Journal of Economics, Finance and Management Studies

ISSN (print): 2644-0490, ISSN (online): 2644-0504

Volume 6 Issue 4 April 2023

Article DOI: 10.47191/jefms/v6-i4-11, Impact Factor: 7.144

Page No. 1492-1502

Determinant Analysis on the Female Labor Force Participation Rate in Eastern Indonesia: The Case of Central Sulawesi Province Between 2016-2021

MA Djirimu[1], Yohan[2], Fitriani S. Poodo[3], AD Tombolotutu[4], Meity Ferdiana Paskual[5]

[1,2,3,5]Department of Economics and Development Studies Tadulako University, Palu, Central Sulawesi/Indonesia.

[4]Panca Bhakti Palu High School of Economics, Palu, Central Sulawesi/Indonesia

ABSTRACT: This research aims to (1) examine the impact of the number of females aged 15 years and over (JWU), the provincial minimum wage (UMP), the average length of schooling (RLS), and economic growth (PE) on the labor force participation rate (LFPR) in Central Sulawesi Province from 2016-2021 and (2) determine the partial influence of JWU, UMP, RLS, and PE on the LFPR. Secondary data from the publications of Central Agency of Statistic, the Department of Manpower, and Transmigration are utilized to analyze the data. Additionally, the panel data regression analysis with the fixed effect model (FEM) was applied to enhance the results. The results showed that the number of females aged 15 years and over has a significant impact on the LFPR in Central Sulawesi Province Eastern Indonesia, with a probability of 0.0000. Meanwhile, the provincial minimum wage, average length of schooling, and economic growth have no significant impact, with probabilities of 0.1630, 0.7360, and 0.6769, respectively. This suggests that these three variables have no effect on the female LFPR in Central Sulawesi Province Eastern Indonesia.

KEYWORDS: Female LFPR, Number of Female aged 15 years and over, Provincial Minimum Wage, Average Length of Schooling, Economic Growth

JEL Classification: J16, J44, N35, O53, R58

I. INTRODUCTION

Recently, there has been an improvement in Indonesia's population, leading to an increase in the number of the workforce. The country recorded a total of 138,221,938 and 125,443,748 people as the highest and the lowest number of workforces in 2020 and 2016 respectively. However, both male and female workers possess equal potential to enter and participate in the economy. The Labor Force Participation Rate (LFPR) is a metric that measures the percentage of people aged 15 years and over who are actively participating in the labor force. This metric indicates the proportion of the economically active, working-age population in a country or region.

In Central Sulawesi Province, it was observed that the male workforce increased by 80% while the female LFPR was at 50%. The highest workforce was observed in the agriculture, forestry, and fishery sectors, with a total of 187,382 people. Conversely, the electricity and gas supply sector had the lowest workforce, with a total of 269 people in 2016, which decreased by 49.48% in the following year. The involvement of females in economic activities can be influenced by various factors, such as the number of females aged 15 years and over, the provincial minimum wage, average length of schooling, and economic growth.

Since 2016 to 2021, the number of females of productive age in Central Sulawesi Province has fluctuated and reached 1,115,395 in 2020. Approximately 52.49% of the total number of 187,383 people employed in the agriculture, forestry, and fishery sectors were females. This indicates that female labor force participation remains low and falls short of expectations. Several factors contribute to this low participation, including the number of females aged 15 years and over, the average length of schooling, the provincial minimum wage, and economic growth. In light of this, the research questions aim to examine whether the number of females aged 15 years and over, the provincial minimum wage, the average length of schooling, and economic growth have a significant impact on the labor force participation in the Central Sulawesi Province between 2016 and 2021.

II. PREVIOUS RESEARCH

The labor force is defined as the portion of the population that is between the ages of 15 to 64 and considered as productive. Individuals under the age of 15 and those over 64 are not considered part of the labor force. The labor force encompasses those who are currently employed or actively seeking employment. According to the ((BPS), 2021), individuals who are classified as housewives and those who are currently enrolled in educational programs are excluded from the labor force.

The minimum wage, which is established at a regional, sectoral, or sub-sectoral level, is intended to cover basic needs such as clothing, food, household expenses, and others. Employers use the minimum wage in a regency or city as a reference to determine the wages they pay to their employees or laborers. This type of minimum wage has the potential to influence the number of individuals entering the labor market.

Education is a crucial element in the labor market as it improves individuals' skills and abilities, leading to an increase in labor force participation. The theory of endogenous growth, proposed by Lucas and Romer, highlights the impact of education or human capital on a region's or country's income and economic growth. In the labor market, education serves two purposes for females employment decisions: as an investment, it helps recover the cost of human capital; and as a consumer, it encourages females to enter the labor market because of the higher opportunity cost of unemployment (Amalia, 2012) (Harijadi, 2020).

Investment is not only fuels demand but also boosts production capacity, thereby influencing its inputs, such as labor. However, a decrease in the amount of product can occur if it is not accompanied by an increase in inputs. This implies that economic development is expected to reduce the number of unemployed productive-age populations. Meanwhile, if economic activity becomes narrower, it may lead to fewer job opportunities. (Harijadi, 2020) and (Prasetyo & Huda, 2019) highlighted that economic development is expected to demand greater participation, which should result in an increase in the LFPR.

In feminist studies, gender is a characteristic or trait that is associated with certain habits, cultural norms, or psychological tendencies. There are various theories related to gender, including nature and liberal feminism. The nature theory holds that there are inherent differences between men and females, such as the ability to give birth and breastfeed, which cannot be replicated. These differences should be respected and not result in discrimination, leading to a more harmonious society. Females may also choose to participate in the labor force, among other roles and tasks.

III. DATA AND METHOD

This explanatory research adopted a quantitative approach and utilized data to explain the relationship between independent variables and dependent variable. Furthermore, the research aimed to prove the hypothesis about the impact of factors such as the number of females aged 15 years, the provincial minimum wage, average years of schooling, and economic growth on the LFPR in Central Sulawesi Province between 2016 and 2021.

This research was performed in Central Sulawesi Province, consisting of 12 districts and 1 city. The research adopted a quantitative approach and analyzed numerical data using statistics. The nominal data was collected from various sources, including the number of females aged 15 years, the provincial minimum wage, average years of schooling, economic growth, and the LFPR. Secondary data obtained from related sources was also utilized. The reference included:

1. Publication of the Central Statistics Agency (BPS) collected data on the female LFPR number of females aged 15 years, average years of schooling, and economic growth of districts/cities in Central Sulawesi Province in 2016-2021
2. Department of Manpower and Transmigration obtained data on the minimum wage of Central Sulawesi Province for 2016-2021.

Data were analyzed using a panel regression method which presents time series and cross section data. The time series is annual data from 2016-2021, while the cross-section is meant for 12 districts and 1 city.

IV. RESULT AND DISCUSSION

4.1. Result

The results of the estimation include common, fixed, and random effect models, which will be explained as follows:

a. Common Effect Model (CEM)

The common effect model (CEM) is used to determine panel data regression which integrates time series and cross-section. The following is the estimation model for this research:

Table 1. Common Effect Model Estimation Results

Variable	Coefficient	Std. Error	t-Statistics	Prob.
1	2	3	4	5
C	3.573372	1.138051	3.139906	0.0024
X1JWU	0.070123	0.036143	1.940178	0.0562
X2UMP	-0.072164	0.171099	-0.421768	0.6744
X3RLS	0.353849	0.216704	1.632873	0.1068
X4PE	-0.047372	0.028189	-1.680474	0.0971
R-squared	0.133789	Mean dependent var		3.936784
Adjusted R-squared	0.086325	SD dependent var		0.189370

Source: Research Finding

The equation for the estimation of the common effect model is as follows:

$LnTPAKWoman_{it} = + LnJWU15_{it} - LnUMP_{it} + LnRLS_{it} - LnPE_{it} + e$

$LnTPAKWoman_{it}=3.573372+0.070123JWU15_{it} – 0.072164UMP_{it} + 0.353849RLS_{it} – 0.047372PE_{it} + e$

LnTPAKWoman$_{it}$= (3.139906) *** (1.940178) * (-0.421768) (1.680474)
(-1.680474) *

Information:

(***) Significant at = 1 percent

(**) Significant at = 5 percent

(*) Significant at = 10 percent

The results of the LFPR will increase by 3.573372, given all other factors remain constant. This equation also highlights the relationship between the female LFPR, and the number of females aged 15 years and over (JWU), the provincial minimum wage (UMP), the average years of schooling (RLS), and economic growth (PE).

In the following year, the JWU and RLS tend to cause an increase in female LFPR by 0.070123% and 0.353849% assuming that the other variables remain constant. The UMP and PE will also cause a decrease in the LFPR by 0.072164% and 0.047372% assuming that the other variables remain constant.

Table 1 shows that the JWU significantly affects female LFPR with a probability of 0.0562. Meanwhile, the UMP, RLS, and PE insignificantly influence the LFPR with a probability of 0.6744, 0.1068, and 0.0971 respectively. The R - Squared value is 0.133789, indicating that the dependent variable (female LFPR) can be explained by the number of females age 15 years and over (JWU), the average length of schooling (RLS), provincial minimum wage (UMP), and economic growth (PE) of 0.133789 or 13.37% but become 86.63% through the use of other variables outside this research.

b. Fixed Effect Model (FEM) Estimation

FEM is a model that the unit cross-section and time series have a fixed intercept. The estimation results were obtained using E-views 9, and the following is the result of this processing.

Table 2. Fixed Effect Model Estimation Results

Variable	Coefficient	Std. Error	t-Statistics	Prob.
1	2	3	4	5
C	2.366386	0.742637	3.186462	0.0023
X1JWU	0.901890	0.143037	6.305298	0.0000
X2UMP	-0.269910	0.191120	-1.412249	0.1630
X3RLS	0.205508	0.606768	0.338692	0.7360
X4PE	0.009228	0.022041	0.418658	0.6769
	Effects Specification			
Cross-section fixed (dummy variables)				
R-squared	0.758601	Mean dependent var		3.936784
Adjusted R-squared	0.695283	SD dependent var		0.189370

Source: Research Finding

In this research, the equation for the estimation of the fixed effect model is:

$LnTPAKWoman_{it} = + LnJWU15_{it} - LnUMP_{it} + LnRLS_{it} + LnPE_{it} + e$

$LnTPAKWoman_{it}=2.366386+0.901890JWU15_{it} – 0.269910UMP_{it}+0.205508RLS_{it}+ 0.009228PE_{it} + e$

$LnTPAKFemale_{it}$= (3.186462)*** (6.305298)*** (-1.412249) (0.338692)
(0.418658)

Information:

(***) Significant at = 1 percent

(**) Significant at = 5 percent

(*) Significant at = 10 percent

The fixed effect model estimation result shows that, with all other factors held constant, the female LFPR will increase by 2.366386. The equation also demonstrates the relationship between the female LFPR, the number of females aged 15 years and over (JWU), the provincial minimum wage (UMP), average years of schooling (RLS), and economic growth (PE).

In the following year, JWU, RLS, and PE will cause an increase in female LFPR by 0.901890%, 0.205508%, and 0.009228% assuming that the other variables remain constant. The UMP, however, tends to cause a decrease in the LFPR by 0.269910.

Table 2 shows that the JWU significantly influences female LFPR with a probability of 0.0000. Meanwhile, the UMP, RLS, and PE insignificantly affect the LFPR with a probability of 0.1630, 0.7360, and 0.6769 respectively. The R-Squared value is 0.758601, indicating that the dependent variable (female LFPR) can be explained by the number of females aged 15 years and over (JWU), the average length of school (RLS), provincial minimum wage (UMP), and economic growth (PE) of 0.758601 or 75.86% but become 24.14% through the use of other variables outside this research.

c. Estimated Random Effect Model (REM)

The estimation results of the REM were obtained using the E-views 9 application and the following are the results of this processing.

Table 3. Random Effect Model Estimation Results

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	2.085346	0.720075	2.896014	0.0050
X1JWU	0.224108	0.061522	3.642753	0.0005
X2UMP	0.047540	0.135020	0.352098	0.7258
X3RLS	0.325385	0.337392	0.964411	0.3380
X4PE	0.005449	0.021142	0.257725	0.7973
	Effects Specification			
			SD	Rho
Random cross-section			0.133895	0.6213
Idiosyncratic random			0.104535	0.3787
	Weighted Statistics			
R-squared	0.182482	Mean dependent var		1.195511
Adjusted R-squared	0.137687	SD dependent var		0.133197

Source: Research Finding

In this research, the equation for the estimation of the random effect model is:

$LnTPAKWoman_{it} = + LnJWU15_{it} + LnUMP_{it} + LnRLS_{it} + LnPE_{it} + e$

$LnTPAKWoman_{it}=2.085346+0.224108JWU15_{it} + 0.047540UMP_{it} + 0.325385RLS_{it} + 0.005449PE_{it} + e$

$LnTPAKFemale_{it}$= (2.896014) *** (3.642753) *** (0.352098) (0.964411) (0.257725)

Information:

(***) Significant at = 1 percent

(**) Significant at = 5 percent

(*) Significant at = 10 percent

The estimation results of the random effect model show that, when all other factors remain constant, the female LFPR will increase by 2.085346. This equation also shows the relationship between the number of females aged 15 years and over (JWU), provincial minimum wage (UMP), average years of schooling (RLS), and economic growth (PE) with female LFPR.

In the following year, the JWU, UMP, RLS, and PE will cause an increase in the female LFPR by 0.224108%, 0.047540%, 0.325385%, and 0.005449% with the assumption that other variables are constant.

Table 3 also shows that the JWU variable significantly influences female LFPR with a probability of 0.0005. Meanwhile, the UMP, RLS, and PE insignificantly affect the LFPR with a probability of 0.7258, 0.3380, and 0.7973 respectively. The R-Squared value is 0.182482, indicating that the dependent variable can be explained by the number of females aged 15 years and over (JWU), average years of schooling (RLS), provincial minimum wage (UMP), and growth economy (PE) of 0.182482 or 18.24% but become 81.76% through the use of other variables outside this research.

Moreover, a panel data analysis model which will be explained as follows was selected.

d. Panel Data Analysis Model Selection

The selection of the panel data analysis model consists of the Lagrange Multiplier (LM) test, Chow test, and Hausman test.

d.1. Lagrange Multiplier (LM) Test Results

In this research, the Lagrange Multiplier (LM) test is used to select the best model between the CEM and REM. The following hypotheses are used for the LM Test:

H_0 = Common Effect Model (CEM)

H_1 = Random Effect Model (REM)

Table 4. Lagrange Multiplier Test Results (LM Test)

Null (no rand. effect) Alternative	Cross-section one-sided	Period one-sided	Both
1	2	3	4
Breusch-Pagan	34.06630	0.382463	34,44877
	(0.0000)	(0.5363)	(0.0000)

Source: Research Finding

The null hypothesis is rejected since the test results indicate that the statistical LM value is greater than the Chi-Square statistic. Meanwhile, the null hypothesis is accepted when the LM statistic is less than the Chi-Square statistic. This study shows that the Breusch-Pagan probability is 0.0000 < 0.05. Therefore, H_0 is rejected and H_1 is accepted, indicating that the Random Effect Model (REM) was selected.

d.2. Chow Test Results

The Chow test was performed to choose between the CEM and FEM. In this research, the following hypotheses were used for the Chow test:

H_0 = Common Effect Model (CEM)

H_1= Fixed Effect Model (FEM)

Table 5. Chow Test Results

Effects Test	Statistics	df	Prob.
1	2	3	4
Cross-section F	13.157147	(12.61)	0.0000
Cross-section Chi-square	99.658735	12	0.0000

Source: Research Finding

H_0 is rejected and H_1 is accepted as the P-value is less than 0.05. Table 5 shows that the Chi-Square probability of 0.0000 is <0.05, indicating that the Fixed Effect Model (FEM) has been selected.

d.3. Hausman Test Results

Hausman test is conducted to select the best model between FEM and REM. The following hypotheses are used for the Hausman test.

H_0 = Random Effect Model (REM)
H_1 = Fixed Effect Model (FEM)

Table 6. Hausman Test Results

Test Summary	Chi-Sq. Statistics	Chi-Sq. df	Prob.
1	2	3	4
Random cross-section	33.201189	4	0.0000

Source: Research Finding

The Fixed Effect Model (FEM) is considered superior when the Hausman statistic exceeds the critical value. Conversely, the Random Effect Model (REM) is optimal when the Hausman statistic is less than the critical value. This study reveals that the Chi-Square statistic has a probability value of less than 0.05, thus leading to the rejection of H_0 and the acceptance of H_1, implying the selection of the FEM.

The outcome indicated that the Fixed Effect Model (FEM) was chosen for this issue. A classical assumption test was necessary since the FEM adopts the Ordinary Least Square (OLS) method. This test was performed to verify if the chosen model satisfies the requirements of BLUE or Best Linear Unbiased Estimator. The classical assumption test that needs to be applied for this method is the multicollinearity and heteroscedasticity test.

e. Multicollinearity Test Results

The multicollinearity test is utilized to assess the relationship between the independent variables in a model. The results of the multicollinearity test are presented below.

Table 6. Multicollinearity Test Results

	X1JWU	X2UMP	X3RLS	X4PE
1	2	3	4	5
X1JWU	1.0000000	0.079145	0.100130	-0.175498
X2UMP	0.079145	1.0000000	0.534225	0.006660
X3RLS	0.118912	0.534225	1.0000000	0.099396
X4PE	-0.175498	0.006660	0.099396	1.0000000

Source: Research Finding

The selected regression model has a multicollinearity problem since the model being tested has a VIF value > 0.10. Based on table 6, there is no number that exceeds 0.10, indicating this model is free from multicollinearity problems.

f. Heteroscedasticity Test Results

The heteroscedasticity test is employed to verify if the residuals in the established model have a consistent variance. The results of the heteroscedasticity test are presented below.

Table 7. Heteroscedasticity Test Results

Variable	Coefficient	Std. Error	t-Statistics	Prob.
1	2	3	4	5
C	-0.200734	0.633479	-0.316876	0.7524
X1JWU	-0.011907	0.017872	-0.666269	0.5078
X2UMP	0.002228	0.095036	0.023440	0.9814
X3RLS	0.135218	0.107666	1.255901	0.2140

Source: Research Finding

This test was conducted to determine whether there is heteroscedasticity in this research model. The model does not have a heteroscedasticity problem when the probability value is greater than 0.05. Based on table 7, the model used does not have a heteroscedasticity problem.

g. Hypothesis Test Results

g.1. Overall Significance Test (F Test)

The F test is used to examine the impact of the independent variables on the dependent variable. The criterion for evaluation is to compare the probability value with 0.05, where an independent variable affects the dependent variable if the P-value is less than 0.05. The following are the results of the F test.

Table 8. F Statistic Test Results

F-statistics	Prob (F-statistic)
1	2
11.98083	0.000000

Source: Research Finding

Based on the statistical F-test analysis, the P- value is 0.000000 < 0.05, indicating that the JWU, UMP, RLS, and PE affect the female LFPR.

g.2. Partial Significance Test (t-test)

A t-test was conducted statistically to examine the impact of each independent variable on the dependent variable. The evaluation criteria involve comparing the probability value of the independent variable to an alpha of 0.05. The following are the results of the t-test.

Table 9. Statistical t Test Results

Variable	Coefficient	Std. Error	t-Statistics	Prob.
1	2	3	4	5
C	2.366386	0.742637	3.186462	0.0023
X1JWU	0.901890	0.143037	6.305298	0.0000
X2UMP	-0.269910	0.191120	-1.412249	0.1630
X3RLS	0.205508	0.606768	0.338692	0.7360
X4PE	0.009228	0.022041	0.418658	0.6769

Source: Research Finding

Based on the statistical t-test results, the JWU have a probability of 0.0023 <0.05, indicating that the variable significantly affects female LFPR. Meanwhile, the UMP, RLS, and PE has a probability of 0.1630, 0.7360, and 0.6769 > 0.05, indicating that these variables insignificantly influence the LFPR.

g.3.Coefficient of Determination (R^2)

The calculation for measuring the total independent variable to explain the coefficient of R^2 is typically done after selecting the Fixed Effect Model. The value of the coefficient of determination is between zero and one. Furthermore, the model used is good when the R-Square value is close to one. This is because the independent variable can explain the effect on the dependent one. The following is the value of the coefficient of determination.

Table 10. Coefficient of Determination Results

R-squared	0.758601
Adjusted R-squared	0.695283

Source: Research Finding

The results of the E-views output used to show an adjusted R-squared of 0.758601 or 75.58%. This indicates that the female LFPR can be explained by the JWU, UMP, RLS, and PE. Meanwhile, the remaining 24.15% of the LFPR is explained by other variables.

4.2 Discussion

This discussion covers the growth of the female population aged 15 and above (JWU), the minimum wage in Sulawesi Province (UMP), average years of education (RLS), the rate of economic expansion (PE), and the percentage of the labor force participating (LFPR) in the province. Also, it specifies the central and partial influence of JWU, UMP, RLS, and PE on LFPR. This discussion is explained as follows:

Determinant Analysis on the Female Labor Force Participation Rate in Eastern Indonesia: The Case of Central Sulawesi Province Between 2016-2021

a. The development of JWU, UMP, RLS, PE, and LFPR for Females in Central Sulawesi Province

From 2016-2021, there is an increase in the number of females aged 15 years and over in the Central Sulawesi Province. The following regions that comprise working females include Palu, Parigi Moutong, Banggai, and Poso. An increase in the number of working age tends to improve female LFPR. Furthermore, the increase in the number of people who have a productive age helps to create job opportunities.

The minimum wage in the Central Sulawesi Province (UMP) has risen from 2016 to 2021. The following regions that received the highest UMP include Morowali, Palu, Poso, and Buol. Furthermore, the determination of the UMP shows that the minimum wage encourages the realization of justice for workers and employers in the context of meeting societal needs such as clothing and food. An increase in the minimum wage can stimulate people to enter the labor market and this will increase the number of female LFPR.

From 2016-2021, there is an increase in the average length of schooling (RLS) in the Central Sulawesi Province. The regions with the highest RLS include Palu, Poso, Morowali, and Buol. An increase in RLS shows the quality of education which also instills values and ethics needed in the world of work.

There is a fluctuation in the economic growth (PE) of Central Sulawesi Province from 2016-2021. The regions with the highest PE include Morowali, Banggai, and Palu. An increase in PE tends to reduce the number of unemployed, increase national income, and launch fast-growing economic activities. A region that is one of the ways to discover the level of economic growth can be described from the Gross Regional Domestic Product (GRDP).

From 2016-2021, there is a fluctuation in the increase of the female LFPR of Central Sulawesi Province. The regions with the highest female LFPR are Banggai Islands, Poso, Tojo Una-Una, and Banggai. An increase in the LFPR shows that many females enter the labor market and depend on the amount of public demand for goods and services. This makes the company demand for labor and is involved in economic activity.

The amount of demand for labor depends on the number of residents and the level of income. In production activities, the amount of supply depends on the number of working females who are ready to enter the labor force group. The amount of demand for goods and services, however, depends on economic activities.

b. Effect of JWU, UMP, RLS, and PE on the Female LFPR in Central Sulawesi Province

The F-statistical test indicated that the number of females aged 15 years and over, the provincial minimum wage, the average length of schooling, and economic growth have an impact on the participation rate of the workforce in the Central Sulawesi Province. Additionally, the coefficient of determination (R^2) revealed that these four independent variables have a significant impact on the participation rate, accounting for 75.86%. Meanwhile, 24.14% of the Female LFPR is influenced by other factors that were not included in this study.

c. Partial Effect of JWU, UMP, RLS, and PE on female LFPR in Central Sulawesi Province

Based on the model test, the Fixed Effect Model (FEM) is deemed the best for this research. The results of the t-statistical test showed that the number of females aged 15 years and over has a significant impact on the LFPR in Central Sulawesi Province. However, the Provincial minimum wage, the average length of schooling, and economic growth failed to have any effect on the level of participation.

The number of females aged 15 years and over has a significant effect on LFPR with a probability and coefficient of 0.0000 and 0.901890 respectively. This increases the employment rate because the level of labor force participation in each sector tends to improve as age increases. The result is in line with the hypothesis that females aged 15 years and over positively influence the LFPR in Central Sulawesi Province.

This study is also in line with (Anwar, Balaka, & Suriadi, 2018) that the number of females aged 15 years and over significantly affect the LFPR. Furthermore, the result supports (Kaarib, Kamarni, & Purwasutrisno, 2019) that people tend to maximize productivity because it increases job offers. The insignificant results are in line (Hardiani, Siregar, & Zulfanetti, 2020) that the number of females aged 15 years and over tends to insignificantly influence LFPR in Sumatra.

Partially, the provincial minimum wage variable insignificantly influences female LFPR with a probability and a coefficient of 0.1630 and -0.269910 respectively. An increase in this variable by 1% does not necessarily increase the female LFPR. Also, the termination of employment (PHK) can be a reason there is an increase in wages. The company tends to reduce the number of employees because of its inability to meet the high wage.

This study's results are in line with (Ardella, Istiyani, & Jumiati, 2019) that an increase in wages can cause females to leave the workforce. The increase tends to reduce employment, specifically for workers with low productivity. Employers try to select workers with high productivity when there is an increase in the level of wages.

The insignificant results are not in line with (Harijadi, 2020) that the provincial minimum wage failed to affect female workers in Indonesia. Meanwhile, this significant research is supported by (Orlian & Ratna, 2020) that wages influence the female LFPR in Paya Rangkuluh Village. This result is also in line with (Hardiani, Siregar, & Zulfanetti, 2020).

Partially, the average length of schooling insignificantly affects female LFPR with a probability and coefficient of 0.3378 and 0.205508 respectively. The results are in line with (Bonerri, Walewangko, & Tumangkeng, 2018) that females who have the intention to further their education do not immediately enter the labor market. Additionally, complex economic activities and the increasing needs of life require females to work in certain fields.

This result is in line with (Agboola, 2021) that long and short-term female participation in Saudi Arabia is significantly related. Educational attainment affects the female LFPR in Malaysia (Wei & Cinn, 2021). Osudina (2018) showed that improvements in females' education and health increase their access to job opportunities in Nigeria (Osudina O. , 2018).

The results are in line with (Abraham, Ohemeng, & Ohemeng, 2017) that the education variable is a significant determinant in influencing the female LFPR in Ghana. This variable is one of the factors influencing females' position in the Nigerian workforce (Nagac & Shuaibu, 2016). In this country, the female LFPR has increased from 38% to 50% over the last 25 years. The insignificant results are in line with (Hidayat, Sutrisno, & Hadi, 2017) who examined the level of female labor force participation among districts in Riau Province.

Partially, economic growth has an insignificant effect on female LFPR with a probability and coefficient of 0.6769 and 0.009228 respectively. The economic growth variable is insignificantly related to Adam Smith's growth theory concerning economic development. The increase in capital accumulation triggers specialization which causes a decrease in the need for labor. This study's result is supported by (Ardella, Istiyani, & Jumiati, 2019) that economic growth insignificantly affects female LFPR in Java. It is also in line with (Akmal & Zulkifli, 2017) who examined the effect of economic growth, spending government, and Human Development Index (HDI) on the female LFPR in Asian countries.

The results are consistent with those of (Puspasari, 2019), who emphasized the significance of educated labor force participation on economic growth in Indonesia. This is also supported by the research conducted by (Safitri & Ariusni, 2019), who explored the effect of regional financial performance, participation rate, and inflation on economic growth in West Sumatra. The results align with those of (Mirah, Kindangen, Rorong, & Ratulangi, 2020), who investigated the impact of the LFPR on economic growth and poverty in North Sulawesi Province.

V. CONCLUSIONS AND POLICY IMPLICATION

5.1. Conclusion

This research was conducted to determine the joint and partial effect of the number of females aged 15 years and over (JWU), provincial minimum wage (UMP), the average length of schooling (RLS), and economic growth (PE) on labor force participation rates (LFPR) in Central Sulawesi Province between 2016-2021. Based on the results, the conclusion are as follows:

There is a fluctuation development of JWU, UMP, RLS, and PE in 13 districts between 2016-2021. The regions with the highest female LFPR include: Banggai Islands, Banggai Laut, Poso, North Morowali, and Tojo Una-Una.

This research employs the panel data analysis technique and the Fixed Effect Model (FEM) to demonstrate the impact of JWU, UMP, RLS, and PE on the female LFPR in Central Sulawesi Province; and Insignificant effect of JWU, UMP, RLS, and PE on female LFPR.

5.2. Policy Implications

Based on the analysis results and conclusions, the following suggestions are made: In Central Sulawesi Province, local governments should aim to increase job opportunities for females to increase their participation in the labor force.

Further research should also consider the role of poverty in determining female labor force participation and provide additional insights to inform policy decisions.

AKNOWLEDGEMENTS

The authors extend their gratitude to the Dean, Vice Dean, and Head of the Department of Economics and Development Studies at the Faculty of Economics and Business Tadulako University, their academic peers, and the anonymous referees for their insightful comments and contributions during the discussion. Also, the authors express their appreciation to the Regional Office of the Central Statistical Agency of Central Sulawesi and the Regional Agency for Development Planning of Central Sulawesi for their cooperation and provision of data.

REFERENCES

1) (BPS), C. A. (2021). Statistical Data Publication in Indonesia Central Sulawesi in Numbers 2021. Jakarta: Central Statistical Agency.
2) Abraham, A., Ohemeng, F. N., & Ohemeng, W. (2017). Female Labour Force Participation: Evidence From Ghana Participation. International Journal of Social Economics, 44(11), 1489-1505. https://doi.org/10.1108/IJSE-06-2015-0159
3) Agboola, M. (2021). Female Labour Force Participation in Saudi Arabia and Its Determinants. The Polish Journal of Economics, 1(305) , 135-152. https://doi.org/10.33119/GN/132482
4) Akmal, M., & Zulkifli. (2017). Impact of Economic Growth, Government Expenditure, Human Development Index on the Rate of Women's Labor Force Participation in Four Asian Countries. Journal of Economics and Development, 2(4), 637-645.
5) Altuzarra, A., Galvez, C. G., & Flores, A. G. (2019). Economic Development and Female Labour Force Participation: The Case of European Union Countries. Journal Sustainability, 11(7), 1–18. https://doi.org/10.3390/su11071962
6) Amalia, F. (2012). Impact of Education, Unemployment and Inflation on Poverty Level in Eastern Indonesia Area in 2001-2010 Period. Journal of Economics and Development 10(2), 158-169.
7) Anwar, M., Balaka, M. Y., & Suriadi, L. (2018). Determinant of Women's Participation in Southeast Sulawesi. Journal of Progress Economics and Development, 1-12.
8) Ardella, R., Istiyani, N., & Jumiati, A. (2019). Determinant Analysis on the Rate of Women's Labor Force Participation in Jawa Island in 2006-2017 Period. Journal of Economic Equilibirum 3(2), 15-22.
9) Bonerri, K., Walewangko, E., & Tumangkeng, S. (2018). Impact of Education and Salary on Labor Force Participation in Manado City. Journal of Efficiency, 34-45.
10) Che, G. N., & Sundjo, F. (2018). Determinants of Female Labour Force Participation in Cameroon. International Journal of Applied Economics, Finance and Accounting, 3(2), 88–103. https://doi.org/10.33094/8.2017.2018.32.88.103
11) Diebolt, C., & Hippe, R. (2019). The Long-Run Impact of Human Capital on Innovation and Economic Development in the regions of Europe. Applied Economics, 51(5), 542–563. https://doi.org/10.1080/00036846.2018.1495820
12) Dogan, B., & Akyuz, M. (2017). Female Labor Force Participation Rate And Economic Growth In The Framework Of Kuznets Curve: Evidence From Turkey. Journal Economic & Business Studies, 10(1), 33–54. https://doi.org/10.1515/rebs-2017-0047
13) Hardiani, H., Siregar, S., & Zulfanetti, Z. (2020). Determinant Analysis of Women's Labor Participation in Sumatra. Journal of Economics and Development 21(1), 70-87. https://doi.org/10.22373/jep.v11i1.78
14) Harijadi, P. (2020). Analysis of Variables Affecting Women Workforce in Indonesia. Journal of Economics and Development 22(2), 132-138.
15) Hidayat, M., Sutrisno, & Hadi, M. (2017). Women's Labor Participation Lavel Among District in Riau Province. Journal of Economics and Development, 12(1), 76-89.
16) Islam, R., Bashawir, A., Ghani, A., Kusuma, B., & Theseira, B. B. (2016). Education and Human Capital Effect on Malaysian Economic Growth. International Journal of Economics and Financial Issue, 6(4), 1722–1728.
17) Kaarib, A., Kamarni, N., & Purwasutrisno. (2019). Determinant of Woman's Labor Force in West Sumatra. Journal of Management and Entrepreneuship 10, 1-9.
18) Lahoti, R., & Swaminathan, H. (2016). Economic Development and Women's Labor Force Participation in India. Journal Feminist Economics, 22(2), 168–195. https://doi.org/10.1080/13545701.2015.1066022
19) Ma, L. (2016). Female labour force participation and second birth rates in South Korea. Journal of Population Research, 33(2), 173–195. https://doi.org/10.1007/s12546-016-9166-z
20) Mirah, M., Kindangen, R., Rorong, I., & Ratulangi, U. (2020). Impact of Labor Force Participation on Economic Growth and Poverty in North Sulawesi. Journal of Economics and Development, 21(1), 85-100.
21) Nagac, K., & Shuaibu, H. (2016). The Role of Education in Female Labour Force Participation in Nigeria. Journal of Economics and Finance, (7(1), 56-62. https://doi.org/10.9790/5933-07135662

22) Naseem, S., & Dhruva, K. (2017). Issues and Challenges of Saudi Female Labor Force and the Role of Vision 2030: A Working Paper. International Journal of Economics and Financial Issue, 7(4), 23–27.
23) Orlian, M., & Ratna. (2020). Analysis of the Factor Affecting the Productivity of Women's Labor and Revenue Contribution: Case Study on Belah Pinang Business in Paya Rangkuluh Village, Kuta Blang District, Bireuen Regency. Journal of Agriculture Economic of Unimal 03(02), 17-25.
24) Osudina, O. (2018). Sustainable Development: Does Improvement in Education and Health of Women Improve Female Labour Force Participation Rate. Journal of Department of Economics, 28(1), 13-24.
25) Prasetyo, A., & Huda, M. (2019). Analysis of the Role of Small and Medium Enterprises on Labor Absorption in Kebumen Regency. Journal of Economics and Development 18(01), 26-35.
26) Puspasari, S. (2019). The Effect of Educated Workforce Participation on Economic Growth in Indonesia: A Human Capital Perspective. Journal of Administrative Science, 16(2), 194-209.
27) Safitri, A., & Ariusni. (2019). The Influence of Regional Financial Performance, Labor Force Participation Rate, and Inflation on Economic Growth in West Sumatra . Journal of Economic Research and Development, 1(2), 351-364.
28) Varol, F. (2017). The Determinants of Labor Force Participation of Women in Turkey: A Binary Logit Analysis. Journal of History and Art Research, 6(2), 92–108. https://doi.org/10.7596/taksad.v6i2.564
29) Wei, L. C., & Cinn, L. (2021). A Research on Female Labour Force Participation in Malaysia. Journal of Conference on Management, Business, Innovation, Education and Social Science 1(1), 50-59.