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# *Nepal's Tax Revenue: Analyzing the Effect on GDP*

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**Abstract**

*Nepal, like most developing nations, must overcome several economic obstacles in order to pursue sustainable economic growth and development through taxation. The issue over whether taxes are an effective instrument for fostering economic development and growth in the literature is still open since different studies have shown conflicting results on the impact of taxes on economic growth. The goal of the study is to determine the relationship between Nepal's economic growth and the tax revenue sources of the government, while also measuring the short and long run effects of changes in these revenue sources on economic growth. To forecast the change in economic growth due to changes in tax revenue sources, Autoregressive Distributed Lag (ARDL) is performed on time series secondary data for the period from 1974 to 2021. According to the findings, Non-Tax Revenue (NTR) have positive significant relationship, while Tax Revenue (TR) has a positive but insignificant relationship with Nepal's economic growth over the long run. Variables were found to be stationary at I (0) and I (1) using the Augmented Dickey-Fuller Test. According to the results of the bound test, Non-tax revenue is the cointegrated factor that affect Nepal's economic growth. The factor that has no impact on Nepal's economic growth is tax revenue. Non-tax revenue significantly affects Nepal's economic growth over the long run. As non-tax revenue has a positive impact on Nepal's economic growth and tax revenue have a negative impact on it, it is advised that policymakers concentrate on increasing the revenue collection from non-tax revenue sources in order to prosper and accelerate economic growth. In terms of economic growth, the study concludes that Nepal has experienced an increase over time. The study does find that the economic growth has been moderate.*

***Key words***: *Tax Revenue, Non-Tax Revenue, ARDL, Gross Domestic Product, Nepal*

## I. INTRODUCTION

The majority of the government's funding comes from taxes, which are gathered from people and entities like businesses and investors to foster economic growth. Taxation is regarded as the main way that the government makes money, and income is regarded as the fuel for the machinery of the government. In the contemporary system of governance, the tax system plays a crucial role in providing governments with dependable and sustainable methods of revenue collection, decreasing reliance on foreign aid, increasing financial independence, enabling government to provide various cash supports to deserving citizens,

encouraging good governance, accountability, and transparency, supporting formalize the economy and promoting economic growth, etc.

Nepal is both a developing nation and an agriculturally-based nation. The Nepalese government engages in a variety of economic development initiatives to improve the standard of living for its citizens. To do this, our nation must effectively manage a range of resources, including people, money, equipment, and materials. Government money comes from both internal and external sources, allowing for the acquisition of these specific resources. Another crucial aspect of government is the ability to raise money. Revenue is the name given to the government's income. Government income is the term used to describe the money that governments receive to fund their daily operations and development initiatives (OECD, 2008). It serves as a crucial element in the government's fiscal strategy and acts as the antithesis of government spending. The government receives its income from a variety of sources, including taxes imposed on the earnings and asset accumulation of individuals, corporations, and the goods and services produced, exported, and imported from the nation; non-taxable sources, such as the income of government-owned corporations; central bank earnings; and capital receipts in the form of loans from foreign lenders and debts from international financial institutions.

The majority of the government's revenue is split into two categories. They are tax revenue as well as non-tax revenue. Tax revenue and non-tax revenue are two different categories of public income (Ilyas & Siddiqi, 2010). The primary source of funding for the government is taxes. Taxes are mandatory payments to the government that the taxpaying public must make without any expectation of immediate gain or compensation. Through direct and indirect taxes, the government raises tax money. Corporate tax, personal income tax, capital gains tax, and wealth tax are examples of direct taxes. Customs duty, central excise duty, Value Added Tax (VAT), and service tax are examples of indirect taxes (Chaudhry & Munir, 2010). Non-tax revenue is the amount of money the government receives from sources other than taxes. Fees, fines, and penalties are among them, along with surplus from public enterprises, a special assessment of improvement levies, grants and gifts, and deficit financing.

Nepal is a less developed country with a strong emphasis on agriculture. Nepal's economy is exceedingly fragile; it is the 28th poorest country out of 195 countries. According to the most recent statistics, Nepal's GDP per capita in 2021 was $1208.22. It's crucial to realize that not all tax revenues from the government react to the economy in the same manner; rather, there is a special relationship between the various types of taxes collected and economic growth (Johansson et al., 2008).For an economy that thrives, it is crucial to keep the optimal tax structure in place as well as the proper ratio of government revenue sources. According to Barrios & Schaechter (2008), the government is in charge of effectively collecting taxes and

using the funds raised to fund programs that create jobs and provide for the needs of children and the elderly. However, there are ongoing disputes regarding the effectiveness of the government's revenue collection system, and a lot of research has been done on the various government spending programs to determine whether they encourage economic growth on a national and international level (Nimenibo et al., 2018). Therefore, it is possible to observe the pattern and tendency of different types of government income and how they affect the economy in Nepal.

**Rationale of the Study**

The primary goal of this study is to investigate how tax revenues affect economic growth in Nepal. Given the dearth of academic studies on the subject, the research plans to post its findings on official websites to assist decision-makers in formulating actionable plans that will make use of this study.

**Problem Statement**

Nimenibo et al. (2018) conclude that in order to optimize the country's economic growth, Nepal, like other developing nations, must today overcome a number of obstacles while maximizing its tax structure, collecting taxes, and mobilizing those funds. The main obstacle is finding the ideal mix between market and investment-friendly tax regimes while generating sufficient service revenues to keep the economy appealing to investors.

Due to inadequate administration that hinders the promotion of social and economic activities as well as economic progress, Nepal's tax system is not completely utilized, and its impact is not seen. Furthermore, Nepalese tax attitudes are concerning because most individuals and corporations choose not to pay taxes (K. C., 2018). Therefore, due of widespread tax evasion practices, the economy continues to lose significant amounts of money. A government might be able to turn around the economy if it can stop tax evasion and recover all lost funds. This problem has been ignored for far too long in developing countries like Nepal, where a solution is sorely needed. In Nepal, the expenses associated with collecting taxes are so high that, if left uncontrolled, they would eventually outweigh the business's profits (K. C., 2018).

One of the most significant sources of revenue for governments is considered taxation. It is crucial for the mobilization of domestic resources. The primary preoccupation of a very developing country has been the transfer of private resources to the public sector for economic development. Due to its small economy, scarce resources, and political unrest, Newel's social and economic development hasn't progressed or realized its full potential. Policies and methods have generally been successful. Because of the sharp rise in reliance on foreign aid, the budget deficit has reached an all-time high (Lamsal, 2006).

The aforementioned arguments make it clear that very few research have focused on examining the link between government revenue and Nepalese economic growth. The annual government budget shows that

government revenue has been rising year after year. The economy has grown, but not entirely as a result. Therefore, the purpose of this study was to close this knowledge gap by addressing one specific question: What is the relationship between government revenue and economic growth in Nepal?

**Research Questions**

i. Is there any relationship between tax revenue and economic growth in Nepal?

ii. Do tax revenue have any effect on economic growth of Nepal?

**Research Objectives**

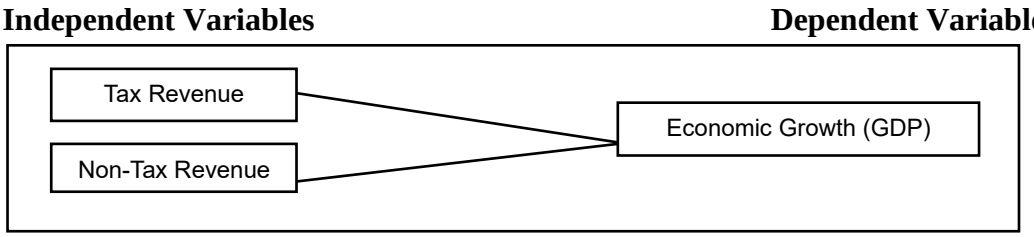
I. To evaluate the relationship between tax revenue and economic growth in Nepal.

II. To analyze the effect of non-tax revenue on economic growth of Nepal.

## II. REVIEW OF LITERATURE

**Research Framework**

**Figure 1:** Research Framework




Note: Research Framework 2023

**Hypotheses**

Based on the reviews and above research framework, following hypotheses are formulated for the study:

H1: There is significant effect of tax revenue on economic growth.

H2: There is significant effect of non-tax revenue on economic growth.

**Empirical Review**

A comprehensive examination of the relationship between taxes and economic development is given by Solow (1956). His new classical growth model holds that taxes have no effect on steady state growth, but that income tax has a negative effect on economic allocation. Solow continued by stating that tax policy has an effect on economic growth because it inhibits new investment and entrepreneurial rewards, distorts investment decisions, and reduces labor effort and employees' skill gain.

Numerous empirical research have been carried out to establish the relationship between taxation and economic development. The outcomes of these investigations are frequently contrasting, though. In certain studies, taxes have been shown to have helped the economy perform better, while in other research, taxes

have been found to diminish output and hence economic growth. Still other studies have found insufficient evidence to indicate a substantial correlation between taxes and economic growth.

Babatunde et al. (2017) research, tax revenue and economic growth in Africa have a positive and significant relationship. Because lower tax rates have a good influence on work, output, and economic performances, both high and low levels of taxation are beneficial to economic growth. This conclusion is supported by economic consequences. According to the study, the government should be prepared to create a comprehensive tax system or model that will expand, maintain, and strengthen its revenue base in order to boost economic performance.

Egbunike et al. (2018) investigated how tax revenue affected the economic growth of Ghana and Nigeria. Multiple regression was employed in the study as an analytical tool. The analysis is based on secondary data that spans 17 years, from 2000 to 2016, and was obtained from the Bank of Ghana, the Nigerian central bank, and statistical bulletin. The study's findings indicated that tax income has a favorable effect on Nigeria's and Ghana's gross domestic products. Therefore, it is suggested that appropriate steps be taken to assure tax revenue generation that is effective for the prosperity of the nation.

Maharjan (2018) used yearly time series data spanning 43 years, from 1974 to 2017, to investigate the connection between economic development and tax income in Nepal. The cointegration technique developed by Engle and Granger was used for the data analysis. The findings demonstrated that, with non-tax revenue serving as a control variable, there is a long-term association between tax revenue and economic development in Nepal. Additionally, 34.3 percent is the yearly rate of adjustment from disequilibrium to equilibrium. The effect of tax income on economic growth may serve as a strong incentive for policymakers to improve revenue collection.

Nwanakwere (2019) looked on the connection between taxation and economic growth. The study used the ARDL bound test technique. The tax was further broken down by the researcher into company income tax (CIT), petroleum profit tax (PPT), value-added tax (VAT), and excise & custom duties (ECD). Each variable's impact on economic growth was studied. The years 1984 through 2014 were considered. The outcome demonstrated that overall tax revenue is insignificant. PPT and VAT have a positive relationship, however corporation income tax and ECD have a negative relationship with GDP.

Shrestha & Kautish (2020) used economic growth as a dependent variable and direct tax revenue, indirect tax revenue, and non-tax revenue as independent variables to study the relationship between government revenues and economic growth in Nepal. The study's analysis of regression and correlation data led to the finding that there is a positive correlation between various sources of revenue from the government and

economic growth. However, the economic growth is positively impacted by indirect tax revenue and non-tax revenue, but the economic growth is positively impacted by direct tax revenue but insignificant.

## III. RESEARCH METHODOLOGY

### Research Design

Investigating the effect of government revenue on nations economic growth is the main objective of this study. Tax revenue (TR) and Non-Tax revenue (NTR) are the independent variables in this study, while Gross domestic product (GDP) is the dependent variable. This study will use both descriptive and analytical research design. The population for the study is overall country's macroeconomic variables. This study collects data from time period 1974 to 2021 i.e., 47 years' data. The required data are retrieved from the World Bank Database and the Nepal Rastra Bank's publication of the country's current macroeconomic and financial situation (NRB).

### Methods of Data Analysis

The model for this study:

$GDP_{t-2} = \beta 0 + \beta 1\ TR_{t-3} + \beta 2\ NTR$..... I

Where,

β0, β1, β2= Regression coefficients

GDP= Gross Domestic Product (Dependent Variable)

TR= Tax Revenue

NTR= Non-Tax Revenue

## IV. RESULT AND ANALYSIS

### Unit Root Test

**Table 1:** *Results of the stationary of variables*

| Variable | Adj. t-Statistics | Prob. At 5% | Conclusion |
|---|---|---|---|
| GDP | -4.594172 | 0.0006 | I(0) |
| TR | -6.970290 | 0.0000 | I(1) |
| NTR | -3.727013 | 0.0067 | I(0) |

*Source: Authors computation from E-views 12-SV, 2022*

In light of the use of time series data, it is essential to determine whether or not they are stationary in order to prevent spurious regression results. In order to prevent any relevant variable from being integrated at an order of two or higher, it is also crucial to do this. Tables 1 show the results of the Dickey-Fuller (ADF) unit root tests, which demonstrate that all of the variables are integrated of order 0 or 1. Since each series'

individual probability values were below the 5% significance levels, the result shown in Table 1 demonstrates that all the series were stationary at level and first difference.

**Autoregressive Distributed Lag (ARDL) model**

**Table 2:** *ARDL based on Akaike Information Criterion*

| ARDL (2,3,0) based on Akaike information Criterion<br>Dependent Variable: (GDP) | | | |
|---|---|---|---|
| Variable | Coefficient | t-Statistic | Prob. |
| C | 3.330011 | 1.638221 | 0.1099 |
| $GDP_{t-2}$ | -0.454655 | -2.989110 | 0.0049 |
| $TR_{t-3}$ | -1.086240 | -1.864215 | 0.0702 |
| NTR | 2.159684 | 2.070784 | 0.0454 |
| $R^2 = 0.360315$ | | F - Statistics = 2.977277 [0.013989] | |
| Adjusted $R^2 = 0.239293$ | | Durbin - Watson Stat = 1.882931 | |

*Source: Authors computation from E-views 12-SV, 2022*

According to the results of the time series data based on the ARDL model, which are shown in the table, tax revenue (TR) and non-tax revenue (NTR) are the independent variables in this study, while GDP is found to be among the macroeconomic variables to have statistically significant effects on economic growth. At a level of significance of 5%, the whole model in this instance is significant with regard to the dependent variables.

The regression model's serial correlation is not present, according to the Durbin-Watson statistic (DW) of 1.882931. Additionally, according to the modified R-squared, which assesses the degree to which with which the variables fit with one another, the explanatory factors account for around 23.92 percent of the fluctuations in GDP. The adj r-square indicates that the model will benefit from the inclusion of more variables because it is close to 1. R-squared is equal to 0.360315, which indicates that 36.0315% of the variation in import is explained by the model's explanatory variables, while the remaining 63.9685% of the variation in GDP is due to factors that are not related to the study's objectives.

**Bounding Test for Co-integration Relationship2**

***Table 3:*** *Estimation of Bound test for ARDL Cointegration Model*

| Test Statistic | Value | Significance | I (0) | I (1) |
|---|---|---|---|---|
| F-statistic | 15.68478 | 10% | 2.63 | 3.35 |
| | | 5% | 3.1 | 3.87 |
| k | 2 | 2.5% | 3.55 | 4.38 |
| | | 1% | 4.13 | 5 |

*Source: Authors computation from E-views 12-SV, 2022*

Table 3 presents the results of the series model and the ARDL bound test for cointegration. The results of the test showed that when GDP is the dependent variable, $F_{GDP}$(TR & NTR) = 15.68478; The results showed that there is a long-run relationship among the variables when GDP, TR and NTR are dependent variables. This shows that the rejection of the null hypothesis that there is no cointegration when GDP is normalized in each of the estimated model. As a result, it shows that there is long term steady relationship among variables in context of Nepal. The F-statistics for models with long-run relationships were found to be higher than the upper bound critical value at 5% significance level. These results indicated that the variables have a long-run relationship; therefore, we may move forward with the estimation of a long-run and short-run ARDL model. In contrast, only the short-run relationship is being estimated for the model using DI as a dependant variable.

**Long Run Relationship in the ARDL Cointegration Form**

**Table 4:** *Coefficient of Long Run Relationship in the ARDL Cointegration Form*

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| TR | 0.021919 | 0.055548 | 0.394604 | 0.6954 |
| NTR | 1.167980 | 0.549743 | 2.124595 | 0.0404 |
| C | 1.800906 | 1.076196 | 1.673399 | 0.1027 |

*Source: Authors computation from E-views 12-SV, 2022*

Table 4 shows that NTR and GDP have a significant and positive relationship at a significance level of 5%. A growth in NTR of 1 unit over time corresponds to a rise in GDP of 1.167980 units, according to the relationship between NTR and GDP. The relationship between tax revenue (TR) and this variable is positive but insignificant due to the high probability value at the 5% level of significance.

**Error correction version of ARDL model**

**Table 5:** *Coefficient in Short Run Relationship in the ARDLs Cointegration Form*

| Dependent Variable: (GDP) | | | |
|---|---|---|---|
| Variable | Coefficient | t-Statistic | Prob. |
| $D(GDP_{(t-1)})$ | 0.454655 | 3.181679 | 0.0030 |
| $D(TR_{(t-2)})$ | 1.086240 | 2.212669 | 0.0332 |
| CointEq(-1)* | -0.849076 | -8.235658 | 0.0000 |
| $R^2 = 0.735698$ | | Akaike Info Criterion = 4.585449 | |
| Adjusted $R^2 = 0.709268$ | | | |
| Durbin-Watson Stat = 1.882931 | | | |

*Source: Authors computation from E-views 12-SV, 2022*

Table 5 presents the result for short term error correction model for GDP. It can be seen from the table that the difference of TR has positive relationship with GDP and significant at 5% level of significance. It shows that increase in TR by 1 unit causes to increase in GDP by 1.08624 unit.

The coefficient of the error correction term is negative and statistically significant, indicating the evidence of cointegration among the GDP and other variables in the model. The comparatively higher value of the error correction term for EXP implies relatively higher rate of adjustment in GDP when shocks arise. The coefficient of error correction term (i.e.; -0.849076) implies that about 84.90 % of total adjustment takes annually when shock arises.

**Residual Diagnosis Test**

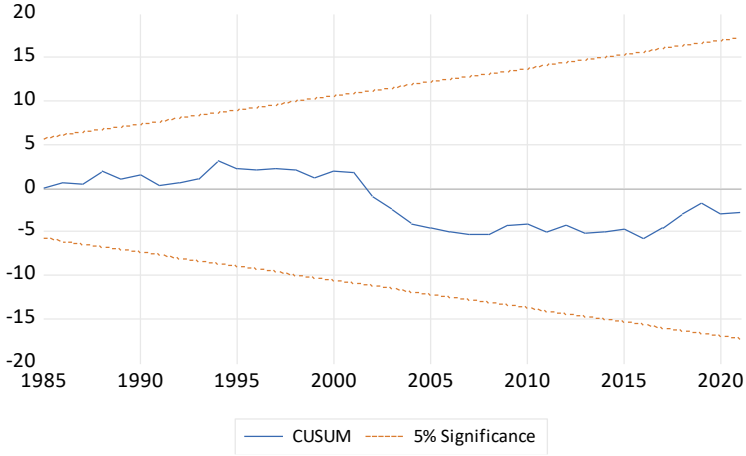
**Table 6:** *Result of residual diagnosis test*

| Test Series | F-Statistics | Probability |
|---|---|---|
| Serial Correlation LM Test | 1.0452752 | 0.3623 |
| Normality Test (Jarque-Bera Test) | 0.406498 | 0.816075 |
| Heteroskedasticity | 2.032956 | 0.0835 |

*Source: Authors computation from E-views 12-SV, 2022*

In Table 6 the result of serial correlation LM test shows that there is no presence of serial correlation because its p-value is greater than 5% level of significance. Similar to this, the probability of Jarque-bera is greater than 5% level of significant which shows that the data over the time period are normally distributed. And additionally, the overall probability value of Breusch- Pagan Godfrey test is higher than 0.05 which shows that data are homoscedastic and the model is free from heteroskedasticity.

**Stability Test**




The result in the figure shows that the CUSUM test plot did not go over the limits. The CUSUM test yields findings, which demonstrate that the graphs do not cross the bottom and upper critical limits. As a result, there are no structural weaknesses and long-run estimations are stable.

## V. CONCLUSION

This article has made an effort to identify the driver(s) of economic growth in Nepal given deliberate government actions through taxes as one of the latest studies that empirically evaluated the extent to which revenue from taxes generates economic growth in developing nations.This study looked at the effects of tax revenue on Nepal's economic growth from 1980 to 2008. The time series properties or degree of integration of time series variables are examined using the DF/ADF and PP unit root tests. The variables being studied have I(0) and I(1) in the mix order of integration. ECM and ARDL bound approach to cointegration is used for short- and long-run empirical study. According to the findings, non-tax revenue is significant and has a positive impact on the growth of the economy. The $ECT_{t-1}$ coefficient is significant with the correct sign and predicts that following a shock, the long-term equilibrium will once more converge towards equilibrium by around 84.9076 percent in a year.

The government should use social media to raise awareness of tax-paying and avoid tax evasion. Rewards and incentives should be used to motivate taxpayers to pay tax willingly, and fines and penalties for tax evaders should be levied at a higher rate. The government should also come up with strategies and long-term planning for generating domestic revenues, such as introducing new taxes, increasing tax rates, and encouraging investments in public/private sectors.

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