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# Impact of Individual Income on Tax Revenue Mobilisation in Tanzania: An Analysis of Annual Data from 1990 to 2020

**James Daniel Chindengwike**[1]

**Abstract:** Mobilisation of revenue is critical to continuing financial performance in all developing and developed nations. The objective of this research was to investigate how individual income influence tax revenue mobilisation. The research used a quantitative research methodology and a time series data research design, which comprised a number of time series data procedures such as cointegration and normality testing. Tanzania was represented via secondary data from two areas, totaling 30 observations (From 1990-2020). The Vector Correction Model (VCM) was developed to look at long-term connections between variables. The data came from credible sources Bank of Tanzania (BOT), Tanzania Revenue Authority (TRA), International Monetary Fund (IMF), National Beuro of Statistics (NBS) and World Bank (WB). The study's findings revealed a significant statistically association between individual income and tax revenue mobilisation in developing countries like Tanzania. According to the research, designing and implementing a more realistic tax framework that allows for monetary ties will improve revenue mobilisation across nations. The government should provide an extra favourable situation for overseas trade thus that additional of them may be assumed, hence growing Gross Domestic Product. Alterations in tax charges must likewise be controlled in purpose to rise the TZS pricing, which may have an influence on revenue mobilisation.

**Keywords:** Individual Income; Revenue mobilisation; Tanzania

**JEL Classification:** H2

[1] Ph.D. Candidate, Philippine Christian University, Manila, Philippines, Address: 1648 Taft Avenue, Malate, Manila, Philippines, Corresponding author: chindengwikejames@gmail.com.

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## 1. Introduction

Revenue mobilisation is critical to increase financial performance in all developing and developed nations (Timba et al., 2026). Tanzania, similar further growing nations, fights to offer communal amenities to its people, such as health care, education, and water (Mose et al., 2025). Tanzania, like many African governments, has sought to improve tax collecting performance by radical changes, but the results remain inefficient, and the country relies on advances and contributions to cover its shortfall budget (Chindengwike, 2023). Revenue mobilisation is vital for encouraging high financial performance in emerging nations (Chindengwike et al., 2021). Individuals gain from development efforts and ongoing investment via the provision of social services. Despite this, tax collection in emerging countries has not always been as efficient as it might be, for a number of reasons (NAOT, 2020; Ade et al., 2018). According to the World Bank's 2022 database, Tanzania had poor revenue collection between 1990 and 1996 as a result of tax reform efforts such as the establishing of the Tanzania Revenue Authority (TRA) and the denationalisation of community projects. Furthermore, between 1999 and 2010, tax receipts were insufficient due to the 2007 financial crisis, forcing the government to fail to provide people with social services. Furthermore, revenue collection grew dramatically between 2015 and 2020 as a result of TRA's increasing automation, the use of integrated systems such as TANCIS, and the development of Government Electronic Payment Gateway Systems (GePGs) (Word Bank, 2022). It is thought that good population managing, management spending, and individual income can increase tax collection performance (NAOT, 2020; Ade et al., 2018).

The discovery that many rising economies continue to have relatively low tax collections despite improvements in individual income and overall economic success served as the inspiration for this study. Although economic growth is expected to broaden the tax base, structural constraints such as large informal sectors, ineffective tax administration, tax evasion, and institutional inefficiencies may limit higher incomes' ability to translate into more government revenue (Nguvava et al., 2026). As a consequence, responsible the degree to which individual income influences tax collection remains an important policy and intellectual issue.

Despite the extensive literature on tax performance, substantial research gaps remain. For starters, many empirical studies focus on aggregate GDP or economic growth rather than individual income as a predictor of tax revenue. Second, previous findings have been inconsistent across nations and regions, indicating that the

connection might be impacted by institutional and economic elements specific to each country (NAOT, 2020; Ade et al., 2018). Third, few studies apply rigorous econometric approaches to examine the long and short term implications of individual income on tax collection, especially in emerging economies (Nguvava et al., 2026; Gupta, 2007; Tanzi & Zed, 2000). These gaps highlight the need for greater empirical research.

To address these issues, this research agrees a computable investigation method based on quantitative macroeconomic data gotten from reliable national and international sources. To analyse the influence of individual income on tax collection, the research uses descriptive statistics and econometric techniques such as correlation analysis and regression modelling. The cointegration test and unit test root can be employed to confirm the soundness and consistency of observed data.

The outcomes reveal that individual income has an encouraging and statistically significant association with tax mobilisation, implying that rising average income levels result in higher government revenue collection. The findings show that economic expansion boosts taxable capacity and expands the fiscal space available to governments to undertake development programs. Other factors, such as tax administration efficiency and institutional quality, also have an impact on the efficacy of this link.

Unlike prior studies, which have mostly concentrated on aggregate economic growth, this one highlights individual income levels as a critical element in tax capacity. The findings can assist policymakers establish strategies for increasing domestic revenue mobilisation through inclusive economic development, tax system modernisation, and improved fiscal governance.

An investigation of the factors determining revenue collection success through the lens of an authorised budget yields varied results. Nguvava et al. (2026), Manyanga (2020), and Onduso (2013) found no association between individual income and tax mobilisation, but rather a mismatch between individual income and actual tax collections caused by poor forecasting. On the contrary, Ramgulam et al. (2012), Loan et al. (2017), and Ganecho (2018) revealed a positive association between these characteristics. The research findings will help the government develop and implement financial and economic measures to enhance tax collecting situations. Furthermore, the study findings will be valuable to researchers since they determination stimulate additional study in the breadth of the tax system and tax managers; academics who poverty to start fresh research on taxes will also find the

works after this research interesting. The study provides insight into the elements that impact tax revenue collection and fosters an environment that supports tax compliance in Tanzania. In Tanzania, income collection remains a significant difficulty, preventing the government from paying community services such as education and health. According to the TRA Survey 2022, Tanzania's primary revenue collection difficulties include poor tax administration, tax arrears, and excessive tax rates. Exploring these three variables in Tanzania indicates that between 1995 and 2020, revenue collection performance fell from 0.9% to 0.3%, indicating a knowledge gap in recognising these two trends. Against this backdrop of theoretical and empirical evidence, the study attempts to identify the drivers impacting revenue collection success utilising secondary data rather than primary data, as in earlier studies.

The research findings will help the government create and implement financial and economic measures to increase tax mobilisation. Also, the results results will be valuable to academics since they will encourage future research into the scope of the tax system and tax controllers; academics who request to begin new research on taxes will similarly bargain the works from this research intriguing. The study sheds light on the issues that influence tax revenue mobilisation and creates an environment that promotes tax compliance in Tanzania.

The subsequent part covers the relevant hypothetical and empirical literature. This is tracked by the research approach, which includes data sources and analytical methods. The empirical findings are presented and discussed in the next part, and policy recommendations, conclusions, and future study are provided in the previous unit.

## 2. Literature Review

The Theory of Tax Level Determinants was developed by Lotz and Morss in 1967. The theory explains tax revenue as a share of GDP, commonly referred to as the levy percentage (Chindengwike, 2024). It argues that the primary factors influencing tax revenue performance in developing economies are trade openness, measured through imports and exports, and individual income, reflects the equal of economic growth. According to Chindengwike (2024), more overseas trade results in higher tax revenue. Chindengwike (2026) observed that the growth in trade activity was due to

the government's administrative necessity to encourage business transparency and commercialization.

The theory also contends that governments may improve their tax collecting capability by fostering economic growth and investing in public infrastructure and social services such as education, transportation systems, communication networks, water supply, and human capital development. Scholars such as Chindengwike (2025), have widely used the theory of tax level determinants to taxation research. The argument emphasises how governments in both rich and emerging economies rely on tax revenues to fund critical industries such as agriculture, industry, and services. As a result, knowing the drivers of tax income across different industries is critical, as some sectors contribute much more than others. Furthermore, Chindengwike, 2026 expanded the theory by include sectoral composition as a new driver of tax income. Despite its applicability, the hypothesis has been criticised by various experts. For example, Bird (1975) advocated against using cross-sectional and time series data to analyse tax revenue performance, claiming that findings from one nation cannot be easily generalised to other countries. Furthermore, critics argue that the theory fails to adequately explain how governments in underdeveloped countries may efficiently enhance tax collecting systems. Chindengwike (2020) also noted that several of the theory's assumptions are less appropriate in developing nations. Nonetheless, the theory is still relevant since it emphasises economic growth, trade openness, imports, exports, and industry growth as key players of tax mobilisation.

Furthermore, the theory argues that tax bases are more important in determining tax income in developing nations than public expenditure demands, whereas in rich economies, tax collection is primarily driven by government spending requirements. Several empirical studies have looked at the link between structural characteristics including trade openness, individual income, and commercialisation and tax revenue performance. For example, Terefe et al. (2018) found that individual income increases tax mobilisation in the high term, but has no meaningful influence in the shorter run. Similarly, Nguyen et al. (2014) observed that rises in individual income tend to boost tax revenue, as many governments rely substantially on income taxes. Empirical studies from OECD nations also show that economic growth and growing income levels increase tax collections by expanding the official subdivision of the budget (Chindengwike et al., 2021).

Research conducted by Chindengwike (2023) and Chindengwike et al. (2021), discovered that individual income had a damaging influence on tax mobilisation in the near run since the advantages of economic expansion take time to transfer into greater revenue. Furthermore, trade openness, typically defined as the percentage of net exports to Gross Domestic Product, has been identified as a critical factor of tax revenue mobilisation. According to Sen Gupta (2007), the connection between FDI and domestic tax income is ambiguous since trade liberalisation can either raise or decrease tax collection. Chindengwike et al. (2021), on the other hand, contended that better customs administration and openness can boost tax revenue performance. Other researchers, including Chindengwike et al. (2021), investigated the contribution of agricultural value addition to GDP in explaining tax revenue mobilisation and discovered that the agricultural sector generally contributes less tax revenue than other sectors of the economy.

### 2.1. Conceptual Framework

Figure 1 portrays a framework of concept developed by a researcher to illustrate the link between the study's purpose and the response variables. To determine individual income (an independent variable), divide the population by GDP. The response variable is the tax-to-GDP ratio, which measures revenue collection efficiency. All of the components listed above, including education, water supply, energy supply, and healthcare, may be changed to increase job opportunities and enhance community service delivery. The conceptual framework explains how these variables directly influence revenue collection performance.

### 2.1.1. Conceptual Framework

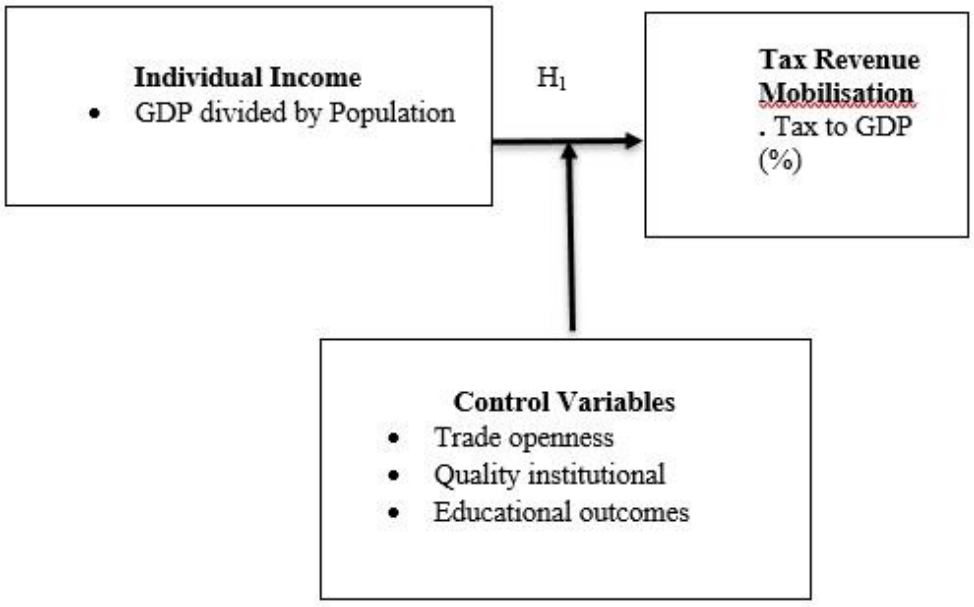



**Figure 1. Conceptual Framework**

*Source: Terefe et al. (2018)*

### 2.1.2. Research Hypothesis

***$H_0$:*** *There is no connection between individual income and tax revenue mobilisation.*

***$H_1$:*** *There is a connection between individual income and tax revenue mobilization.*

## 3. Research Methodology

The study used a pure quantitative research approach and data of research design, which included several time series data procedures such as the cointegration test and normalcy test. Secondary data Tanzania, totalling 30 observations from 1990–2020. The Vector Correlation Model as used to investigate long-term relationships between variables. The data was gathered from respectable sources (TRA, BOT, NBS, IMF, and WB).

### 3.1. Model Specification

This research used the Vector Error Correction Model (VECM) to scrutinize the long-rung connection between variables. This study used the VECM since the dependent variable is "continuous" and the sample size is sufficient to apply the VEC model. The computation of the model is as follows:

$$\mathbf{Y_t} = \mathbf{f(PI_1 + TO_2 + IR + EDO + IQ + } \boldsymbol{e_t}) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Where by

$\boldsymbol{PI_1} =$ Individual Income; $\mathbf{IR = Investiont\ ratio + EDO = Educational\ outcomes}$; $\mathbf{IQ = Institutional\ Quality}$; $\boldsymbol{TO_2}$ =Trade Openness; $\boldsymbol{Yt} = Tax$ Revenue Mobilisation; $\boldsymbol{e_t} =$ Error Term

## 4. Results and Discussion

### 4.1. Lag Order Selection Criteria

Table 1 demonstrates the ideal lag duration for the four variables: revenue collection performance, individual income, and AIC/SIC. The practical criteria are to focus on the lowermost SIC and AIC; this provides the ideal lag to utilise. According to Kripfganz et al. (2016), the benchmark for lag order selection criterion should be based on values from Schwartz Information criterion, Akaike Information Criteria (AIC), and Hannan-Quinn Information Criterion, with the lowest values compared to other values in each observation. So, based on Akaike Information Criteria, the lowest values are 54.71921*, which is dependent on lag 2 and was chosen latency 2. Other criteria include Schwartz Information Criteria (SC); The minimum values are 55.71018 based on lag 1. so, based on Schwartz Information Criteria, the ideal lag is lag1, and the lag order selection criteria is the Hannan-Quinn (HQ) Information Criterion, which has a minimum value of 54.97112 and so is optimum. Therefore, our data reveal that the lowest values of AIC 54.71921, which is in a second lag (Lag 2). This suggests that lag 1 is appropriate for the research since the value of HQ is lower than lag 0 and lag 2.

**Table 1. Selection Criteria of VAR Lag Order**

| Lag | SC | HQ | AIC |
|---|---|---|---|
| **0** | 55.0970 | 68.90688 | 67.07000 |

| | | | |
|---|---|---|---|
| **1** | **67.09678** | **78.90788*** | **68.09000*** |
| **2** | 61.9890* | 89.9098 | 78.09099 |

** Designates lag order nominated by the standard*

*Source: STATA, 2022*

Where by:

alternative hypothesis ($H_1$) assumes that the parameters are motionless and permitted after a cointergration.

### 4.2. Stationary Test of All Variables

When the data are years old, techniques like ADF, Johansen cointegration, and VECM may be applicable, depending on the variables and integration features. The data of a time series is called fixed if his worth inclines to reappearance to its high normal worth and the contents of the data sequence are not altered due to the change in period one. Using the ADF test for cointergration test in Table 2, we see that the P value is 0.875, which is more than the 0.05 significant threshold, indicating that the parameters are not motionless or have a cointergration, hence accept null premise and reject alternative hypothesis. As a consequence, differentiating the sequence was obligatory to get a stationary series. Similarly, Muibi & Sinbo (2013) and Botlhole (2010) used the same benchmark and discovered that the stationarity test at level is greater than 50% due to its normal distribution curve; thus, it is agreed that variables exhibit a long run connection; otherwise, there is no long run connotation amongst the parameters.

However, _hatsq should not be employed since, if our ideal is accurately articulated, the squared forecasts will have no descriptive control. That is, if our ideal is expressed correctly, we should not expect hatsq to be a major forecaster (Muibi & Sinbo, 2013). Similarly, Botlhole (2010) used the same benchmark and observed that the stationarity test at the level is more than 50%, showing that the parameters have a high association; then, there is no high linking amongst them.

From Table 2, the Augmented Dickey-Fuller test for the cointergration shows that the likelihood standards for the individual income of GDP is 0.0171 which is fewer that the arithmetical meaning equal of 5%, and in that respect, we castoff the null supposition that the series is non-stationary at level I(1), and receive the H (1) that the individual income of GDP is immobile at I(1).

Table 2 demonstrations that the ADF examination for the cointergration labels that the probability worth for individual income is 0.6266, which is healthier than the mathematics connotation level of 5%, and thus the null hypothesis is acknowledged on the base of the argument that the series is non-stationary at level I (0). Rendering to the study, the ADF represents 62.6% of the total confidence level (Muibi & Sinbo, 2013). Likewise, Botlhole (2010) working the same standard and exposed that the correlogram demonstrations several saloons that are outside the sureness certain. It is consequently recognized that parameters reproduce the long run relationship; then, there is no long run association between the parameters.

Table 2 displays that the ADF test for the integration designates that the likelihood value for the individual income of GDP is 0.0062, which is less than the arithmetic implication level of 5%, and in that regard, we reject the H0 that the sequence is non-stationary at level I (1) and receive the H (1) that the individual income is stationary at I (1) (Botlhole, 2010). According to the study, the Augmented Dickey-Fuller represents 4.6% of overall confidence (Muibi & Sinbo, 2013). This suggests that in the stationary test at the first difference, Trade Openness boosts revenue collection by 4.6%.

**Table 1. Stationarity Test at level**

| Augmented Dickey-Fuller test statistic | | | t-Statistic | Prob.* |
|---|---|---|---|---|
| | | | -3.516639 | **0.000** |
| CV | 10% level | Tax Revenue | -5.394309 | |
| | 5% level | | 3.612199 | |
| | 1% level | | -1.243079 | |
| | | | | |
| | 10% level | Individual income | 2.90900 | **0.0018** |
| | 5% level | | -2.58629 | |
| | 1% level | | -6.79259 | |
| | | | | |
| | 10% level | Education outcomes | -7.416345 | **0.4801** |
| | 5% level | | -2.622033 | |
| | 1% level | | -1.248592 | |
| | | | | |
| | 10% level | Investiment ratio | -8.416345 | **0.0171** |
| | 5% level | | -6.896900 | |
| | 1% level | | -7.933668 | |
| | | | | |
| | 10% level | **Trade Openness** | -2.416345 | **0.6266** |
| | 5% level | | -5.622033 | |

| | | | | |
|---|---|---|---|---|
| | 1% level | | -4.787699 | |

*Source: STATA, 2022*

Using a correlogram, the series indicates that there are points beyond the self-confidence boundaries shown by the scattered line, although for a motionless time sequence, the ACF and PACF points should be inside the sureness restrictions (Figure 2. Founded on the stated estates, the series is non-stationary at levels, therefore its statistics and variances may change with time (Muibi & Sinbo, 2013). Similarly, Botlhole (2010) employed the same benchmark and discovered that the stationarity test at the level is larger than 50%, indicating that the variables display a long-run link; then, there is no long-run correlation amongst the parameters.

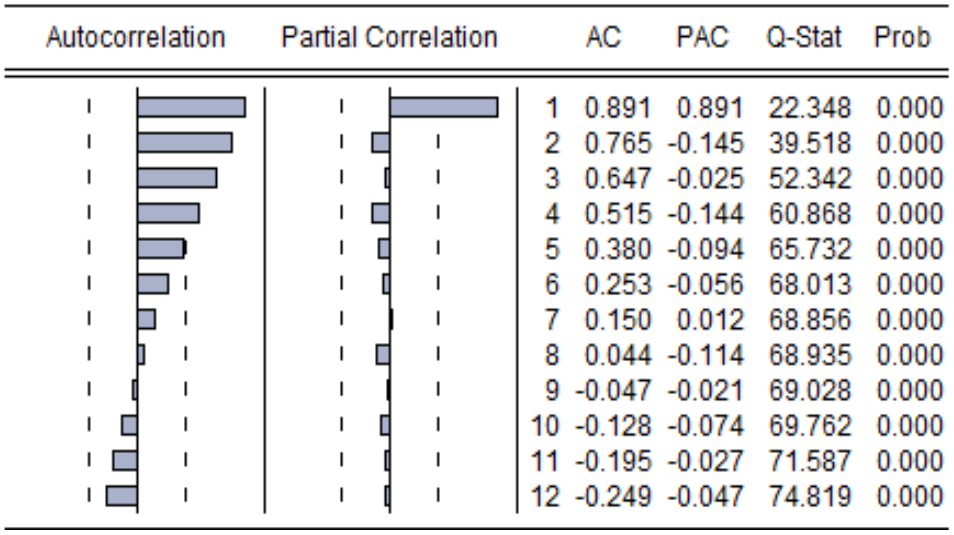
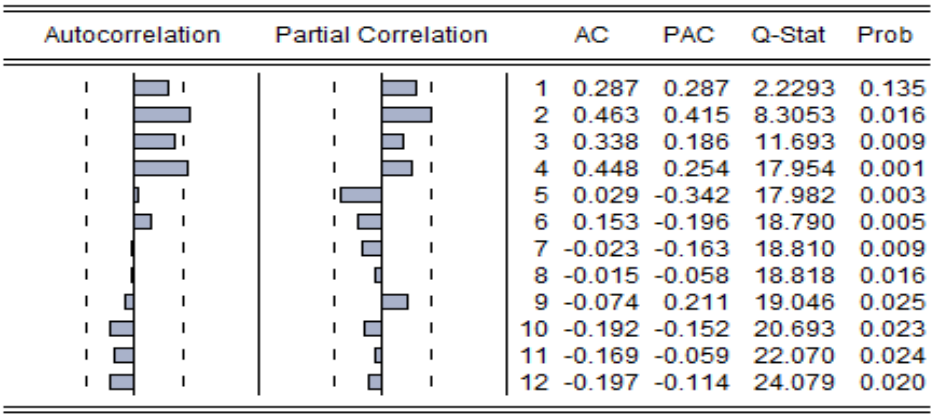



**Figure 2. Correlogram At Level**

*Source: STATA, 2022*

Figure 3 of the correlogram obviously demonstrations that all of the blocks are confidential the assurance limits, indicating that the tax revenue mobilisation sequence is stable at I (1) (Muibi & Sinbo, 2013). Similarly, Botlhole (2010) employed the same benchmark and discovered that the stationarity test at the level is larger than 50%, indicating that the parameters display a long-run link; then, there is no long-run relationship amongst the parameters.

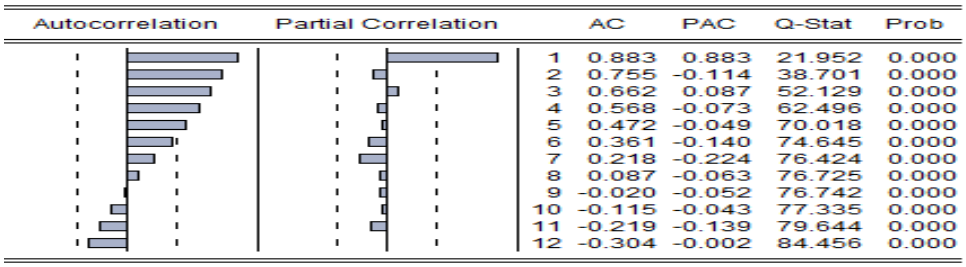


| Autocorrelation | Partial Correlation | | AC | PAC | Q-Stat | Prob |
|---|---|---|---|---|---|---|
| | | 1 | 0.287 | 0.287 | 2.2293 | 0.135 |
| | | 2 | 0.463 | 0.415 | 8.3053 | 0.016 |
| | | 3 | 0.338 | 0.186 | 11.693 | 0.009 |
| | | 4 | 0.448 | 0.254 | 17.954 | 0.001 |
| | | 5 | 0.029 | -0.342 | 17.982 | 0.003 |
| | | 6 | 0.153 | -0.196 | 18.790 | 0.005 |
| | | 7 | -0.023 | -0.163 | 18.810 | 0.009 |
| | | 8 | -0.015 | -0.058 | 18.818 | 0.016 |
| | | 9 | -0.074 | 0.211 | 19.046 | 0.025 |
| | | 10 | -0.192 | -0.152 | 20.693 | 0.023 |
| | | 11 | -0.169 | -0.059 | 22.070 | 0.024 |
| | | 12 | -0.197 | -0.114 | 24.079 | 0.020 |

**Figure 3. Correlogram at Level for individual income GDP**

*Source: STATA, 2022*

In general, the Augmented Dickey-Fuller limits challenging strategy is more appropriate and has better outcomes for small example sets. This technique uses a rummage sale to approximate the dynamics of both long run and short run parameters, including the rate of adjustment after a shock, inside the same framework. Furthermore, because strong lag durations are critical to this approach, over-parameterization is prevented. The ADF technique has the disadvantage of not using I(2) variables in its analysis (Nkwatoh, 2014). According to Bertelli (2022), the criteria for the Augmented Dickey-Fuller technique is a probability of length more than 30% of the entire confidence level. Figure 3 shows a correlogram at the level of individual income, with some bars outside and some inside the confidence bound. This reveals that variables have a long-run correlation, as corroborated by Botlhole (2010), who did the analysis using the same benchmark and discovered that the correlogram shows that certain tablets are inside the self-assurance certain.



| Autocorrelation | Partial Correlation | | AC | PAC | Q-Stat | Prob |
|---|---|---|---|---|---|---|
| | | 1 | 0.883 | 0.883 | 21.952 | 0.000 |
| | | 2 | 0.755 | -0.114 | 38.701 | 0.000 |
| | | 3 | 0.662 | 0.087 | 52.129 | 0.000 |
| | | 4 | 0.568 | -0.073 | 62.496 | 0.000 |
| | | 5 | 0.472 | -0.049 | 70.018 | 0.000 |
| | | 6 | 0.361 | -0.140 | 74.645 | 0.000 |
| | | 7 | 0.218 | -0.224 | 76.424 | 0.000 |
| | | 8 | 0.087 | -0.063 | 76.725 | 0.000 |
| | | 9 | -0.020 | -0.052 | 76.742 | 0.000 |
| | | 10 | -0.115 | -0.043 | 77.335 | 0.000 |
| | | 11 | -0.219 | -0.139 | 79.644 | 0.000 |
| | | 12 | -0.304 | -0.002 | 84.456 | 0.000 |

**Figure 4. Correlogram at Level for individual income**

*Source: STATA, 2022*

### 4.3. Stationarity at First Difference for Individual Income

Figure 4, the correlogram shows that approximately saloons are inside the self-assurance certain. Similarly, Botlhole (2010) employed the same benchmark and found that the correlogram demonstrations that certain bars are within the confidence bound. It is so acknowledged that variables demonstrate long-run association; then, no long-run connection exists between the variables. Then there are country-year observations, which often necessitate the use of time-data techniques such as time unit-root tests, time cointegration tests, and suitable time estimators rather than the traditional single-country Johansen-VECM. This distinction is essential since 200 observations do not indicate whether the research is time series.

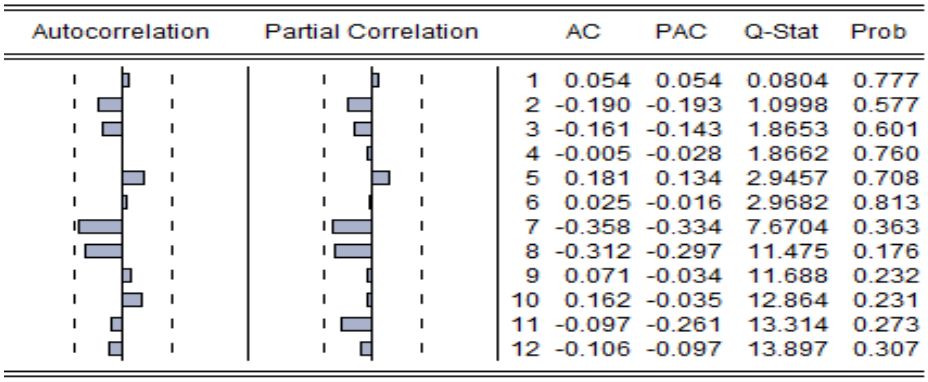



**Figure 5. Correlogram at Level for Trade Openness**

*Source: STATA, 2022*

### 4.4. Long Run Model

Individual income has an optimistic long-run influence on symmetry location, with impact normalised values of -10137.37 and -7638.023, correspondingly. This occurs when tax collection performance is a response parameters and per capita GDP and trade openness are regressors (Muibi & Sinbo, 2013). Similarly, Bello et al. (2019) employed the same benchmark and found that a P-value of less than 0.05 specifies a link between variables.

**Table 3. Standard error in parentheses**

| Tax revenue mobilisation | GDP Per Capita |
|---|---|
| 1.000000 | -12.45 |

| | |
|---|---|
| | (9.54) |

*Source: STATA, 2022*

Generally, every independent per capital income has a positive relationship with the response variable (tax revenue collection). The answers are reliable with previous study by Gaalya et al. (2017). According to the benchmark, the P-Value is less than or equal to 0.05. Similarly, Roman and Kartiko (2020) used the same criteria and discovered that a P-value of less than 0.05 shows a association between parameters (Muibi & Sinbo, 2013). Roman and Kartiko (2020) define the benchmark as a P-value less than or equal to 0.05. Similarly, Bello et al. (2019) used the same benchmark and found that a P-Value of less than 0.05 shows an association between variables.

### 4.5. Error Correction Model (ECM)

The Error Correction Model (ECM) is an alternative to the Vector Error Correction Model. When the VECM is unsuccessful or fails to fit the data correctly, the ECM is used to explain both short-term changes and long-term correlations between variables. Antzoulatos (1996) investigated the classic error correction framework by plotting consumption growth as a function of the ECT, together with lagged values for consumption and income growth. The study also discovered that delayed consumption and income indicators are useful for predicting future income growth. Furthermore, the constant of the error correction term is frequently predicted to be unfavourable, illustrating the adjustment process for restoring long-run steadiness after short-run disturbances.

Per capita GDP has a optimistic association on equilibrium position, with impression normalised values of -10137.37 and -7638.023, respectively. This occurs when the response variable is revenue collection performance and the regressor is per capita GDP (Lee & Rhee, 2022). Roman and Kartiko (2020) set the benchmark as a P-value of less than or equal to 0.05. Similarly, Bello et al. (2019) utilised the same benchmark to find that negative cointegration indicates a negative link between variables.

**Table 4. Error Correction Estimates**

| **Cointegrating Eq:** | **CointEq1** |
|---|---|
| TAX MOBILISATION _MIL(-1) | 3.111111 |
| GDP_PER_CAPITA (-1) | **-2.111.37** |

| | |
|---|---|
| | (0.29) |
| | [-2.95155] |

*Source: STATA, 2022*

### 4.6. Vector Error Correction Model (VECM)

The ECT is exposed under, using revenue collection performance as the response variable and per individual income as the explanatory parameters (Lee and Rhee, 2022).

According to Bello et al. (2019), the benchmark is a P-value of less than or equal to 0.05. Similarly, Lee and Rhee (2022) employed the same benchmark and noticed that when the Cointegration is negative, it indicates a negative link between variables.

Table 4 shows the ECT, which is c (1) = - 0.2587, which is a positive indication of symmetry change on behalf of 25.87%, sense that the classical was modified by 26.66% in the long run. The probability value is 0.0222, which is less than the 0.05 implication level. Correspondingly, c (2) to c (9) are the model's short-run shock coefficients, whereas c (10) is a constant (Cumby & Huizinga, 1992). According to Roman and Kartiko (2020), the benchmark occurs when the adjustment to equilibrium indicates a good result. Similarly, Bello et al. (2019) used the same benchmark and discovered that negative cointegration shows a negative relationship between variables.

**Table 5. Vector Error Correlation**

| | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
|---|---|---|---|---|
| D(0) | **-0.578680** | 0.567800 | -1.097600 | **0.0020** |
| D1) | -0.810900 | 0.678999 | -1.876890 | 0.0011 |
| D(2) | 0.5790467 | 0.678900 | 0.687777 | 0.0131 |
| D(3 | -7900.999 | 0.898900 | -0.099999 | 0.2220 |
| D(4) | -3678090 | 0.712345 | -1.821450 | 0.4578 |
| D(5) | -9035670 | 0.632122 | -1.521300 | 0.5097 |

*Source: STATA, 2022*

The mean of a non-symmetric distribution is not at the middle (Tabachnick and Fidell, 2007). Kurtosis describes how far the data diverges from or methods the mean. In other words, it relates to the SD of the data. When the SD is low, the spreading is pointy (leptokurtic, short-tailed), and when it is high, it flattens.

Figure 6 clearly portrays the normal curve employing normal distribution curve with a likelihood of 75.77%, which is more than the 5% significance brink. As an outcome, altogether of the parameters studied are frequently dispersed. According to Roman and Kartiko (2020), the benchmark is when the chance exceeds 50%. Similarly, Bello et al. (2019) employed the same benchmark and discovered that a Jarque Bera larger than 50% indicates a favourable connection between variables (Okoro & Egberi, 2019). In addition, Bello et al. (2019) employed the same benchmark and discovered that an Obs*R-squared larger than 50% implies a good association between variables.

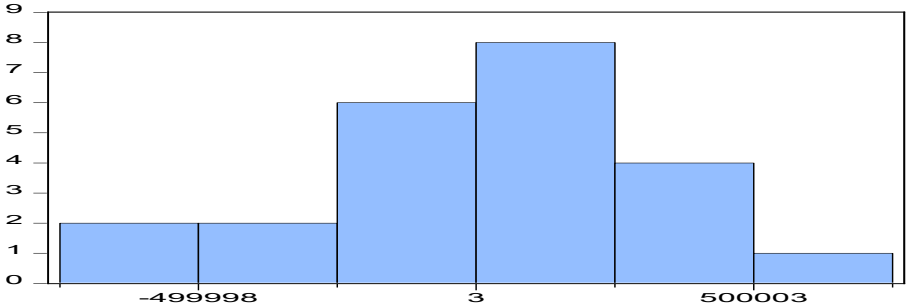



**Figure 6. Normality Test**

*Source: STATA, 2022*

## 4.8. Stability Test

Figure 7 displays the normal curve using normal distribution curve with a likelihood of 45.44%, which above the 5% level of significance. As a consequence, all variables analysed follow a regular distribution. According to Roman and Kartiko (2020), the benchmark is a probability greater than 50%. Bello et al. (2019) used the same benchmark and discovered that when Jarque Bera is more than 50%, there is a positive relationship between variables (Okoro & Egberi, 2019). In addition, Bello et al. (2019) used the same benchmark and observed that when the Obs*R-squared is greater than 50%, there is a positive relationship between variables.

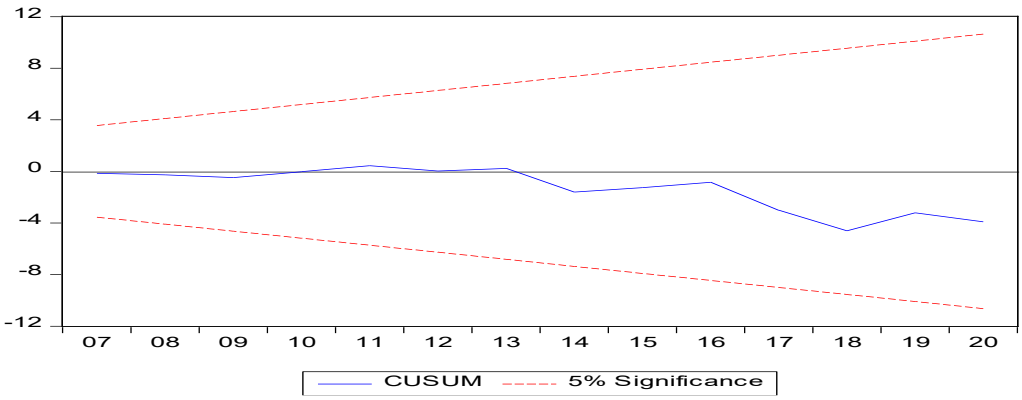



**Figure 7. Test of Stability**

*Source: STATA, 2022*

Figure 7 also demonstrations that the blue streak is inside the 5% significance level, representative that the model is stable; however, if the blue line is outside of the 5% significance threshold, the model is not exceptional. Breusch-pagan's P-values (0.0738) fall below our 10% level of implication (0.1). If the null hypothesis is not uniform, variation may lead to unstable estimates (Ayele et al., 2020). Heydari et al. (2019) define the benchmark as a P-value that is less than or equal to 50%. Similarly, Bello et al. (2019) used the same criteria and discovered that a P-value greater than 50% implies a positive link between variables (Okoro & Egberi, 2019).

**Table 6. Regression Results of all Variables on tax revenue mobilisation in Developing countries**

| **Tax to GDP** | **Coef.** | **St. Err.** | **t-value** | **P-Value** | **[95% Conf** | **Interval** | Sig |
|---|---|---|---|---|---|---|---|
| Per capita Income | 0.111 | 0.010 | 1.16 | 0. 02 | -0.008 | 0.030 | |
| Trade openness | 2.310 | 0.687 | 3.36 | 0. 04 | 0.962 | 3.659 | *** |
| Quality Institutional | 2.899 | 0.523 | 3.22 | 0.05 | 0.999 | 3.100 | |
| Educational Outcome | 3.210 | 0532 | 3.61 | -0.001 | 0.009 | 2.000 | |
| Const | 0.021 | 0.013 | 1.76 | 0.255 | -0.006 | 0.020 | |
| Mean response var | 0.833 | SD response var | | | 0.9199 | | |
| R2 | 0.2332 | N | | | 30 | | |
| F-test | 28.99 | Prob > F | | | 0.800 | | |
| Akaike crit. (AIC) | 500.000 | BIC | | | 578.99 | | |

*Source: Stata, 2022*

Per capita income has a 0.001 P-value on the relationship between tax and GDP. According to Nkwatoh (2014), the global criterion for variable selection is a P-value less than or equivalent to 0.05. Per capita income impacts excellent tax revenue performance. Similarly, Rath and Akram (2021) used the same benchmark and discovered a positive relationship between variables when the P-values are equal and the significance level is less than 5%. In the long run, the findings of the Vector Error Correlation Model revealed a statistically important suggestion between individual income and tax collection mobilisation in Tanzania, notably in the Tanzania areas. The consequences of this learning differ from some previous empirical findings, while at the same time supporting other studies concerning the association between tax revenue mobilisation and individual income. For example, the unbalanced analysis conducted by Castañeda Rodríguez (2018) established that per capita income plays an important part in attractive revenue collection efficiency in developing economies. In the same perspective, Thika (2014), who support the findings.

Conversely, these findings are inconsistent with the study by Mtasiwa (2013b), which investigated the causes of inefficiency in Tanzania's tax collection system. Using the Tanzania Revenue Authority Temeke Tax Region, the research reported an inverse association between individual income and revenue collection mobilisation. Similarly, Pantamee et al. (2020), through the application of the Toda–Yamamoto Causality Test in Nigeria, found no significant association between individual income and tax revenue collection mobilisation. Moreover, the Johansen cointegration test employed in this study rejected the null hypothesis, which stated that per capita income does not influence tax revenue collection in Tanzania. The findings presented in Table 4.11 therefore provide support for the alternative hypothesis (H1), indicating that individual income has a significant effect on tax collection mobilisation in Tanzania. Hence, the study established the presence of a long-run association between per capita income and tax revenue mobilisation.

## 5. Conclusion and Recommendations

The study found that individual income has a considerable impact on tax revenue mobilisation in underdeveloped nations. Increases in per capita income have the potential to boost domestic revenue mobilisation by expanding economic activity, increasing consumption, company development, and broadening the tax base. Nevertheless, the intensity of this link may be determined by institutional quality,

trade openness, educational outcomes, tax policies, and revenue administration efficiency. This suggests that raising residents' incomes can help the government collect more taxes. The study emphasises the need of developing a realistic and effective tax system that may foster greater financial and commercial links between nations. Furthermore, governments should stimulate international trade and investment by creating a conducive business climate, which can boost economic growth and raise GDP. Furthermore, tax rate modifications should be performed with caution to avoid needless price increases that lower buying power and have a damaging influence on tax revenue mobilisation.

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