Province region, it shows that the Williamson inequality is 0.51 or > 0.50. So, based on Williamson's inequality category, this shows that there is high regional economic inequality between districts in the Central Papua Province Region or there has been unequal economic growth between regions.

Table 7. Williamson Index of Inequality for Central Papua Province 2019 (without mining)

Regency	2019		Yi ·Yaverage	(Yi - Yaverage)^2	Pi/P	[{Yi • Yrata)^2] x {Pi/P}
	Gross Regional Domestic Product {Y}	Population (P)				
Puncak Jaya	7.73	129.300	(18.85)	335.50	0.038262	13.60
Puncak	7.27	113.204	-19.31	372.77	0.03350	12.49
Dogiyai	8.88	97.902	-17.70	313.43	0.028971	9.08
Nabire	39.10	150.308	12.52	156.74	0.044479	6.97
Paniai	10.13	177.410	-16.46	270.81	0.052499	14.22
Mimika	43.80	219.689	17.22	296.38	0.06501	19.27
Intan Jaya	15.39	49.293	-11.19	125.15	0.01459	1.83
Deiyai	11.27	73.199	-15.31	234.51	0.02166	5.08
Average I Total	17.95	1.010.305			Total	82.53
					Root	9.08

		IW	0.51

Source: BPS, 2023a (processed data)

Development Disparities in 2020

Using GRDP calculations with mining in 2020 in districts/cities in the Central Papua Province region, it shows that the Williamson inequality is 0.57 or > 0.50. So, based on Williamson's inequality category, this shows that there is high regional economic inequality between districts in the Central Papua Province Region or there has been unequal economic growth between regions.

Table 8. Williamson Index of Inequality for Central Papua Province 2020 (without mining)

Regency	2020 Gross Regional Domestic Product {Y}	Population (P)	Yi ·Yaverage	(Yi - Yaverage)^2	Pi/P	[{Yi • Yrata)^2] x {Pi/P)
Puncak Jaya	4.27	224.527	-29.34	860.99	0.06121	52.70
Puncak	7.18	114.741	-26.43	698.32	0.031279	21.84
Dogiyai	7.50	116.206	-26.11	681.70	0.03168	21.59
Nabire	34.04	169.136	0.44	0.19	0.04611	0.01
Paniai	81.14	22.041	47.53	2259.52	0.06008	13.58
Mimika	29.36	311.969	-4.25	18.02	0.085043	1.53
Intan Jaya	5.60	135.043	-28.01	784.60	0.036813	28.88
Deiyai	8.29	99.091	-25.32	640.93	0.027012	17.31
Average I Total		1.192.754			Total	157.45
					Root	12.55
					IW	0.57

Source: BPS, 2023a (processed data)

Development Disparities in 2021

Using GRDP calculations with mining in 2021 in districts/cities in the Central Papua Province region, it shows that the Williamson inequality is 0.61 or <0.50. So, based on Williamson's inequality category, this shows that there is high regional economic inequality between districts in the Central Papua Province Region or there has been unequal economic growth between regions.

Table 9. Williamson Index of Inequality for Central Papua Province 2021 (without mining)

Regency	2021 Gross Regional Domestic Product {Y}	Population (P)	Yi ·Yaverage	(Yi - Yaverage)^2	Pi/P	[{Yi • Yrata)^2] x {Pi/P)
Puncak Jaya	4.27	227.641	-18.35	336.77	0.052266	17.60
Puncak	7.19	115.474	-15.43	238.04	0.02651	6.31
Dogiyai	7.48	117.818	-15.13	229.02	0.02705	6.20

Nabire	35.51	170.914	12.89	166.26	0.039241	6.52
Paniai	8.12	223.467	-14.50	210.13	0.05131	10.78
Mimika	29.90	316.295	7.28	53.06	0.007262	3.85
Intan Jaya	5.58	136.916	-17.04	290.25	0.03144	9.12
Deiyai	8.28	100.466	-14.34	205.53	0.02307	4.74
Average I Total	13.29	1.408.991			Total	65.13
					Root	8.07
					IW	0.61

Source: BPS, 2023a (processed data)

Development Disparities in 2022
Using GRDP calculations with mining in 2022 in districts/cities in the Central Papua Province region, it shows that the Williamson inequality is 0.61 or > 0.50. So, based on Williamson's inequality category, this shows that there is high regional economic inequality between districts in the Central Papua Province Region or there has been unequal economic growth between regions.

Table 10. Williamson Index of Inequality for Central Papua Province 2022 (without mining)

Regency	2022		Yi ·Yaverage	(Yi - Yaverage)^2	Pi/P	[{Yi • Yrata)^2] x {Pi/P)
	Gross Regional Domestic Product {Y}	Population (P)				
Puncak Jaya	4.32	231.499	-18.80	353.39	0.05239	18.515
Puncak	7.41	116.279	-15.71	246.70	0.02632	6.492
Dogiyai	7.42	119.815	-15.70	246.48	0.02712	6.684
Nabire	36.28	173.043	13.17	173.34	0.03916	6.788
Paniai	8.28	227.254	-14.84	220.22	0.05143	11.326
Mimika	30.55	321.657	7.43	55.27	0.07280	4.023
Intan Jaya	5.63	139.236	-17.49	305.73	0.03151	9.634
Deiyai	8.45	102.168	-14.66	214.99	0.02312	4.971
Average I Total	13.54	1.430.951			Total	68.43
					Root	8.27
					IW	0.61

Source: BPS, 2023a (processed data)

DISCUSSION

Efforts to Alleviate Development Disparities Between Regions
This study reveals that over the past decade (2013-2022), there has been significant economic inequality among districts/cities within the Central Papua Province region, indicating unequal economic growth across regions. To address the development disparities between regions in Central Papua Province, a comprehensive approach encompassing both short-term and long-term solutions is imperative. According to Dewanta et al. (1995), structural poverty is reflected in the gaps that occur between

various regions, such as between provinces, villages, and cities, east and west, and others that are partial. Apart from that, there are gaps between sectors, such as the modern and traditional sectors, the industrial and agricultural sectors, as well as gaps between social groups.

This analysis highlights the complexity and multifaceted nature of structural poverty, which requires a holistic and targeted approach in efforts to overcome it. Sukirno (2014) articulated that economic development entails a progressive and sustained elevation in the per capita income of a society over the long haul. This implies an ongoing transformative process aimed at attaining superior outcomes, among which is the enduring augmentation of a nation's per capita income.

Several key indicators have been identified as influential factors in these disparities. HDI serves as a vital measuring tool, assessing various components of human quality of life such as education, health, income, and living standards. By focusing on productivity, equity, sustainability, and empowerment, improvements in HDI can enhance the region's potential for development. Besides, widespread use of technology and efficiency requires adjustments in institutional and ideological fields so innovation produced by scientific knowledge can be utilized effectively appropriately and well (Suryana, 2008).

Poverty levels are another critical aspect, reflecting individuals' inability to meet basic needs. Addressing poverty involves not only increasing income and assets but also creating employment opportunities and improving education and health services. Original Regional Income and Balancing Funds play pivotal roles, providing resources for regional development initiatives. Education services must be enhanced to increase literacy rates, average years of schooling, net and gross enrollment rates, and the number of education completed. Concurrently, improvements in education, health, and household income services can lead to an increase in life expectancy, lift more people above the poverty line, boost the working population ratio, and enhance school enrollment rates. Additionally, efforts to improve access to drinking water are essential for overall well-being and development. By addressing these multifaceted issues holistically and implementing both short-term interventions and long-term strategies, Central Papua Province can work towards reducing development disparities and fostering inclusive growth across its regions.

The findings of this research are consistent with previous studies that have highlighted the issue of economic inequality in Indonesia, particularly in the Papua region. For instance, a study on income inequality in Indonesia before and during the Covid-19 pandemic found that regional inequality has long been an issue in Indonesia and aimed to analyze inequality and economic growth at the city/district level throughout the country (Novianti & Panjaitan, 2022). Another study on district-level inequalities in hypertension among adults in Indonesia found significant geographic and socioeconomic disparities in hypertension across 514 districts, including those in the Papua region (Oktamianti et al., 2022). The research by Pentury (2023) underscores the need for focused, planned, and coordinated efforts between various parties to develop and implement practical poverty alleviation policies and address the complex issue of inequality in the Central Papua Province region.

CONCLUSION

Based on the results of the research conducted, it can be concluded that over the past decade (2013-2022), there has been significant economic inequality among districts/cities within the Central Papua Province region, indicating unequal economic growth across regions. To address this disparity, it is imperative for the regency/city

governments in Central Papua Province to focus on enhancing the performance of community welfare aspects. These efforts are crucial for driving equitable development across all regions within the province, ensuring that the benefits of economic growth are distributed more evenly among the population.

Based on the conclusions of the research that has been carried out, the suggestions that can be given through this research are (1) regency/city governments in each province need to strive to increase the added value of agricultural and non-agricultural products produced by the community, increase investment that takes advantage of the availability of natural resources, overcoming transportation costs which hamper community economic activities, and seeking to create regulations and bureaucracy that support community economic efforts in order to reduce disparities in per capita income; and (2) regency/city governments need to strive to increase the purchasing power and food security of the community through developing economic activities based on local potential and also making efforts to improve the quality of Farmer Human Resources in order to overcome disparities in economic structure.

ACKNOWLEDGMENT

DECLARATION OF CONFLICTING INTERESTS
The authors declared no potential conflicts of interest.

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