THE EFFECT OF GENDER EQUALITY ON ECONOMIC GROWTH IN WEST SUMATERA2017-2020

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Abstract

In 2020, West Sumatra Province was one of the provinces with the 4th highest Gender Development Index (GDI) in Indonesia and was the highest GDI in Sumatra Island. However, West Sumatra's economic growth tends to decline in the 2017-2020 period. Several studies have shown a positive relationship between gender and economic growth. Therefore, this study aims to get an overview of gender in education, economy, and technology and find information about gender on economic growth in West Sumatra Province for the 2017-2020 period. This study uses panel data regression analysis based on the National Socio-Economic Survey (SUSENAS) data for 2017-2020. The results show that gender in the economic and technological fields has generally decreased in 2017-2020. Gender equality in education, represented by the average length of schooling for women to men, has a significant negative effect. On the other hand, in the health sector, which is represented by the ratio of life expectancy of women to men, it has a significant positive effect on economic growth.

***Keywords :** Economic growth, Gender equality, Panel data regression*

Abstrak

Pada tahun 2020 Provinsi Sumatera Barat merupakan salah satu provinsi dengan nilai Indeks Pembangunan Gender (IPG) tertinggi ke-4 di Indonesia dan merupakan IPG tertinggi di pulau Sumatera. Namun demikian pertumbuhan ekonomi Sumatera Barat cenderung mengalami penurunan dalam periode 2017-2020. Beberapa penelitian menunjukkan adanya hubungan positif antara kesetaraan gender dengan pertumbuhan ekonomi. Untuk itu penelitian ini bertujuan melihat gambaran umum terkait kesetaraan gender pada bidang pendidikan, kesehatan, ekonomi dan teknologi serta menganalisis pengaruh kesetaraan gender terhadap pertumbuhan ekonomi di Provinsi Sumatera Barat periode 2017-2020. Penelitian ini menggunakan analisis regresi data panel berdasarkan data Survei Sosial Ekonomi Nasional (SUSENAS) periode 2017-2020. Hasil penelitian menunjukkan secara umum kesetaraan gender pada bidang ekonomi dan teknologi mengalami penurunan pada periode 2017-2020. Kesetaraan gender pada bidang pendidikan yang dalam penelitian ini diwakilkan oleh rasio rata-rata lama sekolah perempuan terhadap laki-laki signifikan berpengaruh negatif. Sebaliknya kesetaraan dalam bidang kesehatan yang diwakilkan dengan rasio angka harapan hidup perempuan terhadap laki-laki signifikan berpengaruh positif terhadap pertumbuhan ekonomi.

Kata Kunci : Pertumbuhan ekonomi, Kesetaraan gender, Regresi data panel

Introduction

The Sustainable Development Goals (SDGs) are Agenda 2030 which is a sustainable development agreement, based on human rights and equality. One of the goals of the SDGs is to support inclusive and sustainable economic growth, a full-time and productive workforce, decent work for all, and gender equality. Economic growth shows changes in the rate of economic activity in a region over time. Each region strives to achieve sustainable economic growth in accordance with the potential of natural and human resources owned by the region.

During the 2016-2020, Indonesia's economic growth decreased from 5.03 percent to -2.07 percent. The same pattern occurs in the economic growth of West Sumatra Province, which tends to decline from 5.27 percent in 2016 to -1.6 percent in 2020. Economic growth experienced a contraction in 2020 due to the Covid-19 pandemic, which hit all over the world including Indonesia.

Gender equality refers to an equal condition between men and women in the fulfillment of rights and obligations. Women have many limitations in terms of education, ownership of assets, and even the opportunity to exert influence in decision making both within their families and in social life.[1] This situation is contradiction with the culture of the people of West Sumatra. As the only ethnic group in Indonesia that adheres to a matrilineal system (mother's lineage), women have a major role in the economy, especially in terms of asset ownership and management.[2]

Indonesia is one of the countries that has a fast pace in terms of reducing inequality in the field of education between men and women.[3] However, according to the 2020 National Socio-Economic Survey (SUSENAS) data, conducted by the Central Statistics Agency (BPS), it was found that women's education in West Sumatra was still below that of men. This is indicated by the average length of schooling (RLS) for the female population of 8.89 years, while the RLS for the male population is 9.01 years. Meanwhile, the results of the 2020 National Labor Force Survey show that women's productivity achievements are still lower than men's. This is indicated by the average wage that women receive is only 2.38 million per month while the average wage received by men is 2.84 million per month.

Sitorus (2016) said that the gender inequality index also has a positive impact on economic growth. This shows that the smaller the gender inequality will have a significant and positive influence on economic growth. In other words, economic growth is not only driven by an increase in the basic capabilities (education, health, and per capita income) of the male population but also the female population.

Klasen dan Lamanna (2009) Klasen and Lamanna (2009) argue that economic growth is influenced by the impact of gender inequality in education and employment. They also explain that gender inequality can be detrimental to the economic growth of a country or region. This can be seen in the gender inequality in the field of education which can result in low human capital productivity so that the resulting economic growth is also low.

Baliamoune-Lutz (2007) in their research conducted in 41 African and Arab

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[1] Mikkola, A. (2011). Role of Gender Equality in Development - A Literature Review. In *SSRN Electronic Journal* (Vol. 17, Issue 84).

[2] Zakia, R. (2011). Kesetaraan Dan Keadilan Gender Dalam Adat Minangkabau. *Kafa`ah: Journal of Gender Studies*, *1*(1), 39.

[3] Sitorus, A. V. Y. (2016). Dampak Ketimpangan Gender Terhadap Pertumbuhan Ekonomi Di Indonesia. *Sosio Informa*, 89–101.

countries showed that gender inequality in education (in this case the literacy variable) had a negative impact on economic growth. They stated that gender inequality in education has a strong influence on economic growth in African and Arab countries, the smaller the gender inequality, economic growth will increase.

Many studies with the theme of economic growth have been carried out in Indonesia.[4-13] However, its relation to the role of women is still very minimal. Therefore, this topic becomes interesting to do in the province of West Sumatra, given the Minangkabau culture that privileges the position of women in almost all aspects of life, especially in the economic aspect, heredity system, and inheritance.[14] Moreover, according to BPS data in 2020[15] West Sumatra Province ranks the 4th largest Gender Development Index (IPG) in Indonesia. If referring to the results of Sitorus (2016), if the gender inequality is getting smaller, then economic growth is getting better. However, this is actually contradictory to the condition of economic growth in West Sumatra Province which tends to slow down in the last 4 years.

Based on the description of the problem and the limited data in 2016 to the Regency/City level, this study aims to see an overview of gender equality in the fields of education, health, economy and technology as well as to analyze the effect of gender equality on economic growth in West Sumatra Province in 2016. the period 2017-2020 using secondary data derived from BPS data.

Literature Riview

Economic Growth

Economic growth is a matter of increasing the long-term capacity of a country or region concerned, to provide various economic goods for its population. Capacity building is determined by technological, institutional, and ideological progress or adjustment to the demands of the existing situation. Harrod Domar's theory analyzes the conditions needed so that the economy in a country or region can grow and develop in the long term. This theory also explains that capital formation is an important factor in determining economic growth. Capital formation is not seen as an expenditure that

[4] Aktaria, E., & Handoko, B. S. (2012). Ketimpangan Gender Dalam Pertumbuhan Ekonomi. *Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi Dan Pembangunan, 13*(2), 194.

[5] Athaillah, Hamzah, A., & Masbar, R. (2013). Faktor-Faktor Yang Mempengaruhi Pertumbuhan Ekonomi Provinsi Aceh. *Jurnal Ilmu Ekonomi : Program Pascasarjana Unsyiah, 1*(3), 1–13.

[6] Syamsuddin. (2013). Analisis Pengaruh Faktor Kependudukan terhadap Pertumbuhan Ekonomi Provinsi Jambi. *Jurnal Paradigma Ekonomika, 1*(7), 73–84.

[7] Vininda, S., & Yuliana, L. (2015). *Penerapan Regresi Data Panel Pengaruh Kesetaraan Gender Terhadap Pertumbuhan Ekonomi Di Provinsi Riau Periode 2011-2015. 2015*, 549–559.

[8] Sitorus, A. V. Y. (2016). Dampak Ketimpangan Gender Terhadap Pertumbuhan Ekonomi Di Indonesia. *Sosio Informa*, 89–101.

[9] Mulasari, F. D. (2017). Peran Gender Perempuan Terhadap Pertumbuhan Ekonomi Di Provinsi Jawa Tengah Tahun 2008-2012. *Economics Development Analysis Journal, 4*(3), 254–263.

[10] Nazmi, L., & Jamal, A. (2018). Pengaruh Ketimpangan Gender Terhadap Pertumbuhan Ekonomi Di Indonesia. *Jurnal Ilmiah Mahasiswa Ekonomi Pembangunan, 3*(4), 740–750.

[11] Rosminah, R., Nurjanah, R., & Umiyati, E. (2019). Analisis faktor-faktor yang mempengaruhi pertumbuhan ekonomi di Kabupaten Sarolangun. *E-Journal Perdagangan Industri Dan Moneter, 7*(2), 83–100.

[12] Bertay, A. C., Dordevic, L., & Sever, C. (2020). Gender Inequality and Economic Growth. *IMF Working Papers, 20*(119).

[13] Hasanah, U., & Ikhsan. (2020). Pembangunan Manusia, Ketimpangan dan pertumbuhan Ekonomi di Indonesia. *Jurnal Ilmiah Mahasiswa (JIM), 5*(1), 46–53.

[14] Zakia, R. (2011). Kesetaraan Dan Keadilan Gender Dalam Adat Minangkabau. *Kafa`ah: Journal of Gender Studies, 1*(1), 39.

[15] Badan Pusat Statistik. (2020a). "Indeks Pembangunan Gender (IPG) Menurut Provinsi Tahun 2020". diakses tanggal 4 Agustus 2021.

will increase the ability of the economy to produce goods and services only, but rather to increase effective demand of society.[16]

Todaro and Smith said that economic growth is a condition of increasing the production load in economic activity continuously over time, until it gets a certain amount of income. Several factors that can increase economic growth include the accumulation of capital, increasing population and technological advances.[17]

The main components of economic growth include capital accumulation, population growth, employment and technological progress. Capital accumulation is obtained from the value of savings and investments set aside from income earned to increase production and income in the future. The components of population and employment growth are generally considered as factors that have a positive effect on encouraging economic growth. The last component is technological progress which has become a new way and improvements in the operating process where in this component there are three main groups of technological advances, namely neutral, labor-saving and capital-saving.

Economic growth is also influenced by several other factors such as fertility, mortality and migration. High fertility rates can provide the impetus for significant and rapid population growth. In the long term a rapid increase in population can create a large workforce, which can help economic growth. On the other hand, if the fertility rate is low, the required productive labor is not available

and can have an impact on economic growth.[18]

Economic growth can be interpreted as an increase in the value of real GDP from time to time, or it can also be interpreted as an increase in the economic capacity of a country or region. In the regional sector, the concept of GDP is often referred to as Gross Regional Domestic Product (GRDP).

The value of GDP and GRDP can be calculated through three approaches, such as the production approach, the income approach and the expenditure approach. Gross Regional Domestic Product from the production side is often called sectoral GRDP, which is the sum of the Gross Value Added (NTB) produced by all economic activities in a certain area and within a certain period (generally one year). GRDP with an income approach is calculated based on the amount of income or remuneration received by production factors used in the production process in the sector, in the form of wages or salaries for labor owners, interest or investment returns for capital owners, land rent for land owners and profits for entrepreneurs. From the expenditure side, GRDP is calculated as the sum of all components of final demand, namely household consumption (C), investment (I), government spending (G), and net exports (X-M).[19]

Gender Equality

In conducting an analysis of gender equality, the first step is to explain the meaning of gender itself based on sex or gender. Sex is a biologically determined division of the sexes, which is inherent in every person. Permanently does not change and is a provision of nature or nature. The concept of gender is an inherent trait of men and women that has been formed from social

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[16] Sukirno, Sadono. (2009). *Teori Pertumbuhan Ekonomi Edisi Kedua*. Penerbit Kencana Putra Grafika. Jakarta.

[17] Todaro, M. P. dan Smith, S. C. (2006). Pembangunan Ekonomi (edisi kesembilan). Jakarta: Erlangga.

[18] Ananta, Aris. 1995. Population Changes and Economic Development in Indonesia. *ASEAN Economic Bulleting, Vol. 9*. hlm 55-65.

[19] Dornbush, Rudiger Julius and Stanley Fisher. 2008. Macroeconomics Fourth Edition. Singapura: McGraw-Hill.

and cultural factors that surround them, so that some assumptions about the social and cultural roles of men and women are born.[20] Gender equality is a condition of equality for men. men and women to obtain opportunities and their rights as human beings to be able to play a role and participate in various economic, socio-cultural, political, defense and national security activities as well as equality in enjoying the results of these developments.[21]

The United Nation Development Program (UNDP) establishes a benchmark for the success of the development of a country or region through the Human Development Index (HDI) formula. With the issue of gender equality, UNDP developed a new formula to accommodate perspectives on gender, which were named the Gender Development Index (GDI) and Gender Empowerment Measure (GEM). The GDI is the change from the HDI disaggregated by sex. Several variables that make up GDI include the Human Development Index (HDI) variable which is aimed at the achievement of women, namely life expectancy, education and per capita income.[22]

Gender equality can occur when women have greater access to the market and credit sectors, as well as an increase in their decision-making abilities in the household. This can increase women's empowerment, reduce poverty and increase economic growth.[23]

The Relationship of Gender Equality to Economic Growth

Klasen and Lemanna conducted a study on the impact of gender inequality on

education and employment on economic growth of 124 countries on a panel using cross-country analysis. The results show that gender inequality can be detrimental to the economic growth of a country/region. Gender inequality in the education sector results in low productivity of human resources, which results in low economic growth. This has a direct effect on economic growth through the quality of human capital and labor productivity.[24]

There are four demographic factors that can affect economic growth. First, a low fertility rate can reduce the dependency ratio in the workforce (dependency ratio) which can increase the supply of savings. The second is the large number of people entering the labor force, where previously high economic growth will encourage demand for investment. When an increase in demand is supported by an increase in capital flow or domestic savings, it will increase investment expansion and subsequently increase economic growth. Third, low fertility rates can increase the population's contribution to the working age population. If labor growth is accompanied by an increase in employment, per capita growth will increase even with fixed wages and productivity conditions.[25] Fourth, there is an interaction between gender inequality in

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[20] Handayani, T. & Sugiarti. (2008). Konsep dan teknik penelitian gender. Malang: UMM Press.

[21] Sufiarti. (2007). Laporan Penelitian Persepsi Perempuan Berkarir Di Lingkungan UPI Tentang Konsep Kesetaraan Gender. Jurnal. Jakarta.

[22] United Nation Development Programme. (2010). Human Development Report: The Real Wealth of Nations: Pathways to Human Development. New York, USA: UNDP.

[23] Morrison, A., Raju, D., & Sinha, N. (2007). Gender Equality, Poverty and Economic Growth (Policy Research Working Paper No. WPS4349). Washington DC: World Bank.

[24] Klasen, S., & Lamanna, F. (2009). The impact of gender inequality in education and employment on economic growth: New evidence for a panel of countries. *Feminist Economics*, *15*(3), 91–132.

[25] Bloom, D.E., and Williamson, J.G. 1998. "Demographic Transitions and Economic Miracles in Emerging Asia". World Bank Economic Review, Vol. 12, No. 3, pp. 419-456.

education, high birth rates and low investment in human capital and economic growth.[26]

Research Methodology

In this study, the method used was panel data regression analysis from 19 districts/cities in West Sumatra Province for the 2017-2020. The dependent variable in this study is economic growth as seen from the growth rate of Gross Regional Domestic Product (GRDP) at constant prices. While the independent variables are the ratio of the average length of schooling for women to men (RRLS), the ratio of life expectancy for women to men (RAHH), the ratio of women's per capita expenditures to men (RPKapita) and the ratio of women's internet access to men. (RInternet).

The analytical method in this study uses descriptive analysis and inferential analysis. Descriptive analysis is used to see the general description of the research variables. The inferential analysis used in this study uses panel data regression to see the effect of the independent variable (free) on the dependent variable (not independent). The initial hypothesis in this study is that there is no relationship between the RLS ratio, the AHH ratio, the ratio of per capita expenditure and the ratio of women's internet access to men and the rate of economic growth.

Regression analysis is an analysis to examine the relationship of a dependent variable (not independent) to one or more independent variables (independent) with the aim of predicting the calculated average value (mean) or the population average of the dependent variable, using the existing values at predetermined independent variable.[27]

Panel data regression is a regression analysis which in its application uses cross-section and time series data. In panel data regression, the addition of time series data is able to produce more informative analysis results when looking at the relationship between variables in the panel data matrix.

In determining the best model for panel data regression, there are three different models that can be chosen to study the relationship between the dependent variable and the independent variable, namely the common effect model (CEM), fixed effect model (FEM) and random effect model (REM).

Panel data regression is mostly applied to determine models related to econometrics in the fields of economics and management science using a quantitative approach. Panel data regression has the same analytical characteristics as regression analysis, which is to distinguish the model variables into two groups of variables, namely the dependent variable and the independent variable.[28]

In this study, the panel data regression model used is:

$$PEconomy_{it} = \alpha + \beta_1 RRLS_{it} + \beta_2 RAHH_{it} + \beta_3 RPCapita_{it} + \beta_4 RInternet_{it} + \varepsilon_{it} \ldots \ldots \ldots (1)$$

Description :

$PEconomy_{it}$: GDP Growth Rate Constant Price

$RRLS_{it}$: RLS ratio of female to male

$RAHH_{it}$: AHH ratio of women to men

$RPCapita_{it}$: Per capita Expenditure Ratio of women to men

$RInternet_{it}$: The ratio of female to male population accessing the internet

β_{1-6} : Regression coefficient

α : Intercept

ε_{it} : Error Component

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[26] Lagerlof, N. 1999. Gender Inequality, Fertility, and Growth' Mimeographed. Department of Economics, University of Sydney.

[27] Gujarati, D. N., & Porter, D. J. (2009). *Basic Econometrics* (5th Ed. ed.). New York: The McGraw−Hill/ Irwin.

[28] Hsiao, C. (2003). *Analysis of Panel Data* (2nd Ed. ed.). Cambridge: Cambridge University Press.

i   : Region, 19 regencies/cities in West Sumatra Province

t   : Period, during the year 2017-2020

The first step in panel data analysis is to choose the best model from three model approaches, namely the common effect model (CEM), fixed effect model (FEM) and random effect model (REM). The CEM model is a model that combines time series and cross section data with the ordinary least square (OLS) method, while the FEM model is a model that assumes a difference in intercepts while the REM model is a model that will estimate panel data where the disturbance variables may be interrelated over time. or between individuals.

The stages of selecting the most appropriate model among the three models (CEM, FEM and REM) are to use several tests including the Chow test, Hausman test and Breusch Pagan test - legrange multiplier.[29] The Chow test is a test to determine whether the CEM model is better to use than on the FEM model, then the Hausman test is a test to determine whether the REM model is better used than the FEM model, while the Breusch pagan - legrange multiplier test (BP-LM test) is a test to determine whether the CEM model is better than the REM model.

When the selected model is a CEM or FEM model, it is necessary to test the residual variance-covariance matrix structure through the LM test and λ_{LM} test. This is done to determine whether the resulting CEM or FEM model uses Ordinary Least Square (OLS) or Generalized Least Square (GLS).

The next stage is testing the classical assumptions. The assumptions that must be

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[29] Baltagi, B. H. (2021). Econometric Analysis of Panel Data (Springer Texts in Business and Economics) - Sixth Edition. In *Springer*.

met if the OLS method is chosen are the assumptions of normality, homoscedasticity, non-multicollinearity and non-autocorrelation. If the GLS method is chosen, the assumptions that must be met are only the assumptions of normality and non-multicollinearity. The last stage is to test the model using the r-squared (coefficient of determination), the simultaneous test using the F test, the partial test using the t test and interpreting the resulting model estimation.

Result and Discussion

Descriptive Analysis

Figure 1 shows the growth of GRDP and the rate of economic growth of West Sumatra Province in 2017 to 2020.
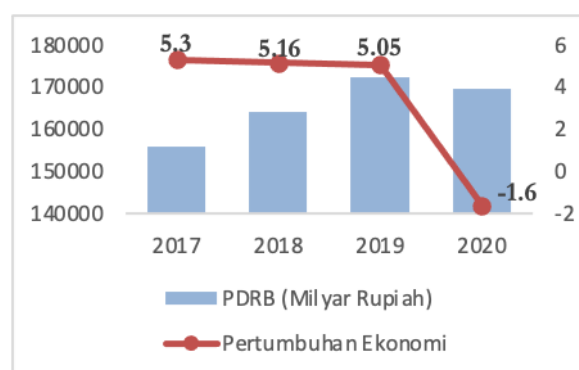

Sorce: *Badan Pusat Statistik 2020a, 2020b*

Figure 1. GRDP and Economic Growth of West Sumatra Province in 2016-2020

GRDP is the gross added value of goods and services created or produced in the domestic territory of a country. It is the result of various economic activities in a certain period regardless of the production factors owned by residents or non-residents. As can be seen in Figure 1 the GRDP value of West Sumatra Province from 2016-2020 tends to increase but slightly decreases in 2020. Economic growth in West Sumatra Province tends to experience a slowdown in that period from 5.27 percent to 5.01 percent in in 2019, then contracted in 2020 to -1.6 percent. The decline in the value of GRDP and a sharp

decline in economic growth in 2020 is most likely due to the Covid-19 pandemic that hit Indonesia, including the Province of West Sumatra.
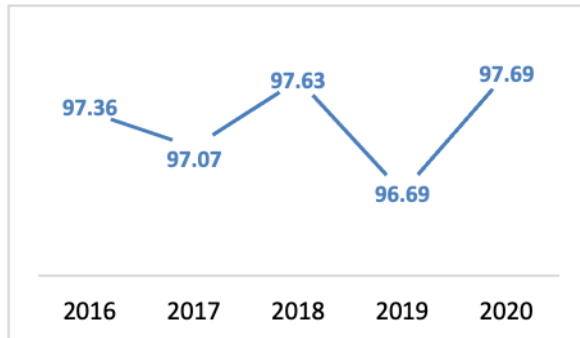
Source: Data Processing Results

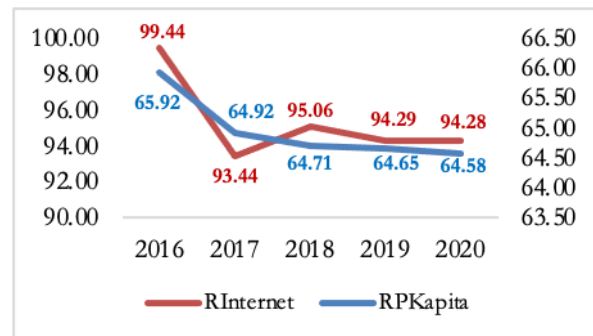**Figure 2**. **RLS Ratio of West Sumatra Province in 2016-2020**

In this study, gender equality in the education sector is represented by the RLS ratio of women to men. Based on Figure 2 above, it can be seen that the RLS ratio of West Sumatra Province in the 2016-2020 period fluctuated. An RLS value below 100 indicates that the average length of schooling for women is still below the average length of schooling for men, indicating that equality in education between women and men has not been achieved. During this period the RLS ratio of women to men tends to increase from 97.36 percent in 2016 to 97.69 percent in 2020. This shows that gender equality in accessing education in West Sumatra Province is quite good, seen from the increase in the RLS ratio. in 2016 to 2020.
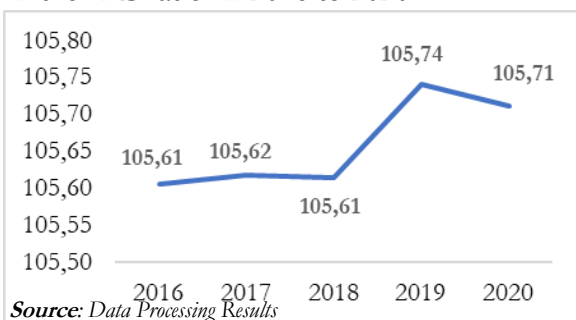
Source: Data Processing Results

Figure 3. AHH Ratio of West Sumatra Province in 2016-2020

Gender equality in the health sector is represented by the ratio of AHH for women to men as shown in Figure 3. Based on that figure, the movement of the AHH ratio in West Sumatra Province tends to increase from year to year. The AHH ratio value which is above 100 indicates that in West Sumatra Province women have an average longevity that is longer than men. In this aspect of health, there is no visible gender inequality between women and men in West Sumatra Province.

Source: Data Processing Results

Figure 4. Ratio of Internet Access and Capital Expenditure Ratio of West Sumatra Province in 2016-2020

In Figure 4, gender equality in the technology sector as represented by the ratio of women's internet access to men and gender equality in the area of per capita expenditure of women against men in the 2016-2020 period tends to decrease. This can be seen from the ratio of internet access and the ratio of expenditure per capita of West Sumatra Province which has decreased. The ratio of women's internet access to men decreased from 99.44 percent in 2016 to 94.28 in 2020 while the ratio of women's per capita expenditure to men decreased from 65.92 percent in 2016 to 64.58 percent in 2020 A significant decrease occurred in the ratio of internet access which fell by 5.16 percent during 2016-2020.

Inferential Analysis

The first step in analyzing panel data is choosing the best model. The following is a

table of p-value results from several tests in determining the best model.

Table 1. Results of the Chow test, Hausman test and Breusch pagan-lagrange multiplier test.

Test	*P-value*	Decision	Conclusion
Chow Test	0,6956	Failed to Reject H_0	CEM better than FEM
Hausman Test	0,0133	Reject H_0	FEM better than REM
BP – LM Test	0,0000	Reject H_0	REM better than CEM

Source: *Data Processing Result*

In table 1, it can be seen that each test used produces different best models. In research, Vininda and Yuliana (2015) found that the use of the FEM model is more appropriate for research related to the effect of gender equality on economic growth. In this study, the FEM model was also chosen because the R-squared value was the highest (22.02 percent), compared to other models, the R-squared in the CEM model was 0.9 percent and the REM model was 0.9 percent.

When the FEM model is the best model, to determine the best estimation method for the FEM model, it is necessary to test the variance structure and residual covariance and check the cross sectional correlation. The results of the analysis of the variance-covariance structure and the cross-sectional correlation test showed that the p-value of the F test was less than the 5 percent significance level. With these results, the appropriate method to be used in this FEM model is the GLS method with cross section weight.

The next stage is testing the classical assumptions called normality testing. In this study, the normality test used the Jarque fallow test. The test results obtained show the Jarque fallow value of 5.1051 and the p-value

of 0.0778. Based on the test results, it can be concluded that with a significance level of 5 percent the model is normally distributed.

Then for testing multicollinearity in this study using the variance inflation factor (VIF). The results of the VIF test are as follows:

Table 2. VIF Test Results for Each Variable.

Variable	VIF
RRLS	1,826400
RAHH	1,710203
RPCapita	1,603740
RInternet	1,523943

Source: *Data Processing Result*

The results of the VIF test in table 2 show that the VIF value for each variable is less than 10, this indicates that there is no multicollinearity so that the model estimation meets the non-multicollinearity assumption.

The estimation results in this study using the FEM model with the GLS estimation method with cross section weight can be seen in table 3 below.

Table 3. Fixed Effect Model (FEM) with FGLS Estimation Method with Cross Section Weight.

Variable	Coefficient	t-Statistic	p-value
C	-2045.110	-4.477360*	0.0000
RRLS	-1.376610	-3.745666*	0.0004
RAHH	20.83292	4.894927*	0.0000
RPKAPITA	-0.421557	-0.820789	0.4154
RINTERNET	0.102210	1.420052	0.1614

R-*Squared*   0.548955

F Test Statistics Results

F-Statistic	2,932043	p-value (F-Statistic)	0.0007

significance at the 5 percent significance level

Source: *Data Processing Result*

Based on the results in table 3, it can be seen that the coefficient of fetermination (R-Squared) is 54.89 percent, this figure illustrates that the ability of the independent variable (free) in explaining the variance of the dependent variable (bound) is 54.98 percent and 45.02 percent is explained by other factors.

The results of the F test indicate that at the 5 percent significance level, there is at least one independent variable that has an influence on the economic growth of districts/cities in West Sumatra Province. The results of the t-test show that with a significance level of 5 percent, the ratio of the average length of schooling for women to men has a significant negative effect on economic growth and the ratio of the average life expectancy of women to men has a significant positive effect on economic growth. The ratio of women's per capita expenditure to men has no significant negative effect and the ratio of women's internet access to men has no significant positive effect on economic growth. The obtained model equations are:

$$PEconomy_{It} = -2045.110 - 1,3766RRLS_{it} + 20,8329RAHH_{it} - 0,4216RPCapita_{it} + 0,1022RInternet_{it} \ldots\ldots\ldots\ldots\ldots(2)$$

Gender equality in the field of education in this study is represented by the ratio of the average length of schooling for women to men, which has a significant negative effect on economic growth. This can also be seen in Figure 1 and Figure 2 where the two variables have different growth directions. The economic growth variable from 2017 to 2020 experienced a slowdown while the RLS ratio variable experienced an increase from 2017 to 2020.

Based on the model generated above, it can be seen that the RLS ratio has a negative relationship to economic growth, where every 1 percent increase in the ratio of the average length of schooling for girls to boys will slow down economic growth by 1.3766 percent in the 2017-2020 period assuming other independent variables are fixed/constant. This is in line with the findings of Diayu (2019) which states that the ratio of the average length of schooling has a significant negative effect on per capita GRDP at constant prices. When women have more time to attend school, they do not participate in the economy. This will create a gap between women and men in economic activity which can lead to a slowdown in economic growth.

The ratio of life expectancy of women to men is a ratio that represents gender equality in the health sector. The ratio of life expectancy of women to men also has a significant positive effect on economic growth. In the resulting model, the AHH ratio has a positive relationship to the economy, which means that every 1 percent increase in the life expectancy ratio of women to men will increase economic growth by 20.8329 percent in the 2017-2020, assuming other independent variables are constant. These results are in line with previous research conducted by Mariaty dkk, (2016) which explained that gender equality in the health sector significantly influences economic growth.

Conclusion

In general, in the 2017-2020 period, the GRDP value of West Sumatra Province has increased except in 2020. However, in terms of economic growth in West Sumatra Province, it tends to experience a slowdown. The condition of gender equality in West Sumatra Province in the 2017-2020 period is quite good, especially the condition of gender equality in the education and health sectors tends to increase but there is a slight decline in gender equality in the technology and economic fields.

Gender equality in the fields of education and health as represented by the RLS ratio and the AHH ratio has a significant effect on economic growth in West Sumatra Province in the 2017-2020 period. Every increase in the RLS ratio will slow down economic growth slightly, while every increase in the AHH ratio will increase the economic growth of West Sumatra.

Bibliography

Journal

Aktaria, E., & Handoko, B. S. (2012). Ketimpangan Gender Dalam Pertumbuhan Ekonomi. *Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi Dan Pembangunan*, *13*(2), 194.https://doi.org/10.23917/jep.v13i2.168

Athaillah, Hamzah, A., & Masbar, R. (2013). Faktor-Faktor Yang Mempengaruhi Pertumbuhan Ekonomi Provinsi Aceh. *Jurnal Ilmu Ekonomi : Program Pascasarjana Unsyiah*, *1*(3), 1–13.

Baliamoune-Lutz, M. (2007). Gender Inequality and Growth: Evidence from Sub-Saharan African and Arab Countries. *ICER for Research Fellowship and UNU-WIDER*.

Bertay, A. C., Dordevic, L., & Sever, C. (2020). Gender Inequality and Economic Growth. *IMF Working Papers*, *20*(119). https://doi.org/10.5089/97815135 46278.001

Bloom, D.E., and Williamson, J.G. 1998. "Demographic Transitions and Economic Miracles in Emerging Asia". World Bank Economic Review, Vol. 12, No. 3, pp. 419-456.

Dornbush, Rudiger Julius and Stanley Fisher. 2008. Macroeconomics Fourth Edition. Singapura: McGraw-Hill.

Hasanah, U., & Ikhsan. (2020). Pembangunan Manusia, Ketimpangan dan pertumbuhan Ekonomi di Indonesia. *Jurnal Ilmiah Mahasiswa (JIM)*, *5*(1), 46–53. http://jim.unsyiah.ac.id/EKP/article/view/15176

Handayani, T. & Sugiarti. (2008). Konsep dan teknik penelitian gender. Malang: UMM Press.

Hsiao, C. (2003). *Analysis of Panel Data* (2nd Ed. ed.). Cambridge: Cambridge University Press.

Klasen, S., & Lamanna, F. (2009). The impact of gender inequality in education and employment on economic growth: New evidence for a panel of countries. *Feminist Economics*, *15*(3), 91–132. https://doi.org/10.1080/13545700 902893106

Lagerlof, N. 1999. Gender Inequality, Fertility, and Growth' Mimeographed. Department of Economics, University of Sydney.

Mariaty, D., Anis, A., & Ariusni. (2016). ANALISIS PENGARUH KESETARAAN GENDER TERHADAP PERTUMBUHAN EKONOMI DI SUMATERA BARAT., *66*, Jurnal Kajian Ekonomi dan Pembangunana, Jurusan Ilmu Ekonomi Universitas Negeri Padang 37–39. http://ejournal.unp.ac.id/students/index.php/epb/article/view/7724/3492

Mikkola, A. (2011). Role of Gender Equality in Development - A Literature Review. In *SSRN Electronic Journal* (Vol. 17, Issue 84). https://doi.org/10.2139/ssrn.87146 1

Mulasari, F. D. (2017). Peran Gender Perempuan Terhadap Pertumbuhan Ekonomi Di Provinsi Jawa Tengah Tahun 2008-2012. *Economics Development Analysis Journal*, *4*(3), 254–263. https://doi.org/10.15294/edaj.v4i3.14832

Morrison, A., Raju, D., & Sinha, N. (2007). Gender Equality, Poverty and Economic Growth (Policy Research Working Paper No. WPS4349). Washington DC: World Bank.

Nazmi, L., & Jamal, A. (2018). Pengaruh Ketimpangan Gender Terhadap Pertumbuhan Ekonomi Di Indonesia. *Jurnal Ilmiah Mahasiswa Ekonomi Pembangunan*, *3*(4), 740–750. http://jim.unsyiah.ac.id/EKP/article/view/10627

Rosminah, R., Nurjanah, R., & Umiyati, E. (2019). Analisis faktor-faktor yang mempengaruhi pertumbuhan ekonomi di Kabupaten Sarolangun. *E-Journal Perdagangan Industri Dan Moneter*, *7*(2), 83–100. https://doi.org/10.22437/pim.v7i2.8766

Sitorus, A. V. Y. (2016). Dampak Ketimpangan Gender Terhadap Pertumbuhan Ekonomi Di Indonesia. *Sosio Informa*, 89–101. https://doi.org/10.33007/inf.v2i1.190

Sufiarti. (2007). Laporan Penelitian Persepsi Perempuan Berkarir Di Lingkungan UPI Tentang Konsep Kesetaraan Gender. Jurnal. Jakarta.

Syamsuddin. (2013). Analisis Pengaruh Faktor Kependudukan terhadap Pertumbuhan Ekonomi Provinsi Jambi. *Jurnal Paradigma Ekonomika*, *1*(7), 73–84. https://online-journal.unja.ac.id/index.php/paradigma/article/view/1699

United Nation Development Programme. (2010). Human Development Report: The Real Wealth of Nations: Pathways to Human Development. New York, USA: UNDP

Vininda, S., & Yuliana, L. (2015). *PENERAPAN REGRESI DATA PANEL PENGARUH KESETARAAN GENDER TERHADAP PERTUMBUHAN EKONOMI DI PROVINSI RIAU PERIODE 2011-2015*. *2015*, Seminar Nasional *Official Statistics* Tahun 2020 Volume 1 "*Statistics In The New Normal: A Chanllage of Big Data and Official Statistics*", 549–559. https://prosiding.stis.ac.id/index.php/semnasoffstat/article/view/416.

Zakia, R. (2011). Kesetaraan Dan Keadilan Gender Dalam Adat Minangkabau. *Kafa`ah: Journal of Gender Studies*, *1*(1), 39. https://doi.org/10.15548/jk.v1i1.39

Book

Baltagi, B. H. (2021). Econometric Analysis of Panel Data (Springer Texts in Business and Economics) - Sixth Edition. In *Springer*.

Gujarati, D. N., & Porter, D. J. (2009). *Basic Econometrics* (5th Ed. ed.). New York: The McGraw−Hill/ Irwin.

Todaro, M. P. dan Smith, S. C. (2006). Pembangunan Ekonomi (edisi kesembilan). Jakarta: Erlangga

Sukirno, Sadono. (2009). Teori Pertumbuhan Ekonomi Edisi Kedua. Penerbit Kencana Putra Grafika. Jakarta.

Other

Ananta, Aris. 1995. Population Changes and Economic Development in Indonesia. *ASEAN Economic Bulleting, Vol. 9*. hlm 55-65.

Badan Pusat Statistik. (2020a). "Indeks

Pembangunan Gender (IPG) Menurut Provinsi Tahun 2020". diakses tanggal 4 Agustus 2021. https://bps.go.id/subject/40/gende r.html#subjekViewTab5

Badan Pusat Statistik. (2020b). "Laju Pertumbuhan Produk Domestik Regional Bruto Atas Dasar Harga Konstan Tahun 2017-2020" diakses tanggal 4 Agustus 2021. https://sumbar.bps.go.id/subject/5 2/produk-domestik-regional-bruto-- kabupaten-kota- .html#subjekViewTab5

Badan Pusat Statistik. (2020c). "Produk Domestik Regional Bruto Atas Dasar Harga Konstan Tahun 2017- 2020" diakses tanggal 4 Agustus 2021. https://sumbar.bps.go.id/subject/5 2/produk-domestik-regional-bruto-- kabupaten-kota- .html#subjekViewTab5

Badan Pusat Statistik. (2020d). "Rata-rata Lama Sekolah (RLS) Menurut Kabupaten/Kota dan Jenis Kelamin Tahun 2017-2020". diakses tanggal 4 Agustus 2021. https://bps.go.id/ subject/40/gender.html#subjekVie wTab5

Badan Pusat Statistik. (2020e). "Angka Harapan Hidup (AHH) Menurut Kabupaten/Kota dan Jenis Kelamin Tahun 2017-2020". diakses tanggal 4 Agustus 2021. https://bps.go.id/ subject/40/gender.html#subjekVie wTab5

Badan Pusat Statistik. (2020f). "Pengeluaran per Kapita yang Disesuaikan menurut Kabupaten/Kota dan Jenis Kelamin Tahun 2017-2020". diakses tanggal 4 Agustus 2021. https://bps.go.id/subject/40/gende

r.html#subjekViewTab5