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The Moderating Effect of Green Investment on the Relationship between Tax Incentives and Tax Revenue Collection from Companies Listed at the Nairobi Securities Exchange, Kenya.

Njogu Tabitha[1], Lucy Rono[1], Stephen Chelogoi[1] and Tobias Olweny[1]

[1] Kenya School of Revenue Administration, Nairobi, Kenya

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Abstract

This study's main goal was to ascertain how green investment affected the relationship between tax incentives and tax revenue collection from Kenyan companies listed on the Nairobi Securities Exchange. Finding out how corporation tax incentives affect tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya; how value-added tax incentives affect tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya; how customs incentives affect tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya; and figuring out how green investment influences the relationship between corporation tax incentives, value-added tax incentives, customs tax incentives, and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya have been the specific goals of the study. The triple bottom line theory served as the study's main theoretical framework. This study, which used an explanatory research approach, examined secondary data gathered over a five-year period from 2019 to 2023 to focus on the sixty-seven businesses listed on the Nairobi Securities Exchange. The Capital Markets Authority's standards for listed firms include the publication of sustainability reports and audited financial reports, which is how the study acquired its data. Correlation and multiple regression analysis were used to analyze descriptive and inferential statistics. Corporation tax incentive has a positive and significant effect on tax revenue collection with $\beta 1 = 0.0226592$ ($p = 0.043 < 0.05$). VAT incentives have a positive and significant effect on tax revenue collection with $\beta 2 = 0.0093434$ ($p = 0.011 < 0.05$). Customs duty incentives have a positive and significant effect on tax revenue collection with $\beta 3 = 0.0000221$ ($p = 0.000 < 0.05$). The study found that green investment moderates the relationship between: Corporation tax incentive and tax revenue collection, with a coefficient of $\beta 5 = 0.0000123$ ($p = 0.010 < 0.05$). VAT incentives and tax revenue collection, with a coefficient of $\beta 6 = 0.00000881$ ($p = 0.000 < 0.05$). Customs duty incentives and tax revenue collection, with a coefficient of $\beta 7 = 0.00000476$ ($p = 0.004 < 0.05$). Recommendations in view of the study's conclusions that tax incentives have a positive impact on tax revenue collections, the Kenyan government ought to think about updating and growing its tax incentives program, especially the ones related to corporation tax, VAT, and

customs duty, in order to promote compliance and boost investment. Government incentives for environmentally sound behaviors and investments should be strengthened in light of the moderating influence of green investment on the relationship between tax incentives and tax revenue collection. This can entail providing tax exemptions or other financial incentives to businesses who use eco-friendly products, energy-saving procedures, or recycle their waste. Research recommendations included conducting a study to look into how tax reforms have affected Kenya's ability to collect taxes. One possible course of action would be to carry out research on how digitizing tax systems affects tax revenue collecting.

Keywords: Green investment, Tax Incentives, Tax Revenue Collection

Introduction

Taxes are fees imposed by a nation's government on its citizens in exchange for their support or to help with the provision of services (Aamir, Qayyum, Nasir, Hussain, Khan & Butt, 2011). It is not a donation, nor is it a voluntary payment made by the taxpayer. Instead, according to Garner (1999), it is an orderly payment to the government. While stimulating and directing the nation's economic and social growth is the primary goal of revenue collecting for most governments, there are a number of factors that must come into play for the exercise to be carried out successfully. For the majority of nations, the evident difficulties in revenue collecting are universal (Garner, 1999).

Green investment refers to businesses or funds dedicated to minimizing harmful pollutants or promoting sustainable resource usage. These initiatives may manifest through the adoption of alternative technologies like solar or wind power, or through research aimed at enhancing resource efficiency (UN Climate Change (COP26), 2021).Tax incentives play a significant role in corporate decision making, thus influencing investments. The incentives are a set of policies or provisions of the law given by a government to achieve economic objectives. Tax Incentives reduce tax liabilities by offering exemptions or allowances to taxpayers (IMF, 2009).

In business, tax incentives have a substantial effect on investment decisions because they reduce the tax burden hence operational costs. The tax savings offer reallocation of the financial resources to other crucial aspects of a business such as expansion, investment, research and development. In addition, they safeguard the cashflow hence liquidity and financial stability.

Ultimately, tax incentives can boost shareholder value hence investments. Companies may use the extra funds to pay dividends, repurchase shares, or reinvest in the business, all of which can enhance shareholder returns.

Globally, taxation is the most practical way to manage limited resources with the ultimate aim of funding public spending to provide the general public with goods and services. However, non-tax revenue, a different source of funding for public spending, is essential to supporting public budgets and guaranteeing their long-term viability (Cheeseman & Griffiths, 2010). Taxation, debt financing from financial institutions and international governments through bilateral and multilateral agreements, and state company income are the three main ways that public expenditures are funded globally (Kayaga, 2010). Government expenditures are largely financed by tax revenue from taxes, customs, cess fees, excise charges, license fees, and other sources, which also support ongoing government activities (Gruber, 2008). According to the reviewed literature, Value Added Tax (VAT) is the primary source of tax revenue for members of the European Union (EU), with corporate income tax being less important. The Tax Reform Act of 2008 in Germany lowered the general tax rate by more than ten percent. Value Added Tax (VAT) was observed to have increased by 3% during the same period, from 16% to 19%. This suggests that the nation has refocused its attention on indirect taxes throughout the whole tax system. As a result, the Fair Tax Act was passed in 2007 with the intention of replacing the federal income tax and other levies with a national sales tax.

According to Pearce,1989, green investments were as a result of social costs and environmental degradation that had a direct effect on the current price. The green is therefore the middle way to obtain sustainability in unrestricted markets (Pearce, 19920). The growth of green investment has increased due to the massive concerns by environmental economists (Pearce, 1992; Barbie, 1987). Given the broad nature of green investments, the definition varies based on options, strategies and interests of stakeholders (Pattberg& Zelli, 2015; Mazzoni, 2020). United Nations Environmental Protection (UNEP) organization defines green in investments as economic activities that improve people's well-being and ensure social justice by reducing environmental risks (UNEP, 2011). The green investment is an umbrella concept that identifies consequences for growth and wellbeing while reducing natural resource risk, (Weng et al., 2018).

In the United States of America, the Financial Accounting Standards Board developed new guidance to enhance clarity and streamline processes, while the Internal Revenue Service issued guidance on the transferability of green investment tax credits by mid-2023. Under these regulations, corporations can offset up to 75% of their federal income tax liability and retroactively apply this offset up to three years, effectively receiving a tax rebate to reinvest in the Environmental Social

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Governance space -positive opportunities (Financial Accounting Standards Board, (2023); Internal Revenue Service, (2023) to companies trading. To be clear, in order to reach global ambitions to triple the world's generation of renewable energy by 2030, additional subsidies in more regions are imperative. Companies require renewable energy credits RECs to advance their sustainability goals, including the nation's commitment to achieving net zero emissions by 2050. These credits create a market and revenue stream for renewable energy producers, enabling companies to align with a sustainable, potentially reducing transition risks and capital costs (US Environmental Protection Agency, 2022).

Green aligned investments offer various social benefits, including job creation in infrastructure, human capital, and research and development. The Investment Tax Credit (ITC) under the IRA provides a base credit of 20% and a bonus credit of 80% for renewable energy projects, subject to certain wage and apprenticeship requirements. Additionally, there are three adder credits for meeting domestic content requirements, locating projects in defined energy communities, and undertaking low-income solar activities (Internal Revenue Service, 2022).

Investing in renewable energy, particularly in rural communities, can stimulate economic growth and provide tax equity. Community solar investments offer social advantages by providing discounted electricity to low-income families (Internal Revenue Service, 2022).

According to Elena et al., 2020, a shift to a circular economy is necessary for the adoption of a new paradigm for social development, based on her research on green investments in Russia. It calls for using waste products, cutting greenhouse gas emissions, and utilizing renewable energy sources (Bazaluk et al., 2020). The "green" recognizes and considers more than just the value of natural wealth. In order to maintain and improve the environment, it also calls for investments in environmental protection. The Earth is seriously threatened by climate change. With the adoption of the Paris Climate Agreement in 2016, it is now feasible to alert investors and companies to the urgency, certainty, and speed of the global shift to a "green" economy. Implementing this agreement should expedite the introduction of technological advancements and appropriate legislation that permit investment in low-carbon and "green" assets and projects (International Finance Corporation 2016). Furthermore, significant financial resources are required to support and fund environmental protection initiatives. There are fewer carbon-intensive infrastructure and technologies among them. The issue is how to use low-carbon transportation, technologies, wind and solar power plants, and buildings and entire cities to become more energy- and water-efficient (Peeters, 2005; Štreimikienė et al., 2016; Moumen et al., 2019).

Environmental tax reform can encourage businesses to spend more in green, efficient technology innovation in order to avoid paying taxes, according to research on environmental taxes conducted by Sharif et al. (2022) on six associations in South East Asian nations between 1995 and 2018. These findings corroborate the estimates made by the OECD (2010) and Karmaker et al. (2021). As per the OECD (2010) analysis, environmental taxes have the potential to stimulate creativity, which is a vital component of economic growth. The estimates showed that one of the major drivers of green innovation is economic growth. Applications for patents pertaining to the environment rose as the grew.

Glick, (2005), growth, profitability, and market value are the key dimensions of evaluating the firm's ability to generate returns. Growth focuses on the institution's ability to expand in size and increase revenue. The size of a company is indicated by the possibility of reducing operation expenses by utilizing economies of scale and influence on a larger market which in turn increase its earnings. The firm's profitability on the other hand focuses on the competitive edge and the possibility of growth of revenues in the future (Santos & Brito, 2012).

From a global overview reduced operational costs of tax incentives has significantly influenced investment decisions, the most prominent case being a fiscal health study by Naz, Ijaz, and Naqvi, (2016) on the cement industry in Pakistan. In this study the operational efficiency and maximization of stakeholders' wealth indicate the financial/ fiscal health of the company and the ability to proceed with its operations. The study revealed that financial ratios are key indicators of investment decisions making reference to similar studies done in Iran, India, Pakistan and other international scenarios. Making reference to Selvam et al., (2004) on the key investment ratios, the study utilized common ratios that suit the cement industry such as asset use ratios, profitability, leverage, liquidity and cash conversion rations from 2006-2014.The critical ratios for this study was the ROI and ROA as they are key metrics that drive external investment in the cement industry (Chandrasekaran, 1989; Dhanalakshmi, 1994).

In the Russian Federation, a comparable study by Rumna, Balandina, and Bannova (2014) sought to determine the connection between tax breaks, investment choices, and innovation. The researchers evaluated the changes incorporated in the Russian tax code for a period of five years. The minute nature of tax incentives showed minimal investment and lagging financial performance; thus, they evaluated the impact of the existing incentives. The findings were that the tax incentives were insufficient to spur investments. They recommended a model that advocates for reasonable tax assessments and key tax motivators of investment in relation to revenue growth and financial performance as a result of tax cuts.

An assessment of key determinants of investment decisions was conducted by Samiloglu, Oztop and Kharaman (2016) using 51 companies listed at the Stock Exchange in Istanbul. The study covered a period on 10 years (2005-2015). They used return on investments (ROI) and return on asset (ROA) to analyze the financial performance of this companies because they were the most agreeable to lenders and investors. The key findings of this study were that ROI and ROA gave a panoramic view of the correlation between investment and financial performance.

A study conducted in River State, Nigeria by Chukwumerije and Akinyomi (2011) on the effect of tax

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incentives on Small and Medium Enterprises revealed that tax incentives have a direct relationship to growth, profitability, productivity and development. The study was conducted on 11 out of the 2022 registered SMEs and through questionnaires they collected data from 260 stakeholders of this enterprises. They focused on the wide range of tax incentives available to SMES after which they utilized chi-square and frequency distribution to evaluate the data. In the conclusion, they advised the Nigerian government to regularly adjust tax breaks in accordance with the demands of the economy.

In Kenya, similar studies have been conducted, Memba (2011) analyzed financial performance using investment returns per unit, asset return, and sales returns—however accounting measures posed a challenge because of non-financial measures such as depreciation and inventory costs. Nyabwanga et al. (2013) used Return on Asset a more stable measure to evaluate the financial performance of small and medium-sized enterprises in Kissi Municipality.

According to Zee, Stotsky & Ley, (2001), tax incentives refer to the reduction of the effective burden of tax. The scholars made comparisons on the difference between the tax burden in the absence of a tax incentive and the relative burden of tax if the project qualifies for an incentive. The difference in the burden of tax is what they refer to as an incentive of tax. Easson (2001) on the other hand defines tax incentives as exemptions, deductions, and special exclusions that result in credits, preferential rates of tax, or a deferred tax liability. The incentives can be in the form of tax holidays for a specified duration, current deductions of expenditures or reduced tariffs on imports.

Many scholars have recently become interested in the impact of tax incentives on investments in the green economy (Teraoui, Kaddour, Chichti & Rejeb, 2011). Tax advantages, according to researchers, boost investments that improve the financial stability of companies that are already in operation. Countries all over the world have embraced proactive tax incentives that focus on environmental sustainability to deal with the global competition. The tradition of giving tax incentives to stimulate investments began in the industrial era and has been augmenting until today. In the industrial era, governments offered reduced tax burdens to encourage trade within their territories.

In Europe, countries such as Ireland have experienced dynamic economic growth due to investments over the last two decades as a result of enticing tax incentives. Before 1960, the Irish economy was experiencing economic stagnation as a result of insufficient tax incentives. In 1959, an incentive known as the Shannon Free Zone whose aim was to promote exports was established to further support the former regime where exports profits were tax free, (Ricupero, 2000).A 10% income Tax rate was introduced for Export Processing zone focusing on manufacturing and financial services in 1981. Ireland therefore reports the fastest economic growth in Europe since the 80s.These incentives increased investments from foreign firms thus a contribution of 60% output from this firms. Manufacturing grew by 45% from 0% in the late 50s (Ricupero, 2000).

In America, the state of New Jersey, United States of America, in 1971, offered a tax incentive to Alexander Hamilton a well-known businessman to invest in that area by setting up a factory. This trend was picked up by other US states in the 1800s by capital financing to private institutions to invest in industries and infrastructural development to stimulate industrial growth (Buss, 2001). Moreover, by 1844, Pennsylvania had investments whose value exceeded 100 million US dollars in over 150 state-owned corporations. In view of this development states rivalry increased for instance the conflict between Philadelphia and Pittsburgh on investment in road, rails, bridges, and banks.

In 1936, Mississippi was the first US state to introduce bonds that were tax-exempt to encourage economic growth. The first business development corporation was established in Maine in the year 1949 which grew over the years to an additional twenty-one by 1949 (Engen& Skinner, 1996).In 1955, New Hampshire's, first finance authority was established and other states followed suit by establishing nineteen others by 1963.Between 1956 and 1963, sanctions to tax concessions were introduced by seventeen states but the unemployment calamity of the economic depression of 1970 to 1980 compelled many states to reintroduce tax incentives to stimulate investments (Buss, 2001).

From being a poor nation in the 1960s to a resource-dependent economy in the 1970s to a newly industrialized economy in 2020, Malaysia has seen tremendous economic transformation. The growth can be attributed to tax holidays for five years that were aimed at stimulating industries in import substitution. By 1970, import substitutions had achieved growth thus there was introduction of Export processing zones (Sinenko&Mayburov, 2017).

According to research done by UNIDO 2011, tax incentives were ranked 11 on the motivation factors that influence investments. The research was done in 7000 firms of African countries. The research confirmed that in 1980s, no low-income, sub-Saharan country operated a tax-free zone. Due to low economic growth, the sub-Saharan countries increased tax incentives by 80% in form of tax holidays in 2005 to stimulate investments which was a major increase from 40% of the 1980s (IMF, 2009).

The tax incentives contributed to dramatic turnarounds in countries such as Mauritius that developed reforms in 2006 to regularize tax incentives particularly the reduction of investment tax credits, exemptions, and tax holidays. Following these reforms corporate tax revenue and foreign direct investments increased (IMF, 2011). In Tanzania, the government introduced tax exemptions in 2012 which were equivalent to the $1.1 billion dollars they borrowed from China to build the gas pipeline. This incentive has expanded Tanzania as an investment hub (FT, 2013) Morrocco has upgraded its budgeting process to include an elaborate tax expenditure report to track the impact of tax incentives (OECD, 2008).

In Kenya, the economic objectives of different political regimes have been influencing tax incentive decisions. The two most frequently stated goals have been to increase employment and draw in foreign direct investment. In 1990,

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tax incentives such as the establishment of EPZA to stimulate investments in the export sector were introduced thus creating an enabling environment. The EPZA incentives included a ten-year tax holiday, as well as a 25% corporation tax after the 10 years. The two incentives are still effective up to date.

Prior to 1992, there were a lot of bottlenecks facing the export sector which led to the establishment of EPC to address these challenges as well as promote the export sector performance. A manufacturer under bond known as TREO was established vide a legal notice number 129 to provide 100% import duty remission for raw materials for the manufacture of export commodities. In addition to this, a remission of duty was provided to export manufacturers of goods and services. In 2014, an institution known as KenInvest was formed to stimulate investment in Kenya, its major role is to track investors and provide after-sale services. The Kenya tax incentive arena is dynamic as well as robust that allow tax reliefs on double taxation, investment allowance, tax immunities, discounted investment plans, and tax holidays for EPZs and SPZ.

In conclusion, tax incentives stimulate investments, address unemployment, and reduce tax- related expenses thus encouraging investments by institutions (Phillips, 2010). A study by Klemn and Parys, (2009) was conducted to establish the techniques of tax motivation. The research established that tax credits enhanced investments. The researchers examined information from 40 nations between 1985 and 2004.The scholars analyzed the data using spatial econometrics and established that tax holidays are in competition with corporate income tax. There was however noted that there was no competition between tax discounts and investments. The reduction of corporate income tax and tax holidays stimulate economic growth as evidenced by dynamic panel data collected by Klemn and Parys, (2009).

Harju & Kasonen, (2012) studied tax reforms in Finland between 1997 and 1998 evaluating their impact on economic activities. The empirical data and theoretical framework revealed that tax relief plans have a causal relationship with the economic activities of small holder businesses. The concept of reduced taxation has a direct relationship with efforts invested by small holes businesses.

According to Xing, Cui and Qu, (2017), there is a direct correlation between capital control, profits before tax and investments as a result of tax reliefs. The scholars study the response to tax reliefs by foreign firms In China. They conducted an industrial survey from 2000 to 2013 using firm level data generated by China's industrial enterprise survey. The study revealed competition of Chinese cities over average as rates. In conclusion the competition is as a result of incentives' influence on profits and efficient resource use by the cities.

Tax incentives are diverse in nature and range from, low tax rates, tax exemption, special zone tax reductions, investment allowances and tax reliefs (Tembur, 2016). Tax incentives are stimulants of investments and are used to achieve fiscal economic objectives (Steven & Ana, 2007). The reliefs are selective and can lead to preferential tax regimes (Sally& Shelly, 2010). The KRA claims that tax incentives provide better trading conditions than the current tax system. Such favorable conditions can influence the investment decisions of a person. Most of the conditions are industry-focused and targeted to achieve specific economic objectives. They can adopt various forms. In the Kenyan context, they include investment allowances, tax credits, tax exemptions, tax relief periods, and special economic zone taxes.

The Nairobi Securities Exchange (NSE) is a leading African Exchange, based in Kenya – one of the fastest-growing economies in Sub-Saharan Africa. Founded in 1954, NSE has a six decade heritage in listing equity and debt securities. It offers a world class trading facility for local and international investors looking to gain exposure to Kenya and Africa's economic growth. NSE demutualized and self-listed in 2014. Its Board and management team are comprised of some of Africa's leading capital markets professionals, who are focused on innovation, diversification and operational excellence in the Exchange.

NSE is playing a vital role in the growth of Kenya's economy by encouraging savings and investment, as well as helping local and international companies access cost-effective capital. NSE operates under the jurisdiction of the Capital Markets Authority of Kenya. It is a full member of the World Federation of Exchange, a founder member of the African Securities Exchanges Association (ASEA) and the East African Securities Exchanges Association (EASEA). The NSE is a member of the Association of Futures Market and is a partner exchange in the United Nations-led SSE initiative.

Statement of the Problem

The world economy is facing urgent difficulties from the growing problems of environmental degradation and climate change, which pose hazards to human health as well as income and productivity levels (Mohanty and Mohanty, 2019; Wade and Jennings, 20). Growing economic activity results in higher energy consumption and greenhouse gas emissions, which worsen environmental damage. According to Swiss Re Institute (2021) projections, developing economies such as Kenya could be most severely affected by climate change, which could cause a loss of approximately 18 percent of world GDP. The UN Production Gap Report 2021 highlights that despite strenuous efforts to comply with the Paris Agreement, the present production plan exceeds the accord's limits, necessitating immediate action to drastically cut carbon emissions and accomplish sustainable development goals (UNEP, 2021).

In response to these challenges, governments have devised strategies to reinforce adherence to the Paris Agreement through fiscal incentives, such as green investment tax incentives. Notably, initiatives like renewable energy credits in the United States and proposed renewable energy investment tax credits in Canada have catalyzed substantial private sector investments in clean energy and decarbonization projects (US Environmental Protection Agency, 2022). Concurrently, the European Union's subsidy efforts have attracted over 100 companies to embrace sustainability incentives, while Rwanda's proactive measures, including investments in e-waste management and the launch of a Carbon market framework post-COP28, underscore the

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potential for impactful climate action in Africa (Rwanda, Ministry of Environment, 2023).

Despite the implementation of factors aimed at improving revenue collection in Kenya, there is still a significant level of non-compliance among some companies. Despite its efforts to improve revenue collection, the KRA has recently fallen short of its income targets, especially those related to VAT. For example, compared to other countries, Kenya's reaction to green investment incentives has been lackluster, even with programs like customs incentives, VAT exemptions, and reductions in corporation taxes. This disparity is glaring, with only sixteen Saudi Arabian companies engaging in carbon market trade, highlighting the untapped potential for green investments that could contribute to tax revenue collection (RVCMC, 2023). Considering the pivotal role of revenue generation, the limited contribution of green investment tax incentives is particularly concerning.Thus, the goal of this research is to ascertain how green investment influences the relationship between tax incentives and tax revenue collection from Nairobi Securities Exchange-listed businesses.

Objectives of the Study

The general objective of this study was to determine the moderating effect of green investment tax incentives on tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya.

Specific objectives of the study

The specific objective of the study was:

i. To determine the effect of corporation tax incentives on revenue collection from companies listed on the Nairobi Securities Exchange, Kenya.

ii. To determine the effect of value-added tax incentives on tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya.

iii. To determine the effect of customs incentives on tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya.

iv. To determine the moderating effect of green investment on the relationship between corporation tax incentives, value-added tax incentives, customs tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya.

Literature Review

Tripple Bottom Line Theory

The Triple Bottom Line (TBL) introduced by John Elkington in 1994 represents a transformative paradigm in business, transcending the traditional focus solely on financial performance (Elkington, 1994). Initially, businesses operated with profit maximization as their primary objective, prioritizing financial gains above all else. However, Elkington's concept revolutionized this narrow perspective by advocating for a broader evaluation of organizational impact and success (Elkington, 1994).

The TBL comprises three key dimensions: environmental sustainability, social responsibility, and economic prosperity (Elkington, 1994). The environmental dimension underscores the importance of minimizing ecological footprint, reducing resource consumption, and mitigating environmental degradation (Elkington, 1994). Social responsibility encompasses the ethical and moral obligations of businesses towards stakeholders, including employees, communities, customers, and society at large (Elkington, 1994). Economic prosperity pertains to the financial performance and stability of businesses, but within the context of the TBL, it is evaluated in conjunction with environmental and social considerations (Elkington, 1994).

At its core, the TBL emphasizes the interconnectedness of environmental, social, and economic factors, highlighting that sustainable business practices are essential for long-term viability and resilience (Elkington, 1994). By integrating the principles of the TBL into their operations, organizations can strive towards a more regenerative and sustainable future (Elkington, 1994). The implications and applications of the TBL are manifold. It serves as a transformative framework that guides businesses towards adopting more sustainable practices and models (Elkington, 1994).

Additionally, TBL offers measurement tools and metrics that enable organizations to assess their performance across environmental, social, and economic dimensions (Elkington, 1994). By integrating TBL principles into their business strategies, organizations can enhance resilience, mitigate risks, and capitalize on opportunities for innovation and growth (Elkington, 1994). Furthermore, the TBL encourages businesses to engage with a wide range of stakeholders to foster transparency, accountability, and trust (Elkington, 1994).

The Triple Bottom Line theory was essential in this study as it embraces the principles of environmental sustainability, social responsibility, and economic prosperity, organizations can not only achieve financial gains but also contribute positively to the well-being of people and the planet (Elkington, 1994). It served as a guiding framework for creating value that extends beyond monetary profits (Elkington, 1994).

Despite Triple Bottom Line (TBL) theory being a key theory for this study it faces criticism for its measurement approach, lack of integration across dimensions, and serving more as a compliance tool evidenced by corporate reports from a study done in 40 listed companies in Japan by Archel, P., Fernandez, M., & Larrinaga, C. (2008). Other theories such as Optimal tax theory was considered as it offers insight into incentivizing sustainability through tax mechanisms. Neoclassical theory emphasizes market-driven solutions for sustainability. Normative theory provides ethical frameworks for decision-making.

Optimal Tax Theory

Optimal tax theory offers valuable insights into the development of tax regulations that minimize market disturbances resulting from poor taxation policies (Mirrlees, 1976). This theory posits the existence of a neutral tax, theoretically designed to prevent distortions and inefficiencies in the market. This viewpoint states that taxpayers are faced with a decision between two investment projects that are mutually exclusive and have identical pre-tax risks and profits, providing all other variables stay the same. Rational industry

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players would naturally opt for projects with minimal tax risk, fostering prudent decision-making.

This rationalization underscores the impact of taxes on business behavior, a phenomenon economist have explored over time. Lisi (2015) and Saez and Stantcheva (2016) employed the tax model to explain tax compliance in the UK and the social marginal welfare weights of taxes in the US, respectively. The idea was used in an African context by Babatunde, Ibukun, and Oyeyemi (2017) to clarify the relationship between income, taxes, and economic growth on the continent.

The optimal tax model also provides insights into the dynamics of tax stimulus packages and their effects on behavior. For instance, the introduction of low- or no-tax employee allowances is intended to promote financial flow within the economy, as it is recognized that the burden of income taxes on employee compensation benefits only economic actors.

Based on a study done on EU VAT reforms by Tax Foundation, 2023, to address the UN's request for public input on inclusive and effective tax Cooperation it was evident that the optimal tax theory fails to address the practical challenges faced by policymakers and retailers in accurately applying and enforcing multiple tax rates. Consequently, its theoretical elegance falters when confronted with real-world complexities, undermining its applicability and effectiveness. Therefore, neoclassical and normative theories was considered, given that the neoclassical theory focuses on market-driven solutions, advocating for simplicity and efficiency in economic policies. Given the administrative burdens and complexities highlighted in the critique of optimal tax theory, neoclassical principles of simplicity and efficiency offer a contrasting perspective that resonates with practical considerations. Normative theory provides ethical frameworks for decision-making, emphasizing fairness and equity. In contrast to optimal tax theory's focus on economic efficiency, normative theory raises questions about the fairness of a tax system that imposes varying rates on different goods, potentially burdening certain segments of the population disproportionately. Therefore, considering normative principles becomes crucial in evaluating the equity implications of tax policies.

Neoclassical Theory

Twan and Slow introduced the theory in 1956, asserting a connection between tax incentives and the violation of horizontal equity—a crucial aspect of a well-established tax structure. According to this theory, providing tax incentives can lead to market distortions, resulting in inefficient resource allocation. Notably, these tax incentives are often implemented to address existing inefficiencies in the market systems (Caillé & Vandenberghe, 2016).

Business failures are frequently attributed to either insufficient or excessive investments (Amankwah-Amoah, Boso & Antwi-Agyei, 2018). An illustrative example of such failure is observed in research activities, where an investment may yield a higher social rate of return compared to the private one. Tax incentives serve various purposes, including compensating for market inefficiencies (Bergner, Bräutigam, Ever & Spengel, 2017). However, it's crucial to note that incentives on investments encompass aspects such as cash grants or reliefs. Nevertheless, the impact of decisions, including investments, is influenced by multiple factors beyond rewards(Adner & Feiler,2019).Examining this theory within the context of this study reveals how firms' base investment decisions on factors like future demand forecasts, government policy certainty, competitor movements, and prevailing interest rates during specific periods.

Neoclassical tax theory's emphasis on market-driven solutions and efficiency often overlooks social and distributive concerns. By prioritizing economic efficiency, it may neglect the needs of marginalized or vulnerable populations who may not benefit equally from market mechanisms. Additionally, it tends to rely heavily on assumptions of perfect information and rational decision-making, which may not accurately reflect real-world behavior. Furthermore, neoclassical theory's reliance on market forces may fail to address market failures, such as externalities or monopolies, which can result in inefficient outcomes.

Considering normative theory becomes imperative due to its focus on fairness and equity. Normative theory provides a framework for evaluating tax policies based on ethical principles, ensuring that the burden of taxation is distributed equitably and that the most vulnerable members of society are adequately protected. By incorporating normative considerations into tax policy analysis, policymakers can strive to create tax systems that promote social justice and mitigate inequalities.

Normative Theory

The theory illustrates how various levels of government structures create incentives and establish boundaries that govern the operations of the government and other entities (Cochran, 1999). These incentives not only dictate the pace of development but also chart the trajectory of that development. The theory states that tax laws enacted by following governments can vary, which might lower previous profits. As a result, as time goes on, tax structures, regulations, and administrative strategies should be developed dynamically, accounting for the relative importance of various tax-related concerns. The institutional model offers a compelling foundation for forecasting and representation, as well as a comprehensive framework for understanding how tax strategies and management evolve across different locations.

According to Tresch (2014), this theory takes into account both advantageous and detrimental incentives, making it difficult to decide which is best for a given economy given its changing conditions and environmental concerns. As a result, during tax planning, variables including the state of the economy, the skill of tax administrators, the nature of investments, and financial limitations should all be closely watched. Boadway (2015) notes that rewards bestowed by politicians or civil personnel are vulnerable to misuse, frequently as a result of corruption. Boadway advocates for transparent criteria, established laws, and incentives available to all investors. In order to ensure that all possible investments in a given industry are eligible for incentives, organizations

should receive just the right amount of incentives to encourage investments. Nonetheless, it appears that the distribution of government incentives is determined by the moral standing of the regulatory bodies that monitor the industry in which businesses operate. The allocation of incentives is influenced by public office and the political class, which adds opacity to the process and influences results. According to Chukwumerije and Akinyomi (2011), modest tax breaks for R&D, machinery, and equipment can greatly increase investment without resulting in large losses.

The normative theory is pertinent to this investigation since it makes the assumption that the tax incentives in place can only be deemed acceptable and suitable given the state of the economy. Considerable regional variations in tax benefits can negatively impact a country's operations and reduce its competitiveness relative to other trading partners in the area.

Tirimba et al. (2015) studied stock market investing incentives, looking at whether they serve as inducements or gifts. Based on 66 carefully chosen studies from a database of ninety-three, the study found that investor opinions were a stronger predictor of stock market performance than tax breaks. The study came to the conclusion that appropriate pricing techniques required timely information regarding marketable securities. The researchers contended that although investment incentives were useful in encouraging investments, in practice, investors' viewpoints were more significant.

According to CMA (2006), the NSE and CMA recommended extending the list of capital expenditure deductions that companies might claim for incidental expenses like legal fees. With this program, NSE investors would be encouraged to provide the public 40% of their shares in exchange for five years of reduced taxes. The study emphasized how crucial it is for legislators and industry regulators to take the business community's opinions into account before enacting tax laws. It did, however, also point out that tax breaks can result in unexpected gains for stockholders.

Notwithstanding modifications, KRA (2009) noted that the government's tax incentive programs cost KShs 220.8 billion in lost revenue between 2003 and 2009. In order to fully comprehend the impact of tax breaks on different industries, especially the manufacturing and related sectors, the report suggested conducting additional research. Notwithstanding government capital allowances, it advised businesses to carefully consider their asset acquisition and growth opportunities. According to the Income Tax Act of 2015, businesses can deduct up to 150% of their investment-related costs from outside major cities. There are further benefits available for certain building materials used in technical and educational services.

Conceptual Framework

Research Methodology

This study employed an explanatory longitudinal research design, which facilitates the process of identifying demographic characteristics. According to Cooper and Schindler (2006), this research approach can quantify and clarify the cause-and-effect relationship between variables. In addition, it explains behavior, values, features, attitude, and similar factors (Mugenda & Mugenda, 2003). The study adopted this research design because of its robustness in handling huge quantities of data for the population of study. A population is defined by Mugenda and Mugenda (2003) as all the items, events, or individuals that have the same observable characteristics. The target demographic consists of the 60 companies listed in Nairobi Securities Exchange's Appendix 1 (NSE, 2023) listing list. The populace helped create a model to show how tax incentives will affect these companies' green investment decisions. This was a census study of all firms listed in the Nairobi Securities Exchange in Kenya which is 67*5=335firm yearly observations data.(Population et al., n.d.)

The study considers both companies with complete and incomplete data particularly from their audited financial reports and sustainability reports. Data from 60 companies was analyzed, resulting in 300 observations, as only 60 companies had complete data.The study utilized secondary data from 2019 to 2023 obtained from NSE, KRA, EPC, KNBS, and CMA. The study obtained data on predictor variables from KRA, NSE, and KNBS, and the outcome variables from financial reports of each of the firms to reflect the corporation tax incentives, value-added tax incentives, customs incentives, green investments, and tax revenue collection. The longitudinal data for the five years were sufficient to address instability factors and thus allowed the study to identify patterns and trends in the data.

The study obtained secondary data from the NSE handbook, particularly the audited financial reports sustainability reports published by the sixty-seven firms as per the requirements of CMA.The study primarily relied on secondary data spanning from 2019 to 2023 sourced from reputable institutions such as the Nairobi Securities Exchange (NSE), Kenya Revenue Authority (KRA), Export Promotion Council (EPC), Kenya National Bureau of Statistics (KNBS), and Capital Markets Authority (CMA). The data was extracted from audited financial reports and sustainability reports accessible on the firms' websites, as well as from the NSE, chosen for its regulatory oversight by the CMA, ensuring reliability. This longitudinal approach over a five-year period will adequately capture fluctuations and allow the research team to discern patterns and trends within the data.

Data Analysis

According to Arel-Bundock (2022) data analysis refers to the use of statistical techniques to derive answers through analysis and interpretation of data collected. The data was subjected to sorting, editing, and verification for accuracy in preparation for analysis. Robust statistical and spreadsheet packages were utilized to analyse the secondary data using descriptive statistics. To ensure that the results are reliable and viable robust inferences were used such as stationarity and unit root tests. The tests ensured that the relationships are not spurious by ensuring accuracy in parameter estimates. Barada (2013)

Regression and correlation analysis were used to confirm a test designed to ascertain the nature of the connection between tax incentives, green investments, and the green investments from companies listed on the NSE. A solid foundation for prediction was provided by using the Pearson correlation analysis to assess the degree of the linear relationship between the variables. Multiple regression analysis was used given its robustness in analyzing data with more than two independent variables (Nachmias and Nachmias, 1996). Graphs and tables were utilized to present the findings particularly trends for the five-year period. To verify the effect of tax incentives on the green investments from companies' regression listed in the NSE; multivariate linear regression model was utilized.

Regression model Specification Equation (i),

$yt(i)=\beta 0+ \beta 1FA1+ \beta 2FS2 +\mu t$. Equation (ii)

$yt(i)= \beta 0+ \beta 1FA1+ \beta 2FS2 +\beta 3CTI\ 3t+ \beta 4\ VATI\ 4t + \beta 5CUI\ 5t + \mu t$.

Equation (iii)

$yt(i)= \beta 0+ \beta 1FA1+ \beta 2FS2 + \beta 3CTI\ 3t+ \beta 4VATI\ 4t + \beta 5CUI\ 5t + \beta 6M + \mu t$.

Equation (iv)

$yt(i) = \beta 0+ \beta 1FA1+ \beta 2FS2 +\beta 3CTI\ 3t+ \beta 4VATI\ 4t + \beta 5CUI\ 5t + \beta 6\ M + M*CTI\ 3t + \mu t$

Equation (v)

$yt(i) = \beta 0+ \beta 1FA1+ \beta 2FS2 + \beta 3CTI\ 3t+ \beta 4VATI\ 4t + \beta 5CUI\ 5t + \beta 6\ M + M*CTI\ 3t + M*\ VATI4t +\mu t$

Equation (vi)

$yt(i) = \beta 0+ \beta 1FA1+ \beta 2FS2 + \beta 3CTI\ 3t+ \beta 4VATI\ 4t + \beta 5CUI\ 5t + \beta 6\ M + M*CTI\ 3t + M*\ VATI4t +$

$M*CUI5t+ \mu t$

Where: yt(i)Y = Tax revenue collection

α = Constant Term $\beta 1,2,3\ldots n$ = Beta coefficients FA1= Firm Age

FS2 = Firm Size

CTI3= Corporation tax incentives.

VATI4= Value- added tax incentives. CUI5= Customs incentives.

μ = Error terms

t = Timeseries

M is green investment (Moderator variable)

M*CTI 1t = Green investment * Corporation tax (interaction term) M*VATI2t = Green investment * Value-added tax (interaction term) M*CUI3t = Green investment* Custom tax incentive (interaction term)

Operationalization and measurement of variables

Variables	Indicators	Source/ Author	Data Collection	Measurement scale	Data Analysis
Dependent Variable	Tax revenue collection	Xing (2017).	Secondary data	Ordinal	Correlation analysis Multiple regression Analysis
Moderating Variable	Green Investments	Combs, Crook, Shook (2005)	Secondary data	Ordinal	Correlation analysis Multiple regression Analysis
Independent Variable	Corporation Tax Incentives. Value-added tax incentives. Customs incentives	Parys (2012) Thomas (2007) Madani&Mas- Guix(2011)	Secondary data	Ordinal	Correlation analysis Multiple regression Analysis

Data Analysis and Findings

Descriptive Statistics Analysis

Descriptive statistics offer a way to understand, clarify, and consolidate research data in a coherent and practical fashion. The study analyzed the gathered data to determine the mean, standard deviation, skewness and Kurtosis values, as well as the distribution of the numbers.Table 4.1 shows descriptive statistics for Corporation tax incentives indicating a mean of 0.64, indicating that on average companies listed in the NSE remitted taxes closer to 30% with significant incentives the standard deviation of 0.480 indicates that the scores for the corporation tax incentives indicates scores closer to the mean for the sample, the skewness and Kurtosis were -0.599 suggests that there are fewer extreme low values in the data set. And -1.762, the Kurtosis indicates a platykurtic distribution.

It appears that the value-added tax benefits deviate somewhat from the mean based on the standard deviation of

0.796. The value-added tax incentive distribution is negatively skewed, as indicated by the skewness value of -0.906. This indicates that the distribution's tail points in the direction of higher values and that there are more observations with lower incentive values. It is suggested that the distribution of value-added tax incentives is platykurtic by the kurtosis value of -0.820. This indicates that extreme values (both high and low) are less likely in this dataset. customs duty tax incentive has a mean value for the "customs duty tax incentives" is 1.44. This represents the average level of these incentives. The customs duty tax incentives deviate moderately from the mean, as indicated by the standard deviation of 0.767. The distribution's tail stretches toward higher values, and the skewness value of -0.935 shows that more observations have lower incentive values. The distribution of the customs duty tax incentive implies that extreme values—both high and low—are less common in this dataset, according to the kurtosis value of -0.672. providing the moderator's green investment with descriptive statistics. The mean value for the customs duty tax incentives is KES 2342.35 million. The standard deviation of 1257.758, which suggests that the customs duty tax incentives vary significantly from the mean. The skewness value of -0.201 indicates that there are more observations with lower values of incentives, and the tail of the distribution extends slightly toward higher values. Since the distribution is flatter and has thinner tails than a normal distribution, the kurtosis score of -1.198 indicates that extreme values are less common in this dataset. The study's NSE listed firms' mean age, or the average age of all the firms in the sample of 300 observations, was 62.40 years, which served as the descriptive value for the control variable firm age. The high levels of variability for various enterprises are indicated by the standard deviation of 33.485, which quantifies the amount by which the ages of the firms vary from the average age. Given the skewness score of 0.575, it can be inferred that the company age distribution is slightly positively skewed. This suggests that the distribution's tail points slightly in the direction of higher ages and that there are more observations with lower ages. The kurtosis value of 0.196 indicates that the distribution of firm ages is mesokurtic meaning that extreme values are less likely in this dataset. The study shows that firm size has a mean of 3806 employees showing that the mean number of employees in the firms listed in the NSE is There is a high level of variability in firm sizes, with a standard deviation of 13730.78. The distribution is highly right-skewed, indicating a few firms are significantly larger than the majority. Skewness is 6.10, the Kurtosis of 36.85 indicates that the distribution has very heavy tails, with extreme values far from the mean.

Table 4.2: Descriptive statistics Independent Variables

Variable	N	Mean	Std. Dev	Skewness	Kurtosis
Corporation tax incentives	300	0.64	0.480	-0.599	-1.652
value-added tax incentives		1.42	0.796	-0.906	-0.820
customs duty tax incentives		1.44	0.767	-0.935	-0.672
green Investment		2342.35	1257.758	-0.201	-1.198
Firm Age	62.40	33.485	0.575	0.196	
Firm Size	3806	13730.78	6.10	36.85	

(Source: Research 2024)

Descriptive statistics for tax revenue collection

Table 4.3 shows descriptive details for tax revenue collection among listed Firms in the NSE. The mean value for the Tax Revenue Collection is KES 114800.372 million. This represents the average tax revenue collected for firms across the sample of 300 observations.The standard deviation of 554520.963 indicates a high variability form the mean since there are different firms in the study. The skewness value of 10.408 suggests that the distribution of tax revenue collection is highly positively skewed. This insinuates that there are more observations with lower tax revenue values, and the tail of the distribution extends significantly toward higher revenue values. The kurtosis value of 116.007 indicates that the distribution of tax revenue collection is leptokurtic. Extreme values are more likely in this dataset.

Table 4.3: Descriptive statistics for Tax Revenue Collection

Variable	Mean	Std. Dev	Skewness	Kurtosis
Tax Revenue Collection	114800.372	554520.963	10.408	116.007
N	300			

(Source: Research 2024)

Diagnostic tests

The results of tests examining normality, multicollinearity, heteroscedasticity, autocorrelation, and stationarity are displayed in this portion.A Jarque-Bera test for normality, coupled with normal distribution histogram for residuals were used to determine whether the data is normally distributed. Table 4.4 shows J-B tests' with null hypothesis that data is normally distributed.

The JB test result for corporation tax incentives indicated a p-value of 0.236, which is greater than the significance threshold of 0.05. This implies that the residuals for corporation tax incentives followed a normal distribution. The normality of this variable enhances the validity of parametric statistical analyses, such as regression modeling, by ensuring that assumptions regarding the distribution of residuals are met. Consequently, this supports reliable hypothesis testing and accurate estimation of relationships involving corporation tax incentives.

The p-value for VAT incentives was 0.125, again exceeding the 0.05 threshold. This finding implies that the residuals of VAT incentives were normally distributed, which strengthens the robustness of statistical inferences drawn from this variable. Normal distribution of VAT incentives ensures that any results obtained are not skewed or biased, enabling researchers to generalize findings with confidence.

The p-value for customs duty incentives was reported as 0.089, which also exceeds 0.05. This suggests that the

residuals for customs duty incentives adhered to a normal distribution. The normality of this variable facilitates its integration into statistical models, ensuring reliable and valid interpretations of its effects within the broader context of the study. This also implies that the analysis can adequately capture the influence of customs duty incentives on the outcomes of interest.

The moderator variable, green investment, demonstrated a p-value of 0.099, indicating that the residuals followed a normal distribution. The normality of the moderator variable is critical because it ensures that any moderating effects identified in the analysis are accurately represented without distortions arising from non-normality. This strengthens the validity of conclusions regarding how green investment interacts with other variables in influencing the study's outcomes.

For firm age, the J-B test yielded a p-value of 0.091, suggesting that the data was normally distributed. Normality in firm age enhances the interpretability of statistical results, particularly when analyzing its role as a control variable or independent factor. This result underscores the appropriateness of including firm age in parametric analyses, as it ensures unbiased estimation of its potential effects.

The p-value for firm size was 0.190, also indicating normal distribution. The normality of firm size supports its use in regression and other parametric analyses. This finding ensures that relationships involving firm size are free from biases due to non-normal distributions, which could otherwise compromise the reliability of statistical inferences.

The confirmation of normality across all tested variables has significant implications for the study. First, it validates the use of parametric tests, such as linear regression, as the assumptions of normality are met. Second, it enhances the credibility of the findings by reducing the likelihood of Type I or Type II errors that could arise from non-normal data. Third, the normality of residuals supports the robustness of the model, ensuring that inferences drawn from the analysis are both reliable and generalizable. Finally, these results set the stage for further exploration of relationships between the variables, with confidence that the underlying data distribution will not adversely affect the outcomes.

Table 4.4: Jarque Bera test for Normality

	T	Sig.
Corporation Tax Incentives	0.546	0.236
Value-Added Tax Incentives	0.1846	0.125
Customs Duty Incentives	0.224	0.089
Green Investment	1.335	0.099
Firm Age	0.957	0.091
Firm Size	1.011	0.190

(Source: Research 2024)

Normal distribution Histogram

According to Figure 4.2, the data demonstrates a normal distribution characterized by a sharp peak, suggesting minimal extreme variations within the dataset. The bell-shaped curve observed in the figure supports this interpretation, providing clear evidence of the data's normal distribution. This finding implies that the dataset adheres to the assumptions of normality, which is crucial for conducting many statistical analyses, such as parametric tests.

The sharp peak further indicates that the data points are concentrated around the mean, suggesting a relatively homogeneous dataset with limited outliers or anomalies. This observation is significant because it validates the reliability of the statistical models that require normality as a foundational assumption. Moreover, the absence of extreme variations enhances the generalizability of the findings, as the results are less likely to be influenced by skewed or unusual data points.

The implications of this normal distribution extend to subsequent stages of analysis. For instance, regression analysis, ANOVA, or t-tests, which assume normality, can be confidently applied to this dataset without necessitating data transformation or alternative non-parametric methods. Furthermore, the adherence to a normal distribution suggests that the dataset's central tendency and variability metrics, such as the mean and standard deviation, are appropriate representations of the data's overall characteristics.

The normal distribution observed in Figure 4.2 not only confirms the suitability of parametric statistical methods but also ensures that the findings derived from the data are robust, reliable, and applicable within the context of the research objectives. These implications underscore the importance of normality in reinforcing the validity of the analysis conducted at each stage of the study.

Figure 4.2: Normal Distribution Histogram
(Source: Research 2024)

Test for Heteroskedasticity

The test for whether the variance of errors from a regression model is constant was conducted using the Cook-Weisberg test for heteroscedasticity. As presented in Table 4.5, the p-value of 0.5624 exceeds the threshold of 0.05. This result indicates that the null hypothesis stating that the variance of the errors is constant cannot be rejected. Therefore, the data is homoscedastic, meaning that the variability of the residuals remains consistent across all levels of the independent variables.

The implication of this finding is critical for the validity of the regression analysis. Homoscedasticity is one of the key assumptions of ordinary least squares (OLS) regression. When this assumption holds, it ensures that the standard errors of the coefficients are unbiased and efficient, leading to reliable hypothesis tests and confidence intervals. In this case, the confirmation of homoscedasticity implies that the regression model is robust and can be used to draw meaningful inferences about the relationships between the variables.

Furthermore, the absence of heteroscedasticity enhances the interpretability of the model. It suggests that the observed variance in the dependent variable is not systematically influenced by specific ranges of the independent variables. This consistency supports the generalizability of the findings across the dataset. Had heteroscedasticity been present, it would have necessitated remedial measures, such as transformation of variables or the application of robust standard errors, to address potential biases in the estimates.

Thus, the result of this test affirms the reliability of the model's outputs and supports the integrity of subsequent analyses and conclusions.

Table 4.5: Test for Heteroscedasticity

	Chi2(1)	Df	Probability
H0 Constant Variance:	0.34	60	0.5624

LR test summary:

	Value	Df
Restricted LogL	427.1534	285
Unrestricted LogL	481.3333	285

(Source: Research 2024)

Stationarity test

A Test for Stationarity was conducted on the data presented in Table 4.6 to determine the presence of a unit root for the variables under study. The stationarity of the data is a crucial assumption in time series analysis, as it ensures that statistical properties such as mean and variance remain constant over time, thus enabling reliable modeling and inference. Each variable was tested at its level, and the results are interpreted as follows:

The t-statistic for Tax Revenue was -59.543 with a p-value of 0.000, showing a very strong evidence against the null hypothesis of a unit root. The result confirms that the data for tax revenue is stationary at its level. This finding suggests that the series in tax revenue is stochastically stable over time, and hence it can be replicated in the subsequent modeling without further transformation.

The t-statistic for Corporation Tax Incentives was -10.1650, and the p-value was 0.000 (< 0.05), which confirmed stationarity. This will imply that observable variations in corporation tax incentives are consistent overtime, and therefore, no differencing is necessary to achieve stationarity. This becomes very important, as it satisfies assumptions when one runs the analysis regarding how changes in corporation tax incentives influence dependent variables.

The variable VAT Incentives is stationary according to the t-statistic -14.5012 and p-value 0.0000, which is less than 0.05. The data, therefore, do not have temporal distortions, meaning the information regarding VAT incentives is fundamentally stable and may easily be interpreted without such distortions.

In a comparable manner, Customs Duty Incentives exhibited stationarity, reflected by a t-statistic of -12.7510 and a p-value of 0.0000 (which is less than 0.05). This finding indicates that customs duty incentives display consistent trends over time, thereby rendering the variable dependable for integration into econometric models without necessitating further modifications.

The moderator variable, Green Investment, had a t-statistic of -20.7690 with a p-value of 0.0000 (less than 0.05), thus confirming that the data is stationary. This finding is very important because it ascertains that there exist potential interaction effects between green investment and other independent variables in the testing of moderating effects.

Similarly, the t-statistic for Firm Age is -5.33638 with a p-value of 0.0000, which shows stationarity at its level, thus not having trends or patterns that might compromise its use in the analysis, as is the case with this variable to be used as a control variable.

Lastly, the firm size was also stationary with a t-statistic of -12.255 and a p-value of 0.0000 (< 0.05). The result indicates the firm size data is consistent over time, hence proving to be a perfect stable control variable in the study. In summary, the findings indicate that none of the analyzed variables show any violation of the assumption of stationarity. It ensures that any subsequent analyses, such as regression or causal modeling, will consistently replicate these findings since it ensures the stationarity of the variables. The findings carry considerable implications in establishing that any relationships or effects identified in the later analyses can be properly attributed to the modeled interactions and not spurious correlations that may arise due to non-stationary data. This lays up a very strong foundation for investigating the relationships between tax incentives, firm characteristics, and environmentally sustainable investments within the scope of the research objectives.

Table 4.6: Test for Stationarity

	At-Level		At 1st Difference	
	t-Statistic	Sig.	t-Statistic	Sig.
Tax Revenue Collection			-59.5954	0.0000
Corporation Tax Incentives			-10.1650	0.0000
Value-Added Tax Incentives			-14.5012	0.0000
Customs Duty Incentives			-12.7510	0.0000
Green Investment	-20.7690	0.0000	-13.2072	0.0000
Firm Age	-5.33638	0.0000	-2.38197	0.0086
Firm Size	-12.255	0.000	-3.1153	0.0015

(Source: Research 2024)

Test for Multicollinearity

The test for multicollinearity was conducted to assess whether the independent variables in the regression time series model were highly correlated with each other. Multicollinearity can distort regression estimates and compromise the interpretability of a model; therefore, this step was critical in ensuring the robustness of the analysis.

The results presented in Table 4.7 showed that corporation tax incentives had a tolerance value of 0.248 (>0.1) and a VIF of 4.028 (<10), while VAT incentives displayed a tolerance value of 0.303 (>0.1) and a VIF of 3.297 (<10). Similarly, customs duty incentives had a tolerance of 0.346 (>0.1) and a VIF of 2.890 (<10). These findings indicate that the levels of multicollinearity for the tax-related incentives were within acceptable limits. This suggests that the independent variables did not exhibit problematic intercorrelations that could hinder the regression model's interpretive validity. These results also confirm the distinct contribution of each tax incentive variable in explaining variations in the dependent variable, enhancing confidence in the model's explanatory power. Green investments were found to have a tolerance value of 0.651 (>0.1) and a VIF of 1.535 (<10), while firm age and firm size demonstrated tolerance values of 0.988 and 0.943

respectively, both exceeding 0.1, and VIF values of 1.012 and 1.060 respectively, both below 10. According to Sinclair (2011), tolerance values greater than 0.1 and VIF values below 10 indicate that multicollinearity is not a concern. These results imply that the control variables (firm age and firm size) and green investments also contribute independently to the model without being overly correlated with other variables. This further strengthens the overall reliability of the regression analysis by confirming that the influence of these predictors on the dependent variable is not confounded by their relationships with other independent variables.

Table 4.7: Test for Multicollinearity- Collinearity Statistics

Model	Tolerance	VIF
Corporation Tax Incentives	.248	4.028
Value-Added Tax Incentives	.303	3.297
Customs Duty Incentives	.346	2.890
Green Investment	.651	1.535
Firm Age	.988	1.012
Firm Size	.943	1.060

a. Dependent Variable: Tax Revenue Collection

(Source: Research 2024)

Serial Correlation test

The test examines whether there is a correlation between the values of a variable across different time periods in a time series, assessing the presence of serial correlation. Serial correlation occurs when residuals (errors) in a regression analysis are not independent across time, potentially violating the assumptions of ordinary least squares (OLS) regression. The Durbin-Watson statistics are a widely used measure to detect such autocorrelation, with values ranging from 0 to 4. A value between 1.5 and 2.5 typically indicates an acceptable level of independence in the residuals, suggesting no significant autocorrelation.

In this study, Table 4.8 reports a Durbin-Watson statistic of 1.517, which is slightly above the lower threshold of the acceptable range. This result suggests the presence of low levels of autocorrelation in the data. Low levels of autocorrelation imply that the residuals are relatively independent, and the regression model's estimates remain reliable. However, it also indicates that some degree of dependence might still exist between the residuals across time periods, warranting careful interpretation of the model results. The implications of this finding are noteworthy. First, the low level of autocorrelation observed does not invalidate the regression results but suggests a need for cautious application of the model's outcomes, particularly in forecasting or time-series analysis. Second, while the statistics are within an acceptable range, researchers should consider potential improvements to the model by investigating the sources of this residual dependency. Adjustments such as including lagged variables or applying alternative modeling techniques (e.g., autoregressive models) could help refine the analysis. Ultimately, the Durbin-Watson statistic of 1.517 supports the validity of the regression model to a reasonable extent but also highlights areas for potential methodological refinement.

Table 4.8: Test for Autocorrelation

Durbin-Watson	1.517

Source: Research 2024)

Correlation Analysis

Regression and correlation analysis were used to confirm a test designed to ascertain the nature of the relationship between tax incentives, green investments, and the tax income collected by companies listed on the NSE. A solid foundation for prediction was provided by using the Pearson correlation analysis to assess the degree of the linear relationship between the variables. With a p-value of 0.000<0.05 and a substantial and positive correlation of 52.9% between tax revenue collection and company tax incentives, Table 4.9 demonstrates this. With a p-value of less than 0.05 and a positive and significant correlation of 49.0%, the tax revenue collection and custom duty tax incentives are positively correlated. With a p- value of less than 0.05 and a positive and significant correlation of 50.1%, tax revenue collection and VAT incentives are related. The analysis also suggests that there is a strong and positive correlation between tax revenue collection and green investment at 64.6% and p-value<0.05. At 12.0% and with a p-value less than 0.05, firm age and tax revenue collection have a positive and significant association. At 5.6% and p-value =0.018<0.05, there is a statistically significant positive association between firm size and tax revenue collection.

Table 4.9: Correlation Analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Tax Revenue	1.000						
(2) Corporation Tax Incentives	0.529*	1.000					
(3) Value- Added Tax Incentives	0.490*	0.497*	1.000				
(4) Customs Duty Incentives	0.499*	0.129*	0.741*	1.000			
(5) Green Investment	0.646*	0.261*	0.540*	0.505*	1.000		
(6) firm age	0.120*	0.049	-0.030	-0.005	-0.005	1.000	
(7) firm size	0.056	0.018	-0.007	0.034	0.099	0.180*	1.000

, ** p<0.05,

(Source: Research 2024)

Test for Linearity

The null hypothesis for linearity, according to Csorgo (1985), is that there is no discernible departure from a linear relationship between the predictor and predicted variables. Table 4.10 was used for the linearity test, and the Ramsey RESET statistic's P-value was 0.3188>0.05. The significant value of the RAMSEY RESET test indicated a linear relationship between the dependent and independent variables.

Table 4.10: Ramsey RESET Test

Ramsey RESET test using powers of the fitted values of Tax Revenue

Ho: model has no omitted

Variables

Prob > F = 0.3188

Time-fixed effects test

Options (1978) states that when using a Fixed Effects model, it is important to test whether time fixed effects are necessary. This involves checking if the coefficients for the time dummies are all equal to zero. If they are, time fixed effects are not required. However, if the test shows statistical significance, it implies that time fixed effects exist and should be included in the model. As shown in Table 4.10, F-Statistic value for the joint significance of the time dummies is 1.978075 the p-value is 0.0012<0.05, this suggests that time fixed effects are significant and should be included in the model, aligning with the results mentioned in the original description.

Table 4.11: Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.978075	(43,164)	0.0012
Cross-section Chi-square	89.412688	43	0.0000

(Source: Research 2024)

Hausmann Test

When choosing between fixed effects and random effects models, the Hausman test is frequently used as a guide. We employ the fixed effect model in cases where the p value is less than 0.05. We apply the random effect model in cases where the p value is higher than or equal to 0.05. Table 4.12 Hausmann test suggested that there is a significant difference (p- value 0.0079<0.05) between the fixed-effect model and random effects. This leads us to reject the null hypothesis and determine that the fixed effect is suitable.

Table 4.12: Hausmann Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	17.402069	6	0.0079

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
Corporation_Tax_Incentives	0.002531	0.003993	0.000010	0.0455
Value_Added_Tax_Incentives	0.006545	0.006969	0.000002	0.0225
Custom_Duty_Incentives	0.011380	0.014231	0.000004	0.0229
Green_Investment	0.000041	0.000038	0.000000	0.0211
Firm_Age	0.003145	0.000267	0.000003	0.0197
Firm_Size	0.000019	0.000000	0.000000	0.0208

(Source: Research 2024)

Fixed-Effect Regression Analysis

The impacts of tax incentives on tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya, were investigated using regression analysis. A summary of the Fixed Effect Model that examined the impact of company age and business size as control variables on tax revenue collection.

Testing Effect of Control Variables

The coefficient analysis was conducted to determine the effects of tax incentives on tax revenue collection. Table 4.13 under appendix I indicates the overall model was statistically significant (F- Statistic =15.870) p-value =0.000, The value of the overall R-square is 0.0056 in fixed effect model which insinuates that the control variables explain 0.56% of the variation of tax revenue collection, while the remaining 99.4% is caused by factors that are not captured within this model.

The regression equation for the effects of control variable, firm age and firm size on tax revenue collection was as follows.

$yt(i)=0.4698444 + 0.0055532FA\ 1t + 0.0000698FS\ 2t$

Table 4.12 shows that unit change in Firm age results in an increase in tax revenue collection, $\beta=0.0055532$ $p<0.05$, while a unit change in firm size causes a significant increase in tax revenue collection. $\beta=0.0000698$ $p<0.05$. The positive relationship between firm age and tax revenue collection suggests that older firms tend to contribute more to tax revenues. This could be due to several factors older firms are likely to have more established business practices, better accounting systems, and more experience in navigating regulatory environments, leading to higher compliance with tax obligations. The significant positive relationship between firm size and tax revenue collection indicates that larger firms contribute more significantly to tax revenues. Larger firms benefit from economies of scale, leading to higher profitability and larger taxable bases. This results in greater tax contributions.

Table 4.13: Effects of Control Variables

(Source: Research 2024)

Testing the Direct Effect

Following the effects of the control variables on tax revenue collection the study examined the direct effects of corporation tax incentives, value-added tax incentives, customs duty incentives on tax revenue collection.

The overall model was statistically significant, as shown by Table 4.14 under Appendix 1. The overall R-square in the fixed effect model is 0.0056, suggesting that tax incentives account for 0.11% of the variation in tax revenue collection, with the remaining 99.89% being explained by factors not included in this model. This shows an increase in the variation, from the previous model. This implies that the variation is attributed to the inclusion of the tax incentives in the model.

The regression equation for model II was as follows

$yt(i)=0.1612211+ 0.0060911FA\ 1t + 0.0000374FS\ 2t + 0.0290453CTI\ 3t + 0.022397VATI\ 4t + 0.0157045CUI\ 5t$

According to Table 4.13 in Appendix I, there was a substantial and positive impact on tax revenue collection (β =

0.0290453, p<0.05) from corporation tax incentives. This indicates that a unit change in company tax incentives results in a 0.029 rise in tax revenue collection. This positive relationship implies that tax incentives designed to benefit corporations are effective in increasing overall tax revenues. This could be due to increased economic activity spurred by the incentives, which in turn generates more taxable income and consumption. corporation tax incentives can stimulate investment by reducing the effective tax burden on businesses. This can lead to increased business activities, higher employment, and greater consumer spending, all of which contribute to higher tax revenues. Further the study found that Value Added Tax incentives causes has a positive and significant β =0.022397, p<0.05 effect on tax revenue collection meaning a unit change in VAT incentive causes 0.022 increase in tax revenue collection. The finding that VAT incentives have a positive and significant effect on tax revenue collection underscores the importance of carefully designed tax policies that can stimulate economic activity and improve compliance, thereby enhancing overall tax revenue. The results of the study indicated that the collection of taxes was positively and significantly impacted by custom duty incentives (β = 0.0157045, p<0.05). indicating that a 0.016 increase in tax revenue collection results from a unit change in custom duty incentives. Custom duty incentives might encourage higher compliance among importers and exporters. When businesses perceive that they can benefit from lower duties, they might be more willing to declare their goods accurately and pay the necessary taxes, thereby increasing overall tax revenue collection. The control variables showed that that the firm age maintains a positive and significant effect β = 0.0060911, p<0.05 on tax revenue collection at 0.609%. While Firm size had a positive and significant β =0.0000374, p<0.05 effect on tax revenue collection at 0.00374%.

Table 4.14: Testing the Direct Effect

(Source: Research 2024)

Test the effects of Moderating Variable Green Investment

The hierarchical regression was used to determine the moderating effect of green investment tax incentives on tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. According to Baron & Kenny (1986) shows the following steps for moderation to occur; Determining the direct effects of the independent variables on the dependent variable is the first step effects of tax incentives on tax revenue collection. The second step is to investigate whether the moderator has a significant effect on dependent variable by conducting a regression analysis with green investment as one of the independent variables and tax revenue collection as the dependent variable. Thirdly the regression must introduce the interaction terms hierarchically. These interactions terms are the product of the scores for each independent variable and the moderator. In our study these are corporation tax incentives* green investment, VAT incentives* green investment custom duty tax incentives* green investment.

The interaction terms are examined to determine whether their effects on the dependent variable are significant through a hierarchical regression model.An overview of the findings from the Hierarchical Regression Analysis, which was done to find out how green investment might moderate the relationship between corporation tax incentives, value-added tax incentives, customs tax incentives, and tax revenue collection by Kenyan companies listed on the NSE. If the interaction terms are significant, it suggests that green investment moderates the relationship between (corporation tax incentives, value-added tax incentives, customs duty incentives.) and the dependent variable (tax revenue collection)

The study used green investment as the moderator, a Series of regression models Model 1 showing effects of the control variables, models 2 showing the direct effects of the predictor variables model 3 introduced the moderator variables and Models 4 to Model6 the interaction terms effects. Table 4.15 under appendix I, indicates the overall model for introduction of the moderator was statistically significant (F-Statistic =67.12) p-value =0.000, The value of the overall R-square is 0.512 in fixed effect model test for moderation which insinuates that the tax incentives explain 51.2% of the variation of tax revenue collection, while the remaining 48.8% variation is caused by factors that are not captured within this model. This shows an increase in the variation, from the previous model. This implies that the variation is attributed to the inclusion of the green investment in the model. The model showed that green investments have a positive and significant effect on tax revenue collection β= 0.0000403 p<0.05. This implies that unit change in green investments results in a 0.0000403 increase in on tax revenue collection.

Table 4.15: effects of Moderating Variable Green Investment

(Source: Research 2024)

Testing the effect of the first Interaction

The study introduced the first interaction between the first independent variable and green investment corporation tax incentives* green investment, The test results in table 4.16 under appendix I, showed that after adding the first interaction term the model is significant (F

=57.63, p=0.000), In regards to the positive standardized beta coefficient for the interaction between corporation tax incentives and green investment β =5.77e-06, p=0.012<0.05, indicating that the on the first interaction is significant. This implies that a unit change in the interaction between green investment and corporation tax incentives causes a 5.77e-06 increase in tax revenue collection.

Table 4.16: Effect of the first Interaction

Source: Author (2024)

4.5.5 Testing the effect of the Second Interaction

Model 5 on table 4.17 under appendix I shows that that the interaction between value added tax incentive and green investment has a positive beta coefficient, β =9.78e-06, p<0.05, this implies a unit change in the interaction between value added tax incentive and green investment causes a 9.78e-06 increase in tax revenue collection. The model is statistically significant in explaining the variation on tax revenue collection (F =51.25, p=0.000).

Table 4.17: Effect of the Second Interaction

Source: Author (2024)

Testing the Complete Effect of Moderation

Table 4.18 shows the process of moderation with model five showing the final model for using standardized coefficients, model 1 through to model 6 shows that there was a change in R-square to model 6, 0.7181 indicating that in the overall regression model 71.81% variation is caused on tax revenue collection. The remaining 28.190% variation is caused by factors not captured in the fixed effect model. The overall fixed effect model was statistically significant (F =45.57, p=0.000).

Corporation tax incentives have a positive and significant influence on tax revenue collection (β = 0.0226592, p = 0.043 <0.05) according to the fixed effects model. Additionally, the research revealed that the value-added tax had a noteworthy and favorable impact on tax revenue collection (β =.0093434, p = 0.011<0.05). Additionally, the model demonstrates that tax incentives for custom duties have a considerable beneficial impact on tax revenue collection (β = 0.0000221, p < 0.05). It was discovered that the moderator variable green investment had a significant and favorable impact on tax revenue collection (β = 0.0000289, p = 0.000<0.05). The table further indicates that green investment positively moderates the relationships between corporation tax incentives and tax revenue collection β=.0000123 (p- value =0.010 <0.05), value-added tax incentives and tax revenue collection β=8.81e-06 (p- value =0.000<0.05) and lastly customs duty incentives and tax revenue collection β=4.76e-06 (p-value =0.004<0.05). The age of the firm as a control for the relationship between green investment, tax incentives and tax collection β= .0027685 (p-value =0.049 <0.05). Lastly Firm size acts as a control for the relationship between green investment, tax incentives and tax collection β=0.0000217 (p-value =0.048<0.05).

Table 4.18: Complete Effect of Moderation

(Source: Research 2024)

Discussion of Findings

Corporation Tax Incentives on Tax Revenue Collection

The study's primary goal was to ascertain how corporate tax incentives and tax revenue collection from Kenyan companies listed on the NSE relate to one another. The study discovered a positive correlation (r= 0.529; p-value = 0.000<0.05) between corporation tax incentives and tax revenue collection. This suggests that tax revenue collection tends to increase in tandem with increases in business tax benefits. A unit change in the company tax incentive has a favorable and significant influence on tax revenue collection, according to the study coefficient analysis (β = 0.0226592; p-value = 0.043 <0.05). This indicates that there was a comparable effect on tax revenues for each increase in tax incentives. The study is in line with one by Parys (2012), who evaluated how tax incentives affected investor attraction, with a special emphasis on developing nations. The first study found that in nations with unfavorable investment climates, Foreign Direct Investment (FDI) responded marginally to changes in corporate tax rates. The study also supports the findings of Tirimba et al. (2015), who investigated the role of stock market investing incentives as gifts or motivators in their investigation. Based on 66 carefully chosen studies from a database of ninety-three, the study found that investor opinions were a stronger predictor of stock market performance than tax breaks. The study emphasized how crucial it is for legislators and industry regulators to take the business community's opinions into account before enacting tax laws. It did, however, also point out that tax breaks can result in unexpected gains for stockholders.

Value-Added Tax Incentives on Tax Revenue Collection

The second objective of study was to determine the relationship between value-added tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. The study discovered a r= 0.490 (p-value = 0.000<0.05) favorable correlation between tax revenue collection and VAT incentives. A unit change in the VAT incentive has a positive and substantial effect on tax revenue collection, according to the study's coefficient analysis (β = 0.0093434; p-value = 0.011<0.05). Improving VAT incentives has a positive influence on tax revenue collection for NSE enterprises, as seen by the positive connection. The analysis is in line with that of Ironkwe and Peterus (2015), who investigated how VAT incentives affected the corporate finance performance of Nigerian listed companies. The results showed that, although the effect was negligible, VAT had a detrimental influence on agribusinesses' investment decisions. To encourage the expansion of agriculture in Nigeria, the governments should make sure that an appropriate VAT incentive plan is created and adequately executed.

Customs Duty Incentives on Tax Revenue Collection

The third objective of the study was to determine the relationship between customs duty incentives and tax revenue collection from companies listed on the NSE, Kenya. Customs duty incentives and tax revenue collection were found to have a positive and statistically significant association (r = 0.501; p-value = 0.000<0.05). The study coefficient analysis indicated that unit change in customs duty incentives have a positive and significant effect on tax revenue collection β= 0.0000221 (p-value =0.000<0.05). The positive correlation shows that increasing customs duty incentives have a beneficial effect on tax revenue collection for NSE businesses. This implies that changing the incentives for customs duties may influence total tax receipts. The study contrasts with a study by Ombuki & Wawire (2013) but agrees with Ohaka and Dagogo's (2015) study on the relationship between custom duty tax incentives and manufacturing enterprises' performance in Nigeria, which found a substantial impact. There is a variation in the manner of effect between taxes and a firm's performance; income taxes and value-added taxes encourage investment, whereas customs and excise taxes have a negative impact on performance.

Moderating effect of Green Investment on the relationship between Corporation Tax Incentives, Value-Added Tax Incentives, Customs Tax Incentives and Tax Revenue Collection

The fourth objective of the study was to determine the moderating effect of green investment on the relationship between corporation tax incentives, value-added tax

incentives, customs tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. The study looked into the relationship between tax revenue collection and green investment and discovered that there was a substantial positive relationship (r = 0.646; p-value = 0.000<0.05). This suggests that when green investments increase in NSE companies, so does the collection of taxes. The relationship between corporation tax incentives and tax revenue collection from companies listed on the NSE, Kenya, is found to be moderated by green investment, according to the study. P-value = 0.010 <0.05, with β = 0.0000123. The degree of green investment affects how company tax incentives affect revenue collection (figure 4.3).

Figure 4.3: Modi graph Corporation tax incentives * green Investment

(Source: Research 2024)

The study also discovered that the relationship between value-added tax incentives and tax revenue collection from Kenyan companies listed on the NSE is moderated by green investment. Beta = 8.81e-06; p-value < 0.05. This clarifies that as green investments have a favorable effect on the connection between tax revenue collection and value-added tax incentives (figure 4.4).

Figure 4.4: Modi graph VAT incentives* green investment
(Source: Research 2024)

Finally, the analysis discovered that the association between tax income from companies listed on the NSE, Kenya and customs incentives is moderated by green investment (β = 4.76e-06; p-value = 0.004<0.05). The degree of green investment affects how customs incentives affect revenue collection (figure 4.5).

Figure 4.5: Modi graph Customs duty incentives* green investment

(Source: Research 2024)

The research aligns with a study conducted in 2015 by Njeru and Ndimitu, which evaluated the impact of tax reductions on the earnings of EPZ companies in Kenya. For guidance and data analysis, the researchers employed a descriptive research approach. According to the study's findings, investment in EPZ companies was highly dependent on rising investment revenues. Furthermore, the study's conclusions demonstrated a strong correlation between investments and tax breaks. The researchers also disclosed that grants, loans, tax breaks, sales income, import tariff exemptions, tax breaks, and government subsidies had so far benefited EPZ companies. First, the study's conclusions show that tax laws are gradually protecting the environment and considerably encourage companies to improve their environmental performance.

Firm age and Firm size on Tax Revenue collection

The study found that firm age has a positive correlation with tax revenue collection of r= 0.120 (p-value =0.042<0.05). Indicating as the listed firm gets older, the tax revenue collection tends to increase, thus larger remittances. Further investigation found that firm age significantly affects tax revenue collection from of NSE listed firms β= 0.0027685 (p-value =0.049<0.05). The study also found that firm size has a positive correlation with tax revenue collection of r= 0.056 (p-value =0.018<0.05). Indicating that the higher the number of employees in the firm the higher levels of tax remittances in the NSE listed firms. The study also discovered that, for NSE listed enterprises, firm size has a substantial impact on tax revenue collection (β = 0.0000217; p-value = 0.048<0.05). The results support the assertions of Serghiescu et al. (2014) and Abdou et al. (2012) that a number of variables, such as profitability, liquidity, tangibility, business size, and asset turnover, may influence the debt-ratio. Profitability and liquidity are predicted to have a negative impact on the capital structure (debt-ratio), but tangibility, business size, and asset turnover are predicted to have a positive impact (Serghiescu et al., 2014). In a 2005 study, Daskalakis and Psillaki examined the factors influencing the capital structure of SMEs in French and Greek businesses. Between 1997 and 2002, a six-year period, 1,252 Greek enterprises and 2006 French companies were the subjects of this study. The study employed various factors to determine the capital structure of the organization, including its size, growth prospects, profitability, and assets structure (specifically, the ratio of tangible to total assets). The findings indicated that while company size and growth prospects had a positive relationship with Capital Structure, profitability and assets structure had a negative relationship with debt ratio (Capital Structure) in both nations. Results presented in Table 4.18 indicated the summary of both multiple and hierarchical regression models. Thus, the table shows (R2) and Δ in (R2) the changes in the R square indicate moderation is causing a significant change.

Hypotheses Testing

The hypotheses testing was conducted and summarized on table 4.19The first hypothesis of the study was that corporation tax incentives do not have a significant effect on the tax revenue collection from companies listed on the NSE, Kenya. The study found that corporation tax incentives have a significant effect on the tax revenue collection p- value =0.043 <0.05, the null hypothesis is rejected.

The second null hypothesis was that value-added tax incentives do not have a significant effect on the tax revenue collection from companies listed on the NSE, Kenya. The study results showed that VAT compliance has a significant effect on tax revenue collection. p- value = 0.011 <0.05. The null hypothesis is therefore rejected.

The third hypothesis that was tested stated that customs duty incentives do not have a significant effect on the tax revenue collection from companies listed on the NSE, Kenya. The study shows that customs duty incentives have a significant effect on the tax revenue collection p-value =0.000 <0.05.

The fourth hypothesis stated that green investment does not significantly moderate the relationship between

a) Corporation tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya.

b) Value-added tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya.

c) Customs duty incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya.

The research found that green investment significantly moderates relationship between Corporation tax incentives and tax revenue collection p-value =0.010 <0.05, the null hypothesis is rejected.

The study further shows that green investment significantly moderates relationship between Value-added tax incentives and tax revenue collection p-value =0.000<0.05, the null hypothesis is rejected.

Lastly the study shows that green investment significantly moderates the relationship between Customs duty incentives and tax revenue collection p-value =0.004<0.05, the null hypothesis is rejected.

Research Hypothesis B Sig Verdict

H01 corporation tax incentives do not have a significant effect on the tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. 0.0226592 0.043 Reject

H02 value-added tax incentives do not have a significant effect on the tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. 0.0093434 0.011 Reject

H03 customs duty incentives do not have a significant effect on the tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. 0.0000221 0.000 Reject

H04a green investment does not moderate the relationship between

Corporation tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya 0.0000123 0.010 Reject

H04b green investment does not moderate the relationship between

Value-added tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. 8.81e-060.000 Reject

H04c green investment does not moderate the relationship between customs incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. 4.76e-060.004 Reject

Table 4.19: Hypotheses Tests

Source: Research 2024)

The Hypotheses Tests were summarized on table 4.19

The Equations for each of the model in the research were as follows Model (i),

yt(i)=0.4698444 + 0.0055532FA 1t + 0.0000698FS 2t

Model (ii)

yt(i)=0.1612211+ 0.0060911FA 1t + 0.0000374FS 2t + 0.0290453CTI 3t + 0.022397VATI 4t + 0.0157045CUI 5t

Model (iii)

yt(i) = 0.2322499 + 0.0030767FA1t + 0.0000229FS2t + 0.0017757CTI 3t + 0.0069549 VATI 4t + 0.0103683 CUI5t + 0.0000403M

Model (iv)

yt(i) = 0.1944414+ 0.0030925FA 1t + 0.0000144FS 2t + 0.0125756 CTI 1t + 0.0066652 VATI 2t + 0.0110387 CUI 3t + .0000361 M + 5.77e-06M*CTI 5t

Model (v)

yt(i) = 0.1786893 + 0.0029676FA 1t + 0.0000152FS 2t + 0.0126187 CTI 3t+ 0.0106367 VATI 4t+ 0.0089607 CUI 5t + 0.000031 M + 7.43e-06M*CTI 7t + 9.78e-06 M* VATI8t

Model (vi)

yt(i) = 0.1863232 + 0.0027685 FA 1t + 0.0000217 FS 2t + 0.0226592 CTI 3t+ 0.0093434 VATI 4t + 0.0000221 CUI 5t + 0.0000289 M + 0.0000123 M*CTI 7t + 8.81e-06M* VATI8t + 4.76e-

06M*CUI9t

Summary, Conclusions and Recommendations

Corporation Tax Incentives on Tax Revenue Collection

The first objective of study was to determine the relationship between corporation tax incentives and tax revenue collection from companies listed on the NSE, Kenya. The study's findings indicate that there is a positive correlation between corporation tax incentives and tax revenue collection; (r= 0.529; p-value = 0.000<0.05) that is, as these incentives rise, so does tax revenue collection. The study's coefficient analysis also shows that there is a positive and significant relationship between unit changes in corporation tax incentives and tax revenue collection; (β = 0.0226592; p-value = 0.043 <0.05). That is, for every incremental change in tax incentives, there is a corresponding impact on tax revenues.

Value-Added Tax Incentives on Tax Revenue Collection

The second objective of study was to determine the relationship between value-added tax incentives and tax revenue collection from companies listed on the NSE, Kenya. The research study found that there was a positive relationship between VAT incentives and tax revenue collection. r= 0.490 (p-value = 0.000<0.05). The coefficient analysis indicated that unit change in VAT incentive has a positive and significant effect on tax revenue collection (β = 0.0093434; p-value = 0.011<0.05). The positive relationship indicates that improving VAT incentives positively impacts tax revenue collection for firms in the NSE.

Customs Duty Incentives on Tax Revenue Collection

The third objective of the study was to determine the relationship between customs duty incentives and tax revenue collection from companies listed on the NSE, Kenya. The research study found that there was a positive and significant relationship between customs duty incentives and tax revenue collection. (r = 0.501; p-value = 0.000<0.05) The study coefficient analysis indicated that unit change in customs duty incentives have a positive and significant effect on tax revenue collection. β= 0.0000221 (p-value =0.000<0.05). The positive relationship indicates that improving customs duty incentives positively impact tax revenue collection for firms in the NSE This means that adjusting customs duty incentives can impact overall tax revenues.

Moderating effect of Green Investment on the relationship between Corporation Tax Incentives, Value-Added Tax Incentives, Customs Tax Incentives and Tax Revenue Collection

The fourth objective of the study was to determine the moderating effect of green investment on the relationship between corporation tax incentives, value-added tax incentives, customs tax incentives and tax revenue collection from companies listed on the NSE, Kenya. The study investigated the correlation between green investment and tax revenue collection and found that there was a positive and significant relationship. ($r = 0.646$; p-value = $0.000<0.05$). This implies that as green investments in NSE firms the tax revenue collection improves as well.

The study found that green investment moderates the relationship between corporate tax incentives and tax revenue collection from companies listed on Kenya's Nairobi Securities Exchange., with $\beta = 0.0000123$ p-value = 0.010. The results suggested that the amount of green investment affects how company tax incentives affect revenue collection.The study also discovered that the relationship between value-added tax incentives and tax revenue collection from Kenyan companies listed on the Nairobi Securities Exchange is moderated by green investment. $\beta= 8.81e-06$; p-value 0.000. This clarifies that green investments have a favorable effect on the connection between tax revenue collection and value-added tax incentives.Lastly, the research found that green investment moderates the relationship between customs incentives and tax revenue collection from Kenyan companies listed on the Nairobi Securities Exchange. ($\beta = 4.76e-06$; p-value = 0.004). The amount of green investment affects how customs incentives affect revenue collection.

Firm age and firm size on Tax Revenue collection

The study found that firm age and firm size both have a positive correlation to tax revenue collection, $r= 0.120$ (p-value =0.042) and $r= 0.056$ (p-value =0.018) respectively. With beta coefficient table showing positive and significant effects of firm age and firm size on tax revenue collection. $\beta= 0.0027685$ (p-value =0.049) and ($\beta = 0.0000217$; p-value = $0.048<0.05$) respectively. This implied that as the listed firm gets older the tax revenue collection tends to increase, also the higher the number of employees the tax revenue collection tends to increase thus larger remittances. Subsequent research revealed that the moderating effects of green investment on the relationships between tax incentives and tax revenue collection of NSE listed firms are considerably controlled by firm age and firm size.

Conclusion

The study sought to determine the moderating effect of green investment tax incentives on tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. The first objective was to determine the relationship between corporation tax incentives and tax revenue collection from companies listed on the NSE, Kenya. it was determined that there exists a positive relationship between corporation tax incentives and tax revenue collection. Similarly, the second objective was to determine the relationship between value-added tax incentives and tax revenue collection from companies listed on the NSE, Kenya, VAT incentives was found to positively impact tax revenue collection among NSE-listed firms. Third specific objective was to determine the relationship between customs duty incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. Customs duty incentives were found to positively impact tax revenue collection among NSE- listed firms.

These results indicate that improvements in tax incentives, whether related to corporation tax, VAT, or customs duty, can contribute to increased tax revenue collection by these firms. Moreover, the study uncovered a moderating effect of green investment on the relationships between tax incentives and tax revenue collection. Specifically, green investment was found to influence the relationship between corporation tax incentives, VAT incentives, customs duty incentives, and tax revenue collection. This suggests that the level of green investment within NSE-listed firms can alter the impact of tax incentives on tax revenue collection, highlighting the importance of environmentally conscious investments in shaping fiscal outcomes. Furthermore, the investigation revealed a positive correlation between firm age and tax revenue collection, indicating that as listed firms mature, their tax revenue tends to increase. Notably, firm age was identified as a significant factor controlling for the moderating effects of green investment on the relationship between tax incentives and tax revenue collection.

The findings of this study underscore the importance of tax incentives, green investment, and firm age in shaping tax revenue collection among companies listed on the NSE. The study conclusions aligned with the principles of the TBL theory, emphasizing the integration of economic, social, and environmental objectives. The moderating effect of green investments on tax incentives and tax revenue collection demonstrates how firms can achieve sustainability goals while improving their fiscal contributions.

Recommendations

The study findings highlight the critical role of tax incentives in enhancing tax revenue collection from companies listed on the Nairobi Securities Exchange (NSE). Consequently, the government of Kenya should focus on strengthening tax incentive programs, particularly those targeting corporation tax, value-added tax (VAT), and customs duties. These programs should be streamlined and effectively administered to ensure compliance and encourage broader participation among firms. Moreover, the government should introduce targeted policies that promote green investments, as these were found to significantly influence the relationship between tax incentives and tax revenue collection. Specific measures such as tax credits or deductions for environmentally friendly initiatives can incentivize firms to adopt sustainable practices while contributing to fiscal goals. Lastly, policies that support firm growth and maturity, such as access to financing, market linkages, and business support services, are crucial, as firm age was identified as a significant determinant of tax revenue collection.

Management of NSE-listed companies should actively leverage the available tax incentives to optimize financial performance and compliance with tax regulations. Strategic utilization of corporation tax, VAT, and customs duty incentives can enhance revenue generation and operational efficiency. Additionally, companies should integrate green investments into their business strategies, as these investments not only improve their environmental impact but also enhance the benefits of tax incentives. By aligning their operations with sustainability goals, companies can position themselves favorably in both regulatory and market contexts. Finally, firms should focus on initiatives that promote organizational growth and longevity, such as innovation, diversification, and robust governance structures, which are associated with higher contributions to tax revenue over time.

Implications

The study provides actionable insights for both policymakers and corporate stakeholders. For the government, refining tax policies to incorporate and promote green investments can lead to enhanced tax revenue while advancing environmental sustainability. Companies, on the other hand, can use the findings to align their investment strategies with available incentives, ensuring both compliance and improved financial performance. Collaboration between government and businesses in promoting sustainable practices is key to achieving long-term fiscal and environmental goals.

The findings of the study have important theoretical implications. The study supports the principles of the TBL theory, emphasizing the integration of economic, social, and environmental objectives. The moderating effect of green investments on tax incentives and tax revenue collection demonstrates how firms can achieve sustainability goals while improving their fiscal contributions. This underscores the importance of policies and strategies that balance these three dimensions.

The positive relationship between tax incentives and tax revenue collection aligns with optimal tax theory, which advocates for designing tax systems that maximize revenue without distorting economic activity. The study highlights how well-structured tax incentives can effectively encourage compliance and investment, enhancing overall fiscal outcomes. The findings support neoclassical economic principles, which posit that incentives influence efficient resource allocation. By showing that tax incentives stimulate investment and increase tax revenue, the study reinforces the notion that strategic tax policies can foster market efficiency and economic growth.

The emphasis on green investments aligns with normative theory, which focuses on the ethical and societal implications of policies. Encouraging firms to adopt environmentally sustainable practices through tax incentives reflects the societal responsibility to address climate.

Further Research

The Study should be conducted to investigate the impact of tax reforms of tax revenue collection in Kenya. A study on the impact of digitization of tax systems on tax revenue collection could be conducted. Furthermore, although green investment was identified as a moderating factor, the current study did not explore the different categories of green investments or their differential impacts on tax revenue generation. Further research could work on detailing the importance of specific types of green investments, such as renewable energy projects or sustainable supply chain practices, to give more specific recommendations for policy and corporate strategies. Addressing these limitations would make future findings more rigorous and relevant.

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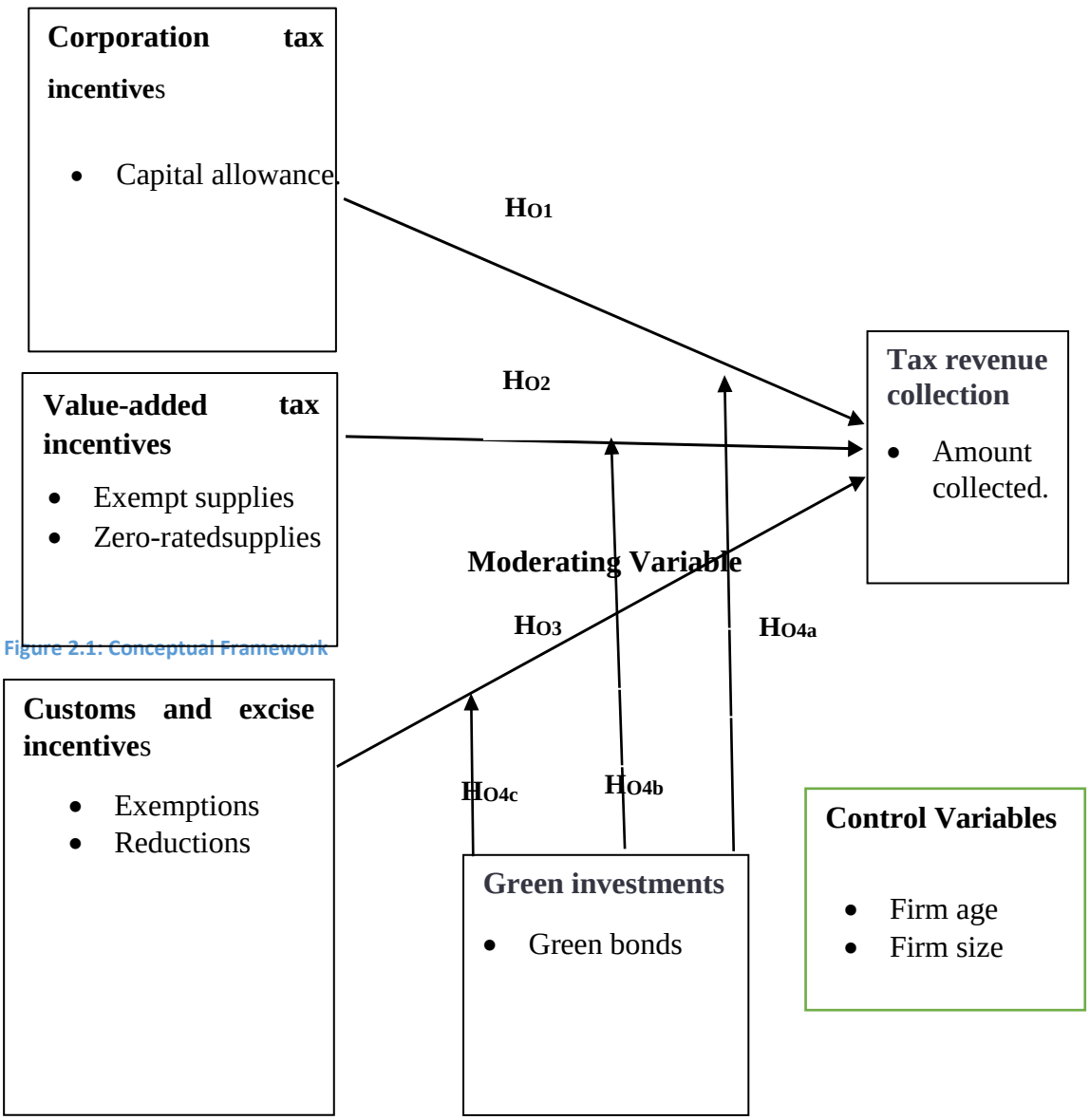
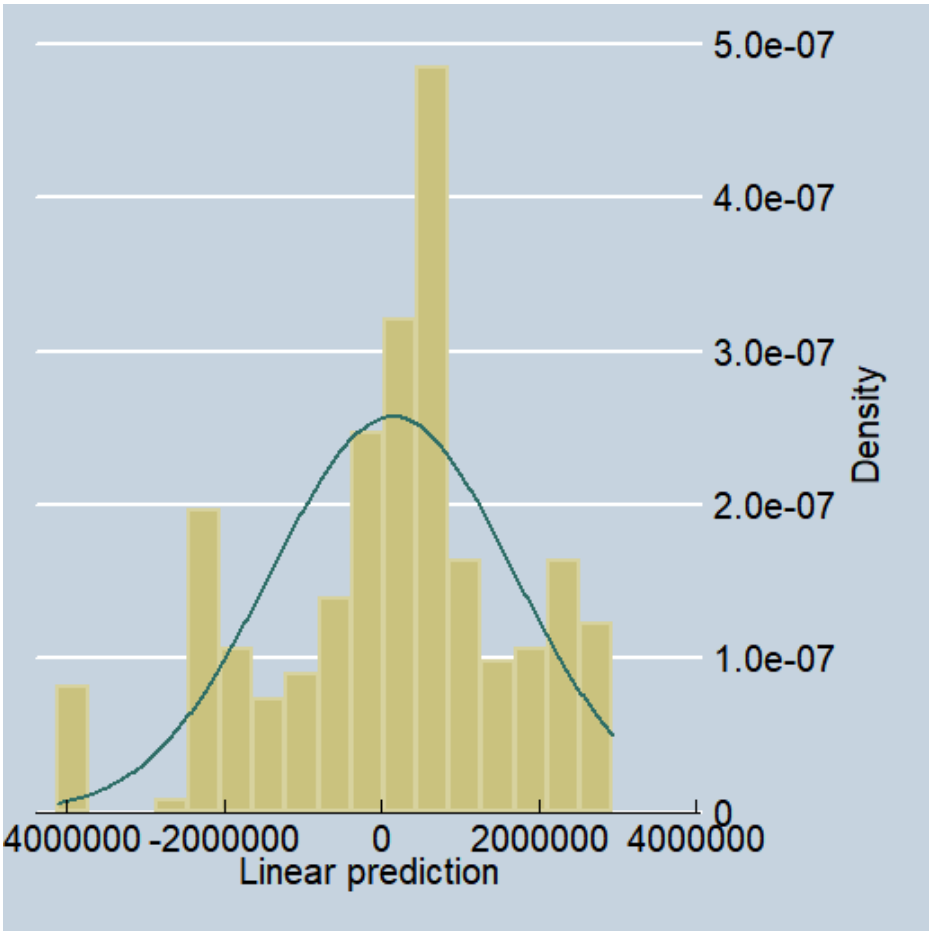


Figure 2.1: Conceptual Framework




```
Fixed-effects (within) regression               Number of obs      =       300
Group variable: firmcode                        Number of groups   =        60

R-sq:  within  = 0.0218                         Obs per group: min =         2
       between = 0.0226                                        avg =       4.9
       overall = 0.0056                                        max =         5

                                                F(2,168)           =     15.87
corr(u_i, Xb)  = -0.9995                        Prob > F           =    0.0000

------------------------------------------------------------------------------
      TaxRev |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    firm_age |   .0055532   .0023532     2.36   0.039    -.0010666     .012173
   firm_size |   .0000698   .0000284     2.47   0.030    -.0001246    .0002641
       _cons |   .4698444   .2136206     2.24   0.043    -1.286408    .3467191
-------------+----------------------------------------------------------------
     sigma_u |  1.0159626
     sigma_e |  .06903401
         rho |   .9954041   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(43, 168) =     1.13                 Prob > F = 0.2904
```

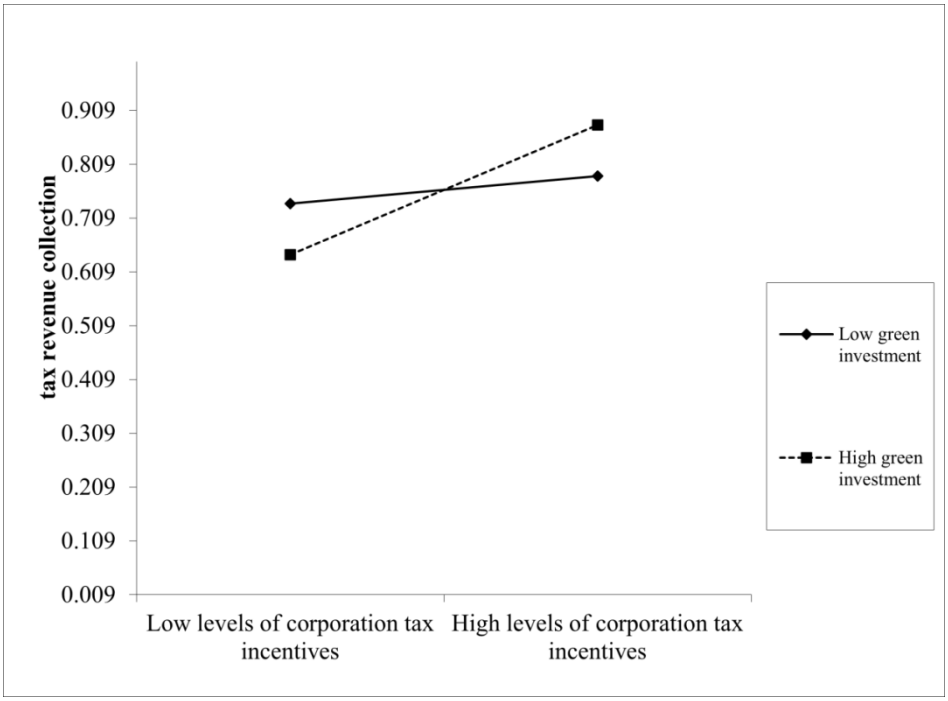
```
Fixed-effects (within) regression               Number of obs      =       300
Group variable: firmcode                        Number of groups   =        60

R-sq:  within  = 0.4224                         Obs per group: min =         2
       between = 0.0001                                        avg =       4.9
       overall = 0.0011                                        max =         5

                                                F(5,165)           =     24.13
corr(u_i, Xb)  = -0.9951                        Prob > F           =    0.0000

------------------------------------------------------------------------------
      TaxRev |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   firm_age |   .0060911   .0026013     2.34   0.020      .000955    .0112272
  firm_size |   .0000374   .0000176     2.18   0.031    -.0001905    .0001158
corporation~s |   .0290453   .0063668     4.77   0.000      -.00327    .0613606
value_added~s |    .022397   .0085459     2.62   0.010     .0055235    .0392705
customduty~s |   .0157045   .0069791     2.24   0.032    -.0020199     .033429
       _cons |   .1612211   .0340683     4.50   0.000    -.8010764    .4786342
-------------+----------------------------------------------------------------
     sigma_u |  .52450014
     sigma_e |  .05352937
         rho |  .98969156   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(43, 165) =     2.09             Prob > F = 0.0005
```

```
Fixed-effects (within) regression               Number of obs      =       300
Group variable: firmcode                        Number of groups   =        60

R-sq:  within  = 0.7106                         Obs per group: min =         2
       between = 0.0315                                        avg =       4.9
       overall = 0.0370                                        max =         5

                                                F(6,164)           =     67.12
corr(u_i, Xb)  = -0.9855                        Prob > F           =    0.0000

------------------------------------------------------------------------------
      TaxRev |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   firm_age |   .0030767   .0013618     2.25   0.040    -.0005994    .0067529
  firm_size |   .0000229   .0000113     2.01   0.047    -.0000862     .000132
corporation~s |   .0017757   .0008017     2.23   0.041    -.0252077    .0216563
value_added~s |   .0069549   .0029549     2.12   0.044    -.0052601    .0191699
customduty~s |   .0103683   .0043868     2.62   0.016    -.0022426    .0229792
greeninvest~t |   .0000403   3.15e-06    12.78   0.000     .0000341    .0000465
       _cons |   .2322499    .030138     7.31   0.000    -.6866653    .2221655
-------------+----------------------------------------------------------------
     sigma_u |  .35352439
     sigma_e |  .03800294
         rho |  .98857633   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(43, 164) =     4.35             Prob > F = 0.0000
```

```
Fixed-effects (within) regression               Number of obs      =       300
Group variable: firmcode                        Number of groups   =        60

R-sq:  within  = 0.7122                         Obs per group: min =         2
       between = 0.0422                                        avg =       4.9
       overall = 0.0625                                        max =         5

                                                F(7,163)           =     57.63
corr(u_i, Xb)  = -0.9699                        Prob > F           =    0.0000

------------------------------------------------------------------------------
      TaxRev |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   firm_age |   .0030925   .0013624     2.26   0.039    -.0005849      .00677
  firm_size |   .0000144    .000006     2.40   0.021    -.0000962    .0001249
corporation~s |   .0125756   .0044081     2.84   0.010    -.0449755    .0198243
value_added~s |   .0066652   .0031955     2.09   0.048    -.0055685    .0188989
customduty~s |   .0110387   .0044271     2.49   0.020    -.0016525    .0237299
greeninvest~t |   .0000361   5.39e-06     6.70   0.000     .0000255    .0000468
cti_greenin~t |   5.77e-06   2.06e-06     2.80   0.012    -6.18e-06    .0000177
       _cons |   5.77e-06   .0935927     2.03   0.047    -.6556994    .2668165
-------------+----------------------------------------------------------------
     sigma_u |  .24254266
     sigma_e |  .03801349
         rho |  .97602492   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(43, 163) =     4.34             Prob > F = 0.0000
```

```
Fixed-effects (within) regression               Number of obs      =       300
Group variable: firmcode                        Number of groups   =        60

R-sq:  within  = 0.7168                         Obs per group: min =         2
       between = 0.0398                                        avg =       4.9
       overall = 0.0596                                        max =         5

                                                F(8,162)           =     51.24
corr(u_i, Xb)  = -0.9716                        Prob > F           =    0.0000

------------------------------------------------------------------------------
      TaxRev |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   firm_age |   .0029676    .001455     2.04   0.049    -.0006955    .0066306
  firm_size |   .0000152   .0000067     2.27   0.040    -.0000949    .0001252
corporation_tax_incentives |   .0126187   .0026288     4.80   0.000    -.0320668    .0573042
value_added_tax_incentives |   .0106367   .0034001     3.13   0.007    -.0351233    .0138499
customduty_incentives |   .0089607   .0035253     2.54   0.020    -.0039249    .0218463
greeninvestment |    .000031   6.23e-06     4.98   0.000     .0000187    .0000433
cti_greeninvestment |   7.43e-06   .0000022     3.38   0.003    -.0000275    .0000127
VATi_greeninvestment |   9.78e-06   4.08e-06     2.40   0.024    -2.23e-06    .0000218
       _cons |   .1786893   .0826701     2.16   0.048    -.6381477     .280769
-------------+----------------------------------------------------------------
     sigma_u |  .25044831
     sigma_e |  .03782986
         rho |  .97769327   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(43, 162) =     4.40             Prob > F = 0.0000
```

```
Fixed-effects (within) regression               Number of obs      =       300
Group variable: firmcode                        Number of groups   =        60

R-sq:  within  = 0.7181                         Obs per group: min =         2
       between = 0.0305                                        avg =       4.9
       overall = 0.0396                                        max =         5

                                                F(9,161)           =     45.57
corr(u_i, Xb)  = -0.9835                        Prob > F           =    0.0000

------------------------------------------------------------------------------
      TaxRev |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   firm_age |   .0027685   .0013702     2.02   0.049    -.0009248    .0064618
  firm_size |   .0000217   .0000103     2.10   0.048    -.0000894    .0001328
corporation_tax_incentives |   .0226592   .0102812     2.20   0.043    -.0274638    .0727822
value_added_tax_incentives |   .0093434   .0032961     2.83   0.011    -.0340216    .0153349
customduty_incentives |   .0000221   .0000021    10.00   0.000    -.0240318    .0239876
greeninvestment |   .0000289   6.69e-06     4.32   0.000     .0000157    .0000421
cti_greeninvestment |   .0000123   .0000043     2.86   0.010    -.0000353    .0000106
VATi_greeninvestment |   8.81e-06   2.19e-06     4.02   0.000    -3.41e-06     .000021
CDI_greeninvestment |   4.76e-06   1.44e-06     3.32   0.004    -5.97e-06    .0000155
       _cons |   .1863232    .093001     2.00   0.049    -.6464555    .2738092
-------------+----------------------------------------------------------------
     sigma_u |  .33288109
     sigma_e |  .03785707
         rho |  .98723165   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(43, 161) =     4.38             Prob > F = 0.0000
```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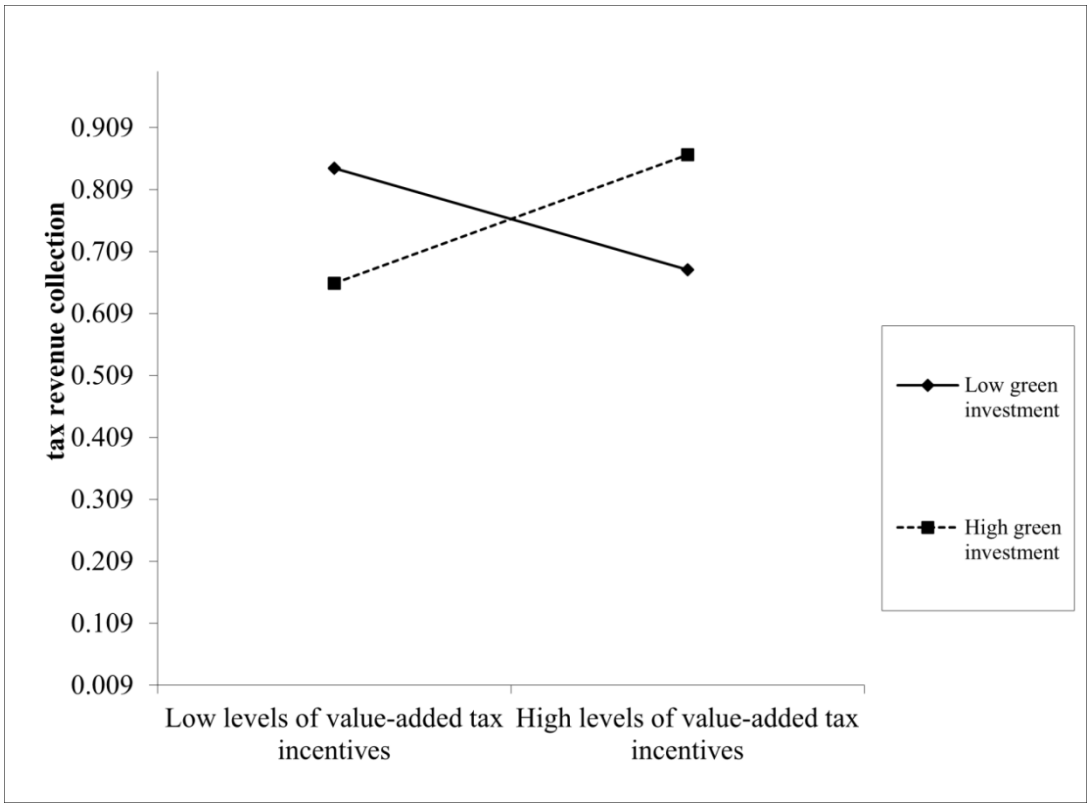
High levels of corporation tax incentives
Low green investment
High green investment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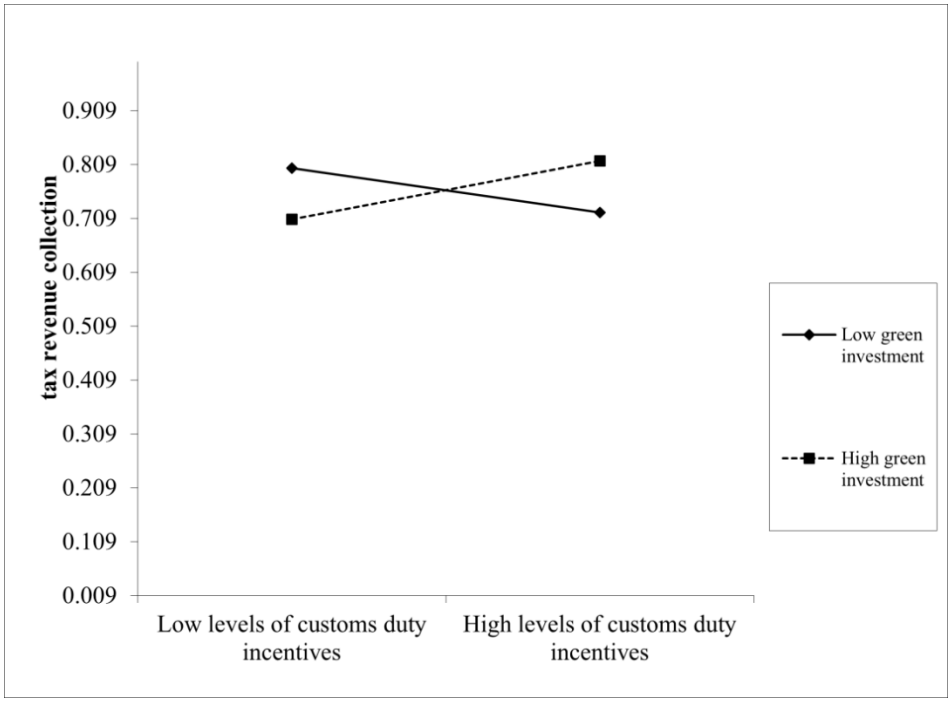
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