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Comparison of Public Sector Efficiency Levels in the Economies of the 10 Largest Provinces in Indonesia

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A B S T R A C T

Efficiency in the public sector not only affects economic growth but also affects productivity in each province. The efficiency of public sector operations plays an important role in driving economic growth and development. This study examines the differences in public sector efficiency in 10 provinces with the highest economies in Indonesia. A total of 10 provinces with observation years 2019–2023 were the samples of this study. This study uses the Data Envelopment Analysis (DEA) method. The data used comes from the Central Statistics Agency (BPS). The research findings show that inefficiency in each province occurs because the input sector used is larger than the output sector, so that public sector operations are not optimal.

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INTRODUCTION

Public sector efficiency is an important aspect that has a significant impact on the overall economic performance of a country. In Indonesia, like many other countries, the efficiency of public sector operations plays a significant role in driving economic growth and development. Several studies have been conducted to assess the level of public sector efficiency across regions and sectors in Indonesia. Margono et al. (2011) investigated technical efficiency and productivity in the provincial economy of Indonesia, providing insights into the efficiency of resource utilization. In addition, Widodo (2019) evaluated the impact of fiscal autonomy on public service efficiency and economic growth in selected provinces in Indonesia. Public sector efficiency not only affects economic growth but also affects firm productivity. Giordano et al. (2015) highlighted the relationship between public sector inefficiency and firm productivity, emphasizing the economic benefits of improving public sector efficiency. Sinha & Bandopadhyay (2020) conducted a similar analysis in the Indian context, showing the superiority of public sector efficiency over the private sector in terms of technical efficiency and pure technical efficiency. In addition, the adoption of innovative practices in the public sector is essential to improve efficiency. Lukman (2021) discusses the need to rethink public sector innovation in Indonesia to improve operational effectiveness. Furthermore, Mulyaningsih (2024) emphasizes the importance of energy efficiency measures in the public sector to achieve sustainability goals. In Indonesia, the public sector faces challenges such as corruption and human resource constraints that hinder efficiency. Putri, R. D. P., & Prasetyia, F (2012) investigate the issue of corruption in the Indonesian public sector, highlighting behavioral aspects that contribute to corruption.

In addition, Sinaga, A., et al. (2024) identify human resource constraints in the Indonesian public sector, emphasizing the need to develop an effective human resource management model. As Indonesia strives to achieve economic growth and development, understanding and improving public sector efficiency in various provinces is important. According to data from the Central Statistics Agency (BPS), The ten largest provinces in Indonesia based on Gross Regional Domestic Product (GRDP) have a significant contribution to the national economy. These provinces, such as DKI Jakarta, West Java, East Java, and North Sumatra, not only serve as economic centers but also as barometers for public sector performance throughout Indonesia. However, the magnitude of the economic contribution is not necessarily directly proportional to the level of public sector efficiency in each province.

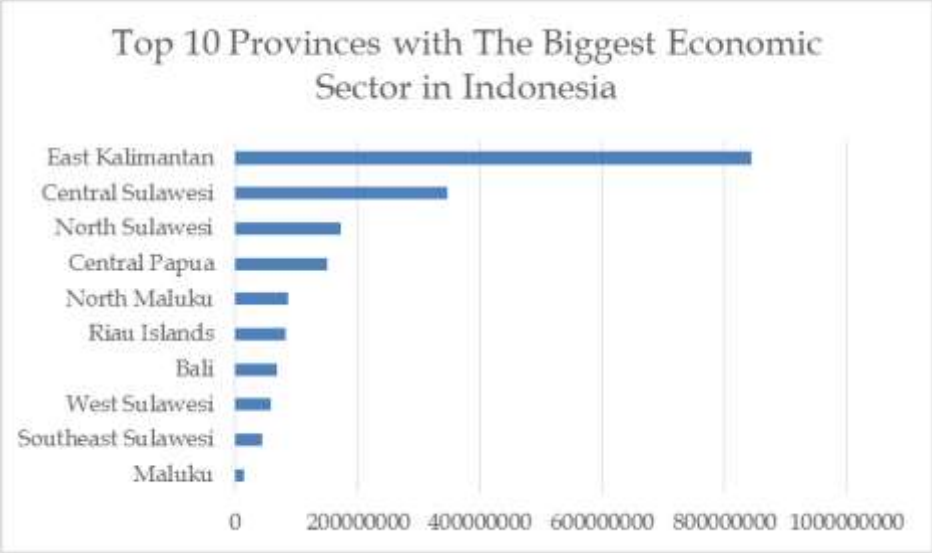

Figure 1. 10 Provinces with the Largest Economies in Indonesia 2023

The results from the graph above show that the economic structure in several Indonesian provinces is dominated by regions outside Java, with varying contributions. East Kalimantan Province was the largest contributor, recording a figure of IDR 843.57 billion, followed by Central Sulawesi with a contribution of IDR 347.14 billion. Furthermore, Central Papua contributed IDR 150.37 billion, while North Sulawesi was at IDR 171.97 billion. In other regions, North Maluku recorded IDR 86.3 billion, followed by the Riau Islands at IDR 82.1 billion and Bali at IDR 68.68 billion. West Sulawesi and Southeast Sulawesi contributed IDR 58.55 billion and IDR 44.73 billion respectively, while Maluku was in last place with a contribution of IDR 14.82 billion. These figures reflect the widespread distribution of national economic potential, where regions such as Kalimantan and Sulawesi dominate the mining and natural resource processing sectors, while Bali remains strong with the tourism sector. These differences in contributions demonstrate unique regional economic characteristics, creating diversity in Indonesia's economic structure (Putri, R. D. P., & Prasetyia, 2023). Public sector efficiency measures how effectively the government utilizes the existing budget and resources to achieve development goals at minimal cost. One method that can be used to measure this efficiency is Data Envelopment Analysis (DEA), which allows researchers to compare efficiency between various government units (such as provinces) based on available inputs and outputs. In previous research by Muttaqin F (2016) it was explained that all districts/cities in the Special Region of Yogyakarta have an optimal efficiency level of 100%, which means that input variables such as PAD, balancing funds, and other legitimate income can effectively drive economic growth, seen from output variables such as GRDP and the number of non-poor people. However, there is one district in the Special Region of Yogyakarta, namely Kulon Progo, which shows inefficiency in financial management, due to waste in the allocation of PAD funds in the area. Previous research has explored various dimensions of public sector efficiency, highlighting the important role of service innovation, governance reform, and the impact of socio-political

factors (Pamula, Y. E., & BASUKI, 2012). Santosa's research discusses the role of service innovation in improving customer satisfaction in public sector organizations, noting that challenges such as limited resources and bureaucratic obstacles significantly hamper effective implementation (Santosa, 2023). Furthermore, research presented by Asteriniah, which emphasizes the need for responsive and efficient public sector management to drive development and democracy in Indonesia (Asteriniah, 2023). Research has also indicated that financial performance in the public sector is closely linked to economic growth, as articulated by Tumangkeng et al., who assert that improved financial management practices can stimulate economic development across Indonesia's provinces (Tumangkeng et al., 2022). there exists a notable gap in comparative analyses that specifically assess public sector efficiency across Indonesia's largest provinces. Most existing research has focused on isolated aspects of public administration or specific case studies, leaving a comprehensive understanding of the comparative efficiency levels across provinces largely unexplored.

This study focuses on the comparison of the level of public sector efficiency in the ten largest provinces in Indonesia, using secondary data from local government financial reports, GRDP data, and other social and economic indicators. This analysis is important to identify which provinces manage their inputs (public resources) more efficiently, and to provide insight for local governments in efforts to increase efficiency towards maximum economic development output (economy) in each province in Indonesia (Rahmadi, J. F., & Penangsang, 2024). This study is expected to contribute to the literature on public sector efficiency in Indonesia and become a reference for policy makers in formulating strategies to increase efficiency at the regional level. In addition, the results of this study can also provide an overview of how these provinces can improve their public sector performance, which will ultimately have a positive impact on public welfare. Based on the problems studied above which discuss public sector efficiency, a study was conducted "Comparison of Public Sector Efficiency Levels in the Economy of the 10 Largest Provinces in Indonesia".

THEORETICAL REVIEW

Public Sector

The public sector encompasses multiple dimensions that are essential to understanding the complexity and dynamics of public administration. The public sector, characterized by its unique organizational structure and objectives, plays a critical role in delivering services, regulating markets, and promoting public welfare. Theoretical frameworks provide insight into the functions, challenges, and innovations in the public sector, shaping policies and practices to improve efficiency and effectiveness. Public sector motivation is a key theoretical concept that influences the behavior and performance of individuals working in government organizations. Understanding the factors that motivate public sector employees to contribute to development initiatives is essential to optimizing organizational outcomes and achieving public service goals. Innovation is another important aspect of the public sector that

theoretical studies have explored to drive organizational change and improve service delivery (Vries et al., 2015). By examining the factors that facilitate innovation in government entities, researchers can develop a framework to promote creativity, efficiency, and responsiveness in public administration.

Public Sector Efficiency

Public sector efficiency explores the principles, frameworks, and factors that influence the effectiveness and productivity of government operations. Efficiency in the public sector is critical to optimizing resource allocation, improving service delivery, and achieving organizational goals. Theoretical perspectives offer insights into mechanisms for improving public sector efficiency, leading to better governance and outcomes for citizens. Public sector efficiency can be influenced by stakeholder participation, organizational citizenship behavior, and innovation. Stakeholder participation has a significant impact on the efficiency and effectiveness of public sector operations (DACHA, 2018).

Neo-Classical Growth Theory

This theory was developed by Solow, who argued that economic growth is influenced by the accumulation of capital and labor, as well as the level of technological progress. In this model, technology is considered an exogenous factor that determines the rate of long-term economic growth.

a. Gross Regional Domestic Product (GRDP) per capita : This indicator is used to measure the average income earned per person in a country or region. An increase in GRDP per capita is often used as a sign of positive economic growth.
b. Human Development Index (HDI) : The HDI is a composite indicator that measures average achievement in key dimensions of human development: a long and healthy life, knowledge, and a decent standard of living.
c. HDI Measurement : HDI is calculated by combining the indices of the three dimensions mentioned above. Each dimension is normalized using the maximum and minimum values set by UNDP. The index for each dimension is calculated using the following formula:
   HDI=(Health Index×Education Index×Income Index) $^{1}/_{3}$
d. Poverty ratio : This ratio measures the percentage of the population living below the poverty line. poverty. The decrease in the poverty ratio indicates an increase in community welfare. How to calculate the poverty line:

$$GKM_j = \sum_{k=1}^{52} P_{jk}.\, Q_{jk} = \sum_{k=1}^{52} V_{jk}$$

GK = GKM + GKMN. Description:
GKMj = Food Poverty Line of Region j
Pjk = Price of Commodity k in region j

Qj = Average quantity of commodity k consumed in region j
Vjk = Value of Expenditure for consumption of commodity k in region j
j = region (urban or rural)

e. Unemployment rate and non-poor population : A low unemployment rate reflects a better economy, where more people are employed and contributing to national production.
f. Local Original Income : Local Original Income (PAD) is one of the sources of local income obtained from the independent management of economic potential and regional resources. PAD includes all revenues received by the local government from various sources, including local taxes, regional levies, results of managing regional assets, and other legitimate income in accordance with laws and regulations (Fukuyama, 2013).
g. Balancing Fund : Balancing Fund is a fund allocated by the central government to regional governments to support regional financing and reduce the fiscal gap between the center and regions. This fund is designed to ensure that regional governments have sufficient resources to carry out basic functions and public services, as well as to support regional development in a fair and equitable manner (Government Regulation No. 55/2005). General Allocation Fund (DAU): This fund is allocated based on criteria that include basic regional needs and regional fiscal capacity. DAU aims to reduce disparities between regions and provide additional budget for underprivileged regions BPS (2023). Special Allocation Fund (DAK): This fund is provided to finance certain projects or programs that are a priority of the central government, such as infrastructure development and health programs. DAK aims to support strategic projects that are important for regional development (Law No. 33/2004). Revenue Sharing Fund (DBH): This fund is provided as part of the tax and levy revenues collected by the central government from the regions. DBH includes taxes and natural resources generated by a region and is divided between the center and regions in accordance with applicable provisions.
h. Government Spending : This theory emphasizes the importance of government spending in managing the economy, especially in a recession. According to Keynes, government spending can be used as a tool to stimulate aggregate demand, create jobs, and encourage economic growth.

Theory of Economic Effeciency

Economic efficiency is a state in which resources are allocated so that maximum output is achieved with minimum input. In the context of the public sector, efficiency refers to the ability of local governments to utilize available resources, such as (Regional Original Income (PAD), balancing funds, government expenditure) to achieve optimal output, namely GRDP, Human Development Index (HDI), Number of non-poor people. This efficiency can be measured using various methods such as data envelopment analysis (DEA) to determine the level of efficiency of each state in the use of public resources.

Previous research

The efficiency of public sector expenditures has been widely examined, particularly regarding its relationship with economic outcomes and public service delivery. Winarso (2017)investigated public sector efficiency in Bali using the Data Envelopment Analysis (DEA) method. The study revealed persistent inefficiencies in three districts from 2013 to 2014, which increased to five in 2015, highlighting challenges in optimizing inputs to achieve effective outputs. Similarly, Prakoso (2016) examined budget inefficiencies in East Java, noting that inefficiencies were common but significantly influenced economic development and community welfare. Annisa (2017) applied DEA in North Sumatra to assess Public Sector Efficiency (PSE) in health and education, revealing that fiscal decentralization positively influenced PSE, emphasizing its role in enhancing regional performance.

These studies provide a foundation for evaluating public sector efficiency across regions, directly aligning with the scope of the current research, which focuses on comparing public sector efficiency levels in the 10 largest provinces in Indonesia. By utilizing inputs such as regional income, balance funds, and government expenditures, alongside outputs like Gross Regional Domestic Product (GRDP), Human Development Index (HDI), and non-poor population, this research builds on previous studies' methodologies while addressing a broader geographic and temporal context. Further perspectives on public sector efficiency come from studies such as Chusnah (2014), which identified inefficiencies in public spending, noting no direct effect on economic growth but a significant impact on poverty reduction. Similarly, Wahyuningrum & Juliprijanto (2022) found that in the short term, public expenditures did not significantly influence economic growth, while in the long term, education spending positively impacted growth, and infrastructure spending showed a negative effect. These findings are particularly relevant in assessing the provincial variations in Indonesia, where regional disparities may influence how public expenditures contribute to economic and social outcomes.

The regional and international contexts provided by Sari & Rejekiningsih (2024) and Sinaga et al. (2024)offer additional insights. Sari and Rejekiningsih analyzed public sector investments in ASEAN countries, finding that education positively impacted economic growth, while health investments showed negative effects. Sinaga et al. explored Activity-Based Costing (ABC) in South Africa, emphasizing its potential to improve financial management and efficiency. These perspectives highlight the potential of advanced efficiency measurement tools and sectoral focus in enhancing public sector performance, which can guide the analysis of Indonesia's largest provinces.

In conclusion, the previous studies collectively underline the critical role of evaluating public sector efficiency in understanding economic and social outcomes. The current research contributes to this growing body of knowledge by comparing efficiency levels across Indonesia's 10 largest provinces, offering a comprehensive analysis that considers both regional contexts and broader trends. This approach not only bridges existing gaps in the literature but also

provides actionable insights for policymakers to optimize public expenditures and promote sustainable economic development.

METHODOLOGY

This study uses quantitative methods, using secondary data. Quantitative research is conducted by collecting data and analyzing it using the DEA analysis method. After determining the data collection method, the study continues with data processing using the DEA analysis tool. In this study, Data Envelopment Analysis (DEA) is an analysis tool used for mathematical operations to measure the level of technical efficiency of an Economic Activity Unit (UKE) that has many inputs and many outputs and then compares it relatively to other UKEs. DEA is a calculation of efficiency, a relative technique. The hypothesis for the DEA calculation results is:

a. UKE is less efficient if efficiency <100%
b. UKE is efficient if efficiency = 100

Input and output Variable data for each province are taken for a certain period of time, for example during the period 2019-2023. The data collected includes variable input funds: PAD, balancing funds, government spending and variable output funds: GRDP, HDI, and the number of non-poor people. DEA will provide efficiency scores for each province. Efficiency scores close to 1 indicate that the province is efficient in managing the public sector, while lower scores indicate inefficiency. With data from 10 provinces, namely North Maluku, Central Sulawesi, East Kalimantan, Central Papua, Bali, North Sulawesi, Southeast Sulawesi, West Sulawesi, Maluku, and Riau Islands.

RESULTS

DEA Method Data Test Results 2019

Table 1.1 Efficiency Value of 10 Largest Provinces in Indonesia CRS Model

No.	Province	2019	2020	Rate
		Score	Score	
		%	%	
1.	North Maluku	100%	100%	100%
2.	Central Sulawesi	100%	100%	100%
3.	East Kalimantan	100%	100%	100%
4.	Central Papua	100%	100%	100%
5.	Bali	100%	100%	100%
6.	North Sulawesi	98%	100%	98%
7.	Southeast Sulawesi	100%	100%	100%
8.	West Sulawesi	100%	100%	100%
9.	Maluku	92%	98%	93%
10.	Riau Islands	70%	100%	70%

Table 1. shows that in 2019 the provinces of North Maluku, Central Sulawesi, East Kalimantan, Central Papua, Bali, Southeast Sulawesi, West Sulawesi experienced efficiency because the UKE results = 100%, while the provinces of North Sulawesi, Maluku and the Riau Islands experienced inefficiency because the UKE results were <100%.

DEA Method Data Test Results 2020

Table 1.2 Efficiency Value of 10 Largest Provinces in Indonesia CRS Model

No.	Province	2020 Score %	2021 Score %	Rate
1.	North Maluku	100%	100%	100%
2.	Central Sulawesi	100%	100%	100%
3.	East Kalimantan	100%	100%	100%
4.	Central Papua	100%	100%	100%
5.	Bali	100%	100%	100%
6.	North Sulawesi	80%	85%	94%
7.	Southeast Sulawesi	84%	100%	84%
8.	West Sulawesi	100%	100%	100%
9.	Maluku	75%	76%	98%
10.	Riau Islands	100%	100%	100%

Table 2. shows that in 2020 the provinces of North Maluku, Central Sulawesi, East Kalimantan, Central Papua, Bali, West Sulawesi, Riau Islands experienced efficiency because the UKE results = 100%, while the provinces of North Sulawesi, Maluku and Southeast Sulawesi experienced inefficiency because the UKE results were <100%. North Sulawesi in 2019 Efficiency score increased from 98% to 100% in 2020 There was a decrease from 100% to 85%. North Sulawesi experienced an increase in efficiency at the beginning, but decreased quite sharply in 2020. Southeast Sulawesi in 2019 was stable at 100% in 2020 Decreased to 84%. Southeast Sulawesi's efficiency decreased in 2021 after stable performance in the previous year. Maluku in 2019 efficiency increased from 92% to 98% in 2020 decreased to 76%, but the score remained high overall. After increasing in 2020, Maluku experienced a significant decrease in 2021. Riau Islands in efficiency increased significantly from 70% to 100% in 2020 stable at 100%. Riau Islands showed significant improvement in 2020 and managed to maintain its efficiency. Riau Islands (increase from 70% to 100% and stable). Provinces with a Significant Decline are Maluku, North Sulawesi, Southeast Sulawesi (decrease in 2020). The efficiency value in the CRS Model shows that most provinces managed to maintain optimal performance. However, several provinces such as North Sulawesi, Southeast Sulawesi, and Maluku experienced a decline in efficiency in 2020.

DEA Method Data Test Results 2021

Table 1.3 Efficiency Value of 10 Largest Provinces in Indonesia CRS Model

No.	Province	2021 Score %	2022 Score %	Rate
1.	North Maluku	100%	100%	100%
2.	Central Sulawesi	100%	100%	100%
3.	East Kalimantan	100%	100%	100%
4.	Central Papua	50%	51%	81%
5.	Bali	84%	100%	84%
6.	North Sulawesi	37%	85%	80%

7.	Southeast Sulawesi	78%	100%	78%
8.	West Sulawesi	100%	100%	100%
9.	Maluku	75%	100%	75%
10.	Riau Islands	100%	100%	100%

Table 3 shows that in 2021 the provinces of North Maluku, Central Sulawesi, East Kalimantan, West Sulawesi, and the Riau Islands experienced efficiency because the UKE results = 100%, while the provinces of Central Papua, Bali, North Sulawesi, Maluku and Southeast Sulawesi experienced inefficiency because the UKE results were <100%. Central Papua in 2020 was stable at 100% in 2021, dropping sharply from 100% to 51%. Bali in 2020 was stable at 100% in 2021, dropping to 84%. North Sulawesi in 2020 rose from 80% to 85% in 2021, dropping to 37% in 2021, then recovered to 85% in 2022. Southeast Sulawesi in 2020 was stable at 84% in 2021, dropping to 78%, then returning to 100%. Maluku in 2020 was stable at 75% in 2021, rising to 100%, then dropping back to 75%. Central Papua experienced the sharpest decline, from 100% to 51%. North Sulawesi dropped drastically to 37%, but recovered in 2021. Maluku has a very volatile value, indicating the need for deeper intervention for stabilization.

DEA Method Data Test Results 2022

Table 1.4 Efficiency Value of 10 Largest Provinces in Indonesia CRS Model

No.	Province	2022 Score %	2023 Score %	Rate
1.	North Maluku	100%	100%	100%
2.	Central Sulawesi	100%	100%	100%
3.	East Kalimantan	80%	100%	80%
4.	Central Papua	76%	100%	76%
5.	Bali	100%	100%	100%
6.	North Sulawesi	40%	45%	85%
7.	Southeast Sulawesi	100%	100%	100%
8.	West Sulawesi	100%	100%	100%
9.	Maluku	74%	100%	74%
10.	Riau Islands	100%	100%	100%

Table 4 shows that in 2022 the provinces of North Maluku, Central Sulawesi, Bali, Southeast Sulawesi, West Sulawesi, and the Riau Islands experienced efficiency because the UKE results = 100%, while the provinces of East Kalimantan, Central Papua, North Sulawesi and Maluku experienced inefficiency because the UKE results were <100%. East Kalimantan in 2021 is stable at 100%. in 2022 it dropped to 80%. Central Papua in 2021 rose from 50% to 76% in 2022 dropped back to 76%. Bali in 2021 rose from 84% to 100% in 2022 stable at 100%. North Sulawesi in 2021 rose from 37% to 85% in 2022 dropped to 45%. Southeast Sulawesi in 2021 rose from 78% to 100% in 2022 stable at 100%. Maluku in 2021 fell from 75% to 74% in 2022 stable at 74%. Bali and Southeast Sulawesi managed to increase efficiency to 100% and maintain it. East Kalimantan and North Sulawesi experienced significant efficiency declines in 2023. Central Papua and North Sulawesi continue to show instability in efficiency. Maluku remains below 75% in 2022 indicating an unresolved gap.

DEA Method Data Test Results 2023

Table 1.5 Efficiency Value of 10 Largest Provinces in Indonesia CRS Model

No.	Province	2023 Score %	Rate
1.	North Maluku	100%	100%
2.	Central Sulawesi	100%	100%
3.	East Kalimantan	45%	45%
4.	Central Papua	80%	80%
5.	Bali	79%	79%
6.	North Sulawesi	31%	75%
7.	Southeast Sulawesi	100%	100%
8.	West Sulawesi	100%	100%
9.	Maluku	76%	76%
10.	Riau Islands	92%	92%

Table 5 shows that in 2023 the provinces of North Maluku, Central Sulawesi, Southeast Sulawesi, West Sulawesi experienced efficiency because the UKE results = 100%, while the provinces of East Kalimantan, Central Papua, Bali, North Sulawesi, Maluku and the Riau Islands experienced inefficiency because the UKE results were <100%. East Kalimantan in 2022 80% in 2023 dropped drastically to 45% there was a sharp fluctuation. Central Papua in 2022 76% in 2023 stable at 80%. Bali in 2022 100%. in 2023 dropped to 79%. North Sulawesi in 2022 40% in 2023 jumped to 75%. Maluku in 2022: 74% in 2023 stable at 76%. Central Papua, Maluku experienced sharp fluctuations with temporary improvements. Riau Islands in 2022 100% in 2023 dropped to 92%. Efficiency dropped slightly but is still relatively high compared to the average. Provinces with Sharp Fluctuations, namely Central Papua, Maluku, East Kalimantan showed efficiency values that rose and fell drastically, indicating management instability. North Sulawesi showed an increase from 40% to 75%, although it has not reached maximum efficiency.

DISCUSSION

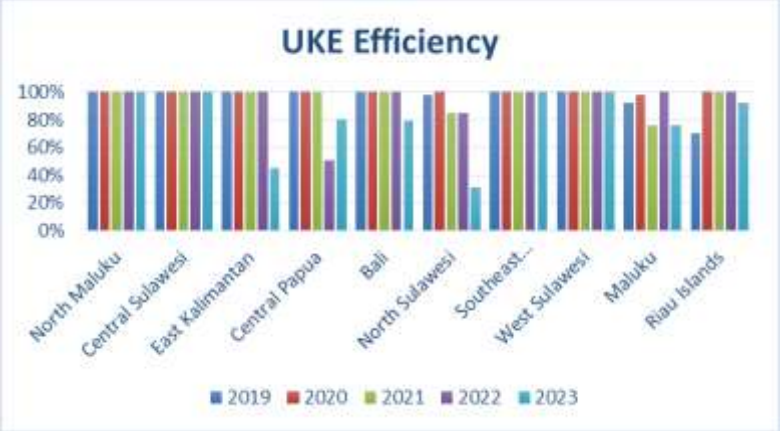

Figure 2. 10 Provinces with the Largest Economies in Indonesia

The analysis identified varying efficiency levels among the ten provinces, with some provinces operating close to the efficiency frontier, while others exhibited substantial inefficiencies. For instance, the results indicated that provinces with better resource management practices and higher levels of technological integration achieved efficiency scores significantly above the average. This finding aligns with previous research that emphasizes the importance of modern managerial practices and technological adoption in enhancing operational. Specifically, provinces that implemented standardized administrative processes and invested in training for public sector employees demonstrated improved efficiency, reflecting the critical role of human capital in public service delivery. Provinces with stronger governance frameworks and higher fiscal autonomy tended to perform better in terms of efficiency. In this study, an analysis of the level of public sector efficiency in the 10 largest provinces in Indonesia using the Data Envelopment Analysis (DEA) method showed that in 2019 - 2023 there was a shift in the level of efficiency and inefficiency in each province.

The results of the analysis showed that in 2019 there were 3 provinces that showed UKE results <100% and experienced inefficiency or waste of resources used. Three provinces, namely North Sulawesi, Maluku, and the Riau Islands, experienced inefficiency in 2019. This inefficiency reflects an imbalance between the input used and the output produced by the public sector in these provinces and is considered inefficient because it uses more input than the output produced. Local Original Income (PAD) resources show Low compared to other provinces, and show high dependence on balancing funds. Balancing funds appear relatively high, but have not been able to support output optimization. Government spending is also High, but not comparable to the results produced. In the GRDP output sector, Economic growth is still stagnant, especially in the non-agricultural sector, Economic activity is still dominated by the primary sector (agriculture and fisheries) which have low productivity. Most of it is contributed by certain sectors (eg the oil and gas industry), so it is not evenly distributed. The level of human development is quite good, but not optimal to reflect efficiency and there is a gap between regions within the province. Number of Non-Poor Population There are still challenges in

reducing poverty rates, especially in rural areas. Judging from the results of the analysis in 2023, it shows that the data on the level of inefficiency in each province is still high and the lowest level of efficiency in each province is in 2021. In 2023, there were six provinces that were inefficient in running their public sector operations, namely in the provinces of East Kalimantan, Central Papua, Bali, North Sulawesi, Maluku, and Riau Islands. This is due to the imbalance between large inputs (PAD, balancing funds, government spending) and suboptimal outputs (GRDP, HDI, and the number of non-poor people). With the right strategy, public sector efficiency in this province can be increased to support more sustainable economic and social development. In 2019-2023, there were only 2 countries with stable efficiency from year to year, namely North Maluku and Central Sulawesi. Both provinces have succeeded in managing public sector input well to produce optimal output. This efficiency stability provides an important picture of the consistency of governance and resource allocation in the two provinces. A UKE value of 100% indicates that this province has achieved full efficiency during the analyzed period, based on the optimization of input (PAD, balancing funds, government spending) and output (GRDP, HDI, number of non-poor people). North Maluku in input sector, Local Original Income (PAD), The PAD level in North Maluku is relatively small, but is managed optimally to support development priorities. Balancing Funds allocation of balancing funds is used appropriately, especially for the development of basic infrastructure and public services. Government Expenditure budget management focuses on productive spending, such as education, health, and infrastructure.

In the Output sector, GRDP North Maluku shows stable economic growth, supported by the mining, agriculture, and fisheries sectors. HDI has consistently increased, reflecting improvements in health and education services. Number of Non-Poor Population community empowerment programs have significantly reduced poverty rates, with a focus on developing remote areas. North Maluku has successfully created efficiencies with a small economy of scale comparable to island nations such as Fiji and Seychelles, where a focus on local resource-based development is key. Central Sulawesi Province, in input sector, Local Original Income (PAD), PAD continues to increase along with the growth of the agribusiness and mining sectors, making a significant contribution to development. Balancing Funds balancing funds are managed to support post-disaster infrastructure development and encourage economic stability. Government Expenditure focus on increasing productive capital expenditure and efficient financial management. In the Output Sector, GRDP the increase in GRDP was driven by the mining and agribusiness sectors, which made a major contribution to the regional economy. HDI: Consistency in increasing the HDI reflects the success of education and health programs. Number of Non-Poor Population the decline in poverty rates in Central Sulawesi has been quite significant, with a community-based approach that encourages welfare. Central Sulawesi has successfully managed development funds to generate equitable and inclusive economic growth. Supporting Factors for Efficiency Stability, namely provinces can prioritize budget allocation for

sectors that have a direct impact on the community, such as education, health, and infrastructure. Balancing funds are used with a focus on projects that have a high multiplier effect, such as basic infrastructure development and community empowerment (Todaro & Smith, 2015).

Focus on Local Superior Resources by relying on each superior sector (fisheries and mining as well as agribusiness), which make a large contribution to PDRB. Poverty Alleviation Programs with a community-based approach and economic empowerment programs have succeeded in improving people's lives and reducing poverty levels. The efficiency stability demonstrated by North Maluku and Central Sulawesi during the period 2019–2023 shows the success in managing the public sector using limited inputs to produce optimal outputs. This success can be an example for other provinces in Indonesia and even developing countries facing similar challenges. Provinces experiencing inefficiency in the input sector (PAD, balancing funds, government spending) and output (GRDP, HDI, number of non-poor people) require integrated policies. These policies must focus on optimizing resources and improving development outcomes with a data-based approach and regional needs. Increasing the regional tax base by utilizing local economic potential. Implementing a digital system to facilitate tax and levy collection. Ensuring that balancing funds are used in accordance with regional development planning that supports increased output. Reducing excessive employee spending and increasing allocations for capital expenditures that support economic growth. Building infrastructure that supports smooth logistics and inter-regional trade. Providing greater autonomy to regions in managing resources, but still with supervision from the center. Eradicating poverty by providing socialization of cross-sector cooperation and a holistic approach that includes increasing income, access to education, health, social assistance, and community empowerment. With the right policies and support from various parties, poverty alleviation can be achieved sustainably. Public sector efficiency has a significant impact on economic growth in each province. Provinces with high levels of efficiency tend to enjoy faster economic growth due to optimal resource allocation, improved public services, and strengthened investment. Conversely, inefficiency can hinder development, worsen inequality, and hold back regional economic potential. Therefore, focusing on efficiency in public sector management is key to driving inclusive and sustainable economic development.

CONCLUSIONS AND RECOMMENDATIONS

Analysis of the level of public sector efficiency in the 10 largest provinces in Indonesia using the DEA method shows variations in efficiency during 2019–2023. The year 2023 showed the highest inefficiency, with 6 provinces experiencing inefficiency due to an imbalance between large inputs (PAD, balancing funds, government spending) and suboptimal outputs (GRDP, HDI, number of non-poor people). In contrast, North Maluku and Central Sulawesi consistently achieved full efficiency in 2021-2023 by optimally utilizing limited resources. The stability of efficiency in these two provinces is supported by budget governance that focuses on priority sectors such as education, health,

infrastructure, and community empowerment. Several provinces consistently showed 100% efficiency values throughout the period. North Maluku, Central Sulawesi, West Sulawesi, Riau Islands, these provinces stand out as regions with optimal resource management without any decrease in efficiency.

Stable and Consistent Provinces of North Maluku, Central Sulawesi, West Sulawesi, and Riau Islands are examples of regions with optimal efficiency that should be used as benchmarks. Fluctuating Provinces of East Kalimantan, Central Papua, and North Sulawesi need attention to stabilize their efficiency management. Recommendations Focus on more effective resource management strategies in fluctuating provinces. Increase policy interventions in provinces such as Maluku and North Sulawesi to pursue higher efficiency. Public efficiency can be achieved through data-based policies that prioritize resource optimization, infrastructure development, and strengthening leading sectors. This strategy needs to be implemented in other provinces to address inefficiency and support inclusive and sustainable economic development. Based on the researcher's direct experience in this research process, there are several limitations experienced and can be several factors that can be considered by future researchers in further refining their research because this research itself certainly has shortcomings that need to be continuously improved in future research. Some limitations in this research are the limited time of the research and the research object is only focused on several public sector variables.

FURTHER STUDY

It is hoped that further researchers or other academics relevant to this research will improve the quality of research in terms of adding variables, methods, and results.

REFERENCES

Annisa, S. (2017). Analisis Dampak Desentralisasi Fiskal Terhadap Efisiensi Sektor Publik Antar Kabupaten/Kota di Provinsi Sumatera Utara. (Doctoral Dissertation).

BPS. (2023). Produk Domestik Regional Bruto Provinsi-provinsi di Indonesia Menurut Lapangan Usaha.

Chusnah, S. (2014). Efisiensi sektor publik dan kinerja ekonomi daerah (studi kasus kabupaten/kota di Jawa Timur). Doctoral Dissertation, Universitas Brawijaya.

DACHA, V. (2018). EFFECT OF STAKEHOLDER PARTICIPATION ON THE EFFICIENCY OF THE PROCUREMENT PROCESS IN THE PUBLIC SECTOR: A CASE OF JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY. Strategic Journal of Business & Change Management, 5(2). https://doi.org/10.61426/sjbcm.v5i2.718

Fukuyama, F. (2013). What Is Governance? Governance, 26(3), 347–368. https://doi.org/10.1111/gove.12035

Giordano, R., Lanau, S., Tommasino, P., & Topalova, P. (2015). Does Public Sector Inefficiency Constrain Firm Productivity: Evidence from Italian Provinces. IMF Working Papers, 15(168), 1. https://doi.org/10.5089/9781513580630.001

Margono, H., Sharma, S. C., Sylwester, K., & Al-Qalawi, U. (2011). Technical efficiency and productivity analysis in Indonesian provincial economies. Applied Economics, 43(6), 663–672. https://doi.org/10.1080/00036840802599834

Pamula, Y. E., & BASUKI, M. U. (2012). EFISIENSI SEKTOR PUBLIK PENDEKATAN DATA ENVELOPMENT ANALYSIS INDONESIA 2001–2008. Doctoral Dissertation, Fakultas Ekonomika Dan Bisnis. https://doi.org/

Prakoso, K. (2016). Analisis Pengaruh Efisiensi Pengeluaran Sektor Publik Terhadap Kinerja Pembangunan Ekonomi Dan Kualitas Hidup Masyarakat Di Jawa Timur (Studi Pada 38 Kabupaten/Kota Di Jawa Timur. Doctoral Dissertation, Universitas Brawijaya.

Putri, R. D. P., & Prasetyia, F. (2023). EFISIENSI RELATIF BELANJA SEKTOR PUBLIK TERHADAP KESEJAHTERAAN MASYARAKAT DI JAWA TIMUR: PENDEKATAN DATA ENVELOPMENT ANALYSIS (DEA). Journal of Development Economic and Social Studies, 2(2), 233–248.

Rahmadi, J. F., & Penangsang, P. (2024). DETERMINASI EFISIENSI SEKTOR PUBLIK DALAM PEMBANGUNAN EKONOMI DI PROVINSI JAWA TIMUR. Jurnal Ekonomi Bisnis Dan Kewirausahaan, 1(3), 79–89. https://doi.org/

Sari, D. M., & Rejekiningsih, T. W. (2024). Pengaruh Pengeluaran Sektor Publik Terhadap Pertumbuhan Ekonomi di Negara ASEAN. Al Qalam: Jurnal Ilmiah Keagamaan Dan Kemasyarakatan, 18(4), 2628–2646.

Schachter, H. L. (2007). Does Frederick Taylor's Ghost Still Haunt the Halls of Government? A Look at the Concept of Governmental Efficiency in Our Time. Public Administration Review, 67(5), 800–810. https://doi.org/10.1111/j.1540-6210.2007.00768.x

Sinaga, A., Gea, R. S., Saribu, A. D., Tarigan, Z. N. B., Lumbangaol, H., Nainggolan, D. A., ... & Sirait, Y. (2024). EFISIENSI PENERAPAN ABC TERHADAP SEKTOR PUBLIK. Jurnal Akuntansi Kompetif, 7(2), 235–244.

Todaro, M. P., & Smith, S. C. (2015). Economic development 12th edition, Topic: Efficiency of foreign aid 747—756. Pearson series of Economics.

Wahyuningrum, P. S., & Juliprijanto, W. (2022). Pengaruh Pengeluaran Pemerintah Sektor Publik Terhadap Pertumbuhan Ekonomi Indonesia. Transekonomika: Akuntansi, Bisnis Dan Keuangan, 2(6), 189–204.

Widodo, B. T. (2019). Evaluasi Dinamis Dampak Fiskal Otonomi Khusus terhadap Efisiensi Layanan Publik Dan Pertumbuhan Ekonomi di Provinsi Papua, Papua Barat dan Aceh Tahun 2011-2017. Kajian Ekonomi Dan Keuangan, 3(1), 31–53. https://doi.org/10.31685/kek.v3i1.463

Winarso, T. W. (2017). Determinasi Efisiensi Sektor Publik Dalam Pembangunan Ekonomi di Provinsi Bali. Jurnal Universitas Islam Indonesia. https://doi.org/Winarso, T. W. (2017). Determinasi Efisiensi Sektor Publik Dalam Pembangunan Ekonomi di Provinsi Bali.