

## THE IMPACT OF GOVERNMENT SPENDING, THE AMOUNT OF ZAKAT DISTRIBUTION, AND GENDER EQUALITY ON THE GINI INDEX IN ACEH

Cut Amanda Syifa Zhafira<sup>1</sup>

Universitas Islam Negeri Ar-Raniry, Indonesia

Nilam Sari<sup>2</sup>

Universitas Islam Negeri Ar-Raniry, Indonesia

Winny Dian Safitri<sup>3</sup>

Universitas Islam Negeri Ar-Raniry, Indonesia

E-mail: <sup>1</sup>220602027@student.ar-raniry.ac.id, <sup>2</sup>nilam.sari@ar-raniry.ac.id, <sup>3</sup>winny.diansafitri@ar-raniry.ac.id

### ABSTRACT

Regional development success is reflected not only in economic growth but also in the degree of income distribution equality. Aceh represents a unique institutional setting characterized by strong Islamic values, substantial fiscal transfers, and significant zakat potential. Nevertheless, income inequality in the province has continued to fluctuate, raising questions about the effectiveness of fiscal and Islamic redistributive instruments. This study examines the effects of government expenditure, zakat distribution, and gender equality on income inequality in Aceh, measured by the Gini index. This research employs an explanatory quantitative approach using panel data from districts and municipalities in Aceh Province during 2020–2024. Multiple linear regression with the Fixed Effect Model (FEM) is applied to account for regional heterogeneity. The results show that government expenditure and zakat distribution have negative but statistically insignificant effects on income inequality, indicating that their redistributive roles have not yet been fully effective. In contrast, the Gender Development Index (GDI) has a negative and statistically significant effect, suggesting that improvements in gender equality contribute to reducing income disparities. Simultaneously, the three variables significantly influence income inequality, although the model explains a moderate proportion of its variation ( $R^2 = 0.518567$ ). These findings underscore the importance of strengthening fiscal effectiveness, optimizing zakat governance, and promoting gender-inclusive development to achieve more equitable economic outcomes in Aceh.

**Keywords:** Gini Index, Government Expenditure, Zakat, Gender Equality, Fiscal Policy, Islamic Economics.

### ABSTRAK

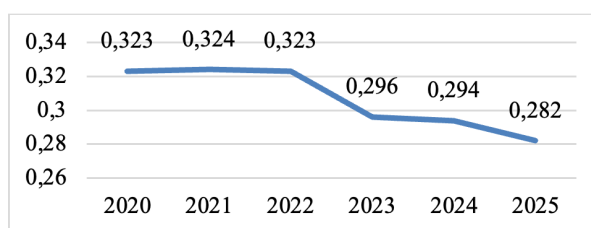
Keberhasilan pembangunan daerah tidak hanya tercermin dari pertumbuhan ekonomi, tetapi juga dari tingkat pemerataan distribusi pendapatan. Aceh merupakan wilayah dengan karakteristik institusional yang unik, ditandai oleh kuatnya nilai-nilai Islam, besarnya transfer fiskal, serta potensi zakat yang signifikan. Namun demikian, ketimpangan pendapatan di provinsi ini masih menunjukkan fluktuasi dalam beberapa tahun terakhir, sehingga menimbulkan pertanyaan mengenai efektivitas instrumen redistribusi fiskal maupun instrumen keuangan Islam. Penelitian ini bertujuan untuk menganalisis pengaruh belanja pemerintah, distribusi zakat, dan kesetaraan gender terhadap ketimpangan pendapatan di Aceh yang diukur menggunakan indeks Gini. Penelitian ini menggunakan pendekatan kuantitatif eksplanatori dengan data panel kabupaten/kota di Provinsi Aceh selama periode 2020–2024. Analisis dilakukan menggunakan regresi linear berganda dengan pendekatan Fixed Effect Model (FEM) untuk menangkap heterogenitas antarwilayah. Hasil penelitian menunjukkan bahwa belanja pemerintah dan distribusi zakat berpengaruh negatif namun tidak signifikan terhadap ketimpangan pendapatan, yang menunjukkan bahwa peran redistributif keduanya belum optimal. Sebaliknya, Gender Development Index (GDI) berpengaruh negatif dan signifikan, yang mengindikasikan bahwa peningkatan kesetaraan gender berkontribusi dalam menurunkan ketimpangan pendapatan. Secara simultan, ketiga variabel tersebut berpengaruh signifikan terhadap ketimpangan pendapatan, meskipun kemampuan model dalam menjelaskan variasinya masih tergolong moderat ( $R^2 = 0,518567$ ). Temuan ini menegaskan pentingnya penguatan efektivitas kebijakan fiskal, optimalisasi tata kelola zakat, serta pengarusutamaan pembangunan yang inklusif gender untuk mewujudkan distribusi pendapatan yang lebih merata di Aceh.

**Kata Kunci:** Indeks Gini, Belanja Pemerintah, Zakat, Kesetaraan Gender, Kebijakan Fiskal, Ekonomi Islam.

## INTRODUCTION

Income inequality remains one of the persistent structural challenges in Indonesia’s economic development trajectory over the past few decades<sup>1</sup>. Despite sustained economic growth, the distribution of its benefits has not been evenly experienced across different segments of society. The government has introduced various policy initiatives aimed at reducing welfare disparities, including social protection programs, expanding access to education, and strengthening community-based productive sectors. Nevertheless, the complexity of inequality rooted in unequal access to economic resources, disparities in household economic capacity, and uneven regional development has limited the effectiveness of these interventions. As a result, income inequality continues to represent a significant issue within Indonesia’s broader development agenda.

The persistence of inequality not only widens the gap between high- and low-income groups but also poses broader socio-economic risks. Excessive inequality can undermine social cohesion, weaken economic mobility, and constrain the achievement of inclusive and sustainable development. Therefore, addressing income disparities remains a critical policy priority to ensure that economic growth translates into more equitable welfare outcomes. According to data from the Badan Pusat Statistik (BPS), Indonesia’s Gini index in March 2025 was recorded at 0.375, indicating a moderate level of income inequality.<sup>2</sup> This figure suggests that while economic expansion has occurred, its distributive effects remain uneven across the population. Similar patterns can also be observed at the regional level. In Aceh Province, the Gini index during the same period stood at 0.282, reflecting the continued presence of income disparities among community groups.<sup>3</sup> Although the level of inequality in Aceh is relatively lower than the national average, it nonetheless presents a challenge for regional policymakers in promoting more inclusive and equitable development. The trend of the Gini index in Aceh Province during the 2020–2025 period is illustrated in the following figure:



Source: Aceh Central Statistics Agency 2025

Figure 1. 1 Gini index for Aceh Province

<sup>1</sup>Anindya Zulfa Asykurunnizza Et Al., “*Determinasi Ketimpangan Pendapatan Antar Propinsi Di Indonesia : Analisis Panel Dengan Pendekatan Fixed Effect Model ( 2019-2023 )* Determination Of Income Inequality Between Provinces In Indonesia : Panel Analysis With A Fixed Effect Model Approach ( 2019-2023 )” 25, No. 1 (2025): 182–201.

<sup>2</sup>Badan Pusat Statistik, “*Indeks Gini Indonesia 2025*,” Indeks Gini, 2025.

<sup>3</sup>Badan Pusat Statistik Provinsi Aceh, “*Indeks Gini Provinsi Aceh 2025*,” BPS Aceh, 2025.

Based on the figure above, the level of income inequality in the 2020-2025 period shows a downward trend, despite being at a relatively high level at the beginning of the period. In 2020-2022, the inequality value remained in the range of 0.32-0.33, reflecting an uneven distribution of income. However, from 2023 to 2025, there was a consistent decline to 0.282. The Government spending is a fiscal instrument that plays a strategic role in driving economic growth while improving income distribution.<sup>4</sup> In practice, public spending not only covers the financing of government administration, but is also directed towards human resource development, the provision of public services, social protection, infrastructure development, and community economic empowerment.<sup>5</sup> In general, the structure of government spending is divided into personnel expenditure, goods and services expenditure, capital expenditure, and other expenditures such as grants, social assistance, profit sharing, financial assistance, interest payments, subsidies, and unexpected expenditures.<sup>6</sup> Each component of spending has a different function and impact on the welfare of the community. For example, personnel expenditure is necessary to support bureaucratic operations, while goods and services expenditure is related to the provision of public services.

The Capital expenditure functions in infrastructure development that drives economic productivity, while grants and social assistance expenditure is directed at vulnerable community groups to strengthen the function of redistribution and reduce income inequality. The effectiveness of government spending in reducing inequality depends heavily on the extent to which the budget is allocated to productive spending aimed at improving the quality of life of low-income communities. Spending on infrastructure, health, education, job training, and community economic development are types of spending that theoretically have the potential to narrow the income gap. Conversely, if the portion of spending is dominated by non-productive spending, such as personnel expenses or programs that are not directly related to improving the economic capacity of the community, then the redistributive effect on reducing inequality tends to be limited.<sup>7</sup> This is also in line with Rindiani, who shows that government spending is significant in reducing income inequality (Gini) in both

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<sup>4</sup> Khaerul Umam And Suparlan, “*Analisis Pengaruh Belanja Negara, Industri Manufaktur, dan Pendapatan Nasional Terhadap Ketimpangan Pendapatan di Indonesia.*” *Jurnal Manajemen Dan Pendidikan Dasar* 5 (2025): 1674–1685.

<sup>5</sup> Ali Hardana Et Al., “*Analisis Hubungan Pertumbuhan Ekonomi Dengan Kemiskinan Dan Belanja Modal Pemerintah Daerah, Penyerapan Tenaga Kerja, Dan Indeks Pembangunan Manusia (Analysis Of The Relationship Between Growth Economy And Poverty And Local Government Capital Expenditu.*” *Studi Ekonomi Dan Kebijakan Publik (sekp)* 2, No. 2 (2024): 59–68.

<sup>6</sup> Portal Data Sistem Informasi Keuangan Daerah (sikd), “*Realisasi Belanja Pemerintah Provinsi Aceh Tahun 2025.*” <https://sikd.kemendagri.go.id>, n.d.

<sup>7</sup> Wahyudi, “*Pengeluaran Pemerintah Provinsi Dan Pengaruhnya Terhadap Pertumbuhan Ekonomi Dan Ketimpangan Pendapatan Di Indonesia.*” *Sebatik* 27, No. 2 (2023): 708–15, <https://doi.org/10.46984/sebatik.v27i2.2369>.

the short and long term.<sup>8</sup> Based on data obtained from the APBD Portal, the realization of government expenditure in Aceh during the 2020–2024 period exhibits noticeable fluctuations. In 2020 and 2021, regional government spending remained relatively stable, ranging from approximately IDR 41.7 trillion to IDR 41.9 trillion. This level of expenditure increased in 2022, reaching a peak of IDR 43.97 trillion. However, a significant decline occurred in 2023 when total spending dropped to IDR 36.23 trillion, before partially recovering in 2024 to IDR 40.75 trillion. Entering 2025, the realization of regional expenditure decreased again to IDR 27,154.21 billion.

These variations in expenditure patterns reflect the dynamic nature of regional fiscal management in Aceh, which is influenced by shifts in development priorities, fiscal capacity, and budgetary adjustments across fiscal years. Such fluctuations also indicate that the allocation and utilization of public spending remain subject to institutional and policy considerations, potentially affecting the effectiveness of fiscal instruments in addressing regional development challenges, including income distribution and welfare improvement.<sup>9</sup> When examined alongside the dynamics of income inequality, the Gini index in Aceh during the same period exhibits a relatively stable pattern and does not appear to move linearly with changes in government expenditure. For instance, during 2020–2022, when regional government spending increased, the Gini index remained relatively unchanged within the range of 0.323–0.324 and did not show a meaningful decline. Conversely, in 2023, when government expenditure experienced a significant reduction, the Gini index actually declined to 0.296. This pattern suggests that increases in public spending have not necessarily translated into immediate reductions in income inequality in Aceh.

The absence of a clear linear relationship indicates that the effectiveness of government expenditure in addressing distributive disparities may depend not only on the magnitude of spending but also on the composition and targeting of fiscal allocations. In particular, public expenditure that is not sufficiently directed toward productive sectors or income-generating activities for low-income communities may have limited redistributive impact. Consequently, persistent inequality may continue to constrain the equitable distribution of development outcomes and weaken the prospects for achieving inclusive economic growth in the region.<sup>10</sup> Various reports on budget management in

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<sup>8</sup> Sherly Senja Rindiani, Fadhlurrahman Ruslan, And Syofriza Sofyan, “*Peran Pengeluaran Pemerintah Fungsi Pendidikan, Kesehatan, Dan Perlindungan Sosial Terhadap Ketimpangan Di Indonesia*” Vol.5 No.1(2025): April 2025: 40–41, <https://www.e-journal.trisakti.ac.id/index.php/jet>.

<sup>9</sup> Portal Data Sistem Informasi Keuangan Daerah (Sikd), “*Realisasi Belanja Pemerintah Provinsi Aceh Tahun 2025*,” Diakses 19 November 2025 <https://sikd.kemendagri.go.id>

<sup>10</sup> Abdulaleem Isiaka, Alexander Mihailov, And Giovanni Razzu, “*Government Spending Reallocations And Inequality: Evidence From Middle-Income Countries*,” *Empirical Economics* 69, No. 3 (2025): 1229–57, <https://doi.org/10.1007/s00181-025-02768-3>.

Aceh show that most regional spending is still dominated by personnel expenditure and expenditure on goods and services, while the portion of capital expenditure that serves to increase economic productivity is relatively small compared to development needs. In addition, expenditures that are directly oriented towards low-income communities, such as grant expenditures, social assistance expenditures, and community empowerment programs, have not shown consistency in their allocation proportions from year to year.<sup>11</sup>

This situation shows that conventional fiscal instruments through local government spending still face limitations in optimally performing their income redistribution function, especially when the structure and quality of budget allocation are not yet fully biased towards low-income groups. Therefore, efforts to reduce income inequality cannot rely solely on public spending policies, but need to be complemented by other redistribution instruments that are more direct and targeted. In this situation, zakat becomes another important instrument that needs to be considered as a complement to regional fiscal policy. When public spending has not been fully successful in effectively targeting low-income groups, the zakat distribution mechanism acts as a more direct channel for the distribution of wealth from muzakki (those who pay zakat) to mustahik (those who are entitled to receive zakat).

Zakat constitutes an important component of regional socio-economic resources in Aceh and is institutionally administered through the Baitul Mal. In principle, zakat performs a function comparable to government social expenditure, as it facilitates the redistribution of wealth from muzakki (zakat payers) to mustahik (eligible beneficiaries). Through this mechanism, zakat is expected to strengthen household purchasing power, reduce economic vulnerability among low-income groups, and contribute to a more equitable distribution of income within society.<sup>12</sup> Thus, zakat should be able to support a reduction in inequality, as reflected in a decrease in the Gini index value. This is in line with the findings of previous researchers who emphasized that efficient zakat management can increase community inclusion<sup>13</sup>. Other studies also state that the greater the zakat, the more potential it has to reduce the Gini index value because it can increase the purchasing power and welfare of the poor.<sup>14</sup> Based on official data from the Aceh government, zakat distribution in

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<sup>11</sup> Pemerintah Aceh, “*Laporan Realisasi Anggaran Pemerintah Aceh Tahun Anggaran 2020–2024*,” Diakses Melalui Portal Data APBD Aceh <https://data.acehprov.go.id>,

<sup>12</sup> Andika Saputra And Heri Sutopo, “*Impact Assessments Peran Zakat Dalam Pengentasan Kemiskinan: Tinjauan Komprehensif Penilaian Dampak Ekonomi*,” *Economics Studies And Banking Journal* 1, No. 5 (2024): 242–55.

<sup>13</sup> Salsa Rahmaniya et. al., “*Optimization of Zakat as a Fiscal Policy Instrument for The Welfare of The Indonesian People*,” *Surau Journal of Islamic Studies* 1, No. 1 (2025): 32–43, <https://doi.org/10.63919/surau.v1i1.6>.

<sup>14</sup> Mohd Faizan Mohd Afandi Et Al., “*The Role Of Zakat In Reducing Income Inequality Among Muslim Society In Selangor*,” *Global Business & Management Researchan International Journal* 13, No. 4 (2021): 1, <http://gbmrjournal.com/vol.13 no.4>.

the 2020–2024 period shows a fluctuating pattern. In 2020, the total zakat distributed was recorded at IDR 62.79 billion and increased sharply in 2021 to IDR 92.44 billion. However, this trend did not last long because in 2022 there was a decline to IDR 71.76 billion. Furthermore, in 2023, zakat distribution increased again to IDR 84.32 billion, before falling again in 2024 to IDR 64.59 billion. As of early October 2025, Baitul Mal Aceh has distributed IDR 19.647 billion.<sup>15</sup> However, this dynamic is not entirely consistent with theory. In 2021, when zakat increased to Rp92.4 billion, the Gini index actually increased to 0.324. Then, when the amount of zakat distribution decreased in 2022 to 71.76 billion, the Gini index also showed a decrease to 0.323.

One of the underlying factors explaining this limited impact is the persistent dominance of consumptive zakat distribution patterns. In practice, a substantial proportion of zakat funds is allocated to *short-term* assistance aimed at meeting immediate consumption needs, rather than supporting long-term economic empowerment. While such assistance plays an important role in alleviating temporary hardship, it does not significantly enhance the productive capacity or income-generating potential of mustahik. Consequently, the redistributive effect of zakat on income distribution tends to be short-lived and insufficient to alter the structural determinants of inequality in a sustainable manner. Although initiatives promoting productive zakat programs have been introduced designed to support economic activities and strengthen the financial independence of beneficiaries their implementation remains relatively limited and has not yet reached its full potential in generating broader and more sustainable welfare impacts.<sup>16</sup> This indicates problems in the effectiveness, distribution, and type of zakat management. In addition to fiscal factors, social dimensions such as gender equality also contribute to the formation of a fair income distribution. Theoretically, when gender equality increases, household income sources are not only dependent on one party, but are divided more evenly between men and women. This diversification of income sources can reduce the risk of household income fluctuations, reduce the proportion of people with very low incomes, and make income distribution more equitable, thereby potentially reducing the Gini index.<sup>17</sup>

Previous research findings also show that increasing women's economic participation, recognizing care work, and providing women with access to technology can reduce inequality by increasing household income and reducing

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<sup>15</sup> Portal Data Aceh, “*Realisasi Penyaluran Zakat Aceh Tahun 2023–2024*,” <https://data.acehprov.go.id>, 2025.

<sup>16</sup> Hendra Vramenia, “*Zakat Produktif Dorong Ekonomi Gampong Di Aceh*,” [bisnisia.id](https://bisnisia.id/zakat-produktif-dorong-ekonomi-gampong-di-aceh/?utm_source=), 2025, [https://bisnisia.id/zakat-produktif-dorong-ekonomi-gampong-di-aceh/?utm\\_source=](https://bisnisia.id/zakat-produktif-dorong-ekonomi-gampong-di-aceh/?utm_source=).

<sup>17</sup> Cornelius A. Rietveld And Pankaj C. Patel, “*Gender Inequality And The Entrepreneurial Gender Gap: Evidence From 97 Countries (2006–2017)*,” *Journal of Evolutionary Economics* 32, No. 4 (2022): 1205–29, <https://doi.org/10.1007/s00191-022-00780-9>.

economic vulnerability.<sup>18</sup> However, empirical conditions in Aceh show different dynamics. Based on BPS data, Aceh's Gender Development Index (GDI) increased from 92.07 in 2020 to 92.23 in 2021, then 92.24 in 2022, and rose again to 92.55 in 2023, 92.64 in 2024 and 92.64 in 2025. This increase illustrates improvements in health, education, and quality of life for women. However, when linked to the development of income inequality, this trend is not accompanied by an improvement in the Gini index. In 2020, when the GDI was at 92.07, the Gini index was recorded at 0.323. In 2021, when the GDI rose to 92.23, the Gini index actually increased slightly to 0.324. Meanwhile, in 2022, the GDI rose again to 92.24, but the Gini index remained at around 0.323.<sup>19</sup> This condition raises the suspicion that the improvement in gender equality in Aceh has not been accompanied by a substantive increase in women's economic participation.

One of the main causes of this discrepancy is women's limited access to open employment, especially in the formal sector and sectors that offer higher wages. Although women's education indicators have improved, their opportunities to enter the productive labor market are still constrained by industry preferences that tend to favor male workers. This is particularly evident in sectors such as distribution, logistics, construction, and other physical jobs, which are culturally and structurally dominated by men. Meanwhile, job opportunities for women are more concentrated in the informal sector, which has lower productivity, unstable wages, and minimal social security. This is reflected in several private companies and UMKM in Aceh that prioritize male workers, especially in jobs that require physical strength, such as warehouse helpers, drivers, and distribution workers. This pattern shows that perceptions of gender roles still influence the labor recruitment process, limiting women's opportunities to access new types of work. As a result, this situation will contribute to income disparities between men and women in Aceh and reinforce gender income inequality. Research by Rahmah Sitorus et al. found that government spending allocation plays an important role in economic inequality.<sup>20</sup>

However, the study used a cross-section approach for one year of observation. This approach allows for comparisons between regions at a single point in time, but it cannot capture the dynamics of inequality over time, so the impact of government spending is only viewed statically and potentially ignores the long-term effects of fiscal policy. In contrast to this study, Alamanda

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<sup>18</sup> Inoue Takeshi Ismi Rahayu, "The Impact Of Women's Empowerment On Income Inequality In Indonesia," *Universitas Gadjah Mada*, 2021.

<sup>19</sup> Badan Pusat Statistik Provinsi Aceh, "*Indeks Pembangunan Gender Dan Indeks Gini Provinsi Aceh*," <https://aceh.bps.go.id>, 2025.

<sup>20</sup> Hana Malika Rahmah Sitorus Et Al., "Dampak Belanja Pemerintah Terhadap Ketimpangan Ekonomi," *Jurnal Ilmu Manajemen, Ekonomi Dan Kewirausahaan* 5, No. 2 (2025): 228–33, <https://doi.org/10.55606/jimek.v5i2.6191>.

states that government spending such as social assistance, subsidies, and grants does not have a significant effect on reducing income inequality or poverty.<sup>21</sup> The approach used is macro-national in nature, assuming that regional socio-economic and fiscal heterogeneity is relatively homogeneous. In addition, Fauzi analyzed productive zakat and found that zakat can reduce income inequality. However, his study was cross-sectional between provinces and did not take into account annual dynamics or the specific socioeconomic context in Aceh.<sup>22</sup> Therefore, the findings tend to reflect general patterns at the national level and are not yet able to capture local variations. Finally, research by Dangi et al. found that gender equality has a positive and significant effect on increasing per capita income, which indirectly shows the role of gender in reducing economic inequality at the regional level.<sup>23</sup> The study used county-level time series data but was limited to only one region, making it difficult to generalize the results to other regions with different social and fiscal characteristics. Thus, most studies, such as those by Rahmah Sitorus Fauzi and Dangi, still use cross-sectional or simple time series data, without considering the dynamics of inequality between regions and between periods simultaneously. In fact, inequality is not only influenced by variations over time but also by differences in fiscal and social capacity between districts/cities.

These conditions highlight the need for an analytical approach capable of capturing both spatial and temporal variations in order to obtain a more comprehensive understanding of the determinants of income inequality. Accordingly, this study employs an explanatory quantitative approach using panel data covering 10 districts and municipalities in Aceh Province over the 2020–2024 period. The use of panel data enables the analysis to account for regional heterogeneity as well as changes over time, thereby providing a more robust framework for examining the relationships between government expenditure, zakat distribution, gender equality, and the Gini index. Through this approach, the study seeks to generate deeper insights into how these variables interact in shaping patterns of income inequality across regions and over time.

## METHOD

This study employs a quantitative explanatory research design aimed at examining the effects of government expenditure, zakat distribution, and gender equality on the Gini index in Aceh. An explanatory approach is adopted

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<sup>21</sup> Alamanda, “*The Effect Of Government Expenditure*,” *Info Artha* 4, No. 01 (2020): 1–11.

<sup>22</sup> Yenni Samri Juliati Nasution Fahmi Fauzi, “*Zakat Produktif: Tinjauan Literatur Dan Implikasinya Terhadap Pembangunan Ekonomi Di Indonesia*,” *Tijarah: Jurnal Ekonomi, Manajemen, Dan Bisnis Syariah* 2, No. 1 (2025): 19–28.

<sup>23</sup> Fatma Dangi, Meimoon Ibrahim, And Moh Arif Novriansyah, “*Pengaruh Kesetaraan Gender Terhadap Pendapatan Perkapita Di Kabupaten Gorontalo Tahun 2014 – 2023*,” *Jurnal Publikasi Ekonomi Dan Akuntansi* 5, No. 2 Mei (2025): 112–17, <https://doi.org/10.55606/jupea.v5i2.3888>.

because it enables the empirical investigation of causal relationships among variables based on measurable quantitative data. The study utilizes panel data covering 10 districts and municipalities in Aceh Province during the 2020–2024 period. The selected regions include Aceh Besar, Banda Aceh, Lhokseumawe, Aceh Tengah, Simeulue, Aceh Singkil, Aceh Selatan, Bireuen, Sabang, and Aceh Utara. These regions were selected purposively based on two primary considerations: relatively high levels of income inequality as reflected by the Gini index, and the availability of consistent and complete data throughout the study period. A higher Gini index indicates a more pronounced level of income distribution disparity, which facilitates the identification and analysis of socio-economic dynamics related to inequality. Focusing on regions with relatively higher inequality levels therefore provides a clearer empirical context for examining the factors contributing to local socio-economic disparities. Panel data are employed because they combine both cross-sectional (regional) and time-series dimensions, thereby enabling a more comprehensive analysis. This approach not only increases data variability but also improves the efficiency and robustness of model estimation by capturing both temporal dynamics and regional heterogeneity.<sup>24</sup> The analysis model used is formulated as follows:

$$GINI_{it} = \alpha + \beta_1 BP_{it} + \beta_2 ZAKAT_{it} + \beta_3 IPG_{it} + \varepsilon_{it}$$

Where  $GINI_{it}$  is the Gini index used to measure the level of income distribution inequality in district/city  $i$  in year  $t$ . The Gini index value ranges from 0 (perfect equality) to 1 (total inequality). Parameter  $\alpha$  is a constant, while  $\beta_1, \beta_2$ , and  $\beta_3$  are the regression coefficients of each independent variable. The  $BP_{it}$  variable is government spending, which is the total expenditure of local governments used to provide public goods and services, finance development programs, and provide social transfers. In this study, it is measured in rupiah against economic output.<sup>25</sup> The  $ZAKAT_{it}$  variable is a mandatory contribution in Islam that is given to mustahik for the redistribution of wealth and improvement of economic welfare. Zakat distribution is measured as the total value of zakat funds distributed in a certain period.<sup>26</sup> Furthermore,  $IPG_{it}$  is the Gender Development Index, which measures the difference in development achievements between men and women in basic dimensions such as education,

<sup>24</sup> Nurriszka Puji Lestari And Ilmiawan Auwalin, “Zakat And Income Inequality In Indonesia : Panel Data Analysis In 34 Provinces Zakat Dan Ketimpangan Pendapatan Di Indonesia : Analisis Data Panel Di 34 Provinsi ” 9, No. 6 (2022): 898–912, <https://doi.org/10.20473/vol9iss20226pp898-912>.

<sup>25</sup> Muftiyatul Azizah, “Analysis Of The Effect Of The Gini Ratio, Percentage Of Poor Population, Grdp, Hdi, And Average Per Capita Expenditures On Development Inclusivity,” *Jurnal Ekonomi Pembangunan* 21, No. 02 (2022): 98–112.

<sup>26</sup> Issa Hamadou And Mamadou Salieu Jallow, “The Effect Of Distributed Zakat On Sustainable Economic Development In Indonesia : A Vecm Approach” 8, No. 1 (2024): 42–58, <https://doi.org/10.14421/ekbis.2024.8.1.2172>.

health, and economic participation. A higher IPG value indicates a greater level of gender equality.<sup>27</sup> Finally,  $\varepsilon_{it}$  is an error term that reflects other factors outside the model. Based on these equations, this study uses panel data regression analysis because the data used is a combination of time series and cross-sectional data in districts/cities in Aceh in 2020-2024. Model estimation was carried out using three approaches, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The best model was selected using the Chow test to determine the CEM or FEM model, and the Hausman test to choose between FEM and REM. Based on the test results, the Fixed Effect Model (FEM) was selected as the most appropriate model, so this model was used to analyze the effect of government spending, zakat distribution, and the gender development index on the Gini index in Aceh

## RESULTS AND DISCUSSION

### Result

Before conducting regression testing, the results of descriptive statistical analysis are first presented to provide an overview of the data from each research variable.

Tabel 1. Descriptive Statistical Analysis Results

	Gini	Government Spending	Zakat	IPG
Mean	0.295900	124172.1	6.960.000.000	92.53240
Median	0.296000	123592.0	5.610.000.000	95.26000
Maximum	0.352000	260946.0	23.600.000.000	97.89000
Minimum	0.247000	1335.000	503.000.000	78.09000
Std. Dev.	0.025903	66469.56	5.450.000.000	5.717540
Skewness	0.151946	0.268440	1.042664	-1.457653
Kurtosis	2.765505	2.397616	3.265576	3.798364
Jarque-Bera	0.306955	1.356473	9.206515	19.03416
Probability	0.857720	0.507511	0.010019	0.000074
Sum	14.79500	6208607.	348.000.000.000	4626.620
Sum Sq. Dev.	0.032879	216.000.000.000	1.460.000.000.000.000	1601.823
Observations	50	50	50	50

Based on descriptive statistics, the average Gini Index for districts/cities in Aceh during the 2020–2024 period was 0.2959, indicating that the level of income inequality was in the moderate category. The highest Gini Index value of 0.352 occurred in Aceh Besar District in 2020 and 2022, while the lowest

<sup>27</sup> Ira Mulia Safitri, Apridar Apridar, And Taufiq C Dawood, “*The Impact Of Income Inequality , Human Development , Gender Development And Open Unemployment On Economic Growth In Indonesia*” 3, No. 2 (2024): 120–27, <https://doi.org/10.56225/ijfeb.v3i2.330>.

value of 0.247 was recorded in Aceh Tengah District in 2024, indicating a relatively more equitable distribution of income in that region and period. The average local government expenditure was recorded at 124,172.1 billion, with a maximum value of 260,946 billion in North Aceh Regency in 2024, while the minimum value of 1,335 billion occurred in South Aceh Regency in 2021, indicating differences in fiscal capacity and spending priorities between regions.

Meanwhile, the average amount of zakat distributed was IDR 6.96 billion, with the highest value reaching IDR 23.6 billion in North Aceh Regency in 2023, and the lowest value of IDR 503 million in Central Aceh Regency in 2022. The Gender Development Index (GDI) had an average of 92.53, with a maximum value of 97.89 recorded in Central Aceh Regency in 2024, while the minimum value of 78.09 occurred in Simeulue Regency in 2020, indicating a gap in gender development achievements in the region and period. Based on the results of the panel data model selection test, it was found that the appropriate model to use in this study was the Fixed Effect Model (FEM). Furthermore, in testing the classical assumptions to ensure the validity of the model, it was found that the multicollinearity test showed that all correlations between independent variables were below the threshold of 0.80, so there was no indication of multicollinearity. The Glejser heteroscedasticity test showed that all variables had probability values above 0.05. Thus, it can be concluded that the model is free from heteroscedasticity and meets the assumption of homogeneous residual variance. Based on these test results, the model used is declared feasible and can proceed to the hypothesis testing stage to analyze the effect of each independent variable on the Gini index in Aceh.

Tabel 2. Hypothesis Testing

Variable	Coefficient	t-Statistic	Prob.
C	10.93089	2.266070	0.0317**
Government Spending	-0.101234	-1.703435	0.1000*
Zakat	-0.492606	-1.878915	0.0711*
IPG	-2.360475	-2.212372	0.0356**
R-squared			0.518567
Adjusted R-squared			0.304597
F-statistic			2.423550
Prob(F-statistic)			0.027420**

Explanation:

\*\* Significant at  $\alpha = 5\%$

\* Not significant at  $\alpha = 5\%$

## Discussion

Government expenditure constitutes a key instrument of fiscal policy with the potential to influence income distribution within an economy. Public spending directed toward social sectors—such as education, healthcare, social protection, and infrastructure—can enhance access to essential services and expand economic opportunities for low-income populations. Through these mechanisms, government expenditure may contribute to reducing structural disparities and promoting a more equitable distribution of income.<sup>28</sup> The empirical results indicate that government expenditure has a negative coefficient of  $-0.101$  on the Gini index but is not statistically significant, as reflected by a probability value of  $0.1000$ . This finding suggests that although the direction of the relationship is consistent with theoretical expectations where higher public spending is expected to reduce income inequality the magnitude of its effect in Aceh Province remains statistically weak. From a practical perspective, this result implies that government expenditure in Aceh has not yet functioned effectively as a redistributive instrument capable of substantially reducing income disparities. One possible explanation lies in the composition and targeting of public spending. Fiscal allocations that are dominated by large-scale infrastructure projects or subsidies that disproportionately benefit higher-income groups may limit the distributive impact of government expenditure.

Moreover, issues related to budget inefficiency, leakage, and governance constraints may further reduce the ability of public spending to reach low-income households who should be the primary beneficiaries of redistributive policies. These findings underscore that the effectiveness of government expenditure in reducing inequality is not solely determined by the magnitude of spending, but also by the quality of its allocation, the accuracy of targeting mechanisms, and the level of fiscal governance and accountability in public financial management.<sup>29</sup> With regard to zakat as an Islamic redistributive instrument, the empirical results indicate that the amount of zakat distribution has a negative coefficient of  $-0.493$  on the Gini index but is not statistically significant, as indicated by a probability value of  $0.0711$ . This finding suggests that although the direction of the relationship implies that higher zakat distribution tends to reduce income inequality, its overall impact remains statistically weak within the context of Aceh Province. In aggregate terms, this result indicates that zakat has not yet played a substantial role in mitigating income inequality in the region. While zakat theoretically functions as a mechanism for wealth redistribution from muzakki (zakat payers) to mustahik (eligible beneficiaries), the current scale and structure of zakat distribution may not be sufficiently strong to generate measurable changes in income distribution at the regional level.

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<sup>28</sup> Ferry Sutiono, “Pengaruh Belanja Pemerintah Terhadap Ketimpangan Pendapatan Di Jawa Timur (Studi Kasus Kabupaten/Kota Di Jawa Timur Tahun 2010-2015),” *Jurnal Ilmiah Mahasiswa* Feb 6, No. 2 (2018).

<sup>29</sup> Daria Popova, “Impact Of Equity In Social Protection Spending On Income Poverty And Inequality,” *Social Indicators Research* 169, No. 1–2 (2023): 697–721, <https://doi.org/10.1007/s11205-023-03167-w>.

One of the main reasons for this is that the scale of zakat funds is relatively small compared to the size of the regional economy, so that its redistributive effect has not been felt at the macro level. In addition, zakat distribution tends to be consumption-oriented and has not been fully directed towards economic empowerment programs for mustahik, which should increase the economic independence of low-income groups. These findings are in line with previous studies showing that zakat has no effect on the Gini index in either the short or long term<sup>30</sup>. Other studies also state that zakat has great potential as a redistribution instrument, but its effect is highly dependent on targeting mechanisms, the involvement of zakat management institutions, and integration with government social policies.<sup>31</sup> Therefore, zakat management institutions in Aceh must improve their capacity to collect and distribute zakat by expanding productive programs and strengthening coordination with government programs aimed at poverty alleviation. This approach can strengthen the role of zakat as a real redistribution instrument in reducing income inequality in the future.

Furthermore, the results of the study show that the gender equality variable calculated using the gender development index (GDI) has a negative and significant effect on the Gini index with a coefficient value of  $-2.360$  and a probability value of  $0.0356$ . This indicates that improving gender equality in Aceh contributes significantly to reducing income inequality. In other words, when women's access to education, employment, and economic empowerment of households becomes more open, community income becomes more equitable and the gap between income groups decreases. This finding is in line with research that confirms that increasing gender equality can reduce income inequality through increasing women's economic participation<sup>32</sup>. Tambunan also states that gender development has an important contribution in reducing income disparities, especially when accompanied by inclusive labor policies and skills training programs for women.<sup>33</sup> Simultaneously, the variables of government spending, zakat distribution, and gender equality have a significant effect on the Gini index with a probability value of  $0.027420$ . This means that all three variables together contribute to explaining the variation in income inequality in Aceh. The R-squared value of  $0.518567$  indicates that the model has moderate explanatory power, where approximately  $51.86\%$  of income inequality variation can be explained by government spending, zakat, and the Gender Development Index variables, while the rest is influenced by other factors outside the model.

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<sup>30</sup> Zainal Muttaqin And Mohammad Dendi Abdul Nasir, "Can Zakat Contribute To Achieving Sustainable Development Goals? A Case Study On Java Island, Indonesia.," *Jurnal Ekonomi Syariah Teori Dan Terapan* 11, No. 1 (2024): 35–53, <https://doi.org/10.20473/vol11iss20241pp35-53>.

<sup>31</sup> Saini Saini And Zaenol Hasan, "Integrasi Zakat Sebagai Reformulasi Kebijakan Fiskal Indonesia Berbasis Syariah Dengan Prinsip Ekonomi Islam," *Journal Of Economic And Business Law Review* 4, No. 2 (2024): 111, <https://doi.org/10.19184/jebclr.v4i2.52580>.

<sup>32</sup> Lilis Siti Badriah And Istiqomah Istiqomah, "Does Gender Inequality Lead To Income Inequality? Evidence From Indonesia," *Ekulilibrium : Jurnal Ilmiah Bidang Ilmu Ekonomi* 17, No. 1 (2022): 1, <https://doi.org/10.24269/ekulilibrium.v17i1.4003>.

<sup>33</sup> Felix Reyhan Tambunan, Dwi Budi Santoso, "Development Economics", *Jdess* 04.02.2025 4, No. 2 (2025): 627–38.

## CONCLUSION

Based on the empirical analysis, government expenditure exhibits a negative but statistically insignificant effect on the Gini index, suggesting that increases in public spending have not been sufficiently effective in reducing income inequality in Aceh. This outcome may be associated with the composition and targeting of fiscal allocations, where budget expenditures are not yet optimally directed toward programs that directly benefit low-income groups. The dominance of large-scale development projects, along with challenges related to accountability and efficiency in public financial management, may further limit the redistributive impact of government spending. Similarly, the amount of zakat distribution does not show a statistically significant effect on income inequality. This finding indicates that the potential of zakat as an Islamic redistributive instrument has not yet been fully optimized.

The relatively limited scale of zakat funds and the predominance of consumptive distribution patterns—focused primarily on short-term assistance rather than productive economic empowerment—may explain its limited impact on structural income disparities. In contrast, the gender equality variable demonstrates a negative and statistically significant effect on the Gini index. This result suggests that improvements in gender equality contribute meaningfully to reducing income inequality in Aceh, particularly through expanding women's economic participation, access to opportunities, and financial independence. Furthermore, the simultaneous estimation results indicate that government expenditure, zakat distribution, and gender equality collectively exert a statistically significant influence on income inequality, highlighting the importance of integrating fiscal policy, Islamic social finance, and inclusive development strategies in addressing regional income disparities.

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