SSRG International Journal of Economics and Management Studies Volume 6 Issue 8, 230 - 240, Aug 2019
ISSN: 2393 – 9125 / https://doi.org/10.14445/23939125/IJEMS-V6I8P125 

*Original Article*

# Collection of Vat using Cash Register Machines in Wolaita Sodo Town: Reflection of Challenging Factors

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***Abstract*** *- The study was conducted to assess challenging factors to collect VAT using a cash register machine in the case of Wolaita Sodo Town. The paper has identified challenging factors related to VAT collection using cash register machines from the point of view of VAT payers' knowledge, VAT evasion, VAT audit, operation, and maintenance cost. The study has used both primary and secondary sources of data. Using stratified sampling methods 274 Value-added VAT payers were selected from the total functional population of 870 with a 94.5% return rate that means 259 respondents were returned questioners and the remaining 4.5% or 15 respondents were not returned, questioners. The collected data through questionnaires were summarized and analyzed using both descriptive statics to measure central tendency, and inferential statistics to investigate the predictors' effect on VAT collection, through regression analysis and Pearson product-moment correlations to determine each independent variable's impact on the dependent variable*

*The findings of this research were VAT collection using a cash register machine has a positive effect on VAT revenue and other independent variables have a significant effect on VAT.*

***Keywords*** *- Value Added Tax (Vat), Cash Register Machine, Knowledge, Vat Evasion, Vat Audit, And Costs*

## I. INTRODUCTION

(Size 10 & Normal) Governments done with the world have their definite numbers of public missions, such as social security and other facilities of public services like electricity, water supply, railways, substantial electrical, etc. Common costs programs include health and welfare programs, defense expenditure, community safety, and interest and reimbursement of major on government debt. Under this view, the part of the tax system is to increase a quantity of revenue that is constricted to the level of administration facilities. For those developed nations with important bases of income other than duties, the administration can fund operations with less dependence on recent tax revenue (Wondwossen Jerene, 2016).

Tax is an obligatory contribution of the prosperity of a person or body of persons for the service of the public experts. As such, it is compulsory; we have to pay it whether we like it or not; it is a definite contribution, a giving up of the person's prosperity, that is to say, it is a detriment for the use of the community authorities, which include the way, the State and the local powers. Duty has an earlier history that goes back to the initial times; as early as the Axumite period for the case of Ethiopia (Wondwossen Jerene, 2016).

One of the instruments in which countries raise revenue to finance administration expenditure on the properties and facility has been used taxation as their tool. As matched to the developing nations, the industrialized nations have been able to create significant revenue through imposing taxes. One of the reasons for this has been the operational tax scheme working in the advanced nations, unlike the unindustrialized nations which are measured by weak monetization and the low growth of the authorized sectors. In other words, these states have involved tax structures that have one or a mixture of the following required structures as economic effectiveness, organizational simplicity, flexibility, political responsibility, and justice (Simon Tareke Abay, 2013).

Governments in little income states have the challenging work of creating wide-ranging decisions about public expenditure, taxation, and borrowing with the aim of helping their countries keep long-standing debt sustainability, achieve higher economic growth, and eventually decrease poverty. One of the challenging factors of applying policies is rising community revenues which are difficult in the context of macroeconomic and growing instability, high debt ratios, weak tax administration, and large informal sectors (Wondwossen Jerene, 2016).

In 2013, Ethiopia collected ETB 62.2billion tax revenue, which declined by ETB 12.3billion compared to the plan. Total VAT collection was ETB 25.23billion in the quarter, which shares 40.53% of total tax revenue in the country. The tax system needed to be economically efficient implication to the

tax system that should not have an effect on the distribution of money. The tax system countries must be implements easy and not expensive to manage and that should be able to respond to changing financial conditions. Taxpayers should also be able to control what they are really paying so that the political system can more exactly imitate the preferences of persons (The Reporter, 2013).

According to Taye, (2011) Value Added Tax (VAT) is a tax on the value added to goods and services by enterprises at all steps of the production and supply procedures. It rises in each and every time a "taxable person" makes a "supply of goods or services" in the sequence of his business. Thus, in some countries, it is called "goods and services tax" or GST. VAT was created by a French economist in 1954 by Maurice Laure, director of the French Tax Administration. The value-added tax was developed because very high sales taxes and tariffs inspire fraud. This paper is to measure the challenging factors of VAT collection using cash register machine (technology) in Ethiopia revenue and Customs authority southern nation and nationality peoples of Wolaita Sodo Town administration taxpayers and it will forward some recommendation for this organization**.**

## II. STATEMENT OF THE PROBLEM

The main source of government income to give public utilities is taxation. Now, the government uses several methods to make the tax collecting procedure convenient, easy to manage, and free of prohibited activities. From these practices, the most broadly used is allocating collection accountability to different governmental offices based on their power such as ERCA Woliata Sodo branch authorities. The government also enforces the use of cash register machines to assist the administration of tax simply, cash register machines can avoid tax evasion particularly by keeping records and it also helps rapidly to process clients' businesses and exact collection of taxes (IMF 2015).

According to Keever's study (2008), Special features of African Value-Added Tax are the degree to which operation of the VAT has exposed the need for wider institutional change and transformation of revenue management. So, because of modernization on VAT collection would look some problems that can face African countries as per server finding. Nowadays, Ethiopia is managing its revenue and tax collection by using a cash register machine. Since 2009 the Ethiopian Revenues and Customs Authority implement digital tools for the collection of VAT, TOT, and Business Income tax. Therefore, since the cash register machine is a consequence of transformation (technology) the tax director may face different problems.

According to Herouy (2004), the Ethiopian government has started a number of processes. These include the design and computerization of the taxpayer registration process; the operational improvement of taxpayer services activities, return practice and debit and audit activities; public campaign and taxpayer training. These processes are likely to improve the government's income condition. In 2009 the Ethiopian government knows that using a cash registration machine (CRM) for the collection of taxes can improve the government's revenue position as well as decrease the degree of tax avoidance.

According to Alem Zeriga, (2014), Most countries authorities tax law needs customers to gather the receipt and keep it at least for a little while after departure the works, so, it is better to use a cash register machine is very important in order to easily give receipts for the consumers while the business sells products or services accordingly the tax law, again to check that the shop records sales, so that it cannot evade sales taxes. Here, we can get that using a cash register machine can reduce the degree of tax evasion by allowing the business records.

According to Ainsworth (2011), every VAT authority is liable to missing trader fraud. The fraud is simple and can be easily prohibited by using the right technology i.e. Cash registration machine. Therefore, by using tools (cash register machine) tax authorities can decrease the degree of tax fraud. Then, this paper dealt with the challenging factors to collect VAT revenue using a cash register machine in Wolaita Sodo Town. Even though there is much research conducted by different researchers, they don't discuss the challenging factors of VAT revenue using technology in Sodo Town.

Though the technology has aids for both Ethiopian Revenues & Customs Authority (ERCA) and taxpayers, there was misinterpretation between ERCA and taxpayers. Customers and owners of the business entity do not use the machine efficiently and professionally, there could be challenges associated with the skill of handling the machines, the affordability of installation costs, maintenance costs, and annual renewable costs that could be linked to taxpayers. This behavioral problematic rises because of the youngness of the machine. Attitude problems began as soon as people find out that a system change was being considered.

Does the main question remain how Sodo Town taxpayers collect VAT using machines and increasing VAT revenue? Thus, there is essential to observe actually benefiting the government by increasing the VAT collections and increasing VAT returns. This study thus aimed to assess the challenging factors to collect VAT using cash register machine; on VAT revenue, Knowledge of taxpayer, towards the machine, measure the effects of CRMs on tax evasion and audit follow up and maintenance and operation costs. Because of the less adaptation of the machine in Ethiopia, there was no adequate research made on it. Consequently, there are no clearly stated

challenging factors of VAT & cash register machines. Therefore, this study was to fill this gap.

**The objective of the Study**

**General Objective**

The main objective of the study is to assess the challenging factors to collect value-added tax a study on Wolita Sodo Town.

**Specific Objectives**

i. To identify the challenging factors to collect VAT
ii. To investigate the effect of the challenging factors to collect VAT
iii. To identify the effect of demographic factors variables to collect VAT

**Hypothesis**

The researcher developed the following hypothesis to test the challenging factors that affect the collection of VAT revenue. This means for the testing purpose, the researcher began by hypothesizing that the knowledge about cash register machine and VAT, VAT evasion, Audit follow up, and administration cost is significant to affect the VAT income, therefor alternative hypothesis was stated as indicated here followed:

H1: Knowledge of taxpayers about cash register machine and VAT has significant & Positive effect on VAT revenue.

H2: Audit follows up, has a significant and positive effect on VAT revenue.

H3: VAT Evasion has a significant and positive effect on VAT revenue.

H4: Operation and maintenance cost has a significant and positive effect on VAT income.

## III. RESEARCH DESIGN AND METHODOLOGY

**Introduction**

This chapter describes the research system and methodology that was being used to guide the study under the following sub-titles: the research design, target population, sample and sampling size, data collection processes, and data analysis procedures.

**Research Design**

According to Mbogo et al (2012), the research design is a plan for collecting and utilizing data so that desired information can be obtained with sufficient precision so that a hypothesis can be tested properly. Chamwali (2006) contends that research design is the arrangement of conditions for the collection and analysis of data in a manner that aims to combine relevance to the researcher's purpose with economy in a procedure.

Since the general objective of this research study focused on the assessment of challenging factors to collect VAT using a cash register machine the researcher was used a casual research design to analyze the casual interaction between the dependent and independent variables quantitative approach was used. Data was collected by using questioner. The questioner contains closed-ended questions with a predetermined scale for the response.

Sources of Data

The study was implemented both primary data and secondary data as part of the primary data source, questionnaires were distributed to Value added tax registered organizations, to assess the challenging factors of VAT using cash register machines. The source of the secondary data includes research papers, journals, textbooks, Internet sites, and web pages.

**Data Collection Method**

A survey is a method of collecting data in which people are asked to answer a number of questions usually in the form of a questionnaire. The reliability of a survey's results depends on whether the sample of people from which the information has been collected is free from bias and sufficiently large (Leary, 2004). The questionnaires were designed for close-ended types of questions.

**Target Population**

According to the ERCA Wolaita Sodo Town branch, the total population of Value added tax registered organizations are 928 among them 870 are functional and from this 274 were taken as a sample of the rest, and that sampled population was selected from the entire target population. The VAT register organizations (VAT payers) were categorized as Service, Merchandize, and Manufacturing. The target population was stratified as below:

**Table 3.1.Target Population by Business Activities**

| *No* | Type of Business Activities | Number of Population |
|---|---|---|
| *1* | Service | *480* |
| *2* | Merchandize | *380* |
| *3* | Manufacturing | 50 |
| | Total | 870 |

$$n = \frac{N}{1 + N\,(e^2)}$$

Where, n = is the sample size,

N = Desired population number

| Variables | Construct | *Cronbach's Alpha* | *No of items* |
|---|---|---|---|
| DVAT | VAT revenue | *.795* | *6* |
| KNOW | Tax payer knowledge | *.738* | *4* |
| TEV | Tax evasion | *.832* | *4* |
| TAUDIT | Tax audit | *.761* | *4* |
| OPEC | Operation and maintenance cost | *.814* | *6* |

e = is the level of precession that assume e = 0.05

When the formula is applied to the above population the sample size which is necessary for the study is determined below as follows.

$$N = \frac{870}{1+ 870\ (0.05)2} = 274$$

The desired level of precision is between (5% - 10%), which is assuming e =0.049 ≈5%.

Hence, out of the total population of 870 VAT-registered organizations, a sample size of 274 VAT payers was taken. Based on refereeing to different researches and advises, Identifying the 274 participants for the study based on stratified & a simple random sampling technique was used. The strata sample sizes were determined by the following equation;

Where; n = Sample size for stratum

N = Population size for stratum
NT = Total population size
S = Total sample size

**Table 3.2 Stratified Sample Design**

| No | Types of Business Activities | N | N/NT * s | N |
|---|---|---|---|---|
| 1 | service | 480 | (480 * 274/870) | 151 |
| 2 | Merchandize | 340 | (340 * 274/870) | 107 |
| 3 | Manufacturing | 50 | (50 * 274/870) | 16 |
| | Total | 870 | | 274 |

*Source: ERCA wolita sodo branch Jan. 2018 data Sampling Design*

Since the researcher has three different populations so that the researcher designed its sample through stratified random sampling by gathering representative information from the study area. The stratified sampling technique is generally used when the population is heterogeneous. The entire population is divided into sub-population (subgroups) (i.e. the sub-population being homogenous). Items are selected from each stratum. This method is more reliable & accurate, a stratified random sampling allows as taking into account the different subgroups of people in the population.

**Data Analysis**

The collected data through questionnaires were summarized and analyzed using both descriptive statics to measure central tendency, and inferential statistics to investigate the predictors' effect on VAT collection, through regression analysis and Pearson product-moment correlations to determine each independent variable's impact on the dependent variable. The purpose of using regression equations in this study is to effectively describe, understand, predict, and control the stated variables. The quantitative method involved descriptive analysis. Descriptive analysis such as frequencies and percentages were used to present quantitative data in form of tables and graphs. Data from the questionnaire were coded and logged in the computer using software SPSS version 20.

**Reliability Test**

Reliability indicates the extent to which a variable or set of variables is consistent with what is supposed to measure (Hair, 2007). In this study, Cronbach's Alpha reliability test was used to measure the internal consistency and reliability of the questionnaire. According to Hair, et al., (2006), if Cronbach's Alpha (α) is greater than 0.7, it means that it has high reliability and if α is smaller than 0.3, then it implies that there is low reliability. So, if the score is high its reliability is more and the less the score then the lower the reliability. As explained above, to check the reliability of the instrument thirty questionnaires were distributed to VAT payers. The reliability coefficient for the entire questionnaire and also, when the questions were grouped for relatedness to each other, the reliability coefficients were significantly higher.

**Table 3.3 Summary of Reliability Study**

*Source: own survey, 2018*

**Table 3.4. Cranach's Alpha**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | *N of Items* |
|---|---|---|
| .854 | .861 | *5* |

**Normality Test**

Normality test of data is applied to determine whether a data is well-modeled by a normal distribution or not and to compute how possible an underlying random variable is to be normally distributed Skewness and Kurtosis were used to measure the normality of data for this study. George and Mallery (2005) stated that the acceptable range for skewness and kurtosis is ±2. Therefore, according to this study, the Skewness and Kurtosis of each variable fall within the gap of ± 2. Hence, the data collected is considered normally distributed.

**Validity of the Instruments**

Validity can be defined as the accuracy and meaningfulness of the inferences which are based on the research results. Validity can also be thought of as utility. In other words, validity is the extent to which differences found with a measuring instrument reflect true differences among those being tested (Kothari, 2004). The researcher gained useful insights from his advisor and pilot test feedback especially about the content validity and clarity of questions and instructions in all instruments. On the basis of their comments, the researcher revised the contents of the questionnaire, before it was used in the study.

**Ethical Considerations**

Conducting research requires a good ethical consideration (Babbi and Mouton, 2002). The information obtained was used only for the intended research purpose and to assure this the researcher gave due attention to the ethical standards related to informed consent, confidentiality, privacy, and anonymity. To assure confidentiality for the respondents, the questionnaire was distributed by suggesting that respondents need not write their name on the questionnaire and by assuring that their responses will not be used for any other purpose.

## RESULT AND DISCUSSION

This chapter of the research has gone through the finding of the data obtained from 259 VAT-registered organizations in Woliata Sodo Town administration using questioner and its interpretation of both descriptive and inferential related data analyses result. The statistical tool which is SPSS software version 20 was adopted to make the analysis and to present the data for this research.

## RESPONDENTS DEMOGRAPHIC CHARACTERISTICS

The demographic characteristic of the respondents in this research includes Area of business activities, starting time of using machine, gender, age, and education level issues. This demographic data express the feature of the respondents and it gives detailed information about the sample population in terms of frequency and percentage analysis below the table and the information narrated and interpreted below the table.

Table 4.1. Areas of Business Activities

| Business Activities | Frequency | Percent |
|---|---|---|
| Service | 122 | 47.1 |
| Manufacturing | 45 | 17.4 |
| Merchandize | 92 | 35.5 |
| Total | 259 | 100 |

Source: (own survey, 2018)

The figure above shows those, the majority (47.1%) of the business where service providers, (35.5%) were merchandise while (17.4%) of the business were manufacturing.

This can be deducted to mean that most of the businesses were required to charge VAT in service and hence the need for a cash register machine.

**Table 4.2. Duration of Business Activities**

| Duration of Business Activities | Frequency | Percent |
|---|---|---|
| Less than 2 years | 27 | 10.4 |
| Between 2-4 years | 91 | 35.1 |
| Between 4-6years | 91 | 35.1 |
| Above 6 years | 50 | 19.3 |
| Total | 259 | 100 |

Source: (own survey, 2018)

In the above table 4.3 the finding shows that the majority (35.1%) of VAT payers (business owners) started using cash register machines to collect VAT have been existence for between 2-4 and 4-6 years

respectively, 19.3% have been existence above 6 years and 10.4% in existence less than 2 years.

**Table 4.3. Gender**

| Gender | Frequency | Percent |
|---|---|---|
| Male | 202 | 78 |
| Female | 57 | 22 |
| Total | 259 | 100 |

Source: (own survey, 2018)

Table 4.4. Show that considerably larger numbers of the respondents were male which means 78% of the total respondents are male, whereas 22% of them are females.

**Table 4.4 Ages**

| Age | Frequency | Percent |
|---|---|---|
| 25-30 | 34 | 13.1 |
| 30-35 | 77 | 29.7 |
| 35-40 | 90 | 34.7 |
| 40-45 | 41 | 15.8 |
| 45-50 | 13 | 5.0 |
| Above 50 | 4 | 1.5 |
| Total | 259 | 100 |

**Source: (own survey, 2018)**

According to table 4.5, respondents were between the age group 25-30 are 13.1% of the total sample population whereas, age group 30-35 are 29.7%, 35-40 are 34.7 % most of the taxpayers are under this age group. The rest 15.8%, 5%, and 1.5% of the total respondent were between 40-45, 45-50, and above 50 years respectively.

**Table: 4.5. Education Level**

| Education | Frequency | Percent |
|---|---|---|
| Below Certificate | 67 | 25.9 |
| Certificate | 77 | 29.7 |
| Diploma | 74 | 28.6 |
| Frist Degree | 41 | 15.8 |
| Total | 259 | 100 |

Source: (own survey, 2019)

Data related to education shows that below certificate are 25.9%, certificate, 29.7%, diploma, 28.6%, and first degree, 15.8%, and this tells most of the VAT payers that are certificate holder, followed by diploma holder.

**Descriptive Statistics**

According to Pallant (2007), descriptive statistics is a powerful tool to describe and understand the data, so that researchers can easily understand the data. Participants of this research were asked different questions based on the dependent and independent variables related to the objectives and research question of the research, whereas it is designed using five points Likert Scale to measure their level of agreement on the variables.

Descriptive statics in terms of frequency, percentage mean score, and standard deviation was used for the purpose of challenging factors to collect VAT using cash register machine and for the dependent and independent variables. The researcher interprets an overall view of the respondent perception about each item listed in the five-point Likert scale based on the standardized agreed listed range described below.

Table: 4.6 mean Score range for Five Scale Likert's Response

| Range | Members perception | Interpretation |
|---|---|---|
| (1.0-1.80) | Strongly disagree | Poor |
| (1.81-2.60) | Disagree | Satisfactory |
| (2.61-3.40) | Neutral | Good |
| (3.41-4.20) | Agree | Very good |
| (4.21-5.00) | Strongly agree | Excellent |

Source: (al-sayaad et al., 2006).

This section present on descriptive analysis of the primary data which were collected from VAT registered organizations. The respondents were asked to rate a group of statements concerning knowledge, VAT evasion, VAT audits, and costs using a five-point Likert rating scale and analyzed using measures of central tendency and percentage were the data obtained from the sample of respondents who have been working under the VAT registered organizations are described in the following tables below.

**DESCRIPTIVE ANALYSIS OF VARIABLES**

Table 4.7. Aggregate Descriptive Statistics of Variables

Source: (own survey, 2019)

Referring to the above Table 4.9. Categorization and the statistical result of table 4.9 the mean score of the five variables (one dependent and four independent) has a value ranging from 1.97 to 3.06.

Each of the variables has a different number of questions and each question in each variable has a different result in terms of frequency ranging from strongly disagree to strongly agree, it can refer in Table 4.8, but taxpayer level of agreement on each variable overall has a disagree status (1.97) on the independent variable VAT evasion, while the variables knowledge (3.04), the variable VAT audits are (2.99), the variable operation& maintenance costs are(3.06) and dependent variable (VAT)(2.86) has a neutral level of agreement for VAT collection.

The aggregate mean result 2.784 shows the challenging factors of VAT collection through those variables has a status of the neutral level of agreement by its VAT registered organization (VAT payers) which reflects the ERCA needed a more advanced approach than its trend approach to enlarge its VAT collection.

Inferential Analysis

In this section, the results of inferential statistics are presented. For the purpose of assessing the objectives of the study, Pearson's Product Moment Correlation Coefficient and regression analyses were in use. Using these statistical techniques, conclusions are drawn with regard to the sample, and decisions are made with respect to the research hypothesis in the next chapter while here the processed data result was presented.

Pearson Correlation Analysis

Brooks (2008), Correlation between two variables measures the degree of linear association between them. To find the association of the independent variables with the dependent, the Correlation coefficient was used. Values of the correlation coefficient are always ranged between. A correlation coefficient indicates a perfect positive association between the two variables; while a correlation coefficient indicates a perfect negative association between the two variables. A correlation coefficient of zero, on the other hand, indicates that there is no linear relationship between the two variables. Table 4.10 below indicates the correlation coefficients for the relationship between VAT and its independent variables have linear and strong correlation coefficients.

SOURCE: (OWN SURVEY, 2019)

## II. VARIABLES

TABLE 4.9. AGGREGATE DESCRIPTIVE STATISTICS OF

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| variables | variables | Mean | Std. Deviation |
|---|---|---|---|
| DVAT | Dependent Variable (VAT) | 2.86 | 0.524 |
| KNOW | Tax Payers Knowledge | 3.04 | 0.511 |
| TEV | VAT Evasion | 1.97 | 0.703 |
| AUDI | VAT Audit | 2.99 | 0.645 |
| OPEC | Operation and maintenance Cost | 3.06 | 0.618 |
| | Total | 2.784 | |

coefficient indicates a perfect positive association between the two variables; while a correlation coefficient indicates a perfect negative association between the two variables. A correlation coefficient of zero, on the other hand, indicates that there is no linear relationship between the two variables. Table 4.10 below indicates the correlation coefficients for the relationship between VAT and its independent

variables have linear and strong correlation coefficients.

*Table 4.8: Correlation Analysis*

The result of correlations showed that there is no multicollinearity because according to Hair et al.1998 if

| Collinearity Statistics | |
|---|---|
| Tolerance | VIF |
| .515 | 1.942 |
| .858 | 1.166 |
| .589 | 1.697 |
| .768 | 1.303 |
| | |

Pearson correlation results showed that from 0.3 to 0.9 there is no multicollinearity, which means we can regress the dependent variable and independent variables. Pearson correlation coefficient(r) is used to test if a linear relationship exists between two variables. The correlation coefficient is a statistical amount association

between two arithmetical variables (Zikmund, 2003). It is the most widely used for summarizing the degree of relationship and direction between two variables. The correlation coefficient is a standardized measure of an observed effect, it is a commonly used measure of the size of an effect and the values of ± .1 represent a small effect, ± .3 is a medium effect and ± .5 is a large effect (Brooks 2008). Accordingly, the effect size of each independent factor of the VAT collection in ERCA VAT revenue has a large and positive effect which is all has a correlation coefficient as observed in the correlation table 4.11 above. Therefore, the large effect factors require further findings. Specifically, operation and maintenance cost has the highest relation (r = .779) with the VAT revenue collection in the context of the ERCA wolita sodo branch. VAT evasion, VAT payer's knowledge, and VAT Audit in descending order with r value .559, .512, .359 respectively.

Regression Analysis of Variables and Hypothesis Testing

Multiple regression analysis is used to show the degree to which the independent variable explains the variance in the dependent variable, it also indicated the respective contribution of each of these independent variables and helps to determine whether the results are statistically significant or not. The correlation result only shows the relationship between the variables, but it does not show the exact percentage changes of the dependent and independent variables and the strength and degree of the relationship between variables (Kothari, 2004). Therefore, the significance of the hypothesis was tested using multiple regression analysis, and the exact percentage changes of the dependent and independent variables and the strength and degree of the relationship between variables, so that the tables below present the results to the regression analysis.

Table 4.8. Collinearity Statistics

Source: (own survey, 2019)

When two or more independent predictors are highly correlated with each other it is known that Multicollinearity. When the predictor variables are correlated among themselves, the unique contribution of each predictor variable is difficult to assess. This is because of the overlapped or shared variance between the predictor variables. The variables used in the study are free from multicollinearity. This can be checked through the VIF value, the VIF value of each independent variable should be less than 5% in order to avoid multicollinearity among the independent variable (Gliner & Morgan, 2000). Values greater than 0.10 and VIF values less than 10 are all quite acceptable. Therefore, it's clear to understand from the above table statistics the values of the variables are less than 5% which means there is no multicollinearity.

Table 4. 9. Model summary

a. Predictors: (Constant), OPEC, AUDI, TEV, Known

b. Dependent Variable: DVAT

Source: (own survey, 2019)

R represents the value of the multiple correlation

| R Square | Adjusted R Square | Std. An error of the Estimate |
|---|---|---|
| .747 | .743 | .266 |

coefficients between the predictors and the outcomes (field, 2005). Here R has a value of 0.86; this value represents the simple correlation between the independent variables (KNOW, TEV, AUDI, OPEC & VAT).

R2 on the other hand is a measure of how much of the variability in the outcome is accounted for by the predictors (Field, 2005). The value of R2 is .75 which tells that these four variables of VAT can account for 75 % of the variation in the overall collection of the VAT in the ERCA. This means KNOW, TEV, AUDI, OPEC & VAT are the factors that create 75 % of the variance on VAT collection. This means that 25 % of the variance in overall VAT collection can't be explained by these four variables of VAT collection in the ERCA, this means there must be other variables too that have an influence.

The adjusted R2 gives an idea of how well the model generalizes and ideally its value is likely to be the same or very close to, the value of R2 (Field, 2005). Here the difference between R2 and adjusted R2 is 0.4 % (.747 - .743 = 0.004). This means that if the model were derived from the population rather than a sample it would account for approximately 0.4 % less variance in the outcome.

Table 4.10. Testing the Variance by Using ANOVA

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 52.876 | 4 | 13.219 | 187.116 | .000 b |
| Residual | 17.944 | 254 | .071 | | |
| Total | 70.820 | 258 | | | |

a. Dependent Variable: DVAT

b. Predictors: (Constant), OPEC, AUDI, TEV, Know Source: (own survey, 2019)

From table 4.13. The analysis result of F is 187.116, which is significant at p-value 0.000, which is > 0.05. This result tells that there is less than a 0 .05 % chance of F-ratio being this large. Therefore the regression model significantly improved our ability to predict the overall collection of VAT (outcome, or dependent variable).

Table 4.14. Regression Analysis of Coefficients

The regression coefficient β represents the change in the outcome resulting from a unit change in the predictor and if a predictor is having a significant impact to predict the outcome then this b should be different from 0 (and big relative to its standard error).

As indicated in the above table 4.14 t-statistics can be derived to test whether a b- value is significantly different from 0. The t-tests measures whether the predictor is making a significant contribution to the model or not. Therefore, if the t-test associated with a b-value is significant (if the predicator's sig value is < .05) then the predictor is making a significant contribution to the model. Accordingly, the p-value is less than 0.05 for all the variables. These four independent variables (VAT payer knowledge, VAT evasion, VAT audit, and operation and maintenance costs) significance levels (p-value) are less than .05, and this result reflects that they have a strong effect on the dependent variable VAT Revenue. Whereas all independent variable p-value is < .05 and shows that it has a strong effect on VAT collection in ERCA, Wolaita Sodo Town.

Therefore, the b is different from 0 and the researcher found that the predictor variables make a significant contribution in predicting VAT, VAT payer knowledge (β1) = .112, VAT evasion (β2) = .232, VAT audit (β3) = .078, maintenance & operation cost (β4) =
.525 are statistically significant variables that can predict the ERCA VAT collection.

As indicated in the above table, each of these beta values has an associated standard error indicating to what extent these values would vary across different samples, and these standard errors are used to determine whether or not the b-value differs significantly from zero. In addition to this using the above multiple regressions result the following regression is formulated and it shows the exact percentage change between predictor and criterion.

$Y = \beta o + \beta 1x1 + \beta 2x2 + \beta 3x3 + \beta 4x5 + \mu$

VAT = β0 + β1 KNOW + β2 TEV + β3 AUDI + β4 OPEC + U

β0 = .218 which is constant

VAT = .218 + 0.112 KNOW + 0.232TEV + 0.078 AUDI + 0.525 OPEC

The β - values tell that to what degree of extent each predictor affects the outcome of the effects of all other predictors are held constant. The linear equation above indicates that there is a positive relationship between the above predictors and VAT. This can be explained as other variables held constant each of the variable increment will increase the VAT collection by their coefficient it means, VAT payer knowledge, VAT evasion, VAT audit, and operation & maintenance cost will increase the VAT collection by 11.2%, 23.2%, 7.8%, and 52.5% respectively in the ERCA.

## CONCLUSION AND RECOMMENDATIONS

### CONCLUSION

Based on the results from the data analysis the study came up with the following conclusions:

Firstly, the application of VAT and CRMs has a cause to happen remarkable change in the VAT

revenue. The findings of the research indicate that ERCA VAT income significantly increases after the implementation of a cash register machine in order to collect VAT. So, the cash register machine has a positive relationship with VAT revenue in Woliata Sodo Town.

Secondly, the compliance, operation, and maintenance costs of the VAT-registered organizations increased after they started to collect VAT by using a cash register machine. Business organizations also are enjoying the additional benefits of ETRS. The use of ETR machines has also led to improved sales audits for the business since everything that is VAT-able is captured to record. Even though ETR helps the VAT registered organizations it is not friendly usable when the cashier made a mistake while collecting cash, it takes time for a correction of mistakes, the tax laws threatened the business if they made any mistake unintentionally it might consider as VAT evasion.

Thirdly, on the Efficiency of CRMs in the handling of VAT collection; Electronic tax Registers increase the operating cost of the VAT payers that were incurred to collect VAT and also business income. ETRs while improving the efficiency and the success of VAT payers operations, provide timely and accurate VAT information to businesses and increase the availability of electronic tax filing. It was found that ETRs have enhanced the revenue collection resulting from sound sales and stock audits.

Fourthly, VAT evasion measurement, which is taken by the government is not enough and not fair furthermore, VAT evasion decreases the revenue of the government and the result shows that there is a direct relationship with VAT revenue that means when evasion follows up increases the revenue of VAT increase. To evaluate the effect of awareness of cash register machine and VAT, in VAT revenue in fulfilling this objective, it was found that the ERCA does not create enough awareness for the people and the VAT registered organizations (VAT payers). The result shows that awareness (VAT payers' knowledge) and VAT revenue have a direct relationship that means when awareness increases VAT revenue also increases.

Audit follow up which taken place by the government in controlling the cash register machine user to collect VAT are not enough. Moreover, audit follow-up affects VAT revenue positively, while audit follow up increases VAT income also increases. To sum up the above idea the introduction of cash register machine has supported in cutting costs that the business and government used to incur in VAT collection; CRMs assisted to decreases VAT evasions, and lastly, the introduction of VAT needs to create enough awareness, strong regular audit follow up and VAT evasion controlling mechanisms to get those fruit full advantage of cash register machine in order to collect VAT.

## RECOMMENDATIONS

According to the study results, the researcher found some problems of VAT Revenue using cash register machine that essential to be addressed by ERCA Woliata Sod Town branch: since knowledge of the VAT payer is significant to eradicate the VAT evasion and can improve the efficiency of the authority but ERCA doesn't work with regard to making adequate awareness through different mechanisms. This can be possible if ERCA gives training to VAT payers through media and different mechanisms like pamphlets and newspapers. Besides that strong audit follow-up is a very significant component to increase VAT revenue and to decrease VAT evasions. So, ERCA required audit follow-up on VAT registered organizations (business owners). ERCA is improved to design good and fast systems that can reduce the operation and maintenance cost of users of the machine to make corrections for their errors without wasting time and additional cost.

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