THE INFLUENCE OF INDUSTRIAL AGGLOMERATION, LABOR FORCE, AND HUMAN RESOURCE INVESTMENT ON ECONOMIC GROWTH IN SUMATRA IN THE PERSPECTIVE OF ISLAMIC ECONOMICS IN 2019-2023

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ABSTRACT

In the framework of Islamic economics, economic development does not only focus on growth, but also on equal distribution of welfare and social justice. This study aims to analyze the effect of industrial agglomeration, workforce, and human resource investment on economic growth in Sumatra Island in 2019–2023 from an Islamic economic perspective. This study uses panel data from 10 provinces in Sumatra Island with a saturated sampling method, namely taking all available population members. Data analysis was carried out using panel data regression with the help of EViews 10. The results of the study show that simultaneously the three independent variables affect economic growth. However, partially, only industrial agglomeration has a significant effect, while the workforce and human resource investment do not have a significant effect. This finding is different from previous studies that tend to emphasize the role of human resources as the main factor. From an Islamic economic perspective, these results emphasize the importance of fairly integrated industrial development and the need to improve the quality of the workforce and education in line with the values of justice, welfare, and equality.

A. INTRODUCTION

The economic growth of a region reflects the success of development if it is accompanied by an increase in community welfare in a balanced and sustainable manner. This success indicator is not only measured by the increase in macroeconomic figures, but also by the region's ability to create a fair distribution of development and improve the quality of life of its population (Arifin, 2023). In Indonesia, Sumatra Island as the third largest island and the second most populous after Java Island, still shows economic growth that is lagging behind other regions (Ridho et al., 2022).

One of the strategic factors in driving economic growth is the industrial sector. The development of this sector contributes to job creation, increasing community income, and strengthening the regional Gross Regional Domestic Product (GRDP) (Syah et al., 2023). However, the inequality in industrial distribution between provinces in Sumatra shows a disparity in regional development.

In economic development analysis, GRDP is the main indicator that reflects the rate of regional economic growth (Firmansyah & Arif, 2021). In addition, factors such as industrial agglomeration, workforce size, and human resource investment are believed to play an important role. Industrial agglomeration refers to the concentration of economic activities in a particular region that can increase efficiency and productivity, while the number of workers indicates the productive capacity of the region. In this case, it can be seen in the economic growth that occurred in the provinces on Sumatra Island. In Table 1.1 below:

Table 1.1
Economic Growth of 10 Provinces in Sumatra Island
2019-2023 (Percent)

Region	GRDP Per Capita of Regency/City Based on Constant Prices 2010				
	2019	2020	2021	2022	2023
Aceh	4.14	-0.37	2.81	4.21	4.23
North Sumatra	5.22	-1.07	2.61	4.73	4.73
West Sumatra	5.01	-1.61	3.29	4.36	4.62
Riau	2.81	-1.13	3.36	4.55	4.21
Jambi	4.35	-0.51	3.70	5.12	4.67
South Sumatra	5.69	-0.11	3.58	5.24	5.08
Bengkulu	4.94	-0.02	3.27	4.31	4.28
Lampung	5.26	-1.66	2.77	4.28	4.55
K. Bangka Belitung	3.32	-2.29	5.05	4.40	4.38
Riau islands	4.83	-3.80	3.43	5.06	5.16

Source: BPS data (processed 2025)

The data above shows that the regencies/cities that provide the largest contribution to the GRDP of 10 Provinces on the island of Sumatra from 2019 to 2023 are the Provinces of North Sumatra, South Sumatra, and Bengkulu. The difference in the total GRDP shows that there is an imbalance in economic development in the 10 Provinces of the Island of Sumatra, seen from the difference in the total GRDP which is also still very far. In 2023, the GRDP of K. Riau Province was 5.16%, while the

Provinces of Riau, Aceh and Bengkulu respectively only reached 4.21%, 4.23% and 4.28%.

In the context of Islamic economics, development does not only pursue economic growth, but also prioritizes the values of justice, welfare, and equal distribution of welfare. These principles require that the growth that occurs is not only oriented towards increasing output, but must also guarantee social balance and blessings (barakah) in the distribution of development results. Therefore, a study of the influence of industrial agglomeration, workforce, and human resource investment towards economic growth on the island of Sumatra is important to carry out, especially within the framework of Islamic economic values.

Meanwhile, in Islam, economic growth is defined as a continuous growth of production or results in the right way that can contribute to the welfare of humanity. (Pokhrel, 2024) The goal of economic development in Islam is to build a strong economy, as stated in the Qur'an (QS. Ar-Ra'd: Verse 11)

لَهٗ مُعَقِّبٰتٌ مِّنْۢ بَيْنِ يَدَيْهِ وَمِنْ خَلْفِهٖ يَحْفَظُوْنَهٗ مِنْ اَمْرِ اللّٰهِ ۗاِنَّ اللّٰهَ لَا يُغَيِّرُ مَا بِقَوْمٍ حَتّٰى يُغَيِّرُوْا مَا بِاَنْفُسِهِمْ ۗوَاِذَآ اَرَادَ اللّٰهُ بِقَوْمٍ سُوْۤءًا فَلَا مَرَدَّ لَهٗ ۚوَمَا لَهُمْ مِّنْ دُوْنِهٖ مِنْ وَّالٍ ﴿١١﴾

Meaning: *"For him (man) are (angels) who accompany him in turns from before him and behind him who guard him by Allah's command. Indeed, Allah does not change the condition of a people until they change what is in themselves. When Allah wills evil for a people, none can avert it, and they have no protector besides Him..."*

Regions with high concentrations of economic activity tend to experience faster growth, while the quality of human resources (HR) as reflected in the Human Development Index (HDI) is a key factor in increasing productivity and economic growth (Ekonomi & Ferino, 2023) The economic slowdown has an impact on decreasing production capacity, increasing unemployment, and the threat of industrial bankruptcy. (Umi et al., 2022) Equitable development can suppress inflation and attract investment, where government spending in the education and health sectors plays an important role in creating jobs and reducing inequality. (Hadju et al., 2021)

The contribution of Gross Regional Domestic Product (GRDP) reflects economic growth and development inequality. (Anggel Dwi Satria et al., 2023). One of the factors that influences it is industrial agglomeration, namely the concentration of industrial activities in an area (Regency Economy and others, 2016). Despite its positive impact on efficiency, agglomeration also risks encouraging excessive urbanization. The development of the processing industry on Sumatra Island still shows inequality, with growth concentrated in only a few regions. This causes the industrial sector's contribution to GRDP to be uneven. (Andhiani et al., 2018) In fact, the processing industry has great potential as a major contributor to regional economic growth.

Classical scientists such as Adam Smith, David Ricardo and Thomas Robert Malthus argued that output growth is often slower than population growth. Because the population is also a workforce, if it is not absorbed in the workforce, unemployment will increase and lower the standard of living (Sriwijaya et al., 2022)

The workforce plays an important role in economic growth. High workforce participation drives productivity and income, thus contributing to improving community welfare (Purnamasari, 2017). In Sumatra, the number of workforce continues to increase every year and is a great potential for economic growth, as long as it is supported by the provision of jobs and improving the quality of human resources (Haq & Imamudin, 2018).

Human resource investment is key to improving individual skills, education, and experience. Quality human capital supports economic productivity and national welfare (Hastuti & Dewi, 2019). Romer's theory (1990) also emphasizes that humans are the main source of long-term economic growth. (Rahayu & Juliannisa, 2024) Human capital investment is not only believed to be an effort to improve individual knowledge and skills, but also an effort to increase the prosperity of a nation (Arifin, 2023).

B. METHOD

This study uses a quantitative approach with panel data, which combines time series and cross-section data covering 10 provinces on the island of Sumatra. The data used are secondary data obtained from the Central Statistics Agency (BPS), the Ministry of Industry (Kemenperin), the Ministry of Manpower (Kemenaker), and various relevant journal references. The study population is all provinces on the island of Sumatra (Dianti, 2017). While the "sample" used in this study is annual panel data for the period 2019–2023 (Candra Susanto et al., 2024).

Data collection techniques are carried out through official statistical data documentation. (Asrulla et al., 2023) Data were analyzed using panel data regression with the help of EViews 10 software. Descriptive statistics are used to describe data characteristics, including minimum, maximum, average, and standard deviation values. (Amri Khairul, 2017) In panel data regression, the model testing and statistical estimation of the research model tested three panel models, namely the common effect model (CEM), fixed effect model (FEM), and random effect model (REM). (Alamsyah et al., 2022) The operational definition of the economic growth variable (Y) is measured based on the real GRDP of the district/city. Industrial agglomeration (x1) is seen from the contribution of the manufacturing industry sector to GRDP and the number of industrial companies per province. The workforce (x2) uses the labor force participation rate (TPAK) indicator from BPS. Human resource investment (x3) is measured through education data, education expenditure per capita, and the number of educated workers (Asrulla et al., 2023).

C. RESULTS AND DISCUSSION

Analysis Analysis Descriptive Statistics

Descriptive analysis is used to analyze the data that has been collected by looking at the average value (mean), standard deviation, variance, maximum value, minimum value, total number (sum), range, kurtosis, and skewness.

Table 3.1 Results Analysis Statistics Descriptive

	AI	AK	HCI	PE
Mean	3.179800	67.76900	73.50120	3.180800
Median	4.230000	68.50000	73.38500	4.255000
Maximum	5.690000	71.73000	79.08000	5.690000
Minimum	-3.800000	62.37000	69.57000	-3.800000
Std. Dev.	2.405732	2.367968	1.977205	2.403973
Observations	50	50	50	50

Table 1, namely that Industrial Agglomeration has a mean value of 3.179800 , the median value is 4.230000, the highest value is 5.690000 and the lowest value is -3.800000 and the standard deviation value is 2.405732 . The Labor Force variable has a mean value of is 67.76900 , the median value is 68.50000 , the highest value is 71.73000 and the lowest value is 62.37000 and the standard deviation value is 2.367968 . The Human Resource Investment variable has a mean value of 73.50120 , the median value is 73.38500 and the highest value is 79.08000 and the lowest value is 69.57000 and the standard deviation value is 1.977205 . The dependent variable, namely Economic Growth, has a mean value of 3.180800 , the median value is 4.255000 and the highest value is 5.690000 , the lowest value is -3.800000 and has a standard deviation value of 2.403973 .

Estimate Data Panel

Test Chow

The Chow test was conducted to determine the best model between *the Common Effect Model (CEM)* and *the Fixed Effect Model (FEM).* FEM . (Mirtawati & Aulina, 2022)

Table 3.2 Test Chow

Redundant Fixed Effects Tests
Equation: Untitled
Cross-section fixed effects test

Effects Test	Statistics	df	Prob.
Cross-section F	0.862040	(9.37)	0.5663
Cross-section Chi-square	9.518017	9	0.3909

Based on the Chow test, the cross-section Chi-square was obtained with a probability value of 0.3909. > 0.05 . So it can be concluded that the best model The selected one is *the Common Effect Model (CEM).*

Hausman test

The Hausman test was conducted to select the best model between *the Random Effect Model (REM)* and *the Fixed Effect Model (FEM).*

Table 3.3 Test Houseman

Correlated Random Effects - Hausman Test
Equation: Untitled
Cross-section random effects test

Test Summary	Chi-Sq. Statistic	Chi-Sq. df	Prob.
Random cross section	0.620021	3	0.8918

Based on the Hausman test, a random cross-section was obtained with a probability value of 0.8918. > 0.05 . It can be concluded that the best model selected is *the Random Effect Model (REM)* .

LM Lagrange Multiplier Test

Table 3.3 Test LM

Lagrange multiplier (LM) test for panel data
Date: 05/18/25 Time: 14:05
Sample: 2019 2023
Total panel observations: 50
Probability in ()

Null (no rand. effect) Alternative	Cross section One sided	Period One sided	Both
Breusch Pagan	0.155305 (0.6935)	0.000323 (0.9857)	0.155628 (0.6932)
Honda	-0.394088 (0.6532)	-0.017970 (0.5072)	-0.291369 (0.6146)
King Wu	-0.394088 (0.6532)	-0.017970 (0.5072)	-0.233553 (0.5923)
GHM	-- --	-- --	0.000000 (0.7500)

The result of the lagrange multipiller test obtained the Beauch pagan cross section value of 0.6935 (> 0.05). Then Ha $_{is}$ rejected and HI $_{is}$ accepted which means that in the lagrange multipiller test the selected model is *the Common Effect Model (CEM)* .

Based on the results of *the Common Effect Model (CEM) estimation,* then it is calculated by the following equation:

PE = 0.633007629257 + 0.99948944786*AI - 0.00410108300054*AK - 0.00479526703918*HCI

1. The constant value of 0.633007629257 means that without the variables of Industrial Agglomeration Value, Labor Force, and Human Resource Investment , the Economic Growth variable will increase by 0.633007629257.
2. The beta coefficient of the Industrial Agglomeration variable is 0.9995, indicating that, holding other variables constant, a 1-unit increase in Industrial Agglomeration will decrease Economic Growth by 0.9995. Conversely, a 1-unit decrease will increase Economic Growth by 0.9995.
3. The beta coefficient of the Labor Force variable is -0.0041, indicating that, holding other variables constant, a 1-unit increase in the Labor Force will reduce Economic Growth by 0.0041. Conversely, a 1-unit decrease will increase Economic Growth by 0.0041.
4. The beta coefficient of the Human Resource Investment variable is -0.0048, indicating that, holding other variables constant, a 1-unit increase or decrease in Human Resource Investment will reduce Economic Growth by 0.0048.

Test Assumptions Classic

In the classical assumption test there are normality, autocorrelation,

multicollinearity and heteroscedasticity tests. panel data it is not required to use the autocorrelation test because panel data has a cross-section nature, while autocorrelation only occurs in time series data. Then the normality test is also not required because it is not something that must be met.(Akbar et al., 2022)

Multicollinearity Test

This multicollinearity test is conducted to see whether or not there is a correlation between the dependent and independent variables.

Table 3.4 Test Multicollinearity

	AI	AK	HCI
AI	1,000,000	0.156543	-0.009666
AK	0.156543	1,000,000	-0.076590
HCI	-0.009666	-0.076590	1,000,000

The results of the Multicollinearity test show that the correlation coefficient of X1 and X2 is 0.15 <0.85, the correlation coefficient of X1 and X3 is -0.00 <0.85 and the correlation coefficient of X2 and X3 is -0.07 <0.85. So it can be concluded that the data is free from multicollinearity.

Heteroscedasticity Test

Test heteroscedasticity used For see There is or whether or not symptoms of heteroscedasticity. This symptom is caused by the difference between the residual variants of one and another.

Table 3.5 Test Heteroscedasticity

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.253368	0.430376	-0.588713	0.5589
AI	0.002426	0.003705	0.654835	0.5158
AK	0.001264	0.003775	0.334683	0.7394
HCI	0.002482	0.004466	0.555840	0.5810

Test results state that mark Prob. Chi-Square as big as > 0 .05 then it indicates that the data is not contain problem .

Test Hypothesis

Test Partial (Test t)

The t-statistic test is conducted to determine whether or not there is an influence between each independent variable on the dependent variable partially. The results of the t-test can be seen in the table below.

Table 3.6 Test t

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.633008	0.464228	1.363571	0.1793
AI	0.999489	0.003997	250.0792	0.0000
AK	-0.004101	0.004072	-1.007092	0.3192
HCI	-0.004795	0.004817	-0.995467	0.3247

1. The Industrial Agglomeration variable (X1) has a t-value of 250.0792, which is greater than the t-table value of 2.012896, indicating a significant effect on

Economic Growth and a strong influence in the model.

2. The Labor Force variable (X2) has a t-value of -1.0071, which is less than the t-table value of 2.012896, indicating a negative but not significant effect on Economic Growth.
3. Results of the t-test on the Human Resource Investment Variable (X3), the t-count value obtained is -0.995467 which is smaller than the t-table with a value of 2.012896 , it can be concluded that (X3) has a negative relationship direction and does not have a significant effect on Economic Growth. So the ISDM variable partially on the Economic Growth variable does not affect this model.

Test Simultan (Test f)

The f test is conducted to determine whether all independent variables have a simultaneous effect on the dependent variable.

Table 3.7 Test f

F-statistic	21345.58
Prob(F-statistic)	0.000000

The calculated f value is 21345.58 smaller than f table 2.802355 and the probability value is 0.000000 < 0.05 . This means that the value of industrial agglomeration, labor force, and human resource investment simultaneously affect economic growth in Sumatra.

Test Coefficient Determination (R^2)

The coefficient of determination can show how much the change in the variation of the dependent variable can be explained by the change in the variation of the independent variable.

Table 3.8 Test Determination

F-statistic	21345.58
Prob(F-statistic)	0.000000

Based on the test results in Table 3.8, panel information regression using the Common Effect Model (CEM) creates an R-squared value of 0.999282. This shows that Industrial Agglomeration, Labor Force, and Human Resource Investment influence Economic growth in Sumatra is 99.93 %, while other variables not included in this research affect the remainder, namely 0.0007 (100 - adjusted R square).

The Influence of Industrial Agglomeration on Economic Growth in Sumatra

The results of the t-test analysis (partial testing) then showed that the Influence of Industrial Agglomeration on Economic Growth in Sumatra showed a significance value of 0.0000 < 0.05. t count of the Industrial Agglomeration Coefficient (AI) variable is 250.0792 and t table is 2.012896. This shows that t count > t table (250.0792 > 2.012896) which means H_a accepted and H_o rejected. So can be concluded that AI has a significant effect on PE in Sumatra, meaning that the Industrial Agglomeration variable partially has an effect on the economic growth variable in Sumatra = Hypothesis is accepted. The results of this study are in line with and supported by research conducted by Mar'atun Sholehati (2017) explaining that industrial agglomeration has a significant effect on economic growth. And in the research of Uswatun Khasanah (2021) explains the same thing that industrial agglomeration is significant to economic growth. This study strengthens the opinion that increasing agglomeration in Sumatra will be in line with its economic growth. This is in line with the Localized Industries Theory by Marshall when an

industry chooses a location for its production activities that can last for the long term so that the community will gain a lot of benefits if they follow the action of establishing a business around that location. (Agustina & Flath, 2020).

In addition, in line with the Weber Model theory, according to Weber , the selection of industrial locations is in principle based on the principle of minimizing costs, so that the selection of industrial locations depends on the total cost of transportation and labor where the sum of the two costs must be minimum (Agglomeration & Yang, 2007).

The Influence of the Workforce on Economic Growth in Sumatra.

The results of the t-test analysis (partial testing) then show that the Influence of the Labor Force on Economic Growth in Sumatra shows a significance value of 0.3192> 0.05. The t count of the Labor Force Coefficient (AK) variable is -1.007092 and the t table is 2.012896. This shows that t count> t table (-1.007092 <2.012896) which means Ho is accepted and Ha is rejected. So it can be concluded that AK does not have a significant effect on PE in Sumatra, meaning that partially the Labor Force variable does not affect the economic growth variable in Sumatra = Hypothesis is rejected. The results of this study are in line with and supported by research conducted by Eka Widiawati (2018). This study supports the statement that the workforce does not have a significant influence. The insignificance of the workforce in influencing economic growth, namely the relatively low quality of the workforce, both in terms of education, skills, and productivity, causes the workforce to be unable to become an effective production factor. There is a mismatch between workforce competencies and industry needs, so that many workers are not optimally absorbed into productive sectors.

This is in line with the theory According to the United Nations (1962), the workforce includes individuals who contribute to economic production, including those who are looking for work. A person is considered to be working if in the past week they have worked at least one hour in a row. (Lestari & Asnidar, 2023) According to Todaro (2000) A larger workforce means an increase in production levels, while a larger population growth means a larger domestic market size. (Munthe, 2019)

The Impact of Human Resource Investment On Economic Growth in Sumatra

The results of the t-test analysis (partial testing) then show that the Effect of Human Resource Investment on Economic Growth in Sumatra shows a significance value of 0.3247> 0.05. The calculated t of the Human Resource Investment Coefficient (ISDM) variable is -0.995467 and the t table is 2.012896. This shows that the calculated t> t table (-0.995467 <2.012896) which means that Ho is accepted and Ha is rejected. So it can be concluded that ISDM does not have a significant effect on PE in Sumatra, meaning that partially the Human Resource Investment variable does not affect the economic growth variable in Sumatra = Hypothesis is rejected. The results of this study are in line with and supported by research conducted by Azizah Fifin Fania (2024) where in her research Human Resource Investment does not have a significant effect, meaning that the influence of human capital on economic growth cannot be directly felt in the same

year/currently until the future. The role of concentration of industrial activity in a region has a more direct impact on increasing economic output compared to investment in human resources in the short term. On the other hand, the insignificance human resource investment because investment in the education and health sectors does not necessarily produce economic output in the short term because the effects are long-term.

The Influence of Industrial Agglomeration, Workforce, and Human Resource Investment on Economic Growth in Sumatra

Based on the results of research that has been conducted related to the interaction between Industrial Agglomeration, Labor Force, and Human Resource Investment on Economic Growth in Sumatra, the calculated f value of 21345.58 is smaller than the f table of 2.802355 and the probability value is 0.000000 <0.05. This means that the Value of Industrial Agglomeration, Labor Force, and Human Resource Investment simultaneously affect Economic Growth in Sumatra.

Islamic Economic Perspectives on Industrial Agglomeration, Labor Force, and Human Resource Investment.

1. The Relationship between Industrial Agglomeration and Economic Growth from an Islamic Economic Perspective

   The results of the study indicate that industrial agglomeration has a significant effect on economic growth in Sumatra Island. The regression coefficient is 0.9994 with a significance value of 0.0000 (<0.05). This is in line with the principles of maqashid sharia, especially in the aspects of maslahah and distribution justice, as prohibited in the concept of ihtikar. (Rohman et al., 2024) from QS Al-A'raf: 96, namely:

   وَلَوْ اَنَّ اَهْلَ الْقُرٰٓى اٰمَنُوْا وَاتَّقَوْا لَفَتَحْنَا عَلَيْهِمْ بَرَكٰتٍ مِّنَ السَّمَاۤءِ وَالْاَرْضِ وَلٰكِنْ كَذَّبُوْا فَاَخَذْنٰهُمْ بِمَا كَانُوْا يَكْسِبُوْنَ ﴿٩٦﴾

   "If the people of the lands had believed and been pious, We would have opened up to them various blessings from the heavens and the earth. However, they denied (the messengers and Our verses). So We punished them for what they used to do."

   Thus, within the framework of Islam, industrial agglomeration managed based on the principles of justice and social responsibility not only increases GRDP, but also improves the quality of life of the community in a comprehensive and sustainable manner. (Iskandar & Aqbar, 2019) Islam also reminds us that economic concentration should not lead to monopoly or exploitation (Ummah, 2019) and emphasizes the importance of transparent, fair, and socially oriented management.

2. The Relationship between the Workforce and Economic Growth in an Islamic Economic Perspective

   The results of the study indicate that the Labor Force does not have a significant effect on economic growth in Sumatra Island. The regression coefficient is -0.0041 with a significance value of 0.3192 (> 0.05). A productive workforce is the main driver of economic growth in the Islamic view. Islam does not treat the workforce merely as a factor of production, but also as a social and

spiritual element that has rights that must be protected according to the principles of justice and welfare (Altwijry, 2024).

Islam encourages individuals to work and produce; it even makes it obligatory for those who are able. (Nurmai Syarah & Jenita, 2024) Furthermore, those who obey Allah's word will be rewarded for their efforts. from QS At-Taubah 105:

وَقُلِ اعْمَلُوْا فَسَيَرَى اللّٰهُ عَمَلَكُمْ وَرَسُوْلُهٗ وَالْمُؤْمِنُوْنَۗ وَسَتُرَدُّوْنَ اِلٰى عٰلِمِ الْغَيْبِ وَالشَّهَادَةِ فَيُنَبِّئُكُمْ بِمَا كُنْتُمْ تَعْمَلُوْنَ ۝١٠٥

Meaning: " *And say: "Work, then Allah will see your work, and His Messenger and the believers, and you will be returned to (Allah) the Knower of the unseen and the seen, then He will inform you of what you did* **.** *"*

3. The Relationship between Human Resource Investment and Economic Growth in an Islamic Economic Perspective

The results of the regression test show that Human Resource Investment does not have a significant effect on economic growth in Sumatra Island. The regression coefficient is -0.0047 with a significance value of 0.3147 (> 0.05). In research by Ahmad & Abbas (2013), economic growth and human resource development from an Islamic perspective emphasizes the balance between spiritual and physical needs, which includes education and health as key elements.

Developing human quality through education, skills, and moral development is very important to increase economic productivity and efficiency. Education in Islam is not only oriented towards worldly knowledge, but also forms moral and spiritual character (Agustini & Tarigan, 2023).

Thus, investment in human resources from an Islamic perspective does not only focus on increasing economic capacity alone, but also emphasizes social justice and spiritual balance (Mutmainah et al., 2021).

D. CONCLUSION

This study analyzes the influence of industrial agglomeration, workforce, and human resource investment. on economic growth in Sumatra Island for the period 2019–2023 using panel data regression with a common effect model. The results of the simultaneous test (F test) show that the three variables together have a significant effect on economic growth. However, partially (t-test), only industrial agglomeration has a positive and significant effect.

This finding confirms that industrial concentration in a region is the main factor driving regional economic growth. In contrast, the labor force and Human Resource Investment variables has not shown a significant impact, which may be caused by the low quality of the workforce, skills mismatch, and limited access to relevant education and training.

From an Islamic economic perspective, quality economic growth must prioritize justice, welfare, and sustainability. Industrial agglomeration managed according to the principles of justice can be an important instrument in achieving falāh, namely worldly and hereafter welfare. The difference of this study lies in the

finding that industrial agglomeration, not labor or human resource investment , is the dominant factor in driving economic growth in Sumatra, in contrast to previous studies that emphasized the role of human resources.

E. SUGGESTION

Based on the results of the analysis and conclusions that have been described previously, there are several recommendations that can be given related to the findings of this study, namely as follows:

1. Regional governments are expected to encourage the strengthening of industrial areas to maximize the agglomeration effect on economic growth.
2. The Central Government should provide incentives for potential agglomeration areas outside Java for national economic equality.
3. Further researchers are advised to examine other factors outside the variables and add other variables used in this study in order to obtain a more comprehensive understanding of economic growth in Sumatra Island. In addition, it is recommended to consider more diverse research methods.

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