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Moderating Effect of Tax Morale on the Relationship Between Electronic Cargo Tracking Systems (ECTS) and Trade Facilitation in Kenya

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Abstract

The Port of Mombasa faces several trade facilitation challenges, including congestion, capacity limitations, and inefficient processes. At Mombasa port 15% of cargo delays are directly linked to seal tampering and unauthorized access, costing traders an estimated $50 million annually in demurrage and storage fees. These inefficiencies not only inflate trade costs but also erode Kenya's competitiveness as a regional logistics hub under the African Continental Free Trade Area (AfCFTA), where seamless cargo movement is critical for intra-African trade growth. The study sought to determine the moderating effect of tax morale on the relationship between Electronic Cargo Tracking Systems (ECTS) and trade facilitation in Kenya. The research was guided by two specific objectives: to assess the effect of ECTS on trade facilitation and to determine the moderating effect of tax morale on the relationship between electronic cargo tracking systems (ECTS) and trade facilitation in Kenya. The theoretical foundation was the Unified Theory of Acceptance and Use of Technology (UTAUT). A quantitative research design was employed, utilizing structured questionnaires to collect data from 116 clearing agents selected through simple random sampling to ensure representativeness. Data analysis involves descriptive statistics (means, frequencies) and inferential statistics (multiple regression analysis) to test two null hypotheses. The results revealed that electronic cargo tracking systems had a positive and significant effect on trade facilitation (β=0.209, p=0.006). The study findings showed that tax morale has a significant moderating effect on the relationship between the electronic cargo tracking systems and trade facilitation in Kenya. The study concluded that Electronic Cargo Tracking Systems significantly enhance trade facilitation by improving cargo security, reducing transit times, and minimizing revenue losses. Governments should prioritize the development and deployment of automated risk management systems within customs and border control agencies. In addition, policymakers should encourage the use of data analytics and machine learning to identify potential risks before they materialize, allowing for targeted interventions and smoother trade flows.

Keywords: *Tax morale, Electronic Cargo Tracking Systems (ECTS), trade facilitation*

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1. Introduction

Trade facilitation is a key driver of economic growth, particularly for developing nations reliant on international trade. According to the World Bank (2020), efficient customs procedures can increase trade volumes by up to 20% by reducing delays and lowering transaction costs. In Kenya, trade facilitation reforms under the National Trade Policy (2017) emphasize the need for digital transformation in customs operations. However, despite these policy directives, trade costs at the Port of Mombasa remain high, with logistics expenses accounting for nearly 40% of the total import costs (KNBS, 2021). This inefficiency undermines Kenya's competitiveness in regional and global markets. The adoption of advanced customs automation technologies presents an opportunity to address these challenges by improving transparency, reducing corruption, and enhancing operational efficiency.

The costs of trade and customs document processing, duration taken in approval of documents, staff requirements in processing and handling documentation and customs services, time for clearance of cargo clearance, and the amounts of stock carried by enterprises are useful indicators of performance in customs (Matsumoto & Lee, 2007). Transparency as an indicator of customs performance is relevant to both businesses and the government, hence it is considered a high-level performance outcome (Holloway, 2010). Customs performance can be measured by the reduction of clearance time and costs (Wei, 2013). Customs performance at the port of Mombasa has not been satisfactory. Various instances of inefficiency have been reported. The cost of business transactions within the port of Mombasa has more than doubled due to the imposition of non-tariff barriers and other complex procedures of customs administration (Mghenyi, 2017). KRA officers no longer facilitate trade. Ineffective KRA officers have led to the incurrence of extra storage costs. Importers incur an unprecedented extra Sh10 million each day due to payment for cargo storage charges and extra taxes owing to the imposed non-tariff barriers (Mghenyi, 2017). The delay in container cargo clearance at the port of Mombasa is hindering trade. The clearance period is usually long, and containers overstay at the port for more than 10 to 12 days (Milimu, 2015).

1.1 Problem Statement

Despite significant investments in customs automation, the Port of Mombasa continues to experience inefficiencies that hinder trade facilitation. According to the Kenya National Bureau of Statistics (KNBS, 2021), cargo dwell time at the port averages 7.2 days, far exceeding the global best practice of 1-2 days. This delay increases logistics costs, reduces trade competitiveness, and discourages foreign investment. While the Kenya Revenue Authority (KRA) has implemented digital systems such as the ECTS, their full potential remains unrealized due to infrastructural constraints, institutional resistance, and inconsistent enforcement (KRA, 2018). A 2019 World Bank report highlighted that Kenya loses approximately $1.5 billion annually due to inefficiencies in port operations, with customs-related delays contributing significantly to these losses (World Bank, 2019).

The Port of Mombasa faces several trade facilitation challenges, including congestion, capacity limitations, and inefficient processes. At Mombasa port 15% of cargo delays are directly linked to seal tampering and unauthorized access, costing traders an estimated $50 million annually in demurrage and storage fees (TradeMark Africa, 2024). These inefficiencies not only inflate trade costs but also erode Kenya's competitiveness as a regional logistics hub under the African Continental Free Trade Area (AfCFTA), where seamless cargo movement is critical for intra-

African trade growth. The persistence of manual processes alongside digital systems further complicates trade facilitation efforts. A 2020 audit by the Kenya Ports Authority (KPA) revealed that nearly 30% of cargo clearance processes still involve paper-based documentation, leading to inconsistencies and delays (KPA, 2020). Additionally, stakeholders such as clearing agents and importers often lack adequate training on digital systems, resulting in low adoption rates and operational bottlenecks.

The lack of empirical studies evaluating the effectiveness of customs automation at the Port of Mombasa exacerbates these challenges. Existing research has primarily focused on revenue collection rather than trade facilitation outcomes. For instance, a study by Kairu (2014) examined the impact of the Electronic Cargo Tracking System (ECTS) on revenue mobilization but did not assess its effect on trade efficiency. This study addresses this gap by comprehensively evaluating how the Electronic Cargo Tracking System (ECTS) influences trade facilitation at the Port of Mombasa. This study sought to investigate the moderating effect of tax morale on the relationship between the Electronic Cargo Tracking System (ECTS) and trade facilitation at the Port of Mombasa, Kenya.

1.2 Research Objectives

i. To assess the effect of electronic cargo tracking systems (ECTS) on trade facilitation in Kenya.
ii. To determine the moderating effect of tax morale on the relationship between electronic cargo tracking systems (ECTS) and trade facilitation in Kenya

1.3 Research Hypotheses

i. ***H01***: There is no significant relationship between the electronic cargo tracking systems (ECTS) and trade facilitation in Kenya.
ii. ***H02***: There is no significant moderating effect of tax morale on the relationship between electronic cargo tracking systems (ECTS) and trade facilitation in Kenya.

2. Literature Review

2.1 Theoretical Review

The study was anchored on the Unified Theory of Acceptance and Use of Technology. In 2003, Venkatesh, Morris, Davi, and Davis developed the UTAUT after identifying and reviewing eight theoretical models that compete (Van Schaik, 2009). The theory argues that expectations about performance and efforts determine the use of technology (Venkatesh, Thong & Xu, 2013). Performance expectancy is the belief that using a system will lead to achievement of gains in performance of tasks (Van Schaik, 2009). Research based on UTAUT has continually grown because emergence of new information technologies (Sykes, 2015; Sykes, Venkatesh & Johnson, 2014) and citizens' e-government (Chan, Thong, Venkatesh, Brown, Hu & Tam, 2010). Information technology has penetrated many aspects of society, and is now used in various contexts by various individuals (Venkatesh et al., 2013). Applying the UTAUT to the study, it is implied that cargo documentation, customs release process, and customs payment systems have been automated with expectations of improved customs performance. This theory was the basis of conceptualizing that automation of cargo documentation, automation of customs release, and automation of the payment system affect customs performance at the port of Mombasa in Kenya.

2.2 Empirical Review

2.2.1 ECTS and Trade Facilitation

Kilonzi and Kanai (2020) focused on the electronic cargo tracking system and its effects on revenue realization in East African member Countries. The study used an explanatory research design. The study targeted 51 senior staff, 94 middle management staff, and 141 junior staff. The sample size was 47 senior staff, 92 middle management staff, and 139 junior staff. Questionnaires were the major data collection instruments. The data was analyzed using descriptive and further inferential statistics, including correlation and regression analysis. The findings show a positive relationship between operational performance and revenue performance. The relationship is significant, thus operational performance has a significant influence on revenue performance. There was a positive relationship between cost and revenue performance. The relationship was significant at; thus, cost has a significant effect on revenue performance. There was a positive relationship between tax evasion and revenue performance. The relationship is significant; thus, tax evasion has an effect on revenue performance.

Wakuka (2024) focused on the effect of regional electronic cargo tracking systems on cargo safety at the Kenya Revenue Authority. The research adopted a descriptive research design. The study established that the independent variables of cargo tracking, cargo monitoring, and real-time response significantly influence the dependent variable, as they account for an 82.90% variation in cargo security. The results of a multiple regression analysis established that cargo tracking has a positive and significant effect on cargo security, that cargo monitoring has a positive and significant effect on cargo security, and that real-time response has a positive and significant effect on cargo security. The findings of the study revealed that cargo tracking enhances the security of the cargo by deterring cases of cargo diversion and by providing the exact location of the stolen, damaged, or tampered cargo, enabling the rapid response unit to locate the cargo and resolve the situation immediately. Cargo monitoring enhances cargo security by providing real-time alerts in respect of cargo seal tampering, which minimises the tampering that previously occurred during the changeover of seals at border points.

Munene, Odunga, and Soi (2024) focused on electronic cargo tracking and trade facilitation among clearing and forwarding companies at Inland Container Depot, Nairobi, Kenya. The explanatory research design was used. The target population of this study was the 369 clearing and forwarding agents and KRA staff, transporters, and a sample size of 191 respondents. Primary data was collected through a closed-ended questionnaire. The data was analyzed using descriptive and inferential statistics. The study found that electronic cargo tracking has a positive and significant effect on trade facilitation. The study emphasized the direct contribution of electronic cargo tracking to the enhancement of trade facilitation processes. KRA is recommended to support research initiatives that focus on the continuous improvement of customs systems and trade facilitation technologies.

Wandera (2020) focused on the effect of electronic cargo monitoring on trade facilitation in Kenya. The research adopted an exploratory research design and focused on the structure of an enquiry with the aim of drawing inferences from a causal relationship of the data. The target respondents were transporters, cargo tracking department officers (transit and monitoring Unit), the rapid response team, and customs officers at Busia one-stop border post with purposive and convenience sampling designs to be employed to aid in identifying the respondents. Given the small population, a census approach was adopted. The findings

indicated that implementation of the ECTS has improved border efficiency, reduced transit time, and time taken to clear goods at the border. Finally, the study findings indicated that due to the implementation of the system, clearance of cargo at the border point has been hastened and the collection of duties and fines has been made easier. Based on the study findings, the study concludes that the electronic cargo tracking system has a positive impact on cross-border trade.

2.2.2 Tax Morale, ECTS, and Trade Facilitation

Alabi, Atanda, Akintoye, and Kajola (2024) focused on tax morale and taxpayers' compliance among SMEs in Nigeria. They used the questionnaire tool to collect data for a sample of 179 tax auditors, and we also used partial least squares (PLS) to test the hypotheses. The result showed that each of the regulations and laws, the quality of communication between the tax authority and taxpayers, and the determinants associated with organizations have a positive effect on formal tax compliance. Meanwhile, the regulations and laws have a positive effect on actual tax. Also, there is no effect for both the quality of communication between the tax authority and taxpayers and the determinants associated with organizations on actual tax compliance. This study focused on the income tax on the profits of content creators and did not address the value-added tax on content creation.

Aghan, Koske, and Ogaga (2024) focused effect of tax morale on value-added tax compliance among medium taxpayers in the North of Nairobi Tax District, Kenya. The study adopted the explanatory research design, and primary data were collected using structured questionnaires with closed-ended questions. The study also found that tax morale had a positive and significant effect on Value Added Tax compliance.

Kustiawan, Prawira, Zulhaim, and Solikin (2019) focused on tax knowledge, tax morale, and tax compliance. The purpose of this study was to measure the tax knowledge and tax morale of government treasurers in colleges in complying with the taxation provisions. The study was conducted at four government colleges in West Java using a descriptive analytic method with a qualitative approach. The results show that treasurers have tax knowledge and tax morals that are good in complying with tax regulations, so there are not many obstacles in fulfilling their tax obligations.

Owusu, Bart-Plange, Koomson, and Arthur (2022) focused on the effect of personality traits and tax morale on tax evasion intention. A survey method was adopted, and questionnaires were developed to elicit responses for the study. The study hypotheses were tested structurally using the partial least squares-structural equation modelling technique. The results of the study demonstrate the existence of a positive and statistically significant relationship between three dimensions of the personality traits (agreeableness, conscientiousness, and openness to experience) and tax morale. Consistent with the expectation, the study also finds tax morale to be significant and negatively associated with tax evasion intention.

Mangoting, Sumarno, Gloria, and Indriani (2020) focused on how coercive power influences the relationship between tax morale on tax evasion. The study aims to evaluate the effectiveness of distributors in assisting Small and Medium Enterprises (SMEs) in rural or outer island areas to ensure business sustainability. Overall, one's morale can trigger tax evasion practices. Based on tests conducted in this study, the study found that tax morale was significantly negatively associated with the practice of tax evasion. Thus, solely, ethical and the level of morale are already considered sufficient to influence the degree of tax compliance. Taxpayers who already

have a high level of ethics do not need to be threatened with an inspection to increase their compliance (not doing tax evasion).

3. Methodology

This study adopted a quantitative research design to enable systematic collection and statistical analysis of numerical data on the study variables. A sample of 116 licensed clearing and forwarding agents was selected using simple random sampling to enhance representativeness and minimize selection bias. Data was gathered through structured questionnaires consisting of closed-ended Likert-scale items, which were pilot-tested to ensure reliability and validity. The collected data were cleaned, coded, and analyzed using the Statistical Package for Social Sciences (SPSS), where descriptive statistics (frequencies, means, and standard deviations) were used to summarize the responses, while inferential statistics, specifically multiple regression analysis, were employed to examine the relationship between variables and to test the two null hypotheses. Ethical considerations, including voluntary participation, informed consent, and confidentiality of respondents, were rigorously observed throughout the study.

4. Results and Discussion

4.1 Descriptive Analysis

4.1.1 Electronic Cargo Tracking Systems (ECTS)

The respondents were asked to indicate how ECTS provides real-time cargo tracking and monitoring. Results are presented in Table 1.

Table 1: ECTS provides Real-Time Cargo Tracking and Monitoring

	Frequency	Percent
Very Poorly	8	8.2
poorly	4	4.1
Neutral	11	11.3
well	28	28.9
Very well	46	47.4
Total	**97**	**100**

Results showed that the majority of the respondents who were 47.4% indicated that ECTS provided real-time cargo tracking and monitoring very well, 28.9% indicated that ECTS provided real-time cargo tracking and monitoring well, 11.3% were neutral, 8.2% indicated that ECTS provided real-time cargo tracking and monitoring very poorly, while 4.1% indicated that ECTS provided real-time cargo tracking and monitoring poorly.

The respondents were asked to indicate the extent ECTS has reduced cargo theft and loss at the airport. Results are presented in Table 2.

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Table 2: ECTS Reduced Cargo Theft and Loss at the Airport

	Frequency	Percent
Significantly Increased	10	10.3
Increased	1	1
No Change	18	18.6
Reduced	38	39.2
Significantly Reduced	30	30.9
Total	**97**	**100**

The results showed that majority of the respondents who were 39.2% indicated that ECTS reduced cargo theft and loss at the airport, 30.9% ECTS significantly reduced cargo theft and loss at the airport,18.6% indicated that ECTS did not have any change on the cargo theft and loss at the airport, 10.3% ECTS significantly increased cargo theft and loss at the airport while 1% indicated that ECTS significantly increased cargo theft and loss at the airport.

The respondents were further asked to indicate how ECTS improved transit and delivery efficiency. Results are presented in Table 3.

Table 3: ECTS improved transit and Delivery Efficiency

	Frequency	Percent
Not at All	8	8.2
Minimally	4	4.1
Neutral	25	25.8
Somewhat	41	42.3
Very Much	19	19.6
Total	**97**	**100**

The results showed that the majority of the respondents who were 42.3% indicated that ECTS somewhat improved transit and delivery efficiency, 25.8% indicated that they were neutral, 19.6% indicated that ECTS improved transit and delivery efficiency very much, 8.2% indicated that ECTS did not improve transit and delivery efficiency, while 4.1% indicated that ECTS minimally improved transit and delivery efficiency.

The customs agents were further asked to suggest improvements they would suggest for ECTS. From their responses to enhance Electronic Cargo Tracking Systems (ECTS) at ports, improvements should focus on technology integration, operational efficiency, and data security. This includes upgrading to more advanced tracking technologies like GPS and RFID,

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improving system interoperability, optimizing business processes, and implementing robust security measures to prevent data breaches and unauthorized access.

4.1.2 Tax Morale

The respondents were asked to indicate their level of agreement with statements on tax morale. Results are presented in Table 4.

Table 4: Descriptive Statistics on Tax Morale

statement	strongly disagree	disagree	neutral	Agree	strongly agree	Mean	std.dev
Whenever there is an innovation, taxpayers are informed through tax seminars and workshops	7.20%	23.70%	7.20%	45.40%	16.50%	3.40	1.22
Tax morale is driven by the acceptance of government decisions	6.20%	13.40%	4.10%	30.90%	45.40%	3.96	1.27
Tax Administrations require that beliefs, values, and norms determining the actions of citizens and taxpayers be consistent with their own convictions	7.20%	19.60%	3.10%	42.30%	27.80%	3.64	1.28

The results showed that the majority of the respondents, who were 61.9% agreed with the statement that whenever there is a new innovation, taxpayers are informed through tax seminars and workshops, with a mean of 3.40 and a standard deviation of 1.22. In addition, results showed that the majority of the respondents who were 76.3% agreed with the statement that tax morale is driven by the acceptance of government decisions, with a mean of 3.96 and a standard deviation of 1.27. Further results showed that the majority of the respondents who were 70.1% agreed with the statement that Tax Administrations require that beliefs, values, and norms determining the actions of citizens and taxpayers be consistent with their own convictions, with a mean of 3.64 and a standard deviation of 1.28.

The customs agents were further asked to suggest improvements for tax morale. To boost tax morale in Kenya, the customs agents recommend enhancing fiscal exchange, reducing tax expenditures, enhancing accountability and transparency in the use of taxes, and reducing the perceived level of corruption in the public sector.

4.1.3 Trade Facilitation

The respondents were asked to indicate how they had improved cargo security protocols to enhance customs efficiency at the airport. Results are presented in Table 5.

Table 5: Cargo security protocols improved customs efficiency at the airport

	Frequency	Percent
Significantly Declined	11	11.3
Declined	2	2.1
Neutral	10	10.3
improved	49	50.5
Significantly Improved	25	25.8
Total	**97**	**100**

The results showed that majority of the respondents who were 50.5% indicated that cargo security protocols improved customs efficiency at the airport improved, 25.8% cargo security protocols improved customs efficiency at the airport significantly improved, 11.3% indicated that cargo security protocols improved customs efficiency at the airport significantly declined, 10.3% were neutral, 2.1% indicated that cargo security protocols improved customs efficiency at the airport declined.

The respondents were asked to indicate whether protocols affected trade costs. Results are presented in Table 6.

Table 6: Protocols affected trade costs

	Frequency	Percent
Significantly Declined	**7**	**7.2**
Declined	**6**	**6.2**
Neutral	**8**	**8.2**
increased	**24**	**24.7**
Significantly Improved	**52**	**53.6**
Total	**97**	**100**

The results showed that the majority of the respondents who were 53.6% protocols significantly improved trade costs, 24.7% indicated that protocols increased trade costs, 8.2% were neutral, 7.2% indicated that protocols significantly declined trade costs, while 6.2% indicated that protocols declined trade costs.

The respondents were asked to indicate the extent protocols enhanced trade volume and competitiveness. Results are presented in Table 7.

Table 7: Protocols enhanced trade volume and competitiveness

	Frequency	Percent
Very Low	16	16.5
Low	8	8.2
neutral	18	18.6
High	38	39.2
Very High	17	17.5
Total	**97**	**100**

Results showed that the majority of the respondents who were 39.2% protocols highly enhanced trade volume and competitiveness, 18.6% were neutral on protocols enhancing trade volume and competitiveness, 17.5% indicated that protocols very highly enhanced trade volume and competitiveness, 16.5% indicated that protocols very lowly enhanced trade volume and competitiveness, while indicated that protocols lowly enhanced trade volume and competitiveness.

The customs agents were further asked to indicate any other observations or recommendations regarding cargo security protocols and trade facilitation at the airport. They indicated that to improve cargo security and trade facilitation at the Port of Mombasa, management should focus on enhancing automated information exchange, implementing modern technology for risk assessment, and strengthening access control measures. Additionally, ensuring cargo integrity through proper packaging and tracking technologies, coupled with robust employee training, is crucial.

4.2 Correlation Analysis

Pearson Correlation analysis was conducted to determine the relationship between the independent variable and the dependent variable. The correlation coefficients usually range from -1 for a perfect negative relationship to +1 for a perfect positive relationship, with zero revealing no relationship.

Table 8: Correlation Results

		Trade facilitation	ECTS
Trade facilitation	Pearson Correlation	1	
	Sig. (2-tailed)		
ECTS	Pearson Correlation	.544**	1
	Sig. (2-tailed)	0.000	

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Results showed that electronic cargo tracking systems (ECTS) had a positive and significant correlation with trade facilitation in Kenya (r=0.544, p=0.000).

4.3 Regression Analysis

4.3.1 Before Moderation

Regression analysis was done to determine the combined effect of ECTS on trade facilitation. To understand the nature of the relationship between the predictor variables and the Outcome variable, the coefficient of correlation, denoted R, and the coefficient of determination, denoted R^2 (R Square), were calculated. The findings of the model summary are presented in Table 9.

Table 9: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.784a	0.614	0.598	0.758

The results showed that the R value was 0.784, which implies that ECTS had a strong correlation with trade facilitation. This is because the R value is higher than 0.5. According to the value of the R-Square, 61.4% of trade facilitation could be explained by the ECTS, while the remaining 39.6% could be attributed to other factors other than the predictor variable.

Table 10: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	84.173	4	21.043	36.641	.000b
Residual	52.837	92	0.574		
Total	137.01	96			

The study results further revealed that the ANOVA model predicted trade facilitation significantly well (p=0.000). This was further supported by F F-statistic of 36.641. This indicated the statistical significance of the regression model that was run, and that overall, the regression model statistically significantly predicted the trade facilitation (it was a good fit for the data).

Table 11: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-0.094	0.334		-0.282	0.778
ECTS	0.209	0.074	0.214	2.806	0.006

ECST had a positive and significant effect on on-trade facilitation (β=0.209, p=0.006). The first hypothesis (H01) predicted that electronic cargo tracking systems do not have a significant effect on trade facilitation in Kenya. The p-value of 0.006 was less than 0.05; therefore, the

null hypothesis was rejected. This implied that electronic cargo tracking systems had a significant effect on trade facilitation at key entry points in Kenya.

4.3.2 Moderation Analysis

To determine the moderating effect of tax morale on the relationship between ECTS and trade facilitation in Kenya, hierarchical regression was adopted.

Table 12: Model Fitness for Moderating Effect

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.784a	0.614	0.598	0.758
2	.798b	0.637	0.617	0.739
4	.894d	0.800	0.784	0.555

From the results, it was shown that when the variable tax morale was added to the model, the R-squared change was 0.023, which was also significant. It was also revealed that the change in R-squared when the interaction term ECTS and tax morale was added to the model was 0.009. This was an indication that the introduction of the variable tax morale in the model led to a change in R square, hence the model was fit in explaining the moderating effect of tax morale. Table 13 shows the ANOVA results.

Table 13: ANOVA for Moderating Effect of Tax Morale

	Sum of Squares	df	Mean Square	F	Sig.
Regression	84.173	4	21.043	36.641	.000b
Residual	52.837	92	0.574		
Total	137.01	96			
Regression	87.289	5	17.458	31.951	.000c
Residual	49.721	91	0.546		
Total	137.01	96			
Regression	109.616	7	15.659	50.875	.000e
Residual	27.394	89	0.308		
Total	137.01	96			

According to the presented results, all the models had a p-value of 0.000, which was less than 0.05. This means that all the models were significant in explaining the moderating effect of tax morale on the relationship between ECTS and trade facilitation in Kenya. Table 14 results showed the regression coefficients for the interaction terms with the moderating variable.

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Table 14: Coefficients of Regression for the Moderating Effect of Tax Morale

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-0.094	0.334		-0.282	0.778
ECTS	0.285	0.081	0.276	3.533	0.001
(Constant)	-0.266	0.333		-0.798	0.427
ECTS	0.3	0.079	0.291	3.805	0.000
Tax morale	0.146	0.061	0.165	2.388	0.019
(Constant)	1.139	0.337		3.381	0.001
ECTS	0.15	0.062	0.146	2.432	0.017
Tax morale	0.547	0.119	-0.617	-4.617	0
ECTS.M	0.051	0.025	-0.259	-2.051	0.043

As per the findings, tax morale had a significant effect on trade facilitation (β= 0.146, p=0.019). This implies that tax morale enhances tax facilitation. The results also showed that the interaction term between ECTS and tax morale compliance (ECTS*M) was 0.051, and the p-value was 0.023. This means that there was a statistically significant moderating effect of tax morale on the relationship between electronic cargo tracking systems (ECTS) and trade facilitation in Kenya. The second hypothesis stated that there is no significant moderating effect of tax morale on the relationship between electronic cargo tracking systems (ECTS) and trade facilitation in Kenya. Since the p-value was less than 0.05, the study concluded that tax morale has a significant moderating effect on the relationship between electronic cargo tracking systems (ECTS) and trade facilitation in Kenya.

5. Conclusion

The study concluded that electronic cargo tracking systems had a positive and significant effect on trade facilitation. Electronic Cargo Tracking Systems (ECTS) significantly enhance trade facilitation by improving cargo security, reducing transit times, and minimizing revenue losses. These systems, often web-based, enable real-time monitoring of goods under customs control, helping to prevent diversion, theft, and accidents. This leads to increased efficiency, reduced costs, and a more secure and predictable trade environment.

6. Recommendations

Electronic Cargo Tracking Systems (ECTS) significantly enhance trade facilitation by improving cargo security, reducing transit times, and increasing transparency in the movement of goods. The Port Authority should leverage ECTS to streamline operations, reduce costs, and foster a more efficient and secure trade environment. The management should organize regular training workshops aimed at equipping employees with the necessary skills to handle ECTS.

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