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## **EFFECTS OF CUSTOMS FUNCTION AUTOMATION ON REVENUE COLLECTION IMPROVEMENT: CASE OF ETHIOPIAN REVENUES AND CUSTOMS AUTHORITY**

**Hiluf Berhe ABRAHA**

*Ethiopian Civil Service University, Ethiopia*

E-mail: ahilufberhe@yahoo.com

### ***Abstract***

*The Ethiopian Revenues and Customs Authority (ERCA) is the body responsible for collecting revenue from Customs duties and domestic taxes. In addition to raising revenue, the ERCA is responsible to protect the society from adverse effects of smuggling. This research confirms the key idea stated at United Nations conference on trade and development in 2016 as for the role of Customs functions automation and its aim to effectively improve revenue collection. In the study, the author used general scientific methods: analysis, synthesis, comparison, generalization. The study also adopted quantitative research approach and descriptive research methods, combat fraud, provide statistical information, encourage international trade, speed up Customs clearance and minimize administrative cost.*

*However, from ERCA annual reports, from media and personal observations, the researcher underlines the authority was ineffective in Customs functions automation due to different challenges. Thus, the objective of the study is to look into the effects of Customs functions automation in ERCA on revenue collection improvements. To achieve the objective, a 24-year revenue collection quantitative data were collected.*

*The collected data was analyzed by both descriptive and inferential statistics (simple leaner regression analysis) with SPSS Version 21.0 tool.*

*In conclusion, the author indicates a positive relationship among Customs functions automation and revenue collection enhancement. As ERCA atomize one Customs function, revenue collection ability increases by \$2.17. Thus, the author recommended that the Authority should concentrate on effective Customs functions automation.*

*Key words: revenue collection improvement, The Ethiopian Revenues and Customs Authority, Customs functions automation*

### **Introduction**

In Ethiopia, Customs duties collection started around the first century in the Kingdom of Axum on the Red Sea coast (Buyonge et al. 2008). In any case, it was built up amid Menelik II as a lawful legislative structure in 1889, to gather government income. Beginning from 1889-1923 it was under the Ministry of Finance & Treasury, from 1923-1941 under Ministry of Finance, from 1941-1996 under Ministry of Trade (Teweldeberhan Wgebriel 2011).

Currently, the Ethiopian Revenues and Customs Authority (ERCA) is the body responsible for collecting revenue from Customs duties and domestic taxes. In addition to

raising revenue, the ERCA is responsible to protect the society from adverse effects of smuggling. It seizes and takes legal action on the people and vehicles involved in the act of smuggling while it facilitates the legitimate movement of goods and people across the border (proclamation No 587/2008).

Customs Automation remains the backbone of forward advancing security and trade program initiatives, such as the Customs Trade Partnership Against Terrorism (C-TPAT) and the Container Security Initiative (CSI), by allowing for the performance of risk assessment and identification of high-risk containers, as well as the receipt of advanced shipment or passenger information for targeting purposes (WCO compendium of integrity best practice 2007).

Thus, Customs is an age-old institution whose mission has been subject to numerous changes over time. At its outset, the pivotal role of its mission was to levy Customs duties, which in other words meant collecting resources for the benefit of local authorities. Subsequently, and at different moments throughout its history, these duties became a key way of shaping the states economic policies which were designed to protect domestic goods.

## **1. Literature review**

Automation or computerization of Customs functions can improve efficiency and effectiveness and remove many opportunities for corruption. Automation can also increase the level of accountability and provide an audit trail for later monitoring and review of administrative decisions and the exercise of official discretion. Where possible automated systems should be configured in such a way as to minimize the opportunity for the inappropriate exercise of official discretion, face-to-face contact between Customs personnel and clients and the physical handling and transfer of funds (Revised Arusha Declaration 2003).

Automated tracking and audit systems produce reports that can identify weaknesses and reveal suspicious patterns of user activity when a legal necessity to do so has been identified. Automation allows trade to flow more freely and reduces the need for face to face interaction that could jeopardize the integrity of the import/export process. These acts as a beneficial buffer between Customs officials that perform clearance tasks and the traders that they regulate (WCO compendium of integrity best practice 2007, pp. 30-31).

Reader for advanced Customs management (M-02, p. 12) stated that introduction of computerized support for the processing of Customs declarations, perhaps more than any other change, provides the opportunity to implement standardized procedures that leave little need for face-to-face contact or opportunity for the use of discretion of officials. A properly designed system ensures that:

- the correct rates of duties and taxes are applied;
- exemptions are only granted to authorized organizations and for authorized goods and service;
- the required information and documentation is presented;
- time frames for payment are met; and
- those who do not comply with filing and payment time frames are identified and Follow-up action is taken.

In addition, the system can provide useful management information, including for example, identifying transactions that do not meet time standards for processing or individual officers who undertake actions that are out of the ordinary (e.g., physically inspecting too many shipments).

The WCO (2007, p. 18) on its “Integrity development guide” has been stated as; Customs must respond to changing international trade practices that are increasingly involving the use of electronic commerce. The electronic service delivery of Customs

functions improves efficiencies within the organization and the trading community and provides a mechanism to reduce the opportunity for corrupt behavior.

In addition to the above advantages of Customs automation, the WCO stated its limitations as, Automated systems can be vulnerable to attack and manipulation from inside and outside the organization. Where external consultants or contractors are involved it is important to ensure appropriate security checks are undertaken and appropriate supervision and accountability systems are established (Tanzania 1993). Where sensitive information is stored on automated systems a suitable audit trail needs to be established to protect the information and identify any officials who may access information for private or inappropriate purposes.

## **2. Research methodology**

The study has incorporated quantitative approach and has applied descriptive research type using the fact that a descriptive research design is used to describe the data and characteristic about “what is” being examined. Descriptive survey additionally empowers to acquire the present data. It is also used in fact finding studies and helps to formulate certain principles and give solutions to the problems concerning local or national issues. Descriptive survey method concentrates on exploring the present status, practice and problems of the under study problem. In this study, to collect secondary data, the researcher used the data of revenue collected by Ethiopian revenues and Customs authority from the year 1993 to year 2017.

Therefore, In order to collect relevant and adequate second hand data, the researcher applied deep survey of secondary sources .The researcher developed simple linear regression model ( $Y = \alpha + \beta X + \epsilon$ , Where;  $Y$  – Revenue collection,  $\alpha$  – Constant,  $\beta$  – Coefficient indicating rate of change of Customs functions automation,  $X$  – Customs functions automation,  $\epsilon$  – Error term). Both descriptive statistics and inferential statistics method of data analysis methods was applied. Significant levels were measured at 95% confidence level with significant differences recorded at  $p < 0.05$ . Therefore, to achieve the study purpose, one research hypothesis (RH) was tested. That is:-

### **Hypothesis1:**

H<sub>0</sub>1: Customs functions automation has no significant effect on revenue collection improvement.

## **3. Results and discussion**

### **3.1. Correlation statistics**

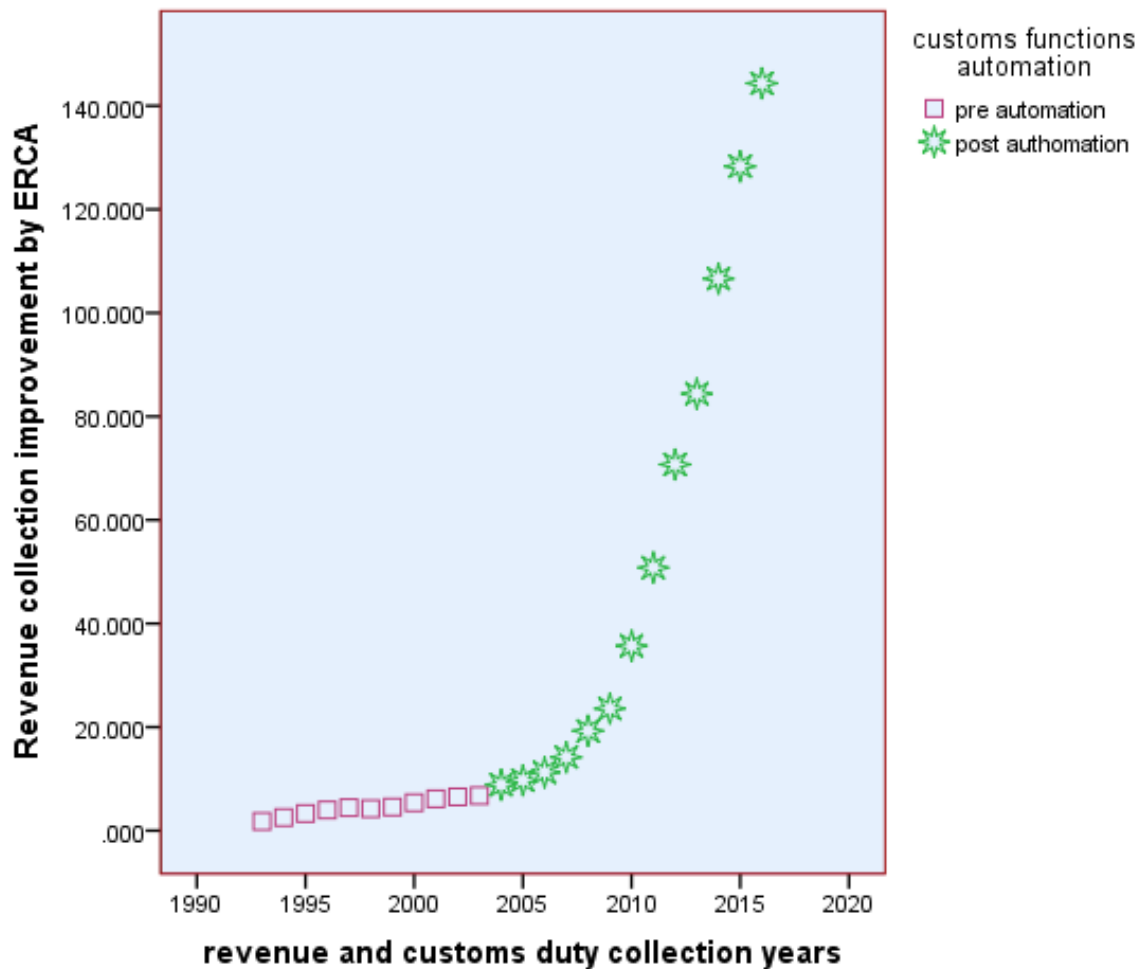
Correlation statistics is a method of assessing the relationship between variables/ factors. To be precise, it measures the extent of association between the ordering of two random variables. Thus, the study analyzed the relationships that are inherent among the independent and dependent variables as well as among the independent variables/ factors. The results regarding this were summarized and presented in table 1 bellow. Pearson Correlations results in table 1 showed that Customs functions automation and Revenue collection improvement was positively and significantly correlated ( $r=0.592$ ,  $\rho<0.05$ ). Thus Customs functions automation had 59.2% positive relationship with Revenue collection improvement.

The scattered diagram bellow shows the functional relationship between Customs functions automation and revenue collection improvements. The scattered diagram has two revenue collection regimes. That was pre automation and post automation of Customs functions. As it is shown in the diagram, during the manual age of ERCA (i.e., pre automation), the revenue collection trend was slow and with insignificant changes in revenue collection among years. where, while the Customs functions was automated, the revenue

collection enhancement increased at increasing rate, so the diagram indicates that, there is positive relationship between revenue collection and Customs functions automation.

**Table 1. Correlations between Customs functions automation and revenue collection improvement**

		Revenue collection improvement	Customs functions automation
Pearson Correlation	Revenue collection improvement	1.000	<b>.592</b>
	Customs functions automation	<b>.592</b>	1.000
Sig. (1-tailed)	Revenue collection improvement		<b>.001</b>
	Customs functions automation	<b>.001</b>	.
N	Revenue collection improvement	24	24
	Customs functions automation	24	24



**Graph 4.1. Relationship of revenue collection improvement and Customs function automations**

**Table 2. Regression: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.592 <sup>a</sup>	.350	.321	35.398794

a. Predictors: (Constant), Customs functions automation

b. Dependent Variable: Revenue collection improvement by ERCA

Source: survey data, 2016

The above table 2 shows, 35% of the revenue collection improvement is due to Customs functions automation .where 59.2% of the revenue collection variation is due to other factors which are not included in this model.

**Table 3. ANOVA**

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	14861.228	1	14861.228	11.860	.002 <sup>b</sup>
	Residual	27567.642	22	1253.075		
	Total	42428.870	23			

a. Dependent Variable: Revenue collection improvement by ERCA

b. Predictors: (Constant), Customs functions automation

The above table 3 indicates, test of model adequacy. The model is adequate if and only if Ho is rejected.

**Statistical hypothesis**

Ho: Customs functions automation has no significant effect on revenue collection improvement.

H1: Customs functions automation has significant effect on revenue collection improvement.

From the table 3 above, the researcher concluded that.at the test statistic, F=11.86 and P-value=0.002, Ho is rejected. Because p<5%. So the table shows that Customs function automations has significant effect on revenue collection improvements and the model is adequate.

**Table 4. Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		
	B	Std. Error	Beta			Lower Bound	Upper Bound	
1	(Constant)	-45.429	23.496		-1.933	.066	-94.157	3.298
	Customs functions automation	49.942	14.502	.592	3.444	.002	19.867	80.017

Dependent Variable: Revenue collection improvement by ERCA

The above table 4 indicates, Customs functions automation has significant effects on revenue collection improvements. That is; Other factors remain constant, as *one Customs function is automated*, revenue collection ability increases by Birr 49.942 which is equivalent to \$2.17.

### **Summary and concluding remarks**

Governments need money to finance their expenditure. In less developed countries, Customs still contributes the greatest revenue to the government in comparison to internal taxes. For example, in Ethiopia Customs contributes up to 41% of annual tax collections. So that, to collect revenue effectively from the economy, Customs organization should have to be modernized. Nations who has modernized Customs authority can easily improve revenue collection. Combat fraud provides statistical information, encourages international trade. Speeding up Customs clearance minimize administrative cost, where, lack of well automated Customs functions severely limit Customs capacity to effectively accomplish its mission.

### **Endnotes**

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