Investment Incentives and Effective Corporate Tax Rate for Manufacturing Firms in Kenya

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Abstract

Effective corporate tax rate is a finance subject of interest to firms, policy makers and researchers. It measures level of tax burden at firm level. Thus, governments implement various investment incentives to influence effective corporate tax rate. The effective corporate tax rate in Kenya is still a problem averaging 31.3 percent for the last 10 years. Such high effective corporate tax rate militates against desired competitive corporate environment for the manufacturing sector. In the last ten years, the manufacturing sector has deteriorated to 7.4 percent contribution to gross domestic product which is less than 15 percent as envisaged in Kenya Vision 2030. This undesirable phenomenon prompted design of this study. The objective of the study was to determine the effect of investment incentives on effective corporate tax rate. The study adopted positivist philosophy and longitudinal research design. A sample of 278 firms provided secondary data for the period 2010 to 2020. Descriptive and inferential statistics were conducted using panel data regression. The study established that investment incentives are statistically significant predictors of effective corporate tax rate for manufacturing firms in Kenya. The study recommends that public policy makers should design appropriate profit based, capital investment and custom duty incentives as part of fiscal policy instruments to grow firms involved in manufacturing. The study has added to finance knowledge that fiscal policy affects corporate operations. However, there is need for further investigation on other possible investment incentives that were not covered in this study that influence effective corporate tax.

Keywords: Investment incentives, profit based incentive, capital investment incentive, custom duty incentive, and effective corporate tax rate

1. Introduction

1.1 Background

Effective corporate taxation rate is a key financial   measure that influences strategic financial decisions at firm level. According to Dwenger and Walch (2014), Effective Corporate Tax Rate (ECTR) affect expansion of business ventures and overall economic growth. ECTR is the actual corporate tax paid as a percentage of pretax corporate profit. It is the financial barometer that measures size of corporate tax burden imposed by tax system on firms. Devereux and Fuest (2015) observed that, economic globalisation and growing importance of multinational firms have far reaching consequences on ECTR analysis and entire national fiscal policy. It was observed that, average corporate tax rate in European Union (EU) has been on declining trend from 35 percent in 1995 to 23 percent in 2015. Therefore, reducing tax rate on corporate income is a problem that EU has continued to address over the last three decades.

According to Zolt (2015), firms attempt to circumvent high ECTR problem through tax avoidance mechanisms. These mechanisms include round-tripping; double dipping; transfer pricing; and fly-by-night operations. Congressional Research Service (2019) documents that, high corporate tax liability leads investors to engage in profit offshoring; capital flight; and business inversions with intention of moving into low corporate tax rate countries. These schematic tax avoidances are detrimental to the economy since they are as bad as outsourcing economic activity, lead to loss of domestic investment, slows down economic growth, increase unemployment and erode corporate tax base.

According to Abramovsky et al. (2018) profit and capital based incentives reduce taxable income. Profit based incentive attract footloose investment that generate firm-specific benefits. It was observed that tax holidays as indicator for profit based incentive benefit short term projects with low upfront investment expenditure. On the other hand, capital based incentive which can be calibrated through investment allowances, tax credits and accelerated depredation tend to benefit long-term investments. They favour investments that have longtime horizons.

Cevik and Miryugin (2019), argues that level of effective tax rate affected firm survival chances in Europe. Megersa (2019) argued that variation in ECTR is influenced by tax incentives across businesses in Asia. Most researchers interested in financial analysis of investment incentive policy use ECTR models. It was indicated that available indicators for incentives include capital allowances, tax holidays, accelerated depreciation and reduced tax rates.

Osebe, Kirui, and Naibei (2019), pointed out that effective corporate tax rate is important variable not only to firms but also to public policy makers in Kenya. It characterizes an important cash outflow to firms thereby impacting major financial decisions. It was indicated that, limited studies have been conducted to investigate variables that affect ECTR in Kenya and other developing countries. It was pointed out that most of the available data is not sector specific.

Ewubare and Ozo-Eson (2019) showed that corporate taxation affects output of manufacturing firms in Nigeria. According to World Bank (2019) the importance of manufacturing sector is not only confined to its share of GDP but also provider of goods for final consumption. The report indicates that some of the framework conditions that affect industrialization include trade regimes, competitive advantage reforms, fiscal incentives for diversification and technological upgrading. It was observed that, the share of manufacturing to GDP in the world for the year 2019 averaged 12.32 percent.

1.2 Effective Corporate Tax Rate

According to Congressional Budget Office (2018) the problem of high ECTR still exist across countries. It was reported that, the G7 countries had an average corporate tax rate of 27.2 percent; OECD member countries had a mean of 24.18 percent; and BRICS countries had an average of about 27.34 percent. The average ECTR for the G20 countries was 10.5 percent with lowest of negative 23.5 percent for Italy. The negative ECR in Italy was occasioned by introduction of fiscal measures such as participation-exemption regime on intergroup capital gains; optional consolidation of tax declaration for a group of companies including foreign subsidiaries; use of tax allowance for corporate equity (ACE) and tax refunds which reduced ECTR to a greater extent.

Carrera, Dachapalli, and Mascagni (2017) opined that corporate tax rate remain a problem in Africa and is a topic that require critical analysis. Effective corporate tax rate was analysed as the percentage of total tax liability over gross profits. Bourgain, Bertinelli, and Diamoutene (2018) indicated that one of the challenges facing firms in Sub-Saharan Africa within the context of globalization is that there is minimum policy analysis focusing on effective corporate tax rate. Such analysis should be twofold: analysing ECTR quantum and investigating its determinants. Unfortunately, it was observed that, studies on microdata are hardly in existence and there are few studies for comparative analysis. There is also unclear understanding of the importance of ECTR which makes it problematic for evidence based analysis. This therefore formed a backdrop for studying the nature of ECTR in Africa and was the basis for this study.

World Bank (2018) indicates that, Africa countries have not done very well in reducing ECTR with only one tax haven (Mauritius) while there are about 50 tax havens across the world. This high ECTR works against the struggle for Africa to create wealth, generate new jobs, build favourable investment climate and stimulate active diversification of the economy. Lakuma (2019) observed that there is sectoral variation in effective tax rate due to incentive regime in Uganda. The variables that determine effective tax rate include interest rate, tax holidays, depreciation, inflation, capital allowance and present value allowance.

According to Ouma (2019), tax modernisation programme in Kenya has lowered corporate tax rate to 30 percent from 45 percent that existed in 1986. The intention is to combat stiff global competition for investment finance and position Kenya as preferred destination for investment. From theory, it is expected that in any economy the ECTR should be less than STR (OECD, 2018). Conversely according to WB (2018) summary on world development indicators the ECTR for Kenya has marginally reduced from 33.2 percent in 2008 to 29.8 percent in 2014 and increased to 30.1 percent in 2018. This implies that Kenya has not achieved conducive tax competition environment for investors in comparison to other regional countries.

1.3 Investment Incentives

According to UNCTAD (2015), investment incentives are fiscal policy instruments that are used by government to attract and retain business investment. They are classified as profit based, capital investment, custom duty related, value addition based, financial incentive among others. It was indicated that profit-based incentive can be evaluated using tax holiday, reduced corporate tax rate and loss carryovers. Capital investment incentive is a capital deduction that government allows firms to reduce corporate taxable income. The constructs of capital investment incentive include investment deductions; wear and tear; industrial undertakings; intellectual property rights; research and development; and computer-software. The essence of capital investment incentive is to encourage firms to increase capital expenditure and attract investments that otherwise would go to other countries.

Extant literature shows that there are various investment incentives with more than one indicator (Makano, 2019; Hanappi, 2018; Thuita, 2017; Miah, 2016; and Chen, 2015). In a nutshell investment incentives are financial portfolio applied by government to attract investment in an economy so as to boost economic growth. Clark and Skrok (2019) pointed out that the magnitude of investment incentives can be measured using tax deductions, deferrals, reliefs, tax credits, duty exemptions, tax holidays and low corporate profit tax rate on targeted investments. These constitute constructs of independent variables that affect tax liability.

Heitzman and Lester (2017), analysed profit based incentive using loss carry forwards as a key input in simulating effective corporate tax rate in USA. It was demonstrated that profit based incentive is associated with large corporate cash balances. Abramovsky et al. (2018) showed that low and middle-income countries have in recent years reduced ECTR using investment incentives. Since firms are sensitive to tax problem, governments design investment incentives to lower effective corporate tax rate so as to influence location decisions by investors and business enterprises. The analysis showed that profit based incentive reduce ECTR through tax holidays and preferential tax rate for a specific sector. However, the extent to which these incentives achieve the desired results is an area that requires an inquiry.

Oladije (2019) showed that various allowances are deducted from corporate earnings to lessen total tax payable in Nigeria. Meinzer, Ndajiwo, Phoya, and Diakité (2019) observed that African countries grant on average 40 percent more profit based incentive than the EU member states. The profit based incentive in Africa take the form of tax holidays and special economic zones whereas those in EU are mainly sectoral and apply on capital gains. However, there was no satisfactory dataset to allow methodical panel data analyses in various economies on ECTR and incentives phenomena especially in Africa.

Bermperoglou, Deli, and Kalyvitis (2019) pointed out that government use a variety of incentives to stimulate corporate activities. These incentives take the form of tax credits, subsidies for new capital and investment allowances that are aimed at reducing tax liability. Twesige and Gasheja (2019) investigated the effect of incentives on the growth of small and medium-sized enterprises (SMEs) in Rwanda. It was concluded that investment incentives remain one of the variables that must be considered for sustainable growth of the SMEs. OECD (2019) showed that capital allowances is one of the key parameters used in determining taxable profits.

Kuria (2018) study classified incentives into corporate income, capital allowance, VAT, excise duty and custom duty. The study recommended that the Government of Kenya needs to consider increasing duty incentive so as to cut down on imports and stimulate demand for domestic products in the country. From literature, various incentives are available for the manufacturing sector in Kenya. The basic argument is that investment incentives help firms accumulate capital as long as benefits exceed costs and encourage manufacturers to expand existing establishment while at the same time attract new investments.

1.4 Manufacturing Sector in Kenya

According to Were (2016), manufacturing sector in Kenya is growing at slower rate than that of Ethiopia, Rwanda, Tanzania and Uganda. It was argued that, if this trend continues then other East Africa Countries will start to dominate manufacturing in the region. It was observed that Uganda and Tanzania are unwaveringly putting in place mechanism to make them preferred investment destinations in the region. Unfortunately it appears that Kenya seem not to be reverberating this stimulating impetus. One way of understanding this differential between countries is by researching on the corporate tax burden which is captured by ECTR.

Kariithi and Kihara (2017) indicated that, the growth rate of 3.5 percentage points for manufacturing sector in Kenya, is slower than the average for overall economy. It was indicated that, many manufacturing firms in Kenya have registered stagnation, declining profits and reported profit warnings. It has been argued that such stagnation and decline is an indicator to premature deindustrialization problem. The interpretation is that there is

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a shrinking proportion of the manufacturing sector to GDP while at the same time the sector is still relatively under-developed. There is therefore need for evidence-based analysis in an attempt to reverse this scenario. The essence is to understand how to create conducive business environment so as to promote growth of the manufacturing sector.

According to Kenya Economic Surveys (2018 & 2019) the percentage contribution of manufacturing sector to GDP for the years 2014, 2015, 2016, 2017, 2018 and 2019 was 10 percent, 9.4 percent, 9.3 percent, 8.1 percent, 7.8 percent and 7.5 percent respectively. Similar situation has been analysed by World Bank (2019). This declining state of affairs has to be addressed since manufacturing sector has a prominent role to play in achieving targets as set in Kenya Vision 2030 and the medium term plans. The sector has been identified as the engine to create employment, generate wealth and contribute 15 percent of GDP.

1.5 Statement of the Problem

According to OECD (2018), effective corporate tax rate in emerging economies ought to be less than statutory corporate tax rate. However, according to World Bank (2018), effective corporate tax rate in Kenya has averaged 31.3 percent for the period 2008 to 2018. This measure of corporate burden is higher than Sub-Saharan Africa average figure of 18.0 percent and other regional countries. Such high ECTR slows down economic growth since it discourages new investments, existing firms may opt to relocate to jurisdictions with low ECTR, firms engage aggressive tax avoidance and it enhances economic informalities whereby firms delay in being incorporated as formal enterprises (McKay, Pirttilä & Schimansk, 2019).

Despite efforts to improve economic growth, manufacturing sector in Kenya has recorded declining profits, reducing market share and has stagnated over time (Kenya Economic Survey, 2019; Kenya Economic Survey, 2018; KAM, 2018; Karithi & Kihara, 2017; and Were, 2016). The declining trend shows that its contribution to GDP has reduced from 10.8 percent in the year 2008 to 7.5 percent in 2019 which is below desired target of 15 percent. This sluggish state of affairs is a matter of concern that need investigation, given that manufacturing sector has been accorded prominence in the Kenya industrial transformation strategy. Unfortunately, despite the various incentives by the Government, the contribution of manufacturing to GDP is still plummeting downward and neither the average ECTR for Kenya has improved. The ECTR slightly decreased from 33.1 percentage points in 2008 to 29.8 percentage points in 2014 and increased to 30.1 percent in 2018 and average ECTR is above STR (30%). High ECTR implies that firms use corporate earnings and available cash balances to meet tax liability which is counter-productive to the economy.

Extant empirical literature shows that effective corporate tax rate is an area that is under researched (Congressional Budget Office, 2018; World Bank, 2018; Delgado et al, 2018; OECD, 2018; Vintlla et al., 2017). In addition, most studies on ECTR are in developed economies and limited in number due to lack of adequate data. In Africa there are limited studies on determinants of effective corporate tax rate (Abramovsky et al., 2018; Adams & Balogun, 2020). Calitz, Muwanga-Zake, Sithole, and Steyn (2020) focused on effect of depreciation allowance and effective tax rate using anonymized macro data in South African. The study has therefore improved on this by using capital allowance as an indicator of capital investment incentive to estimate its effect using micro (firm level) panel data. In Kenya, studies on investment incentives and ECTR are limited (Osebe et al., 2019; & Kuria, 2018). This limitation formed the background against which the study was formulated to determine effect of investment incentives on effective corporate tax rate for manufacturing firms in Kenya.

1.6 Study Objectives

The overall objective of the study was to determine the effect of investment incentives on effective corporate tax rate for manufacturing firms in Kenya. The specific objectives of the study were:

  i. To determine the effect of profit based incentive on effective corporate tax rate for manufacturing firms in Kenya.
 ii. To establish the effect of capital investment incentive on effective corporate tax rate for manufacturing firms in Kenya.
iii. To establish the effect of custom duty incentive on effective corporate tax rate for manufacturing firms in Kenya.

2. Literature Review

2.1 Theoretical Literature

The theories underpinning this study were optimal corporate taxation, neoclassical investment and political power.

2.1.1 Optimal Corporate Taxation Theory

According to Mirrlees (1971), optimal corporate tax theory is based on the principle of utilitarianism. This principle is hinged on the argument that the marginal corporate tax rate should not increase financial burden of tax payers. The optimal corporate tax theory embodies an assumption that imposition of a given tax rate should create incentives, efficiency and information sharing to maximize social welfare without increasing tax liability. It is argued that one opportunity to lessen negative effect of corporate taxation on investments and increase private investments is by government providing investment incentives. Therefore, firms utilise investment incentives so as to diminish tax liability. The theory was used in the study to explore the supposition that effective corporate tax rate is dependent on investment incentives. The theoretical principles surrounding corporate taxation are used to expound on the analysis that nonzero ECTR is in itself a problem adequate for research investigation. High taxation is one of the precursor to the tragedy of common good.

Saez (2001) argues that the Mirrleesian approach captures the efficiency-equity trade-off. ECTR is a key measure of both equity and efficiency aspects. The equity principle contends that a corporate tax system should respect both horizontal and vertical circumstances of firms. Firms in the same circumstance need to be treated alike. The efficiency argument is that imposing tax on corporate profits is distortionary since it interferes with return on capital and distorts allocation of factor inputs. According to Koehne (2017), the interest of optimal corporate taxation is to eliminate deadweight loss in the economy so as to increase economic efficiency. The deadweight loss occurs when firms make less investment decisions than if there was no tax burden, which reduces well-being.

According to Menguy (2018) investment incentives should be designed so as to reduce corporate tax rate with a view to retain and attract businesses within an economy. It is argued that high corporate tax rate also come with a burdensome system of enormous compliance costs, a workforce which may be declining in quality and inefficient and ineffective tax system. It is argued that zero corporate tax rate attempts to eliminate cash hoarding, stimulate business expansion and eliminate stockpiling abroad and the reverse may be true. It is argued that firms utilise existing investment incentives to reduce tax liability, improve financial efficiency and enhance profitability.

2.1.2 Neoclassical Theory of Investment

The Neoclassical investment theory was pioneered by Jorgenson in 1963. The theory states that a combination of sound fiscal policy and investment incentives promote private investment. This was premised on the fact that, investment incentives create certain tax deductions which lower effective corporate tax rate at firm level. It is argued that, good fiscal policy raises the level of income and increases expected output of firms and stimulates investment. Therefore, firms favour investment incentives since they lead to reduction in effective corporation tax rate and increase corporate performance.

Parys (2012) argued that it is difficult to ignore investment incentives when investigating corporate taxation in developing economies. Federici, Parisi, and Elliott (2015) points out that the nexus between taxation and investment have shown that there is need to move from macro-modeling to micro-analysis. The association between taxation and investment incentives is a global concern that should be examined from both government and firm perspective as they make decisions.

Munongo, Akanbi, and Robinson (2017) stated that neoclassical investment theory, proposes that investment inducements boost development and investments. This is premised on the argument that investment incentives reduce ECTR. It was observed that the use of incentives to attract FDI improves benefit of corporates in a jurisdiction that have adopted a given set of investment incentives but have external cost implications for investors in other competing economies that do not have similar incentives.

2.1.3 Political Power Theory

Siegfried (1972) postulated that as firm size increases effective corporate tax rate reduces. Political power is defined as peculiar ability of a firm to take advantage of fiscal policy incentives and tax optimization opportunities to lower effective corporate tax rate. Political power theory postulates that large firms possess substantial resources, have capacity to engage in tax planning, take advantage of fiscal policy and organise activities to optimize tax savings.

Delgado et al. (2018) pointed out that there is non-linear positive association between firm size and ECTR. This non-linearity effect is a phenomenon which requires investigation to determine the positive and negative points within any sample distribution. Poli (2019) reiterated that large firms organise activities to achieve maximum tax savings, have resources to manage tax processes and engage in tax planning as postulated by

political power theory. The exponents argue that globalisation of business enterprises confers tax advantage on firms. Firms with good corporate policies lobby for favourable tax policies, exploit opportunities in the taxation code and have good corporate tax strategy that help them reduce tax liability.

2.2 Empirical Literature

The empirical literature discusses past studies that point to profit-based incentive, capital investment incentive and custom duty incentive as variables that have empirical effect on effective corporate tax rate.

2.2.1 Profit-Based Incentive and Effective Corporate Tax Rate

Quak (2018) contends that profit based incentive through tax holiday erode tax base in the economy. Data from 99 countries showed that 65 countries reduced corporate profit tax rate by average of 7 percent for the period 2006 to 2016. The move was to reduce effective tax rate through tax holidays, aggressive tax planning and tax breaks. Similarly, Lisztwanova and Ratmanova (2018) found out that loss carryovers is significant factor that affect corporate income tax payable in Czech Republic. Abramovsky et al. (2018) reviewed investment incentives for low and middle-income countries. The analysis showed that incentives such as tax holidays, reduced tax rate, loss carry overs are fiscal mechanisms used to attract footloose (unrestricted) investments that generate profits. The loss carry-forward schedule was used to reduce future taxable profits until the balance is zero, albeit subject to limited number of years. The study used case study to assess how investment incentives were applied in Ethiopia and Ghana. However, the review did not narrow down to any specific sector which this study addressed by focusing on effect of investment incentives on effective corporate tax rate for manufacturing firms in Kenya.

Lakuma (2019) examined effect of various incentives schemes on tax burden in Uganda. The descriptive analysis showed that tax holiday effectively reduce tax rate to a single digit percent. The study did not use any inferential analysis to analyse the impact of investment incentives on effective corporate rate. This is a gap the study attempted to address. Undie, Akpan and Sezuo (2020) examined effect of tax incentives and tax planning on corporate performance (profitability) in Nigeria. The study used *ex-post facto* research design. The multiple regression results revealed that firms take advantage of tax holidays to reduce tax liability. The research focused on firms operating in free trade zones and used both taxpaying scheme and incentives as independent variables. This study had a different conceptualization and context, that investment incentives have direct effect on effective corporate tax rate.

Bánociová and Tahlová (2020) evaluated the importance of net loss amortization as tax planning strategy to lower effective tax rate in Slovakia. It was concluded that firms utilise loss amortization to reduce income tax payable. The main limitation of the study was that no inferential analysis was carried out. Khamisan and Christina (2020) found out that corporate governance, tax loss carryforward, and financial distress had no significant effect on effective tax rate for manufacturing firms in Indonesia. The study used cross sectional multiple regression. The study has improved on this analysis by using panel regression and applied loss carryforward as a construct of profit based incentive in different economic context in Kenya. Olayemi and Folajimi (2021) established that tax holiday among other incentives impact growth of SME. This study used multiple stage sampling and focused on effect of incentives on performance while this study   established effect of investment incentives on effective corporate tax rate.

2.2.2 Capital Investment Incentive and Effective Corporate Tax Rate

Ohrn (2018) analysed corporate investment and financial policy response to domestic production activities deduction (DPAD) in USA. It was found out that, DPAD is a capital investment expenditure that firms deduct from taxable income as part of manufacturing expenses. The study used quasi-experimental design and difference-in-difference analysis to estimate the confounding variable effect of investment and financial policy. It was observed that, DPAD causes exogenous difference in effective corporate tax rate. The current study however applied panel regression, stratified random sampling to minimize cause-effect variations and with no factor confounding in the analysis.

Abramovsky et al. (2019) simulation analysis showed that tax systems that have provision for depreciation allowance on physical assets translate into substantial difference in ECTR across activities, sectors, markets and source of finance in Myanmar. It was pointed out most jurisdictional tax systems do not refund unused capital allowances but instead allow losses to be deducted from other normal operational profits and any balance is carried forward. Hence actual ECTR may even become negative if taxable profits from other investments are eligible for loss offset. Therefore, most jurisdictions operate on the basis of no-tax refundability principle.

Hanappi (2018) showed that ECTR for investments in end-user computers, R&D assets and pre-packaged

software show much larger variation. The analysis used data from 36 OECD and non-OECD countries. The results showed maximum ECTR investments in software was high, reaching 65.2 percent due to difference between fiscal and economic depreciation. Congressional Budget Office (2018) estimated effective tax rate for different types of intangible assets. It was established that purchased software had effective tax rate estimated at 37 percent because of applicable cost recovery from taxable income. The study has improved on this conceptual and contextual gaps by applying computer software deduction as an indicator of capital investment incentive for manufacturing firms in Kenya.

Calitz et al. (2020) analysis of depreciation allowances in South Africa, showed that investment allowance is an important investment incentive for manufacturing sector. It was shown that ECTR varied substantially among sector from as low as 18.5 percent to 24.5 percent due to depreciation allowances. It was also established that investment allowances of 8.6 billion ZAR reduced corporate tax liability by 2.4 billion ZAR. One limitation of the study was that it used available data at revenue offices at macro level and such data was not firm specific. This present study used firm specific data with depreciation allowance as a construct of capital investment incentive.

2.2.3 Custom Duty Incentive and Effective Corporate Tax Rate

Ghazanchyan, Klemm, and Zhou (2018) reviewed cost-benefit of fiscal incentives in attracting capital and in supporting business diversification strategy in Cambodia. It was pointed out that custom relief reduce upto 50 percent of taxable profit realised from goods produced and exported. The study analysed tax incentive in Cambodia which is a different business environment from Kenya. Oluwole, Adekunle, and Olusola (2020) established that an increase in custom incentive by one unit increases return on asset by 0.44 units in Nigeria. These studies focused on effect of custom duty incentive on firm performance. The present study however focused on establishing the effect of custom duty incentive on ECTR.

Kuria (2018) revealed that custom duty incentive has significant effect on performance of EPZ firms in Kenya. The study used correlation research design. It was recommended that policy makers need to implement strategic investment incentives targeting specific industry so as to positively contribute to economic growth as envisaged in the Kenya Vision 2030. The study focused on effect of custom duty incentive on performance while this study was on effect of custom duty incentive on ECTR for manufacturing firms.

Undie et al. (2020) surveyed impact of tax planning and incentives on profitability of companies in Nigeria. It was pointed out that one of the important tools for analyzing tax incentives is using ECTR modelling. The multiple regression results established that import, export and excise duties are statistically significant in predicting firm profitability. The study focused on investment incentives and corporate performances for firms operating in free trade zones. However, the current study was on effect of custom duty incentive on ECTR for manufacturing firms in Kenya. Haris and Seid (2021) pointed out that custom duty incentive allows eligible firms preferential rates and refund of duty paid on imported material used in production of export goods in Ethiopia. It was pointed out that, there are few studies that have examined the effect of custom duty on effective corporate tax rate. In addition, there are limited studies on effect of custom duty incentive on ECTR in Kenya which the study attempted to bridge such empirical gaps.

3. Methodology

3.1 Research Philosophy

The study adopted positivism philosophy since its assumption was based on deductive approach, objective analysis, ethical grounding and quantitative methodology. The positivism philosophy was appropriate since investment incentives are observable, quantifiable and measureable variables.

3.2 Research Design

The study applied longitudinal research design to cater for observations over a period of time from sampled firms to determine cause-effect associations.

3.3 Empirical Model

The study utilized panel data regression to estimate the cause-effect relationship between investment incentives and effective corporate tax rate is as shown in model 1.

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \mu_t \qquad \text{Model 1}$$

Where:

Y_{it} is the effective corporate tax rate for firm i at time t;

X_{1it} is the profit based incentive for firm i at time t;

X_{2it} is the capital investment incentive for firm i at time t;

X_{3it} is the value of custom duty incentive for firm i at time t; and

μ_t is the error term to take care of stochastic variations across time period of analysis.

The parameters β_0, β_1, β_2, and β_3 measures the amount of variation in Y_{it} as a result of a unit change in X_{1it}, X_{2it} and X_{3it} respectively. The composite index for a variable was computed using geometric mean of respective indicators. The geometric mean was calculated using the nth root of the observations. Chakrabartty (2017) pointed out that geometric mean approach is one of the best methods for computing composite index especially even when indicators are not in the same dimension.

3.4 Sampling Design and Data Collection

The target population for the study were firms registered with Kenya Association of Manufacturers (KAM). As members of KAM, selected firms provided the required data for the study. According to KAM (2020), there were about 1,092 registered members segmented in thirteen sectors excluding services and consultancy. Stratified random sampling was used because the target population was heterogeneous. The study opted for secondary data which was collected using document review analysis. Data on investment incentives and effective corporate tax rate was collected from financial statements and relevant reports for the sampled firms.

4. Findings and Discussion

4.1 Descriptive Statistics

The trend for the effective corporate tax rate over the period 2010 to 2020 is as shown in figure 1 below.

Figure 1. Effective corporate tax rate

Source: Research Data (2023).

The results shows that effective corporate tax rate depicted volatility characteristics. The effective corporate tax volatility is an indication of unpredictable tax system and it impacts negatively on growth of firms. This is a common financial problem in most developing countries in Africa. It can also be deduced that firms seem not to have mechanism of smoothening such volatility. The trend analysis on profit based incentive is as shown in figure 2 below.
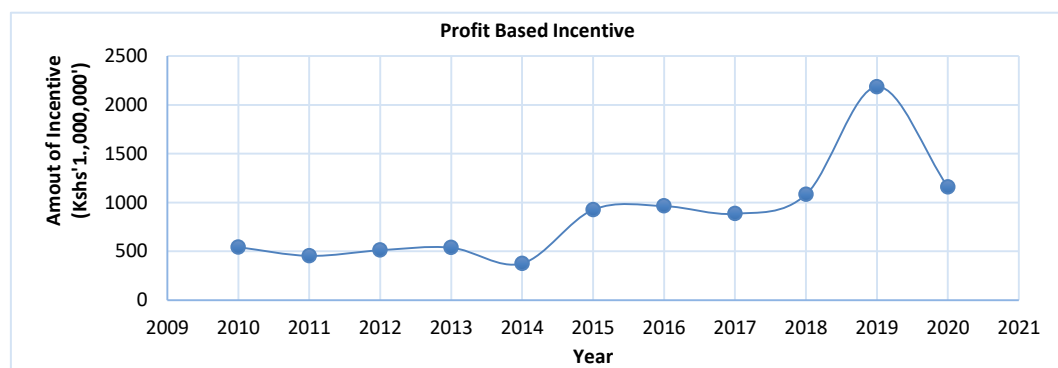

Figure 2. Trend in profit based incentive

Source: Research Data (2023).

The profit based incentive was lowest in 2014 at 375.5 and highest in 2019 at 2186.0. However, it has depressed to 1159.27 in 2020. The upward trend shows that firms have been utilizing the available profit based instrument as spelt out in fiscal policy and tax code. The trend analysis on capital investment incentive over the period 2010 to 2020 is as shown in figure 3 below.
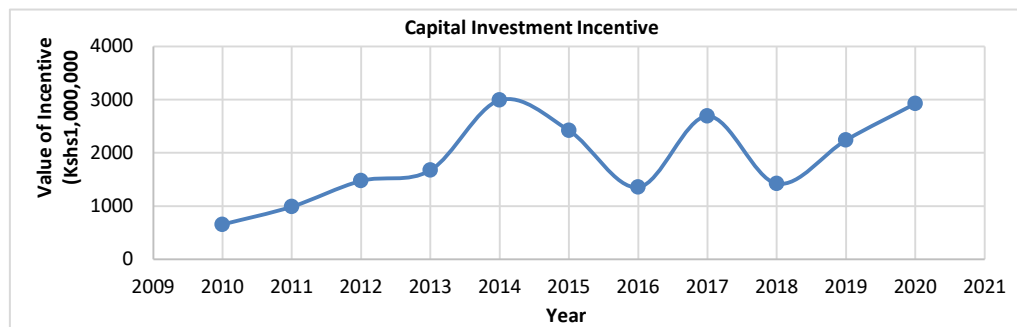

Figure 3. Trend in capital investment incentive

Source: Research Data (2023).

The upward trend shows that firms have been utilizing the available capital investment incentive as spelt out in fiscal policy and tax code instrument. The trend analysis on custom duty incentive over the period 2010 to 2020 is as shown in figure 4 below.
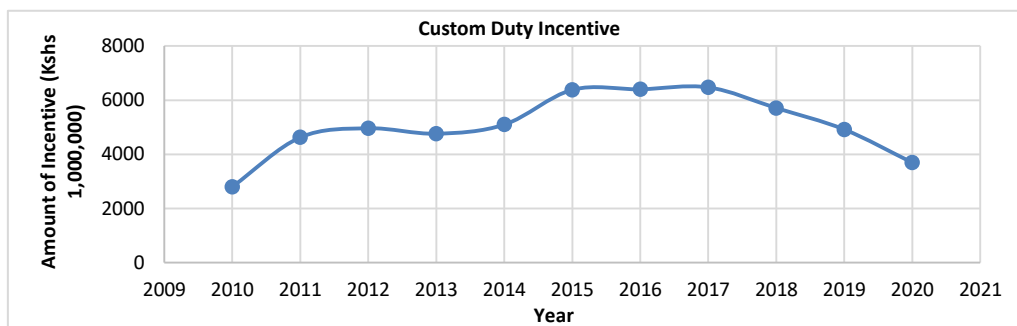

Figure 4. Trend in custom duty incentive

Source: Research Data (2023).

The results shows that over the period the custom duty incentive increased between the year 2010 and 2014. The upward trend shows that firms have been utilizing the available custom duty incentive instrument as spelt out in fiscal policy and tax collection procedures.

4.2 Inferential Statistics

The inferential statistics focused on diagnostic tests and panel regression results.

4.2.1 Diagnostic Tests

According to Cooper and Schindler (2014), diagnostic tests are used to establish whether or not the assumptions underlying model specification in a study have been met. The diagnostic tests were carried out at 5 percent level of significance. The results for diagnostic tests are as highlighted below.

The study applied variance inflation factor (VIF). The study adopted VIF > 5 as asserted to indicate multicollinearity is a problem. The results for multicollinearity test are shown in table 1 below:

Table 1. Multicollinearity test results

Variable	VIF	1/VIF
Profit based incentive	1.44	0.696
Capital investment incentive	1.40	0.714
Custom duty incentive	1.10	0.905
Mean	**1.31**	**0.763**

Source: Research Data (2023).

From table 1 the VIF for all the variables was less than 5. This indicated that there was no multicollinearity as asserted by Shrestha (2020). This implies that the error term did not have direct correlation with independent variables in the study.

Normality Test

The tests for normality in panel regression is crucial so as to ensure that error term does not have outlier effect. The null hypothesis was that the error term was normally distributed against the alternative that the error term was not normally distributed. The null hypothesis was to be rejected if the p-value for the variables was less than 0.05. The results of Shapiro –Wilk test for normality are shown in table 2 below.

Table 2. Normality test results

Variable	Observations	W	V	Z	P-Value
Effective Corporate Tax Rate	2484	0.99934	0.950	-0.132	0.55257
Profit based incentive	2484	0.99902	1.415	0.889	0.18690
Capital investment incentive	2484	0.99877	1.493	1.027	0.15213
Custom duty incentive	2484	0.99877	1.776	1.472	0.07049

Source: Research Data (2023).

From table 2 the p-value for effective corporate tax rate, profit based incentive, capital investment incentive and custom duty incentive was 0.55257, 0.18690, 0.15213 and 0.07049 respectively. These p-values for the variables are greater than 0.05. Since these p-values are greater than 0.05, the study failed to reject the null hypothesis that the error term follows normal distribution. It was therefore concluded that the error term was normally distributed and the data was fit for panel regression analysis.

Homoscedasticity Test

Test for homoscedasticity was to ensure that the error term has constant variance across observations. The essence for testing homoscedasticity is to ensure the coefficients are efficient in estimating the outcome. The null hypothesis was that there is homoscedasticity against the alternative that there is heteroscedasticity. The presence of homoscedasticity means that the error term has constant variance across observations. The null hypothesis was to be accepted if the p-value is greater than 0.05. The results of homoscedasticity test for the study models as shown in table 3 below.

Table 3. Test for Homoscedasticity

	Breusch-Pagan test		
Model	Chi2(1)	Degree of Freedom	Prob > chi2
Direct effect model	1.69	1	0.1932

Source: Research Data (2023).

From table 3 above the chi-square of Breusch-Pagan test results for direct effect model show X^2 of 1.69 with a p-value of 0.1932. Since 0.1932 is greater than 0.05 we fail to reject the null hypothesis that the error term in the direct effect model has constant variance across observations. Thus, we conclude that homoscedasticity is present.

Linearity Test

Linearity in panel regression is the assumption that the dependent variable has straight line relationship with the other variables in the study. Schreiber-Gregory et al. (2018) opine that checking for linearity is important since fitting a linear model to data that is non-linear leads to prediction error especially when it is extrapolated beyond the range of sample data. The results of various linearity graphs are shown in figure 5 to 7 below.
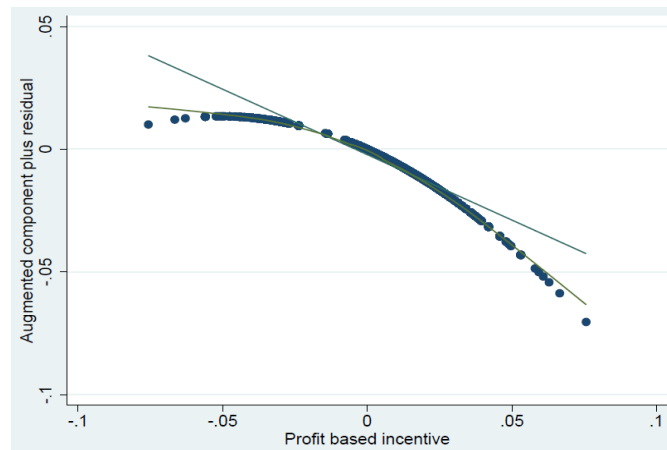
Figure 5. Linearity of profit based incentive and residuals
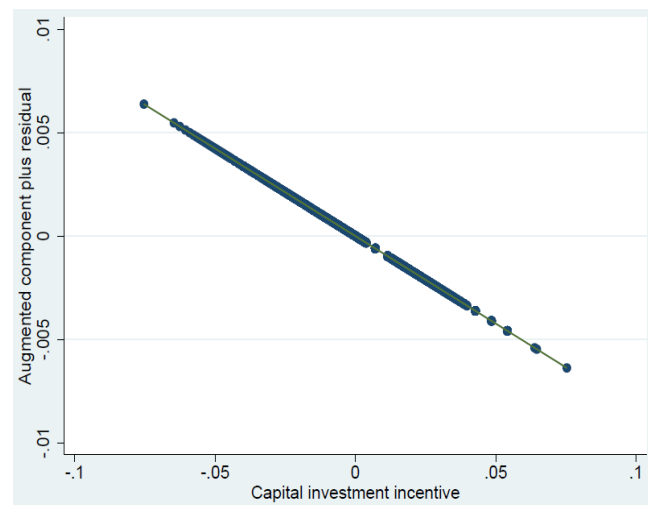
Source: Research Data (2023).

Figure 6. Linearity of capital investment Incentive and residuals
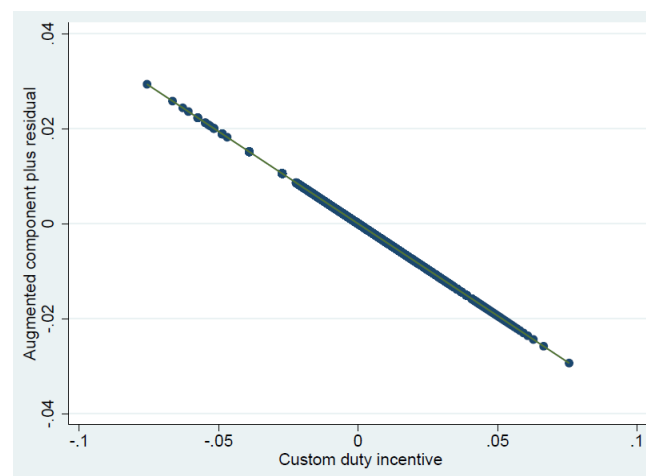
Source: Research Data (2023).

Figure 7. Linearity of custom duty Incentive and residuals

Source: Research Data (2023).

Figure 5 to figure 7 shows that the variables have linear relationship with the residuals. We therefore conclude that linearity is presence.

Stationarity Test

Stationarity test was done to ensure that time series data has same mean, variance and covariance irrespective of time factor. Stationarity exist when variable contains unit root. The null hypothesis was that the variable contains unit root against the alternative that there are no unit roots. The null hypothesis was to be accepted if the p-value is greater than 0.05. The augmented Dickey-Fuller results for stationarity test showed a p-value for all the variables that was greater than 0.05. The study failed to reject null hypothesis that the all the panels have a unit root of zero value (stationarity). It was therefore concluded that the datasets were non-stationarity.

Test for Autocorrelation

The autocorrelation test was to ensure that the value of dependent variable at time t is not related to the value of the previous time *t-1*. The null hypothesis was that there is no first order serial correlation in the error term against the alternative that there is first order serial correlation in the error term. The null hypothesis was to be accepted if the p-value is greater than 0.05. The Durbin-Watson test was used to check for autocorrelation. The results for autocorrelation test are shown in table 4 below.

Table 4. Test for Autocorrelation

Model	Durbin-Watson Test	
	Chi2(1)	Prob > chi2
Direct effect model	0.30	0.583

Source: Research Data (2023).

From table 4, the results for direct effect model show X^2 of 0.30 with a p-value of 0.583. Since 0.583 is greater than 0.05 we fail to reject the null hypothesis that the error term in the direct effect model has constant variance across observations. Thus, we concluded that autocorrelation was not present.

Model Specification Test

The study tested for fixed effect (FE) and random effect (RE) to determine the best model specification. Hausman test was conducted to decide between FE and RE. The null hypothesis was that RE was preferred model against the alternative that FE model was preferred. The null hypothesis was to be accepted if the p-value is greater than 0.05. A p-value of greater than 0.05 will lead to rejection of RE model and therefore apply FE. The Hausman test results are shown in tables 5 below.

Table 5. Hausman test for direct effect model

	Coefficients			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
Variable	FE	RE	Difference	S.E.
Profit Based Incentive	-0.542579	-0.544633	0.0020539	0.00100
Capital Investment Incentive	-0.137716	-0.13783	0.0001138	0.0009
Custom Duty Incentive	-0.447152	-0.446428	-0.0007238	0.0012

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not consistent

chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 4.85

Prob>chi2 =   0.1833

Source: Research Data (2023).

From table 5 the p-value for chi-square is 0.1833 which greater than 0.05. Since 0.1833 is greater than 0.05 we reject the null hypothesis that RE model is preferred and therefore applied FE in the direct effect panel regression.

4.2.2 Panel Regression Results

Investment Incentives and Effective Corporate Tax Rate

The overall objective of the study was to determine the effect of investment incentives on effective corporate tax

rate for manufacturing firms in Kenya. The empirical model 1 estimated the effect of investment incentives on effective corporate tax rate using panel regression analysis. The Analysis of Variance (ANOVA) are as shown in table 6 below.

Table 6. ANOVA for investment incentives and effective corporate tax rate

Source	SS	df	MS	Number of obs	2484
				F(14, 2469)	265.07
Model	0.64967	14	0.04641	Prob > F	0.0000
Residual	0.43225	2469	0.00018	R-squared	0.6005
Total	1.08192	2483	0.00044	Adj R-squared	0.5982
				Root MSE	0.0132

Source: Research Data (2023).

From table 6 above the ANOVA results had F –statistic (14, 2469) of 265.07 with p-value of 0.000. Since the p-value of the model is less than 0.05 it implies that model 1 is fit in estimating the effect of investment incentives on effective corporate tax rate. The F-statistic with p-value of which is less than 0.05 indicates that a least one of the variables coefficients were statistically significant predictors of effective corporate tax rate. Thus, investment incentives play a role in determining the variations in effective corporate tax rate for manufacturing firms in Kenya.

The panel regression results generated an adjusted R-square of 0.5982. This suggests that 59.82 percent of the variations in effective corporate tax rate during the study period were due to changes in investment incentives. The implication is that manufacturing firms utilise investment incentives to lower tax liability. However, the 59.82 percentage point to the fact that there was 40.18 percent of changes in effective corporate that is attributable to other variable outside this model. This difference in source of variation outside the model suggests that there could be need therefore for further research to understand these other variables.

Profit Based Incentive and Effective Corporate Tax Rate

The first specific study objective was to establish the direct effect of profit based incentive on effective corporate tax rate for manufacturing firms in Kenya. The estimates of model 1 had profit based investment incentive as independent variable X_{1it} with β_1 as coefficient to measure the amount of variation in Y_{it} as a result of a unit change in X_{1it}. This objective was analysed based by regressing effective corporate tax rate on in investment incentives. The panel data regression result for model 1 are shown in table 7 below.

Table 7. Panel regression for investment incentives and effective corporate tax rate

Effective Corporate Tax Rate	Coef.	Std. Err.	t	P>t	95% Conf. Interval	
Profit based incentive	-0.5548	0.0143	-38.77	0.000	-0.5828	-0.5267
Capital investment incentive	-0.1419	0.0165	-8.61	0.000	-0.1742	-0.1096
Custom duty incentive	-0.4885	0.0172	-28.48	0.000	-0.5221	-0.4549
Constant	-0.0279	0.0133	-2.10	0.036	-0.0539	-0.00185

Source: Research Data (2023).

In light of the first objective, profit based incentive had a coefficient of -0.5548 with a p-value of 0.000 and t-statistic of -38.77. Since the p-value of 0.000 is less than 0.05 the results point to the fact that profit based incentive had significant statistical effect on effective corporate tax rate. The coefficient of -0.5548 shows that that there is a negative statistical significant relationship between effective corporate tax rate and profit based incentive. This finding showed that there is an inverse causality effect. Therefore, an increase in profit based incentive has a negative significant direct effect on effective corporate tax rate. The value of -0.5558 shows that, an increase in profit based incentive by one unit leads to a reduction in effective corporate tax rate by 0.555 percentage points.

Capital Investment Incentive and Effective Corporate Tax Rate

In light of second objective, capital investment incentive had a coefficient of -0.1419 with a p-value of 0.000 and t-statistic of -8.61. The findings showed that there is an inverse causality effect. Therefore, an increase in capital investment incentive by one unit leads to a reduction in effective corporate tax rate by 0.142 percentage points. The findings shows that firms utilise capital expenditure deductions to reduce effective corporate tax rate. These deductions included investment deduction; wear and tear deduction; computer software; and industrial building

deduction. The deductions decimate taxable corporate profit. The financial conjecture from this findings is capital investment incentive is an important fiscal tool so that when applied it has significant influence on effective on tax liability at firm level. The findings also support optimal corporate taxation theory. The interest of optimal corporate taxation is to eliminate deadweight loss in the economy so as to increase economic efficiency and reduce misallocation of investment resources. The deadweight loss occurs when firms make less investment decisions than if there was no tax burden, which reduces well-being.

Custom Duty Incentive and Effective Corporate Tax Rate

As regards the, the third study objective the panel regression results in table 7 show that custom duty incentive had a coefficient of -0.4885 with a p-value of 0.000. Since the p-value of 0.000 is less than 0.05 the results point to the fact that custom duty incentive has significant statistical effect on effective corporate tax rate. The value of -0.4885 indicate that custom duty incentive had an inverse causality relationship with effective corporate tax rate. Therefore, an increase in custom duty incentive had a negative significant direct effect on effective corporate tax rate. The findings showed that firms apply custom duty incentive to reduce effective corporate tax rate. An increase in custom duty incentive by one unit leads to a reduction in effective corporate tax rate by 0.489 percentage points.

The import of this findings are that manufacturing firms in Kenya consider custom duty as part of structured fiscal policy that provide tax relief on corporate profits. The refunds and exemptions impact effective corporate tax rate since it is applied to manufacturers who utilize imported capital goods for producing exports. Custom duty facilitates local manufacturing firms to import goods from other countries to produce exportable final goods. Thus, a robust custom duty framework is able to ease the corporate tax burden arising from imported goods used in manufacturing. At the same time corporate executives may consider corporate tax strategy that facilitate optimum advantage of custom duty incentive which is usually calibrated through remissions, drawbacks, rebates and refunds.

5. Conclusion and Recommendation

5.1 Conclusion

The overall discussion of the findings have established that investment incentives are statistically significant predictors of effective corporate tax rate for manufacturing firms in Kenya. Increasing profit based incentive by one unit reduces effective corporate tax rate by 0.555 percent for manufacturing firms in Kenya. Increasing capital investment incentive by one unit reduces effective corporate tax rate by 0.142 percent for manufacturing firms in Kenya. Increasing custom duty incentive by one unit reduces effective corporate tax rate by 0.489 percent for manufacturing firms in Kenya. The results of direct effect of investment incentives on effective corporate tax rate showed adjusted-R-squared of 0.5982. This implies that 59.82 percent of the changes in effective corporate tax rate are caused by the changes in investment incentives. There are therefore changes in effective corporate tax rate that are attributable to other variables not captured by this study. The findings indicate that investment incentive influence effective corporate tax rate. This is concomitant with other findings which have shown that firms utilize investment deductions to reduce taxable income as part of manufacturing expenses.

5.2 Recommendation

The findings of the study show that profit based incentive, capital investment incentive and custom duty have statistical significant effect on effective corporate tax rate. Therefore corporate executives and finance experts should develop corporate tax strategy. The essence of the strategy is to enable firms derive benefits and optimise tax saving opportunities from investment incentives. The intention of corporate tax strategy is to enable firms utilise available investment incentives as one sure way of deriving maximum benefit from fiscal policy instruments. This is because investment incentives are legal provisions within the tax code that can be used to reduce actual tax payable in any given financial year.

From the findings one is able to argue that although profit based incentive is not an obligation of the firm but it provides an opportunity to reduce tax base at firm level. It is recommended that policy makers should therefore design an appropriate profit based incentive as part of fiscal policy instrument for incentivising firms involved in manufacturing. In addition, capital investment incentive translate into substantial difference on effective corporate tax rate for manufacturing firms in Kenya. Therefore, policy makers should design fiscal policy that has capital investment incentive so as to provide tax advantage to manufacturing firms.

Further the findings support possible recommendation that policy makers need to design and implement strategic custom duty incentive as a policy intervention tailored for manufacturing sector so as to positively contribute to

long-term economic growth as envisaged in the Kenya Vision 2030.

5.3 Contribution to Knowledge

The study has contributed to finance theory by exploring the assertion that firms utilise investment incentives to minimise tax liability. The study confirms the contention that fiscal policy affects corporate operations within the background of neoclassical investment theory which is part of basic finance theory. The study has made a contribution to existing empirical literature on effective corporate tax rate. The findings of the study add to the growing knowledge framework in financial management on the relationship between investment incentives and effective corporate tax rate.

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