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# The Nexus between Domestic Investment and Economic Growth in Developed Countries: Do Exports matter?

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## **Abstract:**

We examine the effect of the exports on the relationship between domestic investment and economic growth. Data for 28 Developed Countries over the period 1998–2021 are used for panel data analysis. The effect of domestic investment on economic growth proves to be affected positively by exports and the effect of exports on the economic growth is positively strengthened by an increase in domestic investment.

**Keywords:** Domestic Investment, Exports, Economic Growth, Developed Countries.

**JEL Classification:** F11; F13; F14; F43; E22; G31; O16; O47; O50; P33; P45; Q27.

## **1. Introduction**

The countries of the world, at different levels of development, have adopted many and varied economic policies in order to achieve the desired economic growth, and these policies were distributed between economic openness and some of them were placing restrictions, but in the end, they are opportunities that everyone must seize to sustain economic growth in light of the increasing volume of global demand for goods and services. The intellectual and digital revolution taking place.

There are many definitions of economic growth, the most prominent of which is that it is one of the processes that seek to make good use of the resources available to a country to increase the national income, and this increase is characterized by being continuous for a long period of time, provided that its amount is greater than the population. In another definition, economic growth means that the economy of a country uses all the factors of production available to it, which are natural resources, human resources, and capital, to increase the amount of goods and services produced by this country. It is worth noting that many countries

of the world It seeks to achieve sustainable, i.e., continuous economic growth for the benefit of future generations, and this economic growth depends on preserving the available resources and exploiting them in a way that ensures their sustainability and survival for long periods. Economic growth is of great importance to all countries as it contributes to increasing income and provides enormous assistance to many companies' institutions in these countries in a way that ultimately leads them to achieve self-sufficiency and helps to increase the income of individuals, and this helps to improve their living conditions. Economic growth also helps in providing basic needs such as food and drink for many individuals at reasonable prices. In addition, economic growth contributes to getting rid of the unemployment problem that plagues many countries, because economic growth helps provide suitable job opportunities for young people in many sectors. In addition, economic growth supports many important sectors in the country, such as education and health, and contributes to supporting the balance of payments.

Domestic investment at the level of the national economy relates to capital spending on new projects in the public utilities and infrastructure sectors, such as projects to build main and secondary roads, water and sewage extension projects, urban planning development, construction and housing projects, electricity installations and power generation, as well as social development projects in the fields of education, health and communications, in addition to Projects related to economic activity for the production of goods and services in the productive and service sectors such as industry, agriculture, housing, health, education and tourism. It can also be defined as adding new production capacities to the existing productive assets in society by establishing new projects or expanding existing ones, or replacing or renewing projects that have expired, as well as purchasing issued securities to establish new projects.

The importance of investment economically lies in increasing production and productivity, which leads to an increase in national income and a rise in the average per capita share of it, thus improving the standard of living of citizens, providing services to citizens and investors, providing job opportunities and reducing unemployment, increasing the rates of capital formation for the state, providing various specializations of technicians, administrators and employment skilled, and finally the production of goods and services that satisfy the needs of citizens and exporting the surplus abroad, which provides the foreign currency needed to purchase machinery and equipment and increase capital formation.

Exports are an important part of countries' gross domestic product, in addition to the important role they play in international trade and the advantages and benefits that countries enjoy due to their export of various goods and services. The companies located in the exporting countries that export their goods are companies that enjoy various advantages; The most important of them is the new markets that will be opened to them due to export, which will contribute to an increase in the volume of their profits and the goods and services they sell, and their risks can also decrease due to their diversification of the markets in which they sell the goods and services they produce, in addition to their access to a large part of the international market, and the most important thing they will do Exports to companies is to reduce the costs of producing a single commodity, due to the expansion of production lines to meet local and international demand, in addition to the fact that exporting companies enjoy the accumulation of experience and knowledge that gain them local and international competitive advantages, due to learning new methods and methods from external competitors.

Exports are an important reason for the country to obtain many resources, as these resources are a source to cover the costs of imports and the rest of them are used to contribute to supporting the local economy, which means that the gross domestic product will grow positively, and it is worth noting that exports have a significant impact on stimulating the country's economy in terms of strengthening it The movement of cash and its support for the growth of various industries, which results in the creation of new job opportunities and a contribution to increasing income. Exports contribute to the growth of the country's total demand and the growth of GDP, so the increase in exports will have a positive impact on the country's economic growth, and it is also worth noting that if the country goes through a phase of economic downturn and exports decline, a clear negative impact will appear on the economy and its growth. Exports are a reason to create many jobs in countries, as the increase in exports contributes to creating new jobs and increasing existing jobs, to increase production to meet the total increasing demand due to exporting abroad in addition to covering the total domestic demand. The increase in exports to the country may be an important reason for reducing the deficit in the state's current account, which means that in the event of a decrease in exports, this may lead to the continuation of the deficit stage in the state's current account, and then the economy will continue to suffer from that deficit. Trade and relations between countries are formed by relying on exports, i.e., goods and services produced by the state with the aim of selling them within other countries, and it is mentioned that exports are an

important part that contributes to the countries' gross domestic product, hence the importance of exports.

The relationship between the domestic investment and various macroeconomic variables is well researched, including foreign direct investment {Udomkerdmongkol and Morrissey (2008), Mutenyu and Asmah (2010), Wang (2010), Saglam and Yalta (2011), Ditimi and Matthew (2014), Bakari and Tiba (2019), Bouchoucha and Bakari (2021)}, labor {Snow and Warren (1990), Sassen (1990), Ramirez (1998), Onegina et al (2020), Bakari et al (2018a), Bakari (2020), Sualihu et al (2021)}, final consumption expenditure {Hakansson (1975), Shreve and Soner (1994), Zariphopoulou (1999), Janeček and Shreve (2004), Ekeland and Pirvu (2008), Kallsen and Muhle-Karbe (2017), Hong et al (2017), Herrendorf et (2021), Bakari and Tiba (2022), Bakari and Tiba (2021)}, tax revenue {Hall and Jorgenson (1967), Hassett and Hubbard (1997), Chirinko (1986), Mintz and Smart (2004), Desai and Goolsbee (2004), Yoshino and Abidhadjaev (2016), Bakari (2019a), Bakari et al (2020a), Mkadmi et al (2021a), Mkadmi et al (2021b)}, digitalization {Marrano et al (2009), Abdallah and Albadri (2010), Andoh-Baidoo et al (2014), Hong (2017), Rodríguez-Moreno and Rochina-Barrachina (2019), Bakari (2021a)}, financial development: {Huang (2011), Xu (2000), Nazlioglu et al (2009), Love and Zicchino (2006), Ndikumana (2005), Tori and Onaran (2017)}, exchange rate {Faini and Melo (1990), Darby et al (1999), Nucci and Pozzolo (2001), Serven (2002), Atella et al (2003), Kiyota and Urata (2004), Harchaoui et al (2005), Bakari and Tiba (2020)}, corruption {Campos et al (1999), Okeahalam and Bah (1998), Tanzi and Davoodi (1998), Everhart et al (2009), Swaleheen (2007), Haque and Kneller (2008), Asiedu and Freeman (2009), O'Toole and Tarp (2014), Zakharov (2019), Bakari and Benzid (2021)}, innovation {Guo et al (2021), Haskel and Wallis (2013), Lang et al (2012), Leinweber and Arnott (1995), Gmelch (1987), Maurer (1999), Sibirskaya et al (2014), Jorde et al (2000)}, inflation {Madsen (2003), Huang (1999), Kaliva and Koskinen (2008), Iqbal and Nawaz (2009), Fama and Gibbons (1982), Able (1980), Braun and Tella (2004), Atesoglu (2005), Baldwin and Ruback (1986), Feldstein (1980)} and economic growth {De Long and Summers (1991), Khan and Reinhart (1990), Cullison (1993), Milbourne et al (2003), Munnell (1992), Nazmi and Ramirez (1997), Lachler and Aschauer (1998), Anderson (1990), Anwer and Sampath (1999), Ramirez and Nazmi (2003), Zouhaier and Karim (2012), Podrecca and Carmeci (2001), Bakari et al (2020b), Bakari (2021b), Bakari (2016a), Bakari et al (2019a), Fakraoui and Bakari (2019b), Bakari (2017a), Bakari et al (2021), Bakari and El Weriemmi (2022a)}.

The relationship between exports and economic growth has been explored extensively. The empirical results for the effect of exports on the economic growth are rather mixed. Some of these studies found that exports have a positive effect on economic growth { See : [Bakari et al \(2022\)](#), [Bakari \(2016b\)](#), [Bakari \(2021c\)](#), [Bakari et al \(2019b\)](#), [Bakari \(2017b\)](#), [Bakari \(2017c\)](#), [Bakari \(2016c\)](#), [Bakari and Mabrouki \(2018\)](#), [Bakari \(2017d\)](#), [Bakari and Mabrouki \(2016\)](#), [Bakari and Mabrouki \(2017a\)](#), [Bakari \(2017e\)](#), [Bakari and Krit \(2017\)](#), [Bakari and Mabrouki \(2017b\)](#), [Bakari and El Weriemmi \(2022b\)](#), [Vohra \(2001\)](#), [Ghosh \(1996\)](#), [Jordaan and Eita \(2007\)](#), [Mah \(2005\)](#), [Acaravci and Ozturk \(2012\)](#) } and others found that exports are not seen as source of economic growth {See: [Bakari and Saaidia \(2017\)](#), [Bakari \(2019\)](#), [Bakari et al \(2018b\)](#), [Bakari \(2018\)](#), [Bakari \(2017f\)](#), [Bakari et al \(2018c\)](#), [Bakari \(2017g\)](#), [Bakari \(2017h\)](#), [Bakari \(2017i\)](#), [Utonga and Dimoso \(2019\)](#), [Tang \(2006\)](#) }.

This article tests the hypothesis that the effect of domestic investment on economic growth is positively influenced by exports. Equivalently, we test the hypothesis that the export's effect on economic growth will be positively strengthened by an increase in domestic investment. We perform cross-country panel data analysis using World Development Indicator (WDI) data. In Section II, we set up a growth equation. Section III includes the data and the empirical results. Section IV concludes the article.

## 2. Data and methodology

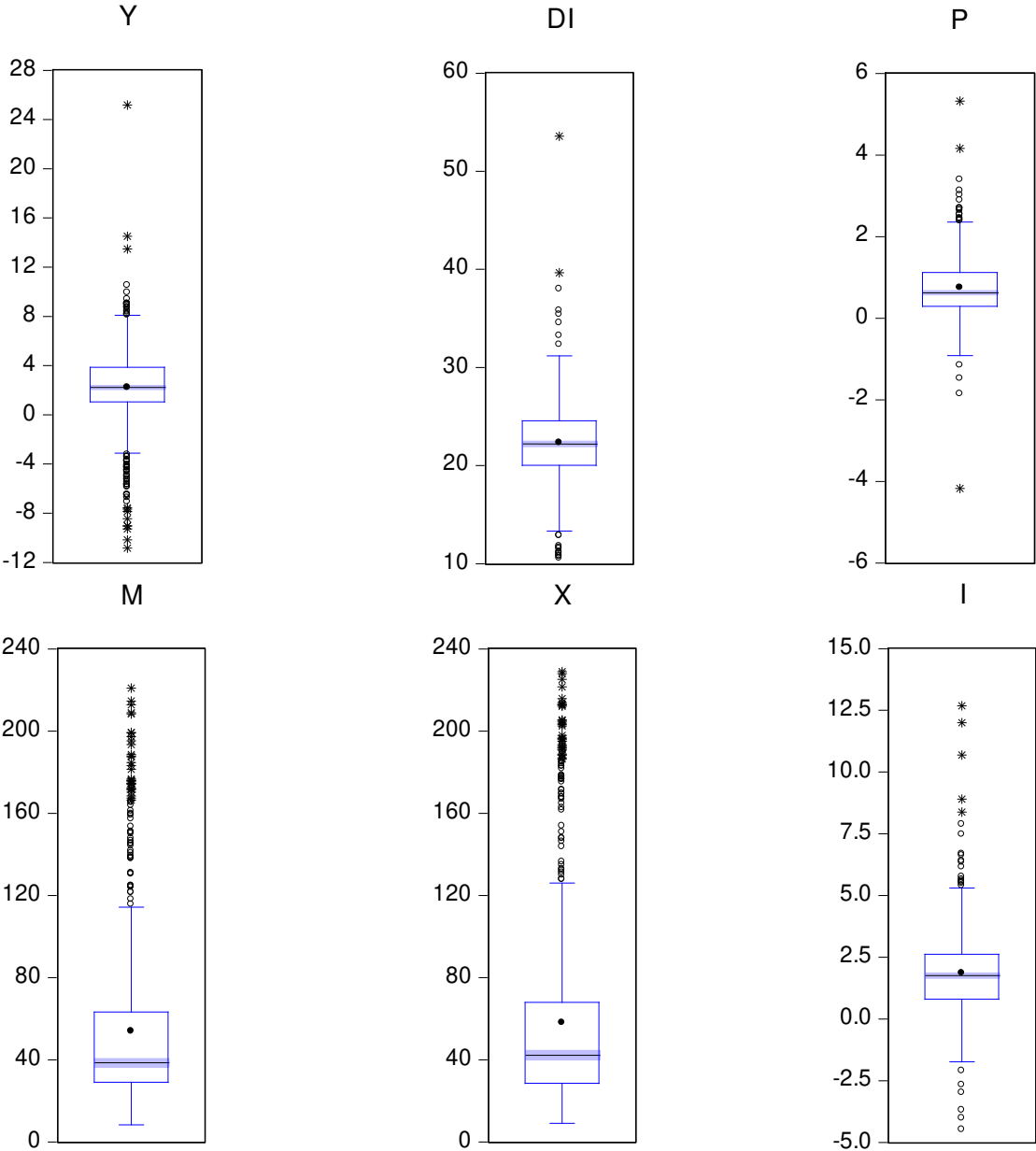
We set up a GDP-growth equation as in [Romer \(1990\)](#), [Barro \(1996\)](#), [Barro \(1997\)](#), [Barro \(2003\)](#), [Petraikos and Arvanitidis \(2008\)](#), [Ciccone and Jarociński \(2010\)](#), [Cuaresma et al \(2014\)](#), [Chirwa and Odhiambo \(2016\)](#):

$$Y_{it} = \beta_0 + \beta_1 DI_{it-1} + \beta_2 X_{it-1} + \beta_3 \partial DI_{it-1} * \partial X_{it-1} + \beta_4 P_{it} + \beta_5 I_{it} + w_i + u_t + v_{it}$$

Where  $w_i$  is a country effect,  $u_t$  is a year effect, and  $v_{it}$  is independent and identically distributed error.  $\partial$  stands for the growth rate of variables.  $Y_{it}$  stands for the GDP growth rate of country  $i$  in year  $t$ .  $DI_{it}$  stands for gross fixed capital formation as a percentage of GDP (Domestic investment).  $X_{it}$  stands for Exports of goods and services as a percentage of GDP (Exports).  $I_{it}$  stands inflation, consumer prices (annual %).  $P_{it}$  represents annual population growth. The 1-year lagged variables such as  $\partial DI_{it-1} * \partial X_{it-1}$  are used to consider lagged effect and to avoid an endogeneity problem.

Data for 28 developed countries over the period 1998 – 2021 are used for panel data analysis. All the variables used are from the World Bank Indicators. Summary statistics for the data are registered in Table 1. The scenic photography of descriptive statistics has been shown by making a boxplot in Figure 1. It shows that mean values are around the median values, which shows that the distribution is approximately normal. There are no extreme or far outliers in the sample. Therefore, our data is appropriate to proceed for panel analysis.

**Figure 1. Boxplot of variables**



*Source: Authors' calculations using Eviews 12 software*

**Table n°1: Descriptive Statistic**

	<b>Y</b>	<b>DI</b>	<b>P</b>	<b>I</b>	<b>M</b>	<b>X</b>
<b>Mean</b>	2.220653	22.33648	0.752488	1.850957	53.99105	58.10576
<b>Median</b>	2.295927	22.32544	0.655072	1.799865	39.01596	42.69148
<b>Maximum</b>	25.17625	53.59148	5.321517	12.69439	221.0100	228.9938
<b>Minimum</b>	-10.82289	10.57804	-4.170336	-4.478103	8.320092	9.035659
<b>Std. Dev.</b>	3.230279	3.987736	0.750346	1.694140	41.76890	47.79685
<b>Skewness</b>	-0.130692	0.872679	0.501655	1.154979	2.000764	1.894591
<b>Kurtosis</b>	8.639671	9.417240	8.256851	9.278722	6.525357	5.895786
<b>Jarque-Bera</b>	888.4935	1232.835	798.3711	1247.636	792.7751	633.9744
<b>Probability</b>	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
<b>Sum</b>	1485.617	14943.11	503.4142	1238.290	36120.01	38872.75
<b>Sum Sq. Dev.</b>	6970.383	10622.56	376.0969	1917.234	1165420.	1526072.
<b>Observations</b>	669	669	669	669	669	669

*Source: Authors' calculations using Eviews 12 software*

### 3. Empirical analysis

Table 2 lists the regression results. We estimated the growth equation (Eq. (1)) by pooled ordinary least squares (OLS), individual fixed effects and individual random effects. The aim of the Hausman test is to define and choose our most suitable model, whether fixed or random. If the probability of the Hausman test is minimum 5%, in this case the fixed-effects model is significant and will be kept. However, if the probability of the Hausman test is greater than 5%, then the random 5 effect model is significant and will be possessed. In our case, we have the probability that the Hausman test is less than 5% for a value equal to 0.00%. This indicates that the fixed effects model is significant and will be retained.



**Table n°2: Estimation of Static Gravity Model**

Methods	Pooled OLS		Fixed Effect Model		Random Effect Model	
<b>Dependent Variable: Y</b>						
<i>Variable</i>	<i>Coefficient</i>	<i>Prob.</i>	<i>Coefficient</i>	<i>Prob.</i>	<i>Coefficient</i>	<i>Prob.</i>
<b>C</b>	-2.011188	0.0023	<b>-0.840622</b>	<b>0.0706</b>	-0.862155	0.1919
<b>DI</b>	0.120599	0.0001	<b>0.077335</b>	<b>0.0002</b>	0.078648	0.0002
<b>I</b>	0.260841	0.0003	<b>0.050638</b>	<b>0.3524</b>	0.058054	0.2844
<b>M</b>	-0.052645	0.0106	<b>-0.038873</b>	<b>0.0051</b>	-0.039305	0.0047
<b>P</b>	0.494991	0.0025	<b>0.729641</b>	<b>0.0000</b>	0.722345	0.0000
<b>X</b>	0.056960	0.0017	<b>0.044281</b>	<b>0.0003</b>	0.044679	0.0003
<b>DX*DDI</b>	0.007197	0.0000	<b>0.007247</b>	<b>0.0000</b>	0.007244	0.0000
<b>Correlated Random Effects - Hausman Test</b>						
<i>Test Summary</i>			<i>Chi-Sq. Statistic</i>	<i>Chi-Sq. d.f.</i>	<i>Prob.</i>	
<i>Period random</i>			5.106622	6	0.5302	
<b>Diagnostics Tests</b>						
<i>R-squared</i>	0.645711		<i>Mean dependent var</i>		2.220653	
<i>Adjusted R-squared</i>	0.629632		<i>S.D. dependent var</i>		3.230279	
<i>S.E. of regression</i>	1.965878		<i>Akaike info criterion</i>		4.233562	
<i>Log likelihood</i>	-1386.126		<i>Schwarz criterion</i>		4.435615	
<i>F-statistic</i>	40.15909		<i>Hannan-Quinn criter.</i>		4.311830	
<i>Prob(F-statistic)</i>	0.000000		<i>Durbin-Watson stat</i>		1.386585	

*Source: Authors' calculations using Eviews 12 software*

The results of the estimation of the static gravity model and using the application of the Hausman test that the random static gravity model will be retained, because the probability of the Hausman test has a value greater than 5% (equivalent to 0.5302 = 53.02%). The results indicate that domestic investment, population, and exports have a positive effect on economic growth. In contrast, the empirical results showed that imports have a negative effect on economic growth and showed that inflation has no effect on economic growth. The estimated coefficients of the interaction terms of exports and domestic investment (DX\*DDI) proved to

be positive and significant through the estimation of Random Effect Model. This means that the effect of exports on economic growth affect by the domestic investment and the effect of the domestic investment on economic growth affect by exports

#### **4. Conclusion**

Economic growth has captured the attention of researchers in the field of economics. When we talk about economic growth, it comes to us talking about it in its general sense and the determinants of economic growth in both developing and developed countries, in addition to its elements and its relationship to social, political and economic axes. Economic performance and what leads to an increase in the standard of living and well-being. Economic growth appears when an increase in the per capita share of GDP occurs, and it may come in the form of an increase in the amount of goods and services produced by the individual in a certain field. It cannot be said that economic growth is related to Directly with the state's financial resources and capabilities alone, as the economic success of any state is measured by general economic management and the various state institutions. It requires management and attention to quality standards at all levels and in all facilities of all kinds. Political, economic, administrative, educational, and even judicial, all of this is enough to raise the level of economic performance of any country; All this comes as an affirmation of the relationship of state institutions to economic growth.

We hypothesized that exports strengthen the positive effect of domestic investment on economic growth. The estimated coefficients of the interaction terms of domestic investment and exports proved to be positive and significant through pooled OLS, fixed-effects, and random-effects. This means that the effect of domestic investment on economic growth is affected positively by the exports and the positive effect of the exports on the economic growth is strengthened by an increase in domestic investment. The policy implication of our finding is that the domestic investment effect on the economic growth will be enhanced as the exports increase in a country. Therefore, to increase exports, cost of the exports should be lowered and so exports should be easier. Furthermore, domestic investment and exports also needs to be more provided by the governments.

#### **Disclosure statement**

No potential conflict of interest was reported by the author

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