Effects of Tax Incentives and Subsidies on Economic Growth in Developing Economies.

Okoth Erick
MA. Economics student at Sakarya University, 54050 Sakarya, Türkiye
BSc. Economics and Statistics graduate of South-Eastern Kenya University, 170-90200 Kitui, Kenya.

DOI: https://dx.doi.org/10.47772/IJRISS.2023.70744

Received: 14 June 2023; Revised: 26 June 2023; Accepted: 01 July 2023; Published: 01 August 2023

ABSTRACT

Tax incentives are defined as tax rules that go against the generally accepted principles of tax neutrality and fairness which are aimed at fostering both foreign and local investment since they promote greater investment competitiveness among emerging nations, maximize returns on investments, and reduce costs and inefficiencies in the investment market. Subsidies on the other hand are described as any government aid to private industry producers or consumers, whether financial or in-kind, which requires no commensurate repayment to the government in exchange but prerequisite the benefit on a certain conduct by the receiving firm or industry. This study aims to investigate the potential effectiveness of tax incentives and subsidies in enhancing economic development and growth among developing economies. Most developing economies, if not all, that are members of the UN organization work toward achieving the SDGs by 2030, and this is significantly influenced by the amount of investment they attract to boost economic growth and encourage improvements in citizen welfare. This study uses secondary data from World Bank, IMF, and OECD reports for a target period of 2010 – 2022 to examine how tax incentives affect economic development in emerging economies with a focus on Indonesia, Kenya, Malaysia, and Türkiye. For this study, the researcher used STATA version 15 to investigate the underlying relationship between the variables. The researcher performed a panel data regression analysis using the generalized estimating equations approach. The P-value approach used by the researcher assesses the relevance of the study's variables, for which the p-value is set at 0.05. This is a comparative study, as such the researcher prefers to use the generalized estimating equation method to perform a panel data regression analysis because it can simulate the population as a whole and because the data may be correlated, which would violate the independence assumptions of other traditional regression procedures. The study obtained positive and significant effects of subsidies on investments and economic growth. Incentives on taxes on production, sales, and transfers and taxes on profits and capital gains registered a non-significant positive effect on investment; however, the effects were insignificant and negative for economic growth.

Keywords: tax incentive, economy, investments, growth, subsidies

JEL Classification: H25, F21, O57

INTRODUCTION

Economic growth and development are goals believed to be pursued by all African countries and other developing economies (Munongo, 2015). Subsidies according to (Schwartz et al., 1995), can be well-defined as any government aid to private industry producers or consumers, whether financial or in-kind, that requires no commensurate repayment to the government in exchange, but precondition the benefit on a certain conduct by the receiving firm or industry. According to (Klemm et al., 2010), tax incentives are policies that offer a more advantageous tax treatment for a particular activity or sector of economy

compared to that offered to the industry as a whole. Tax incentives may be termed as those tax provisions that defy commonly applied principles of tax neutrality and fairness and are aimed at creating an enabling environment for both local and foreign investments due to increased investment competition among developing countries, maximizing return on investments, and minimizing costs and inefficiencies in the investment market(Johnson et al., 2013). Worldwide governments typically offer tax incentives, which can be in the manner of tax holidays, investment allowances, tax credits, etc., to entice investment from both domestic and foreign companies, tax rate deductions, administrative dissection, job creation credits and postponement of tax liability. Governments issue incentives on tax due to underlying inefficiencies such as poor infrastructure, bureaucratic complexities, red tapes, and political instability. Instead of solving these investment barriers, government find it easier to give tax incentives instead, (Clark, 2007). However, if these challenges would have been solved and incentives were not issued there could be increased government revenue. Tax incentives can be used to stimulate economy growth, however, and according to law of marginal utility there is only a certain level for which economic stimulants such as tax incentives and subsidies can result into an improved economy, above this point the economy would be negatively affected. This research therefore sought to examine to what extent tax incentives may be efficient in improving economic growth and development. Most developing economies if not all that are in the UN body strive to obtain the SDGs by 2030, and this is greatly influenced by levels of investment they attract so as to promote economic development and encourage improvement of their populations' welfare (United Nations, 2018).

According to (Daude et al., 2014), tax incentive is generally needed to enhance and foster competitiveness in the investments attracted to the country. The need for the tax incentives has been justified by the necessity to correct differences caused by externalities in the market localization and delocalization of firms and dump subsidized production costs on companies during the sectors downturn (Klemm et al., 2010). Additionally, in developed economies however, tax incentives are employed to promote research and development on how to improve efficiency in production, enhance export activities, increase competitiveness of their products in the global market and to preserve the existing investment base within the economy (Azeez et al., 2018). Despite the justifications that these incentives are to attract investment, economists have also pointed to the inefficiency and ineffectiveness of these incentives arguing that the greatly needed income by developing economies is deprived of them through the issuance of tax incentives, as a result public revenue greatly required to fund the provision of public goods and services and infrastructural development is reduced. Additionally, it also lowers the tax base of such economies (Alvic Padilla et al., 2020). Tax incentives are a commonly used policy tool to attract investment, promote economic growth, and boost employment opportunities. Developing economies like Indonesia, Kenya, Malaysia, and Türkiye, have implemented tax incentives in recent years to encourage private investment both local and foreign to stimulate economic growth. However, the effectiveness of tax incentives in achieving these objectives remains a subject of debate.

According to a report by the United Nations when assessing the use of tax incentives by developing countries highlights that facts incentives may be bad in both theory and its application since they theoretically distort investment decision and as such free-market forces may be overruled. Also, in practice they are often ineffective, inefficient and maybe abused due to corruption among developing countries (United Nations, 2018). According to IMF reports, it may be difficult to fully analyze how tax incentives would improve the marginal investment associated with it. The author was also alive to the fact that investment is a complex decision-making process and that there are many other factors other than tax incentives that may influence the decision (Sebele-Mpofu et al., 2022). According to (Alvic Padilla et al., 2020), tax incentives may be associated with inadequacies in governance, corrupt practices, lack of transparency, inequality and porous tax structures that may lead to tax avoidance and evasion. Additionally, tax incentives, especially in African countries, are interlinked with increased illicit financial flows. Due to the unavailability of data on taxes and tax incentives among developing countries, it is difficult to fully examine the effect of tax incentives on economies in relation to increased investments. As a result, there exists fewer studies on this end, especially on the cost and effects of tax incentives (Stausholm, 2017).

Additionally, reports from bodies like, the IMF, OECD and World Bank have called on the re-evaluation of tax incentives among developing economies (Sebele-Mpofu et al., 2022).

This study sought to investigate the effect of subsidies and tax incentives on economic growth in developing economies with a special interest in Indonesia, Kenya, Malaysia, and Türkiye, using secondary data from 2010 to 2021. To add to this pool of knowledge the author examined the effect of tax incentives and subsidies on investment and whether any perceived increase in investment translated into increased economic growth.

LITERATURE REVIEW

In this section the author investigates previous literature on the topic of interest to put into perspective the findings and conclusion of select relevant studies. Here, the author discussed the literature review in two parts, both theoretical and empirical literature.

Theoretical Literature review

Laffer curve theory on tax incentives by Arthur Laffer, a supply-side economist in 1974 proposed the theory on the grounds that there is a link between the rate of taxation and tax revenue and that decreasing these rates would increase tax revenue generated. According to (Latif et al., 2019), a lower tax rate may stimulate additional output and increase tax revenue. Low tax rates increase the tax base of an economy, which promotes business growth. As a result, tax incentives positively affect economic growth. The other Neoclassical theorists contend that tax laws should be created with the following presumptions in mind: taxes should be as low as feasible, and firms should be given large tax exemptions. Otherwise, a large tax burden would stifle economic growth and constrain corporate investment strategies, which would result in a decline in productive capital generation and a downturn in the economy. A limited taxing strategy would enable the market to supply on its own for rapid developments and would lead to a significant extension of the taxation base ((Dang & Sui Pheng, 2015). On the contrary, Keynes believed that rapid economic growth required both a market expansion and an increase in consumption. So, at the effective demand level, state intervention is successful. The correlation between economic growth and financial savings only exists when there is full employment, according to one of the central principles of Keynes' theory. Contrarily, enormous amounts of savings hinder economic growth because they are a passive form of income and are not used to finance output; as a result, Keynesians advocated for the taxation of excessive savings. This is why the government must intervene with the aim of using taxation to deduct income savings to finance investments and cover government costs. Keynes argued that high progressive tax rates are necessary and that lower tax rates reduce state revenue, which in turn increases economic volatility. In other words, Keynes believed that when it came to regulatory frameworks, taxes had to play the most significant role. High taxes affect the economy's stability, spur economic growth, and function as integrated flexibility measures within the framework of the many economic entities (De Vroey et al., 2010).

This research was also be backed up by the Solow long-run growth model. According to Robert Solow's (1956) Solow growth model, investments and savings are the main forces behind economic growth. These factors increase capital stock, which promotes full employment as well as national revenue and output. The rate of growth of the national income and product increases as these rises. Robert Solow also emphasizes that capital deepening and capital widening, which ensure capital accumulation by increasing the quantity of capital per worker and providing capital to new workers as the population grows, respectively. The imposition of taxes has an impact on output because it reduces the effective marginal rate of return on capital and the incentive of representative agents to save. The reduced incentive to save will lead to a smaller capital stock and lower output. As a result, there will be a decrease in overall productivity and in turn growth. The Solow model also demonstrates that, in the short term, capital accumulation and growth tend to decline when the marginal return on capital declines; nevertheless, taxes have no impact on the long-

run steady-state growth rate. (Ireland, 1994)

Empirical literature review

According to (Azeez et al., 2018), on the effects of corporate tax incentives, VAT, and customs duty on the Nigerian economy, employed a regression and correlation analysis using data from the central bank of Nigeria database. From their findings, they called for a revisit of the VAT and customs duty on imported goods to attract more investment, as the research concluded that these incentives had a positive effect on the economy. (Gitonga, 2017), while analyzing the effects on the Kenyan economy using time series data and a regression analysis, found out that wear and tear allowances had a significant positive effect on FDI and attracting FDI. Additionally, investment deductions and industry building allowances had no significant effect on FDI inflows. (Ugwu et al., 2020), on a study on the Nigerian economy, found a significant positive relation between tax incentives and capital formation. Also, low corporate tax was observed to attract higher private investment and increase total capital formation. According to (Haiyambo, 2013), when studying the Namibian economy, he used secondary data and data from a survey with foreign investors to find out that tax incentives had a positive effect on FDI inflows and that they attract foreign companies to invest. However, the researcher also pointed out that, due to the ever-changing business environment, there was a need to frequently keep the incentive system up to date in relation to current trends. According to (Siyanbola et al., 2017) in their study on sub-Saharan African countries, used a linear regression model with the OLS technique to find out that there was a positive effect of tax incentives on economic growth, adding that increasing their use in productive and priority sectors of African economies would boost economic growth. Consequently, they recommended that Sub Saharan African countries should employ tax incentives for such sectors. (Appiah-Kubi et al., 2021), who studied the effect on 40 African countries using economic modeling for the tax incentives, observed that foreign direct investments respond to a lower corporate tax rate and that foreign investors would prefer places where there are longer tax holidays and lower withholding tax. However, the author was also keen on the possible negative effects. The research recommended restructuring the tax incentive systems in most African countries, which may lead to lower tax revenues.

According to research by (Alegana, 2014) on the Kenyan economy used descriptive statistics, correlations, and regression analysis to find an inverse relationship between the GDP growth rate and the tax incentive. The author recommended that the incentives be evaluated with their costs and benefits to the economy prior to their application. Additionally, once implemented, their constant review becomes a necessity. (Nwidobie, 2020), on the Nigerian economy, finds out that tax incentives have no impact on Nigeria's economic growth. The study also revealed that Nigeria's GDP was static, and that the apparent GDP growth brought about by tax incentives was paradoxical. The research that used secondary data to perform the analysis further stated that the tax incentives' impact on growth is still not clear. (Alexander D Klemm & Stefan van Parys, 2009), who studied the effect on forty developing countries in Latin America, the Caribbean, and Africa, used a spatial econometric technique on panel data, a dynamic panel data econometric technique, and descriptive statistics to examine the effect.

The researchers found that larger tax holidays and lower corporate tax rates were significant in deriving more FDI in Latin America and the Caribbean. However, in Africa, they were not effective in capital formation toward economic growth. The researchers recommended that the use of incentives be contextualized according to the needs of the respective economy and administrative capacity. (Abramovsky et al., 2018), in their study on middle- and low-income countries with special interest in Ethiopia and Ghana, found that incentives provide a two-sided effect. While it boosts investments and revenues from investments, it also leads to the loss of significant amounts of revenue. The research advocated for the use of cost-based incentives instead of profit-based incentives. Further suggesting that developing countries should improve the structure, governance, and administration of tax incentives to fully realize their benefits. In the light of the above studies the researcher seeks to investigate the effect of tax incentives and subsidies on

economic growth. This research, however, will only focus on tax rates on production and income, profits, and capital gains to draw conclusions to the research question.

Conceptual framework

To draw the conclusions from this research and to investigate the effect of tax incentives on economic growth in developing economies of Indonesia, Kenya, Malaysia and Türkiye, the following framework will be used.

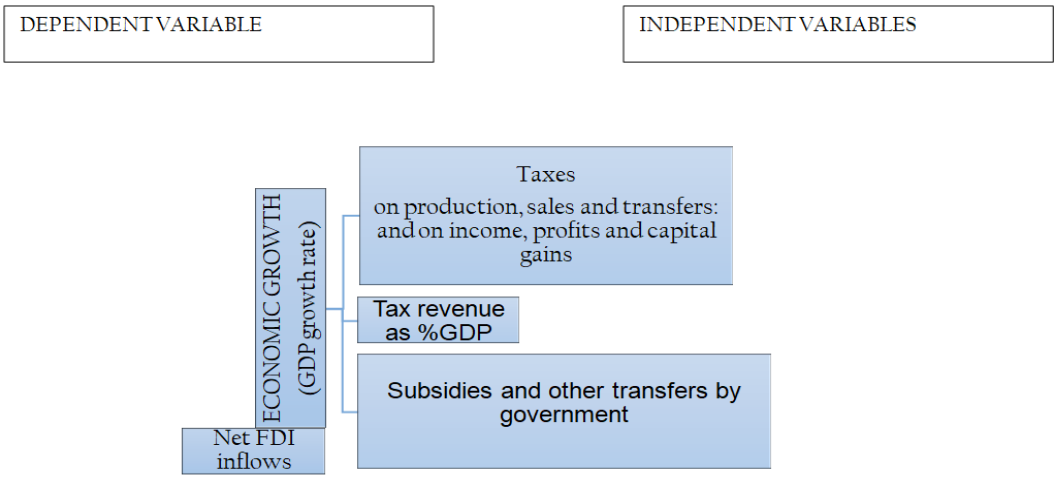

Figure 2.1 Conceptual Framework, (Author,2023)

RESEARCH METHOD

This chapter highlighted the type of data used and why it was the most preferred, sources of the data, type of research design and data analysis methodology that will be employed during the analysis.

The research sought to describe the relationship between tax incentives and subsidies on economic growth in the developed economies of Indonesia, Kenya, Malaysia and Türkiye, as such a descriptive research design is employed in the study(Mugenda, A., Mugenda, 2019). Additionally, a diagnostic approach was used to inspect the affiliation between the variables of interest in this study (Kothari, 2004). The study adopted secondary data and used archived statistics and reports to obtain the data used in this research. Data was mainly obtained from the World Bank, OECD reports, and International Monetary Fund (IMF). The researcher preferred secondary data since they are more accurate than primary data due to the fact that the organizations providing the statistics have adequate equipment essential for gathering and maintaining better quality data (Newton & Rudestam, 2013). The researcher chose the period 2010 to 2021 as the target period, since the researcher would like to investigate the impact of subsidies and tax incentives, which were greatly adopted by developing countries after the global financial crisis of 2007-2008. The researcher selected the four economies of Indonesia, Kenya, Malaysia, and Türkiye because they are all emerging market economies affected by challenges of poverty and unemployment, inadequate infrastructure, inflation, corruption to some degree, a complex regulatory environment, and unsatisfactory resource distribution and greatly depend on investments especially foreign as a measure to stimulate economic growth. The collected data was edited, cleaned and reliability tests were also carried out before data analysis(Saunders et al., 2019). The researcher used STATA version 15 for this investigation. In order to clarify the link between the variables under examination, the researcher carried out a panel data regression analysis using the generalized estimating equation method since being a comparative study, this method was preferred as it can simulate the population as a whole and because the data may be correlated or non-normally distributed, thus violating independence and normal distribution assumptions made by other traditional regression procedures. Also, the researcher preferred this method since the analysis comprised binary variables of tax incentives on production and tax on profits and capital gains for which the generalized estimating equation

method is most preferred (Hubbard et al., 2010). The P-value approach was also used by the researcher to assess the relevance of the study's variables for which the p-value was set at 0.05. The variable was considered significant in the study when the level of significance obtained was less than 0.05. The model used in the analysis was as follows.

$$Y = \propto + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu$$

Where;

$$Y - Economic\ growth\ as\ GDP\ growth\ rate\ per\ annum\ and\ FDI\ inflows\ as\ \%GDP$$
$$X_1 - totaltaxrevenuesas\ \%GDP$$
$$X_2 - subsidiesandothertransfersas\ \%\ of\ total\ government\ expenditure$$
$$X_3 - totaltaxesonincome, profitsandcapitalgains\ used\ as\ percentage\ of\ GDP$$
$$X_4 - totaltaxesonproduction, salesandtransfersin\ USD\ used\ as\ logarithm\ values$$
$$\mu - random\ error\ term$$
$$\propto - constant\ to\ the\ equation$$
$$\beta_1 \dots \beta_4 - estimatedcoefficients$$

Equation 3.1 Regression equation (Author,2023)

RESULTS OF ANALYSIS AND DISCUSSION

In this section the researcher presented an analysis for the relationship between tax incentive measures and subsidies on economic growth, and the comparison of these effects for the economies of Indonesia, Kenya, Malaysia, and Türkiye as well as the interpretation of data findings from 2010 to 2021, financial years for the economies of interest. It also highlights the data presentation, descriptive statistics, inferential statistics, and their interpretation thereof. It is worth noting that the data obtained for the four countries was consolidated into a single panel time series data to generate a model that was used to come up with the conclusions. As such, the author assumed the single model to be representative of the four countries under consideration.

Descriptive analysis

In this section the author discusses the descriptive statistics for the data that was used in the study. The consolidated panel data can be summarized with descriptive statistics as below. The number of observations on the panel was N=48 representing the number of observations for all the four countries for the period 2010-2021. The GDP growth rate had a mean of 4.922%, standard deviation of 2.807 and with minimum and maximum of -5.534% and 11.353% respectively. Tax revenue as a percentage of GDP had a mean of 14.072%, standard deviation of 3.047 and with minimum and maximum of 7.157% and 19.214% respectively. For subsidies and other transfers as a % of total government expenditure the mean obtained was 45.348% standard deviation of 10.121 and minimum of 23.705% and maximum value of 67.108%. Net FDI inflows as %GDP was observed to have a mean of 2.029%, a standard deviation of 1.144 a minimum value of 0.392% and a maximum value of 5.074%. The total taxes on income, profits, and capital gains as %GDP had a mean of 34.783% a standard deviation of 11.282, a minimum value of 16.349% and a maximum value of 52.858%. Finally, total taxes on production, sales and transfers were found to have a mean value of 8503449 USD, a standard deviation of 6305694 with minimum and maximum values of 2214658 USD and 3.45e+07, respectively.

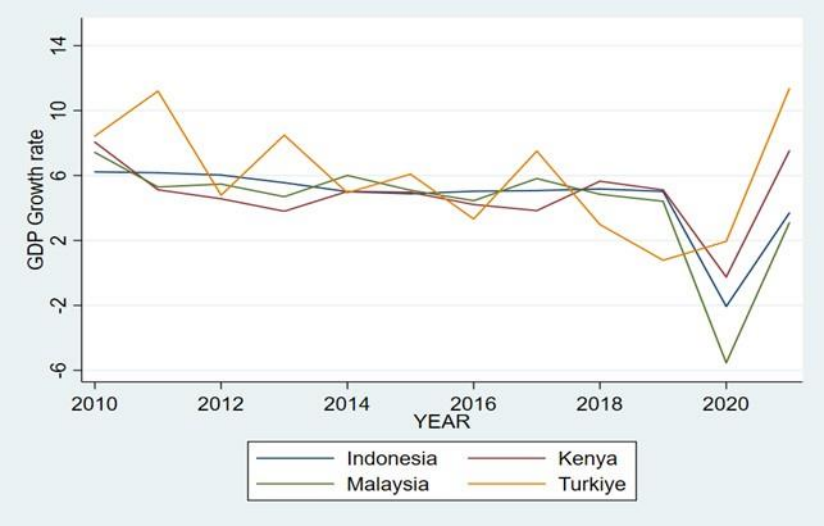

Figure 4.1.1: Descriptive statistics (Author, 2023)

Multicollinearity

As can be observed in the table below, the variables did not register any severe multicollinearity problems as correlation coefficients obtained were less than 0.7. The variables GDP growth rates had weak positive correlations with all variables except with total taxes on income, profits, and capital gains as %GDP which indicated a weak negative correlation with GDP growth rates. From the summary table below, it can be concluded that the data used was free from multicollinearity.

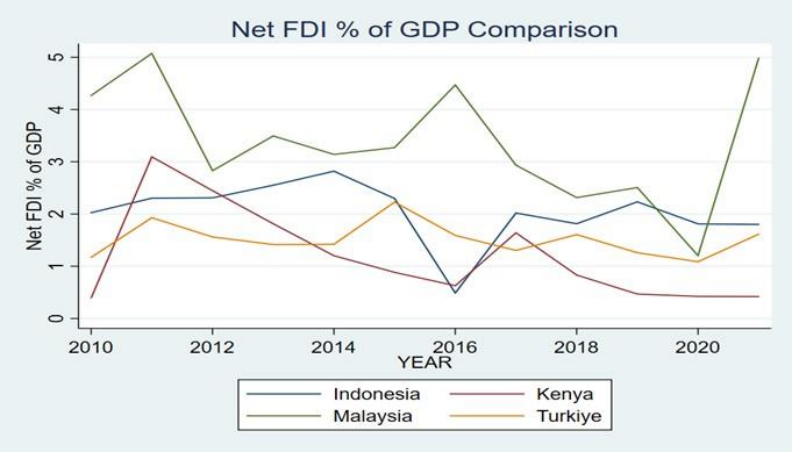

Figure 4.1.2: Correlation test (Author, 2023)

Normality test

To test the normality of the dataset to be analyzed the researcher used the Shapiro Wilk test (W), which is a more exclusive test for normality, compared to the Kolmogorov Smirnov (KS) which happens to be less robust. Which implies that when KS is used the null hypothesis with a low normal probability may be correctly rejected more often. The test works on the supposition that the null hypothesis that a given sample is normally distributed and compares sample points to a set of normally distributed points with the equal means and square roots of variances. In case the p-values obtained by the researcher in this study are greater compared to the p-value 0.05, then the distribution does not conform to a normal distribution. based on this only subsidies and other transfers as % of total government expenditure and total tax revenues as %GDP variables were found to follow a normal distribution. All the other variable recorded p-values of nearly

0.000 thus concluded as not conforming to a normal distribution. This could be due to insufficient data, and skewness and kurtosis amongst the non-normal variables. Additionally, for smaller samples there is little power to reject the null hypothesis, thus, normality tests tend to be disregarded. (Ghasemi et al., 2012).

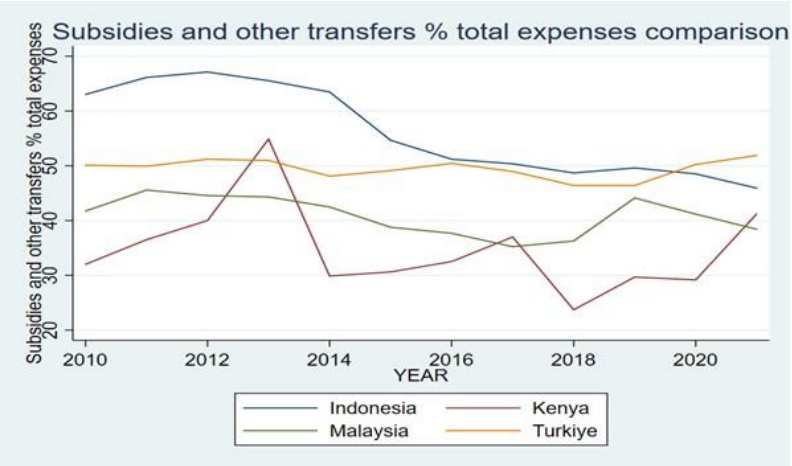

Figure 4.1.3: Normality test (Author,2023)

Variables trends in the economies of interest.

During the period under analysis, it can be observed that the Indonesian economy for the period was relatively constant and with only a negative growth in 2020, which could be attributed to the economic effects of the COVID 19 pandemic. However, the Malaysian economy experienced several fluctuations during the period, and similarly in 2020, recorded a negative growth rate due to same reason. During the period, the two economies recorded their highest growths in 2010 with 6.2% and 7.4% respectively. Kenya and Türkiye during the period recorded a more frequent fluctuation in their economic growth compared to the other economies, with the growth rates falling below 2% in the 2019-2020. It is also observed that the four economies record a recovery from the COVID effects in 2021.

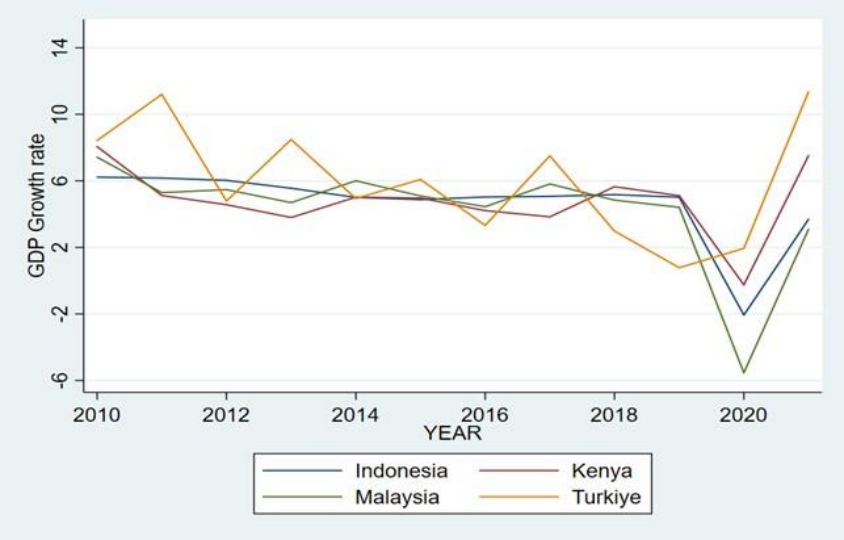

Figure 4.1.4: Comparison of economic growth rates (Author,2023)

Throughout the period examined, Malaysia recorded a relatively higher net FDI inflow rates as a percentage of GDP compared to the other economies. The highest inflow recorded by the Kenyan and Malaysian economies during the period was in 2011, Indonesian economy's in 2014 while Türkiye economy's was in 2015.

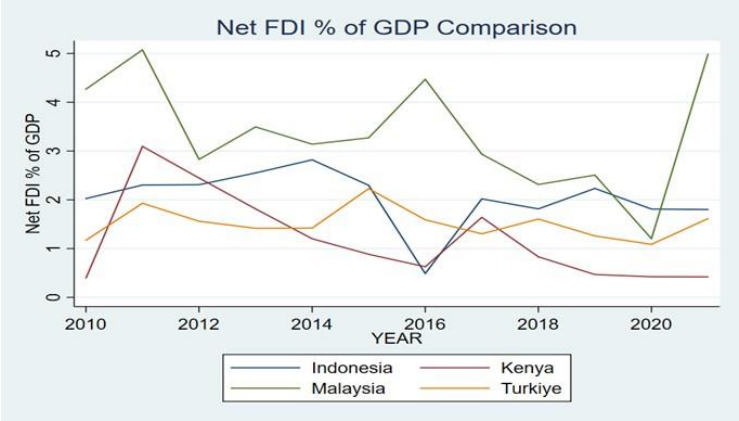

Figure 4.1.5: Comparison of net FDI inflows as a % of GDP (Author,2023)

Among the four economies Kenya was seen to record enormous fluctuation in the subsidies offered by the government to the economy with the highest being in 2013. The economies of Indonesia, Malaysia and Türkiye recorded relatively higher subsidies over the 2010-2014 period with the amounts declining over the next period.

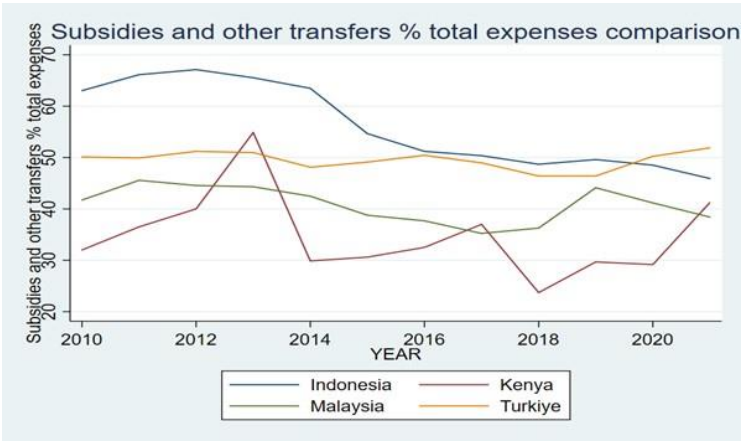

Figure 4.1.6: Comparison of subsidies and other transfers as a % of total expenditure (Author,2023)

Economies of Indonesia and Kenya during the period under investigation were observed to have relatively lower and relatively constant taxes on production, sales, and transfers, compared to the other economies studied. The economies of Malaysia and Türkiye recorded relatively higher amounts. However, Malaysia recorded remarkably higher taxes on production sales and transfers, with the 2017-2021 period experiencing an even more exponential increase.

Figure 4.1.7: Comparison of total tax on production in USD (Author,2023)

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS |Volume VII Issue VII July 2023

Inferential Statistics

In this section the author elaborated the findings obtained from the model developed. Additionally, the author interpreted the findings obtained as well as their implications. The results for the consolidated model for the four countries are discussed below.

In order to analyze the relationship between the tax incentives and subsidies on economic growth rates the researcher regresses the GDP growth rates against the total revenue as a percentage of GDP, subsidies as a percentage of government total expenditure, total taxes on production as logarithm and total taxes on profits and capital gains as a percentage of GDP: additionally binary variables of tax incentives on production, and tax on profits and capital gains were used. The findings obtained from the analysis; where taxes on production, recorded a p-value of 0.013, subsidies offered by the government recorded a p-value of 0.001, tax revenue as a % GDP recorded a significance value of 0.001 implied that economic growth rate was significantly impacted by these variables as the significance registered were less than the P-value of 0.05. The other variables: tax on capital gains and profits with p-value = 0.106, tax incentive on production with significance of 0.125 and tax incentives on profits and capital gains with p-value = 0.414 had significances greater than the select P-value (0.05) thus found to be insignificant in causing an effect on economic growth. Additionally, subsidies offered by the government, tax revenue and tax on capital gains and profits recorded a positive effect on economic growth. However, taxes on production, tax incentive on production and tax incentives on profits and capital gains registered a negative relation with GDP growth which implied that the lower the taxes on production the higher the rate of economic growth. The model also registered a p-value = 0.000 which was less than 0.05 that implied the model was significant in explaining the relation in the variables under analysis.

GEE population-averaged model		Number of obs	= 48
Group variable:	countrynum	Number of groups	= 4
Link:	identity	Obs per group:	
Family:	Gaussian	min	= 12
Correlation:	exchangeable	avg	= 12.0
		max	= 12
		Wald chi2(6)	= 1110.91
Scale parameter:	5.880917	Prob > chi2	= 0.0000

gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
taxrevtogdp	.591212	.1720877	3.44	0.001	.2539262	.9284978
logproductiontax	-2.11166	.8516711	-2.48	0.013	-3.780905	-.4424155
subsidiespercentexpenditure	.1146871	.0339411	3.38	0.001	.0481639	.1812104
capitalgainstaxpercentgdp	.0488618	.0302289	1.62	0.106	-.0103857	.1081094
taxincentiveonproduction	-1.568597	1.021204	-1.54	0.125	-3.570119	.4329255
taxincentiveonprofits	-.6557712	.8022766	-0.82	0.414	-2.228204	.9166621
_cons	5.798737	1.857138	3.12	0.002	2.158813	9.438662

Figure 4.2.1: Regression results (Author, 2023)

To analyze the effect of the variables on investment especially from foreign investors the researcher regresses Net FDI inflows as a percentage of GDP against the total revenue as a percentage of GDP, subsidies as a percentage of government total expenditure, total taxes on production as logarithm and total taxes on profits and capital gains as a percentage of GDP, binary variables of tax incentives on production and tax on profits and capital gains. The findings obtained showed that for the period under study among the economies under investigation, all the variables registered a positive effect on Foreign direct investment implying a direct relationship. However, tax revenue as % GDP with p-value of 0.132, tax incentives on production with significance of 0.613, and tax incentives on profits and capital gains with p-value = 0.350

had an insignificant effect on Net FDI changes as the significance values obtained were greater than the select p-value 0.05. The other variables: taxes on production, subsidies and taxes on capital gains had significance values being 0.000 which was less than the p-value 0.05 thus showed significant effects on net FDI inflows. The model also recorded a P-Value = 0.000 which was less than the set value of 0.05 thus an adequate fit for the data analyzed.

GEE population-averaged model		Number of obs =	48
Group variable:	countrynum	Number of groups =	4
Link:	identity	Obs per group:	
Family:	Gaussian	min =	12
Correlation:	exchangeable	avg =	12.0
		max =	12
		Wald chi2(6) =	5097240
Scale parameter:	.6795026	Prob > chi2 =	0.0000

netfdipercentgdp	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
taxrevtogdp	.0881419	.0584721	1.51	0.132	-.0264614	.2027451
logproductiontax	1.828827	.288277	6.34	0.000	1.263814	2.39384
subsidiespercentexpenditure	.052079	.0115274	4.52	0.000	.0294858	.0746722
capitalgainstaxpercentgdp	.0973531	.0102536	9.49	0.000	.0772564	.1174498
taxincentiveonproduction	.1756903	.3471283	0.51	0.613	-.5046687	.8560492
taxincentiveonprofits	.2547028	.2727382	0.93	0.350	-.2798542	.7892598
_cons	-17.75118	.5934962	-29.91	0.000	-18.91441	-16.58794

Figure 4.2.2: Regression results (Author,2023)

CONCLUSIONS AND POLICY RECOMMENDATIONS

In this chapter, the researcher presented the conclusions and recommendations for policy in line with the findings obtained herein.

According to the findings obtained in this research, for the four economies, subsidies had a positive and significant effect on both investment and economic growth. The tax incentives analyzed in this study, that is, tax incentives on production, sales, and transfers: and tax incentives on income, profits and capital gains had a positive non-significant effect on investments. The tax incentives also recorded a negative non-significant effect on economic growth. The study also established a significant positive effect of tax revenue on economic growth, however on investment tax revenue showed a positive but insignificant effect.

The positive and significant effect of subsidies on both investment and economic growth may be explained by the fact that investment subsidies speed up capital accumulation in emerging economies both physical and human capital. As people are unable to consume more than their economy can create, alleviation of poverty ultimately comes down to increasing labor productivity. More investment increases national output as a result implying that capital accumulation from subsidies boosts real incomes while lowering poverty (Carter et al., 2015).

The non-significant effect of the tax incentives on both investment and economic growth can be explained by understanding that it is possible for tax incentive instruments to have an impact on the portion of FDI that is excluded from investment, especially from mergers and acquisitions. This may make it seem that an economy's tax structure has a greater impact on ownership than on total capital accumulated. Additionally, there is a likelihood that increased FDI would just push out investments supported domestically, with negligible overall benefit on both investment and the economy (Alexander D Klemm & Stefan van Parys,

2009). The positive effect of the incentives on foreign direct investments with the effect being negative for economic growth could be attributed to the fact that tax incentives may only increase foreign ownership of assets whether gained through acquisitions or crowding out of domestic investors, but the positive spillover effects of foreign direct investment (FDI) on investment may not necessarily be substantial enough to affect economic growth this may explain the negative impact on economic growth generated by this study (Alexander D Klemm & Stefan van Parys, 2009).

The positive effect of tax revenue on economic growth and investment could be used to explain the important roles that tax plays in governments providing public goods. This finding is similar to those obtained by a study by (Nguyen et al., 2022) who argue that increasing tax revenue could lessen the negative effects that tax would have on the economy to promote economic growth if the non-linear implications of tax revenue are taken into account. They further suggested that keeping tax revenues low has no benefit for the fiscal deficit and increases the burden on the public debt if deficit financing is used to fund public spending that would be settled by tax revenue instead. The positive effect of tax revenues on investment could also be explained by using tax revenues to improve investment climate. If the public goods financed by the tax revenues are remarkably effective in stimulating the productivity of capital, then the investment is expected to improve with this increase. This may have been the case among the four countries Indonesia, Malaysia, Kenya, and Türkiye. However, where the investment environment is fully developed then an increase in tax revenue would imply a negative effect on investment due to the diminishing marginal returns on capital in an already established investment environment.(Van Parys & James, 2010) the study however, found the effect to be insignificant which would be due to the constantly developing investment climate and that the effect on investment may be negligible.

Bearing in mind that the research found subsidies having a positive and significant effect on both investment and economic growth the researcher recommends the use of subsidies as they are effective in generating economic growth, however, its application must also be accompanied by strong regulations, accountability and offered only for productive sectors of the economy and not direct consumption for it to be effective. The researcher recommends that tax incentives should be sparingly used only for productive sectors of the economy like value addition, also, the incentives should be offered to both local and foreign investors. Based on these findings, this study further suggests that tax revenue led to economic growth. However instead of increasing tax rates to boost revenue collected, a broader tax base approach should be implemented instead.

ACKNOWLEDGMENTS

I give thanks to the Almighty God for His unfailing love and grace, which have helped me complete this work from the moment I began it to the present. I additionally wish to sincerely thank everyone who assisted me in completing my research. I also recognize the contributions of various authors, writers, and policy researchers, who through their efforts, I was able to grasp my study topic better, learn about other countries' experiences, and receive essential expertise about how to conduct and publish this project.

REFERENCES

1. Abramovsky, L., Tyskerud, Y., Weldeabzgi, A., Keable-Elliott, I., Harris, T., Bird, N., Abrokwah, E., & Abrha Beyene, Y. (2018). *Are corporate tax incentives for investment fit for purpose? Revisiting economic principles and evidence from low- and middle-income countries.* https://doi.org/10.1920/RE.IFS.2018.0142
2. Alegana, H. M. (2014). *The effect of tax incentives on economic growth in Kenya*.
3. Alexander D Klemm, & Stefan van Parys. (2009). *Empirical Evidenceon the Effects of Tax Incentives*.
4. Alvic Padilla, N., Biyani, S., Jaiswal, M., Buenaventura, J., Maranga, Toby Quantrill, M. L., Filho, R., Ssuuna, T., & Maria, R. (2020). *Use and Abuse of Tax Breaks How Tax Incentives Become Harmful*

5. Appiah-Kubi, S. N. K., Malec, K., Phiri, J., Maitah, M., Gebeltová, Z., Smutka, L., Blazek, V., Maitah, K., & Sirohi, J. (2021). Impact of Tax Incentives on Foreign Direct Investment: Evidence from Africa. *Sustainability 2021, Vol. 13, Page 8661*, *13*(15), 8661. https://doi.org/10.3390/SU13158661
6. Azeez, T., Olabanji, R., & Emmanuel, G. (2018). *Tax policy incentives and foreign direct investment in Nigeria.2018*(3), 59–71.
7. Carter, M. R., Laajaj, R., Yang, D., Fernando, A., Groot, R., Schmidt, E., & Vandenberg, M. (2015). *Savings and Subsidies, Separately and Together: Decomposing Eects of a Bundled Anti-Poverty Program*.
8. Clark, S. (2007). *Tax Incentives for Investment-A Global Perspective: experiences in MENA and non-MENA countries Draft 1 www.oecd.org/mena/investment*.
9. Dang, G., & Sui Pheng, L. (2015). Theories of Economic Development. *Infrastructure Investments in Developing Economies*, 11–26. https://doi.org/10.1007/978-981-287-248-7_2
10. Daude, C., Gutiérrez, H., & Melguizo, Á. (2014). The Political Economy of Tax Incentives for Investment in the Dominican Republic: "Doctoring the Ball." *OECD Development Centre Working Papers*. https://doi.org/10.1787/5JZ3WKH45KMW-EN
11. De Vroey, M., Malgrange, P., De Vroey, M., & Malgrange, P. (2010). *From the Keynesian Revolution to the Klein-Goldberger Model: Klein and the Dynamization of Keynesian Theory*.
12. Gitonga, F. K. (2017). *The relationship between tax incentives and foreign direct investment inflows of listed Multinational Corporations in Kenya*.
13. Haiyambo, E. (2013). *Tax incentives and foreign direct investment: The Namibian experience.*
14. Hubbard, A. E., Ahern, J., Fleischer, N. L., Laan, M. Van Der, Lippman, S. A., Jewell, N., Bruckner, T., & Satariano, W. A. (2010). To GEE or not to GEE: comparing population average and mixed models for estimating the associations between neighborhood risk factors and health. *Epidemiology (Cambridge, Mass.)*, *21*(4), 467–474. https://doi.org/10.1097/EDE.0B013E3181CAEB90
15. Ireland, P. N. (1994). *Two Perspectives on Growth and Taxes*.
16. Johnson, L., Toledano, P., Strauss, I., & James, S. (2013). *Background Paper on Investment Incentives: The good, the bad and the ugly: Assessing the costs, benefits and options for policy reform* . https://doi.org/10.7916/D87D2S3Z
17. Klemm, A., Klemm, & Alexander. (2010). Causes, benefits, and risks of business tax incentives. *International Tax and Public Finance*, *17*(3), 315–336. https://doi.org/10.1007/S10797-010-9135-Y
18. Kothari, C. R. (2004). *Research Methodology and Experimental Techniques*. 2–3.
19. Latif, M. I., Rahman, H., Ahmad, H., Ahmad, F., Khurshid, M. M., & Shafique, M. N. (2019). Estimation of Laffer Curve: Evidence from Pakistan. *Sarhad Journal of Management Sciences*, *5*(1), 103–112. https://doi.org/10.31529/SJMS.2018.5.1.7
20. Mugenda, A., Mugenda, G. (2019). *Research methods: Qualitative and mixed methods approach*. 100–102.
21. Munongo, S. (2015). *The effectiveness of tax incentives in attracting foreign direct investment: the case of the Southern African Development Community*.
22. Newton, R. R., & Rudestam, K. E. (2013). Your Statistical Consultant: Answers to Your Data Analysis Questions. *Your Statistical Consultant: Answers to Your Data Analysis Questions*. https://doi.org/10.4135/9781506374673
23. Nguyen, H. T., Nur, S., Cokro Darsono, A., & Nguyen, H. T. (2022). The Impacts of Tax Revenue and Investment on the Economic Growth in Southeast Asian Countries. *Journal of Accounting and Investment*, *23*(1), 128–146. https://doi.org/10.18196/JAI.V23I1.13270
24. Nwidobie, B. M. (2020). Tax incentives and economic growth in Nigeria: a paradox. *International Journal of Economics and Accounting*, *9*(3), 273. https://doi.org/10.1504/IJEA.2020.109926
25. Saunders, M., Lewis, P., & Thornhill, A. (2019). Research Methods for Business Students. In *Research Methods for Business Students*. Pearson.
26. Schwartz, G., Hugounenq, R., & Clements, B. J. (1995). Government Subsidies: Concepts, International Trends, and Reform Options. *IMF Working Papers*, *1995*(091). https://doi.org/10.5089/9781451851489.001.A001

27. Sebele-Mpofu, F. Y., Gomera, D., & Sibanda, B. (2022). Tax incentives: A panacea or problem to enhancing economic growth in developing countries. *Journal of Accounting, Finance and Auditing Studies,8*(2), 90–123. https://doi.org/10.32602/jafas.2022.012
28. Siyanbola, T., Adedeji, B., & Rahman, M. M. (2017). 'Measuring the level of Women Work Burnout and sustainable remedial measures in Garments Industry of Bangladesh" View project human resource accounting: a panacea for financial reporting problems in Sub-Sahara Africa View project. In *Journal of Advanced Research in Business and Management Studies* (Vol. 7, Issue 2).
29. Stausholm, S. (2017). *Rise of ineffective incentives: New empirical evidence on tax holidays in developing countries*.
30. Ugwu, C. C., Inyang, E. E., & Soje, B. (2020). Tax incentives and economic growth: Is incentive good for economic growth in Nigeria. *ACM International Conference Proceeding Series*. https://doi.org/10.1145/3440094.3440713
31. United Nations. (2018). *Transforming our World: The 2030 Agenda for Sustainable Development*. United Nations. https://sustainabledevelopment.un.org/post2015/transformingourworld/publication
32. Van Parys, S., & James, S. (2010). The effectiveness of tax incentives in attracting investment: Panel data evidence from the CFA Franc zone. *International Tax and Public Finance*, *17*(4). https://doi.org/10.1007/s10797-010-9140-1

APPENDIX

Data collection sheet used.

countryid	year	gdp	taxrevtogdp	subsidiespercent	netfdipercentgd	capitalgainstaxp	totaltaxonproductio	logproductionta	taxincentiveonpr	taxincentiveonp	countrynum
IND	2010	6.22	10.54	63.02	2.03	35.88	2200000.00	6.35	1	0	1
IND	2011	6.17	11.16	66.12	2.30	35.62	2800000.00	6.44	1	0	1
IND	2012	6.03	11.38	67.11	2.31	34.76	3300000.00	6.52	1	1	1
IND	2013	5.56	11.29	65.52	2.55	35.20	3700000.00	6.57	1	1	1
IND	2014	5.01	10.84	63.47	2.82	35.25	3900000.00	6.59	1	1	1
IND	2015	4.88	10.75	54.65	2.30	39.99	4100000.00	6.61	0	1	1
IND	2016	5.03	10.34	51.20	0.49	42.82	4000000.00	6.61	1	0	1
IND	2017	5.07	9.88	50.36	2.02	38.82	4600000.00	6.66	1	0	1
IND	2018	5.17	10.23	48.69	1.81	38.60	5100000.00	6.70	1	1	1
IND	2019	5.02	9.75	49.60	2.23	39.40	5100000.00	6.71	0	0	1
IND	2020	-2.07	8.31	48.52	1.81	36.10	4500000.00	6.65	1	1	1
IND	2021	3.69	7.16	45.91	1.80	38.59	4900000.00	6.69	0	0	1
KEN	2010	8.06	15.70	32.00	0.39	32.92	2300000.00	6.36	1	1	2
KEN	2011	5.12	15.90	36.50	3.09	34.78	2600000.00	6.42	1	1	2
KEN	2012	4.57	15.80	40.00	2.45	34.80	2800000.00	6.44	1	1	2
KEN	2013	3.80	15.50	54.88	1.81	35.25	3000000.00	6.47	1	1	2
KEN	2014	5.02	15.19	29.87	1.20	35.77	3700000.00	6.57	1	0	2
KEN	2015	4.97	14.84	30.61	0.88	34.41	4100000.00	6.62	1	1	2
KEN	2016	4.21	14.97	32.51	0.63	35.53	4700000.00	6.67	1	1	2
KEN	2017	3.84	15.05	36.99	1.64	35.43	5400000.00	6.73	0	1	2
KEN	2018	5.65	14.36	23.71	0.83	36.02	5700000.00	6.76	1	0	2
KEN	2019	5.11	15.10	29.67	0.47	35.87	6300000.00	6.80	0	0	2
KEN	2020	-0.25	14.30	29.17	0.42	33.15	6100000.00	6.78	1	1	2
KEN	2021	7.52	14.15	41.25	0.42	33.94	6600000.00	6.82	0	0	2
MAL	2010	7.42	13.33	41.72	4.27	45.59	7000000.00	6.84	1	1	3
MAL	2011	5.29	14.79	45.56	5.07	51.15	7300000.00	6.87	1	1	3
MAL	2012	5.47	15.61	44.55	2.83	52.04	7900000.00	6.90	1	1	3
MAL	2013	4.69	15.31	44.31	3.49	52.01	8100000.00	6.91	1	1	3
MAL	2014	6.01	14.84	42.48	3.14	52.86	8600000.00	6.93	1	0	3
MAL	2015	5.09	14.06	38.77	3.27	46.36	12000000.00	7.09	1	1	3
MAL	2016	4.45	13.55	37.67	4.47	46.89	14000000.00	7.14	1	0	3
MAL	2017	5.81	12.95	35.22	2.94	47.72	14000000.00	7.15	1	1	3
MAL	2018	4.84	12.02	36.27	2.31	51.17	10000000.00	7.00	1	0	3
MAL	2019	4.41	11.94	44.12	2.51	46.60	11000000.00	7.02	0	0	3
MAL	2020	-5.53	10.89	41.17	1.20	45.22	9600000.00	6.98	1	1	3
MAL	2021	3.09	10.04	38.40	4.99	46.86	12000000.00	7.09	0	0	3
TUR	2010	8.43	17.27	50.11	1.17	17.27	6700000.00	6.83	1	1	4
TUR	2011	11.20	17.57	49.91	1.93	17.57	8000000.00	6.90	1	1	4
TUR	2012	4.79	17.61	51.20	1.56	17.61	8600000.00	6.94	1	0	4
TUR	2013	8.49	16.35	50.96	1.42	16.35	10000000.00	7.02	1	1	4
TUR	2014	4.94	17.56	48.11	1.42	17.56	11000000.00	7.04	1	0	4
TUR	2015	6.08	16.90	49.11	2.23	16.90	13000000.00	7.11	1	1	4
TUR	2016	3.32	17.44	50.44	1.59	17.44	14000000.00	7.15	1	1	4
TUR	2017	7.50	18.10	48.96	1.30	18.10	17000000.00	7.22	1	1	4
TUR	2018	2.98	19.21	46.40	1.61	19.21	18000000.00	7.25	1	0	4
TUR	2019	0.78	18.54	46.41	1.26	18.54	19000000.00	7.28	1	0	4
TUR	2020	1.94	18.12	50.23	1.09	18.12	26000000.00	7.41	1	1	4
TUR	2021	11.35	18.99	51.88	1.61	21.58	34000000.00	7.54	0	0	4

Summary of the effect of the independent variables on the dependent variable.

Variable	Effect of economic growth		Effect on Net Foreign Investment	
	Nature of effect	Significance	Nature of effect	Significance
Tax revenue % GDP	+	ü	+	û
Tax on production	–	ü	+	ü
Subsidies % expenses	+	ü	+	ü
Tax on capital gains, profits, and transfers	+	û	+	ü
Tax incentive on production	–	û	+	û
Tax incentive on capital gains, profits, and transfers	–	û	+	û