

## The effect of low rate of corporate taxation on foreign direct investments (FDI) and gross domestic product (GDP): A case study of ten selected countries (2018-2022)

Uchenna Chinwendu Nwankwo<sup>a\*</sup> and Emmanuel Obiora Nwakeze<sup>a</sup>

<sup>a</sup>Accountancy Department, Grundtvig Polytechnic, Oba, Anambra State, Nigeria

### CHRONICLE

#### Article history:

Received April 25, 2023  
Received in revised format July 18 2023  
Accepted August 31 2023  
Available online  
September 1 2023

#### Keywords:

Corporate Taxation  
Foreign Direct Investments (FDI)  
Corporate Income Tax (CIT) Rate  
GDP

### ABSTRACT

This research was undertaken to examine the effect of low corporation tax rate on Foreign Direct Investment (FDI) inflow and Gross Domestic Product (GDP). Investors and multinational firms are very rational and therefore prefer to invest in countries where the cost of taxation will be at the barest minimum to maximize their profit. The study aimed to critically analyze the Corporate Income Tax (CIT) rates of the randomly selected countries of the world, and their respective impacts on FDI and GDP. The study is descriptive in nature, based on quantitative data, sourced from various reports of Statutory Corporate Income Tax Rates of Tax Foundation, World Bank and UNCTAD World Investment Report of 2022. Ex-post Facto research design was deployed; while data were analyzed with a General Linear Model of Multivariate Analysis of Variance (MANOVA) with the aid of SPSS version 25. The study found that low rate of corporation tax has a positive and significant effect on FDI as well as on GDP. That is, CIT rate is a dominant determinant for FDI and GDP of countries.

© 2024 Growing Science Ltd. All rights reserved.

## 1. Introduction

Several policies have been adopted by the government of nations to attract and bring in more foreign investments to their own countries. Foreign Direct Investments (FDI) has played a great role in the growth and productivity of economies of nations, as it takes a greater percentage of the overall Gross Domestic Product (GDP) of a nation. Higher tax rates reduce the rate of return on investments and in turn results in a lower level of FDI inflow. FDI is defined as a special shape of a cross-border financial flow (Devereux & Griffith, 2002). Economic policies are being made by both developed and developing countries in order to increase the Foreign Direct Investment (FDI) which in turn impacts positively on the overall economy of the same nation. The achievement of these policies has necessitated the introduction of certain fiscal incentives, especially tax instruments, such as tax holidays, tax exemptions and reduction of tax rates. Investors even at the international level are always striving to maximize profits and they accept tax rates as one of the cost elements. They aim at increasing their profit after tax, and as a result, investors tend to shift their investments to countries which offer more favorable incentives and a lower corporate tax rate to investors (Sanjo, 2012).

Dunning (1988) postulates that there are three major determinants motivating a firm in acting as a multinational company. These indicators are ownership specific advantages, internalization advantages and location advantages which are known as Ownership, Location and Internalization (OLI) paradigm and this helps to build our hypothesis. A firm wants to serve as a multinational company when there is a combination of the (OLI) advantages while operating in a particular

\* Corresponding author.

E-mail address: [chinwenduuchenna@gmail.com](mailto:chinwenduuchenna@gmail.com) (U. C. Nwankwo)

nation. It can be argued that there are some fixed costs associated with FDI (Helpman et al., 2004). If the tax laws including the tax rate in a country are seen as one these costs, it can be said that the tax rate also affects the level of FDI inflows in that country (Devereux & Griffith, 2002). On a different view, tax policies determine the location of FDI since higher tax rates minimize the after-tax returns on investments (Gordon & Hines, 2002), it affects the investment decisions of foreigners when they invest abroad (Scholes et al., 2014). Therefore, this study is aimed to examine the effect of low corporation tax rate on FDI inflow and GDP. The study aimed to critically analyze the CIT rates of randomly selected countries of the world, and their respective impacts on FDI and GDP.

## 2. Theoretical framework and literature review

### 2.1 Corporate Income Tax

Corporate Income Tax (CIT) or corporation tax is a form of direct taxation levied on the profits of a company or corporation. A company is a legal entity set up by a person or group of persons for the sole aim of maximizing profits. Companies are structured in several ways such as sole proprietorships, partnerships, limited liability partnerships, limited companies and corporations and types of companies can vary from country to country.

CIT is specifically applicable to the profits earned by companies considered separate legal entities from the individual that owns them. These companies can be seen in the same manner as individuals: they can obtain debts, sue, and be sued, the shareholders have limited liability and most importantly, they are required to pay taxes on the profits they earn. Profits in this regard refer to overall income earned less the cost of allowable expenses incurred by the company. Economic growth and development of any country can be achieved with the tool of company taxation; income tax is an acceptable means of raising the required public revenue as well as an essential fiscal instrument for managing the economy (Burgess et al., 2003).

### 2.2 Corporate income tax (CIT) rates

Devereux (2008) puts a succinct argument that the continuous fall in statutory and effective corporation tax rates in OECD and EU countries is consistent with increasing competition levels between countries over mobile firms, profit and capital. He argues that as globalization proceeds further, countries tend to be more open and transportation and communication costs fall, 'it seems likely that rates will also continue to fall'. Hassett and Hubbard (2001) suggest that in the face of rising global competition in business, with companies having to move to countries with lower rate of taxation on corporate activities, there would be a 'race to the bottom' in corporate tax rates. Not only this, advancements in the use of electronic commerce, off-shore financial centers and intra-company trade, is making it hard to monitor corporate activities and profits which is likely to make governments lower the statutory rates and which directly and indirectly can have a negative effect for tax revenues.

The countries with the highest rate of corporate tax include Comoros (50%), Puerto Rico (37.5%) and Suriname (36%) while Barbados (5.5%), Turkmenistan (8%) and Hungary (9%) levy the lowest tax rates. The current worldwide average statutory corporate income tax rate measured across 180 jurisdictions is 23.37%. When weighted by GDP, the average statutory corporate income tax rate is 25.43%. Since 1980, corporate tax rates have continued to decline as seen in major countries of the world, from the average of 40.11% and 46.52% when weighted by GDP having recognized the impact of high corporate tax rates on business investment decisions. In the United States, the 2017 Tax Cuts and Jobs Act brought the country's statutory corporate income tax rate from the fourth highest in the world closer to the middle of the distribution. Asian and European countries tend to have lower rate of corporate tax than countries in the other regions; and many developing countries have corporate income tax rates that are above the worldwide average. Today, most countries have corporate tax rates below 30%.

Notable changes have been recorded in the statutory corporate income tax rates of 16 countries in 2022. Six countries increased their corporate tax rates: Colombia (31% to 35%), South Sudan (25% to 30%), Netherlands (25% to 25.8%), Chile (10% to 27%) and Montenegro (9% to 15%). Ten countries across four continents: - Seychelles, Sierra Leone, Zambia, Bangladesh, Myanmar, Tajikistan, France, Greece, Monaco and French Polynesia reduced their corporate tax rates in 2022. The tax rates reductions ranged from just 1.5 percentage points in Monaco to a 5-percentage point reduction in Seychelles, Sierra Leone, Zambia, and Tajikistan. Hines (2005) argues that the fall in statutory CIT rates during the 1980's and 1990's supports the premise that mobile capital got positive tax treatment because of tax competition. In addition, he highlights two facts: 1) the average effective foreign tax rates of U.S multinational firm dropped by almost half over this period (from 43% in 1982 to 26% in 1999). 2) while the corporate income of small countries is at significantly lower rates when compared to larger ones in the early 1980's, there was no material difference between small and large countries. 'Showing that large countries set their tax rates in response to the same competitive pressure those small countries always faced'.

### 2.3 Foreign Direct Investments (FDI)

According to IMF and OECD definitions, direct investments show the purpose of obtaining a lasting interest by a resident entity of one economy (direct investor) in an enterprise that is localized in another economy (the direct investment

enterprise). The ‘lasting interest’ means the presence of a long-term relationship between the direct investor and the direct investment enterprise and a significant level of influence on the management of the latter. Direct investment includes both the first transaction establishing the contact between the investor and the enterprise and all subsequent capital transactions between them and among affiliated businesses both incorporated and unincorporated. The fifth edition of the IMF’s Balance of Payment Manual defines the direct investor as one who owns up to 10% or more of a company’s capital. IMF has recommended this percentage as the dividing line between direct investment and portfolio in the form of shareholdings. Thus, when a non-resident who initially had no equity in a resident company purchases 10% or more of the shares of that enterprise from a resident, the price of equity holdings obtained should be recognized as direct investment. Henceforth, any further capital transactions between these two companies should be recognized as direct investment.

FDI used to be seen as unhelpful, negative, and attracting inappropriate technology to developing countries. Over four decades on, a tremendously different view from the start of the period has emerged. FDI is now seen as gainful and nearly all countries strive to promote a welcoming atmosphere for investments. Countries increasingly know that they can influence the attraction of FDI using both general economic policies and appropriate specific FDI policies. Countries that provide a favorable ‘investment atmosphere’ will attract more investment; an example could be seen in the 2005 World Bank *World Development Report*, a favorable investment atmosphere depends on a combination of factors determining investments. This differs significantly across countries (UNCTAD’s Investment Policy Review series, World Bank’s Doing Business 2006) impacting the competitive advantage of economies including their exports. For instance, there are dissimilarities with respect to e.g. business startup costs, the flexibility of firing index, period of enforcing contracts, and cost of winding up business. Djankov and Hoekman (2000) show that heavier regulation of business entry relates to higher corruption and thus weaker governance, discouraging investments. Even though countries have started to grasp what a favorable investment atmosphere entails, with some reductions in red tape, there is still a long difference in administrative and regulatory practices.

Renewed trust in the positive benefits of FDI has led to greater openness from many countries that were restricting FDI in the 1960s, 1970s and 1980s in the 1990s (Safarian, 1999) and beyond. Governments are liberalizing FDI regimes as they connect FDI with favorable effects for economic development in their countries (e.g. Lall, 2000). Much of FDI potentials in developing countries were not evident 3-4 decades ago because of strict restrictions on foreign ownership, and many of what are now seen as favorable factors (e.g., competitive environment, good quality local capabilities) were not in place. This is gradually phasing out. Almost every country is now actively welcoming FDI. They have liberalized their investment regime, but at various times. South-East Asian economies (in 1960s: Malaysia, Singapore, Hong Kong (China)) were first, while other Asian countries (Republic of Korea, India and China) and Latin American countries began to liberalize in the 1980s and 1990s (even the Republic of Korea which had initially refuted FDI and imported technology through licensing, decided after the Asian crisis in 1997 to allow more access to FDI for the capital and technological benefits). Many African countries followed only in 1990s.

### 2.3.1 Effects of FDI on Economic Growth

A lot had been written about the relationship between FDI and development (UNCTAD, 1999). We shall review only the main impact areas and suggest there have been major variations within these with an emphasis on how FDI is associated to economic growth. There are several ways through which FDI affects development:

- 1) Employment and incomes
- 2) Fiscal revenues
- 3) Technology and skills
- 4) Capital formation, market access
- 5) Political cultural and social issues
- 6) Structure of markets

### 2.4 Gross Domestic Product (GDP)

The Bureau of Economic Analysis (BEA) gives a clear definition for GDP: Gross Domestic Product (GDP) is the value of the goods and services produced by the nation’s economy less the value of the goods and services used up in production. GDP is also equal to the sum of personal consumption expenditures, gross private domestic investments, net exports of goods and services and government consumption expenditures and gross investments. Gross Domestic Product measures the market value of final goods and services. It counts all economic outputs that are produced within a given region (European Commission et al., 2009). GDP is an aggregate statistic that is directly derived from the System of National Account (SNA), an internationally recognized recommended standard on the practical ways to compile economic activities data (European Commission et al., 2009). There are 3 different scenarios to measure GDP; value added approach, income approach and final demand or expenditure approach (ibid). The Value Added approach uses the total of gross value added (the distinction between gross output and intermediate inputs), while the income approach measures GDP as the total of domestic earned income. Finally, the expenditure approach is equivalent to the total final use of domestic goods and services (sum of investments (I), consumer (C) and government spending (G) and exports less imports (X-M)).

Before the evolution of modern GDP, several early attempts had been made to calculate the value of national income. An outstanding one came from England. In the end seventeenth century, William Petty, British scientist and official, calculated the early national income estimation. He estimated expenditure, income, land, population and other assets in England and Wales used as a quantitative basis for resource utilization during war and fiscal policy (Maddison, 2007). Petty wanted to point out that England is still able to get higher income from taxes and prove that England is not ruined by still being able to challenge Holland and France (Bos, 2008).

There is also a widespread interest in national income estimation in France. An anonymous publication by Pierre de Boisguilbert assesses France's economic condition and asserts a sharp fall of France's national income (Maddison, 2007). Boisguilbert's work attracted the interest of Sebastien le Prestre de Vauban, as he published a proposal meant to change the tax structure (Maddison, 2007). In this early estimate era, certain inventions such as the first price index numbers and zigzag diagram and value-added concept gave room for the possibility of other improvements in the calculation of national income.

During the First World War and the 1920s, a concern grew over the national income estimates, and this brought the increasing practice of such estimation by organizations rather than by individuals (Carson, 1975). The work of Adolf C. Miller, board of Federal Reserve System 1914-1936 was among the initial attempts to come up with national income estimates in the US, as he observed that there was no formal figure for annual income of people at that time (ibid). Several years later, the Federal Trade Commission published the first national income in 1926; however, the subsequent publication was stopped because of funding difficulties (ibid). The great economic depression in the 1930s necessitated the need for more comprehensive and reliable economic activity data. As at then, the available data were scrappy and hard to compare. Hence it prompted the need of more sophisticated and reliable data (Costanza et al., 2009; Fioramonti, 2013). This data was required urgently to assist the government plan for the adequate policies needed to salvage this nation from Economic depression (ibid). The US senate imposed on the Bureau of Foreign and Domestic Commerce (which was subsequently renamed as Bureau of Economic Affairs or BEA) to make available the estimates of total national income of the USA (Mitra-Kahn, 2011; Fioramonti, 2013). However, as BEA was short of data and scientific know-how, they resorted to the National Bureau of Economic Research (NBER) to work on that project (ibid). After 1941, BEA published the national income estimates using a definition that began to deviate from Kuznets definition; it began to include government expenditure as part of its national income estimates, seeing its final consumption, which better accommodate the need for preparing for war (Carson, 1975). The process of changing national income to gross national product therefore was essentially one of adding the size of the national product concept to make it fit the implicit concept in the war expenditures (Gilbert, 1942, p.197). GNP has been proven to be an important instrument in rallying the economic resources in the time of the Second World War, particularly in arriving at the quantity of armament or productions associated with the war period also in controlling inflation (Carson, 1975).

### *2.5 How is FDI connected to GDP?*

One possible question that one may ask on the connection between FDI and economic growth is how FDI affects economic growth? There is contrasting evidence in this case, though most of them show that a positive relationship exists between them, they support the idea that FDI has a positive impact on GDP. On the theoretical grounds, FDI may affect growth positively since FDI which moves in general from capital-rich nations to capital-scarce economies, lesser rental rate of capital and increase in production through enhancing labor productivity bringing in new technology enclosed in the capital. Looking at it from another angle, FDI may have a negative impact on growth, as it may reduce healthy competition and corrupt the path of development of the country in its own interest. Most studies nonetheless seem to have found a positive impact of FDI on economic growth. For example, Reisen and Soto (2001), Berthélemy and Demurger (2000), Hansen and Rand (2006), Basu and Guariglia (2007) found that FDI enhances economic growth.

## **3. Research design and methodology**

The research design deployed for this study was Ex-post Facto, because the quantitative data (2018 - 2022) utilized were already published and available in the public domain. Data were analyzed, and Hypotheses tested with the application of a General Linear Model of Multivariate Analysis of Variance (MANOVA), with the aid of SPSS version 25.

### *3.1 Statement of Hypothesis*

The data utilized for the purpose of the researches' data analysis and test of hypotheses are as presented below:

#### **Hypothesis One:**

H<sub>0</sub>: Low CIT rate significantly affects the Gross Domestic Product (GDP) of a nation.

H<sub>1</sub>: Low CIT rate does not significantly affect the Gross Domestic Product (GDP) of a nation.

#### **Hypothesis Two:**

H<sub>0</sub>: Low CIT rate significantly affects the Foreign Direct Investment (FDI) of a country.

H1: Low CIT rate does not significantly affect the Foreign Direct Investment (FDI) of a country.

**Table 1**

The data of gross domestic product (GDP) (\$MILLION)

	2022	2021	2020	2019	2018
USA	25,462,700	23,315,080.56	21,060,473.61	21,380,976.12	20,533,057.31
CHINA	17,963,170.52	17,820,459.34	14,687,743.56	14,279,968.49	13,894,907.49
CANADA	2,139,840.02	2,001,486.75	1,647,598.40	1,743,725.18	1,725,297.94
FRANCE	2,782,905.33	2,957,879.76	2,639,008.70	2,728,870.25	2,790,956.88
MEXICO	1,414,187.19	1,272,838.81	1,090,514.97	1,269,009.57	1,222,405.56
GERMANY	4,072,191.74	4,259,934.91	3,889,668.90	3,888,226.04	3,974,443.36
AUSTRIA	471,400.07	480,368.40	435,225.24	444,621.18	454,991.17
GHANA	72,838.80	79,156.41	70,043.10	68,337.97	67,298.91
ALGERIA	191,912.89	163,472.23	145,743.72	171,760.29	174,910.89
NIGERIA	477,386.12	440,833.58	432,198.94	474,517.47	421,739.21

Source: world bank national accounts data 2023.

Table 1 above is the historical data of GDP (in million \$) of the selected countries for the study, and for the last five available and published years. It is the dependent variable pertinent for the test of hypothesis one. The table revealed that the USA recorded the highest GDP among the case countries to the tune of \$25,462,700 (millions) in the year 2022; whereas Ghana recorded the least in the year 2018 to the tune of \$67,298.91 (millions). Additionally, the independent variable for hypothesis one is the CIT rate. According to the most recent *Tax Foundation's* Statutory Corporate Income Tax Rates of countries, the following CIT rates were obtained for the case countries: USA - 25.81%; CHINA - 25.00%; CANADA - 26.21%; FRANCE - 25.83%; MEXICO - 30.00%; GERMANY - 29.83%; AUSTRIA - 25.00%; GHANA - 25.00%; ALGERIA - 26.00%; and NIGERIA - 30.00%.

**Table 2**

The results of the FDI of the countries (\$'MILLION)

	2022	2021	2020	2019	2018
USA	285,057	387,780	95,882	229,929	203,234
CHINA	189,132	180,957	149,342	141,225	138,306
CANADA	52,633	65,659	26,884	50,544	37,662
FRANCE	36,413	30,885	11,359	13,100	41,833
MEXICO	35,292	31,543	28,195	34,567	34,097
GERMANY	11,053	46,468	56,204	52,684	72,022
AUSTRIA	1,947	13,494	-9,351	4,905	5,390
GHANA	1,473	2,414	1,333	3,292	2,908
ALGERIA	89	870	1,143	1,382	1,475
NIGERIA	-187	3,313	2,385	2,305	775

source: UNCTAD's world investment report 2023.

Table 2 above is the historical data of FDI (in million \$) of the selected countries for the study, and for the last five available and published years. It is the dependent variable necessary for the test of hypothesis two. The table has USA recording the highest FDI among the selected countries to the tune of \$387,780 (millions) in the year 2021; whereas Austria and Nigeria recorded the least and negative FDI in the year 2020 and 2022 to the tune of \$-9,351 (millions) and \$-187 (millions), respectively. It is also worth of note that FDI for virtually all the selected countries (except for Germany and Algeria) in the year 2020 recorded a dwindling figure. This could be explained to be because of the devastating effect of COVID-19. Additionally, the independent variable for hypothesis two is the CIT rate (as aforementioned).

### 3.2 Test of hypothesis one: CIT rates Vs GDP

The Test of this Hypothesis was executed using the Univariate Analysis of Variance as Follows:

**Table 3**

The results of descriptive statistics (Dependent variable: GDP)

CIT Rates	Mean	Std. Deviation	N
25.00	5419368.7100	7622754.69232	15
25.81	22350457.5200	2032452.15564	5
25.83	2779924.1840	116471.53349	5
26.00	169560.0040	16862.68905	5
26.21	1851589.6580	209018.05327	5
29.83	4016892.9900	155459.36030	5
30.00	851563.1420	431327.17735	10
Total	4912965.6770	7433054.89142	50

Source: SPSS Ver. 25

Table 4 demonstrates both Levene's Test of Equality of Error Variances, and Between-Subjects Effects. With both the respective Levene test and F value > sig (P) value, it signifies that CIT rate significantly affects the GDP volume for countries.

**Table 4**

The results of the Levene's Test of Equality of Error Variance

		Levene Statistic	df1	df2	Sig.
GDP	Based on Mean	29.742	6	43	.000
	Based on Median	2.325	6	43	.049
	Based on Median and with adjusted df	2.325	6	14.398	.089
	Based on trimmed mean	22.389	6	43	.000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: GDP

b. Design: Intercept + CIT\_Rates

Tests of Between-Subjects Effects						
Dependent Variable: GDP						
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	
Corrected Model	1875250838761996.000 <sup>a</sup>	6	312541806460332.700	16.153	.000	
Intercept	1201461765659577.800	1	1201461765659577.800	62.094	.000	
CIT_Rates	1875250838761995.500	6	312541806460332.560	16.153	.000	
Error	832014107165684.600	43	19349165282922.900			
Total	3914126533096682.000	50				
Corrected Total	2707264945927680.500	49				

a. R Squared = .693 (Adjusted R Squared = .650)

Source: SPSS Ver. 25

Table 5 did a variables' multiple comparison using Turkey test; showing the respective mean difference, upper and lower boundaries. At 95% confidence level, it gave a mixed sig. value. This implies that different CIT rates significantly affect the GDP of countries in different ways.

**Table 5**

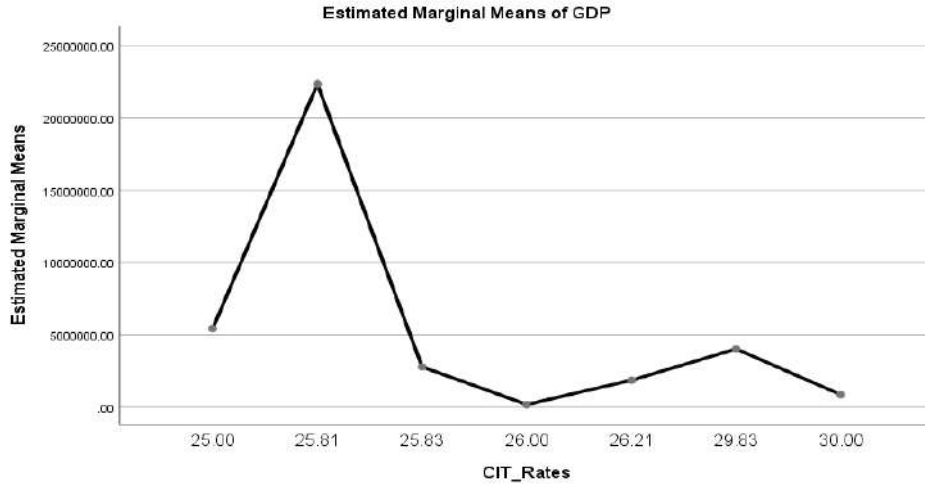
The results of Tukey test

(I) CIT_Rates	(J) CIT_Rates	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
25.00	25.81	-16931088.8100*	2271514.34263	.000	-23954685.3763	-9907492.2437
	25.83	2639444.5260	2271514.34263	.904	-4384152.0403	9663041.0923
	26.00	5249808.7060	2271514.34263	.262	-1773787.8603	12273405.2723
	26.21	3567779.0520	2271514.34263	.701	-3455817.5143	10591375.6183
	29.83	1402475.7200	2271514.34263	.996	-5621120.8463	8426072.2863
	30.00	4567805.5680	1795789.76511	.170	-984835.0609	10120446.1969
25.81	25.00	16931088.8100*	2271514.34263	.000	9907492.2437	23954685.3763
	25.83	19570533.3360*	2782025.54143	.000	10968419.4627	28172647.2093
	26.00	22180897.5160*	2782025.54143	.000	13578783.6427	30783011.3893
	26.21	20498867.8620*	2782025.54143	.000	11896753.9887	29100981.7353
	29.83	18333564.5300*	2782025.54143	.000	9731450.6567	26935678.4033
	30.00	21498894.3780*	2409304.79286	.000	14049245.2375	28948543.5185
25.83	25.00	-2639444.5260	2271514.34263	.904	-9663041.0923	4384152.0403
	25.81	-19570533.3360*	2782025.54143	.000	-28172647.2093	-10968419.4627
	26.00	2610364.1800	2782025.54143	.964	-5991749.6933	11212478.0533
	26.21	928334.5260	2782025.54143	1.000	-7673779.3473	9530448.3993
	29.83	-1236968.8060	2782025.54143	.999	-9839082.6793	7365145.0673
	30.00	1928361.0420	2409304.79286	.984	-5521288.0985	9378010.1825
26.00	25.00	-5249808.7060	2271514.34263	.262	-12273405.2723	1773787.8603
	25.81	-22180897.5160*	2782025.54143	.000	-30783011.3893	-13578783.6427
	25.83	-2610364.1800	2782025.54143	.964	-11212478.0533	5991749.6933
	26.21	-1682029.6540	2782025.54143	.996	-10284143.5273	6920084.2193
	29.83	-3847332.9860	2782025.54143	.808	-12449446.8593	4754780.8873
	30.00	-682003.1380	2409304.79286	1.000	-8131652.2785	6767646.0025
26.21	25.00	-3567779.0520	2271514.34263	.701	-10591375.6183	3455817.5143
	25.81	-20498867.8620*	2782025.54143	.000	-29100981.7353	-11896753.9887
	25.83	-928334.5260	2782025.54143	1.000	-9530448.3993	7673779.3473
	26.00	1682029.6540	2782025.54143	.996	-6920084.2193	10284143.5273
	29.83	-2165303.3320	2782025.54143	.986	-10767417.2053	6436810.5413
	30.00	1000026.5160	2409304.79286	1.000	-6449622.6245	8449675.6565
29.83	25.00	-1402475.7200	2271514.34263	.996	-8426072.2863	5621120.8463
	25.81	-18333564.5300*	2782025.54143	.000	-26935678.4033	-9731450.6567
	25.83	1236968.8060	2782025.54143	.999	-7365145.0673	9839082.6793
	26.00	3847332.9860	2782025.54143	.808	-4754780.8873	12449446.8593
	26.21	2165303.3320	2782025.54143	.986	-6436810.5413	10767417.2053
	30.00	3165329.8480	2409304.79286	.842	-4284319.2925	10614978.9885
30.00	25.00	-4567805.5680	1795789.76511	.170	-10120446.1969	984835.0609
	25.81	-21498894.3780*	2409304.79286	.000	-28948543.5185	-14049245.2375
	25.83	-1928361.0420	2409304.79286	.984	-9378010.1825	5521288.0985
	26.00	682003.1380	2409304.79286	1.000	-6767646.0025	8131652.2785
	26.21	-1000026.5160	2409304.79286	1.000	-8449675.6565	6449622.6245
	29.83	-3165329.8480	2409304.79286	.842	-10614978.9885	4284319.2925

Based on observed means.

The error term is Mean Square (Error) = 19349165282922.900.

\*. The mean difference is significant at the .05 level.



**Fig. 1,** Profile Plot of Estimated Marginal Means of GDP

Fig. 1 is the visual representation of the above statistical figures and narrations. It depicts how countries with a moderate (lower) CIT rate attracted higher GDP volume. And we can also observe how the curve slopes downward as the CIT rate increases. Though, the exception to this flow (as seen at 25.00) could be attributed to the periods of COVID-19 pandemic.

*3.3 Test of hypothesis two: CIT rates versus FDI*

The Test of this Hypothesis was executed using the Univariate Analysis of Variance as Follows:

**Table 6**  
The results of descriptive statistics

CIT_Rates	Mean	Std. Deviation	N
25.00	55117.8000	77771.80597	15
25.81	240376.4000	107344.67265	5
25.83	26718.0000	13794.64519	5
26.00	991.8000	556.43571	5
26.21	46676.4000	14864.19373	5
29.83	47686.2000	22545.71709	5
30.00	17228.5000	16490.15776	10
Total	56225.9200	83557.17197	50

Dependent variable: FDI

**Table 7**  
Levene's Test of Equality of Error Variances<sup>a,b</sup>

FDI	Based on	Levene Statistic	df1	df2	Sig.
	Mean	10.740	6	43	.000
	Median	2.193	6	43	.062
	Median and with adjusted df	2.193	6	18.594	.090
	Trimmed mean	9.480	6	43	.000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: FDI

b. Design: Intercept + CIT\_Rates

Tests of Between-Subjects Effects

Dependent Variable: FDI

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	205211630560.780 <sup>a</sup>	6	34201938426.797	10.743	.000
Intercept	162040096272.008	1	162040096272.008	50.898	.000
CIT_Rates	205211630560.780	6	34201938426.797	10.743	.000
Error	136896617854.900	43	3183642275.695		
Total	500175952408.000	50			
Corrected Total	342108248415.680	49			

a. R Squared = .600 (Adjusted R Squared = .544)

**Source:** SPSS Ver. 25

Table 7 demonstrated both Levene's Test of Equality of Error Variances, and Between-Subjects Effects Test. With both the respective Levene test and F value > sig (P) value, it signifies that CIT rate significantly affects the FDI volume for countries.

**Table 8**  
Post Hoc Tests of CIT\_Rates (Multiple Comparisons)

(I) CIT_Rates	(J) CIT_Rates	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
25.00	25.81	-185258.6000*	29137.11162	.000	-275351.5011	-95165.6989
	25.83	28399.8000	29137.11162	.957	-61693.1011	118492.7011
	26.00	54126.0000	29137.11162	.518	-35966.9011	144218.9011
	26.21	8441.4000	29137.11162	1.000	-81651.5011	98534.3011
	29.83	7431.6000	29137.11162	1.000	-82661.3011	97524.5011
	30.00	37889.3000	23034.90929	.655	-33335.3922	109113.9922
25.81	25.00	185258.6000*	29137.11162	.000	95165.6989	275351.5011
	25.83	213658.4000*	35685.52802	.000	103317.5814	323999.2186
	26.00	239384.6000*	35685.52802	.000	129043.7814	349725.4186
	26.21	193700.0000*	35685.52802	.000	83359.1814	304040.8186
	29.83	192690.2000*	35685.52802	.000	82349.3814	303031.0186
	30.00	223147.9000*	30904.57382	.000	127589.9480	318705.8520
25.83	25.00	-28399.8000	29137.11162	.957	-118492.7011	61693.1011
	25.81	-213658.4000*	35685.52802	.000	-323999.2186	-103317.5814
	26.00	25726.2000	35685.52802	.991	-84614.6186	136067.0186
	26.21	-19958.4000	35685.52802	.998	-130299.2186	90382.4186
	29.83	-20968.2000	35685.52802	.997	-131309.0186	89372.6186
	30.00	9489.5000	30904.57382	1.000	-86068.4520	105047.4520
26.00	25.00	-54126.0000	29137.11162	.518	-144218.9011	35966.9011
	25.81	-239384.6000*	35685.52802	.000	-349725.4186	-129043.7814
	25.83	-25726.2000	35685.52802	.991	-136067.0186	84614.6186
	26.21	-45684.6000	35685.52802	.857	-156025.4186	64656.2186
	29.83	-46694.4000	35685.52802	.844	-157035.2186	63646.4186
	30.00	-16236.7000	30904.57382	.998	-111794.6520	79321.2520
26.21	25.00	-8441.4000	29137.11162	1.000	-98534.3011	81651.5011
	25.81	-193700.0000*	35685.52802	.000	-304040.8186	-83359.1814
	25.83	19958.4000	35685.52802	.998	-90382.4186	130299.2186
	26.00	45684.6000	35685.52802	.857	-64656.2186	156025.4186
	29.83	-1009.8000	35685.52802	1.000	-111350.6186	109331.0186
	30.00	29447.9000	30904.57382	.961	-66110.0520	125005.8520
29.83	25.00	-7431.6000	29137.11162	1.000	-97524.5011	82661.3011
	25.81	-192690.2000*	35685.52802	.000	-303031.0186	-82349.3814
	25.83	20968.2000	35685.52802	.997	-89372.6186	131309.0186
	26.00	46694.4000	35685.52802	.844	-63646.4186	157035.2186
	26.21	1009.8000	35685.52802	1.000	-109331.0186	111350.6186
	30.00	30457.7000	30904.57382	.954	-65100.2520	126015.6520
30.00	25.00	-37889.3000	23034.90929	.655	-109113.9922	33335.3922
	25.81	-223147.9000*	30904.57382	.000	-318705.8520	-127589.9480
	25.83	-9489.5000	30904.57382	1.000	-105047.4520	86068.4520
	26.00	16236.7000	30904.57382	.998	-79321.2520	111794.6520
	26.21	-29447.9000	30904.57382	.961	-125005.8520	66110.0520
	29.83	-30457.7000	30904.57382	.954	-126015.6520	65100.2520

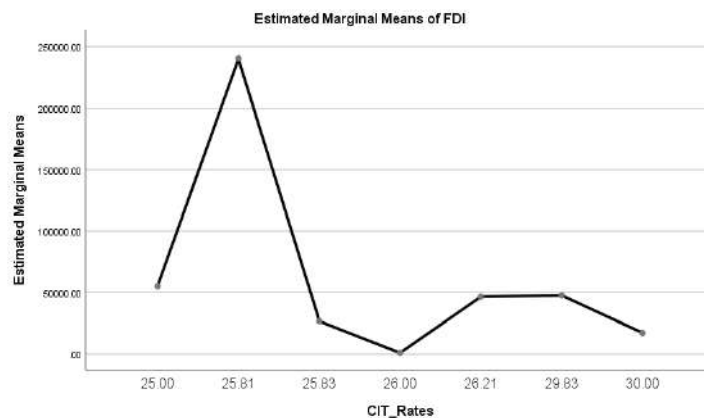
Based on observed means.

The error term is Mean Square (Error) = 3183642275.695.

\*. The mean difference is significant at the .05 level.

Source: SPSS Ver. 25

Table 8 did a variables' multiple comparison using Tukey test; showing the respective mean difference, upper and lower boundaries. At 95% confidence level, it gave a mixed sig. value. This implies that different CIT rates significantly affect the FDI inflow of countries in different ways.



**Fig. 2.** Profile plots of Estimated Marginal Means of FDI



Fig. 2, just like in Fig. 1, visually depicts the earlier statistical figures and narrations. It shows how countries with a moderate (lower) CIT rate attracted higher FDI volume. And we can also observe how the curve slopes downward as the CIT rate increases. Though, the exception to this flow (as shown beginning from 25.00) could be attributed to the periods of COVID-19 pandemic.

#### 4. Conclusion

Closely, all the countries around the world have their distinctive features. Although corporate tax rate serve as a relevant factor for bringing foreign direct investors. Therefore, many countries have come up with some tax instruments to attract foreign investments to their countries. The main purpose for displaying tax advantages to foreign direct investments is to achieve the nation's economic goals, such as economic growth, economic stability etc. According to our empirical findings, it is concluded that CIT rate has a significant impact on FDI inflows in the selected countries over the period 2018-2022. As a result, we can boldly say that FDI is attracted by a lower CIT rate. The GDP of the selected countries were positively affected by lower CIT rates; we find that GDP growth positively affects FDI as in Billington (1999).

Constraint: However, the study did not take cognizance of the fluctuations that exist in the CIT rates of these selected countries. The rates applied in the analysis were strictly the prevailing rates as at 2022.

#### References

- Basu, P., & Guariglia, A. (2007). Foreign direct investment, inequality, and growth. *Journal of Macroeconomics*, 29(4), 824-839.
- Berthélemy, J. C., & Demurger, S. (2000). Foreign direct investment and economic growth: theory and application to China. *Review of development economics*, 4(2), 140-155.
- Bos, J. (2008). Wide-coverage semantic analysis with boxer. In *Semantics in text processing. step 2008 conference proceedings* (pp. 277-286).
- Burgess, S., Propper, C., & Aassve, A. (2003). The role of income in marriage and divorce transitions among young Americans. *Journal of Population Economics*, 16, 455-475.
- Carson, C. S. (1975). The history of the United States national income and product accounts: the development of an analytical tool. *Review of Income and Wealth*, 21(2), 153-181.
- Costanza, R., Hart, M., Talberth, J., & Posner, S. (2009). Beyond GDP: The need for new measures of progress. *The pardee papers*.
- Devereux, M. P., & Griffith, R. (2002). The impact of corporate taxation on the location of capital: a review. *Swedish economic policy review*, 9(1), 79-106.
- Devereux, P. (2008). International volunteering for development and sustainability: Outdated paternalism or a radical response to globalisation?. *Development in Practice*, 18(3), 357-370.
- Djankov, S., & Hoekman, B. (2000). Foreign investment and productivity growth in Czech enterprises. *The World Bank Economic Review*, 14(1), 49-64.
- Dunning, J. H. (1980). Toward an eclectic theory of international production: Some empirical tests. *Journal of international business studies*, 11, 9-31.
- Fioramonti, L. (2013). *Gross domestic problem: The politics behind the world's most powerful number*. Bloomsbury Publishing.
- Gilbert, M. (1942). Measuring national income as affected by the war. *Journal of the American Statistical Association*, 37(218), 186-198.
- Gordon, R. H., & Hines Jr, J. R. (2002). International taxation. *Handbook of Public Economics*, 4, 1935-1995.
- Hansen, H., & Rand, J. (2006). On the causal links between FDI and growth in developing countries. *World Economy*, 29(1), 21-41.
- Hassett, K. A., & Hubbard, R. G. (2001). *Transition costs of fundamental tax reform*. American Enterprise Institute.
- Helpman, E., Melitz, M. J., & Yeaple, S. R. (2004). Export versus FDI with heterogeneous firms. *American economic review*, 94(1), 300-316.
- Lall, S. (2000). The Technological structure and performance of developing country manufactured exports, 1985-98. *Oxford development studies*, 28(3), 337-369.
- Maddison, A. (2007). *Contours of the world economy 1-2030 AD: Essays in macro-economic history*. OUP Oxford.
- Mitra-Kahn, B. H. (2011). *Redefining the Economy: how the economy was invented 1620* (Doctoral dissertation, City University London).
- Reisen, H., & Soto, M. (2001). Which types of capital inflows foster developing-country growth?. *International finance*, 4(1), 1-14.
- Sanjo, Y. (2012). Country risk, country size, and tax competition for foreign direct investment. *International Review of Economics & Finance*, 21(1), 292-301.
- Scholes, M. S., Wolfson, M. A., Erickson, M., Maydew, E., & Shevlin, T. (2014). *Taxes & business strategy*. Upper Saddle River, NJ: Prentice Hall.



© 2024 by the authors; licensee Growing Science, Canada. This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (<http://creativecommons.org/licenses/by/4.0/>).