

ANALYSIS OF THE DETERMINANTS OF THE GENDER DEVELOPMENT INDEX (GDI) IN CENTRAL JAVA PROVINCE, 2019-2023



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Abstract

The Gender Development Index (GDI) serves as a key indicator to evaluate a country's success in achieving gender equality. This study aims to examine the factors that influence the GDI across Regencies and Cities in Central Java Province during the period 2019 to 2023. The analytical method employed is panel data regression, utilizing data from 35 Regencies/Cities in the province over the specified period. The results indicate that the Fixed Effect Model (FEM) was selected as the best-fitting model, offering high predictive accuracy. Government Expenditure on Health and Education (GSHE), Gross Regional Domestic Product per Capita (GRDP), and the Proportion Men and Women (PW) were found to have a positive on the GDI. Conversely, Women's Participation in Parliament (WPP), Average Per Capita Education Expenditure (CPEND), Integrated Health Service Posts (POSY), and the Poverty Rate (POVRATE) were not found to have on the GDI. Quality and equitable women's empowerment is key to achieving gender equality. This requires not only adequate funding and quantitative improvements, but also inclusive and gender responsive policymaking.

Keywords: Gender Development Index, Government Expenditure in Health and Education, GRDP per Capita, Gender Proportion

INTRODUCTION

The Gender Development Index (GDI) serves as a benchmark to evaluate the level of parity between men and women, reflecting the success of a nation's development. This index is calculated by comparing the Human Development Index (HDI) of women and men. According to the Indonesian Dictionary (KBBI), the term gender highlights distinctions in roles and attributes between men and women within human development. GDI illustrates how equally both genders can access, use, and benefit from available resources. Such equality is essential for ensuring collective welfare, allowing all citizens to enjoy the same rights and opportunities. Putri (2016) emphasizes that the participation of all segments of society depends on the presence of high-quality human resources. When women face restricted access to education, healthcare, or employment, their potential contributions to development cannot be fully realized.

In Central Java, the Gender Inequality Index (GII) in 2024 stood at 0.308, down from 0.336 in the previous year (BPS, 2025). This drop indicates that women are moving closer to men in terms of access to healthcare and employment. On a global scale, gender disparity in Indonesia can also be assessed through the Global Gender Gap Index (GGGI). According to the 2024 Global Gender Gap Report, Indonesia ranked 100th out of 146 countries, with a GGGI score of 0.686 or 68.6%. This suggests that Indonesia has achieved about 68.6% gender equality, leaving around 31.4% of the gap to close in order to attain full parity. Comparing the GII and the GGGI provides valuable insight into how far women have advanced in contributing to development both nationally and internationally.

Indonesia has established a framework to ensure gender equality as a key element of national development. This commitment is set out in Presidential Instruction No. 9/2000 on Gender Mainstreaming and reinforced through the Minister of Home Affairs Regulation No. 15/2008, later revised to Regulation No. 67/2011 (KPPPA, 2023). These regulations mandate that every development initiative and budget both at the national and regional levels must fairly accommodate the needs and interests of both men and women. In practice, the government is required to integrate a gender perspective into the planning, execution, and evaluation of public policies so that the benefits of development are shared equitably across society (Martiany, 2012). The Ministry of Women's Empowerment and Child Protection (2023) also highlights that "Gender Equality" is one of the core targets of the Sustainable Development Goals (SDGs), recognizing that equal opportunities and full empowerment of women and girls are essential to achieving sustainable progress across social, political, and economic spheres (Fiscal Policy Agency et al., 2021). In this context, the Gender Development Index (GDI) serves as a key metric for comparing the Human Development Index (HDI) between women and men.

Table 1.
Gender Development Index of Central Java Province 2019-2023

Province	Year				
	2019	2020	2021	2022	2023
Central Java	91,89	92,18	92,48	92,83	92,87

Source: Central Statistics Agency, estimated

According to Table 1, Central Java's Gender Development Index (GDI) displayed a generally upward movement between 2019 and 2023, despite minor fluctuations. In 2019,

the province posted a GDI of 91.89, marking a slight dip of 0.06 from the 2018 level of 91.95. Beginning in 2020, however, the indicator resumed a steady climb: it rose to 92.18 in 2020, advanced to 92.48 in 2021, and continued improving to 92.83 in 2022 before edging up again to 92.87 in 2023. This sustained growth reflects the province's ongoing commitment to narrowing gender disparities and enhancing overall quality of life without discrimination (Tarachintya, 2023). The GDI itself is expressed on a scale from 0 to 100, with values approaching 100 signifying a lower gender gap in development (Utami & Arif, 2023).

Table 2.
Human Development Index of Central Java Province 2019-2023

Province	Year				
	2019	2020	2021	2022	2023
Central Java	71,73	71,88	72,17	72,80	73,39

Source: Central Statistics Agency, estimated

Based on Table 2, the Human Development Index (HDI) of Central Java Province consistently rose from 2019 to 2023, indicating continuous progress in health, education, and economic well-being (Department of Communication and Informatics of Temanggung Regency, 2024). Such upward movement in HDI often signals a potential boost in the Gender Development Index (GDI), particularly when economic and educational gains advance in parallel.

Nevertheless, persistent gender disparities remain a significant obstacle to truly inclusive growth. The GDI, which compares the human development achievements of men and women in areas such as health, schooling, and income, provides a critical gauge of gender equality. Achieving stronger gender parity calls not only for greater public investment in health and education but also for policies that address a wider range of social, economic, and political determinants.

Prior research emphasizes that women's active participation in political and governance decision-making substantially contributes to both gender equality and higher GDI scores (Yustie et al., 2024). Yet, the empirical impact of other factors—such as poverty incidence, per-capita income, and community-based health and education programs—remains inconclusive (Aini, 2021; Utami & Arif, 2023). This uncertainty underscores the importance of a multidimensional analysis to identify the most influential drivers of GDI at the provincial scale.

Accordingly, this study investigates the determinants of GDI in Central Java by exploring a set of economic and social variables: women's parliamentary participation (WPP), average per-capita spending on education (CPEND), the presence of community health posts (POSY), government expenditure on health and education (GSHE), poverty rate (POVRATE), Gross Regional Domestic Product per capita (GRDP), and the gender ratio (PW). By examining these indicators together, the research aims to enrich existing scholarship and clarify the key forces that shape gender development, extending prior studies that have largely centered on public-sector spending.

REVIEW OF LITERATURE

Sen (1999) views development as the broadening of instrumental freedoms—such as economic opportunities, political participation, education, health services, and social

protection. These forms of freedom reinforce one another and underpin inclusive human progress, notably in advancing gender equity.

According to Kabeer (1999), empowerment refers to a transformative process that enhances individuals' ability to make strategic life decisions through three interrelated dimensions: resources, agency, and achievements. Resources encompass the material and non-material means that allow women to improve their well-being; agency denotes the capacity to define and act upon personal goals; and achievements represent the measurable outcomes of this empowerment.

Longwe, as cited in Iqbal (2023), outlines a five-tier empowerment model welfare, access, conscientization, participation, and control which emphasizes raising women's awareness of gender disparities and promoting their active involvement and authority in resource allocation and decision-making.

Walby (1990) characterizes patriarchy as a social structure that limits women's autonomy through six domains: the family, the labor market, the state, violence, sexuality, and cultural norms. This perspective sheds light on the systemic constraints that impede women's empowerment and the pursuit of gender equality.

Empirical studies reinforce these theoretical arguments. Yustie et al. (2024) reveal that a higher share of women in parliament enhances the Gender Development Index (GDI), implying that achieving gender equality relies not only on fiscal allocations but also on active political engagement. Meanwhile, Aini (2021) together with Utami and Arif (2023) present mixed evidence on how government expenditure in education and health affects GDI, underscoring the necessity of a comprehensive approach that fuses economic, political, and social efforts. Likewise, research by Ramadhani et al. (2023), Diba et al. (2018), and Latifah (2018) highlights that investment in the health sector plays a crucial role in advancing human development, a key component of women's empowerment.

Taken together, these insights indicate that raising the GDI cannot rely solely on public sector initiatives; it equally requires strengthening women's capacity to participate, exercise agency, and shape their own lives. Hence, gender-responsive development must be transformative, multifaceted, and rooted in the ideals of structural justice.

RESEARCH METHOD

Panel data with the following econometric model:

$$GDI_{it} = \beta_0 + \beta_1 WPP_{it} + \beta_2 CPEND_{it} + \beta_3 POSY_{it} + \beta_4 GSHE_{it} + \beta_5 POVRATE_{it} + \beta_6 GRDP_{it} + \beta_7 PW_{it} + \varepsilon_t$$

Where :

GDI	= Gender Development Index (%)
WPP	= Women's Representation in Parliament (%)
CPEND	= Average Per Capita Expenditure on Education (Rupiah)
POSY	= Community Health Posts (Posyandu) (Units)
GSHE	= Government Expenditure on Health and Education (Rupiah)
POVRATE	= Poverty Rate (%)
GRDP	= Gross Regional Domestic Product (GRDP) per Capita (Rupiah)
PW	= Male-to-Female Ratio (Population)
ε	= Error term

β_0	= Constant
$\beta_1 \dots \beta_7$	= Regression coefficients of the independent variables
i	= 1–35 (cross-section data of regencies/municipalities in Central Java Province)
t	= 1–5 (time-series data for the years 2019–2023)

The econometric model above is a combination of Aini's (2021) econometric model, which includes government expenditure variables in the education and health sectors (GSHE); Naufal & Nugroho's (2021) model, which includes the Gross Regional Domestic Product per capita (GRDP); and Utami & Arif's (2023) model, which includes the variable of Women's Participation in Parliament (WPP). In addition, new variables are added, namely Average Per Capita Expenditure on Education (CPEND), Integrated Health Post (POSY), Poverty Rate (POVRATE), and the Male-to-Female Ratio (PW). The variables of Women's Participation in Parliament (WPP), Average Per Capita Expenditure on Education (CPEND), Integrated Health Post (POSY), Government Expenditure in the Health and Education Sectors (GSHE), Gross Regional Domestic Product per capita (GRDP), and the Male-to-Female Ratio (PW) are expected to have a positive effect on the Gender Development Index (GDI). Meanwhile, the Poverty Rate (POVRATE) is expected to have a negative effect on the Gender Development Index (GDI).

This research applies a panel-data regression approach, merging cross-sectional observations from 35 regencies/municipalities across Central Java Province with time-series records covering 2019–2023. All variables are sourced from Central Bureau of Statistics (BPS) publications, encompassing Women's Parliamentary Participation (WPP), Average Per-Capita Educational Expenditure (CPEND), Integrated Health Post coverage (POSY), Government Spending on Health and Education (GSHE), per-capita Gross Regional Domestic Product (GRDP), Male-to-Female Ratio (PW), and the Poverty Rate (POVRATE).

The estimation procedure involves: (1) fitting the econometric model via Pooled Least Squares (PLS), Fixed-Effects (FEM), and Random-Effects (REM) techniques; (2) identifying the most appropriate specification through the Chow and Hausman diagnostics, with a Lagrange Multiplier test when warranted; (3) assessing the model's goodness of fit; and (4) evaluating the significance of each explanatory variable within the chosen specification.

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

The preliminary outcomes of the econometric model estimation—carried out using the Pooled Least Squares (PLS), Fixed Effects Model (FEM), and Random Effects Model (REM) techniques together with the corresponding model selection diagnostics, are presented in Table 3. This table provides a concise comparison of the three estimation strategies, highlighting the statistical indicators used to determine the most appropriate specification.

Such a summary is essential for demonstrating the robustness of the empirical analysis and for ensuring that the final model selection is based on reliable statistical evidence rather than subjective judgment.

Table 3.
Econometric Estimation Results of Panel Data Regression - Cross-Section

Variable	Regression Coefficient		
	PLS	FEM	REM
C	57,75935	101,9542	97,07679
WPP	0,077842	-0,007354	0,001477
Log(CPEND)	3,595986	0,136526	0,179226
Log(POSY)	-0,319570	-1,611610	-1,007332
Log(GSHE)	0,035078	0,039545	0,037043
POVRATE	0,004219	0,000163	0,000195
Log(GRDP)	0,455489	1,688744	1,755218
PW	40,48212	-11,20820	-11,03813
R ²	0,330752	0,996233	0,542991
Adjusted R ²	0,302700	0,995072	0,523835
Statistic F	11,79055	857,9903	28,34564
Prob F-statistic	0,000000	0,000000	0,000000
Selection Test			
Model			
Chow			
Cross-section F(34,133) = 691,133691; Prob. F(34,133) = 0,0000			
Hausman			
Cross-section Random $\chi^2(7) = 28,000906$; Prob. $\chi^2(7) = 0,0002$			

Source: Central Statistics Agency, estimated

The Chow Test and Hausman Test show that FEM was selected as the best estimated model, as seen from the probability or empirical significance of the F statistic with a value of 0.0000 (<0.01) and the χ^2 statistic with a value of 0.0002 (<0.01). The complete estimation results of the FEM estimated model are shown in Tables 4 and 5.

Table 4.
Fixed Effects Model (FEM) Estimation Model

$$GDI_{it} = 101,9542 - 0,007354 WPP_{it} + 0,136526 LogCPEND_{it} - 1,611610 LogPOSY_{it} + 0,039545 LogGSHE_{it} + 0,000163 POVRATE_{it} + 1,688744 LogGRDP_{it} - 11,20820 PW_{it}$$

(0,6936) (0,3558) (0,4684)
(0,0000)* (0,5837) (0,0000)*

R² = 0,996233; DW = 1,498524; F = 857,9903 ; Prob. F = 0,000000

Source: Data Estimated 2019-2023

Table 5.
Table of Effects and Area Constants

No	Region	Effect	Constant
1	Cilacap Regency	-5,267394	96,686806
2	Banyumas Regency	-2,362291	99,591909
3	Purbalingga Regency	1,254106	103,208306
4	Banjarnegara Regency	4,096137	106,050337
5	Kebumen Regency	2,514701	104,468901
6	Purworejo Regency	3,932783	105,886983
7	Wonosobo Regency	1,075748	103,029948
8	Magelang Regency	1,267534	103,221734
9	Boyolali Regency	2,728775	104,682975
10	Klaten Regency	4,78558	106,73978
11	Sukoharjo Regency	4,07725	106,03145
12	Wonogiri Regency	0,42037	102,37457
13	Karanganyar Regency	4,390101	106,344301
14	Sragen Regency	-0,242219	101,711981
15	Grobogan Regency	-4,805387	97,148813
16	Blora Regency	-7,355697	94,598503
17	Rembang Regency	-4,815042	97,139158
18	Pati Regency	0,210738	102,164938
19	Kudus Regency	-1,98468	99,96952
20	Jepara Regency	-0,755347	101,198853
21	Demak Regency	-0,578901	101,375299
22	Semarang Regency	4,208329	106,162529
23	Temanggung Regency	4,163671	106,117871
24	Kendal Regency	0,998316	102,952516
25	Batang Regency	-0,201487	101,752713
26	Pekalongan Regency	1,143711	103,097911
27	Pemalang Regency	-4,763829	97,190371
28	Tegal Regency	-3,893065	98,061135
29	Brebes Regency	-4,415331	97,538869
30	Magelang City	-0,779458	101,174742
31	Surakarta City	1,776277	103,730477
32	Salatiga City	-0,625261	101,328939
33	Semarang City	1,688618	103,642818
34	Pekalongan City	0,904019	102,858219
35	Tegal City	-2,791374	99,162826

Source: Central Statistics Agency, estimated

Table 4 reveals that the Fixed Effect Model (FEM) estimation is valid, indicated by an F-probability of 0.000000 (< 0.01) and an R^2 value of 0.996233. This reflects an exceptionally strong explanatory capacity, meaning that approximately 99.63% of the variation in the Gender Development Index (GDI) is accounted for by the explanatory variables: Women's Participation in Parliament (WPP), Average Per Capita Education

Expenditure (CPEND), Integrated Health Post (POSY), Government Spending on Health and Education (GSHE), Gross Regional Domestic Product per Capita (GRDP), Male-to-Female Ratio (PW), and Poverty Rate (POVRATE). The remaining about 0.37% of the variation is influenced by factors not included in the model.

On a variable-by-variable basis, three indicators Government Spending on Health and Education (GSHE), Gross Regional Domestic Product per Capita (GRDP), and the Male-to-Female Ratio (PW) exhibit a statistically significant effect on the GDI, each with t-statistic p-values of 0.0000 (< 0.01), 0.0000 (< 0.01), and 0.0001 (< 0.01), respectively. In contrast, Women's Participation in Parliament (WPP), Average Per Capita Education Expenditure (CPEND), Integrated Health Post (POSY), and Poverty Rate (POVRATE) show no significant impact on the GDI, with p-values of 0.6936 (> 0.1), 0.3558 (> 0.1), 0.4684 (> 0.1), and 0.5837 (> 0.1), respectively.

The variable Government Expenditure on Health and Education (GSHE) has a regression coefficient of 0.039545 with a linear-logarithmic relationship. This means that a 1% increase in GSHE will increase the GDI by 0.00039545%. Conversely, a 1% decrease in GSHE will reduce the GDI by 0.00039545%.

The variable Gross Regional Domestic Product per Capita (GRDP) has a regression coefficient of 1.688744 with a linear-logarithmic relationship. This means that a 1% increase in GRDP will increase the GDI by 0.01688744%. Conversely, a 1% decrease in GRDP will reduce the GDI by 0.01688744%.

The variable Male-to-Female Ratio (PW) has a regression coefficient of -11.20820 with a linear-linear relationship. This means that a 1% increase in PW will reduce the GDI by 11.20820%. Conversely, a 1% decrease in PW will increase the GDI by 11.20820%.

The constant values for each regency/city are presented in Table 5. The highest constant is found in Klaten Regency, with a value of 106.73978. This indicates that, considering the effects of WPP, CPEND, POSY, GSHE, GRDP, PW, and POVRATE, Klaten Regency tends to have a higher Gender Development Index compared to other regencies/cities. Following Klaten, the next four regencies with the highest constants are Karanganyar, Semarang, Temanggung, and Banjarnegara.

The lowest constant is found in Blora Regency, with a value of 94.598503. This indicates that, considering the effects of WPP, CPEND, POSY, GSHE, GRDP, PW, and POVRATE, Blora Regency tends to have a lower Gender Development Index compared to other regencies/cities. Following Blora, the next four regencies with the lowest constants are Cilacap, Rembang, Grobogan, and Pemalang.

Overall, the Gender Development Index (GDI) across 35 regencies/cities in Central Java during the 2019–2023 period is significantly influenced by Government Expenditure on Health and Education (GSHE), Gross Regional Domestic Product per Capita (GRDP), and Male-to-Female Ratio (PW). Meanwhile, Women's Participation in Parliament (WPP), Average Per Capita Expenditure on Education (CPEND), Integrated Health Post (POSY), and Poverty Rate (POVRATE) do not significantly affect the Gender Development Index (GDI) in Central Java.

Discussion

Women's Involvement in Parliament (WPP) does not have an effect on the Gender Development Index (GDI). This indicates that an increase in women's participation in legislative bodies does not automatically drive progress in gender development. Research by

Abidin et al. (2022) also confirms that women's involvement in legislative institutions has no effect due to the strong patriarchal culture and the weak strategic position of women, so that female representation in politics has not yet reached an optimal level. This is in line with Kanter's Theory of Tokenism (Wikipedia, 2025), which states that the presence of women in political institutions as mere tokens to fulfill quotas is not always accompanied by real power, authority, resources, or policy influence. Many women sit in parliament through affirmative mechanisms but do not hold strategic positions in decision-making, especially on sensitive issues such as women's empowerment. This results in no change in the structure of power relations, thereby failing to significantly increase the GDI. To improve GDI, women's representation in parliament should not only fulfill quotas but also be supported with leadership training, allocation of strategic roles, and participatory mechanisms that strengthen women's voices in the legislative process (Kanter in IknowPolitics, 2024).

Average per capita expenditure on education (CPEND) shows no significant relationship with the Gender Development Index (GDI) because simply increasing educational spending does not ensure equal distribution or access for women. This finding aligns with Hutasoit and Noni (2023), who reported that higher education budgets fail to influence GDI since additional funding does not necessarily guarantee equitable quality or accessibility for women. Consistent with Sen's (1999) capability approach, genuine development should focus on expanding people's capabilities rather than merely raising inputs. When education budgets mainly benefit urban or privileged groups, disadvantaged rural or marginalized women remain excluded, potentially deepening gender disparities. Policies to make educational expenditure more inclusive may include affirmative scholarship programs, the establishment of women-friendly schools, and the removal of sociocultural barriers.

Similarly, the presence of Integrated Health Posts (Posyandu/POSY) does not automatically improve the GDI if their services remain limited to basic needs such as nutrition assistance and primary child healthcare. Tarachintya (2023) likewise observed that merely providing basic health facilities has little effect on gender development unless accompanied by initiatives addressing strategic gender needs—such as capacity building, economic empowerment, and strengthening women's decision-making roles. Moser (1993) further highlighted that most posyandu cadres are women who serve voluntarily without pay, reinforcing traditional stereotypes of women as unpaid caregivers. To counter this, posyandu programs could be restructured as platforms for women's empowerment by offering economic incentives to cadres, incorporating entrepreneurship training, and integrating gender and leadership education within their activities.

Government Expenditure in the Health and Education Sectors (GSHE) is positively correlated with the Gender Development Index (GDI), as these two sectors form the foundation for improving women's quality of life and capabilities. This is consistent with Sen's (1999) approach, which explains that adequate access to education and healthcare allows women to participate more equally in the labor market, politics, and social life. However, these results differ from Aini's (2021) research, which found a negative effect because much of the budget allocation went to indirect expenditures, such as salaries and administrative costs, rather than directly addressing women's needs. In other words, if spending is not effectively directed toward programs that improve women's access and service quality, its potential to increase gender development remains limited. Silver (1994)

emphasized that inclusive spending in education and health enables women from poor, remote, and minority backgrounds to access basic services and improve their quality of life.

The Poverty Rate (POVRATE) does not affect the Gender Development Index (GDI) because poverty is not the only factor determining gender equality. Although poverty impacts women's lives, gender development also involves access to education, healthcare, employment opportunities, and participation in decision-making. This finding is consistent with Setiani et al. (2024), who found that the poverty rate has no impact on GDI. According to Chant (2006), conventional poverty measures often fail to capture issues specific to women, such as the double burden of work, gender-based violence, or limited mobility and opportunities. Therefore, even if the poverty rate decreases, GDI may not increase, as GDI focuses more on women's individual capabilities rather than general household economic conditions. To improve poverty reduction effectiveness, interventions should specifically address women's needs, such as access to business capital, skills training, and social protection.

Regional Gross Domestic Product per Capita (GRDP) positively affects the Gender Development Index (GDI) because fair resource distribution can strengthen women's bargaining position in society and increase their opportunities to participate in economic and social activities. This aligns with Naufal & Nugroho (2021), who found that GRDP positively influences GDI, where regional economic growth directly reduces gender disparities. Similarly, Kabeer (2013) emphasized that an increase in GRDP per capita, accompanied by equitable distribution, can reduce inequality and promote gender development.

The Proportion of Men and Women influences the Gender Development Index (GDI) in line with feminist and gender development theories, which stress the importance of gender balance as the foundation of a fair and inclusive social environment for women (Kabeer, 1999). A balanced gender proportion also strengthens women's bargaining power and broadens their access to resources and opportunities, thereby enhancing their capabilities in various development fields (Dyson, 1983). However, this finding contradicts Utami & Arif (2023), who reported that gender proportion has no significant effect on GDI due to differences in regional or institutional contexts, where gender balance does not always coincide with equal distribution of power or access to resources. Therefore, demographic management that considers gender balance is essential to support inclusive and equitable development.

CONCLUSION

The Fixed Effect Model (FEM) was selected as the best estimated model, with an R^2 of 0.996233. Partially, Government Expenditure in the Health and Education Sector (GSHE), Gross Regional Domestic Product per Capita (GRDP), and the Male-to-Female Ratio (PW) have an influence on the Gender Development Index (GDI). Meanwhile, Women's Participation in Parliament (WPP), Average Per Capita Expenditure on Education (CPEND), Integrated Health Post (POSY), and Poverty Rate (POVRATE) do not have a significant influence on the GDI. The highest Gender Development Index was identified in Klaten Regency, while the lowest was recorded in Blora Regency.

The analysis reveals that not every factor associated with development and public services directly influences the Gender Development Index (GDI). Only three indicators—

Government Spending on Health and Education (GSHE), Gross Regional Domestic Product per capita (GRDP), and the Male-to-Female Ratio (PW)—demonstrate a significant relationship. These results highlight that advancing gender development requires adequate resources, equitable distribution, and balanced gender representation in society. Conversely, elements such as Women's Parliamentary Participation (WPP), Average Per Capita Education Expenditure (CPEND), Integrated Health Post services (POSY), and the Poverty Rate (POVRATE) show no meaningful impact on GDI. This indicates that simply increasing women's political representation or educational spending does not guarantee improved outcomes unless accompanied by strategic involvement, fair access, and high-quality services. Hence, policymakers should reinforce the allocation of education and health funds to ensure accurate targeting and fair distribution across regions. Moreover, empowering women's participation in decision-making, expanding training opportunities, ensuring equal access, and upgrading healthcare quality should be prioritized through well-designed programs to enhance the GDI.

This research can serve as a reference for the Central Java Provincial Government in formulating policies aimed at improving the Gender Development Index (GDI) across 35 regencies/municipalities in Central Java. The policies should better address the actual needs of women and strengthen programs that truly improve their quality of life. Future government policies are expected to move beyond symbolic actions and instead respond to substantive challenges in gender development through evidence-based and socially responsive approaches. For future research, the scope of variables could be expanded to provide a more comprehensive picture of the dynamics of gender development in the region.

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