

The Effect of Gender Gap in Education, Wages and Employment on Human Development Gender Based in Indonesia

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Abstract

The prevailing paradigm today emphasizes economic growth measured through human development rather than solely through per capita income. Enhancing welfare and improving the quality of life for communities are the ultimate goals of economic development. Achieving these objectives requires substantial efforts that avoid bias related to gender, ethnicity, race, religion, and class. However, in practice, these efforts often overlook issues of equality and justice, reflected in the differing roles of men and women as both agents and beneficiaries of development. This study aims to investigate the impact of average years of schooling, average wages, and labor force participation rates on the Gender Development Index across 34 provinces in Indonesia from 2013 to 2022. The analysis methods employed include model fit testing, classical assumption testing, panel data linear regression, partial (t-test) and simultaneous (F-test) hypothesis testing, as well as coefficient determination using Eviews. The findings reveal that average years of schooling and average wages have a positive and significant effect on the Gender Development Index, while labor force participation rates do not significantly impact the Gender Development Index.

Keywords: Gender Development Index, Average Years of Schooling, Average Wages, Labor Force Participation Rate, Gender Inequality.

INTRODUCTION

Gender differences typically result in gender roles that classify men in the public sphere and women in the domestic sphere, leading to gender injustice. Therefore, a

1366

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positive understanding aimed at achieving gender justice is necessary. Justice does not imply complete equality in all respects between men and women; rather, it refers to providing access and opportunities without gender bias. This includes contributions to political, economic, social, and cultural development, realizing rights and potentials, and enjoying the benefits of progress and development.

Enhancing welfare and improving the quality of life are the ultimate goals of economic development (Damsar, 2009). Achieving these goals requires significant efforts that avoid biases related to gender, ethnicity, race, religion, and class. The low quality of human resources in health, education, and employment reflects the suboptimal role of women in development efforts. Gender inequality remains a significant barrier to progress in Indonesia.

The success of a nation's development cannot be assessed solely through economic growth but must also consider human development (Ananta et al., 2023). Promoting equal participation between men and women across all aspects of life is essential for successful development. Gender equality is urgent in all areas of development—health, education, economy, social issues, and politics (Napitupulu, 2022). High-quality human resources that experience effective and equitable development will enhance community productivity, thereby contributing to overall progress (Nursini & Syahrul, 2022).

Both men and women play equally vital roles in contributing to holistic human development. To enhance the Human Development Index (HDI) by providing gender-specific insights, the Gender Development Index (GDI) was established (UNDP, 1990). The GDI represents the ratio of female HDI to male HDI. As a measure of quality of life, the GDI is constructed through a three-dimensional approach similar to the HDI but with slightly different indicators. The components of the GDI include education, health, and economic dimensions (Ferrant, 2010).

Gender disparities often hinder women's participation and their ability to benefit from development (Lorenza, 2022). Such inequalities can stem from societal mindsets and cultural norms that demand women focus solely on domestic responsibilities. Although gender development in Indonesia's provinces has gradually improved in line with the GDI growth, as of 2023, fewer than half of Indonesia's provinces scored above the national average, totaling just 15 provinces. This indicates that equitable development, particularly gender-based human development, needs to be enhanced in Indonesia (Nairobi & Respitasari, 2021).



Currently, the average years of schooling for Indonesian women are lower than that of men and below the overall average, highlighting a significant number of women with low educational attainment, which can diminish their productivity, especially in professional fields (Rahmawati et al., 2021). Moreover, income disparities continue to affect women in the workforce, as average wages for women remain lower than those for men (Francine & Laxrence, 2007). In many instances, women are often paid less than men for the same work.

Currently, Indonesia is in a favorable situation referred to as the "demographic bonus," which occurs when the proportion of the working-age population exceeds that of the non-working age. As of January 31, 2023, Indonesia's population reached 273.52 million, with men comprising 50.58% and women 49.42%. According to the Central Statistics Agency, approximately 190.98 million people, or around 69.25% of the total population, are of working age. Human resources are a crucial asset for development (Becker, 2018). As of February 2023, Indonesia's Labor Force Participation Rate (LFPR) was only 69.30%. Despite the nearly equal number of men and women, the participation rates are disproportionately skewed: 83.98% for men compared to just 54.42% for women (Aprilianti & Setiadi, 2020). This disparity underscores the importance of women's roles in maximizing the benefits of the demographic bonus to support development. However, gender inequality in Indonesia hampers the ability to fully leverage this demographic advantage, as women are unable to participate fully in the economy.

The prevailing societal perspective that "women do not need higher education or employment" is a significant factor that cannot be overlooked. If women could assume larger roles in the economy, it would drive economic growth by reducing unemployment and income inequality, thanks to the increased Labor Force Participation Rate (LFPR) of women.

Gender inequality is not merely an ethical issue or social concern, but also a challenge linked to economic crises (Vidyanagar et al., 2020). This problem is prevalent in many countries, particularly in Africa and Asia. According to Downes and Nicol (2020), gender equality is not only a fundamental human right but also a key component of modern economies that can foster sustainable inclusive growth. This rationale underpins the United Nations' designation of Gender Equality as one of the 17 Sustainable Development Goals (SDGs) (United Nations, 2015). Promoting gender equality strengthens a country's capacity for development, reduces disparities, and enhances governance effectiveness (Publicuho et al., 2022).



However, existing development policies in Indonesia have not fully liberated women from traditional gender roles (Ambya, 2020). Raising awareness about new and fairer gender roles through gender mainstreaming policies is essential (Bappenas, 2020). Based on this discussion, this study will focus on the factors influencing gender development, specifically examining gender disparities in average years of schooling, average wages, and labor force participation rates in relation to the Gender Development Index.

Research Questions

1. What is the impact of average years of schooling on the Gender Development Index across 34 provinces in Indonesia from 2013 to 2022?
2. What is the impact of average wages on the Gender Development Index across 34 provinces in Indonesia from 2013 to 2022?
3. What is the impact of labor force participation rates on the Gender Development Index across 34 provinces in Indonesia from 2013 to 2022?

Research Objectives

1. To determine the impact of average years of schooling on the Gender Development Index across 34 provinces in Indonesia from 2013 to 2022.
2. To assess the impact of average wages on the Gender Development Index across 34 provinces in Indonesia from 2013 to 2022.
3. To evaluate the impact of labor force participation rates on the Gender Development Index across 34 provinces in Indonesia from 2013 to 2022.

LITERATURE REVIEW

Human Development and Gender Development

The Human Development Index (HDI) serves as an indicator to measure the quality of human resources with the aim of achieving a standard of well-being in development planning. Human resource development is expected to be a key factor in the process of sustainable development. With increased creativity and productivity, it is hoped that communities can effectively manage available resources to enhance economic growth. The pace of development also serves as an indicator of a country's success in achieving development (Todaro & Smith, 2006).

The Gender Development Index (GDI) is an indicator that compares the Human Development Index (HDI) of men and women. The GDI aims to measure human growth

1369



similarly to the HDI, but with a stronger emphasis on the comparison between women and men (Rahmawati et al., 2021). The difference between the GDI and HDI lies in the focus on revealing gender disparities in development. A GDI approaching 100 indicates a smaller development gap between men and women (Rozaini, 2023).

Average Years of Schooling

According to the Central Statistics Agency, average years of schooling refer to the total number of years that individuals have spent in formal education. The population considered in calculating this average includes individuals aged 15 and above, regardless of gender. This figure is determined using three simultaneous variables: school participation, the level or grade currently or previously attended, and the highest diploma obtained.

Average Wages

According to the Central Statistics Agency, average wages represent the average compensation earned per hour of work, including both monetary and non-monetary benefits. Wage levels can reflect job quality and living conditions. Average hourly wages, often differentiated by gender, position, and disability status, illustrate the wage gaps that exist among these groups. However, in many countries, female workers typically earn significantly lower hourly wages than their male counterparts, with disparities ranging from 10-40% compared to the average wages across all employed populations based on gender.

Labor Force Participation Rate

According to Sukirno (2006), the labor force is defined as the number of workers or labor available within the economy over a specific period. This is usually expressed through the Labor Force Participation Rate (LFPR). Johansson (2002) defines LFPR as the ratio of the working-age population that is either employed or unemployed to the total working-age population. A high LFPR indicates greater involvement of the working-age population in the economy and a decrease in unemployment.

RESEARCH METHOD

This study employs a quantitative approach, utilizing panel data sourced from the Central Statistics Agency and the Ministry of Women's Empowerment and Child Protection. The data range spans from 2013 to 2022, covering 34 provinces in Indonesia.

1370

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The variables in this research include the Gender Development Index as the dependent variable, with average years of schooling, average wages, and labor force participation rate as independent variables. The analysis will utilize multiple linear regression, involving more than one independent variable, conducted using Eviews. The regression model is formulated as follows:

$$IPG = \alpha + \beta_1 RLS + \beta_2 RUP + \beta_3 TPAK + e$$

IPG = Gender Development Index

RLS = Average Years of Schooling

RUP = Average Wages

TPAK = Labor Force Participation Rate

α = Constant

β = Regression coefficients

e = Error term

Hypothesis Testing

a. Individual Parameter Significance Test (t-test)

The t-test is conducted to assess the influence of each independent variable on the dependent variable. The decision rule for the t-test is that if the calculated t-value exceeds the critical t-value, it can be concluded that there is a significant effect of the independent variable on the dependent variable, and vice versa.

b. Simultaneous Significance Test (F-test)

The F-test evaluates the collective influence of independent variables on the dependent variable. The decision rule for the F-test is that if the calculated F-value is greater than the critical F-value, it can be concluded that the independent variables collectively impact the dependent variable, and vice versa.

The hypotheses for the F-test are as follows:

- $H_0: \beta_1 = \beta_2 = \beta_3 = 0$ (no effect)

- $H_a: \beta_1 \neq \beta_2 \neq \beta_3 \neq 0$ (there is an effect)

Thus, the conclusions based on the F-test are:

- If $F_{\text{calculated}} > F_{\text{table}}$, then H_0 is rejected, indicating that the independent variables collectively influence the dependent variable.
- If $F_{\text{calculated}} < F_{\text{table}}$, then H_0 is accepted, indicating that the independent variables do not collectively influence the dependent variable.

c. Coefficient of Determination (R^2)

1371



The coefficient of determination (R^2) measures the proportion of variance in the dependent variable that can be explained by all independent variables. R^2 ranges from 0 to 1; a higher R^2 value, closer to 1, indicates that the independent variables are more effective in explaining the dependent variable.

RESULT AND DISCUSSION

Table 1 Descriptive Statistics

	IPG	RLS	RUP	TPAK
Mean		8.37	2480482.	67.38
Median	90.57	8.36	2348911.	67.31
Maximum	95.04	11.31	5155661.	79.00
Minimum	77.61	5.64	1309859.	59.40
Std. Dev.	3.422	0.982	613255.4	3.73
Skewness	-1.103	0.181	1.079111	0.549
Kurtosis	4.458	3.268	4.224473	3.390

The statistical results presented above are based on data analysis for the years 2013-2022. The average Gender Development Index (GDI) is 90.11, with a maximum value of 95.04 and a minimum of 77.61, yielding a standard deviation of 3.42. The average for the Average Years of Schooling (RLS) is 8.37, with a high of 11.31, a low of 5.64, and a standard deviation of 0.98. The average for Average Wages (RUP) is 2,480,482, with a maximum of 5,155,661, a minimum of 1,309,859, and a standard deviation of 613,255. The average Labor Force Participation Rate (TPAK) is 67.38, with a high of 79, a low of 59.4, and a standard deviation of 3.73.

Table 2. Regression Estimation Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	37.99995	57.10511	0.665439	0.5063
RLS	0.254086	0.026948	9.428586	0.0000
RUP	0.034266	0.016165	2.119759	0.0348
TPAK	0.018007	0.014694	1.225436	0.2214
Summary :				



R-squared	0.990102			
Adjusted R-squared	0.988922			
F-statistic	839.1371			
Prob(F-statistic)	0.000000			
Diagnostics test :				
Jarque-Bera test	1.808970			
Chi-squared (White test)	371.6187			
Durbin-Watson stat	0.819275			

The normality test results show a Jarque-Bera value of 1.809 with a probability of 0.405, indicating that the data is normally distributed at the 5% significance level. The multicollinearity detection revealed no correlation coefficients among independent variables exceeding the threshold of 0.80, suggesting the model is free from multicollinearity. The heteroscedasticity test, using the White method, yielded an nR^2 of 91.8, which is lower than the Chi-square table value of 377.61 (df=334) at a 5% significance level, indicating no heteroscedasticity issues. For the autocorrelation test, the Durbin-Watson statistic is 0.819, which is less than the lower limit value (DL), suggesting positive autocorrelation in the data. This means that errors are consistently followed by errors with the same sign. However, it is important to note that this test is more relevant for time series data and may not be as significant for panel data analysis.

Based on the results above, the coefficient of determination (R^2) is 0.9901, indicating that the independent variables—average years of schooling, average wages, and labor force participation rate—explain 99.01% of the variation in the dependent variable, which is the Gender Development Index (GDI). The remaining variation is attributed to other variables not included in the model. When the difference between R^2 and adjusted R^2 is less than 5%, it suggests that the variables used in the model are appropriate; conversely, a difference greater than 5% indicates the presence of poor variables that may distort the estimation results. The adjusted R^2 value is 0.9889, meaning the difference from R^2 is less than 5%, confirming that the variables included in the model are suitable. The F-statistic value of 839.13 is greater than the critical F-value, allowing us to conclude that at least one of the independent variables significantly influences the dependent variable, the Gender Development Index of Indonesia.



In the regression results table, the data shows that the average years of schooling have a positive and significant effect on the Gender Development Index (GDI) at the 5% significance level. The coefficient for average years of schooling is 0.254086, implying that for every additional year of schooling, the GDI of Indonesia increases by 0.254. This finding aligns with the research hypotheses, thus accepting the hypothesis. This is consistent with studies conducted by Ira Elisa & Helma (2022), Hosiana Febby et al. (2023), and Ita Evi et al. (2019), which indicate that average years of schooling positively and significantly influence the Gender Development Index.

This underscores the importance of education as a focal point for the government to enhance the quality of human resources for both men and women. Efforts to improve average years of schooling could include raising awareness about the importance of education, enhancing the quality and quantity of educational facilities, improving access and services, and strengthening the overall educational system, as well as increasing the quality and quantity of educators.

In the regression results table, it is also shown that the average wage variable has a positive and significant effect on the Gender Development Index (GDI) at the 5% significance level. The coefficient for the average wage variable is 0.034266, indicating that an increase of 1 million rupiah in average wages leads to a 0.034 increase in Indonesia's GDI. This finding supports the research hypothesis, thus accepting it. Research by Fadhil et al. (2022) highlights that the minimum wage affects the Human Development Index, and average wages are typically differentiated by position, working hours, and job type. However, many jobs still differentiate wages based on gender, which is deemed unfair, especially for similar roles. Despite existing laws protecting workers' rights and established regional minimum wages, wage disparities persist in practice.

Conversely, the labor force participation rate does not significantly affect the Gender Development Index, contradicting the research hypothesis. This aligns with findings by Rahmawati et al. (2021), which concluded that labor force participation does not significantly impact the GDI. The high unemployment rate resulting from many individuals not working negatively affects the economy. Labor force participation is closely related to educational attainment; higher education provides greater opportunities and access to job information. Thus, the government should prepare graduates to enter the workforce effectively, whether from secondary schools or universities.



CONCLUSION

1. Average years of schooling positively and significantly influence the Gender Development Index in 34 Indonesian provinces from 2013 to 2022. Efforts to enhance average schooling can include raising awareness about education, improving educational facilities, and enhancing the quality of teachers.
2. Average wages positively and significantly impact the Gender Development Index in 34 Indonesian provinces from 2013 to 2022. Despite existing wage gaps, there has been a consistent improvement in reducing these disparities over the years.
3. Labor force participation does not significantly affect the Gender Development Index in 34 Indonesian provinces from 2013 to 2022.
4. Among the independent variables used—average years of schooling, average wages, and labor force participation—at least one variable significantly influences the Gender Development Index in 34 Indonesian provinces from 2013 to 2022.

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