

Impact Of Digitalization And Gender Equity On Inclusive Economic Development In Indonesia

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Abstract:

Background: Gender equity is currently receiving priority attention in the global development agenda by the United Nations (UN). Efforts in development, empowerment, and technology utilization are known to have positive implications for enhancing inclusive economic development. However, technological advancements do not always yield positive implications. The concept of inclusive economic development is measured by three pillars: economic growth, poverty reduction, and expanded access.

Materials and Methods: The analysis method used in this research employs a static panel analysis approach. This study includes aggregate country panel data from 33 provinces spanning from 2012 to 2021.

Results: The results of the static panel analysis identify that domestic investment significantly influences economic growth and development. Gender development significantly affects inclusive development and its three pillars. Information and Communication Technology (ICT) have a significant impact on inclusive economic development and income distribution, as well as poverty reduction. Foreign direct investment (FDI) only significantly influences expanded access. Women's income contribution significantly affects inclusive economic development, economic growth, and development. Lastly, gender empowerment significantly influences inclusive economic development, income distribution, poverty reduction, and expanded access.

Conclusion: The efforts of digitalization and gender equality can accelerate inclusive economic development to enhance income distribution and reduce poverty, expand access and create opportunities.

Key Word: Gender, Technology, Inclusive, Growth, Poverty, Access

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I. Introduction

The quality of economic growth is not sufficient to be measured solely by welfare indicators but also by inclusivity²⁹. The concept of inclusivity is a depiction of how the role of economic development and growth can enhance income distribution, reduce poverty, and expand access and opportunities to achieve inclusive economic development. Gender equity is recognized as one of the crucial factors in attaining various goals related to inclusive and sustainable development¹⁴.

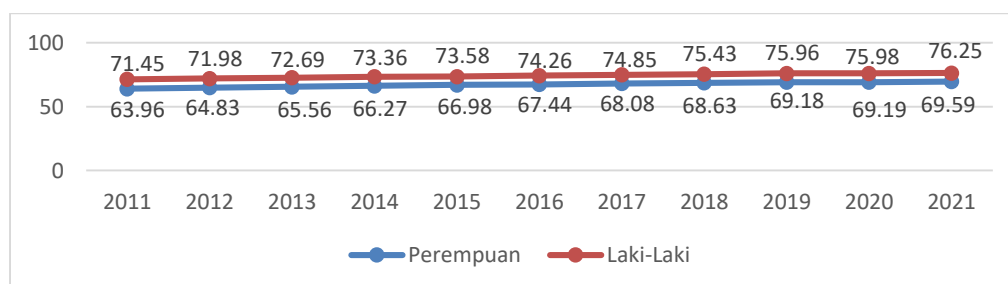


Table No. 1 : Shows the total coefficient of the Human Development Index between women and men from 2011 to 2021 in Indonesia. Overall, the Human Development Index has been continuously increasing for both women and men. However, the trend indicates that the difference in the Human Development Index between genders is still quite significant, at around 5%⁶.

Human development is a broader concept than just economic growth. Besides focusing on economic progress, human development also encompasses improving the quality of life, health, education, opportunities, and equality for all individuals without discrimination¹. Improving gender equality and promoting gender

development in economic activities are key steps in creating a more just, inclusive, and economically sustainable society¹⁶. Inclusive development is one conceptualization of development that entails an open, friendly, barrier-free environment where every member of society, without exception, respects and embraces each other's differences²².

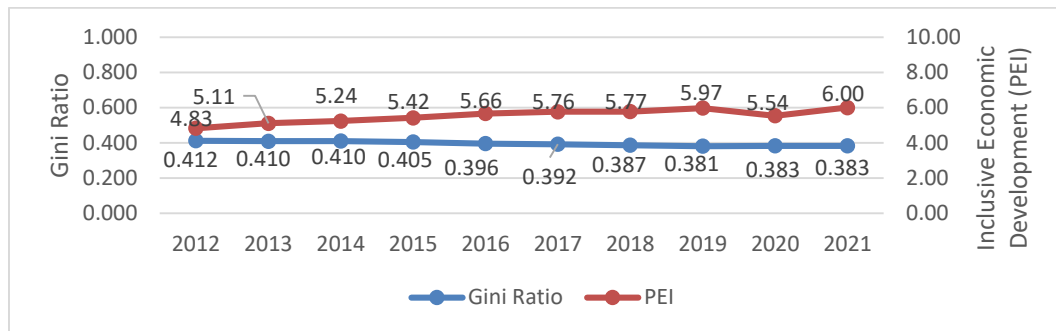


Table No. 2: Shows the development of the Gini ratio and inclusive economic development in Indonesia from 2012 to 2021^{10,12}. Generally, the Gini ratio and inclusive economic development have an inverse relationship. An increase in inclusive economic development will be followed by a decrease in the Gini ratio.

The study's findings state that reducing the Gini ratio, which is an indicator of economic inequality, is an essential goal in efforts to achieve inclusive, sustainable, and equitable economic development⁴. Reducing the Gini ratio is considered a critical step to lessen social and economic disparities in society, ensuring more equitable access to economic opportunities and well-being, and fostering a more inclusive social environment for all segments of the population. Policies and measures aimed at enhancing inclusivity in economic growth are expected to have a positive impact in strengthening the foundation of sustainable and equitable development for the concerned country or region.

The current digital development has led to an acceleration of economic interactions with all their implications, including a reduction in gender inequality. Digital inclusion tends to have positive implications for the development of human resources. Therefore, when digital inclusion has spread widely and become more accessible, its contribution to inclusive development and growth will become increasingly positive and significant⁵.

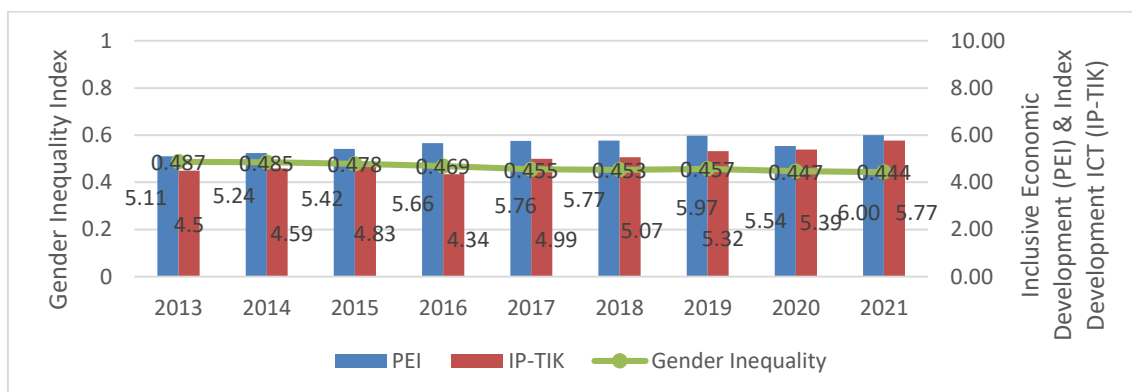


Table No. 3: Shows the comparison of inclusive economic development, Information and Communication Technology (ICT) development index, and gender inequality index from 2013 to 2021 in Indonesia^{8,9,12}. Generally, the gender inequality index in Indonesia has been continuously decreasing from 2012 to 2023. Inclusive economic development and ICT development have also shown an increase from 2012 to 2023.

The digital economic transformation has become one of the strategic steps that policymakers must take to reduce economic inequality. However, if these efforts are not managed optimally, they may give rise to new challenges and issues. This is caused by digitalization and automation in certain sectors and locations, which can worsen the risk of gender inequality in labor force participation². Therefore, women also face higher barriers in participating in the digitalization of the economy compared to men, thus the phenomenon of digitalization may potentially reduce the quality of jobs for women²⁶. Efforts to promote gender-inclusive digitalization and address the gender gap in access to digital technologies are of utmost importance. It is crucial for women to fully benefit from the opportunities presented by the digital era and contribute to more inclusive and sustainable

economic development. So, based on the issues formulated above, the research objective is to examine the impact of digitalization and gender equity on inclusive economic development.

II. Research Methods

This research uses a quantitative method of panel data regression. The quantitative analysis of panel data regression is employed to identify the relationships among variables affecting inclusive economic development with a static panel approach. The scope of this research is to analyze the impact of digitization and gender equity on inclusive economic development. The research covers 32 provinces from 2012 to 2021. The limitations of this analysis are due to the restricted availability of complete data for only 32 provinces within the period of 2012 to 2021.

Conceptual Framework

Suboptimal development strategies are often caused by the lack of adaptability of public policies, resulting in widening inequality in employment opportunities. Solow, in his theory, mentions that to achieve overall output, several key factors of production must be fulfilled, namely capital, labor, and technology¹¹. Lucas (1986) and Romer (1988) explain the endogenous growth model, where the accumulation of physical capital and human resources can lead to the control of economic growth rates^{19,20}. Physical capital refers to investment efforts in physical assets, while human resources refer to educational and training efforts, among others. Inclusive economic development is a development concept that incorporates relevant subjects from Neo-classical and Endogenous Growth theories, such as investment and human resources. One novelty of this research is the attempt to consider technology in inclusive economic development in Indonesia.

Referring to the validity of both theories based on data from the Central Statistics Agency (Badan Pusat Statistik) from 2012 to 2021. Inclusive economic development at the macro level has been continuously increasing, and the Gini ratio shows a declining trend. The aspect of capital explains that both domestic and foreign investment realizations at the macro level have been increasing from 2012 to 2021. The overall Human Development Index (HDI) has been on a rising trend, but from a gender perspective, there is still significant inequality (5%) in the HDI. This means that there are still fundamental issues that need to be addressed promptly⁶.

The previous study by Todaro and Smith (2006) mentioned that the key to narrowing gender inequality lies in both public and private investment^{24,25}. Furthermore, the size of human capital has a positive impact on inclusive growth, particularly in quality measures such as total factor productivity and the human capital index, which have significant effects. Access and proficiency in utilizing technology by economic agents provide equal opportunities, enabling communities to benefit from comparative advantages in human resources. The presence of technology not only stimulates growth but also contributes to reduced unemployment rates. Additionally, technology-driven growth has a moderating effect on economic growth by increasing per capita income. This paper contributes to existing knowledge by presenting new empirical evidence on how the quality of Human Resources (HR), investment, and Information and Communication Technology (ICT) influence inclusive economic development and reduce poverty and inequality in Indonesia.

Hypothesis

The hypothesis of this study refers to the Neo-classical theory that investment, capital accumulation, and technological growth have a positive effect on inclusive economic development in Indonesia. Although the analysis in this study specifically examines variables based on gender, it is expected that the estimation results will still show a positive effect.

Data and Sources

The sample used in this study consists of relevant data from 32 provinces. The data type is secondary data in the form of a panel with the period from 2012 to 2021, processed using Stata17. The type and data sources for this research are presented in the following table:

Table 4 : The data used in this study and its sources

Notasi	Variabel	Keterangan	Sumber
PEI	Inclusive Economic Development	Index	Bappenas - National Development Planning Agency
IPD	Gender Empowerment Index	Index	BPS – Statistic Indonesia
IPG	Gender Development Index	Index	BPS – Statistic Indonesia
SPP	Women's Income Contribution	Percentage	BPS – Statistic Indonesia
IDN	Domestic Investment	Billion Rupiah	BPS – Statistic Indonesia
ILN	Foreign Investment	Million USD	BPS – Statistic Indonesia
TIK	Information and Communication Technology (ICT) Development Index	Index	BPS – Statistic Indonesia

UMP	Provincial Minimum Wage	Million Rupiah	BPS – Statistic Indonesia
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The table above presents the variables used in the research on inclusive economic development. Inclusive economic development is the dependent variable influenced by the main independent variables, namely the Gender Development Index and the Information Technology Development Index. Additionally, there are other control variables considered in this study. The data sources for this research come from two institutions, namely BPS (Statistics Indonesia) and Bappenas (National Development Planning Agency).

All variables in the table are measured in index form, except for investment, women's income contribution, and the provincial minimum wage, which have different units. To ensure consistency in data analysis, all variables will be transformed into natural logarithms. This conversion is done to change the unit of value to percentages. However, it should be noted that the variable of women's income contribution is already in percentage form and does not need to be changed.

Empirical Model

In this panel data analysis, the method used is the fixed effect model with the least square dummy variable (LSDV) approach. Several models have been tested to find the best model, and the results indicate that the pooled least square and random effect models are not relevant and not considered in this analysis. Therefore, the fixed effect model is chosen as the best model for analyzing this panel data.

Before estimating the results, it is crucial to ensure that the model meets the Gauss-Markov assumptions. By fulfilling these assumptions, we can ensure that the estimation results will be optimal, consistent, and unbiased. This is essential in drawing accurate and reliable conclusions from this panel data analysis. By following these steps, we can guarantee that the results of this research are dependable in making decisions and providing relevant recommendations in the context of inclusive economic development.

The research is based on models established by the neo-classical Solow (1950) and the theory of endogenous economic growth proposed by Romer (1986) and Lucas (1988)^{19,20}, among others. The model will be built to test the effects of the gender development index, gender empowerment index, information and communication technology (ICT) development index, provincial minimum wage, women's income contribution, and domestic and foreign investments on inclusive economic development. However, the estimated model will take the following functional form:

$$PEI_{pit} = (IPD_{it} IPG_{it} \beta_6 TIK_{it} Z_{it}) \dots\dots\dots(1)$$

$$PEI_{pit} = \beta_0 + \beta_1 IPD_{it} + \beta_2 IPG_{it} + \beta_3 SPP_{it} + \beta_4 IDN_{it} + \beta_5 ILN_{it} + \beta_6 TIK_{it} + e_{it} \dots\dots\dots(2)$$

In this research, panel data analysis is used, so the basic formulation above can be explained in more depth, and we obtain panel data analysis by considering variables that cannot be observed at the individual level (γ), as well as variables that cannot be observed at the time level (δ).

$$\ln PEI_{pit} = \beta_0 + \beta_1 \ln IPD_{it} + \beta_2 \ln IPG_{it} + \beta_3 SPP_{it} + \beta_4 \ln IDN_{it} + \beta_5 \ln ILN_{it} + \beta_6 \ln TIK_{it} + \beta_6 \ln UMP_{it} + e_{it} \dots\dots\dots(3)$$

In this panel data analysis, we conducted various tests to determine the best model to be used. First, we compared the Pooled Least squares (PLS) model with the Fixed Effect Model (FEM) using the Chow test. Second, we tested PLS versus the Random Effect Model (REM) using the Lagrange Multiplier (LM) test. Finally, we performed the FEM versus REM test using the Hausman test. The results of these tests indicate that the best model to estimate is FEM. Next, we analyzed the FEM model using the Least Squares Dummy Variables (LSDV) approach. The LSDV approach shows that the individual effects of the data have fixed values for each province. Thus, the unobserved individual effects for each province in the model are represented by intercept dummies. This model has 31 intercept dummies for 32 provinces. Therefore, the complete formula for the LSDV model with a one-way error component is as follows: The formula will depend on the specific equations and variables used in the model and cannot be provided without more information about the analysis.

$$\ln PEI_{pit} = \alpha_0 + \alpha_i D_1 + \beta_1 \ln IPD_{it} + \beta_2 \ln IPG_{it} + \beta_3 SPP_{it} + \beta_4 \ln IDN_{it} + \beta_5 \ln ILN_{it} + \beta_6 \ln TIK_{it} + \beta_6 \ln UMP_{it} + e_{it} \dots\dots\dots(4)$$

$$\ln PEI_{pit} = \alpha_0 + \alpha_1 D_1 + \alpha_2 D_2 + \alpha_3 D_3 + \alpha_4 D_4 + \alpha_5 D_5 + \alpha_6 D_6 + \alpha_7 D_7 + \alpha_8 D_8 + \alpha_9 D_9 + \alpha_{10} D_{10} + \alpha_{11} D_{11} + \alpha_{12} D_{12} + \alpha_{13} D_{13} + \alpha_{14} D_{14} + \alpha_{15} D_{15} + \alpha_{16} D_{16} + \alpha_{17} D_{17} + \alpha_{18} D_{18} + \alpha_{19} D_{19} + \alpha_{20} D_{20} + \alpha_{21} D_{21} + \alpha_{22} D_{22} + \alpha_{23} D_{23} + \alpha_{24} D_{24} + \alpha_{25} D_{25} + \alpha_{26} D_{26} + \alpha_{27} D_{27} + \alpha_{28} D_{28} + \alpha_{29} D_{29} + \alpha_{30} D_{30} + \alpha_{31} D_{31} + \beta_1 \ln IPD_{it} + \beta_2 \ln IPG_{it} + \beta_3 SPP_{it} + \beta_4 \ln IDN_{it} + \beta_5 \ln ILN_{it} + \beta_6 \ln TIK_{it} + \beta_6 \ln UMP_{it} + e_{it} \dots \dots \dots (5)$$

Where

- PEI : Inclusive Economic Development
- IPD : Gender Empowerment Index
- IPG : Gender Development Index
- SPP : Contribution of Women's Income
- IDN : Domestic Investment
- ILN : Foreign Direct Investment
- TIK : Inclusive Development – Information Communication and Technology
- UMP: Provincial Minimum Wage

Equation 4 represents the general formula for the fixed effect model, while equation 5 is the formula for the LSDV model that includes dummy variables on its intercepts. Individual unobservable variables and time unobservable variables no longer appear in the equation. Instead, they are represented as intercepts in the form of dummy variables, each representing a specific province. As evident from the equation, there are 32 intercept dummy variables corresponding to the number of provinces in the analysis.

Statistical Analysis

This research utilizes quantitative analysis tools, specifically Microsoft Excel 2019 and Stata17. The static panel data analysis technique employed in this study is the fixed effect model. In the analysis of panel data regression, three model approaches can be used for estimation: the Common Effects Model (CEM), Fixed Effects Model (FEM), and Random Effects Model (REM). In order to obtain the best model, adjustments and modifications are made to the variables used. The expected outcome is not to reject the null hypothesis at a significance level of 5% in both tests.

III. Result

Selection Best Model

This research analyzes the impact of digitalization and gender equality on the economy using the static panel data analysis method. The specification of the static panel model is carried out to ensure that the estimation method used meets the best criteria. The three criteria tested are as follows: the Chow test to determine the better model between CEM and FEM; the Breusch Pagan Lagrange Multiplier (BP-LM) test to determine the better model between CEM and REM; and the Hausman test to determine the better model between FEM and REM.

Table no 5 : The Result of Chow Test, LM test, Hausman Test

Metode	Probabilitas Chi Square	Keputusan
Chow Test	0.000	FEM
LM Test	0.000	REM
Hausman Test	0.000	FEM

The selection of the best model between the Common Effects Model and the Fixed Effects Model was conducted using the Chow test. The test result showed a p-value of 0.0000, which is smaller than the significance level of 0.05. Therefore, the decision is to reject the null hypothesis. The conclusion is that, at a 5% significance level, the Fixed Effects Model is better than the Common Effects Model. The selection of the best model between the Common Effects Model and the Random Effects Model was done using the Lagrange Multiplier (LM) test. The test result showed a p-value of 0.0000, which is smaller than the significance level of 0.05. Therefore, the decision is to reject the null hypothesis. The conclusion is that, at a 5% significance level, the Random Effects Model is better than the Common Effects Model. The next test conducted was the Hausman

test, which is used to choose the best model between the Fixed Effects Model and the Random Effects Model. The test result showed a p-value of 0.000, which is smaller than the significance level of 0.05. Therefore, the decision is not to reject the null hypothesis. The conclusion is that, at a 5% significance level, the Fixed Effects Model is better than the Random Effects Model. After conducting various stages and tests, the estimated regression model is the Fixed Effects Model.

Result Of Estimation

The fixed effect model approach used to analyze the impact of digitalization and gender equity on inclusive development in this research is LSDV (Least Squares Dummy Variable). In the LSDV regression model, the intercept can be differentiated among individuals because each province has its own unique characteristics. However, the slope or regression coefficient (β) of each observation remains constant for each time observation. This means that the migration characteristics of each province have unique values. The estimation results of the panel data using the LSDV model are presented in table 6.

Table no 6: The estimation results of LSDV model

Linear regression			Number of obs	=	330	
			F(39, 290)	=	77.43	
			Prob > F	=	0	
			R-squared	=	0.9241	
			Root MSE	=	0.04438	
	<i>lnpei</i>	Coefficient	Robust std. err.	t	P> t	[95% conf.interval]
	<i>lnipd</i>	0.0568747	0.056613	1.00	0.316	-0.0545497 0.168299
	<i>lnipg</i>	4.224.407	0.676582	6.24	0.000	2.892.773 5.556.042
	<i>spp</i>	0.0284016	0.005936	4.78	0.000	0.0167178 0.0400854
	<i>lniln</i>	0.0142325	0.003708	3.84	0.000	0.0069344 0.0215305
	<i>lnidn</i>	0.0045532	0.002539	1.79	0.074	-0.0004443 0.0095506
	<i>lnitik</i>	0.0889359	0.028734	3.10	0.002	0.0323833 0.1454885
	<i>lnumprov</i>	0.0020842	0.002402	0.87	0.386	-0.0026439 0.0068124
Provinsi						
	Bali	-0.0404755	0.032893	-1.23	0.219	-0.1052144 0.0242634
	Banten	0.0725867	0.031487	2.31	0.022	0.0106149 0.1345584
	Bengkulu	0.0322311	0.021053	1.53	0.127	-0.0092056 0.0736679
	Di Yogyakarta	-0.1590745	0.034745	-4.58	0.000	-0.2274594 -0.0906895
	Dki Jakarta	-0.0620047	0.030336	-2.04	0.042	-0.1217106 -0.0022987
	Gorontalo	0.4661924	0.046862	9.95	0.000	0.3739588 0.5584261
	Jambi	0.3241901	0.030713	10.56	0.000	0.263742 0.3846383
	Jawa Barat	0.2533467	0.039787	6.37	0.000	0.1750391 0.3316543
	Jawa Tengah	0.0619276	0.02028	3.05	0.002	0.0220131 0.1018422
	Jawa Timur	0.0508008	0.024007	2.12	0.035	0.0035515 0.09805
	Kalimantan Barat	0.1914931	0.050394	3.80	0.000	0.0923088 0.2906774
	Kalimantan Selatan	0.1383705	0.036309	3.81	0.000	0.0669089 0.209832
	Kalimantan Tengah	0.1516296	0.0326	4.65	0.000	0.0874675 0.2157918
	Kalimantan Timur	0.6377386	0.067012	9.52	0.000	0.5058477 0.7696296
	Kepulauan Bangka Belitung	0.5175917	0.047257	10.95	0.000	0.4245807 0.6106026
	Kepulauan Riau	0.2321022	0.052589	4.41	0.000	0.1285969 0.3356075
	Lampung	0.2409651	0.029926	8.05	0.000	0.1820658 0.2998643
	Maluku	-0.1878043	0.033357	-5.63	0.000	-0.2534569 -0.1221517
	Maluku Utara	0.0258258	0.036589	0.71	0.481	-0.046188 0.0978396
	Nusa Tenggara Barat	0.1469481	0.026011	5.65	0.000	0.0957535 0.1981427
	Nusa Tenggara Timur	-0.4012611	0.055987	-7.17	0.000	-0.5114531 -0.2910691
	Papua	0.071656	0.114683	0.62	0.533	-0.1540602 0.2973723
	Papua Barat	0.5801562	0.061081	9.50	0.000	0.4599379 0.7003745
	Riau	0.3370506	0.042139	8.00	0.000	0.2541134 0.4199879
	Sulawesi Barat	0.0335831	0.036852	0.91	0.363	-0.0389483 0.1061144
	Sulawesi Selatan	0.0339236	0.029177	1.16	0.246	-0.0235017 0.091349
	Sulawesi Tengah	0.065639	0.037224	1.76	0.079	-0.0076245 0.1389025
	Sulawesi Tenggara	0.019427	0.025803	0.75	0.452	-0.0313574 0.0702115
	Sulawesi Utara	-0.0210272	0.038289	-0.55	0.583	-0.096386 0.0543315

Sumatera Barat	-0.11313	0.022088	-5.12	0.000	-0.1566038	-0.0696561
Sumatera Selatan	-0.0476604	0.020397	-2.34	0.020	-0.0878045	-0.0075163
Sumatera Utara	0.0589049	0.026127	2.25	0.025	0.0074826	0.1103273
_cons	-1.886.381	290.102	-6.5	0.000	-2.457.353	-1.315.409

Source: Stata Processing Results

Table number 7 above shows the estimation results using the LSDV model with 330 observations from 32 provinces in Indonesia from 2012 to 2021. The F-test results indicate that there are four independent variables that have significant values on inclusive economic development. Furthermore, the t-test results using the Fixed Effects Model (FEM) show that these variables can explain approximately 92.41% of the variation in "Inpei" (Inclusive Economic Development) in the analyzed panel data.

These findings provide important insights into the contributing factors of inclusive economic development across various provinces in Indonesia. Thus, the LSDV model and its estimation results can offer a deeper understanding of how independent variables, such as technological growth, income, education level, inflation, ICT development, minimum wages, domestic investment, and foreign investment, influence inclusive economic development at the provincial level. This can serve as a basis for policymakers to design more effective strategies in promoting inclusive economic growth in different regions of Indonesia.

IV. Discussion

The variable "lnipd" has a coefficient of 0.0568747 with a standard error of 0.0566129. The t-test results show that this variable does not have a significant impact on "Inpei" with a p-value of 0.316 (p-value > 0.05). Although this variable has a positive impact on inclusive economic development, its influence is not statistically significant at a 95% confidence level. Therefore, the coefficient value of lnipd shown in Table 7 indicates that a 1% increase in the gender empowerment index in a province will result in a 0.0568747 increase in inclusive economic development. Previous studies have mentioned that women's empowerment and economic development are closely related. While development itself will promote women's empowerment, women's empowerment will bring about changes in decision-making, which will directly impact development. Furthermore, this research aligns with previous studies that there are several "fundamental" problems in development because they are closely related to development indicators related to gender equality and women's empowerment, such as education, health, employment, violence against women and vulnerable groups, as well as discrimination and violations of the rights of vulnerable groups²³.

The variable "lnidn" has a coefficient of 0.0045532 with a standard error of 0.0025391. The t-test results show that this variable has a positive impact on "Inpei," but it is not significant at the 5% level with a p-value of 0.074 (p-value > 0.05). Domestic investment does not have a statistically significant coefficient. Studies suggest that uneven or concentrated investments in certain sectors or regions can increase economic access disparities for more vulnerable groups, leading to suboptimal inclusive economic development¹⁷. On the other hand, foreign direct investment (FDI) has a significant effect on inclusive development. FDI has the advantage of technology transfer, which helps improve local capabilities and provides opportunities for improvement and innovation. In conclusion, the analysis shows that domestic investment does not have a statistically significant impact on inclusive economic development, while foreign direct investment plays a more significant role in promoting inclusive economic growth. The findings indicate that a more balanced and inclusive approach to investment is crucial for achieving optimal, inclusive economic development²⁷.

The different result found in this study is related to the relationship between the provincial minimum wage variable "lnumprov," which has a coefficient of 0.0020842 with a standard error of 0.0024023. The t-test results indicate that this variable does not have a significant impact on "Inpei," with a p-value of 0.386 (p-value > 0.05). This differs from previous studies that have shown a positive relationship between the minimum wage and economic growth, societal well-being, and increased employment opportunities²¹. Other studies have also mentioned that an increase in the legal minimum wage can increase the likelihood of poor working families moving out of poverty, and the increase in the legal minimum wage tends to reduce poverty incidence, especially if it affects the head of the household⁴. However, sometimes an increase in the minimum wage does not always result in improved economic conditions for all workers. In some cases, it may create challenging situations for low-wage workers, especially if the impact of the minimum wage increase is not accompanied by increased job opportunities or adequate social protection. The lack of significant impact in this study could be attributed to various factors, such as regional economic conditions, labor market dynamics, and the overall policy environment. It highlights the complexity of the minimum wage's role in influencing inclusive economic development and underscores the importance of considering broader factors when formulating policies related to minimum wage adjustments. Overall, the findings suggest that the relationship between the minimum wage and inclusive economic development is multifaceted and context-dependent, and policymakers need to carefully

assess the potential impacts and consider complementary measures to ensure positive outcomes for all workers and the overall economy.

The difference in research results is attributed to the differences in the data used in the study. This research only focuses on gender justice and ICT development. It means that the study only considers gender justice determinants, such as gender empowerment and gender development, as well as ICT development, as the subjects of analysis. The possibility of different research results could also be due to variations in methods, variables studied, or analytical frameworks used in the research. By limiting the sample to provinces in Indonesia and being more specific in analyzing fundamental development variables. The analysis results will be more focused on the impact of gender development and empowerment, as well as other determinants of ICT development related to inclusive economic development. This approach can provide more specific insights into the influence of labor migration in the context of employment. The selection of specific variables and a targeted analysis allow for a deeper understanding of the relationships between gender justice, ICT development, and their impact on inclusive economic development. By examining these factors within the context of specific provinces in Indonesia, the research can provide valuable and nuanced insights into the dynamics of economic development and the role of gender-related factors in shaping outcomes.

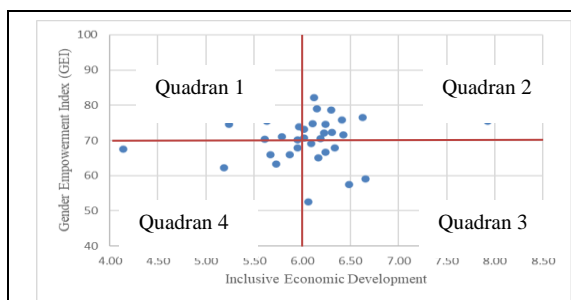


Table 7 Distribution of provinces by inclusive economic development and gender empowerment index (GEI) in Indonesia 2021.

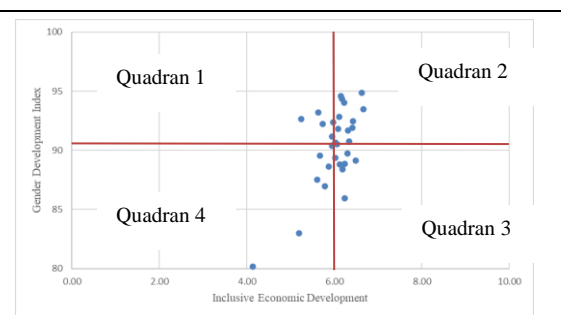


Table 8 Distribution of provinces by inclusive economic development and gender development index (GDI) in Indonesia 2021.

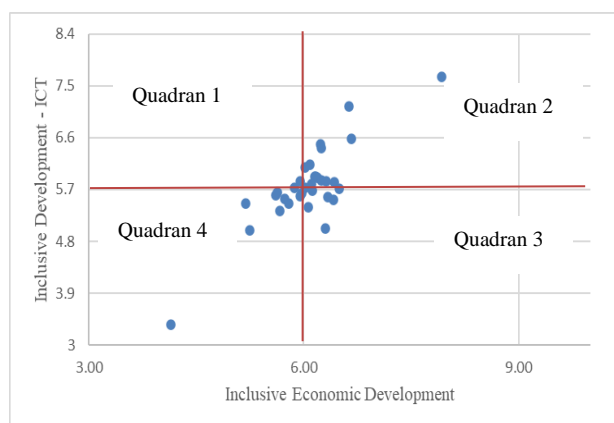


Table 9 Distribution of provinces by index economic development and Index Development - ICT in Indonesia 2021.

Quadrant I shows the distribution of provinces with Inclusive Economic Development growth above the national average and growth rates of the main independent variables (Gender Empowerment Index (GEI), Gender Development Index (GDI), Index Development ICT) below the national average. Quadrant II shows the distribution of provinces with above-average Inclusive Economic Development and the growth rate of the main independent variables (Gender Empowerment Index (GEI), Gender Development Index (GDI), Inclusive Development ICT) above the national average. Quadrant III shows the distribution of provinces with below-average Inclusive Economic Development and the growth rate of the main independent variables (Gender Empowerment Index (GEI), Gender Development Index (GDI), index Development ICT) above the national average. Quadrant IV shows the distribution of provinces with below-average Inclusive Economic Development

and the growth rate of the main independent variables (Gender Empowerment Index (GEI), Gender Development Index (GDI), Index Development ICT) below the national average.

Based on Table 7, there are 6 provinces with Inclusive Economic Development growth below the national average and a gender empowerment index above the national average. There are 14 provinces with Inclusive Economic Development growth above the national average and a gender empowerment index above the national average. There are 7 provinces with Inclusive Economic Development growth above the national average and a gender empowerment index below the national average. There are 6 provinces with Inclusive Economic Development growth below the national average and a gender empowerment index below the national average.

Based on Table 8, there are 5 provinces with Inclusive Economic Development growth below the national average and a gender development index above the national average. There are 13 provinces with Inclusive Economic Development growth above the national average and a gender development index above the national average. There are 8 provinces with Inclusive Economic Development growth above the national average and a gender development index below the national average. There are 7 provinces with Inclusive Economic Development growth below the national average and a gender development index below the national average.

Based on Table 9, there is 1 province with Inclusive Economic Development growth below the national average and Index Development ICT above the national average. There are 12 provinces with Inclusive Economic Development growth above the national average and Index Development ICT growth above the national average. There are 9 provinces with Inclusive Economic Development growth above the national average and Index Development ICT below the national average. There are 11 provinces with Inclusive Economic Development growth below the national average and Index Development ICT growth below the national average.

V. Conclusion

The Gender Development Index (GDI), the index Information and Communication Technology (ICT) Development Index, women's income contribution, and foreign investment have a significant positive impact on inclusive economic development in Indonesia. The country's economic development model appears to have taken gender and information and communication technology into consideration. However, the Gender Empowerment Index (GEI) does not show a significant relationship with inclusive economic development in Indonesia. This is related to the active role of women in the economic and political life of Indonesia, which is still hindered by limited access and opportunities. Women's involvement and contributions to inclusive economic development are still considered insignificant and are still dominated by men.

Policymakers need to reconsider the importance of providing open access for all members of society to participate in economic and political life. The low participation of women in economic and political activities may further widen social inequality and poverty. This can have an impact on inclusive economic development in various regions of Indonesia. In efforts to achieve more inclusive economic development, it is crucial to strengthen the role and active participation of women in various aspects of life, including the economy and politics. Ensuring gender equality, empowering women, and providing fair access for all citizens are essential steps towards creating sustainable and inclusive development for the entire Indonesian society.

References

- [1]. Abrigo MRM, Lee S, Park D. 2017. Human Capital Spending, Inequality, And Growth In Middle-Income Asia. ADB Economics Working Paper Series Human Report No.: 529. Metro Manila.
- [2]. Acemoglu D, Restrepo P. 2017. Robots And Jobs: Evidence From Us Labor Markets. Volume Ke-4. Report No.: 23285. Cambridge.
- [3]. Adejumo OO, Adejumo A V, Aladesanmi TA. 2020. Technology In Society Technology-Driven Growth And Inclusive Growth-Implications For Sustainable Development In Africa. Technol Soc. 63 June:101373. Doi:10.1016/J.Techsoc.2020.101373.
- [4]. Alaniz E, Terrell K, Alaniz E. 2011. The Impact Of Minimum Wages On Wages , Work And Poverty In Nicaragua. Report No.: 5702. Bonn : The Institute For The Study Of Labor
- [5]. Baloch A, Noor ZM, Habibullah MS, Bani NYM. 2018. The Effect Of The Gender Equality On Income Inequality: A Dynamic Panel Approach. J Ekon Malaysia. 52(2). Doi:10.17576/Jem-2018-5202-1.
- [6]. [BPS] Badan Pusat Statistik, Tabel Dinamis Indeks Pembangunan Gender. Jakarta: Badan Pusat Statistik, 2023
- [7]. [BPS] Badan Pusat Statistik, Tabel Dinamis Indeks Pemberdayaan Gender. Jakarta: Badan Pusat Statistik, 2023
- [8]. [BPS] Badan Pusat Statistik, Tabel Dinamis Indeks Pembangunan Teknologi Informasi. Jakarta: Badan Pusat Statistik, 2023
- [9]. [BPS] Badan Pusat Statistik, Tabel Dinamis Indeks Ketimpangan Gender. Jakarta: Badan Pusat Statistik, 2023
- [10]. [BPS] Badan Pusat Statistik, Tabel Dinamis Gini Ratio. Jakarta: Badan Pusat Statistik, 2023
- [11]. Blanchard Dan Johnson. 2017. Makroekonomi. Jakarta Penerbit Erlangga Guretna, E.T. 2018.
- [12]. [BAPPENAS] Badan Perencanaan Dan Pembangunan Nasional, Indeks Pembangunan Ekonomi Inklusif. Jakarta: Badan Perencanaan Dan Pembangunan Nasional, 2023
- [13]. Duflo E. 2015. Women Empowerment And Empowerment Economic Development. J Econ Lit. 50(4):1051–1079.
- [14]. Dugarova E. 2019. Gender Equality As An Accelerator For Achieving The Sustainable Development Goals. New York : The United Nations Development Programme https://www.researchgate.net/publication/333185379_

- [15]. Duncombe R. 2007. Using The Livelihoods Framework To Analyze ICT Applications For. *Inf Technol Int Dev.* 3(3):81–100.
- [16]. Elson D, Seth A. 2019. *Gender Equality And Inclusive Growth: Economic Policies To Achieve Sustainable Development.* New York: UN Women.
- [17]. Hernando RC, Andres EAS, Wirjo A. 2015. Trade , Inclusive Growth , And The Role Of Policy. APEC#215-SE-01.25. Singapore: Asia-Pacific Economic Cooperation Policy Support Unit
- [18]. Kwan L-Y-Y, Chiu C-Y. 2015. Country Variations In Different Innovation Outputs: The Interactive Effect Of Institutional Support And Human Capital. *J Organ Behav.* 36(1):1050–1070. Doi:10.1002/Job.
- [19]. Lucas RE. 1988. On The Mechanics Of Economic Development. *Journal Of Monetary Economics.* 22(1): 3–42.
- [20]. Romer PM. 1990. Endogenous Technological Change. *Journal Of Political Economy.* 98 (5): 71–102.
- [21]. Saleh M, Huda S, Subagiarta IW. 2019. The Effect Of Minimum Wage On Employment , Economic Growth And Social Welfare In The Ex Besuki Residency Of East Java-Indonesia. *Int J Sci Technol.* 8(06):82–89.
- [22]. Sen A. 2000. *Social Exclusion: Concept, Application, And Scrutiny.* June 2000. Manila: Asian Development Bank.
- [23]. Siscawati M, Adelina S, Eveline R, Siscawati M, Adelina S, Eveline R, Anggriani S. 2020. Gender Equality And Women Empowerment In The National Development Of Indonesia. *Journal Of Strategic And Global Studies* Vol. (2) No. (2). Doi:10.7454/Jsgs.V2i2.1021.
- [24]. Soharwardi MA, Ahmad TI, Duflo E. 2020. Dimensions And Determinants Of Women Empowerment In Developing Countries. *Int J Sustain Dev Plan.* 15(6):957–964. Doi:10.18280/Ijsdp.150620.
- [25]. Todaro, Michael, P. Dan Stephen C. Smith. 2013. *Pertumbuhan Ekonomi Di Dunia Ketiga.* Edisi Kedelapan. Jakarta: Penerbit Erlangga.
- [26]. Watson T, Security E, Women O. 2018. Digitalisation And Women’s Workforce Participation In The Indo-Pacific. *Aust J Labour Econ.* 21(1):45–74.
- [27]. Yalçın AG And C. 2015. Domestic Savings-Investment Gap And Growth: A Cross-Country Panel Study. *Cent Bank Rev.* 15(10):39–63.
- [28]. Oyinlola, Mutiu A., Abdulfatai A. Adedeji, Olumide Onitekun, Human Capital, Innovation, And Inclusive Growth In Sub-Saharan African Region, *Economic Analysis And Policy, Volume 72, 2021, Pages 609-625, ISSN 0313-5926,*
- [29]. [WBG] World Bank Group, World Bank Group And The 2030 Agenda. New York : World Bank Group, 2021