



# THE INFLUENCE OF WOMEN'S INVOLVEMENT ON THE HUMAN DEVELOPMENT INDE IN THE COASTAL AREAS OF INDONESIA

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## ABSTRACT

Development in Indonesia's coastal areas is challenging, with a variety of factors affecting the welfare of its communities. Women's involvement and socio-economic factors are important in formulating inclusive and sustainable development policies. This study aims to identify and analyze the influence of women's involvement and socio-economic variables, including women's income contribution, women's average years of schooling, women's labor force participation rate, women's involvement in parliament, gender inequality index, population, and number of poor people, on the Human Development Index (HDI) in Indonesia's coastal areas. The data analysis method used was a multiple linear regression approach. Secondary data were obtained from various sources. Data collection was conducted through surveys and documentation analysis. The results show that women's involvement has a significant influence on HDI in coastal Indonesia. Women's income contribution, women's labor force participation rate, and women's average years of schooling have a significant positive influence on HDI. On the other hand, gender inequality index and poverty headcount have a significant negative impact. These findings provide a deeper understanding of the factors that influence human development in Indonesia's coastal areas and provide a basis for formulating more effective policies to improve the welfare of coastal communities.

**Keywords:** Human development index, female labor participation rate, gender inequality index.

## 1. Introduction

Gender inequality in Indonesia continues to be a hot topic today. The government has attempted in various ways to achieve gender equality, although there are still gaps between women and men in various fields such as education, health, economics, politics and socio-culture (Lorenza, 2022). Gender is represented as a set of roles in a theater that tells other people that someone is feminine or masculine (Lusiarista & Arif, 2022). However, according to Giyono & Maemunah (2021), gender is interpreted as differences in the roles and behavior of men and women which are socially constructed. Gender is not something that is innate, gender is a social form that is formed by several factors such as region, culture, state ideology, politics and economics (Utaminingsih, 2017).

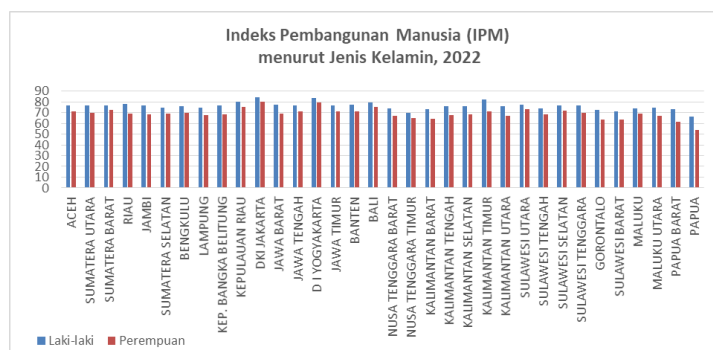


Figure 1.1 Human Development Index by gender in Indonesia's coastal areas in 2022

Source: Central Statistics Agency (processed), 2024

From the picture above you can see clear that Index Development Man (IPM) Woman in Indonesia's coastal areas are lower than men in 2022, where if specified the DKI Jakarta province has the highest HDI ranking for men , namely 84.36% and the lowest in the province of East Nusa Tenggara, namely 69.9%, while for HDI women the highest ranking in the province DKI Jakarta is 80.08% and the lowest is in West Papua province , namely 61.26%. This supports the fact that women as contributors to the human development index still have minimal contributions.

Apart from the low contribution of women to the economy, participation Women in politics in Indonesia are also still relatively low. Representation Woman in in parliament expected capable push well-being women's groups and influence more equitable and responsive policies gender (Widyaningrum, 2020).

The study, according to research from Utami & Arif (2023), shows that the involvement of women in parliament and the level of female labor force participation have a positive effect on the Gender Development Index. The higher the involvement of women in parliament and the level of female labor force participation increases, the gender development index will correspondingly increase.

According to Abdurrahmana & Tusianti (2021), the percentage of women as entrepreneurs, the percentage of women in parliament, and the percentage of women as managers, professionals, administrators and technicians have a positive and significant influence on women's HDI. If women are empowered in economic and political aspects, then the quality of Indonesian women as reflected in the HDI will certainly continue to improve.

Several previous studies reviewed the role of women's involvement in society towards quality development human life. A number of country advance in process development show that participation Woman is an important element in economic development. Broadly speaking, it is women in government and leadership can provide aspirations for other women to improve their educational attainment (Beaman *et al.*, 2012).

Therefore, the level of women's education, which is reflected in the average length of schooling for women, greatly influences the increase in HDI in the future, as the results of previous research show that the average length of schooling for women has a significant positive effect in improving women's quality of life, which will later contribute to an increase in HDI. (Widiastuty, 2019).

According to (Permatasari *et al.*, 2021), Community development and development, especially women. As the main support in the wheel of development, women's empowerment is expected to create a generation that is creative, innovative and highly competitive. The role characteristics of women are expected to be able to contribute and win global competition. And it will increase the human development index and reduce gender inequality in Indonesia.

As indicator For measure success development quality human life, the Human Development Index (HDI) shows how far public can obtain results development form enhancement income, health, and education. So researchers want to know more deeply whether these women's involvement variables have a significant positive effect and support the growth of HDI along Indonesia's coastal areas .

## 2. Literature Review

### 2.1 Human Development Index

According to the United National for Development Program (UNDP), the Human Development Index is a measuring tool for a country's achievements in three basic dimensions of development, including longevity and healthy living, measured by life expectancy at birth, knowledge or education level, measured by a combination of the expected number of years of

schooling and the average number of years of schooling and decent living as measured by per capita expenditure.

## *2.2 The Relationship between Women's Involvement and the Human Development Index*

### *2.2.1 The Relationship between Women's Income Contribution to HDI*

An analysis of the income of female workers has been carried out by Christopher et al. The results of this research show that the level of education and number of hours worked have a positive effect on the income of female workers from poor households (Christopher et al., 2019). Other research analyzing the determinants of female workers' income was also carried out by Huruta et al using the multiple regression analysis method. This research shows that partially, age and level of education have a positive and significant influence on the income of female workers, while the number of family members, marital status and employment do not have a significant influence (Huruta et al., 2019). Women's income does not always guarantee empowerment, especially when wages are at low levels (Bhattacharjee & Goswami, 2020). Other research shows that age and education level influence the added worker income of married women, while the presence of children aged 0-14 years and husband's education do not have a significant influence (Febriani & Saleh, 2016).

### *2.2.2 The Relationship between Average Years of Schooling and HDI*

Average years of schooling is defined as the number of years a population has been in education. It is assumed that under normal conditions the average length of schooling in a region will not decrease. The population coverage calculated in calculating the average length of schooling is residents aged 25 years and over (Soleha, 2023 ).

According to previous research, the relationship between average length of schooling and HDI. Formal education can provide beliefs, goals, attitudes and aspirations that occur directly or indirectly related to development problems, increase knowledge and abilities for development purposes. Formal education is stated to be more capable of guaranteeing the quality of society with an education system such as a curriculum that has been regulated by the government. The ability and opportunity for people to work to reduce the level of open unemployment increases when people take longer to complete formal education. Women's Work Participation (Havista, 2023 ).

### *2.2.3 The Relationship between Women's Work Participation and HDI*

From previous research, the female labor force participation rate has a positive effect in line with the human development index in Central Java in 2015-2019. Increased productivity caused by an increase in the Human Development Index (HDI) will encourage economic growth. Increasing economic growth will increase job opportunities and demand for labor so that many people, especially women, can be absorbed into the labor market (Ningrum, 2021).

### *2.2.4 The Relationship between Women's Involvement in Parliament and HDI*

Next is the low participation of women in public (political) decision making. It is hoped that women's representation in parliament will encourage the welfare of women's groups by representing, overseeing and influencing policies that are more equitable and gender responsive (Rahmaniah, 2016).

In research by Abdurrahman & Tusianti ( 2021) , the percentage of women in parliament has a positive and significant effect on women's HDI. If the percentage of women in parliament increases by 1 percent, the HDI value for women will increase by 0.196. The results of this research provide an indication that women's participation in politics has an influence on the quality of women. Women who sit as members of parliament are expected to be able to fight for women's aspirations at the legislative level.

### 2.3 Gender Inequality Index Relationship Against HDI

The relationship between HDI and IKG then becomes an interesting thing to discuss because gender equality is actually part of human development. As stated by UNDP (2015), equal opportunities for all groups of people in various aspects of life is the main key to human development. Therefore, ideally high human development is accompanied by equal development for all groups, both men and women.

Simply put, this connection is if an area that has low human development will also have low gender equality conditions (high IKG). Conversely, if a region has a high HDI it tends to have a low IKG Ema (Tusianti & Prihatiningsih, 2017) .

### 3. Research Methods

This research uses panel data, namely cross-section data collected over a certain period of time so that it has spatial and temporal dimensions. Panel data consists of balanced panels and unbalanced panels. Panel data is said to be balanced if each cross-section unit has the same number of time-series observations and is said to be unbalanced if each cross-section unit has an unequal number of time-series observations (Greene, 2012). The *Gross Section* data consists of all districts/cities along Indonesia's coastal areas, namely 409 districts/cities, with a 5 year data series from 2018 to 2022 with a total of 2,045 panel data.

This research uses secondary data taken from several publications published by the Central Bureau of Statistics in the Indonesian region: Women's Educational Contributions, Average Years of Schooling for Women, Women's Work Participation, Women's Involvement in Parliament, and the Gender Inequality Index as independent variables and control variables namely the Number of Population and the Number of Poor People, on the Human Development Index as the dependent variable.

The analytical method used is panel data regression analysis. Panel data regression is divided into 3 approaches, namely the Common Effects Model (CEM), Fixed Effects Model (FEM), and Random Effects Model (REM) approaches, which are three stages in the panel data regression model. Chow test and Hausman test are used to decide which model is best estimated. Then, a model goodness-of-fit test was carried out as well as a validity test of the influence on the best estimated model. Function is written as follows:

$$IP M it = 0 + \beta 1SPW it + \beta 2 R LS\_Female it + \beta 3 TPAKPit + \beta 4 P arlem it + \beta 5IKG it + \beta 6JP it + \beta 7JP\_Miskin it + \epsilon it$$

Information:

*IP M* : Human Development Index

$\beta 0$  : Constant

$\beta 1, \beta 2, \beta 3, \beta 4, \beta 5, \beta 6, \beta 7,$  : Independent variable coefficients

*SPW* : Women's Income Contribution (percent )

*R LS\_Female* : Average Years of Schooling for Women (percent )

*TPAKP* : Female Labor Force participation rate (percent )

*P parliament* : Women's Involvement in Parliament (percent )

*IKG* : Gender Inequality Index ( index )

*JP* : Population ( number )

*JP\_Miskin* : Number of Poor People ( number )

*i* : Cross section ( 409 districts /cities throughout the region Coast)

*t* : Time series (201 8-2022)

*log* : Natural logarithm based on e : Residual

The model equation will then be modified according to the best model. So the next step is selecting the most appropriate model for panel data. To check whether the best model is a pooled regression or a fixed effect model, the Chow test is used. To check whether the best model is a random effect model or a fixed effect model, the Hausman test is used. To check whether the best model is a pooled regression or random effect model, the Breusch-Pagan Lagrange Multiplier test is used.

If the model chosen is a pooled regression or fixed effect model, it is necessary to check the homoscedasticity assumption and check for cross-sectional correlation to find out whether OLS is the appropriate estimation method. If the model chosen is a random effect model then GLS is the appropriate estimation method.

Next, a model significance test was carried out by looking at the coefficient of determination value, F test and t test. The coefficient of determination is used to measure the proportion of the total variation in the dependent variable that can be explained by the independent variables in the regression model. The F test is used to test the significance of the overall regression equation. The t test is used to test whether an independent variable has a significant effect on the dependent variable partially.

After testing the significance of the model, classical linear regression assumptions were tested on the model formed. These assumptions are normality, non-multicollinearity, non-autocorrelation and homoscedasticity. If the selected model is a pooled regression or fixed effect model then checking the homoscedasticity assumption has been carried out to select the best model.

#### 4. Research Findings and Discussion

This research describes the research results based on statistical descriptions and logistic regression test results. This description can be seen in table 2 below

Table 1. Statistical Description of Research Data

Variable	Obs	Mean	Std. Dev	Min	Max
Women's Income Contribution	2041	33.88238	7.439384	12.48000	77.73000
Female Labor Force Participation Rate	2041	65.69844	23.87433	4.700000	60.14000
Gender Inequality Index	2041	0.557822	2.020489	0.050000	62.00000
Women's Involvement in Parliament	2041	15.83235	10.63993	0.000000	26.50000
Average Years of Schooling for Women	2041	7.363145	2.311971	1.190000	7.38831
Total population	2041	669125.1	2511606.0	13804.0	49935858
Number of Poor People	2041	24009.63	30382.00	6.630000	196870.0
Human Development Index	2041	69.86664	5.143063	51.95000	87.69000

Source: Eviews data processed by the author, 2024

Based on table 1, it can be seen that the lowest contribution to women's income is 0.12% with the highest contribution to women's income being 0.77% with an average of 0.33%. The Human Development Index variable has a minimum value of 0.51% and a maximum value of 0.87% with an average of 0.69% and a standard deviation of 0.051%. The variable female labor force participation rate has a minimum value of 0.047% and a maximum value of 60.14% with an average of 0.65% and a standard deviation of 2.38%. The Gender Inequality Index variable has a minimum value of 0.05 % and a maximum value of 62.00% with an average of 0.005% and a standard deviation of 0.02%. The variable Average Years of Schooling for Women has a minimum value of 0.011% and a maximum value of 7.388% with an average of 7.36% and a standard deviation of 2.31%. Meanwhile, the control variable Population has a minimum value of 6,630.00 thousand people and a maximum value of 196,870.0 thousand people with an average of 669,125.1 thousand people and a standard deviation of 30,382.0 thousand people.

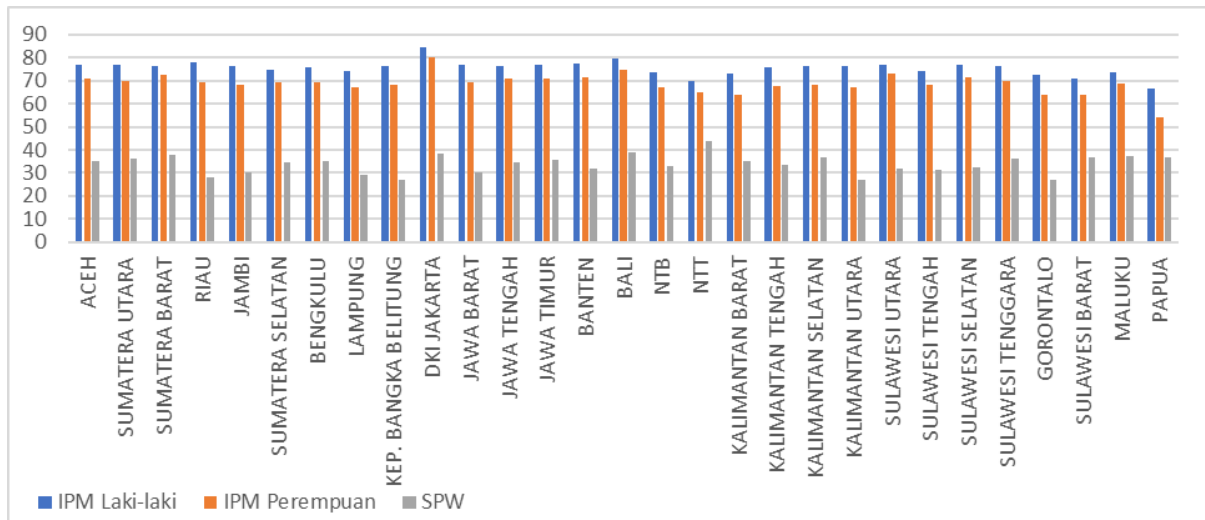


Figure 1.2 Relationship between HDI based on gender and women's income contribution in 2022  
Source: Central Statistics Agency (processed), 2024

The picture above shows that HDI has a relationship with women's income contribution in coastal areas of Indonesia. where when the HDI increases each year it is followed by a fluctuating increase in Women's Income Contribution. Several coastal areas in Indonesia continue to experience an increase in HDI every year and also an increase in women's income contribution. When HDI continues to increase, women's income contribution will also increase.

Table 2. Classic Assumption Test

Multicollinearity Test							
	SPW	IKG	P arlem	TPAKP	R LS_Female	JP	JP_Poor
SPW	1,000000	-0.02974	-0.028756	0.021809	-0.014323	-	-0.005057
						0.078258	
IKG	-0.02974	1,000000	-0.019075	-0.002306	-0.000371	0.002902	-0.018879
P arlem	-	-	1,000000	0.010551	0.000600	-	-0.166976
	0.028756	0.019075				0.026795	

<i>TPAKP</i>	0.021809	- 0.002306	0.010551	1,000000	0.000314	- 0.004262	-0.029534
<i>R LS_Female</i>	- 0.014232	-0.00371	0.000600	0.000314	1,000000	- 0.005381	-0.007864
<i>JP</i>	- 0.078258	- 0.002902	-0.026795	-0.004262	-0.005381	1,000000	-0.038555
<i>JP_Poor</i>	- 0.005075	- 0.018879	-0.166976	-0.029534	0.007864	- 0.038555	1,000000

### Heteroscedasticity Test

	Coefficient	Prob
<i>SPW</i>	0.032322	2,0999
<i>R LS_Female</i>	-2.130000	0.9641
<i>TPAKP</i>	-0.000214	0.6426
<i>P arlem</i>	0.096859	0.1209
<i>IKG</i>	-0.187081	8.8017
<i>JP</i>	1.720000	0.5891
<i>JP_Poor</i>	-1.480000	0.7110

Source: Eviews data processed by the author, 2024

Based on table 2, the results of the heteroscedasticity test using the Glejser test, it can be seen that there is no heteroscedasticity problem. This is because the probability value of each independent variable is greater than 0.05, so there is no heteroscedasticity problem.

Table 3. Correlation and Regression Results

Variable	Human Development Index		
	Fixed Effects	Random Effects	Common Effects
Women's Income Contribution	0.042157** (0.0105)	0.039649** (2.698788)	0.032459** (2.181964)
Female Labor Force Participation Rate	-2.04E-05 (0.8430)	-2.43E-05 (-0.236916)	-0.000221*** (-0.479301)

Gender Inequality Index	-0.010648** (0.3794)	-0.012510** (-1.034187)	-0.184745** (-3.383852)
Average Years of Schooling for Women	1.95E-07 (0.8536)	1.77E-07 (0.1698183)	-1.56E-07 (-0.032647)
Women's Involvement in Parliament	1.82E-07 (0.0251)	0.009522** (2.681028)	0.096564** (9.181220)
Total population	1.82E-07 (0.0251)	1.73E-07 (2.793044)	1.72E-07 (3.899755)
Number of Poor People	-5.18E-05 (0.0025)	-2.52E-05 (-3.51049)	-1.48E-05 (-4.023911)

Description: Significance Level 1%(<0.001)\*\*\*, 5%(<0.05)\*\*,10%(0.1)\*

Source: Eviews data processed by the author, 2024

From the regression results using fixed effect, random effect and common effect models through the Chow test and Hausman test, the best regression results were obtained, namely using the fixed effect model.

Table 4. Fixed Effect Regression Results

Variables	Coefficient	Prob
SPW	0.042157	0.0105
R LS_Female	1.95E-05	0.8536
TPAKP	-2.04E-05	0.8430
P arlem	0.007286	0.0421
IKG	-0.010648	0.3794
JP	1.82E-07	0.0251
JP_Poor	-5.18E-05	0.0025

**Value Test**

R-squared	0.970712
Adjusted R-squared	0.963232
F-statistic	129.7789
Prob(F-statistic)	0.000000

Source: Eviews data processed by the author, 2024

Based on the table above, the correlation value between X1 (Women's Income Contribution) and X2 (Gender Inequality Index) is  $-0.02 = -0.02$ , so there is no multicollinearity problem.

Based on the table, the F-statistical test is obtained with a calculated F value of 129.7789 > F table 2.014077 and a significant value of  $0.0000 < 0.05$ , so H0 is rejected and Ha is



accepted, meaning that the independent variables in this study have an effect on the Human Development Index in Indonesia's coastal areas. The adjusted R Square value is 0.963232 or 96%. The coefficient of determination value shows that the independent variables in this study are able to explain the Human Development Index variable in Indonesia's coastal areas.

From the regression results above, the following multiple linear regression equation is obtained:

$$IPMIT = 69.45081 + 0.0042157 (SPW) + 1.95 (LS\_Female) - 2.04 (TPAKP) + 0.007286 (P\_arrangement) - 0.010648 (IKG) + 1.82 (JP) - 5.18 (JP\_Poorit) + \epsilon$$

Based on this equation, it can be explained that when the constant has a positive value of 69.45081, this shows that if the independent variable changes, the HDI will have a constant effect of 69.45081. The regression coefficient for Women's Income Contribution is positive at 0.0042157. This shows that when SPW increases, HDI will also increase by 0.0042157 assuming the other independent variables are constant. The regression coefficient for the Average Years of Schooling for Women is positive at 1.95. This shows that if the regression for the Average Years of Schooling for Women increases, the HDI will also increase by 1.95.

The Prob (F-Statistics) value of 0.000000 shown in the table above indicates that the value is less than the significance level (<0.05). So, H<sub>1</sub> is accepted and H<sub>0</sub> is rejected. So the independent variables used in this research simultaneously have a big impact on the Human Development Index.

## 5. Conclusions and Recommendations

Based on the studies that have been carried out, it can be concluded that the results of the research show that the factors Contribution to Women's Education, Women's Involvement in Parliament, Population and Number of Poor People greatly influence the growth of the Human Development Index in Indonesia's coastal areas. However, there are 3 variables that apparently do not influence HDI growth, namely the Average Years of Schooling for Women, Women's Work Participation, and the Gender Inequality Index in Indonesia's coastal areas.

Therefore, we admit that this research still has many shortcomings and in the future it is highly recommended to examine more deeply why the 3 variables of Average Years of Schooling for Women, Women's Work Participation, and the Gender Inequality Index cannot influence the growth of the Human Development Index in the region. Indonesian coast.

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