

**THE EFFECT OF FOREIGN DIRECT INVESTMENT ON TAX  
REVENUE IN KENYA**

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## **DECLARATION**

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the project itself.

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## **DEDICATION**

To my daughters, Nailah and Joelle. You are the light of my life and my biggest inspiration to reach for my goals. I hope that you may never stop reaching for yours and know that you can always count on my support along the way.

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## **ABBREVIATIONS AND ACRONYMS**

<b>ADF</b>	Augmented Dickey-Fuller
<b>AfCFTA</b>	African Continental Free Trade Area
<b>BEPS</b>	Base Erosion and Profit Shifting
<b>DW</b>	Durbin-Watson
<b>FDI</b>	Foreign Direct Investment
<b>GDP</b>	Gross Domestic Product
<b>IMF</b>	International Monetary Fund
<b>KIA</b>	Kenya Investment Authority
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>KPMG</b>	Klynveld Peat Marwick Goerdeler
<b>KRA</b>	Kenya Revenue Authority
<b>MNE</b>	Multinational Enterprise
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>PAYE</b>	Pay-As-You-Earn
<b>PwC</b>	PricewaterhouseCoopers
<b>SDG</b>	Sustainable Development Goal
<b>TJNA</b>	Tax Justice Network Africa
<b>SEZ</b>	Special Economic Zone
<b>UNCTAD</b>	United Nations Conference on Trade and Development
<b>VIF</b>	Variance Inflation Factor
<b>VAT</b>	Value Added Tax

## ABSTRACT

Raising adequate domestic revenue is a challenge particularly for low and middle-income countries with low domestic savings rates. Domestic revenue shortfalls have persisted in Kenya for the last several years and in this time, public debt has ballooned and borders on unsustainability. Globalization and increased capital mobility have created pressure for governments to provide tax incentives in order to attract and retain foreign direct investment. Consequently, a “race to the bottom” has ensued in which foreign investors benefit from these tax incentives, at the expense of governments which lose much needed revenue particularly in developing countries. This study sought to determine the effects of FDI on aggregate and disaggregate tax revenue in Kenya, as well as the moderating effect of GDP per capita and trade openness on the association between FDI and tax revenue. The study was based on the theory of public fiscal behaviour and theories of tax competition. A descriptive correlational research design was adopted with the unit of analysis being Kenya. Secondary time series data was collected from relevant databases including KNBS, UNCTAD, The World Bank, and IMF. In relation to the first study objective, the findings showed that FDI stock had a negative effect on aggregate tax revenue in the short run and FDI inflows had no effect. In the long run, FDI stock did not have any effect on aggregate tax revenue but FDI inflows had a negative effect on aggregate tax revenue. Regarding the second objective, FDI stock had a positive effect on disaggregate tax revenues in the short run but no effects were observed in the long run. On the other hand, no interaction was observed between FDI inflows and disaggregate tax revenues. The third objective was to determine moderating effects of macro-economic variables (trade openness and GDP per capita) on the relationship between FDI and tax revenue. Results from hierarchical regression models revealed that trade openness and GDP per capita had a positive but insignificant effect on the relationship between FDI and tax revenue. The study concludes that FDI stock has a negative effect on aggregate tax revenues in the short run but no effect in the long run. Moreover, it is the study’s conclusion that FDI inflows have no effect on aggregate tax revenue in the short run but they have a negative effect in the long run. The study concludes that an increase in FDI stock increases disaggregated tax revenue indices while no effects are observed in the long run. The study further concludes that FDI inflows have a negative effect on disaggregated tax revenue indices in the long run, however this is not statistically significant. Furthermore, GDP per capita and trade openness do not exhibit moderating effects on the relationship between tax revenue and FDI. Among the key policy implications from this study, it is recommended that tax incentives be reduced but not completely eliminated, so as to attract and retain foreign investment while safeguarding revenue collection efforts. Gradually scaling back tax incentives while promoting other measures of attracting FDI is proposed, including but not limited to; enhancing infrastructure and technology, enhancing access to domestic markets, strengthening supply value chains and setting up investment promotion agencies to target and link foreign investors and the domestic economy. Policy makers should also focus on designing economic policies that encourage retention of existing FDI stock.

## **CHAPTER ONE**

### **INTRODUCTION**

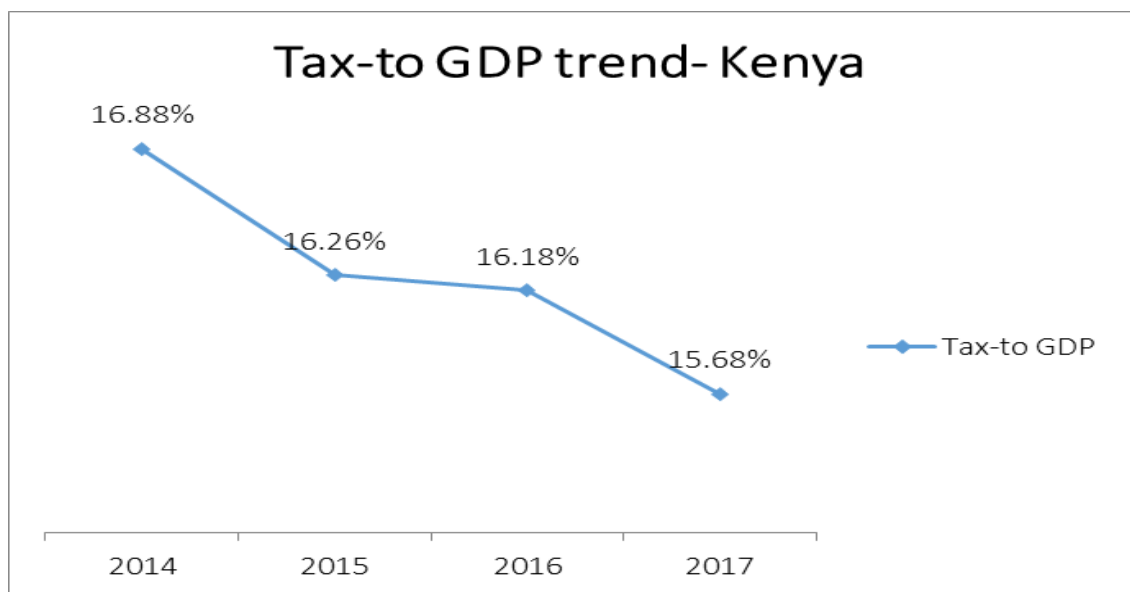
#### **1.1 Background of the Study**

Foreign direct investment (FDI) is an investment by an investor residing in one economy, with the aim of setting up and controlling a business venture located in an economy distinct from that of the direct investor (Organisation for Economic Cooperation and Development [OECD], 2008). FDI inflows are vital in supporting high investment rates and economic growth, particularly in developing countries, which have low domestic savings rates. A United Nations Conference on Trade and Development (2018) report stated that FDI is the largest external source of finance for developing economies. Aside from FDI, domestic tax revenue remains the largest contributor of a government's revenue in both developed and developing countries. Tax revenue is composed of compulsory, unrequited tax payments, which are transferred to the government from individuals and institutions (International Monetary Fund [IMF], 2014).

Studies on the impact of FDI inflows on tax revenues have revealed that existence of FDI inflows in a host nation affects the tax revenue collected in that country. Some empirical studies have shown that FDI inflows increased total tax revenues (Mahmood & Chaudhary, 2013; Bunescu & Comaniciu, 2014; Aslam, 2015; Odabas, 2016; Bamembaya, 2017). Gropp and Kostial (2000) found that although FDI inflows have a positive effect on corporate tax revenues, they might also contribute significantly to tax base erosion in some EU nations. From a theoretical point, proponents of public fiscal behaviour theories state that the objective of public decision makers is to maximise utility by meeting the country's revenue and public expenditure requirements. In maximising utility, public decision makers consider alternative means of resource mobilisation, including foreign capital inflows (Heller, 1975). As such, presence of foreign direct investment should lead to higher tax revenue.

The mobilisation and effective use of domestic resources through productive public expenditure are central to provision of essential public services, sustained and inclusive economic development and instrumental in financing the sustainable

development goals (SDGs) (United Nations Secretariat, 2018). Governments, particularly in developing economies face challenges in expanding their tax base to raise adequate domestic revenue for their rising expenditure requirements. Some of these challenges include; inadequate tax systems, lack of resources by taxing agencies and a large informal sector, which is administratively difficult to tax (Long & Miller, 2017). The Addis Ababa Action Agenda established through the 2015 UN summit, recommended that nations with a tax-to-GDP ratio of below 20 per cent work towards progressively towards increasing tax revenues if they intend to meet the SDGs. (UN, 2015). However, Tax-to-GDP ratios remain below 15 per cent for many developing nations. The threshold of 15 per cent is generally referred to as the minimum to spur development, although it is still largely insufficient to meet the financing needs of the SDGs. (United Nations [UN], 2015). In the Kenyan context, data from the World Bank database shows a declining trend in tax-to-GDP ratios from 2014 to 2017.



**Figure 1.1: Tax-to-GDP trend in Kenya**

**Source: Author (2021)**

Another critical challenge faced by governments in resource mobilisation relates to taxation of multinational enterprises (MNEs) and international transactions. The ease of moving capital across jurisdictional borders has made it challenging to tax corporate income especially in developing countries, which lack requisite capacity (Njoroge, 2018). There is great opportunity for tax avoidance through artificially shifting profits and use of transfer pricing strategies by MNEs, which is believed to be

a key limitation of domestic revenue mobilisation in developing countries. The impact of tax avoidance by MNEs is worse in developing countries than developed countries because the former lack specialized skills and resources to detect transfer mispricing, resulting in significant revenue losses (UN, 2018). The existence of tax incentives to attract and retain foreign capital also contributes to significant revenue loss in developing countries (Gumo, 2013). A study by Estache and Gaspar (1995) showed that extensive tax incentives distort the tax system and result in significant revenue losses when compared to the investment gained.

### **1.1.1 Foreign Direct Investment**

FDI is said to occur when a direct investor holds a minimum of 10 per cent of the voting interest in a business venture that is located in an economy distinct from that of the direct investor (OECD, 2008). This is unlike portfolio investment, in which investors are typically interested in financial returns and not necessarily controlling the investment enterprise. Direct investment entities include corporations, which typically mean either subsidiaries or associates. Subsidiaries are companies in which investors hold over 50 per cent voting interest, while associates are companies in which investors hold anywhere from 10 per cent to 50 per cent of the voting interest. Direct investment corporations also include quasi-corporations, which is 100 per cent owned by their parent company (OECD, 2008). FDI may take the form of greenfield investment, which entails the foreign investor setting up a new firm in the host country for production of goods in that country. FDI may also take the form of mergers and acquisitions, which are buying of an existing firm in the local host country and its production capacity, or it may entail a joint venture between a foreign firm and a local firm in the host country (Chaudhuri & Mukhopadhyay, 2014).

FDI is measured by the acquisition of at least 10 per cent of the capital of a firm operating in a country different from that of its investors. The 10 per cent threshold is the dominant criterion that is used to identify FDI. Cross border investments below the 10 per cent threshold are classified as portfolio capital flows thus are not included in FDI measurement (Linsi, 2017). The OECD (2013) declares that FDI is a catalyst for development. Reiter and Steensma (2010) stated that FDI is a necessary instrument for the host country in achieving economic growth. For developing

countries, FDI potentially transfers new knowledge, technology and skills, leads to employment creation and encourages competition in entrepreneurship. In addition, FDI inflows add to the capital stock of the host country and improve the productive capacity and efficiency of local suppliers. Due to these benefits, welfare levels and tax revenues of the host country are increased (Becker, Fuest, & Riedel, 2010). Nguyen, Nguyen and Goenka (2013) also state that FDI net inflows represent an opportunity for the government to grow its tax revenues.

### **1.1.2 Tax Revenue**

Tax revenue is composed of payments in the form of taxes, which are transferred to the government from individuals and institutions. The payments are compulsory and unrequited, because the government does not provide a direct benefit to the taxpayer in exchange for the payment. Instead governments provide benefits to other individual or collective units, or to the whole nation (IMF, 2014). Taxes are generally classified as direct or indirect taxes. Direct taxes, usually a percentage of income or profits, are borne by the taxpayer personally and cannot be shifted to another person. Direct taxes include payroll taxes and corporation taxes, while indirect taxes are taxes levied on goods and services (OECD, 2013).

Indirect taxes, unlike direct taxes are transferrable, meaning that the liability to pay can be shifted to others. For instance, value added tax (VAT) is transferred to the buyer who pays for the goods and services consumed. It is however the seller's responsibility to remit the tax collected. Value added tax, excise duty and customs duties are some examples of indirect taxes. Taxes that highly contribute towards tax revenue in Kenya are income taxes, VAT, Pay-As-You-Earn, excise duty and customs duty (Kenya Revenue Authority [KRA], 2007). Revenue performance is typically measured using the tax-to-GDP ratio over time. (Junquera-Varela et al., 2017). Tax-to-GDP is a ratio of actual tax revenue to GDP, expressed as a percentage. For the purpose of this study, aggregate tax revenue will encompass direct tax revenues and indirect tax revenues.

### **1.1.3 Foreign Direct Investment and Tax Revenue**

The public fiscal behaviour theories of Heller (1975) and Leuthold (1991) state that increased FDI inflows are expected to expand the tax base, contribute to growth and

improve tax revenue. Tax revenues may increase through direct taxes paid by MNEs and productivity spill overs to local businesses, which expands the tax base. Indirect taxes such as customs duties, excise duties and VAT may also increase because MNE's boost import and export volumes through international trade. Moreover, the employment creation effect of FDI will increase personal income tax revenue. Increased employment may also have an impact on indirect tax revenue such as VAT and excise duties, particularly if the new employees increase their domestic consumption (Gnangnon, 2017). Kopits (1976) contends that FDI might enhance the overall welfare in a host country through increased tax revenue and might decrease welfare if tax incentives for foreign investment are offered or transfer-pricing strategies are used.

Tax expenditures refer to preferential tax treatments, or tax incentives offered to particular classes of taxpayers or activities (IMF, 2014). In developing countries, tax incentives for corporate investment, particularly foreign direct investment, have received vast attention. Tax incentives are intended to influence the magnitude, geographical location or economic sector in which an FDI project is undertaken. Incentives affect the project costs and/or mitigate the risks associated with it through tax advantages that are not obtainable by comparable local investors. Tax incentives grant benefits to foreign investors through tax holidays, VAT and customs duty exemptions, stamp duty exemptions, investment allowances and double tax treaties. The effect of these incentives is a divergence from the benchmarks of a particular nation's tax system, which leads to revenue loss (Gumo, 2013; Fuest & Riedel, 2009).

The relationship between FDI and tax revenue may also be influenced by other factors such as growing levels of per capita GDP, as a higher level would indicate higher demand for goods and services as well as a strong economic and institutional environment, which makes a country a more attractive FDI destination (Crivelli & Gupta, 2014). Similarly, openness to international trade would also lead to higher trade tax revenues (Agbeyegbe, Stotsky, & WoldeMariam 2006; Drummond, Daal, Srivastava, & Oliveira, 2012). On the other hand, corruption has been found to negatively impact revenue as a corrupt regime may subjectively award tax incentives through discretionary powers (Tax Justice Network Africa [TJNA], 2012).



#### **1.1.4 Foreign Direct Investment and Tax Revenue in Kenya**

While global trends show a decline in foreign direct investment (FDI), foreign capital inflows to Africa have been rising as more MNEs turn their focus to the region for market, efficiency and resource seeking reasons (Chaudhuri & Mukhopadhyay, 2014). FDI in Africa grew to US\$46 billion in 2018, which was an 11 per cent increase compared to 2017 (United Nations Conference on Trade and Development [UNCTAD] World Investment Report, 2019). This trend has picked from previous years, especially in East Africa. In 2014, East Africa's FDI inflows increased by 11 per cent, to \$7 billion, owing to expanding energy and textile sectors in Tanzania and Ethiopia respectively (UNCTAD, 2015a). The year 2015 saw FDI inflows in Kenya reach an unprecedented level of \$1.4 billion, owing to spiked investor interest, confidence in the nation's business environment and a flourishing domestic consumer market. In 2017, FDI in Kenya increased by 71 per cent and this is attributed to increased domestic demand for commodities and a thriving ICT sector, which attracted foreign investors in the industry. The Kenyan Government also offered additional tax incentives to foreign investors (UNCTAD, 2018). In 2018, FDI inflows into Sub-Saharan Africa grew by 13 per cent while in Kenya specifically, FDI inflows rose by 27 per cent which was the highest regionally (UNCTAD, 2019).

According to a 2015 survey by McKinsey and Company, there is rising interest in East African countries as FDI destinations, especially Ethiopia and Kenya. A study of chief purchasing officers of multinational companies, who cumulatively represent US \$70 billion of global purchases, stated that they expected to reduce their sourcing from China in favour of other destinations including East Africa. (McKinsey & Company, 2015). The African Growth and Opportunity Act (AGOA), a growing number of special economic zones (SEZs) and closer regional integration brought about by the African Continental Free Trade Area (AfCFTA) agreement are some of the factors contributing to increased interest in Africa as an FDI destination, with a focus on manufacturing (UNCTAD, 2019).

The launch of Kenya's Big Four agenda spiked renewed interest in the country's manufacturing sector. The "Big Four" is an economic blueprint developed by the Kenyan government to foster economic development and its transformative agenda

identifies four priority initiatives to be implemented during the 2018 to 2022 period. One of the four initiatives the government is keen to achieve is increase of the manufacturing sector GDP contribution from 8.4 per cent to 15 per cent by 2022 (Kenya Investment Authority [KIA], 2020). Historically, the sector's GDP contribution in Kenya has remained at around 10 per cent. This trend is known as “deindustrialisation” which refers to a declining share of GDP by the manufacturing sector (8.4 per cent in 2017 and 9.2 per cent in 2016). However, the government is cognisant of the critical role of manufacturing in spurring growth and development, thus the proposed measures and strategies outlined in the Big Four agenda to revamp the sector. Many studies have proven the pivotal role that manufacturing has played in industrialisation and development (Kuznets, 1966; McCausland & Theodossiou, 2012; Felipe, Aashish, & Changyong, 2014).

The growth of FDI inflows in 2018 is evidence of the renewed interest in manufacturing, as the Kenyan government seeks to attract investment in the industry in order to achieve the laid down objectives. The sustained growth of FDI in Kenya is expected to continue due to enabling factors which include; business facilitation which has seen Kenya's ease of doing business index rise to position 56 out of 190 (World Bank, 2019) and use of Special Economic Zones (SEZs). SEZs refer to geographical boundaries used by governments to promote certain industries through providing them with preferential treatment of fiscal and regulatory nature, as well as developing the related infrastructure (World Investment Report, 2019).

In developing countries, SEZs aim to provide a conducive environment for building new industries, diversifying and upgrading existing ones by enticing foreign investors. Evidence shows they have been largely successful in China and to some extent in India. (Aggarwal, 2011). Kenya has the highest number of SEZs in Africa, taking on a shift from the Export Processing Zones (EPZs) regime, which failed to achieve the expected economic gains. The operationalisation of SEZs is a salient feature of achieving Kenya's vision 2030, which hopes to elevate the country to industrialisation status and improve livelihoods of all its citizens (KIA, 2020). Benefits to investors under the SEZ regime include access to infrastructure, relaxation of trade barriers and most importantly, enjoyment of tax incentives within the SEZs. The tax incentives

offered include exemptions from excise duties, customs duties, value added tax and stamp duties, preferential withholding tax rates and corporate tax rates and relaxation of foreign exchange controls for repatriated capital and profits (KIA, 2020).

Within the Kenyan context, tax incentives account for significant tax revenue loss. (Tax Justice Network Africa [TJNA], 2012). Against this backdrop, the Kenya Revenue Authority (KRA) continues to miss its revenue collection targets. The 2018/19 revenue shortfall was Sh300 billion while tax expenditures, grew to Sh478 billion in 2017 alone, a figure which represents 5.9 per cent of Kenya's GDP in that year. The government of Kenya has however had minimal success in reducing tax incentives, despite recognising their shortcomings (TJNA, 2012). The Kenya Revenue Authority (KRA), established through legislation, is the revenue collection agency of the Kenyan government.

According to Kenyan law, corporate profits of resident companies are taxed at 30 per cent and non- resident companies at 37.5 per cent of pre-tax profits. The corporate tax payable is determined after deducting all the allowable expenses including interests, royalties, management and professional service fees. All these expenses are easily manipulated by MNEs, using transfer pricing, to lower taxes paid to the government (KPMG, 2014). Transfer pricing (TP) rules were introduced in Kenya in June 2006 based on international transfer pricing guidelines issued by the OECD. The general principle of the TP rules is adherence to the arm's length principle, which states that transactions among related entities should be priced as though the two companies are independent and not part of the same corporate structure. The TP provisions also allow KRA to adjust the profits derived from the resident person if TP rules have not been followed. However, taxation of MNEs in Kenya presents acute challenges as they employ complex organisational structures to avoid and evade tax. KRA also lacks required resources and capacity to effectively determine transfer mispricing in related party transactions (Njoroge, 2018).

## **1.2 Research Problem**

Raising adequate domestic resources is a challenge particularly for low and middle-income countries with low domestic savings rates. Domestic revenue shortfalls have persisted in Kenya for the last 5 years and in this time, public debt has ballooned and

borders on unsustainability (Bett, 2018). Public debt repayments divert development resources while borrowing by the government crowds out borrowing and investment by the private sector in more productive sectors, therefore inhibiting economic growth (Huang, Panizza & Varghese, 2018). The comparison between revenue shortfalls and tax expenditures in Kenya shows that the KRA may achieve its revenue collection targets if tax incentives are either streamlined or reduced (TJNA, 2012). This may in turn ease the persistent budget deficits being experienced and resultant heavy government borrowing.

Globalisation and increased capital mobility have created pressure for governments to provide tax incentives to enhance their competitiveness as an FDI destination and attract and retain foreign investment that would otherwise have gone to another jurisdiction. In so doing, governments participate in a ‘race to the bottom’ that benefits foreign investors at the expense of the host countries (TJNA, 2012). Tax competition has become a development strategy especially for most African countries, which struggle to generate sufficient domestic resources for implementation of their development goals. Moreover, Africa is often perceived as a high-risk investment destination due to political instability, substandard quality of public services and lack of effective trade integration which affects market sizes available to international investors, thereby putting pressure on them to liberalise FDI regimes (Chaudhuri & Mukhopadhyay, 2014). There is however, no strong evidence that tax incentives attract more FDI. Moreover, foreign firms enjoying the incentives often avoid local taxation through artificially shifting corporate profits (Beer, Mooij, & Liu, 2018).

Numerous empirical studies on FDI and taxation have given attention to how taxation and tax rates affect the choice or magnitude of FDI while others have examined the role of tax incentives in creating or increasing FDI (Gropp & Kostial, 2000; Bénassy-Quéré, Coupet, & Mayer, 2005; Bellak & Leibrecht, 2009; Becker et al., 2012; Imbayi, 2013; Abdioglu, 2016). By comparison, few studies have examined the impact of FDI on tax revenue and there have been mixed findings. Most of the existing studies done are within the Asian and European context. Despite the significance of the contribution of MNEs to tax collection in Kenya, there is little coverage of this area of research (PricewaterhouseCoopers [PwC], 2011). Studies on

the subjects of FDI and taxation within the Kenyan context have focused on the effects of tax incentives on FDI, with the emphasis being on how fiscal incentives can promote foreign direct investments (Gumo, 2013; Mutisya, 2019). Some studies in Kenya have suggested expansion of incentives for instance through extending tax holidays beyond the ten years (Thuita, 2017). The opposite side of the coin however, that is, how exactly do the foreign inflows and FDI stock once invested impact revenue collected has been ignored. It is crucial to examine this angle because as a developing country, resources in Kenya are scarce and may become even more scarce when tax incentives are promoted or extended to attract FDI, while the very same investors close shop after expiry of the tax holidays or engage in profit shifting to deny the Kenyan government revenue. The estimates of shifted profits are staggering and estimates may be grossly understated due to lack of transparent reporting (UNCTAD, 2015a; Crivelli et al., 2016). Of particular importance is that among countries in Sub-Saharan Africa, Kenya has the highest growth in FDI in 2018 at 27 per cent, thus any revenue losses from FDI would perceivably be on a larger scale. Kenya also has the highest number of SEZs in Africa, which are now receiving special focus as conduits for the Big Four agenda.

### **1.3 Research Objectives**

#### **1.3.1 General Objective**

The aim of this study was to establish the effect of FDI on tax revenues in Kenya.

#### **1.3.2 Specific Objectives**

- i. To determine effect of FDI on aggregate tax revenue in the short run and long run
- ii. To determine effect of FDI on disaggregate tax revenue in the short run and long run
- iii. To determine moderating effect of macro-economic variables on relationship between FDI and tax revenue

### **1.4 Research Hypotheses**

H<sub>01</sub>: FDI does not significantly influence aggregate tax revenues in the short run and long run

H0<sub>2</sub>: FDI does not significantly influence disaggregate tax revenues in the short run and long run

H0<sub>3</sub>: Macro-economic variables have no moderating effect on the relationship between FDI and tax revenue

### **1.5 Scope of the Study**

The study precisely focused on determining the impact of FDI on aggregate and disaggregate tax revenue in Kenya. The study also measured the impact of macro-economic variables believed to influence the relationship between FDI and tax revenue namely GDP and trade openness. The study covered the period 1989 to 2018.

### **1.6 Significance of the Study**

The results of the study will be useful to the Kenyan Government and policy makers on their role in streamlining policies on preferential treatment of foreign multinationals through tax incentives, which currently cost the government 5 per cent of its GDP. Lost revenue through tax incentives is an impediment to domestic resource mobilisation. This study will be helpful in informing policy decisions aimed at increasing aggregate domestic revenues for development and achievement of the SDGs. Establishing a long run equilibrium between FDI and aggregate tax revenue makes a case for effecting policy change.

The findings on association between FDI and corporate income tax revenue in particular, are helpful to tax practitioners in establishing measures to combat transfer mis-pricing. The study will enhance the ongoing discourse on tax base erosion and profit shifting by MNEs both locally and internationally, with a view to enhance international cooperation. The OECD/G20 BEPS inclusive framework is a global agenda driven by the OECD with participation from both developed and developing countries including Kenya, and it aims to combat revenue loss to governments through tax planning strategies, currently estimated at US\$ 100-240 billion in global lost revenue annually.

The findings on macro-economic variables effect on the relationship between FDI and tax revenue will contribute to available literature and widen the perspectives on factors that are likely to weigh on the relationship between FDI and tax revenue. That

is, how some other factors such as GDP growth or trade openness affect the extent to which FDI increases or decreases tax revenues. Recognizing the multiplicity of factors that are likely to weigh on the relationship between FDI and tax revenue will be helpful in informing policy decisions and is expected to stimulate further research on the subject, which has so far received minimal empirical attention in Kenya.

### **1.7 Organisation of the Study**

This study is organized into five main chapters. The first chapter is an introduction to the study and contains the background of the study, research problem, objectives of the study, hypotheses tested and ends with the scope and significance of the study. The second chapter delved into review of relevant and underpinning theoretical and empirical literature which supported and contextualized the study, while revealing the gaps in past studies. Chapter three focused on explaining the research methodology employed including the research design, data sources and collection methods, model specification and variable definition, diagnostic tests, research quality as well as ethical issues in research. The fourth chapter concentrated on data analysis and presenting and interpreting the results of the study. Ultimately, chapter five summarised the findings of the study which sought to establish the effect of FDI on tax revenue in Kenya, this final chapter also offered key recommendations that could be adopted by various stakeholders so as to address some of the challenges of raising tax revenue.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter explores literature that pertains to the study. It begins with a theoretical and empirical discussion of literature on the subjects of FDI and tax revenue. A summary of the reviewed written works and knowledge gaps found are also given. The chapter also covers the conceptual framework and discussion of the variables considered in the study.

#### **2.2 Theoretical Literature Review**

A theoretical framework is a collection of interrelated theories that can be used to guide research with the purpose of predicting and explaining the results of the research. In summary, it provides the rationale for conducting the research (Grant & Osanloo, 2014). The theoretical framework guides the researcher so as to avoid deviating from the boundaries of the accepted theories, to make his/her final contribution scholarly and academic (Adom, Adu-Agyem, & Hussein, 2018). Theory of Public Fiscal Behaviour and selected theories of Tax Competition are adopted for this research.

##### **2.2.1 Theory of Public Fiscal Behaviour**

Heller (1975) developed a model of fiscal public behaviour in which he contended that capital inflows in developing economies occur due to the fiscal behaviour of the public sector and these inflows are a contributing factor to rising levels of public expenditure, alongside other factors such as domestic resource mobilisation and local borrowing. Heller's theoretical approach to explaining the public sector's fiscal behaviour was to assume that it embodies the actions of public decision makers. It was further assumed that public decision makers aim to maximise utility by meeting targets of revenue and expenditure. In maximising utility, public decision makers consider alternative means of resource mobilisation, including foreign capital inflows (Heller, 1975). Leuthold (1987) developed a similar theoretical model and carried out empirical analysis based on a welfare function, assuming that the public decision maker's goal is to maximise welfare. According to Leuthold's model, the actual tax



revenue is based on the desired tax revenue and the existence of certain tax bases. A tax base is the amount of economic wealth that is liable to taxation (Talvi & Vegh, 2005).

Other researchers have also explored the welfare effects of FDI through taxation of foreign capital. MacDougall (1960) concluded that host countries could improve their economic welfare through tax revenue collected from the profits of MNEs. Streeten (1969) and Caves (1971) also shared these findings. Kemp (1962) proposed that welfare could increase if an optimal tax rate was used for foreign investment instead of offering tax incentives to attract FDI. Kopits (1976) shared the same view that FDI improved the welfare in the host country through taxes paid by multinational firms, however there might be decreased welfare in the presence of tax incentives or transfer pricing. In a similar argument, Bond and Samuelson (1986) contended that FDI recipient countries might suffer short run revenue losses if tax incentives were given but tax revenue could improve in the long run if foreign investors did not divest at the end of the tax holiday. Raff and Srinivasan (1998) proposed that governments ought to forego some tax revenue to attract FDI, due to the ensuing benefits such as job creation and technology transfer. Other studies found uncertain or no welfare effects on host countries due to presence of FDI (Markusen, 1984).

### **2.2.2 Theories of Tax Competition**

Keen (2008) broadly defines tax competition as a tactical and non-collaborative game among jurisdictions, where countries or states structure their tax system by considering the tax structures established by other jurisdictions. Tannenwald (1999) suggests that tax competition can be either explicit or implicit. Tax competition is said to be explicit when the tax laws and regulations in force in a particular jurisdiction are specifically designed to enhance the appeal of that jurisdiction to businesses, residents, employees or consumers. On the other hand, implicit tax competition occurs when governments intensify their pursuit of desirable tax policies such as equity, neutrality and simplicity, with the intention of safeguarding themselves against intended tax competition.

Wilson and Wildasin (2004) narrowed down the above definition by introducing two dimensions; horizontal tax competition and vertical tax competition. The latter occurs

when different levels of one-jurisdiction levy taxes on the same tax base whereas the former occurs when the competition is between independent jurisdictions at the same level. Therefore, policy choices by one government end up having an influence on the allocation of a mobile tax base among other governments. According to Talpos and Crasneac (2010), there are several objectives underlying the pursuit of tax competition by governments. One of these objectives is attracting foreign direct investment and portfolio investments needed to finance local companies and strengthen domestic capital. Governments also compete for cross border shoppers who are seeking to save on taxes for production of goods. Tax competition may occur in three forms. Firstly, governments can choose to set lower tax rates compared to the rates set by other governments. Secondly, instruments such as investment deductions and accelerated depreciation can be used to reduce the tax base, or the amount of wealth liable to taxation.

Thirdly, governments can compete in provision of public goods and infrastructure to attract investors, as it happens in special economic zones (Talpos & Crasneac, 2010). Tax competition literature has so far presented two opposing views on the subject. One view contends that tax competition reduces the tax capacity of governments which then limits their ability to effectively fund public expenditure. The opposite view finds tax competition, similar to other forms of competition, to be beneficial because it leads to an efficient government (Easson & Zolt, 2013). The underlying basis for beneficial tax competition for mobile capital or firms is mainly concerned with firm location decisions for efficiency reasons. This argument is founded on the Tiebout Hypothesis (1956), which asserts that consumers and households will relocate to jurisdictions that best satisfy their needs. This free movement will create competition by jurisdictions for the households, which will lead to efficiency in local public goods provision.

White (1975) and Fischel (1975) contended that the same argument could be applied to mobile firms, in which case the firms will enjoy improved infrastructure as a result of public expenditure on infrastructure aimed at attracting the mobile firms. However, Roin (2000) contended that the welfare of residents of a particular country did not improve if new foreign investments carried a higher cost of providing infrastructure

than the government would recover in tax payments. Wilson and Wildasin (2004) added that governments would try to avoid losses by adopting a marginal-cost pricing approach whereby the cost incurred in providing public goods and services would be equal to the tax paid on a unit of investment. Tax competition would thus be beneficial because tax rates are high enough to generate enough revenue to offset the costs of the investment (Roin, 2000). Wilson (2001) also supported the notion of welfare-enhancing tax competition and argued that tax competition increases taxes paid on mobile factors such as capital. The following sections present some relevant theories against and in favour of tax competition.

#### **2.2.2.1 The Standard Tax Competition Model**

The earliest theoretical models attempting to explain the effects of governments practising tax competition were developed in the early 80s, among them models by Wilson (1986) and Zodrow and Mieszkowski (1986). According to the ZMW model, local governments fund public expenditures using only tax on capital income, and this results in a reduction of tax rates that eventually leads to under-provision of public goods. The model assumes perfect capital mobility across a large number of homogenous jurisdictions which are too small to influence the return to capital. If tax rates were to increase in one jurisdiction, this would generate a positive externality on other jurisdictions which will experience increased capital inflows.

Thus, a government wishing to enhance its residents' welfare could simply reduce the tax rate and by so doing attract more capital flows. This would however happen at the expense of another government, which would respond by reducing its own tax rates to attract back the capital 'lost'. This process would be retaliated successively and at each stage, the jurisdiction that reduced its tax rates did so to the detriment of other jurisdictions. The result would be a worsening global economy since the aggregate gain is less than the losses suffered by other jurisdictions. All jurisdictions would be worse off because public goods provision would be lower than the optimal level. This scenario results in a phenomenon referred to as a "race to the bottom", since taxes on mobile capital income would be forfeited in favour of taxes on immobile factors like labour.

Subsequent literature has extended the ZMW model to take into account different possibilities. In one modification by Hoyt (1991), the model assumes there are larger jurisdictions and the choices they make regarding tax rates have an influence on the return to capital for investors. As with the standard model, an increase in tax rates in one jurisdiction would induce capital outflows to other jurisdictions. However, the magnitude of capital outflows would be lower because increased taxation would be accompanied by a decrease in return to capital for investors. Public goods and services provision would still be suboptimal but the resulting welfare losses would be lower in comparison to smaller jurisdictions.

Bucovetsky (1991) and Wilson (1991) modified the Z-W model by differentiating the effects of competition on regions of different sizes, measured by the number of residents. The researchers contended that in larger jurisdictions, there is more demand for capital and therefore these jurisdictions can choose to set higher tax rates because they are less concerned about the resulting capital outflows. The discrepancies between taxation in large jurisdictions and small jurisdictions will lead to movement of capital from the former to the latter. Wilson (1991) also showed that tax competition benefits small jurisdictions, which attract capital from the higher-tax large jurisdictions. This movement of capital enables small jurisdictions to increase their level of public goods and services provision. In spite of this, tax competition also leads to distortion of consumption and production decisions which are decisively influenced by tax policies, leading to inefficiencies in the production process (Wilson, 1987). Another negative effect of tax competition is inefficiency in income redistribution. Sinn (1994) found that heightened competition among EU member countries to attract mobile capital limited their capacity to sustain high levels of income transfers.

#### **2.2.2.2 Endogenous Political Market Structure Model**

Departing from previous literature, Wilson and Wildasin (2004) constructed a model in which the welfare effects of tax competition are not considered, in favour of income distribution considerations. The tax competition literature, including the ZMW Model, largely ignores politics altogether and assumes that the government's goal is to maximize resident's welfare. Leviathan models however, specify a political

structure that is endogenous and does not depend on factor mobility. Invariably, policymakers are assumed to maximize some function that reflects both the revenue that is diverted for personal use, and welfare of the taxpayer (Edwards and Keen, 1996).

According to the political market structure model, Wilson (2001) argues that different interest groups in the economy band together to lobby and compete for favourable tax policies with the objective of maximizing their net income. This influences the government's subsequent choice of tax rates, which aims to maximize a weighted average of contributions and residents' welfare. Capital owners, particularly foreign capitalists have little political influence due to their non- residence status and therefore do not lobby. The active political lobby group pushes for increased capital tax, as this will increase redistribution of income to itself, at the cost of the capitalist (Wilson and Wildasin, 2004). Thus, tax competition can result in higher taxes being levied on mobile capital. Critiques of this argument however, state that overtaxing foreign capital risks loss of the capital for a more hospitable jurisdiction, particularly if no other advantages exist to overlook the discriminatory tax levels (Roin, 2000).

### **2.2.3 Conclusion**

Tax competition takes place in order to attract capital that would have otherwise been invested in a different region. Thus, tax incentives are a means of tax competition (Zolt,2013). Easson and Zolt (2003) contended that tax incentives, particularly for FDI, distort investment decisions. Lack of objective criteria in applying the incentives likewise renders them ineffective, inefficient and prone to abuse and corruption. The effect is thought to be worse in developing countries, particularly due to challenges of political accountability and fiscal transparency, which might also encourage tax avoidance and tax evasion (Fuest & Riedel, 2009).

Bird (2008) and Klemm (2009) argued that tax incentives reduce corporate income tax revenue. Keen (2001) however challenged this view, stating that allowing countries to determine their tax bases may actually reduce tax competition and increase tax revenue. Klemm (2009) concluded that tax incentives could be effective if they were designed properly and used in the appropriate circumstances. Despite revenue losses associated with tax incentives, governments are unwilling to cut back

on their use because of the fear that not offering them will drive FDI to other jurisdictions that offer tax incentives. (Avi-Yonah, 2001).

Another major criticism of tax incentives is they are prone to exploitation by firms, who set up tax avoidance schemes, leading to significant revenue losses for governments. Tax avoidance schemes by MNEs are aimed at reducing their overall corporate tax liabilities through base erosion and profit shifting (BEPS). BEPS is an undesirable outcome of tax planning by MNEs in which they artificially shift profits from relatively highly taxed countries to countries that have lower tax rates. By doing so, the tax base of the higher tax countries is significantly eroded. In addition, domestic enterprises face unfair competition when MNEs practice BEPS and it undermines the former's voluntary compliance when they see their foreign counterparts evading taxes (OECD, 2013).

Profit shifting occurs mainly through transfer pricing practices whereby different subsidiaries of the same MNE manipulate prices of goods bought (sold) and services rendered between themselves, with the intention of shifting profits into lower-tax jurisdictions. For instance, the MNE may record high prices for goods and services imported from the developed home country into the developing host country, thus exaggerating tax allowable expenses. They may also reduce the cost of goods and services exported out of the local country to the foreign country. The effect is an artificial shift of taxable profits essentially generated in developing countries to developed countries (Fuest & Riedel, 2009). This practice goes against the "arms-length" principle, which requires related parties to trade as they would in the open market.

Numerous studies have confirmed existence of BEPS but there are few attempts to empirically produce fiscal approximations of the tax revenue losses that result from tax planning strategies of MNEs. Studies by different authors (Crivelli, Mooij, & Keen, 2016; Clausing, 2016; Cobham & Janský, 2018; Jansky & Palansky, 2019) have contributed to creating a consensus that BEPS schemes contribute to significant revenue losses. Furthermore, profits shifted to offshore tax havens do not appear in official reports and this presents a likelihood of underestimations in global profit shifting, especially in developing countries. This is despite the higher revenue losses

in developing countries found by some recent studies (UNCTAD, 2015a; Crivelli et al., 2016; Reynolds & Wier, 2016).

Jansky and Palansky (2019) also concluded that profit shifting intensifies income inequalities between developed and developing countries. The OECD has provided guidelines and suggested reforms aimed at combating these harmful tax- planning strategies through a BEPS action plan, however much work remains to be done, partly because the OECD guidelines cannot be legally enforced. Moreover, developing countries face challenges when dealing with complex international transactions due to technical expertise and resource constraints (Njoroge, 2018). On the other hand, MNEs key players are investors from developed countries with advanced technology and global dominance.

### **2.3 Empirical Literature Review**

This section of the literature review focuses on the empirical studies that have examined the relationship between the variables. The section includes sub sections highlighting empirical studies on the relationship between FDI and aggregate tax revenues; FDI and disaggregate tax revenues; and macro-economic variables, tax revenues and FDI.

#### **2.3.1 Foreign Direct Investment and Aggregate Tax Revenues**

A number of studies have focused on the effect of FDI on aggregate or total tax revenues, which comprises both indirect and direct tax revenues. Mahmood and Chaudhary (2013) tested the impact of FDI on tax revenue in Pakistan. The study used time series data taken from 1972 to 2010. The Auto- Regressive Distributive Lag (ARDL) equation was applied to detect long run equilibrium and an error correction model applied to determine short run associations in the model. The study used regression analysis with tax revenue (percent of GDP) as the dependent variable, FDI (percent of GDP) as the independent variable and GDP per capita as a control variable. The findings of the study were that FDI inflows positively and significantly affected tax revenues in both the short and long run. GDP per capita was only held constant in the model and the moderating effect of a unit change in GDP on the association between FDI and tax revenue was not explored. No other variables were considered in the study. Furthermore, the study did not test the effect of FDI on

disaggregated revenues. Adopting a similar approach, Tabasam (2014) used time series data taken from 1975 to 2012, to investigate the impact of foreign capital flows on tax collection in Pakistan. The researcher considered FDI, foreign aid, remittances and trade openness as indicators of foreign capital flows. The study found that a negative relationship existed between FDI inflows, total tax revenues, and a positive relationship between trade openness and tax revenue. The above studies by Mahmood and Chaudhary (2013) and Tabasam (2014) covered Pakistan and used time series data over a similar period, however arrived at different conclusions. This could be due to differences in the methodologies applied.

Aslam (2015) performed a study with the main objective of exploring the cointegration between FDI and tax revenue in Sri Lanka. Time series data was taken from 1990 to 2013 and the study applied a constant elasticity model. The study objectives involved testing three hypotheses; specifically, that there is an equilibrium relationship between tax and FDI, that tax revenue and FDI have causality between them and that FDI significantly impacts tax revenue. Using the Unrestricted Cointegration Rank Test (Maximum Eigen Value), the findings indicated presence of a long run equilibrium relationship between tax revenue and FDI at 5 per cent significant level. The Granger causality test was used to test for causal relationships between FDI and tax revenue and the findings showed that each of the variables predicted the other. To test the final hypothesis, regression analysis was done with FDI as the independent variable and tax revenue the dependent variable. The study conclusion was that FDI has a statistically significant positive effect on tax revenue, with FDI explaining 77 per cent of the change in tax revenue. The study did not take into account any control variables, which may have overestimated the effect of the independent variable. The study, similar to previous ones discussed, only focused on the effect of FDI on total tax revenues and did not consider disaggregated revenues such as corporate taxes and indirect taxes.

From a geographical view, the studies so far discussed have focused on the Asian region. Odabas (2016) attempted to address that gap by researching the impact of FDI inflows on tax revenues in 7 EU transition countries. The study used a panel data set from 1996 to 2012. Aggregate tax revenue as a share of GDP was the dependent



variable, with FDI as a share of GDP and GDP per capita growth being taken as independent variables. The Dumitrescu and Hurlin (2012) causality test was used to analyse the causal relationship between FDI, tax revenue and economic growth. The findings suggested that there was unidirectional causality from FDI inflows to tax revenues. As the study was a causality test, regression analysis was not used to estimate the association between FDI and tax revenue, therefore lacking in this dimension.

In another panel study, Balıkcıoğlu, Dalgıç, and Fazlıoğlu (2016) investigated the effect of FDI on tax revenue in Turkey using data from 2004 to 2012. The study focused on Turkish manufacturing firms and explored the linkages between foreign ownership in a firm and the taxes paid by that firm, by searching for differentials between tax payments of foreign affiliated and domestic firms. The study controlled for size of the firms to avoid biasing the results as larger firms on average pay more taxes than smaller firms. Regression analysis was used, where the dependent variable was growth in total taxes paid by the firm and the main independent variable was growth in foreign ownership share, such that the model predicted the change that would occur in taxes paid by a firm if its foreign ownership increased by 1 per cent, all other factors held constant.

The study found evidence that growth in foreign ownership positively affected growth of taxes paid. The impact of FDI on tax payments was more pronounced in firms operating with high technology and less evident in firms operating with moderate or low levels of technology. The study only focused on manufacturing firms, thereby omitting the effect of other industries in which FDI flows into, such as services, retail and telecommunications among others. The study also looked at aggregate total taxes paid and did not analyse the effects of FDI on direct and indirect taxes. Unlike previous studies discussed, this study utilised firm level micro data, which may also have had an effect on results obtained. Use of macroeconomic data may however yield different results.

Moving on to the African context, Bamembaya (2017) assessed the impact of FDI on government revenues in Ghana. The study used time series data from 1983-2015. Using the ARDL bounds testing technique, the study found both short run and long

run positive interactions between FDI inflows and tax revenues. The study employed regression techniques to determine the impact of the independent variable, FDI on the dependent variable, tax revenue. Other independent variables considered in the study were per capita GDP, education and urbanization. The findings were that FDI positively and significantly impacted tax revenue. GDP per capita was also found to have a positive effect on tax revenue. Similar to previously discussed studies, the study did not assess the impact of FDI on disaggregate revenues.

Turning the focus to a set of developing countries, specifically African and Asian countries, Camara (2019) studied the long-term effects of FDI on tax revenue using a panel of 92 developing countries from 1990 to 2015. The study used regression analysis based on a pool mean group (PMG) estimator. The dependent variable was aggregate tax revenue and the main explanatory variable was FDI net inflows. The control variables included the share of added value of agriculture, the share of added value of extractive activity, GDP per capita and international trade. The findings of the study revealed that in the long run, FDI inflows positively impacted tax revenue in developing countries except for resource exporting countries for which it was observed that the effect of FDI inflows on tax revenue was negative.

The findings suggested that when countries are resource exporting, FDI inflows negatively and statistically affect government tax revenue, possibly due to excessive tax incentives offered to MNEs. However, in the short term, FDI inflows had a weak but positive effect on tax revenue for resource exporting countries. The results also showed that trade openness and GDP per capita were positively correlated to tax revenue, which corresponds to findings by Tabasam (2014) and Bamembaya (2017). While most of the previously discussed studies examined a single country, this was the first study to utilize a panel set of a large number of countries. For this reason, the regression analysis was based on a pool mean group. However, use of the OLS estimator may have yielded different results.

### **2.3.2 Foreign Direct Investment and disaggregate tax revenues**

Empirical studies on the impact of FDI on disaggregate tax revenues date back to early 2000s. Initially, Gropp and Kostial (2000) sought to empirically establish if there was a link between FDI and corporate income tax revenues. The study utilised a

panel data set of 13 OECD countries and firm level micro data of 10,000 firms, from the period 1988 to 1997. Regression techniques were used to model corporate tax revenue as a log linear function of its tax base; the profit rate, which was taken as the average ratio of total profits and total firm assets for a given country. This model was premised on the fact that tax revenues would be a function of changes in the tax base, if the statutory tax rate remained unchanged. The study controlled for GDP growth rate and real exchange rates.

Going further to determine how pertinent tax competition was in the EU, the estimated relationship between FDI and corporate income tax revenue was used to simulate tax rate harmonization in EU countries. The results of the simulation proposed that in the absence of tax competition i.e. if tax rates were harmonized, three of the 12 countries used in the sample would significantly improve their net FDI position and gain revenue, while one country would lose revenue. The conclusion of the study was that, while FDI inflows positively affected corporate tax revenues, they might have also aided tax base erosion in some EU nations. Regarding the variable specification, the study results could have been enhanced by use of statutory tax rates instead of effective tax rates calculated at the firm level. This is because using the effective tax rates in the FDI regressions can bias the results as it is not an exogenous variable with respect to FDI. The results may also have been sensitive to the model specification where corporate income tax revenue is specified in log linear form. The study geographically covered EU countries and in particular high tax countries. In addition, the study only focused on the impact of FDI on corporate income tax revenue, thus ignoring its effect on personal income taxes and indirect taxes.

While most of the studies discussed so far have focused on measuring the impact of FDI on aggregate tax revenues, Jeza, Hassen & Ramakrishna (2016) attempted to expand the literature by investigating how FDI inflows impacted aggregate and disaggregate tax revenues in Ethiopia. Time series data was used for the period 1974 to 2014. ARDL bounds testing and its error correction model were used to test for long run and short run relationships among the variables. Tax revenue/GDP was taken as the dependent variable. FDI inflows/GDP and GDP per capita were explanatory variables. The study found that in Ethiopia, FDI had a negative impact on aggregate

and disaggregate tax revenues, specifically personal and corporate income taxes. Per capita GDP also had a negative effect on total tax revenues in Ethiopia, which was statistically significant. Conversely, FDI positively impacted foreign trade tax revenues. The study findings suggested that providing tax incentives to attract FDI may worsen tax revenues. The time period used for the study covered two regimes in Ethiopia. During the socialist regime from 1974 to 1991, the average per capita growth was negative and there were no FDI inflows to Ethiopia as most industries were nationalized, thus making them unattractive to foreign investors. For these reasons, the results obtained in the study may not be generalised. The study considered GDP per capita as an explanatory variable, thus its moderating impact on the association between FDI and tax revenue was not taken into account. The conclusion that GDP per capita has a negative effect on tax revenue is contrary to other studies reviewed. This again could be due to the political factors affecting Ethiopia and thus the results of this study may not be generalised. There were no other moderating variables except GDP considered in the study.

Transfer pricing is believed to be a key limitation of domestic revenue mobilisation in developing countries. Transfer pricing is a tax avoidance mechanism in which MNEs artificially shift their profits to low-tax jurisdictions, allowing them to report low pre-tax profits and effectively reduce taxes paid to the government (UN, 2018). Wangai (2016) found empirical basis for this belief by examining the effect of transfer pricing on corporate income tax in Kenya. The study used regression analysis on secondary time series data from 1980 to 2014. In the study, transfer pricing was the independent variable and corporate income tax revenue/GDP was the dependent variable. The control variables were net exports/GDP, foreign debt/GDP, inflation rate, foreign aid/GDP, agriculture share of GDP and GDP growth rate. The findings revealed that transfer pricing had a negative albeit statistically insignificant effect on corporate income tax revenue/GDP. The study employed a dummy variable to measure transfer pricing, that is, 1 after TP rules and 0 before TP rules were introduced in 2006. This could have limited the study because regression analysis is a quantitative method yet the dummy variable was used for categorical information. Furthermore, the decision to assign 0 and 1 values may have been subjective because it is very difficult to measure the effect of introducing TP rules on the compliance levels of MNEs. It could

have taken time for the rules to be understood, practically implemented and taxes realized through TP audits. This limited measure of transfer pricing could have contributed to the negative albeit insignificant results.

Most studies discussed have narrowed the focus to either developed or developing countries. In contrast, Gnangnon (2017) widened the scope by utilizing a panel set of both developed and developing countries. This study examined the impact of FDI inflows on two types of tax revenue namely; non-resource tax revenue and non-resource corporate tax revenue. Revenue collected from natural resource products was subtracted from the total tax revenue based on the fact that resource tax revenue is largely outside the scope of economic policy. It was also thought that greater homogeneity would be achieved in the econometric model if resource tax revenue was omitted. The study analysed a panel data set of 172 countries for the period 1980-2013, using general method of moment's estimation technique. The regression model took non- resource tax revenue to GDP and non- resource corporate income tax to GDP ratio as the dependent variables. The independent variables were FDI/GDP, per capita income, openness to trade, inflation levels and the value addition of agricultural sector. The model was specified in log form, due to established non-linear correlation patterns between tax revenue and FDI. The study found that the impact of FDI inflows was dependent on the quantity of FDI inflows as a percentage of GDP. In particular, countries with FDI/GDP ratio of less than 1.49 per cent experienced a negative impact of FDI on their non-resource tax revenue. Kenya was noted to be among these countries with an FDI/GDP ratio of less than 1.49 per cent, as well as Pakistan and Ethiopia. These findings are consistent with the findings of Jeza et.al (2016) and Tabasam (2014). For countries with a FDI/GDP ratio above 2.57 per cent, FDI positively impacted their non- resource tax revenues. For countries whose FDI/GDP ratio ranged between 1.5 per cent and 2.57 per cent, there was no significant impact of FDI inflows on their non-resource tax revenue. With respect to non-resource corporate tax revenue, the findings suggested that for countries with an FDI/GDP level below 0.33 per cent, FDI did not significantly impact these revenues. Contrarily, those countries with FDI/GDP levels above 0.33 per cent noticed a positive effect of FDI on their non-resource corporate tax revenue. The study also found that national income per capita had a positive and significant impact on both tax

revenue types considered in the study. However, openness to international trade was found to negatively affect both revenue types, contrary to the findings from previously discussed studies. The study used generalised method of moment's estimator to model the association among variables, however use of OLS estimator may have yielded different results.

While a majority of studies on the effects of FDI on tax revenues have measured FDI by inflows, very few studies in comparison have measured FDI using inward stocks. In one such study, Azarhoushang, Masoumy and Wu (2015) looked at the effects of FDI stocks on VAT in Chinese and Thai manufacturing sectors from 2000 to 2013. The study focused on textile, electronic machinery and communication equipment, computers and other electronic equipment as examples of low, medium and high value-added industries and compared the amount of value-added tax payable with total assets of foreign founded companies, stated-owned and private Chinese companies. The study found that FDI stock did not increase VAT from foreign firms in the electronic machinery and textile industry as much increase in VAT was realised from private local firms. The study looked at the effect of FDI on VAT revenue only and focused on a select number of industries in Asian countries, thus being limited in scope and geographical context.

In another study, Janský and Palanský (2019) focused on quantifying the scale of profit shifting by MNEs and the associated corporate tax revenues losses, using data on FDI stocks and a sample size of 79 countries in both developing (low income) and developed (high income) countries. The hypothesis tested was that countries with a higher share of FDI stock originating from tax havens tend to have lower rates of return on FDI. This hypothesis was based on the proposition that a higher share of FDI from tax havens was associated with a higher tendency to shift profits to these tax havens, resulting in an artificially deflated reported rate of return on FDI. The study also sought to address the question of which countries' tax revenues are most affected by international corporate profit shifting. The study used two empirical models to estimate the relationship between the share of FDI stock from tax havens and the rate of return from FDI. The first model built upon a baseline regression model using OLS estimators and tested whether higher shares of FDI from tax havens was associated

with lower reported rates of return from FDI. The second extended model controlled for the different income groups, that is, income per capita, in order to determine country specific estimates of profit shifting and the revenue losses. The study found that tax revenue losses were lowest in OECD countries while low and lower middle-income countries lost the most corporate tax revenue both relative to their GDP and relative to their corporate and total tax revenue. For instance, an increase in total FDI stock in developing countries from \$5 trillion in 2012 to \$6.18 trillion in 2016 resulted in \$83 billion and \$95 billion tax revenue losses respectively in developing countries in 2016, implying that an increase in FDI stock resulted in a decrease in corporate tax revenues and total tax revenues. One limitation of the study was that only FDI stock from tax haven countries was considered. More accurate estimates of the scale of profit shifting may have been obtained by considering FDI stock from both haven countries and non-havens.

### **2.3.3 Macro-economic variables, tax revenues and FDI**

Several studies have also been undertaken to assess factors that determine tax revenue. Bunescu and Comaniciu (2014) sought to test how tax revenues and various economic indicators were related. The economic indicators included GDP, net national income per capita, current account balance, employment rate, public debt and FDI, all assumed to be causal factors. The study covered 27 countries in the EU and used time series macroeconomic data. The data was tested for bivariate correlation and the results showed that the Pearson correlation coefficient of FDI was in the range of 0 to 0.3, suggesting that there was a weak positive association between FDI inflows and tax revenue. The study was limited in that the method used was not desirable for time series analysis as correlation coefficients alone do not account for trends over time and may produce spurious results, meaning that the variables are not actually correlated despite appearing to be. Secondly, the coefficients are not predictive of the relationship between FDI and tax revenue and they fall short of estimating how the dependent variable, tax revenue would respond to changes in the independent variable, FDI. The researcher also notes that the study exclusively covered EU member countries.

In a comparable study covering trade liberalization and tax revenue performance in Uganda, Gaalya (2015) sought to establish the factors that determined tax revenue in Uganda and six other countries which were its main trading partners. The study used fixed effects and random effects estimations to investigate the determinants of tax revenue performance in the period 1994 to 2012. The dependent variable used in the regression analysis was tax revenue as a share of GDP. The explanatory variables were agriculture share of GDP, industry share of GDP, government expenditure, FDI share of GDP, trade openness measured as the sum of imports and exports as a percentage of GDP, per capita foreign aid, per capita debt, exchange rates, average tax rate and inflation. The variables were introduced in logarithmic form save for aid per capita, debt per capita and consumer price index which were introduced in linear form. The indicators of tax revenue were total tax revenue, direct tax revenue, indirect tax revenue and trade tax revenue, all measured as a share of GDP across the panel. The disaggregation of revenues enhanced the results by showing the effect of the explanatory variables on each disaggregated revenue. The results showed that FDI impacted positively on indirect tax revenue and trade tax revenue, because FDI increases the volumes of imports which boosts international trade taxes such as import duties, excise duties and VAT. However, FDI had no significant effect on direct tax revenue or aggregate total tax revenue, at the 5 per cent significance level. Trade openness was found to positively impact disaggregate and aggregate tax revenues, suggesting that trade liberalization increases the performance of tax revenue. The results of this cross-country study were generalised across the panel data set, and may not necessarily be the same if individual country data was used.

Rahman and Bristy (2015) analysed the impact of FDI on six macroeconomic variables namely; GDP, inflation rate, current account balance, government revenue, foreign exchange reserves and gross capital formation. The study covered SAARC countries of Bangladesh, Pakistan, India, Bhutan, Maldives, Nepal and Sri Lanka and used data from 2002 to 2012. Correlation analysis was used to establish the direction of FDI on the individual variables and regression analysis to establish the effect of the independent variable FDI on the 6 dependent variables. The findings suggested that tax revenue was very strongly correlated with FDI across the panel. When individual countries are considered, the impact of FDI on tax revenue was found to be positive in



Bangladesh, India, Maldives, Nepal and Sri Lanka while Pakistan showed a negative correlation between its government revenue and FDI, which is similar to the findings of Tabasam (2014).

Beser and Beser (2017) conducted a panel causality analysis for 12 transition economies which applied flat tax reforms and found that FDI has no direct influence on tax revenues, however FDI affects tax revenues indirectly through GDP and corporate tax rates. In another study, Bayar and Ozturk (2018) sought to determine how FDI inflows, level of economic growth and aggregate tax revenues were related. The scope of the study was 33 OECD countries in the period 1995 to 2014. The study was a cointegration test and causality test using the Westerlund Durbin-Hausmann (2008) panel cointegration test and Dumitrescu and Hurlin (2012) panel causality test. Considering the entire panel set, the results did not show a significant effect of FDI inflows on tax revenues. However, for some countries in the panel, FDI inflows were shown to affect total tax revenues positively. These included Iceland, Israel, Sweden, the United Kingdom and the United States. The study further showed that FDI inflows had a negative effect on the total tax revenues in Austria, France, Italy, and Poland. It was further suggested that the association between FDI inflows and tax revenue was determined by the make-up of the FDI inflows and the degree of fiscal incentives offered by host countries. Based on the observations from the study, several conclusions were advanced. Firstly, the study proposed that Greenfield investments potentially increased capital formation and shored up economic activity when compared to brownfield investments. The findings indeed showed that FDI inflows negatively impacted tax revenues in Italy and France, and these countries had relatively low levels of Greenfield investments. Secondly, the study suggested there was a preference for Greenfield investments in countries where fiscal incentives and legal rights were guaranteed.

#### **2.4 Summary of the Literature**

In summary, the theoretical literature reviewed identifies two main theories that convey the most relevance to this study. The theory of public fiscal behaviour, originally by Heller (1975) and modified by Leuthold (1987), explains the theoretical link between foreign capital and tax revenue as a factor of the decisions of public

decision makers. According to the theory, foreign capital inflows ought to increase domestic revenue. Moving to tax competition, the theories of tax competition are two-fold. According to the ZMW Model, tax competition creates inefficiencies because a reduction in tax rates by competing jurisdictions leads to under-provision of local public goods. On the contrary, some researchers who founded their argument on the Tiebout Hypothesis (1956), stated that tax competition might be beneficial given a marginal cost pricing scenario by governments. Wilson and Wildasin, (2004) also supported the notion of efficiency-enhancing tax competition, which can enhance taxes on mobile capital.

The empirical studies reviewed present mixed findings on the effect of FDI on tax revenue. In some studies, FDI was found to positively affect tax revenue (Mahmood & Chaudhary, 2013; Okey, 2013; Aslam,2015; Bamembaya,2017), while other studies found negative relationships (Tabasam, 2014; Gaalya, 2015). Beser and Beser (2017) found that FDI has no direct influence on tax revenues. Most of the studies undertaken in developed countries suggest that FDI inflows positively affect tax revenues, although evidence of tax base erosion was found in some EU countries (Gropp & Kostial, 2000). The results from studies in some transitioning and developing countries suggest that FDI has an insignificant impact on tax revenue or it negatively affects tax revenues. Corporate tax revenues bear the worst effect while indirect taxes and trade taxes are not as affected, possibly because MNEs play a big role in international trade therefore trade taxes such as import duties, excise duties and VAT may increase with foreign direct investment. Some studies however found a negative association between FDI and indirect taxes, possibly due to excessive tax incentives such as duty and VAT exemptions (Jeza et. al, 2016). From the studies reviewed, there was a consensus that GDP per capita and trade openness increased tax revenues. However, Jeza, Hassen, and Ramakrishna (2016) and Gnangnon (2017) presented contrary findings on the effects of GDP per capita and trade openness on tax revenue.

## **2.5 Research Gaps**

From the empirical review of literature, mixed findings exist on the effect of FDI on tax revenue. Most of the studies have given attention to European Union and Asian

countries, which are mainly developed and transitioning economies. The results of these studies may however not be generalised to developing countries due to the differences in political, structural and economic factors. Within the African context, studies on the impact of FDI on tax revenue have been done in West Africa, Ethiopia and Uganda and the findings are not consistent. Based on past studies, it is not possible to conclude whether FDI increases tax revenue or not, in the Kenyan context. Hence, a contextual research gap exists.

Previous studies have lacked in the variable definition and model specification. Some studies only considered corporate tax revenue or VAT as the dependent variable, thus omitting the effect of FDI on other types of taxes. (Gropp & Kostial, 2000; Wangai, 2016; Azarhoushang, Masoumy & Wu, 2015; Gnangnon, 2017). Some other studies reviewed have only analysed how FDI inflows affect aggregate tax revenues, but they have ignored its effect on disaggregate revenues. Moreover, majority of the previous studies have measured FDI by inflows and the effect of FDI stock on tax revenue has not been widely looked at. In some other studies, no control or moderating variables were included (Aslam, 2015). Thus, a conceptual research gap exists. To conclude, some past studies used non-OLS estimators and analysed panel data sets. Few studies used time series data and the OLS estimator to model the relationship between FDI and tax revenue, meaning there is a methodological research gap in that regard. This study will attempt to address these gaps by examining the effect of FDI on aggregate and disaggregate tax revenue in Kenya.

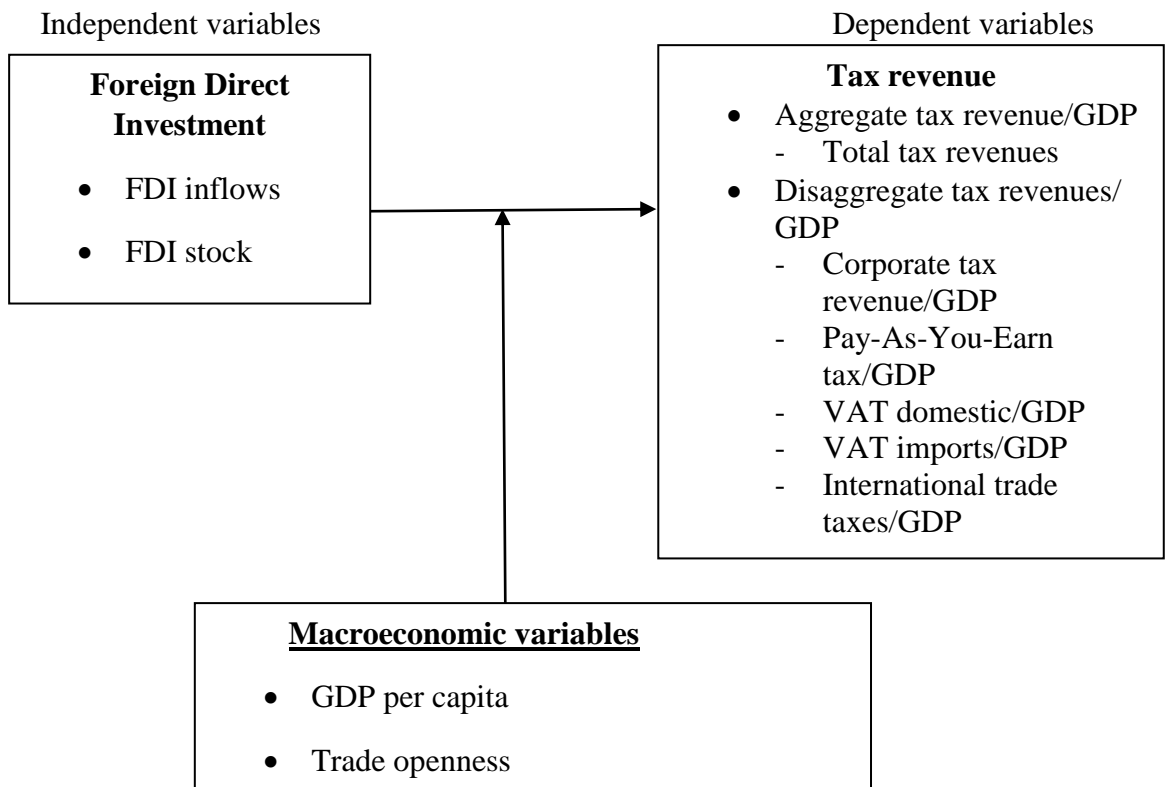
## **2.6 Conceptual Framework**

The association among the dependent, independent and moderating variables is shown in Figure 2.1. The dependent variable in this study is tax revenue which was measured using various indicators of tax revenue, namely; aggregate tax revenue/GDP, corporate tax revenue/GDP, Pay-As-You-Earn tax revenue/GDP, VAT/GDP and international trade taxes/GDP. FDI was an independent variable, measured using annual FDI inflows into Kenya and FDI stock. Effectively, the presence of foreign capital in a country is expected to expand the tax base which improves tax revenue (Leuthold, 1987).

The moderating variables considered for this study were GDP per capita and trade openness. The term moderating variable refers to a variable that can strengthen, diminish, negate, or otherwise alter the association between independent and dependent variables. Brun and Gnanon (2017) established that trade openness and GDP per capita contribute to driving FDI for development. In this study, public revenue (tax revenue) was one of the measures of development. This implies that trade openness and GDP per capita catalyze the impact of FDI on tax revenue. This finding is supported by a study by Abrego (1999) who explored the relationship between trade liberalization and FDI while studying the economy of Costa Rica and OECD countries for the period of 1990 to 1991. The study found that trade liberalization results in reduced welfare as it leads to capital outflows and the consequent loss of tax revenue.

GDP per capita measures the economic growth and development levels of a country. GDP per capita is hypothesised to positively affect tax revenue, as a higher GDP per capita would imply there is higher demand for goods and services as well a strong economic and institutional environment, which makes a country a more attractive FDI destination (Crivelli & Gupta 2014).

Trade openness was expected to positively affect actual revenue since the movement of goods is controlled at the ports of entry and exit and the trade sector is dominated by a few large organizations, such as MNEs. (Leuthold, 1987). This proposition was supported by the empirical findings in the same study. Trade openness was measured as the sum of imports and exports as a share of GDP.



**Figure 2.1: Conceptual Framework**

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter describes the research methodology used in analysis of the association among the variables of study. The chapter outlines the research philosophy, research design, population and sampling techniques, as well as methods of data collection and the empirical model used.

#### **3.2 Research Philosophy**

The term research philosophy denotes structured perspectives and suppositions about the process of knowledge development (Saunders, Lewis, & Thornhill, 2009). This study adopted the philosophy of positivism, which assesses previously established theories, assuming that reality is objective and can be quantified independently of the observer and his apparatus. Epistemologically, the study focused on finding facts that can be observed and measured, as only such facts would lead to the development of reliable and significant data (Crotty, 1998). The study sought causal associations in the data to form law-like generalisations (Gill & Johnson, 2010). These generalisations are used to justify and predict behaviour and events.

#### **3.3 Research Design**

A research design is a plan for collecting and utilising data to enable the researcher sufficiently answer the research question or test the research hypotheses (Cooper, 2013). It includes the design for data collection, measurement and analysis (Kothari, 2004). This study used a descriptive correlational research design, which entails describing and predicting how variables are related, using actual world data in a natural setting (Waters, 2005). It enabled the researcher to collect data, which was analysed quantitatively through descriptive and inferential statistics (Mugenda & Mugenda, 2013). The design chosen for this study was appropriate because regression analysis was applied to determine the presence or absence of statistically significant relationships among the study variables.

#### **3.4 Population and Sampling**

According to Grove (2012), a population denotes the sum number of units from which data can be collected. This research was a case study of one country since it considers

only Kenya. The unit of analysis was Kenya. The study used secondary data from UNCTAD, KRA, IMF and World Bank databases therefore no sampling was required.

### **3.5 Data Collection**

Harris and Brown (2010) define data collection as the systematic process used by a researcher to gather either primary or secondary data. This study used data from secondary sources, which is the type of data that has been already collected, stored and processed statistically. Data was collected from relevant databases including Kenya National Bureau of Statistics (KNBS), UNCTAD, The World Bank, and IMF. The use of secondary data was justified on the basis that all the data required for the study is available from different organizations in published form and the data has been vetted and accepted, which provides a guarantee of its quality. Annual time series data for each variable was used to evaluate the relationships and covered the period 1989 to 2018.

### **3.6 Operationalization of the variables**

The OECD (2008) defines FDI as net inflows of investment by the acquisition of at least 10 per cent of the capital of a business venture located in an economy distinct from that of the direct investor. FDI is usually captured in the balance of payments statement as a distinct item. For this study, FDI was measured using two indicators, annual FDI inflows and annual FDI stock. Theoretically, FDI inflows are expected to expand the tax base, contribute to growth and improve tax revenue. From empirical studies, FDI may have a positive effect on tax revenue (Mahmood & Chaudhary, 2013; Aslam, 2015; Bamembaya, 2017) or may negatively impact revenue as found in some studies (Tabasam, 2014; Jeza et al., 2016).

Tax revenue is defined as the revenue collected from taxes and it includes tax on income and profits, taxes levied on goods and services, taxes on the ownership and transfer of property. Revenue performance is typically reported using the tax-to-GDP ratio over time (Junquera-Varela et al, 2017). The tax-to-GDP ratio is a measure of the share of a country's output that is collected by the government through taxes. This study will measure tax revenue using the following indicators; aggregate tax revenue,

corporation tax revenue, Pay-As-You-Earn (personal) tax revenue, domestic VAT, VAT on imports, and international trade taxes.

GDP per capita divides the gross domestic product by the number of people in a country. It is an indicator of the economic growth and level of development of a country. GDP per capita is expected to be positively related to government revenue as a higher GDP per capita would indicate higher demand for goods and services as well a strong economic and institutional environment, which makes a country a more attractive FDI destination (Crivelli & Gupta, 2014). Trade openness is an indicator of the degree of openness of a country to international trade. According to literature, trade openness generates higher public tax revenues (Agbeyegbe, Stotsky, & WoldeMariam, 2006; Drummond et al., 2012). Trade openness was measured as the sum of imports and exports as a share of GDP. The following table gives a summary of the indicators and measures of the study variables.

**Table 0.1: Operationalization of Variables**

<b>Variable</b>	<b>Type</b>	<b>Indicator</b>	<b>Supporting literature</b>	<b>Data source</b>
Foreign Direct Investment (FDI)	Independent Variable	FDI inflows FDI stock	Mahmood and Chaudaray (2013), Jeza et. al (2016)	UNCTAD
Tax revenue	Dependent variable	Aggregate tax revenue /GDP and disaggregate tax revenues/GDP	Odabas (2016), Jeza et. al (2016)	KRA/KNBS
GDP per capita	Moderating variable	Per capita GDP	Jeza et. al (2013), Wangai (2016)	IMF/World Bank
Trade openness	Moderating variable	(Exports + imports)/GDP	Gaalya (2015), Alabede (2017)	UNCTAD

**Source: Author (2021)**



### 3.7 Data analysis

The relationship between study variables was estimated using a multiple regression model. Regression analysis allows one to model, examine, and explore spatial relationships. It is also used to predict relationships. Ordinary Least Squares (OLS) regression technique was used to estimate the parameters of the model because OLS minimizes the sum of squared errors and yields best linear unbiased estimators. In order to establish the influence of the moderating variables on the relationship between dependent and independent variables, hierarchical regression was performed.

The regression coefficients were used to test the unique effect of each independent variable. The study used t-test as the test statistic, to measure the difference between the observed sample statistic and its hypothesized population parameter in units of standard error. The observed t-value was compared to a critical value on the t-distribution with (n-1) degrees of freedom, to determine whether the difference between the estimated and hypothesized value of the population parameter is statistically significant. The corresponding probability value (p-value) for each t-value was used to test the significance of the regression coefficients at 5 per cent significance level.

#### 3.7.1 Model Specification and Variable Definition

The model specification of the study was matched to each of the study's objectives which are described in this section.

The model specification for objective one was as follows;

$$\ln\text{ATRG}_t = \beta_0 + \beta_1 \ln\text{FDII}_{t-1} + \beta_2 \ln\text{FDIS}_{t-1} + \mu_t \dots \dots \dots (1)$$

Where:

$\text{ATRG}_t$  = Aggregate Tax Revenue/GDP

$\text{FDII}_t$  = FDI inflows

$\text{FDIS}_t$  = FDI stock

Ln = natural logarithm

The model specification for objective two were as follows;

$$\ln\text{CT}_t = \beta_0 + \beta_1 \ln\text{FDII}_{t-1} + \beta_2 \ln\text{FDIS}_{t-1} + \mu$$

$$\ln\text{PE}_t = \beta_0 + \beta_1 \ln\text{FDII}_{t-1} + \beta_2 \ln\text{FDIS}_{t-1} + \mu$$

$$\ln VTD_t = \beta_0 + \beta_1 \ln FDI_{t-1} + \beta_2 \ln FDIS_{t-1} + \mu$$

$$\ln VTI_t = \beta_0 + \beta_1 \ln FDI_{t-1} + \beta_2 \ln FDIS_{t-1} + \mu$$

$$\ln TD_t = \beta_0 + \beta_1 \ln FDI_{t-1} + \beta_2 \ln FDIS_{t-1} + \mu$$

Where:

$CT_t$  = Corporate tax revenue

$PE_t$  = Personal tax revenue

$VTD_t$  = Value added tax (domestic)

$VTI_t$  = Value added tax (imports)

$TD_t$  = Trade taxes

The model specification for objective three was as follows;

In order to determine the moderating effect of macro-economic variables on the relationship between FDI and tax revenue, the researcher used two models because it was not possible to compute a composite statistic for Trade Openness and GDP per capita, since trade openness was expressed as a percentage while GDP per capita was in US dollar terms. The study used hierarchical regression analysis to test the moderating effect of the macroeconomic factors' variables.

### **Model 1**

Step 1: Using Trade Openness as indicator of macroeconomic factors

$$\ln ATRG_t = \beta_0 + \beta_1 \ln FDI_{t-1} \text{comp} + \beta_2 \ln TO_{t-1} + \mu$$

Step 2:

$$\ln ATRG_t = \beta_0 + \beta_1 \ln FDI_{t-1} \text{comp} + \beta_2 \ln TO_{t-1} + \beta_3 (\ln FDI \text{comp} * TO)_{t-1} + \mu$$

### **Model 2**

Step 1: Using GDP per capita as indicator of macroeconomic factors

$$\ln ATRG_t = \beta_0 + \beta_1 \ln FDI_{t-1} \text{comp} + \beta_2 \ln GDPC_{t-1} + \mu$$

Step 2:

$$\ln ATRG_t = \beta_0 + \beta_1 \ln FDI_{t-1} \text{comp} + \beta_2 \ln GDPC_{t-1} + \beta_3 (\ln FDI \text{comp} * GDPC)_{t-1} + \mu$$

Where:

$FDI \text{comp}$  = FDI composite statistic i.e (FDI stock + FDI inflows)/2

$TO_t$  = trade openness

$GDPC_t$  = GDP per capita

FDIcomp \*GDPC = Interactive term of FDI composite statistic and GDP per capita

lnFDIcomp \*TO = Interactive term of FDI composite statistic and trade openness

The dependent and independent variables were specified in logarithm form to make them comparable. This was because data on tax revenue was obtained in Kenya shillings while data on FDI was obtained in US dollars therefore logarithmic transformation of the variables would result in percentage changes rather than unit changes, since we were dealing with different units. For the third objective, a composite statistic was used for FDI when testing the moderating effect of macroeconomic factors, since both FDI stock and inflows are expressed in US dollars, therefore making it possible to combine them.

The independent variable FDI, was lagged because the data on FDI corresponds to a January to December calendar year while data on tax revenue corresponds to a July to June year fiscal year therefore there would be a lag in time between the changes in FDI and the observed effects on tax revenue.

### **3.7.2 Diagnostic tests**

Diagnostic tests are vital when it comes to finding and validating a good predictive relationship between dependent and independent variables. The following tests were conducted; normality, autocorrelation, heteroscedasticity, and multicollinearity. One of the assumptions of classical linear regression model is that the error term must be normally distributed with zero mean and a constant variance denoted as  $\mu (0, \sigma^2)$ . The error term is used to capture all other factors, which affect dependent variable but are not considered in the model. However, it is thought that the omitted factors have a small impact and are at best random. For OLS to be applied, the error terms should be normally distributed (Gujarati, 2004). The Shapiro-Wilk Test was used to test for normality.

Autocorrelation in regression applies if consecutive error terms in the regression analysis are related. This violates the OLS assumption that residuals should not be correlated across time. The Durbin-Watson (DW) test was used to test for autocorrelation as it has fewer restrictions than other tests of similar purpose. For the regression model to hold, the variance of the error terms should be constant or

homoscedastic throughout the sample. If the variance is not constant, the error terms are said to be heteroscedastic, which indicates that the standard errors of the estimates are biased. The Breusch-Pagan and Koenker (BP) test was used to test for heteroscedasticity.

Multicollinearity inflates the standard errors of the regression coefficients, thus undermining the significance of an independent variable. Variance Inflation Factors (VIFs) were used to test for multicollinearity. The aim was to determine the level of multicollinearity that can be tolerated without causing any problems in the regression analysis. If the levels are found to be unacceptable, a method known as centering the variables would be applied to standardize the predictors. This method is effective and does not change the interpretation of the coefficients (William, Grajeles, & Kurkiewicz, 2013).

### 3.7.3 Unit roots (Stationarity) tests

Before estimating the model, unit root tests were applied to determine the order of integration of all the time series variables. This tells the researcher the minimum number of differences needed to get a stationary series, ensuring a robust model whose distribution does not change due to changes in time.

Non-stationary data is unpredictable and cannot be modelled or forecasted. The results obtained from using this type of data may be spurious. The Augmented Dickey-Fuller (ADF) test developed by Dicker and Fuller (1981) was used to detect the presence of a unit root, using the following equation with intercept;

$$Y_t = \alpha + \delta Y_{t-1} + \gamma_1 \Delta Y_{t-1} + \gamma_2 \Delta Y_{t-2} + \dots + \gamma_m \Delta Y_{t-m} + u_t \dots \dots \dots \quad (2)$$

Where  $\Delta$  is a difference operator, and  $u_t$  is a residual at time period  $t$ .  $Y_t$  denotes the time series.  $\gamma_1 \Delta Y_{t-1} + \gamma_2 \Delta Y_{t-2} + \dots + \gamma_m \Delta Y_{t-m}$  is used to correct the serial correlation. Equation (2) includes intercept  $\alpha$  only and it can also be estimated using both intercept and time-trend  $T$ . Then, the test will be as follows:

$$\Delta Y_t = \alpha + \lambda T + \delta Y_{t-1} + \gamma_1 \Delta Y_{t-1} + \gamma_2 \Delta Y_{t-2} + \dots + \gamma_m \Delta Y_{t-m} + u_t \dots \dots \dots \quad (3)$$

ADF test checks the null hypothesis that  $\delta = 0$ , meaning that the time series has a root problem. Rejection of the null hypothesis implies that the series is stationary.

### **3.7.4 Cointegration tests**

After testing for unit roots, co-integration tests were applied to find the long run relationship or equilibrium relationship between the variables. It was necessary to test for co-integration in order to determine whether the established relationships between the independent and dependent variables are as a result of short-term movements or are equilibrium relationships. The presence of cointegration makes a case for effecting economic policy.

The study applied the Johansen Co-integration Test which was used to determine if there existed cointegrating equations between the independent and dependent variables. This test was conducted for objectives one and two and was preferred for two reasons; firstly, the sample size was relatively too small to use the Engle-Grangers Two Step Estimation Method and secondly the study adopted a multivariate framework for analysis (Johansen, 1991). Johansen defines two different test statistics for cointegration under his method; the Trace Test and the Maximum Eigenvalue Test. The Trace Test is a joint test that tests the null hypothesis of no cointegration ( $H_0: r = 0$ ) against the alternative hypothesis of cointegration ( $H_1: r > 0$ ). The Maximum Eigenvalue test conducts tests on each eigenvalue separately (Brooks, 2008).

In this study, the Trace Statistic was used; when the number of cointegrating equations was determined; a Vector Auto Regression (VAR) Model was used to determine influence of the independent variable on the dependent variable in the short run. To determine the long run effects of the independent variables on the dependent variable, the Vector Error Correction Model (VECM) was conducted.

### **3.8 Research Quality**

Validity and reliability of the data used was ensured by retrieving information from recognised and authentic online sources, with recommendations by my supervisor. These online data sources included The World Bank, IMF and UNCTAD databases. Data on tax revenue was collected from the Kenya National Bureau of Statistics. The data collected was subjected to various diagnostic tests to ensure adherence to the

assumptions of regression analysis, thus providing an accurate and reliable prediction of the relationship among the variables. The diagnostic tests included tests for normality, autocorrelation, heteroscedasticity, multicollinearity, and stationarity.

### **3.9 Ethical Issues in Research**

There are a number of ethical principles that should be considered when performing research, in order to protect the respondents and improve research quality. This study used secondary data and there were no risks to respondents in the course of the study. The secondary data used is publicly available thus, no permission required to be sought to include the data in this study. The researcher cited all information borrowed, adapted, or adopted from other studies to avoid issues of plagiarism.

## CHAPTER FOUR

### DATA ANALYSIS AND INTERPRETATION

#### 4.1 Introduction

This chapter is a presentation of the findings from the data analysis performed to determine the relationships between the variables of study. The chapter is presented in sections consisting of the descriptive statistics, diagnostic tests, effect of FDI on aggregate tax revenue in the short run and long run, effect of FDI on disaggregate tax revenue in the short run and long run and moderating effect of macro-economic variables on the relationship between FDI and tax revenue. The section on moderating effect of macro-economic variables has been broken into two sub-sections distinguishing between the effects of trade openness and GDP per capita on the relationship between FDI and tax revenue in Kenya. The tests were conducted using regression analysis and a significance level of 5 percent ( $\alpha=0.05$ ).

#### 4.2 Descriptive Statistics

Table 4.1 below shows the descriptive statistics of the variables of study. The importance of this section was to allow for the data to be interpreted in a simplified manner. The analysis conducted established the mean and standard deviation of the variables of the study including; aggregate tax revenue/GDP and disaggregate tax revenues/GDP which were the dependent variables. The disaggregate tax revenues included corporate tax, personal tax, domestic VAT, VAT imports and trade taxes, expressed as a percentage of GDP. The independent variable was FDI, measured using both FDI inflows and FDI stock, similarly expressed as a percentage of GDP. The other variables included were to test for the moderating effects and these were GDP per capita, trade openness and the composite measure for FDI (FDI comp)

**Table 0.1: Descriptive Statistics Summary**

<b>Descriptive Statistics</b>	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Aggregate tax revenue/GDP	30	0.157	0.235	0.17821	0.018908
Personal taxes/GDP	30	0.029	0.051	0.03798	0.005454
Corporate taxes/GDP	30	0.024	0.043	0.03204	0.005059
VAT Domestic/GDP	30	0.019	0.041	0.02566	0.005179
VAT Imports/GDP	30	0.017	0.045	0.0245	0.006952
Trade taxes/GDP	30	0.014	0.040	0.02445	0.007659
FDI inflows/GDP	30	2.000	1625.92	462.423	581.2403

FDI stock/GDP	30	610.83	14421.45	3810.114	4430.22489
FDI composite	30	336.51	8023.69	2136.2747	2451.51492
Trade Openness	30	0.36	1.05	0.5588	0.17818
GDP per capita	30	313.47	1710.47	769.5593	393.65089

**Source: Author computation (2021)**

The data output tabled above shows that the mean aggregate tax revenue/GDP was KES 0.17821 million from 1989 to 2018, with a standard deviation of KES 0.018908 million which implies minimal variation of aggregate tax revenues over the years. The minimum and maximum value of aggregate tax revenue/GDP was KES 0.157 million and KES 0.235 million respectively. The results further showed a mean value of personal taxes of KES 0.03798 million with the highest and lowest value being KES 0.051 million and KES 0.029 million respectively. A standard deviation of KES 0.005454 million indicated a small variation of personal taxes over the period. The mean corporate taxes/GDP recorded was KES 0.03204 million with a standard deviation of KES 0.005059 million, indicating small variation in corporate taxes over the years. The lowest and highest value was KES 0.024 million and KES 0.043 million respectively. The average value for domestic value added taxes was KES 0.02566 million which was higher than the average value of VAT on imports which was KES 0.02445 million. VAT on imports however showed a slightly greater standard deviation of KES 0.006952 million, while domestic VAT had a standard deviation of KES 0.005179 million. For both VAT variables, variation in the values was minimal over the study period. The mean value of trade taxes was KES 0.02445 million with a standard deviation of KES 0.007659, million indicating a small variation over the years. The lowest and highest values were KES 0.014 million and KES 0.040 million respectively.

The average value of FDI inflows was USD 462.423 million with the minimum value being USD 2 million and the highest value USD 1625.92 million. The standard deviation value of 581.2403 shows that there was a large variation of FDI inflows in the study period. FDI stock values averaged USD 3810.114 million with a standard deviation of USD 4430.22489 million observed, implying a large variation of FDI stock in Kenya during the study period. The lowest value was USD 610.83 million with the highest value being USD 14421.45 million. The FDI composite statistic which was the average of FDI inflows and FDI stock, returned a mean value of USD



2136.2747 million, with a standard deviation of USD 2451.51492 million. This also indicated a large variation in the FDI composite values. Trade openness averaged 55.88% over the period with the maximum value recorded being 104.81% and minimum being 36%. The standard deviation was 17.88% indicating low variation in trade openness over the period. The mean GDP per capita in the study period was USD 769.5593 million, with a standard deviation of USD 393.65089 indicating high variation of GDP per capita in the study period. The minimum and maximum values recorded were USD 313.47 million and USD 1710.47 million respectively.

### 4.3 Diagnostic Testing

There were several diagnostic tests conducted on the data before embarking on measuring the relationships between the variables. These tests included normality, heteroscedasticity, autocorrelation, multicollinearity, unit root tests and co-integration tests.

#### 4.3.1 Test for Normality

The Shapiro-Wilk test was conducted to determine the normality of the data. The test null hypothesis is that the variables are normally distributed. Therefore, if the  $p$  value is less than 0.05, the null hypothesis is rejected and it is concluded that there is evidence the variable is not normally distributed. If the  $p$  value is greater than 0.05 it is concluded that the variables are normally distributed. Table 4.2 below shows a summary of the  $p$  values for the variables which shows that corporate taxes and personal taxes exhibited a normal distribution whilst the remaining variables did not meet a normal distribution. The variables that did not meet a normal distribution were log transformed so as to follow or approximately follow a normal distribution.

**Table 0.2: Shapiro-Wilk Test for Normality**

Variables	Shapiro-Wilk		
	Statistic	Df	P value.
Aggregate tax revenue/GDP	.827	30	.000
Personal taxes/GDP	.962	30	.354
Corporate taxes/GDP	.974	30	.650
VAT Domestic/GDP	.887	30	.004
VAT Imports/GDP	.774	30	.000
Trade taxes/GDP	.924	30	.034
FDI inflows/GDP	.753	30	.000
FDI stock/GDP	.729	30	.000

FDI composite	.742	30	.000
Trade Openness	.887	30	.004
GDP per capita	.845	30	.000

**Source: Author computation (2021)**

#### 4.3.2 Test for Heteroscedasticity

One of the assumptions made about residuals in OLS regression is that the errors have a constant variance, or they are homoscedastic. The Breusch-Pagan and Koenker (BP) test statistic is such that it approximately follows a chi-squared distribution with k degrees of freedom. If the test statistic has a significance value below 0.05, the null hypothesis of homoscedasticity is rejected and heteroscedasticity is assumed. Table 4.3 shows that the BP test statistic had a significance value of 0.000 which implies that the null hypothesis is rejected and the error terms are heteroscedastic. In order to deal with this, the regression analysis was done using robust standard errors.

**Table 0.3: Breusch-Pagan and Koenker Test**

Test statistics	chi2(1)	Prob > chi2
BP	0.000	0.9724

**Source: Author computation (2021)**

#### 4.3.3 Test for Autocorrelation

OLS assumptions also require that residuals should not be correlated across time, as this may lead to biased estimates of the regression parameters. The Durbin-Watson (DW) test was used to test for autocorrelation by running a regression analysis between the variables. The DW statistic always has a value between 0 and 4. Values close to 2 (the middle of the range) suggest no autocorrelation while values in the range of 0 to less than 2 indicate positive autocorrelation and values in the range of more than 2 to 4 indicate negative autocorrelation. As a rule of thumb, values in the range of 1.5 to 2.5 are relatively normal and not a cause for concern. The findings in Table 4.4 below show that there was mild autocorrelation between the variables (DW statistic= 2.318).

**Table 0.4: Durbin – Watson Statistic**

R	R Square	Adjusted R Square	Std. Err of the Estimate	Durbin-Watson
.992 <sup>a</sup>	.985	.978	.004854	2.318

**Source: Author computation (2021)**

#### 4.3.4 Test for Multicollinearity

Multicollinearity refers to the existence of high correlations between predictor variables. Multicollinearity inflates the standard errors of the coefficients of the predictor variables, leading to unreliable estimates of those coefficients. Variance Inflation Factors (VIF) is used to test for multicollinearity by calculating a VIF statistic whose value can be tolerated without causing problems in regression analysis. The rule of thumb in interpreting the variance inflation factor (VIF) is that values from 5 to 10 imply that there is moderate to high correlation between variables in a model, with values of 10 or more indicating very high correlation. Table 4.5 below shows the VIF values for the variables are below 5 thus eliminating the problem of multicollinearity in the data.

**Table 0.5: Collinearity Statistics- Variance Inflation Factors**

<b>Variables</b>	<b>Tolerance</b>	<b>VIF</b>
Personal Taxes	0.457	2.186
Corporate Taxes	0.437	2.288
Value Added Taxes Domestic	0.706	1.416
Value Added Taxes Imports	0.700	1.428
Trade taxes	0.469	2.132
FDI inflows	0.770	1.299
FDI stock	0.462	2.166
Trade openness	0.598	1.672
GDP per capita	0.420	2.379

**Source: Author computation (2021)**

#### 4.3.5 Unit Root Tests

Unit root tests were conducted using the Augmented Dickey-Fuller (ADF) test to establish stationarity or non-stationarity of the variables. This was done because use of non-stationary series may produce spurious regression results and possibly calculate wrong t-statistics. Table 4.6 below gives a summary of the stationarity test results. It shows the critical values at different significance levels and the corresponding ADF statistic. The null hypothesis that the residuals are not stationary is rejected if the ADF statistic is more negative than the critical value. The findings show that aggregate tax revenue/GDP, FDI stock, corporate tax, VAT domestic, trade openness, GDP per capita, and FDI composite were stationary at the 1%, 5%, and 10% significance level.

**Table 0.6: Unit Root Test at Level**

Variable	ADF test	1 %	5 %	10 %	Comment
ATRG	-4.314	-3.723	-2.989	-2.625	Stationary
FDII	-1.035	-3.723	-2.989	-2.625	Non-stationary
FDIS	5.532	-3.723	-2.989	-2.625	Stationary
CT	-3.853	-3.723	-2.989	-2.625	Stationary
PT	-2.377	-3.723	-2.989	-2.625	Non-stationary
VTD	-5.707	-3.723	-2.989	-2.625	Stationary
VTI	-1.704	-3.723	-2.989	-2.625	Non-stationary
TD	-4.558	-3.723	-2.989	-2.625	Stationary
TO	-2.711	-3.723	-2.989	-2.625	Stationary
GDPC	4.105	-3.723	-2.989	-2.625	Stationary
FDIcomp	3.631	-3.723	-2.989	-2.625	Non-Stationary

**Source: Author computation (2021)**

FDI inflows, personal tax, VAT imports, trade taxes, and FDI composite exhibited non-stationary trends and thus another unit root test was conducted at first difference. The results of first differencing are presented in Table 4.7 below which show that at first difference the variables became stationary.

**Table 0.7: Unit Root Test at First Differencing**

Variable	ADF test	1 %	5 %	10 %	Comment
DFDII	-6.239	-3.723	-2.989	-2.625	Stationary
DPT	-4.223	-3.723	-2.989	-2.625	Stationary
DVTI	-7.541	-3.723	-2.989	-2.625	Stationary
DTD	-5.375	-3.723	-2.989	-2.625	Stationary
DFDIcomp	-4.762	-3.723	-2.989	-2.625	Stationary

**Source: Author computation (2021)**

#### 4.3.6 Co-integration tests

Cointegration is said to occur when a long run relationship exists between the study variables. The study used Johansen co-integration test to determine if cointegration was present. The null hypothesis is that there are no cointegrating equations. Subsections 4.4 and 4.5 further elaborate the methods of cointegration testing applied and the findings, based on the individual research objectives. Using the trace test

statistic, the null hypothesis is rejected if the trace test statistic is smaller than the 0.05 critical value. Results of the cointegration test in Table 4.8 below show that the trace statistic of 0.5712 is smaller than the value at 5 % critical value, meaning we reject the null hypothesis of no co-integration since there is a maximum of at least two co-integrating equations in the model, implying that there is evidence of a cointegration relationship between the variables in the long run. In order to find the short run dynamics of the long run equilibrium relationship, the study conducted a Vector Auto Regression (VAR) model after conducting the cointegration test.

#### 4.4 Effect of FDI on aggregate tax revenue in the short run and long run

The first objective of the study was to determine the effect of FDI on aggregate tax revenue. The study sought to test the hypothesis: *FDI does not significantly influence aggregate tax revenues in the short run and long run.*

Co-integration test was conducted to determine whether there was a long run and short run relationship between FDI and aggregate tax revenue. This was done by conducting a co-integrating rank of a Vector Error Correction Model (VECM) function in STATA from which the trace statistics and the 0.05 critical value were interpreted. Using the trace test statistic, the null hypothesis is rejected if the trace test statistic is smaller than the 0.05 critical value. Results of the cointegration test in Table 4.8 below show that the trace statistic 0.5712 is smaller than the value at 5 % critical value, meaning we reject the null hypothesis of no co-integration since there is a maximum of at least two co-integrating equations in the model, implying that there is evidence of a co-integration relationship between the variables in the long run.

**Table 0.8: Johansen Co-integration Test**

Trend: constant Sample:1992-2018		Number of observations = 27 Lags = 2			
Maximum rank	parms	LL	Eigenvalue	trace statistic	5% critical value
0	12	-94.11581	.	81.8609	29.68
1	17	-65.962387	0.87575	25.554	15.41
2	20	-53.47098	0.60358	0.5712*	3.76
3	21	-53.185376	0.02093		

**Source: Author computation (2021)**

It was therefore established that there are at least two cointegrating equations, meaning that the series can be combined in a linear fashion and long-run and short-

run models on effects of FDI on aggregate tax revenue could be estimated. In order to find the short run dynamics of the long run equilibrium relationship, the study conducted a Vector Auto Regression (VAR) model to determine the influence of FDI on aggregate tax revenue in the short run. The results of this model are presented in table 4.9 below and they show that in the short run, FDI stock had a negative coefficient (-0.0000114) and this indicates a negative effect on aggregate tax revenue which was statistically significant (P value= 0.000) at 5% significance level. This means that a unit increase in FDI stock would lead to a 0.0000114 decrease in aggregate tax revenue. On the other hand, FDI inflows had a positive coefficient (0.0000115), indicating a positive but statistically insignificant (P value= 0.273) effect on aggregate tax revenue in the short run. Furthermore, the adjusted R-squared of 0.7156 indicates that FDI explains 71.56% of the changes in aggregate tax revenue. In terms of goodness of fit, the low root means square error (RMSE) of 0.01744 indicated a good fit of the model to the data.

**Table 0.9: Short Run Effects of FDI on Aggregate Tax Revenue- VAR Model**

Source	SS	Df	MS	Number of obs	30
				F( 2, 27)	37.48
Model	0.022791784	2	0.011395892	Prob > F	0.000
Residual	0.008209081	27	0.00030404	R-squared	0.7352
				Adj R-squared	0.7156
Total	0.031000866	29	.001068995	Root MSE	0.01744
ATRGR	Coef.	Std. Err.	t-statistic	Prob.	[95% Conf. Interval]
FDII	0.0000115	0.0000102	1.12	0.273	-0.00000957 0.0000325
FDIS	-0.0000114	0.00000168	-6.76	0.000	-0.0000148 -0.00000791

**Source: Author computation (2021)**

In the long run, FDI inflows had a negative impact on aggregate tax revenue and this was significant (P value=0.000) at the 5 % level while FDI stock had a negative impact on aggregated tax but this was not significant at the 5 % level as shown in Table 4.10 below. The normalized coefficients are reversed for interpretation purposes, that is positive coefficients are interpreted as negative and vice versa.

**Table 0.10: Johansen Normalization Restriction Imposed- VECM Model**

Variable	Coefficients	Std. Err.	t-statistic	Prob.
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ATRG	1			
FDII	2.4098	0.1925161	12.52	0.000
FDIS	0.00000211	0.0000153	0.14	0.890

**Source: Author computation (2021)**

From the above, it can be concluded that higher FDI inflows lead to reduced aggregate tax revenues and these results lead to rejection of the null hypothesis that:

*FDI does not significantly influence aggregate tax revenues in the short run and long run*

These findings align with Tabasam (2014) who found that a negative relationship existed between FDI inflows and total tax revenues. Similarly, Jeza et al. (2016) concluded that FDI had a negative impact on aggregate tax revenues. The results also agree with Bayar and Ozturk (2018) results that revealed FDI inflows did not have significant effects on the total tax revenues at the panel level. However, the results disagree with Gropp and Kostial (2000) finding of a positive impact of FDI inflows on the total tax revenue.

#### **4.5 Effect of FDI on disaggregate tax revenue in the short run and long run**

The second objective of the study was to determine the effect of FDI on disaggregate tax revenues. The study therefore sought to test the hypothesis: *FDI does not significantly influence disaggregate tax revenues in the short run and long run.*

Table 4.11 below shows the results of the Johansen tests for co-integration for the different models on effects of FDI on disaggregate tax revenue. The findings indicate that there was at least one co-integrating equation in the model between trade taxes and FDI stock and FDI inflows.

**Table 0.11: Johansen Tests for Co-integration**

Trend: constant	Number of obs =		
28			
Sample: 1989 - 2018	Lags =		
2			
	<b>Maximum</b>	<b>Trace</b>	<b>5%</b>
	<b>rank</b>	<b>statistic</b>	<b>critical</b>

				<b>value</b>
$\ln CT_t = \beta_0 + \beta_1 \ln FDI_{t-1} + \beta_2 \ln FDI_{St-1}$	0	24.8617		29.68
+ $\mu$				
$\ln PE_t = \beta_0 + \beta_1 \ln FDI_{t-1} + \beta_2 \ln FDI_{St-1}$	0	25.0381		29.68
+ $\mu$				
$\ln VTD_t = \beta_0 + \beta_1 \ln FDI_{t-1} + \beta_2 \ln FDI_{St-1}$	0	27.9561		29.68
+ $\mu$				
$\ln VTI_t = \beta_0 + \beta_1 \ln FDI_{t-1} + \beta_2 \ln FDI_{St-1}$	0	13.9164		29.68
+ $\mu$				
$\ln TD_t = \beta_0 + \beta_1 \ln FDI_{t-1} + \beta_2 \ln FDI_{St-1}$	1	3.7829		15.41
+ $\mu$				

**Source: Author computation (2021)**

Table 4.12 below shows the results of conducting VAR model on the disaggregate revenue variables to establish the short run dynamics. The output shows that FDI stock had a positive and statistically significant (P value=0.000,  $\alpha= 0.05$ ) effect on corporate tax revenue, implying that a unit increase in FDI stock would result in a 0.00000268 increase in corporate tax revenue. The results also show that FDI stock had a positive and significant (P value=0.000,  $\alpha= 0.05$ ) effect and contributed to an increase in personal taxes, VAT domestic and VAT imports. The findings also indicate that FDI stock had a positive and statistically significant effect (P value=0.000,  $\alpha= 0.05$ ) on trade taxes implying that a unit increase in FDI stock would yield a 0.00000105 increase in trade taxes. The output indicates negative but insignificant effects of FDI inflows on all the disaggregated tax revenues indices.

**Table 0.12: Short Run Effects of FDI on Disaggregate Tax Revenues**

<b>Variables</b>		<b>Coefficients</b>	<b>Std. Err.</b>	<b>t-statistic</b>	<b>Prob.</b>
CT	FDI inflows	-0.00000534	0.00000277	-1.93	0.065
	FDI Stock	0.00000268	0.000000454	5.91	0.000
PE	FDI inflows	-0.00000297	0.00000281	-1.06	0.300
	FDI Stock	0.00000288	0.000000461	6.26	0.000
VTD	FDI inflows	-0.00000214	0.00000253	-0.84	0.407
	FDI Stock	0.00000169	0.000000415	4.06	0.000
VTI	FDI inflows	-0.000000782	0.00000284	-0.28	0.785
	FDI Stock	0.00000115	0.000000465	2.48	0.020
TD	FDI inflows	-0.000000586	0.00000247	-0.24	0.814



FDI Stock	0.00000105	0.000000405	2.59	0.015
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**Source: Author computation (2021)**

Table 4.13 below shows a summary of the results on the effects of FDI on disaggregate tax revenue in the long run. The findings revealed that FDI inflows had a positive effect on corporate tax, personal tax and VAT imports, this effect was however not statistically significant (P values > 0.05). FDI inflows had a negative effect on trade taxes and this was statistically insignificant. FDI stock had a positive effect on corporate tax, personal tax, VAT domestic, VAT imports and trade taxes, but these effects were statistically insignificant.

**Table 0.13: Johansen Normalization Restriction Imposed**

Variables		Coefficients	Std. Err.	t-statistics	Prob.
CT	FDI inflows	-0.0687031	1.150728	-0.06	0.952
	FDI Stock	-	0.00000116	-0.28	0.780
		0.000000324			
PT	FDI inflows	-0.1145087	1.230904	-0.09	0.926
	FDI Stock	-0.00000026	0.00000124	-0.21	0.834
VTD	FDI inflows	0.3447247	0.8809963	0.39	0.696
	FDI Stock	-0.00000013	0.0000009	-0.14	0.886
VTI	FDI inflows	-2.163885	2.146178	-1.01	0.313
	FDI Stock	-0.0000005	0.0000022	-0.23	0.817
TD	FDI inflows	0.475356	0.9042771	0.53	0.599
	FDI Stock	-0.0000002	0.0000009	-0.21	0.832

**Source: Author computation (2021)**

From the above, it can be concluded that in the short run, FDI stock positively influences disaggregate revenue indices, while FDI inflows have no effect on disaggregate revenues. In the long run, neither FDI stock or inflows had a significant effect on disaggregate tax revenues. These findings disagree with previous studies that established significant effects of FDI inflows and disaggregated tax revenues especially trade taxes. These include Jeza et al. (2016) study which found that FDI inflows positively impacted foreign trade tax revenues. Anwar and Nguyen (2011) research in Vietnam also established that FDI inflows resulted in higher revenues from the international trade tax. Gaalya (2015) similarly found that FDI inflows impacted positively on indirect tax revenue and trade tax revenue.

#### 4.6 Moderating effect of macro-economic variables on the relationship between FDI and tax revenue

The third objective of the study was to determine the moderating effect of macro-economic variables namely trade openness and GDP per capita. The hypothesis related to this objective was: *Macro-economic variables have no moderating effect on the relationship between FDI and tax revenue*

To achieve this objective, the study used two models because it was not possible to compute a composite statistic for Trade Openness and GDP per capita. The study also used hierarchical regression analysis to test the moderating effect of the macroeconomic variables. A composite statistic for FDI was used, that is the average of FDI stock and FDI inflows.

##### 4.6.1 Moderating effect of trade openness on the relationship between FDI and tax revenue

**Table 0.14: Trade Openness Effect on Relationship between FDI and Tax Revenue**

	Model 1	Model 2
Constant	.006 (0.089)	.006 (0.098)
FDIcomp	-0.00001681 (0.000)	-0.00002045 (0.034)
TO	-.017 (0.418)	-.022 (0.373)
FDIcomp*TO		0.00001042 (0.684)
Adjusted R Square	.682	.672
F – Statistics	32.127	0.169

(P - values are in parentheses)

Model 1: variables- constant, FDI composite, TO

Model 2: variables- constant, FDI composite, TO, FDI composite\*TO

**Source: Author computation (2021)**

The results obtained from model 1 in Table 4.14 above show that FDI composite has a significant (P value =0.000,  $\alpha= 0.05$ ) influence on tax revenue. Trade openness was found to negatively influence tax revenue(coefficient=-.017) but this was not statistically significant(P=0.418). FDI and trade openness explain 68.2% of the variation in tax revenue in Kenya. In model 2, the interaction term between FDIcomp and trade openness (FDIcomp\*TO) is added as an explanatory variable to the model

in addition to FDI comp and TO. The results show that FDI comp, TO and the interaction term (FDIcomp\*TO) explain 67.2% of the changes in tax revenue. The results show that addition of the interaction term reduces the explanatory power of the model by 0.01%. The interaction term coefficient (0.00001042) shows the effect of FDI on tax revenue given a unit increase in trade openness. The coefficient is positive thus indicating a positive influence of trade openness on the relationship between FDI and tax revenue. This is however not significant (P value=0.684). It is therefore concluded that trade openness has no moderating effect on the relationship between FDI and tax revenue in Kenya.

#### **4.6.2 Moderating effect of GDP per capita on relationship between FDI and tax revenue**

Table 4.15 shows the summary of the regression results when GDP per capita is considered as the moderating variable. The interaction term of FDI comp and GDP per capita is introduced in model 2.

**Table 0.15: GDP Per Capita Effect on Relationship between FDI and Tax Revenue**

	<b>Model 1</b>	<b>Model 2</b>
Constant	.004 (0.167)	.004 (0.204)
FDIcomp	0.000008186 (0.313)	0.000002028 (0.881)
GDPC	.000 (0.003)	.000 (0.004)
FDIcomp*GDPC		0.00000000504 (0.568)
Adjusted R Square	0.768	0.763
F – Statistics	49.127	0.334

(P - values are in parentheses)

Model 1: variables- constant, FDI composite, GDPC

Model 2: variables- constant, FDI composite, TO, FDI composite\*GDPC

**Source: Author computation (2021)**

From Table 4.15 above, the results in model 1 show that GDP per capita has a significant influence (P value =0.003,  $\alpha$ = 0.05) on tax revenue. FDIcomp and GDP per capita explain 76.8% of the variation in tax revenue in Kenya. In model 2, the interaction term between FDIcomp and GDP per capita (FDIcomp\*GDPC) is added

as an explanatory variable to the model in addition to FDI comp and GDPC. The results show that FDI comp, GDPC and the interaction term (FDIcomp\*GDPC) explain 76.3% of the changes in tax revenue. The results indicate that addition of the interaction term reduces the explanatory power of the model by 0.05%. The interaction term coefficient shows the effect of FDI on tax revenue given a unit increase in GDP per capita. The coefficient is positive thus indicating a positive influence of GDP per capita on the relationship between FDI and tax revenue. This is however not significant (P value=0.568). It is therefore concluded that GDP per capita has no moderating effect on the relationship between FDI and tax revenue in Kenya.

From the above, it can be concluded that trade openness and GDP per capita have no influence on the relationship between FDI and tax revenue. This leads to accepting the null hypothesis that:

*Macro-economic variables have no moderating effect on the relationship between FDI and tax revenue*

#### **4.7 Chapter Summary**

This study aimed to test three hypotheses for acceptance or rejection. These were: FDI does not significantly influence aggregate tax revenues in the short run and long run; FDI does not significantly influence disaggregate tax revenues in both the short run and long run; Macro-economic variables have no moderating effect on the relationship between FDI and tax revenue.

This chapter showed the hypotheses testing and the results. Multiple regression and hierarchical regression models were applied to test the hypotheses of study. The following results were obtained: FDI has a significant negative influence on aggregate tax revenues in the short run and long run; FDI has a significant positive effect on disaggregate revenue in the short run and no effect in the long run; Macro-economic variables have no moderating effect on the relationship between FDI and tax revenue.

The next chapter concludes the study. The results are discussed in context of the study, possible explanations for these results within the Kenyan context are also given in light of similar or divergent findings by previous studies.

## **CHAPTER FIVE**

### **DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents the discussion of findings, conclusions, and recommendations of the study. The discussion of findings is presented in line with the three specific objectives of the study where each finding is compared and contrasted with past findings from the empirical literature done in chapter two of the study. The conclusions of the study, recommendations from the study, areas of future studies, and the research limitations are also presented.

#### **5.2 Discussion of findings**

##### **5.2.1 Effect of FDI on aggregate tax revenue in the short run and long run**

The first objective of the study was to determine the effect of FDI on aggregate tax revenue in the short and long run in Kenya. FDI was measured using two indicators namely FDI inflows and FDI stock. The relationship between FDI and aggregate tax revenue was tested using a regression model with the variables specified in natural logarithm form. The reason for using natural logarithm was because data on tax revenue was obtained in Kenya shillings while data on FDI was obtained in US dollars therefore logarithmic transformation of the variables would result in percentage changes rather than unit changes, since we were dealing with different units. The regression results revealed negative relationships between FDI stock and aggregate tax revenue in Kenya in short run and long run scenarios. In the short run, the effect was significant and this is likely because of tax incentives such as VAT exemption on imported equipment, capital deductions and corporation tax holidays which are expected to immediately reduce taxes paid by companies enjoying the incentives. Shifting of profits from developing countries by multinationals could also be a reason for these results. In the long run, the effect was negative but not significant, possibly owing to expiry of capital deductions and tax holidays. The findings of the study agree with Janský and Palanský (2019) study which showed that an increase in total FDI stock in developing countries from \$5 trillion in 2012 to \$6.18 in 2016 resulted in \$83 and \$95 billion loss in tax revenue in developing countries in

2016, implying that an increase in FDI stock resulted in a decrease in total tax revenues. The findings are in congruence with an OECD publication finding that across developing economies, an additional 10 % share of inward investment stock originating from offshore investment hubs is associated with a decrease in the taxable rate of return of more than 1 percentage point (UNCTAD, 2015b). This impact was greater in nations that had poor capabilities in tax collection, citing that tax avoidance schemes by MNEs and foreign investors lead to lack of fairness in the distribution of tax revenues between jurisdictions that must be addressed (UNCTAD, 2015b). The report concluded that an estimated \$100 billion annual tax revenue lost by developing countries is related to inward investment stocks directly linked to offshore investment hubs.

The findings showed short run positive relationships between FDI inflows and aggregate tax revenue but this was not significant. This finding concurs with Bayar and Ozturk (2018) whose study revealed that FDI inflows did not have significant effects on total tax revenues at the panel level. In the long run case however, FDI inflows negatively and significantly affect aggregate tax revenues and this could be explained by the granting of excessive tax incentives to multinationals in form of tax exemptions and capital deductions. This outcome supports the findings of Jeza et al. (2016) who found that FDI inflows had a negative impact on aggregate tax revenues. The findings agree with Tabasam (2014) who found a negative relationship between FDI inflows and total tax revenues. The findings similarly corroborate those of Camara (2019) which revealed that FDI inflows negatively and statistically affect government tax revenue, possibly due to excessive tax incentives offered to MNEs.

However, the results differ from those of Alabede (2017) who established that FDI inflows had positive effects on total tax revenue performance. Other studies that the findings disagree with are Mahmood and Chaudhary (2013) who tested the impact of FDI inflows on tax revenue in Pakistan and found FDI inflows positively and significantly affected total tax revenues in the short run and long run. The results also diverge from Aslam (2015) who explored the co-integration between FDI and tax revenue in Sri Lanka and found that FDI inflows had a statistically significant positive effect on aggregate tax revenue in the long run.

### **5.2.2 Effect of FDI on disaggregate tax revenue in the short run and long run**

The second objective of the study aimed to determine the relationship between FDI and disaggregate tax revenues in the short run and long run. The results showed that in the short run, there was a positive and significant effect of FDI stock on corporate tax. The long run case showed a positive but statistically insignificant relationship. In the Kenyan context, it is observed that tax expenditures, or tax forgone to the government due to tax incentives was KES 478 billion in 2019 alone. Notably, tax expenditures have grown over the years and they are much more widely provided than they were two decades ago. Rapid globalisation over the last decade or so has also increased MNE activity and enhanced complicated tax avoidance schemes in place today. As FDI stock in the study context refers to the accumulated value of FDI in the 30-year period, the effects of the economic practices in the earlier periods when tax incentives and globalised business may have been less impactful may be the reason behind the observed positive associations between FDI stock and corporate tax revenues. The findings are similar to early research by Keen and Simone (2004) which established that an increase in FDI stock had a positive impact on corporate tax revenues as a share of GDP in developed countries from 1992 – 2001. In developing countries however, an increase in FDI stock saw corporate tax revenues as a share of GDP drop from 2.9% to 2.3% in the same period. In reference to the relation between FDI inflows and corporate tax, corporate tax revenue was found to respond negatively in the short run and positively in the long run, to changes in FDI inflows. However, the coefficients were not statistically significant. Gasparénienè et al. (2019) similarly observed that there was no significant effect of FDI inflows on personal income tax and corporate income tax. Gropp and Kostial (2000) found that although FDI inflows have a positive effect on corporate tax revenues in the European Union, they might also contribute significantly to tax base erosion in some EU nations. Jeza et al. (2016) however, found evidence of a negative impact of FDI inflows on corporate tax revenues.

The study results also indicated that increase in FDI stock was associated with an increase in both domestic VAT and import VAT. The findings disagree with Azarhoushang, Masoumy, and Wu (2015) study that found FDI stock did not increase

VAT from foreign firms in the electronic machinery and textile industry as much increase in VAT was realised from private local firms. This finding also does not give credence to Susic, Stojanovic-Trivanovic, and Susic (2017) findings which showed that free zones specially separated by fence and marked, in which the economic activities were performed under special conditions including providing tax holidays and havens for FDIs, did not pay import duties and value added tax (VAT). These results in Kenya could be explained by the spill over effects of FDI to local companies and resulting tax base expansion. Foreign firms contribute to local industries through knowledge and technology transfers, as well as establishing value-adding supplier relationships along the production value chain including increase in imports used for production. Another FDI spill-over effect is employment creation which increases consumption patterns of the formally employed as well as the informal sector workers. These benefits accruing to local firms lead to them paying more indirect taxes due to increased productivity and increased consumption by the population (Gnangnon, 2017). On the other hand, both domestic VAT and VAT on imports were found to respond negatively to increase in foreign inflows in the short run, although there was no strong evidence as the coefficients were not statistically significant at the 5% level. Existence of VAT exemptions to attract FDI could be a likely reason to explain the results. In the long run case, VAT on imports was found to increase with an increase in FDI, this is likely a result of the spill overs to local industries earlier discussed. Gasparèniènè et al. (2019) similarly established a positive and statistically significant effect of FDI inflows on value added taxes in Lithuania.

In view of the impact of FDI on trade taxes, FDI stock was found to positively impact trade taxes in the short run and no significant effects were observed in the long run case. The reason for this outcome could be that established multinational firms boost import and export volumes which increase trade taxes such as customs duties and excise duties. The results could also be explained by the existence of fewer and less impactful tax incentives in earlier periods, compared to more recent years. FDI inflows had negative albeit statistically insignificant effects on trade taxes in both short run and long run scenarios. The results do not concur with Jeza et al. (2016) finding that FDI inflows positively impacted foreign trade tax revenues. The findings further diverge from earlier studies that established a positive and significant effect of



FDI inflows on trade taxes. For example, Anwar and Nguyen (2011) research in Vietnam established that FDI inflows resulted in higher revenues from international trade taxes. Gaalya (2015) also found that FDI impacted positively on indirect tax revenue and trade tax revenue, because FDI increases the volumes of imports which boosts international trade taxes such as import duties, excise duties and VAT.

### **5.2.3 Moderating effect of macro-economic variables on relationship between FDI and tax revenue**

In the first model using trade openness as the moderating variable, trade openness had a moderating effect on the relationship between FDI and tax revenue but this change was not statistically significant. This result goes against previous studies that have established positive and significant associations and relationships between trade openness on tax revenues. Such studies include Gaalya's (2015) findings that trade openness was found to positively impact on disaggregate and aggregate tax revenues, suggesting that trade liberalization increases the performance of tax revenue. Camara's (2019) study on long-term effects of FDI on tax revenue among developing countries from 1990 to 2015 that found trade openness was positively correlated to tax revenue. In the second model, GDP per capita was included as the moderating variable and the findings revealed that GDP per capita had a 0.003 *R* square change value but this change was not statistically significant. This finding is not in congruence with earlier studies that found a positive and significant relationship between GDP capita and tax revenues. For example, Camara (2019) study on long-term effects of FDI on tax revenue among developing countries from 1990 to 2015 that found GDP per capita was positively correlated to tax revenue.

### **5.3 Conclusions**

The first objective of the study was to determine the effect of FDI on aggregate tax revenue in the short run and long run. The study concludes that FDI stock has a negative effect on aggregate tax revenues in the short run but no effects were found in the long run. Moreover, it is the study's conclusion that FDI inflows have no effect on aggregate tax revenue in the short run but do have a negative effect in the long run.

The second objective of the study was to determine the effect of FDI on disaggregate tax revenues in the short run and long run. It is this study's conclusion that an increase

in FDI stock increases disaggregated tax revenue indices while no effects are observed in the long run. The study further concludes that FDI inflows have a negative but insignificant effect on disaggregated tax revenue indices in the long run.

The third objective of the study was to determine the moderating effect of macro-economic variables on relationship between FDI and tax revenue. The moderating variables considered in this study were trade openness and GDP per capita. The results from the two hierarchical regression models revealed that trade openness and GDP per capita had a positive but insignificant effect on the relationship between FDI and tax revenue. Therefore, the study concludes that GDP per capita and trade openness have no moderating effect on the relationship between tax revenue and FDI.

#### **5.4 Policy Recommendations**

The study recommends that the Kenyan government should work to reduce fiscal tax incentives, as FDI inflows were found to have a negative effect on total tax revenues in the long term. In 2017, tax incentives, including tax exemptions to foreign investors exceeded KES 400 billion and therefore reducing these exemptions would significantly improve revenue collection efforts.

In place of excessive fiscal incentives, the government of Kenya should consider promoting a conducive business environment for foreign investors to encourage new investments as well as retention of existing FDI stock, as these investments come with volumes of imports which boost international trade taxes such as import duties and excise duties. There are also spill over benefits of FDI to local businesses which lead to tax base expansion, as seen by the positive effects of FDI on indirect taxes such as VAT. Policies aimed at retaining FDI stock would also be beneficial to the government in increasing corporation taxes paid due to the positive effects observed between FDI stock and corporate taxes. While tax incentives offered to MNEs in order to attract FDI inflows would initially be associated with little or no tax benefits to the country, these incentives are enjoyed for a limited period of time and upon expiry of the tax holidays, MNEs start paying taxes just like domestic firms do. Retaining foreign investments can be strengthened through ensuring economic and political stability in the country, as well as improving infrastructure and technology which will open up new domestic markets. In addition to this, the government should

also enhance international cooperation as envisioned by the OECD framework to combat profit shifting. This will ensure tax avoidance and tax evasion loopholes which enable revenue leakage from Kenya to parent countries of the MNEs or tax havens are sealed.

Last but not least, while policy makers should continuously evaluate their tax regimes to encourage foreign direct investments whilst safeguarding revenue, the government should also place more sustained efforts towards finding alternative means of revenue mobilization.

### **5.5 Limitations of the Study**

The study was limited to secondary data and did not collect any primary data to provide contextualization of the findings by using quantitative and qualitative methods. The study was limited to the 1989 to 2018 period and was also limited to Kenya thus it may be difficult to generalize these results to other periods and geographical contexts.

### **5.6 Suggestions for Further Research**

This study aimed at establishing the relationships between foreign direct investment (independent variable) and tax revenues (dependent variable) in Kenya. The analysis was a regression analysis and presented results on changes in tax revenues given a unit change in FDI. There is need for further study to examine Granger causality between FDI indices and tax revenues.

The researcher also suggests further examination into the effects of FDI on direct and indirect taxes, as some of the results diverged from previous studies and it would be beneficial to determine why this is the case. The negative effect of FDI inflows on trade taxes in the long run for example, diverged from previous studies which established positive relationships.

Finally, further studies are required to examine relationships between macro-economic variables, FDI and tax revenue. This study only used two macro-economic variables, however other factors could be considered to improve effectiveness of policy recommendations.

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## APPENDICES

### APPENDIX 1: ETHICAL APPROVAL



14<sup>th</sup> April 2020

Mrs Nasibu, Sharon  
makenash@gmail.com

Dear Mrs Nasibu,

**RE: The Effect of Foreign Direct Investment on Tax Revenue in Kenya**

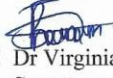
This is to inform you that SU-IERC has reviewed and **approved** your above research proposal. Your application approval number is **SU-IERC0746/20**. The approval period is **14<sup>th</sup> April 2020 to 13<sup>th</sup> April 2021**.

This approval is subject to compliance with the following requirements:

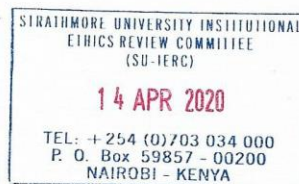
- i. Only approved documents including (informed consents, study instruments, MTA) will be used
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-IERC.
- iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-IERC within 72 hours of notification
- iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-IERC within 72 hours
- v. Clearance for export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to SU-IERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://oris.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely,


  
for: Dr Virginia Gichuru,  
Secretary; SU-IERC


Cc: Prof Fred Were,  
Chairperson; SU-IERC



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Email [info@strathmore.edu](mailto:info@strathmore.edu) [www.strathmore.edu](http://www.strathmore.edu)


**APPENDIX 2: RESEARCH PERMIT**

  
**REPUBLIC OF KENYA**

  
**NATIONAL COMMISSION FOR  
SCIENCE, TECHNOLOGY & INNOVATION**

Ref No: **929946** Date of Issue: **21/January/2021**


**RESEARCH LICENSE**




**This is to Certify that Miss.. Sharon Makena Makena of Strathmore University, has been licensed to conduct research in Nairobi on the topic: THE EFFECT OF FOREIGN DIRECT INVESTMENT ON TAX REVENUE IN KENYA for the period ending : 21/January/2022.**

License No: **NACOSTI/P/21/8656**

**929946**  
Applicant Identification Number

  
Director General  
**NATIONAL COMMISSION FOR  
SCIENCE, TECHNOLOGY &  
INNOVATION**

Verification QR Code



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