

Gender Inequality and Its Impact on Gross Regional Domestic Product (GDRP) in Regencies/Cities of West Java Province In 2018-2023

David Maulana Verdyansah¹, Sishadiyati^{2*}

Economic Development, Faculty of Economic and Business, Universitas Pembangunan Nasional "Veteran" Jawa Timur

Corresponding Author: Sishadiyati sishadiyati.ep@upnjatim.ac.id

ARTICLE INFO

Keywords: Gender Inequality, GRDP, West Java, Panel Data Regression

Received : 6, August

Revised : 22, August

Accepted: 23, September

©2025 Verdyansah, Sishadiyati: This is an open-access article distributed under the terms of the [Creative Commons Attribution 4.0 International](https://creativecommons.org/licenses/by/4.0/).



ABSTRACT

This study aims to analyze the effect of gender inequality on Gross Regional Domestic Product (GRDP) in the regencies and cities of West Java Province from 2018 to 2023. Gender inequality is measured through the ratio of life expectancy, mean years of schooling, and labor force participation between males and females. The research employs a quantitative approach using panel data regression analysis. The data used are secondary data obtained from the Central Bureau of Statistics (BPS). The results show that the mean years of schooling variable has a positive and significant effect on GRDP, while life expectancy and the female-to male labor force participation ratio have negative but insignificant effects. These findings indicate that regional economic development is closely related to gender inequality in the fields of health, education, and employment. Therefore, inclusive and sustainable policies are needed to promote gender equality in order to enhance regional economic growth.

INTRODUCTION

To make significant progress in the modern global economy, a country's development must prioritize the improvement of communal living standards and the reduction of poverty. Enhancing the overall welfare of society is a fundamental component of this improvement in quality of life. Strategic actions are necessary to achieve this goal, including promoting equitable income distribution and inclusive economic growth across generations, ethnicities, genders, and geographic regions. Increasing women's participation in the development process is one such strategy to drive economic advancement. More active participation by women can promote gender equality in development and contribute to poverty alleviation (Dabla-Norris et al., 2015).

Economic value growth can be used to determine whether a country has successfully developed its economy. In evaluating this growth, a region's Gross Regional Domestic Product (GRDP) can serve as a benchmark for measuring economic expansion, whether positive or negative (Rahman et al., 2016). The GRDP figures reflect whether there is an increase in economic activity within a region. Economic expansion in West Java Province is supported by twenty-seven regencies and cities. As the administrative and economic center of the province, Bandung – the capital city – frequently records the highest GRDP growth.

West Java is one of the regions experiencing inequality. The province comprises nine cities and eighteen regencies, each with its own unique regional characteristics. Leading sectors in West Java contribute significantly to regional economic growth, particularly through manufacturing, wholesale and retail trade, and construction. Manufacturing remains the dominant sector contributing to the GRDP.

The basic concept of gender focuses on the social and cultural disparities between men and women. In contrast, as explained by (Syifa Salsabila et al. 2024), sex refers to the anatomical distinction between males and females. The term "gender" is widely used in writing and everyday discourse. Although this term is often misused, it can sometimes lead to misunderstandings about sex. Equal opportunities for exercising human rights will be available to both men and women when they receive equal treatment, allowing them to contribute to the political, social, cultural, and economic advancement of their country.

In addition to providing economic knowledge and skills, economic education for women opens pathways to addressing gender inequality in economic growth (Rahim, 2024). Gender inequality also hinders economic progress, productivity, and efficiency. Through the systematic exclusion of men and women from resources, public services, and productive activities, and by limiting the total human capital within a country and its labor market, gender-based discrimination obstructs economic growth and the improvement of living standards (World Bank, 2005).

One of the gender-related development indices is the Gender Development Index (GDI). Both the Human Development Index (HDI) and the Gender Development Index assess achievements in the same areas; however, the GDI highlights disparities in outcomes between men and women. A nation's level of prosperity in terms of human well-being and quality of life can be

measured using these two indicators – HDI and GDI (Pamungkas & Hukom, 2024).

LITERATURE REVIEW

Gross Regional Domestic Product

The expansion of trade activities that leads to an increase in the quantity of goods and services produced by society is known as economic growth. Over a certain period, a country can produce an increasing amount of goods and services. This growing capability results from continuous improvements in both the quantity and quality of production components (Kambono & Marpaung, 2020). On the other hand, the Gross Regional Domestic Product (GRDP) is a similar concept applied at the regional level, such as a province or district.

According to Statistics Indonesia (Badan Pusat Statistik/BPS), the GRDP is defined as the gross value of all goods and services produced in a specific region, regardless of the ownership of production factors. It includes all economic activities that create added value within that area. As national income increases through the production of goods and services, a country can shift its economic condition toward development (Andriyani & Damanik, 2022). The effectiveness with which a region manages its natural resources largely determines its GRDP. GRDP at constant prices measures a region's economic capacity by illustrating the added value of goods and services based on fixed annual prices. The value-added of these goods and services, calculated using the prices of a specific base year, is represented by the GRDP at constant prices (Ziyadaturrofiqoh et al., 2018).

The economic health of a region can be assessed using a key indicator known as Gross Regional Domestic Product (GRDP), which can be measured in both current and constant prices (Indradewa & Natha, 2015). The total value of final goods produced by the entire economy is known as the Gross Domestic Product (GDP), and it reflects the value added by all business units in a given region. Regardless of ownership of the production components, GRDP includes all goods and services produced through domestic economic activities.

Gender Inequality in Health

Women generally have a longer life expectancy than men in the health sector. (Gorman and Read, 2007) explain three contributing factors to the difference in mortality rates between men and women: behavior or habits, social structure, and biology. Biologically, women are more protected from mortality. Based on biological classification, testosterone is associated with immunosuppression in women, resulting in a weaker immune system. The second factor, social structure, refers to improvements in maternal care and prenatal treatment, which have contributed to a decline in maternal mortality rates.

In terms of behavior—the third factor—significant differences are observed between men and women. Men are more likely to engage in risky behaviors such as alcohol and tobacco abuse, suicide, homicide, and both intentional and unintentional injuries. (Mariaty Padang et al., 2019) also state that women generally have a longer life expectancy than men. However, if women's

life expectancy, employment opportunities, and job-related skills are not optimized, their advancement will remain hindere

Gender Inequality in Education

One of the main causes of gender inequality is the education sector, which in turn contributes to broader gender disparities. Education is one of the key strategies for improving the quality of human resources. In this context, economic growth can be enhanced through the significant contributions of education. Gender inequality often stems from disparities in educational access and attainment between men and women.

Todaro and Smith found empirical evidence of substantial educational bias within societies in their research (Rengga Viano Deris et al., 2022). They concluded that increasing female participation in education can reduce social inequality and promote economic advancement.

Gender Inequality in the Employment Sector

Low levels of education among women can contribute to gender inequality in the labor market. (Zahid et al., 2012) explain that one of the causes of gender inequality in employment is the lower average labor force participation of women, which can hinder economic growth. Informal employment typically does not require high levels of education or specialized skills. Jobs in this unregulated sector often lack adequate labor protections, such as social legislation, fair wages, paid leave, pension funds, and health insurance.

Cultural norms and traditional values that prevail in many societies also play a significant role. For example, beliefs that women should not enter the workforce—because tradition is viewed as more important than change—often lead women to stay at home and assume full responsibility for household duties (Nuraeni & Lilin Suryono, 2021).

METHODOLOGY

A quantitative research methodology was implemented for this study. To determine the extent to which the findings can be generalized to the broader population, a quantitative approach was employed. The research method used in this study is a quantitative method with panel data regression. This was carried out using a statistical program that applies formulas or models that meet specific requirements. In line with this, the study was conducted to determine whether there is a relationship between GRDP and the life expectancy index, the average length of schooling index, and the labor force participation rate index in the regencies and cities of West Java Province from 2018 to 2023.

For this research, the author employed a literature review to obtain information and explanations from several related institutions. The author also used previous literature such as articles, journals, and reports as the theoretical foundation. The data were collected from 2018 to 2023 by the Central Bureau of Statistics (BPS).

This variable uses the Gross Regional Domestic Product (GRDP), which represents the total value of final goods and services produced within a region over a specific period. The Life Expectancy Index (LEI) is an indicator that reflects the average expected age a person can reach from birth, assuming that the

prevailing mortality patterns remain constant throughout their life. The unit of the Life Expectancy Index is points. This variable uses ratio data, calculated by dividing the life expectancy of females by that of males for each city or regency in West Java Province.

The "Mean Years of Schooling," disaggregated by gender in this study, refers to the total number of years of formal education completed by individuals aged 15 and above. Points are used as the unit to represent the Mean Years of Schooling Index. The data used for this variable is the average number of years girls attend school divided by the average number of years boys attend school in each city or regency in West Java Province.

The percentage of the working-age population, defined as individuals aged 15 and above, by gender in this study is referred to as the labor force participation rate. Points are used as the unit to represent the Labor Force Participation Rate Index. This indicator uses data from each city or regency in West Java Province, specifically the ratio of female to male labor force participation rates.

$$Y = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + e$$

Where Y is what we're trying to predict or explain, X_1 , X_2 , and X_3 are the factors that might influence Y, 'i' shows which individual unit we're looking at, 't' shows which time period we're examining, and 'e' represents all the unpredictable factors or randomness that we can't account for in our model. The following is the structure of the panel data regression equation model that will be tested in this study:

$$PDR_{it} = \alpha + \beta_1 AHH1_{it} + \beta_2 RLS2_{it} + \beta_3 TPAK3_{it} + e$$

Where Y is the Gross Regional Domestic Product (GRDP), X_1 is the Life Expectancy Index, X_2 is the Mean Years of Schooling Index, X_3 is the Labor Force Participation Rate Index, i represents the cross-section, t represents the time series, and e is the error term.

Several regression models are available for use when panel data regression is applied for data processing. These three models represent panel data regression estimations that will be tested in the following steps to determine which model is most suitable for use, depending on the approach taken to evaluate the regression. Panel data regression can be estimated using three different methods: the Common Effect Model, the Fixed Effect Model, and the Random Effect Model.

Before conducting hypothesis testing, several classical assumption tests were performed to ensure the validity and reliability of the model. Multicollinearity and heteroscedasticity were tested using the Glejser method to evaluate the consistency of the residual variance. All statistical procedures were carried out using Eviews software.

RESEARCH RESULT

The analysis begins with classical assumption tests, which indicate that the regression model meets the required validity conditions.

Table 1. Multicollinearity test

	AHH	RLS	TPAK
AHH	1,000,000	-0,305395	-0,118162
RLS	-0,305395	1,000,000	0,265049
TPAK	-0,118162	0,265049	1,000,000

The multicollinearity test shows that all independent variables have values below 0.80, indicating no serious multicollinearity issues.

Table 2. Heteroscedasticity test

Variabel	Prob.	Provision	Information
AHH	0.3852	> 0,05	There is no heteroscedasticity
RLS	0.1154	> 0,05	There is no heteroscedasticity
TPAK	0.0749	> 0,05	There is no heteroscedasticity

The results of the Glejser test show significance values of 0.3852, 0.1154, and 0.0749, all above the 0.05 threshold, suggesting that the model is free from heteroscedasticity.

Table 3. Chow Test

	Statistic	d.f.	Prob.
Cross-section F	915.762.546	-26,132	0.0000
Cross-section Chi-square	842.494.014	26	0.0000

We did a test called the Chow test to pick the best model for our data analysis. The test result was 0.000, which is less than 0.05. This means we should use the Fixed Effect Model instead of the Common Effect Model.

The Fixed Effect Model is better because it recognizes that each unit in our study has its own unique characteristics, while the Common Effect Model treats them all the same. So we'll use the Fixed Effect Model for our analysis.

Table 4. Hausman Test

	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	17.171.862	3	0.0007

The next test is the Hausman test, which shows that the probability value of the Cross-section random is 0.0007, also less than the significance level (α) of 0.05. Based on this result, it can be concluded that the Fixed Effect estimation model is superior to the Random Effect Model.

Table 5. hypothesis testing

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Adjusted R-squared	Prob(F-statistic)
C	282919.1	246744.2	1.146.609	0.2536	0.994853	0.000000
AHH	-364711.2	233767.5	-1.560.145	0.1211		
RLS	175263.5	25037.79	6.999.959	0.0000		
TPAK	-9.499.876	6.755.841	-0.140617	0.8884		

After choosing the Fixed Effect Model, we tested our main theory. The results show that all three factors we studied – how long people live, how much education they have, and how many people are working – together have a strong impact on the economic output of cities and counties in West Java Province. The F-test gave us a result of 0.0000, which proves our model works well overall. We also found that our three factors explain 99% of why economic growth changes from place to place ($R^2 = 0.994853$). Only 1% of the changes come from other things we didn't study. This means our model does a very good job explaining what drives economic growth in these areas.

When we examined each factor individually, we found some interesting results. Life expectancy appears to have a slight negative impact on the regional economy, but we can't be confident in this finding because the test result (0.1121) suggests it might just be due to chance. The same thing happened with the labor force participation rate - it also seemed to negatively affect economic output, but again, we can't trust this result (0.8884) because it's likely just random variation. However, education levels tell a completely different story. Areas with higher education levels clearly have stronger economies, and we can be very confident in this finding (0.0000) because the relationship is so strong it's extremely unlikely to be due to chance. So while all three factors seemed important when we looked at them together, when we examine them one by one, only education shows a reliable connection to economic growth.

DISCUSSION

The human capital theory emphasizes that a healthy and high-quality human resource base is a key factor in driving long-term economic growth. When life expectancy declines, it reflects a deterioration in the population's health quality, indicating that human capital is not being optimally developed. This condition suggests that regional GDP growth may be driven primarily by external or sectoral factors—such as industry or investment—without being accompanied by improvements in the overall quality of life. In the long run, declining population health will hinder productivity and regional economic competitiveness.

Therefore, according to human capital theory, economic growth that is not accompanied by improvements in health indicators such as life expectancy is considered unsustainable and does not reflect true developmental success. In West Java, the declining life expectancy among women highlights the limited access women have to adequate healthcare services, the burden of domestic roles, and persistent socioeconomic inequality. This indicates that development in

West Java still faces significant challenges in achieving inclusive and sustainable growth.

The human capital theory emphasizes that education is a vital investment that enhances individuals' skills, knowledge, and productivity. When the average years of schooling increase, it indicates that people have better access to education, which in turn improves their ability to contribute effectively to the labor market and other productive sectors.

Therefore, an increase in GRDP that aligns with longer average schooling years reflects a development process that not only focuses on economic aspects but also reinforces long-term foundations through human capital development. West Java, as the most populous province, faces both challenges and opportunities in equalizing access to education, especially for women. The rise in the average years of schooling for women indicates that the gender gap in education is narrowing and supports the increase in GRDP.

Endogenous growth theory emphasizes that sustainable economic growth originates from internal factors such as knowledge accumulation, innovation, productivity, and the optimal utilization of human resources. When labor force participation declines, it indicates that fewer working-age individuals are engaged in economic activities, thus the productive potential of a region is not fully utilized.

Even if GRDP increases, such growth may stem only from certain sectors or narrow productivity gains rather than widespread contributions from the labor force as a whole. In the long term, this condition can weaken the internal momentum of growth due to the limited involvement of the population in the economic process. Therefore, according to endogenous growth theory, high labor force participation is essential to ensure that economic growth is not merely temporary or elitist, but truly driven by the strengthening of the domestic economic structure through the empowerment of all segments of the labor force.

West Java faces challenges in providing inclusive employment opportunities for women due to issues such as access, household responsibilities, and social norms. The decline in female labor force participation indicates that women's productive potential has not been fully utilized, despite the increase in GRDP.

CONCLUSIONS AND RECOMMENDATIONS

Based on the research conducted on the impact of gender inequality on the Gross Regional Domestic Product (GRDP) in the regencies and cities of West Java Province from 2018 to 2023, several conclusions can be drawn. Gender inequality in the health sector, as measured by the life expectancy ratio, shows a negative but statistically insignificant influence on GRDP.

This indicates that an increase in the female-to-male life expectancy ratio does not significantly affect regional economic growth. In contrast, gender inequality in education, measured by the ratio of average years of schooling, has a positive and significant effect on GRDP. This suggests that the higher the average years of schooling among females compared to males, the greater the potential for GRDP growth. Meanwhile, gender inequality in employment, measured by the labor force participation rate ratio, shows a negative but

statistically insignificant relationship with GRDP. This finding implies that although women's participation in the labor force is lower, the decline in participation does not significantly hinder GRDP growth. This may be due to structural labor market imbalances or the dominance of men in certain economic sectors.

From these findings, several recommendations can be proposed. First, readers are encouraged to develop a deeper understanding of gender inequality in the areas of health, education, and employment, as well as how these disparities impact GRDP in West Java. Second, regional governments are expected to formulate and strengthen gender-inclusive development policies, particularly in improving equal access to education and job opportunities for women. Lastly, future research should broaden the scope of analysis by incorporating additional, more detailed variables or applying different analytical methods, in order to produce more accurate and relevant insights aligned with the evolving dynamics of regional development.

ADVANCED RESEARCH

Future research is recommended to further develop the study on gender inequality and its impact on Gross Regional Domestic Product (GRDP) by incorporating additional and more comprehensive variables. Some potential variables include the Gender Empowerment Index (GEI) to assess women's participation in economic and political sectors, the wage ratio between women and men to directly reflect economic inequality, and the open unemployment rate by gender to further examine disparities in the labor market.

In addition, future studies could expand the geographical scope by comparing West Java Province with other provinces on the island of Java, or by making more specific comparisons between urban and rural areas. From a methodological perspective, alternative approaches such as spatial regression or quantile regression may be considered to capture variations in the effect of gender inequality on GRDP across regions with different socio-economic characteristics. This would result in findings that are more representative and relevant in addressing the dynamics of regional development comprehensively.

REFERENCES

- Andriyani, D., & Damanik, H. (2022). Pengaruh Destinasi Wisata Halal Terhadap Pertumbuhan Ekonomi Di Provinsi Nusa Tenggara Barat (NTB). *Jurnal Ekonomi dan Keuangan Syariah*, 5(1).
- Dabla-Norris, E., Kochhar, K., Suphaphiphat, N., Ricka, F., & Tsounta, E. (2015). *Inequality: Causes And Consequences* International Monetary Fund 1 Causes and Consequences of Income Inequality: A Global Perspective International Monetary Fund.
- Gorman, B. K., & Read, J. G. (2007). Why Men Die Younger than Women. *Geriatrics and Aging*, 182-191.
- Indradewa, I. G. A., & Natha, K. S. (2015). Pengaruh Inflasi, PDRB Dan Upah Minimum Terhadap Penyerapan Tenaga Kerja Di Provinsi Bali. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 4(8), 923-950.

- Kambono, H., & Marpaung, E. I. (2020). Pengaruh Investasi Asing dan Investasi Dalam Negeri terhadap Pertumbuhan Ekonomi Indonesia. *Jurnal Akuntansi*, 12(1), 137-145.
- Mariaty Padang, D., Anis, A., & Ariusni. (2019). Analisis Pengaruh Kesetaraan Gender Terhadap Pertumbuhan Ekonomi Di Sumatera Barat. *Jurnal Kajian Ekonomi dan Pembangunan*, 1(3), 969-976.
- Nuraeni, Y., & Lilin Suryono, I. (2021). Analisis Kesetaraan Gender dalam Bidang Ketenagakerjaan di Indonesia. *Nakhoda: Jurnal Ilmu Pemerintahan*, 20(1).
- Pamungkas, L. A., & Hukom, A. (2024). Efek Indeks Pembangunan Gender dan Indeks Pembangunan Manusia Terhadap Tingkat Kemiskinan Melalui Pertumbuhan Ekonomi di Provinsi Kalimantan Tengah. *Kajian Ekonomi dan Akuntansi Terapan*, 1(2), 01-12.
- Rahim, W. (2024). Pendidikan Ekonomi Untuk Pemberdayaan Perempuan: Strategi Dan Dampaknya Pada Pembangunan Ekonomi. *Jurnal Pendidikan Kreatif*, V (1).
- Rahman, A. J., Soelistyo, A., & Hadi, S. (2016). Pengaruh Investasi, Pengeluaran Pemerintah Dan Tenaga Kerja Terhadap PDRB Kabupaten/kota Di Propinsi Banten Tahun 2010-2014. *EPE: Jurnal Ekonomi Pembangunan*, 4(1), 112-121.
- Rengga Viano Deris, L., Bhinadi, A., & Nuryadin, D. (2022). Pengaruh Ketimpangan Gender Terhadap Pertumbuhan Ekonomi di Indonesia (34 Provinsi) Tahun 2015-2020. *Sibatik Journal: Jurnal Ilmiah Bidang Sosial, Ekonomi, Budaya, Teknologi, dan Pendidikan*, 1(12), 2947-2958.
- Syifa Salsabila, S., Kadafi, M., & Maloko, M. T. (2024). Pengaruh Perubahan Sosial Terhadap Peran Gender dalam Masyarakat di Kecamatan Manggala Kota Makassar Perspektif Hukum Islam. *Jurnal Ilmiah Multidisiplin*, 2(1), 111-117. <https://doi.org/10.5281/zenodo.10497603>
- World Bank. (2005). *The World Bank Annual Report 2005 Year In Review*.
- Zahid, P., Muhammad, I. C., Ahmad, S., & R. Chaudhary, A. (2012). Gender Inequality and Economic Growth: A Time Series Analysis for Pakistan. *Middle-East Journal of Scientific Research*, 10(4), 434-439.
- Ziyadaturrofiqoh, Zulfanetti, & Safri, M. (2018). Pengaruh PDRB, Upah Minimum Provinsi dan Pengeluaran Pemerintah Terhadap Penyerapan Tenaga Kerja di Provinsi Jambi. *e-Jurnal Ekonomi Sumberdaya dan Lingkungan*, 7(1).