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The Role of Educational Investment and Economic Openness in the Economic Growth of Member Countries of the Organization of Islamic Cooperation (OIC)

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Abstract: The Role of Educational Investment and Economic Openness in the Economic Growth of Member Countries of the Organization of Islamic Cooperation (OIC)

There is complexity in the impact of education sector investment and international trade aspects, on economic growth among the Organization of Islamic Cooperation (OIC) member countries. This research aims to examine and analyze the influence of education investment, food exports and imports, and exchange rates on economic growth in five member countries of the Organization of Islamic Cooperation (OIC). The OIC member countries were determined as research objects because they have similarities in determining halal food as a condition for permitted food imports. The novelty of this research offers a fresh approach by thoroughly investigating these complex relationships, aiming to unveil their combined effects on economic growth, thus providing novel insights for decision-makers. The data used is a combination of time series data and cross-site data so testing begins with a stationary test and a cointegration test. The data span used includes 12 years. The results show that all the data used is stationary at the first difference level, and together or in groups all variables are cointegrated in the long term. Testing the hypothesis using the multiple linear regression method, it was found that education investment and exports had a positive effect on economic growth while imports and the exchange rate had a negative effect. The ability of these four variables to explain variations in changes in economic growth in the five OIC member countries is 72 percent and 28 percent is explained by other variables outside the model. The results of this research prove that the higher our dependence on food imported

from abroad will reduce economic growth and conversely, if food exports can be increased it will increase the country's economic growth. This research has implications for international trade policy in increasing the economic growth of the five OIC member countries.

Keywords: Economic Growth; Education Investment; Export; Exchange Rate; Import

INTRODUCTION

The impact of education investment, food exports and imports, and exchange rates on economic growth among Organization of Islamic Cooperation (OIC) member countries is complex. By exploring these variables, this study aims to identify the key factors and their significance in shaping the trajectory of economic development in these countries. Economic growth is one indicator that determines the welfare of the population in all countries. A country's economy can be said to be developing if economic growth is good. Therefore, to achieve prosperity, a country's government must strive to implement various policies to encourage economic growth. The government's efforts to increase economic growth can be done by increasing its expenditure in the education sector by considering its economic level. Expenditures in the education sector are an investment in human resources, namely creating a skilled workforce that will influence the creation of innovation, increase productivity and wages, reduce state demands to finance various social programs and increase the APBN through tax accumulation. Thus, all of this is expected to have a positive impact on economic growth (Ziberi *et al.*, 2022).

Apart from government spending on education, solid economic growth can be achieved with strong government encouragement through cooperation with other countries. By collaborating with other countries, each country can benefit from this cooperation. Both in the form of economic and non-economic benefits. Adam Smith and David Ricardo pioneered economic growth theory that emphasized openness to international trade. Smith suggested that every country give its people the freedom to carry out free trade domestically and internationally as a form of a country's openness. The wider the form of cooperation, the wider the benefits that the country will gain (Haryani & Azam, 2022).

Economic growth can be driven by the value of a country's exports and imports, although imports often have a negative impact on Gross Domestic Product (GDP) (Usman and Bashir, 2022). However, imports cannot be avoided due to considerations of comparative advantage and absolute advantage. A country can increase efficiency through imports because producing itself does not always provide profits. This is also the case in member countries of the Organization of

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Islamic Cooperation (OIC). The similar background of OIC countries in determining government policies based on Islamic principles has caused researchers to make several OIC member countries the object of research to see the influence of government intervention and economic openness. The OIC's role in strengthening trade and economic cooperation is to create global economic integration. The countries that have joined the organization are 57 countries with Muslim-majority populations. Most of the OIC member countries are developing countries, namely countries with low income (less than 1,045 USD), countries with upper middle income (4,126-12,735 USD), and countries with lower middle income (1,046-4,125 USD) and have high economy growth rates that fluctuate. This research was conducted on 5 OIC member countries which is based on the spirit between countries in developing economic levels and strong and close bilateral relations between countries.

Table 1. Economic Growth of 5 OIC Member Countries 2010-2021 (percent)

Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Afghanistan	14.4	0.4	12.8	5.6	2.7	2.7	2.3	2.6	1.2	3.9	-2.3	-20.7
Indonesia	6.2	6.2	6	5.6	5	4.9	5	5.1	5.2	5	-2.1	3.7
Kazakhstan	7.3	7.4	4.8	6	4.2	1.2	1.1	4.1	4.1	4.5	-2.5	4.3
Malaysia	7.4	5.3	5.5	4.7	6	5.1	4.4	5.8	4.8	4.4	-5.5	3.1
Pakistan	1.6	2.7	3.5	4.4	4.7	4.7	5.5	4.4	6.2	2.5	-1.3	6.5

Source: https://data.worldbank.org/

Table 1 shows the economic growth rates of Afghanistan, Indonesia, Kazakhstan, Malaysia, and Pakistan which fluctuate with a downward trend, except for Pakistan which experiences an increasing trend. Every country needs policies to achieve its economic goals, but not all countries can achieve the desired economic growth through government spending alone. Because sometimes, government spending that is not on target will have a negative impact on a country's economic growth. For this reason, every country needs cooperation with other countries through international trade, to achieve strong and long-term economic growth. International cooperation is aimed at meeting the needs of domestic society and creating competitiveness in the products produced by each country.

Table 2 explains that government spending on education in the 5 OIC member countries in 2010-2021 tends to increase. This is not in line with economic growth which tends to decline. This does not follow the theory which states that if government spending increases it will increase economic growth. Several studies have found the importance of investment in

education in increasing economic growth, including Millia et al (2021) which found that education in Zimbabwe will increase growth through increasing worker productivity and/or through the creation of knowledge and technological innovation. Likewise, (Valero, 2021a) who states that education has a positive effect on economic growth. This statement means that educational investments will grow and develop when used and will subsequently provide additional income. Increasing income will help increase taxes and increase the government budget for aspects of people's welfare. This will provide an opportunity for every country to continue to promote development, especially in the field of education. Education in developed countries is considered an investment in human resources and is one of the leading sectors. This is because the government's commitment to development in this sector is high. The importance of education does not lag behind other sectors, implying that investment in education is correlated with macroeconomic growth. However, government spending on education in the five OIC countries is generally still low.

Table 2. Government Expenditures on Education 2010-2021 (millions USD)

Country	Afghanistan	Indonesia	Kazakhstan	Malaysia	Pakistan
2010	551,812,415	2,121,814,590	512,243,825	1,267,432,550	405,709,304
2011	616,056,914	2,848,571,450	672,266,513	1,716,203,290	474,164,057
2012	658,932,195	3,129,936,390	811,194,419	1,804,903,680	480,180,949
2013	695,050,972	3,066,081,100	814,022,859	1,771,558,830	575,734,232
2014	758,393,690	2,921,872,400	757,241,259	1,761,302,830	603,571,395
2015	621,861,882	3,081,858,160	512,599,841	1,473,624,990	716,973,749
2016	635,891,342	3,261,570,770	409,089,394	1,430,963,060	940,889,577
2017	631,991,927	2,711,702,040	458,715,952	1,493,444,800	983,696,286
2018	577,703,314	3,126,814,590	469,870,787	1,607,385,980	961,546,207
2019	603,462,369	3,178,243,630	519,568,164	1,519,549,740	805,482,818
2020	646,604,800	3,696,101,401	752,762,409	1,524,774,374	618,876,755
2021	479,785,149	3.618,841,640	1,730,643,602	1,592,629,182	588,563,701

Source: *https://data.worldbank.org/*

Economic openness (exports and imports) can also influence economic growth. Export and import activities are crucial factors in trade to increase gross domestic product and improve people's quality of life. Exports and imports can also improve technology because each country is faced with competition with other countries in expanding international markets. Technology will be involved in products that are exported or imported. The more sophisticated the technology used, it is assumed that the goods being traded will be of higher quality and prices will be lower, so that efficiency goals can be achieved. Exports are an effort to sell our commodities to other countries, to receive payment in foreign currency.

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Table 3 shows the export of halal food products from the five OIC member countries with an increasing trend. Similar to government spending, exports fluctuated with an increasing trend, except for Malaysia which experienced a decline in the value of exports during the observation period. Exports can have a significant impact on economic growth in a country because they provide a source of foreign exchange needed by countries with open economies. Exporting to many countries can increase production figures, thereby encouraging economic growth and making a significant contribution to economic development and economic stability.

Table 3. Food Product Export Data for 5 OIC Member Countries 2010-2021 (USD)

Country	Afghanistan	Indonesia	Kazakhstan	Malaysia	Pakistan
2010	155,576,317	25,629,521,974	1,933,702,736	23,609,377,800	3,530,813,027
2011	147,127,507	32,865,234,524	1,825,634,079	31,716,002,920	4,900,676,763
2012	74,788,721	33,691,695,946	3,086,693,610	28,450,604,344	4,186,962,355
2013	70,234,615	31,938,668,076	2,675,014,565	25,098,588,658	4,994,780,389
2014	82,702,463	35,389,196,340	2,604,802,574	26,007,912,734	4,669,238,150
2015	276,880,611	32,256,245,671	2,117,210,021	21,691,639,775	4,361,452,732
2016	339,495,669	32,187,500,744	2,104,918,050	21,874,589,629	3,785,746,928
2017	591,990,883	39,144,526,699	2,397,062,122	24,010,634,062	4,007,914,030
2018	579,086,394	36,851,840,957	3,077,143,579	22,608,360,745	4,867,217,050
2019	554,151,791	34,045,453,528	3,260,363,013	22,263,553,165	4,817,273,469
2020	584,627,911	3,561,288,834	3,251,153,542	21,759,249,171	4,228,898,539
2021	599,998,070	49,092,198,99	3,724,741,823	29,066,412,473	4,942,852,236

Sumber: *sesric.org*

Several studies have found that exports can increase economic growth, among others Kalaitzi & Chamberlain (2020) found that exports in the Gulf Cooperation Council (GCC) member countries affected economic growth, especially fuel exports. Haryani & Azam (2022) also found the influence of exports on economic growth in Indonesia. The same thing was also discovered by Ouassaf et al., (2023) Saudi Arabia.

Imports refer to the purchase or entry of goods from other countries into the domestic economy. Imports can have a significant impact on a country's economic growth because they create efficiency. The five OIC member countries experienced an increase in imports during the observation period. However, the import value is expected to be no higher than the export value to produce a positive net export value. The needs of people throughout the world will change in type, quantity, and quality. However, not all goods and services needed by a country can be produced domestically. This is related to many factors, including the level of efficiency. Some goods and services needed by a country are more efficient if obtained by importing from other

countries. In several countries it has been found that imports can increase economic growth, for example in China (Usman & Bashir, 2022); Iran (Ebrahimi, 2017); Turkey (Koyuncu & Unver, 2021), Indonesia (Millia *et al.*, 2021); and countries in Asia Pacific (Yoon, 2019).

Table 4. Food Product Import Data for 5 OIC Member Countries 2010-2019 (USD)

Country	Afghanistan	Indonesia	Kazakhstan	Malaysia	Pakistan
2010	705,712,037	11,469,951,173	2,280,512,635	12,785,785,412	4,893,499,810
2011	896,514,061	16,729,664,275	3,937,516,176	16,523,537,208	5,203,143,315
2012	265,326,571	15,827,893,499	4,164,604,835	16,517,713,706	4,845,730,294
2013	645,587,931	16,394,901,037	4,504,908,422	15,609,611,727	4,466,708,089
2014	732,252,616	17,028,238,352	4,243,405,484	16,537,313,014	5,565,097,100
2015	1,484,884,808	14,226,182,427	3,317,743,129	15,413,886,413	5,302,400,597
2016	1,539,443,351	15,754,044,473	2,952,079,599	14,632,832,523	5,856,902,391
2017	2,867,166,171	17,261,094,537	3,381,411,456	15,564,717,192	6,762,205,709
2018	2,520,689,112	19,279,445,596	3,542,040,673	16,235,010,854	6,011,894,435
2019	2,306,152,834	18,186,297,944	3,797,206,314	15,877,883,722	5,362,021,688
2020	2,543,750,640	17,786,399,820	3,964,048,617	16,443,083,218	6,828,364,391
2021	2,331,590,340	22,627,508,390	4,825,474,540	20,219,692,408	9,335,244,424

Sumber: *sesric.org*

Table 5 describes in Indonesia that the rupiah exchange rate tends to experience depreciation against the USD over 10 years starting from 2010-2019. The rupiah exchange rate in 2013 was IDR. 10,461 per USD. Then it weakened to Rp. 11,865 per USD in 2014 & in 2015, namely Rp. 13,389 per USD. This happened due to the decline in export commodities in Indonesia. The decline in demand for exports from various countries will disrupt the economy. If the amount of exports decreases, the rupiah exchange rate will weaken and increase imported goods.

Exchange rate stability is very important for achieving sustainable economic growth. When the value of the local currency is high, exchange rate appreciation has a stronger influence in driving economic growth. When the value of the local currency is low, exchange rate appreciation has a weaker influence on economic growth, this is the case in OECD countries (Kong, 2021), Indonesia (Saidi *et al.*, 2017), 10 countries in Africa (Lawal *et al.*, 2022), India (Vasani Sankarkumar *et al.*, 2019), 45 developing countries (Barguellil, Ben-Salha and Zmami, 2018), Algeria (Touitou, Laib and Boudeghdegh, 2019), and Bangladesh (Khan, 2021). The exchange rate is also the most important resource in international trade which has a broad impact on a country's economic growth through internal relationships with various economic activities

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such as investment, consumption, prices, money supply, foreign exchange reserves, and employment in 125 countries in the world (Han, 2020).

Table 5. Exchange Rate Data for 5 OIC Countries 2010-2021 Per USD

Country	Afghanistan	Indonesia	Kazakhstan	Malaysia	Pakistan
2010	46.45	9,090.43	147.35	3.22	85.19
2011	46.74	8,770.43	146.62	3.06	86.34
2012	50.92	9,386.62	149.11	3.08	93.39
2013	55.37	10,461.24	152.12	3.15	101.62
2014	57.24	11,865.21	179.19	3.27	101.1
2015	61.14	13,389.41	221.72	3.905	102.76
2016	67.86	13,308.32	342.16	4.14	104.76
2017	68.02	13,380.83	326.001	4.3	105.45
2018	72.08	14,236.93	344.705	4.03	121.82
2019	77.73	14,147.67	382.74	4.14	150.03
2020	76.8	14,582.2	413	4.2	161.8
2021	69.3	14,308.1	425.9	4.1	162.9

Source: *https://data.worldbank.org/*

Based on the phenomenon of fluctuating educational investment, exports, imports, and depreciating exchange rates, this will certainly have an impact on economic growth. The author is interested in raising a research theme about the influence of educational investment and economic openness on economic growth in the 5 member countries of the Organization of Islamic Cooperation (OIC). This study innovatively aims to not only identify the individual impacts of these variables but also elucidate their collective influence on the economic growth trajectories of these nations, thereby providing valuable insights for policymakers and stakeholders. This study aims to significantly contribute to the understanding of economic growth by not only identifying the individual impacts of key variables but also by elucidating their combined influence on the economic trajectories of nations. The findings are expected to offer crucial insights that can inform and guide policymakers and stakeholders in their decision-making processes, potentially leading to more effective and comprehensive economic strategies.

LITERATURE REVIEW

Education is one of the mechanisms in an institution, especially those related to production activities, capital accumulation, and human resource development. Because, either directly or indirectly, education will contribute to the economic and social conditions of a region, namely reducing unemployment, reducing poverty, increasing literacy rates, improving people's

quality of life, controlling population, increasing public opinion, etc (Baidybekova, Sauranbay and Yermekbayeva, 2022). Thus, human capital is needed to increase a country's production as suggested by the Cobb-Douglas production function with constant returns to scale: $Y_t = A.K^{\alpha}H^{\theta}L^{(1-\alpha-\theta)}$ where Y is output, A is the total factor of productivity or technical change; K is physical capital, H is human capital, and L is labor. This model can also be expressed as a per capita growth model (Mhere, Chipunza and Masunda, 2013).

Several studies show that investment in education is an important factor in economic growth discovered by Marquez-Ramos & Mourelle (2019) in Spain. They tested the causal relationship between education and economic growth, the result was that increasing educational investment had a positive effect on economic growth. Likewise found by Ziberi et al., (2022), every one-point increase in government spending on education will have a positive impact on economic growth in North Macedonia. The same results were found by Mallick et al., (2016), they proved with the Panel Vector Error Correction Model that education spending causes economic growth to increase in the long term in 14 countries in Asia.

However, there is research that finds that government spending on education does not affect economic growth, as found by Suwandaru et al., (2021). They found that government spending on education in Indonesia during the period 1986 to 2018 was not proven to be able to increase economic growth. The same results have been found by Bosupeng, (2015), using the Granger causality procedure to test the long-term affiliation of variables, it was found that there was no long-term balance between GDP and government expenditure on education in Bostnawa in the 1960-2013 period. Botswana, as one of the high-income countries in Africa, where the government strongly supports efforts to improve the quality of education of its people, especially for developing human resources through education and developing citizens' skills, has not been able to demonstrate the contribution of education investment to increasing economic growth.

Correspondingly, Hecksher-Ohlin stated that two countries will trade because of differences in resources and production between the two countries. This theoretical model has several main assumptions: there are only two countries that use the same technology, two commodities (labor-intensive and capital-intensive), and two factors of production that are constant (Haryani & Azam, 2022). A country chooses to export products that are produced using production factors that are low in price and abundant and imports products that are not available or are scarce in that country. It was also explained that exports greatly influence economic growth. This will benefit the country because it can increase national income and accelerate the

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process of economic growth. Likewise with import activities, limiting the number of import quotas to protect weak domestic producers will increase economic growth. In general, import restrictions will have a broad impact on a country's economy.

The research Mensah & Okyere (2020) found that not only did exports influence economic growth, but the opposite relationship was also found in Ghana for the 2011-2019 period. These results led to the emergence of recommendations aimed at policymakers who should focus on implementing export-oriented policies and encouraging economic growth to achieve sustainable development. A similar thing was found in research conducted by Sharma (2022), of the 107 countries studied (grouped into 2 categories: Northern region and Southern region) in the period 1990 – 2018. Evidence shows that the influence of exports on economic growth is greater in relatively poor countries, namely the southern region.

The results of research on exports, imports, and GDP in India using time series data from 1976 to 2014 were found Mehta (2015). There is evidence of unidirectional causality from GDP to exports, meaning that in the long run, GDP leads to exports but exports do not lead to GDP. There is no causality between GDP and exports; meaning that GDP does not lead to imports and imports do not lead to GDP. A similar thing was found in Malaysia, the results of research by Albiman Md & NN (2016), cannot prove the existence of a long-term relationship between exports and imports on economic growth for the period 1967 - 2010.

Support for the exchange rate as a determinant of economic growth in an open economy was expressed by Walters and De Beer Vasani, et al., (2019). They stated that foreign exchange rates can control a country's economic growth, especially when a country experiences a financial crisis. Apart from that, foreign exchange rates are also important for policymakers. Lawal et al., (2022) found that there was a two-way relationship between economic growth and the exchange rate. A higher exchange rate indicates higher global demand for the currency and has an impact on reducing economic growth. By adopting a vector autoregressive (VAR) model approach, Touitou et al., (2019) found that a decrease in the real effective exchange rate of the dinar would increase economic growth through public spending on consumption and was stimulated by an oil tax in Algeria.

METHOD

This form of research is quantitative research which will examine the influence of educational investment, exports, imports, and exchange rates on economic growth. The type of

data used is secondary data obtained from related agencies, namely Sesric and the World Bank, in the form of panel data. The panel data used includes time series data for 12 years and cross-site data for the five OIC member countries, resulting in 60 observations. The summarized secondary data was tested using the stationarity test and cointegration test. The stationary test aims to prove that data is not stationary. Non-stationarity becomes unimportant as long as the variables are cointegrated, and vice versa. Non-stationary data results in inconsistent least squares estimation results. This causes a large determination value (R^2) and a significant t-test value but has no economic meaning or is called spurious regression (Enders in Lv, 2017).

For panel data, unit root testing uses Augmented Dickey-Fuller (ADF) which is known to have high power for panel data. Panel data can increase degrees of freedom and reduce collinearity between regressions. The hypothesis to be tested is:

H_0: Data is not stationary or has a unit root

H_1: Data is stationary

If the probability value in the unit root test exceeds the critical value (1%, 5%, or 10%) then H_0 is accepted, if the probability value in the unit root test does not exceed the critical value, then H_0 is rejected, H_1 is accepted.

The next data test is the cointegration test which aims to find out whether the observed data has a long-term balance between variables or not. If the variables in the model are cointegrated, then there is a long-term relationship and conversely, if there is no cointegration between variables, then there is no long-term relationship. The cointegration test is carried out to avoid the phenomenon of false (fake) regression (Enders in Lv, 2017). For panel data, the cointegration test used is the Pedroni Panel Cointegration Test. The procedure to determine whether there is cointegration is by comparing the t-statistic value or probability value. If the Pedroni test t-statistic value is greater than the t critical value, then the data is considered to be cointegrated and vice versa. In addition, data is considered cointegrated if the Pedroni test probability value is smaller than the critical value (1%, 5%, or 10%).

After testing the data, it is necessary to test the model to find out the best model to achieve the research objectives. The model tests carried out were the Chow test, Hausman test, and Lagrange Multiplier (LM) test. The Chow test is carried out to determine the best model between Common Effect and Fixed Effect. The best model is the one that has a probability smaller than 0.05 or H_0 is rejected if the probability value is <0.05 (Gujarati, 2012).

H_0: The best model is the Common Effect

H_1: The best model is the Fixed Effect

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The Hausman test is carried out to determine the best model between Fixed Effect and Random Effect. The best model is the one with a probability smaller than 0.05. H_0 is rejected if the probability value is <0.05 (Gujarati, 2012)

H_0: The best model is Random Effect

H_1: The best model is the Fixed Effect

The LM test was carried out to determine the best model between Common Effect and Random Effect. The best model is if the LM statistical value is greater than the chi-squares statistical value then H_0 is rejected (Gujarati, 2012).

H_0: The best model is the Common Effect

H_1: The best model is Random Effect

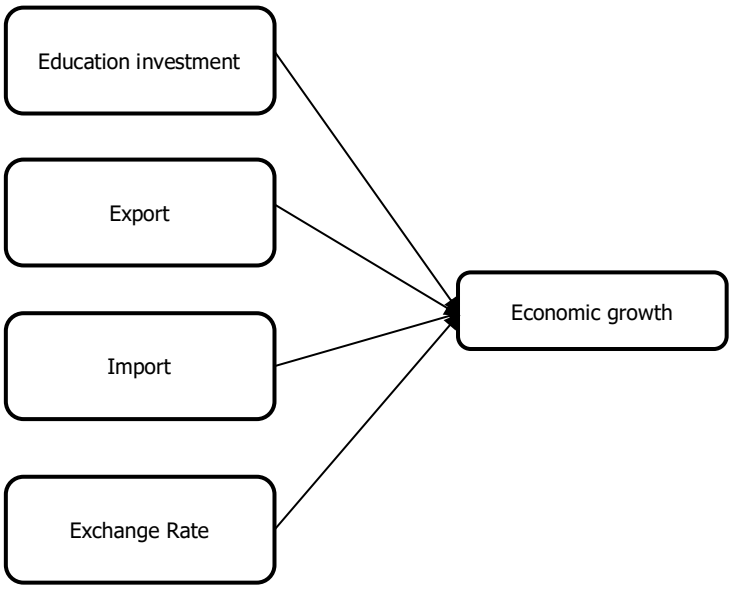

Figure 1: Research Framework

Once the best model is known, hypothesis testing is carried out using multiple linear regression analysis with the following equation:

$$PE_{it} = \beta_0 + \beta_1 IP + \beta_2 X_{it} + \beta_3 M_{it} + \beta_4 NT_{it} + e_{it} \quad (1)$$

Where PE is economic growth measured in percent; IP is an educational investment measured in rupiah units; X and M are exports and imports measured in US dollars; NT is the exchange rate measured in US dollars, which is the ratio of the rupiah and US dollars; β_0 is the intercept or constanta; β_1, β_2, β_3, β_4 is the regression coefficient; $_i$ are the 5 OIC member countries that are the objects of research; $_t$ is research period; and e is residual.

RESULTS AND DISCUSSION

The stationary test shows that all data used is at the first difference level. This indicates that the data can be used in further testing.

Table 6. Stationary Test Results

Variable	Critical value (levin, lin & chu)		Conclusion
	Level	*1st difference*	
PE	0.0000 < 0,05	0.0000 < 0,05	Significant at level and 1st difference
IP	0.1422 > 0,05	0.0000 < 0,05	Significant at 1st difference
X	0,1975 > 0,10	0.0000 < 0,05	Significant at 1st difference
M	0.1180 > 0,05	0.0000 < 0,05	Significant at 1st difference
NT	0.4185 > 0,10	0.0000 < 0,05	Significant at 1st difference

Source: Secondary data output after processing (Saputra, 2023)

Tables 7 and 8 show that the Group ADF-Statistic probability value is smaller than the crisis value of 5%, so it can be concluded that together or in groups, the data on economic growth (PE), education investment (IP), exports (X), imports (M), and the exchange rate (NT) cointegrate in the long run. Based on the results of the cointegration test, it can be seen that the trace static value > critical value is 83.96558 > 69.81889, as well as the max-Eigenvalue > critical value, namely 36.70867 > 33.87687. So it can be concluded that in the long term, there is cointegration in this equation.

Table 7. Johansen Cointegration Test Results Based on Trace Statistics

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.474819	83.96558	69.81889	0.0025
At most 1 *	0.346043	47.25691	47.85613	0.0569
At most 2 *	0.223661	23.04819	29.79707	0.2437
At most 3 *	0.102089	8.617719	15.49471	0.4019
At most 4 *	0.042572	2.479744	3.841466	0.1153

Source: Secondary data output after processing (Saputra, 2023)

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Table 8. Johansen Cointegration Test Results Based on Max-Eigenvalue

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.474819	36.70867	33.87687	0.0223
At most 1 *	0.346043	24.20872	27.58434	0.1276
At most 2 *	0.223661	14.43047	21.13162	0.3308
At most 3 *	0.102089	6.137975	14.26460	0.5956
At most 4 *	0.042572	2.479744	3.841466	0.1153

Source: Secondary data output after processing (Saputra, 2023)

The selection of the best model that is suitable for the regression equation is determined by the results of the Chow Test and Hausman Test which show the same results so that the Lagrange Multiplier (LM) Test does not need to be carried out again. The results of the Chow Test and Hausman Test show that the best model is the Fixed Effect Model (FEM). FEM assumes that the intercept (constant) and slope (coefficient of the independent variable) are constant, both between regions and between observation times.

Both model tests produced a probability that was less than the critical value of 5%, this shows that the alternative hypothesis (H_1) was accepted, so it was decided that the best model for the regression equation was FEM. The fixed effects model means that there are differences in the intercepts of education investment, exports, imports, and exchange rates, while the slopes are the same between regions.

Table 9. Best Model Selection Test Results

Test	Probability	Significance	Best Model
Chow (Common vs Fixed)	0.0276 < 0,05	Significant	*Fixed Effect Model*
Hausman (Random vs Fixed)	0.0495 < 0,05	Significant	*Fixed Effect Model*

Source: Secondary data output after processing (Saputra, 2023)

Based on model tests based on the best model, the results obtained are that education investment and exports have a significant positive effect on economic growth, while imports and the exchange rate have a significant negative effect on economic growth. The ability of these four variables to explain variations in economic growth values is 72% (seen from the Adjusted R^2 value of 0.718), while 28% will be explained by variables outside the model. From these four variables, it can be concluded that investment in education has the greatest positive influence on economic growth, and imports have the greatest negative influence on economic growth. Apart from that, it can also be concluded that together, these four variables have a significant

effect on economic growth.

Table 10. Hypothesis Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23.22501	15.27969	1.519992	0.1347
Education investment	4.180074	0.667759	6.259857	0.0000
Export	0.735711	0.321237	2.290245	0.0262
Import	-4.473503	0.740591	-6.040452	0.0000
Exchange rate	-2.563702	0.790111	-3.244739	0.0021
Effects Specification				
Cross-section fixed (dummy variables)				
Weighted Statistics				
R-squared	0.619432	Mean dependent var		0.597041
Adjusted R-squared	0.559735	S.D. dependent var		1.978005
S.E. of regression	0.931560	Sum squared resid		44.25796
F-statistic	10.37629	Durbin-Watson stat		1.956505
Prob(F-statistic)	0.000000			

Source: Secondary data output after processing (Saputra, 2023)

The resulting equation is as follows:

$$Y = 23.22501 + 4.180074IP_{it} + 0.735711X_{it} - 4.473503M_{it} - 2.563702NT_{it} \quad \text{..... (2)}$$

What can be explained from Table 10 is that investment in education and exports have a positive effect on economic growth. This means that if there is an increase in these two variables, economic growth will also increase. Imports and the exchange rate have a negative effect, indicating that if these two variables increase, it will reduce economic growth.

Education investment has a positive and significant effect on economic growth in OIC member countries (Afghanistan, Indonesia, Kazakhstan, Malaysia, and Pakistan). In general, government intervention is very much needed to increase the economic growth of each country, as is the case in most Western countries (Sardoni, 2024) and in the OECD (Morina, Misiri and Gashi, 2023). One of the fundamental sectors of a country is the education sector. The quality of human resources is influenced by education as a determining factor contributing to the country's development. There are several reasons for this. First, higher education tends to improve the skills, knowledge, and abilities of the workforce. A more skilled and educated workforce tends to be more productive, which in turn can increase output per hour worked and overall economic growth. Second, a good education not only increases individual income but also improves the overall quality of life. Educated people tend to have better health, have a higher life expectancy, and are more likely to participate in productive economic and social activities. Third, government spending on education is a long-term investment that has the potential to

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yield large economic dividends. By building strong human capital, governments can create a solid foundation for long-term economic growth and sustainable development. Take Indonesia for example, education spending is a government policy in reforming the education sector to increase the level of government spending on education to 20 percent of the budget since 2002. The form of education investment carried out by the Indonesian government is by providing a school operational assistance (BOS) program. BOS is an important development in the field of education funding, this program funds represent 12 percent of the total education budget.

Education is one component of calculating the human development index which is used to measure human quality. The higher the average number of years of schooling in a country, it is assumed that human quality in terms of education is relatively high. Developed countries have focused on improving human quality as the main factor in the development process. However, in several developing countries, human quality development is still a companion to development that originates from natural resources. Because developing countries still adhere to the belief that differences in income inequality are caused by differences in ownership of natural resources. The results of this study are in line with Mhere et al., (2013) in Zimbabwe; Valero (2021b) in several countries; Ziberi et al., (2022) in North Macedonia; Mallick et al., (2016) 14 countries in Asia; and Xu et al., (2024) in G-7 Nation. However, it is not in line with Suwandaru et al., (2021) in Indonesia; and Bosupeng, (2015) in Boston.

Export has a positive and significant effect on economic growth in OIC. This is due to several reasons. First, exports generate important foreign exchange earnings for the country, which can be used to pay for imports of necessary goods, repay foreign debt, or finance national development projects. Stable foreign exchange earnings can promote economic stability and economic growth. Second, exports strengthen a country's economic engagement in international trade, opening up access to a wider global market. This can improve economic connectivity, enable the exchange of goods, services, and technology with other countries, and expand business opportunities for local companies. Especially in Muslim countries, Indonesia can increase the position of halal food exports in general even though the importing countries are countries with a majority non-Muslim population such as Brazil, India, the United States, Russia and Argentina. However, in these countries, the number of Muslim populations is increasing. Halal food that is processed using good methods and ingredients is not only consumed by Muslims but is also sought after by non-Muslims. This phenomenon emphasizes the enormous potential of OIC countries to increase production and exports of halal food to meet the needs of the

population in these countries, apart from fellow OIC member countries. Malaysia is also a country that implements Islamic sharia in its economy and is the leading and most advanced country compared to other countries. The excellence of the halal food industry makes Malaysia a pioneer and a country with the best global halal standards, both in terms of regulations and management processes. Based on data on total exports of food products, Malaysia experienced an increasing trend in exports from USD 21 billion to USD 24 billion from 2015 to 2017. Third, success in exports attracts foreign investors in OIC countries, as it demonstrates economic stability. The impact results in increased foreign direct investment (FDI) into the country, which drives infrastructure development, job creation, and economic growth.

This research also supports the Hecksher-Ohlin theory (Haryani & Azam 2022) which states that the country's products will be exported with intensive production factors at low costs. This method can benefit the country because it can increase national income and speed up the process of economic growth. Exports are trade activities between countries that can encourage the dynamics of international trade growth, making it possible for a developing country to achieve economic progress comparable to more developed countries, or vice versa. Competitiveness in foreign markets, protection policies in other countries, economic conditions in other countries, and foreign currency exchange rates are the main factors in determining exports from one country to other countries.

Increasing exports will increase income or foreign exchange for a country while increasing demand for domestic goods or services. The high demand for domestic products will have an impact on increasing domestic productivity, which in turn will produce more job opportunities. The more human resources that are produced, the more output will be produced. This is what causes economic growth to increase. This research is in line with the findings conducted by Kalaitzi & Chamberlain (2020) the member countries of the Gulf Cooperation Council (GCC); Haryani & Azam (2022) in Indonesia; Ouassaf et al., (2023) in Saudi Arabia; Mensah & Okyere (2020) in Ghana; Sharma (2022) and in 107 countries. But contrary to research from Mehta (2015) in India; and Albiman Md & NN (2016) in Malaysia.

The research results found that imports had a negative effect on economic growth in OIC member countries (Afghanistan, Indonesia, Kazakhstan, Malaysia, and Pakistan). The findings of this research contradict the Hecksher-Ohlin theory (Haryani & Azam, 2022), which states that a country will import products that use production factors that it does not or rarely has, thereby generating profits for that country. However, on the contrary, increasing imports will reduce

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domestic demand at home. This recommends that the value of a country's exports should be greater than the value of its imports. A positive net export value will increase national income, and vice versa. If imports are required, then the imports must be able to increase domestic productivity.

This is influenced by several things. First, the value of imports in OIC countries increases the trade deficit. This deficit can lead to a reduction in the country's foreign exchange reserves, increase foreign debt, destabilize the overall economy, and negatively affect growth. Second, the high dependence on imports to meet domestic needs in OIC countries also increases the risk of international market fluctuations. Disruptions in import supply, increases in commodity prices, or changes in foreign trade policies can have a negative impact on growth. Third, imports cause demand for local goods to decrease. A decrease in public demand will reduce the amount of production. As a result, the workforce needed has decreased and the impact is that the number of jobs available becomes limited. This decline causes a decrease in national production through three approaches, namely production, income, and expenditure. Ultimately, the decline in national output, whether in the form of products or services, causes a country's economic growth to slow down or experience a decline. The research results are in line with research for China (Usman and Bashir, 2022), Iran (Ebrahimi, 2017); Turkey (Koyuncu & Unver, 2021), Indonesia (Millia *et al.*, 2021); and several countries in Asia Pacific (Yoon, 2019). They found that imports have a negative effect on economic growth.

In general, trade openness in economic globalization has an impact on economic growth, as happened in 8 countries in the Balkans. In the period 2000 to 2019, it was proven that there was a positive influence of trade openness on economic growth with a high level of statistical significance (Kurteš, Amidžić and Kurušić, 2023). However, it was found that globalization has not been able to increase economic growth in Ghana, in fact, every 1% increase in economic globalization will reduce economic growth by 1.8% in the short term and 3.9% in the long term (Baidoo *et al.*, 2023). Even, trade openness has a negative impact on overall economic growth and development in Jordan (Fraihat *et al.*, 2023).

The results of this research found that the exchange rate had a negative effect on economic growth in OIC member countries (Afghanistan, Indonesia, Kazakhstan, Malaysia, and Pakistan). A fair exchange rate can make a positive contribution to economic growth. On the other hand, if the domestic exchange rate against foreign currency (USD) falls, then the exchange rate will become an obstacle to economic growth. The government will be burdened with larger payments if the value of the domestic currency falls, which will burden the country's

national economy. Larger payments cause the country's foreign exchange reserves to decrease and cause the country's ability to maintain high, strong, and sustainable economic growth to decrease as well. This is influenced by several things. First, the depreciation of domestic exchange rates in OIC countries increases the cost of importing goods and services from abroad. This leads to inflation, as higher prices of imported goods are passed on to consumers in the form of higher prices. High inflation can reduce consumer purchasing power and hinder economic growth. Secondly, weakening exchange rates in OIC countries increase the burden of foreign debt if the debt is denominated in foreign currency. A decline in the domestic exchange rate will make the amount of local currency debt larger, resulting in a greater financial burden for the government and suppressing economic growth. Third, large exchange rate fluctuations in OIC countries encourage speculative activity in the foreign exchange market. This can result in greater volatility and cause even greater economic instability, as currency movements are not based on sound economic fundamentals and can ultimately depress economic growth.

The exchange rate is one of the benchmarks for advancing economic growth. Therefore, the government must maintain exchange rate stability so that economic growth can run well. On average, currency depreciation has a greater impact on economic growth in developing countries than in developed countries. Maintaining the exchange rate at a stable level that tends to be low can encourage economic growth, especially in developing countries (Ridhwan, Ismail and Nijkamp, 2024).

The results of this research are in line with previous research, especially research in OECD countries (Kong, 2021); in Indonesia (Saidi *et al.*, 2017); 10 countries in Africa (Lawal *et al.*, 2022); in India (Vasani et al., 2019), in 45 developing countries (Barguellil, Ben-Salha and Zmami, 2018), in Algeria (Touitou, Laib and Boudeghdegh, 2019), in Bangladesh (Khan, 2021); and several countries in the world (Blecker, 2023). Findings in Turkey show that exchange rate misalignment affects economic growth asymmetrically, overvaluation and undervaluation hinder economic growth in Turkey, so the Turkish central bank needs to intervene in the foreign exchange market in the short term to reduce excessive exchange rate distortions and avoid resource allocation inefficiencies (Khalid *et al.*, 2023).

CONCLUSION

The findings of this research state that investment in education and exports has a positive effect on growth in the five OIC member countries. On the contrary, imports and exchange

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rates have a negative effect on economic growth. The implications of this research, the governments of each country to continue to pay attention to budget allocations for investment in human resources (especially in the education sector). So that labor productivity increases and has a positive impact on economic growth. The government must also continue to encourage efforts to equalize education and improve quality, which is a major issue in developing countries so that its contribution to economic growth and economic equality can be maximized. In addition, the government is expected to prioritize export growth to increase economic capacity. It must convince the world that the exports of OIC countries can develop and increase to increase the amount of foreign exchange earnings. Export-related policies must be strengthened so that domestic industry can export its products to international markets.

The government needs to reduce dependence on imports of raw materials and food by alternatively facilitating raw materials and food that can be developed independently. The government must also maintain exchange rate stability by reducing the consumption of foreign goods and replacing it with the consumption of local goods so that exchange rate stability can be achieved. For this reason, the government must encourage Import Substitution Industries (ISI) in an effort to reduce dependence on imported goods. The limitation of this research is that it only involves five OIC countries, so the scope of this research is not very broad. In addition, the data span used is only until 2021 due to data limitations. Finally, the variables used to see economic growth are still limited. Future research can research this topic with a more varied scope of OIC countries, the data span used is more updated and the variables used to view growth are more complex.

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