THE EFFECT OF FEMALE LABOR PARTICIPATION ON ECONOMIC GROWTH IN PAPUA 2005-2019

Vebrina Hania Cholily
Universitas Diponegoro, Indonesia

Abstract

Papua Province with 23 regencies and 1 city showcases diverse sectors. Jayapura excels in agriculture, plantations, services, crude oil, and palm oil, while Timika stands out for mining. The province's economic growth relies on an increasing Gross Domestic Products. In 2020, the GDP was IDR 198.93 trillion and IDR 137.68 trillion. Notably, Papua experienced a 24.68% growth in Q2 2018, mainly due to the mining sector's contribution of 56.03%. Women in Papua play dual roles in households and the economy, yet face challenges like marginalization, subordination, double burden, stereotypes, and violence. Although Papua's Human Development Index rose to 61.39 in 2022, its health index remains low. Delivery coverage in 2013 was only 33.31%, and maternal mortality rates are high. Poor health adversely affects economic growth, reducing productivity, increasing healthcare costs, and limiting livelihood opportunities. Furthermore, low health levels hinder Papua's HDI achievement. This study explains the impact of female labor force participation on Papua's economic growth. The research focuses on the GDP by Field of Activity as the dependent variable and female labor participation as the independent variable. A sample of 15 data points will undergo multiple linear regression analysis and classical assumption tests using software EVIEWS 10. The results of this research indicate that female labor participation does not have a significant effect on Papua's economic growth.

Keywords:
Women, Labor Force Participation, GDP, Economic Growth, Papua

Corresponding Author:
vebrinahania@students.undip.ac.id
INTRODUCTION

Regional economic growth is a key objective of regional autonomy. Each autonomous region has the freedom to develop its potential and assets, particularly natural resources that can be a major asset in overall regional economic development. Papua, located in the easternmost part of Indonesia, is the country's largest province. It shares borders with the Pacific Ocean to the north, the Indian Ocean to the south, Papua Barat to the west, and Papua New Guinea to the east.

Currently, Papua Province comprises 23 regencies and 1 city. The sectors of Agriculture, Plantations and Services, Crude Oil and Palm Oil are located in Jayapura City, while the Mining sector is located in Timika Regency, supplying the province's needs. Economic growth is achieved through the annual increase in Gross Domestic Product or the total output of goods and services. The economy is divided into nine sectors, including agriculture, mining and quarrying, manufacturing, electricity and drinking water, construction, trade, hotels and restaurants, transportation and communication, finance and business services, and services.

![Picture 1. Papua's Economic Growth](image)

Sources: BPS Papua (2021)

In 2020, Papua Province's Gross Domestic Product (GDP) amounted to IDR 198.93 trillion at current prices and IDR 137.68 trillion at constant 2010 prices (BPS, 2021). In the second quarter of 2018, Papua experienced a 24.68% growth compared to the second quarter of 2017, driven by all sectors. However, this growth was slightly slower than the previous quarter's growth of 26.08%. The highest growth was achieved in the mining and quarrying sector, reaching 56.03%. The Law Number 21 of 2001 on Regional Autonomy grants authority to Papua Province to govern its own affairs. Therefore, efforts to develop the regional economy as a support for the national economy need to focus on increasing employment opportunities and investment to stimulate economic growth.

In line with Presidential Instruction Number 9 of 2000 on Gender Mainstreaming in National Development, it is expected to work more optimally, efficiently, and effectively, particularly in producing public policies that promote gender equality and justice, known as gender-responsive policies (Amory, J. D. S., 2019). In this context, investment in health and providing greater employment opportunities for women are essential, as highlighted by the research of Rahmawati, F., & Hidayah, Z. M. U. (2020), as gender equality is crucial for women's role in development.

The need for gender-responsive policies will transform gender discrimination, which often affects performance and work culture in both government and private institutions, leading to the creation of gender-friendly public services for both men and women. According to Sitorus, A. V. Y. (2016), economic activities can be defined as the production or consumption of goods and services by individuals, companies, or society. Economic activities are driven by the need to fulfill the economic needs of individuals or...
society. Similarly, women's roles change when faced with situations where women's labor is needed to meet certain needs (Yulianti, R. A., & Ratnasari, V., 2013).

Women have three roles in their lives according to Ardella, R., Istiyani, N., & Jumiati, A. (2020): reproductive, productive, and social roles. The factors that enable women with family responsibilities to allocate time and energy for work are to meet their basic living needs. The current phenomenon in Papua is the dual role of women. In normative terms, women are defined as housewives, spouses, and educators. This emphasizes that women's tasks have expanded to not only taking care of households but also contributing to the family's economy (Rizki, F. N., 2021).

Economic issues are always intertwined in the daily lives of individuals and society, involving activities related to the economy (Mulasari, F. D., 2015). Unfortunately, marginalization, subordination, double burden, stereotypes, and violence against women remain strategic issues in development. Gender equality can only be achieved if women are positioned as actors or subjects in development (Ministry of Women Empowerment and Child Protection of the Republic of Indonesia, 2018).

One important aspect of well-being is the quality of the population, which can be seen through the health status of the people (Renie, E., 2020). Health is a fundamental aspect of human life and concerns the absolute rights of citizens that need to be fulfilled. Papua is one of the provinces in Indonesia with relatively low health indicators compared to other provinces. This research aims to examine women's health in terms of maternal mortality. Maternal mortality refers to deaths occurring during pregnancy or within 42 days of termination, regardless of the duration of pregnancy or the mode of delivery, caused by the pregnancy itself but not by accidental or incidental causes.

![Picture 2. Graph of Women's Health in 2013 and 2017](source:BPS Papua (2017))

It is recorded that in 2022, the Human Development Index of Papua Province reached 61.39. This figure indicates an increase of 0.77 points or 1.27 percent compared to the previous year, which had an HDI value of 60.62 (BPS Papua, 2022). However, the health index in Papua is still low. Looking at the coverage of childbirth in Papua Province, with the lowest coverage at 33.31%, it is stated that in 2013 the maternal mortality rate in Papua Province was the highest in Indonesia compared to 2017. Several other factors affecting the health level in Papua are limited accessibility to healthcare services, a lack of medical personnel, and low levels of education among the population. This is not in line with the existing conditions. In fact, if education and healthcare facilities were
affordable, it would greatly help improve productivity and, in turn, increase income. Low health levels will affect regional economic growth.

Poor health reduces individual productivity and increases healthcare costs, thereby reducing per capita income (Bano, R. P., 2022). This limits individuals' ability to work and earn money, which in turn slows down regional economic growth (Dako, I. Y., 2022). Overall, low health levels have an impact on the economic growth of a region, as they contribute relatively little to the achievement of the Human Development Index of Papua Province. Given the mismatch between health and female labor force participation, this study aims to examine the influence of women's health levels and female labor force participation on economic growth in the Papua Province region.

METHOD

This study aims to explore how the female labor force in Papua influences the Gross Domestic Product (GDP) in Papua Province. The analysis will use quantitative methods and secondary data from the Central Statistics Agency. The study focuses on two variables: the dependent variable (GDP by Field of Business) and the independent variable (Female Labor Force Participation Rate). A sample of 15 data points will be analyzed using multiple linear regression and classic assumption tests with Eviews 10 software. Multiple linear regression is a statistical technique that examines the relationship between one or more independent variables and a dependent variable in the context of multiple linear regression.

It assesses the statistical significance of the relationship and measures how well the independent variables explain the variation in the dependent variable. The test also evaluates the null hypothesis of no relationship between the independent and dependent variables. Classic assumption tests ensure that the data used in linear regression analysis meets the necessary assumptions for obtaining valid results. These assumptions include Normality, Multicollinearity, and Heteroscedasticity. By testing these assumptions, researchers can ensure the reliability of their linear regression analysis and draw valid conclusions regarding the relationship between the independent and dependent variables.

RESULT AND DISCUSSION

Multiple Linear Regression

Here is the interpretation of the linear regression output using Eviews 10. The number of observations or samples used in the regression model testing is indicated by the sample value, which is 15 samples. The valid samples included in the analysis are indicated by the include observation value, ranging from sample 1 to sample 15. The response variable is represented by the dependent variable, denoted as Y. The predictor variables included in the model are shown in the variable column, which in this case is variable X and the constant (represented as C). The partial T-value is indicated by the t-statistics value. The partial t-value for X is 1.019882.

This value is compared to the t-table. However, we can also examine the p-value of the partial t-value. If the p-value is < the critical value, for example, < 0.05, then we accept H1, indicating that the variable X1 has a partial effect on the response variable (Y) in the model. The p-value for the partial t-value of X is 0.3264, which is > 0.05, so we accept H0. The beta coefficient in EViews is indicated by the coefficient label. The beta coefficient is the predicted value of a variable in the model with respect to the response variable. The beta coefficient for X is 1.126292, which means X1 can explain Y by
112.6292%, or it can be interpreted that every one unit change in X1 can result in a change of 112.6292 units in Y.

### Table 1. Statistical T Test Results (processed by the author)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-72.48695</td>
<td>74.88773</td>
<td>-0.967942</td>
<td>0.3507</td>
</tr>
<tr>
<td>X</td>
<td>1.126292</td>
<td>1.104336</td>
<td>1.019882</td>
<td>0.3264</td>
</tr>
</tbody>
</table>

The multiple coefficients of determination in EViews is labeled as R-Squared and has a value of 0.074085, which means that the set of predictor variables in the model can explain 7.4085% of the variation in the response variable. The remaining variation is explained by other variables outside the model that were not examined. The adjusted R-Squared value is 0.002860.

The standard error of the regression model on S.E. regression, is 12.96581. Standard error < standard deviation of the response variable at S.D. the dependent var, which is 12.98440. This shows that the regression model is valid as a predictor model. The results of the F-test on F-statistics, the F-value is 1.040159 with a p-value of 0.326390, which is > 0.05. That means accepting H0 which means the independent variables together have no significant effect on the dependent variable.

**Multicollinearity Test**

The multicollinearity test assesses the existence of a correlation or intercorrelation between the independent variables in the regression model. The centered VIF value for X is 1.000000. That means the value is less than 10. So, there is no multicollinearity problem in the prediction model.

### Table 2. Multicollinearity Test Results (processed by the author)

<table>
<thead>
<tr>
<th>Variance Inflation Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 05/20/23  Time: 14:01</td>
</tr>
<tr>
<td>Sample: 1 15</td>
</tr>
<tr>
<td>Included observations: 15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Uncentered</th>
<th>Centered</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>5608.173</td>
<td>500.3951</td>
<td>NA</td>
</tr>
</tbody>
</table>
Autocorrelation Test

Using eviews 10, this test uses the Breusch-Godfrey Serial Correlation LM test. At the Prob Chi Square value (2), which represents the p-value of the Breusch-Godfrey Serial Correlation LM test. The P-value is 0.5550 > 0.05. Then the null hypothesis (H0) is accepted, which means there is no serial autocorrelation problem.

<table>
<thead>
<tr>
<th>Breusch-Godfrey Serial Correlation LM Test:</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
</tr>
<tr>
<td>Obs*R-squared</td>
</tr>
</tbody>
</table>

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 05/20/23   Time: 14:02
Sample: 1 15
Included observations: 15
Presample missing value lagged residuals set to zero.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>43.48828</td>
<td>90.18256</td>
<td>0.482225</td>
<td>0.6391</td>
</tr>
<tr>
<td>X</td>
<td>-0.633031</td>
<td>1.325803</td>
<td>-0.477470</td>
<td>0.6424</td>
</tr>
<tr>
<td>RESID(-1)</td>
<td>-0.363127</td>
<td>0.377184</td>
<td>-0.962731</td>
<td>0.3564</td>
</tr>
<tr>
<td>RESID(-2)</td>
<td>-0.129926</td>
<td>0.332627</td>
<td>-0.390606</td>
<td>0.7035</td>
</tr>
</tbody>
</table>

R-squared | 0.078515 | Mean dependent var | 4.74E-15 |
Adjusted R-squared | -0.172799 | S.D. dependent var | 12.49417 |
S.E. of regression | 13.53067 | Akaike info criterion | 8.270974 |
Sum squared resid | 2013.870 | Schwarz criterion | 8.459787 |
Log likelihood | -58.03230 | Hannan-Quinn criter. | 8.268962 |
F-statistic | 0.312417 | Durbin-Watson stat | 1.425712 |
Prob(F-statistic) | 0.816109 |

Heteroscedasticity Test

The p-value described in Prob. chi square (2) in Obs*R-Squared is 0.0611. In this case, the p-value is 0.0611 > 0.05, which means the null hypothesis (H0) is accepted. So, the regression model is homoscedasticity or there is no problem with the non-heteroscedasticity assumption. This test uses the White Test.

<table>
<thead>
<tr>
<th>Heteroscedasticity Test: White</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
</tr>
<tr>
<td>Obs*R-squared</td>
</tr>
<tr>
<td>Scaled explained SS</td>
</tr>
</tbody>
</table>
Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 05/20/23 Time: 14:04
Sample: 1 15
Included observations: 15

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-16040.26</td>
<td>21184.74</td>
<td>-0.757161</td>
<td>0.4636</td>
</tr>
<tr>
<td>X^2</td>
<td>-4.028999</td>
<td>4.897411</td>
<td>-0.822679</td>
<td>0.4267</td>
</tr>
<tr>
<td>X</td>
<td>512.4156</td>
<td>644.5843</td>
<td>0.794955</td>
<td>0.4421</td>
</tr>
</tbody>
</table>

R-squared: 0.085389
Mean dependent var: 145.6974
Adjusted R-squared: -0.067046
S.D. dependent var: 297.5226
S.E. of regression: 307.3347
Akaike info criterion: 14.47061
Schwarz criterion: 14.61222
Log likelihood: -105.5296
Hannan-Quinn crit.: 14.46910
Durbin-Watson stat: 1.062071
Prob(F-statistic): 0.585353

CONCLUSION AND RECOMMENDATION

Based on the results of multiple linear regression and classic assumption tests using Eviews 10, it can be concluded that the variable X has a partial effect on the variable Y within the model. However, based on the simultaneous test, the variable X does not have a significant effect on the variable Y. Based on the classic assumption tests, the model passes the tests for multicollinearity, autocorrelation, and heteroscedasticity.

This indicates that the model is considered good. Therefore, it can be inferred that the variable of female labor force participation has a partial influence on the economic growth variable in Papua. However, simultaneously, the variable of female labor force participation does not have a significant effect on the economic growth variable in Papua. This implies that the quality of female labor force participation in Papua needs to be improved to support the development of economic growth in Papua.

Based on the research findings, it is recommended to focus on improving the quality of female labor force participation in Papua to enhance economic growth. Although the individual impact of female labor force participation on economic growth is partial, it is important to address this issue collectively. Policies and interventions should be implemented to enhance the skills, education, and opportunities for women to participate in the labor force. Additionally, efforts should be made to reduce barriers such as limited access to healthcare and education, and to increase the availability of affordable healthcare facilities. By empowering and enabling women to contribute effectively to the workforce, Papua can harness the potential of its female labor force and drive sustainable economic development.
REFERENCES


