PAPER – OPEN ACCESS

Analysis of the Effect of Women as Professional Workers on Economic Growth in Indonesia

Author : Jeremy Siagian and Arif Rahman
DOI : 10.32734/lwsa.v8i1.2412
Electronic ISSN : 2654-7066
Print ISSN : 2654-7058

Volume 8 Issue 2 – 2025 TALENTA Conference Series: Local Wisdom, Social, and Arts (LWSA)

LWSA Conference Series 08 (2025)
TALENTA Conference Series
Available online at https://talentaconfseries.usu.ac.id

Analysis of the Effect of Women as Professional Workers on Economic Growth in Indonesia

Jeremy Siagian, Arif Rahman

Department of Economics Development, Faculty of Economics and Business, Universitas Sumatera Utara
Prof. T. M. Hanafiah Street, SH USU Campus, Medan, Sumatera Utara, Indonesia

jeremypanuturi23@gmail.com, arifrahman@usu.ac.id

Abstract

This study aims to determine whether the female workforce with the variable of women as professional workers, the average length of schooling and also the wages of female labor have an influence on Indonesia's economic growth in 2017-2022. The findings reveal that an increase in the number of female workers does not significantly influence economic growth. However, higher wages for female workers have a positive impact on growth. Notably, the most substantial driver of economic growth in Indonesia is the rise in women's average years of schooling. These results emphasize the critical role of improving wages for female workers as a means to stimulate economic growth. Acknowledging their value to businesses and the government can be achieved by offering incentives and equitable wage adjustments. Moreover, supporting women in advancing their education levels will yield significant economic benefits.

Keywords: female labor; wages; average years of schooling for women; economic growth.

1. Introduction

Economic growth is an indicator used by a country in looking at its economy. Successful economic growth is of course supported by factors. One of the factors of economic growth is labor. Labor is an important factor in economic growth because with labor, a company can produce output which can later be useful in the country's economy. However, today the equality of labor has not been in line with economic growth, especially the equality of labor with the female gender. According to UNDP (2022) gender equality in economic development is fundamental and essential for sustainable economic development. One of the reasons why equality for women's labor cannot be achieved is because of the negative stigma that develops in society where a woman is better off working at home as a housewife than being a worker and looking for work like a man (Sri Mulyani, 2019).

Women who work as professionals are certainly inseparable from the wages they earn. However, the wages received by women today are still smaller than the wages received by male labor. This is certainly not good because the wages of female labor can certainly affect economic growth. In addition to wages, the average length of schooling of women also affects the quality of the female workforce itself. Where if the higher the level taken by the woman, then of course it will be better for her development into a professional workforce. According to Rasyid et al (2022) in the field of education, gender equality in Indonesia is a problem that was often faced before and after independence. So if a woman can pursue education at least at the high school level or even be able to complete her college education, it can produce a professional female workforce and can compete with the male workforce and of course that way the female workforce can also be an important factor in economic growth in a country, especially in Indonesia.

Selection and peer-review under responsibility of Event of Young Researcher and Economics Students (EVEREST) VIII
p-ISSN: 2654-7058, e-ISSN: 2654-7066, DOI: 10.32734/lwsa.v8i1.2412

2. Literature Review

2.1. Female Workers

Labor is someone who carries out an activity with the aim of being able to produce output and ultimately can help the country's economic growth. Gender according to the World Bank (2000) is a role formed by society and behavior embedded through the socialization process related to male and female gender. So, female labor can be interpreted as women who do work to be able to produce good and quality output which in turn can have an influence on the country's economic growth. In Indonesia itself, the female workforce is protected by a regulation, namely Presidential Instruction No.9 of 2000 concerning Gender Mainstreaming in National Development. Therefore, with this legal protection, it can provide a sense of security and comfort for women to be able to get a job and increase the productivity that can be produced. Thus, if the regulation is implemented properly, then this can be in line with classical economic theory which states that the level of economic growth is influenced by labor.

2.2. Female Worker Wages

Wages are an important thing for a worker and a form of appreciation for labor, including women workers. This is because wages provide income to women workers who are used to meet their needs. Wages for women workers are certainly not given in a random manner because there are many complex and dynamic things that need to be considered. Therefore, the wages that women receive are important and must be focused on so that women workers can achieve equal rights and welfare.

2.3. Average Years of Schooling For Women

Average years of schooling can be interpreted as a number that describes the length of schooling a person has taken. The average length of schooling can provide an overview of the workforce. Where if a worker has a good enough education, of course he can produce a professional and quality workforce. This also applies to the average length of schooling of women. The average length of schooling taken by women can produce a quality female workforce. Where the quality produced can increase Indonesia's economic growth because the female workforce can produce a lot and good output which in turn can increase Indonesia's economic growth.

2.4. Economic Growth

According to Raharjo (2013), economic growth is an effort to increase production capacity to achieve additional output, which is measured using Gross Domestic Product (GDP) or using Gross Regional Domestic Product (GRDP) in a region. Economic growth can also be said to be the addition of real GDP value over time (Agnes Vera Yanti Sitorus, 2016). According to Raharjo (2013) economic growth is an effort to increase production capacity to achieve additional output followed by using Gross Domestic Product (GDP) or using Gross Regional Domestic Product (GRDP). According to classical economic theory which was put forward by Adam Smith, economic growth is influenced by labor where a laborer produces an output that is useful for increasing economic growth. The workforce also includes a female workforce. So that women's labor can also affect the country's economic growth.

3. Method

This research uses a quantitative approach. The quantitative approach is a systematic scientific research approach to several parts, phenomena and also interconnected causality (Fadila et al, 2022). The method used in this research is panel data. Panel data can be interpreted as data used which comes from combining time series and cross section data. The time series data contained in this study spans from 2017-2022 and the cross section data in this study are 34 provinces in Indonesia. The data collection technique used in this study is to use secondary data where the data is obtained from the Central Bureau of Statistics which is then processed based on sources contained in previous studies, journals and articles that are appropriate and useful to be able to provide the information needed. The independent variables in this study are women as professional labor, women's labor wages, the average length of schooling of women. Meanwhile, the dependent variable in this study is Indonesia's economic growth.

According to Widarjono (2018) panel data regression has the same purpose as multiple linear regression, which predicts the intercept and slope values. The panel regression model is divided into 3 models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM). Each model has a different type of formula, namely:

$$GRWTH_{it} = \beta_0 + \beta_1 FW_{it} + \beta_2 AYOSFW_{it} - \beta_3 FLW_{it} \quad (1)$$

$$GRWTH_{it} = \beta_{0it} + \beta_1 FW_{it} + \beta_2 AYOSFW_{it} - \beta_3 FWW_{it} \quad (2)$$

$$GRWTH_{it} = \beta_0 + \beta_1 FW_{it} + \beta_2 AYOSFW_{it} - \beta_3 FWW_{it} \quad (3)$$

Description :
GRWTH = Economic Growth
β_0 = Intercept
FW = Female Workers
AYOSFW = Average Years of Schooling For Women
FWW = Female Worker Wages
$\beta_1, \beta_2, \beta_3$ = Slope
t = Year 2017 – 2022
i = 34 Provinces
ε = Error Terms
μ = Disturbance Variable

Each formula based on each model listed : Common Effect Model (1), Fixed Effect Model (2), Random Effect Model (3).

3.1. Model Selection Test

From the three models, it is necessary to select the best regression model by testing model specifications such as the Chow Test, Hausman Test, Lagrange Multiplier Test. The chow test is a test conducted to choose a good approach between the fixed effect model (FEM) and the common effect model (CEM). The Hausman test is a test used to choose whether the model used is the Fixed Effect Model (FEM) or the Random Effect Model (REM). The Lagrange multiplier test is a test used to choose the best approach between the Common Effect Model (CEM) and the Random Effect Model (REM). All of these tests are based on the following decision selection:

Table 1. Decision Making of Model Selection Test

Model Selection Test	Condition	Decision
Chow	Prob cross section F > 0,05	CEM
	Prob cross section F < 0,05	FEM
Hausman	Prob Chi-Square > 0,05	REM
	Prob Chi-Square < 0,05	FEM
Lagrange Multiplier	Breusch-Pagan value > 0,05	CEM
	Breusch-Pagan value < 0,05	REM

Source : Gujarati on Basic Economics

3.2. Model Selection Test

In addition to choosing the method and form of the regression model used, the clasi assumption test was also carried out in this study. Where based on the model selection test used in this study it is determined that the best model to use is the Random Effect Model. The classic assumption tests used in this study are the multicollinearity test and the heteroscedasticity test. The purpose of the muktikolinieritas test and heteroscedasticity test is to determine whether the data is affected by mulikolinieritas or heteroscedasticity. These tests are based on the following decision selection:

Table 2. Decision Making of Classical Assumption Test

Classical Assumption Test	Condition	Decision
Multicollinearity	correlation coefficient value < 0.9	There is no multicollinearity problem
	correlation coefficient value > 0.9	There is multicollinearity problem
Heterokedasticity	prob value < 0.05	There is heterokedasticity problem
	prob value > 0.05	There is no heterokedasticity problem

Source : Gujarati on Basic Economics

3.3. Hypothesis Test

After obtaining the model to be used, namely the Random Effect Model and also the classical assumption test has been carried out, then the hypothesis test is carried out in this study. There are three hypothesis tests carried out in this study, namely the partial test (T-test), Simultaneous Test (F-test) and also the R2 test. The purpose of the T test is to determine the effect contained in each variable. If the probability value obtained in this test is less than 0.05, then partially the independent variable has no effect on the dependent variable. If the probability value is greater than 0.05, then partially the independent variable has an effect on the dependent variable. The F test is used to determine whether the independent variable affects the dependent variable. When the prob value (F-Statistic) is less than 0.05, then the independent variable simultaneously affects the dependent variable. Likewise on the contrary, if the prob value is more than 0.05, then the independent variable simultaneously does not affect the dependent variable. The R2 test is used to determine the extent of the model's ability to explain variations in the dependent variable. The test results are determined based on how large the value of the coefficient of determination (R2) is. A small R2 value means that the ability of the independent variables to explain the dependent variation is very limited. A value close to one means that the

independent variables provide almost all the information needed to predict variations in the dependent variable.

4. Results and Discussion

4.1. Model Selection Test

To determine which regression model to choose between fixed effect, random, or common effect, the Chow test, Hausman test, and lagrange multiplier test were conducted. The following are the results of the tests:

Tabel 3. Model Selection Test Result

Test	Prob.	Decision
Chow test (cross-section F)	1.0000	Common effect model
Hausman test (cross-section random)	0.4391	Random effect model
Lagrange multiplier test (Breusch-Pagan test)	0.0000	Random effect model

Source: Researcher Processed Data

Based on table 3, the results of the Chow test show a cross-section F probability value of 1.0000. This value is greater than the signification of 0.05 (1.0000 > 0.05), It means the chosen model for this test is the Common Effect Model (CEM). After this, the Hausman test is carried out to see which model is the best between fixed effect or random effect. The results of the Hausman test on table 4.2 show a random cross-section probability value of 0.4391. This value is greater than the value of 0.05 (0.4391 > 0.05), It means the chosen model for this test is the Random Effect Model (REM). The Last test used is Lagrange Multiplier test to see which model is best between random effect or common effect. The results of the Lagrange Multiplier test on table 4 show a cross-section Breusch-Pagan value of 0.0000. This value is smaller than the value of 0.05 (0.0000 < 0.05), It means the chosen model for this test is the Random Effect Model (REM). From the three selection test, the best model obtained for this research is Random Effect Model (REM).

4.2. Normality and Multicollinearity Test

The result of the normality test using the Jarque-Bera method produced a probability value of 0.443. In other words, the residuals in the random effects model are normally distributed. From the results of the correlation test between independent variables, it is found that the correlation level between women as professional workers and women's worker wages is 0.20123 < 0.9. Meanwhile, the correlation level between women as professional workers and average years of schooling of women is 0.19243 < 0.9. And also the correlation level between women's labor wages and average years of schooling for women is 0.80468 < 0.9. There is a fairly strong relationship between wages and average years of schooling for women, but the value is still tolerable, and is believed not to interfere with the regression results.

Table 4. Multicollinearity Test Results

	Women workers	Women labor wages	Average years of schooling for women
Female workers	1	0.201	0.192
Female worker wages	0.201	1	0.804
Average years of schooling for women	0.192	0.804	1

Source: Author Processed Data

4.3. Result

A constant value of -36.650 with a probability of 0.0000 indicates that the independent variables are crucial factors in driving economic growth. The estimation results for the variable of women as professional workers show a t-statistic value of 0.450545 and a probability value of 0.6528, which is greater than 0.05. This indicates that, partially, the variable of women as professional workers does not have a significant effect on Indonesia's economic growth. The estimation results for the variable of women's wage levels show a t-statistic value of -14.48099 and a probability value of 0.000000, which is less than 0.05. This indicates a significant effect, with a coefficient value of 0.000016, meaning that an increase in women's wages by Rp. 1 million will boost Indonesia's economic growth by 0.000016%. Meanwhile, the average years of schooling for women has a significant impact, with a strong level of influence. An increase of 1 year in the average years of schooling would lead to an 8.052% increase in economic

growth. However, achieving such an increase in the average years of schooling would require a relatively long period of time.

Table 5. Partial Test Result

Variable	Coefficient	Sig.	Description
Female Workers (FW)	0.001790	0,6528	Not Significant
Female's Worker Wages (FWW)	-1.16E-05	0,0000	Significant
Average Years of Schooling For Women (AYOSFW)	8.052253	0,0000	Significant
Constant	-36.650	0.0000	Significant

Source: Author Processed Data

5. Conclusion

The research findings indicate that an increase in the number of female workers does not have a significant effect on economic growth. In contrast, an increase in their wages positively impacts economic growth. Additionally, the increase in the average years of schooling for women has the most significant effect on boosting economic growth in Indonesia. These results highlight the importance of focusing on workers' wages, particularly those of female workers, which can contribute to better economic growth. Recognizing their contribution to added value, both for companies and the government, can be implemented through incentives and wage adjustments, without discrimination. Support for women to enhance their education levels will have a positive impact on the economy.

References

[1] Apiah,E.N. (2018). Female Labor Force Participation and Economic Growth in Developing Countries. Global *Journal of Human-Social Science: E Economics*, 18(2).
[2] Central Bureau of Statistics. (2022). Perempuan Sebagai Tenaga Kerja Profesional. Jakarta: Central Bureau of Statistics-Indonesia.
[3] Central Bureau of Statistics. (2022). Tingkat Upah Perempuan. Jakarta: Central Bureau of Statistics-Indonesia.
[4] Central Bureau of Statistics. (2022). Rata-Rata Lama Sekolah Penduduk Umur 15 Tahun Keatas Menurut Jenis Kelamin. Jakarta: Central Bureau of Statistics-Indonesia.
[5] Duflo, E. (2012). Women Empowerment and Economic Development. *Journal of Economic Literature*, 50(4), 1051-1079.
[6] Gujarati, D. (2004). *Basic Econometrics*, 4th edition, The McGraw-Hill Companies, New York.
[7] Keynes, J. (1936). *The General Theory of Employment, Interest, and Money*, Macmillan, London.
[8] Putri, F. S, Mukhtar, S., & Wiralaga, H.K. (2021). The Effect of Minimuim Wages, 39 Education Level and Gross Regional Domestic Product on Labor Absorption In Indonesia, *Jurnal Pendidikan Ekonomi, Perkantoran, Dan Akuntansi*. 28(2), 326340.
[9] Rahardja, P., & Manurung, M. (2018). *Pengantar Ilmu Ekonomi (Mikroekonomi dan Makroekonomi).* Jakarta: Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.
[10] Sukirno, Sadono. (1997). *Pengantar Teori Makroekonomi*, Raja Grafindo Persada, Jakarta.