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Measurement of Value Added Tax (VAT) Efficiency of Nepal

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Abstract

Value added tax (VAT) is an indirect tax, that has becoming major source of government revenue worldwide. VAT is paid in an effort to uplift tax collection efficiency in order to recover their budget deficit and enhance economic stability. But the efficiency of VAT collection has played negative roles like standard VAT rate, threshold, list of tax exempted or zero rate goods and services, tax evasion, political commitment, stable government etc. This research has taken secondary data from Government's authentic publication from 2010/011 to 2020/021. All these data were analyzed with the help of trend analysis, the VAT to GDP ratio, VAT efficiency ratio and C-efficiency ratio. All the indicators have been found positive. The collection of VAT and GDP appears in increasing trend. The increasing trend of VAT is higher than GDP. The VAT to GDP ratio reaches from 3.95 to 11.84 the VAT efficiency ratio extends from 30.38 to 91.12 and average C-efficiency ratio of the study period is 64.7. The studied indicators proved that VAT has improving collection efficiency, increasing trend of collection an improved in role on GDP in Nepali economy. From all these, VAT should be more income generative in the future and help to minimize the budget deficiency of Nepal Government.

Keywords: VAT, GDP, economic growth, VAT efficiency, VAT efficiency ratio

Introduction

Among the sources of indirect taxes, value added tax (VAT) has an increasing role in the macro economics of a countries in the world. The main source of public revenues in developing countries is value added tax (Todorović, Đorđević & Ristić, 2019, P.16). The revenue generating power of it measured by Keen and Lockwood (2006) with the hypothesis that it is VAT money machine. The results showed countries with VAT raise more revenue than those without in the OECD. The concept of it was conceived in Germany, matured gain in Japan and experimented with in France in 1954 AD. Then it spread over the world without boundaries between of political ideology and the development stage of the country. History tells us its popularity in the world. Even after 50 years of experience with VAT and 50 years of tendency towards a better understanding of the principles on which VAT should rest, there is so much that is unknown about this tax (Keen, 2007, p. 18). The researchers have agreed that VAT is an important tax innovation of the twentieth century. It has added new dimension in tax collection of a government's financial sources. It became a remedy for balancing the budget deficit and helped accelerate the economic development and operation activities of the country.

In the VAT system more people participated than the in generic tax system. The fundamental principle of VAT is their every people are taxpayer without discrimination between people who have and have not. It has simple theory, tax is charged in added value of every stage of transaction with shifting tax burden to ultimate customer through tax credit provision to middleman. It has principal tax at destination with removing cascading effect (Dhakal, et. al, 2022, P. 251). VAT is a general consumption tax passed on the value added to goods and services at each stage of the production process (Cevik, Gottschalk, Karnane & Sow, 2017, p. 8). The definition focuses only in bound channels of supply. Value added tax is multi-stage consumption tax that is applied to the sales of goods and services at all stages of production and distribution (Brid, 2005). The definition found much more realistic and balanced because it covers all the channel of dealing goods and services.

Efficiency refers to the degree to which service provision is maximized with the resources at hand (Iovell, 2002, p.12). It is abstract and more complicated to attain because it is the outcome of proper combination of different factors. The efficiency of VAT collection is blending up of different factors like tax rate, threshold, list of tax exempted goods and services, list of zero tax rate goods and services, political stability and commitment, etc. Nepal has been adopting single VAT rate since its inception in 1997. After 8 years of administration of standard VAT rate of 10 percent was raised to 13 percent in 16 July 2005 (Acharya, 2016, P.46). The VAT policy of Nepal has faced different hurdles from very beginning like business community, political parties, political instability, etc. The higher mean value of thirteen years VAT revenue than other sources of taxes in Nepal refers VAT has played important role in revenue generation of Nepal (Poudel, 2014). The responsibility of VAT collected is given to Inland Revenue Department (IRD) by Nepal Government. A glance of VAT collection on total revenue of Nepal has shown 24.3 percent in 2019/20, 24.4 percent in 2020/21 and 23.7 percent in 2021/22. The role of VAT in revenue generation of Nepal is found higher than other indirect taxes like custom, excises, nontax and other revenue. The income tax is little bit higher than VAT (Aarthik Sarveshyan 2021/022, P. 46).

Different performance measurement tools should be applied for measuring the performance of VAT collection. Acharya (2016) has mentioned the tools of performance analysis as efficiency ratio, C-efficiency ratio and VAT gross collection have been used to assess the performance of the VAT (P.44). Normally economists have compared collections of VAT with gross domestic product (GDP) for evaluation of VAT performance. C-efficiency ratio, as an indicator of VAT performance (Đurović-Todorović et al, 2019, p.18). VAT collection efficiency is not a matter of VAT collection for a period, but it is a pattern analysis of VAT collection from the long period. Nepal's VAT C-efficiency ratio is quite low to the range of 0.3-0.35 compared to the world's aggregate of 0.45 in 2000 (Acharya, 2016).

Literature review

Growth is the basic condition for opportunity, creation and prosperity for a country. Sustainable growth opens the door for investment, employment and good governance in the country. An economy is performing well when there is high economic growth, high productivity of factors of production and improved social welfare; resources are allocated efficiently. "GDP per capita can measure how well an economy is performing (Kadenge, 2021, p. 1)". The GDP is an indicator of the macro-economic performance of the economy. The empirical study of Chiricu (2019) shows VAT has a positive impact on economic growth. The impact of VAT on GDP has studied by Emmanuel (2013) using time series

data from 1994 to 2010 of Nigeria by using of regression model. Their finding was 1 percent increase in VAT revenue could stimulate a 1.47 percent increase in GDP. The finding showed that a country higher VAT collection capacity should boost its GDP.

Tax revenue is essential to accelerate the economic development (Egbunike, Emudainohwo, & Gunardi, 2018). However they are categories as direct and indirect taxes. Atkinson (1977) was given their opinion as politicians and taxpayers preferred indirect for taxation because it offers taxpayers choice and politicians for less visible. Indirect taxes is preferred by taxpayers to away from tax payment problems. On the other side it save to politician from criticism as raise in rate of direct tax. A study of Acosta-Ormaechea et al. (2019) have shown consumption taxes are more growth friendly than income taxes. The finding is also supported as VAT might have a central role in economic growth (Simionescu & Albu, 2016). Similar finding drawn by Ayoub and Mukherjee (2019) as VAT and GDP have positive relationships in short run as well as long run in Chinese Macro-economy.

The contribution of taxes on economic growth of a country is taken as a measuring rod of economic performance. The role of tax rate on collection efficiency of VAT illustrated as; there is a negative correlation between the standard value added tax rate and the efficiency of VAT collection ((Đurović-Todorović, Đorđević and Risti, 2019.P.18). They also drew conclusion on the basis of literature review that tax revenue is higher in countries that apply a single VAT rate than in multiple VAT rate countries (p17). The efficiency of VAT collection should be enhanced through covering of broaden area of taxation on goods and services. The use of uniform taxation as a reference point in evaluating VAT systems reflects the pragmatic judgment that the practical case for a single rate is so strong as to make this an important benchmark. (Keen, 2013, p. 11). Nepal has applied single VAT rate from very beginning with adjustment in rate of VAT after 8 years of implementation. The weakness of multiple VAT rate are pointing as administrative confusion and possibility of tax evasion throw loophole in tax rate from the side of taxpayer and tax authorities.

The performance improvements can achieve by expanding the tax base, limited use of reduced rates and exemptions, more productive tax administration and better compliance of legislation and practice (Owens, 2011, p. 8). The efficiency of VAT collection is depend on numerous factors. Such variables are driven by developmental stage of country, government policies, sources of government revenue etc. The researchers have tried to identify such factors. In a study of Legeida & Sologoub (2003) analyzed tax rate, taxpayers' compliance to pay tax, tax base of the tax amount of taxable activities for examination of VAT efficiency. Aizenman & Jinjark (2005) had analyzed such factors as probability of control and penalties for unpaid tax, tax structural factors, level of urbanization of the country, the development of the trade outside the from the country and share of agriculture income in GDP. Bikas & Andruskait (2013) had added such factors of VAT efficiency are government expenditure, household consumption, unemployment, business of export and import, gross domestic product, gross domestic product per capita. Hodzic & Celbi, (2017, P.70-80) had enumerated such factors are constitutional order, territorial size, population size, demographic structure, size of the public sector, economic structure, unemployment, public debt size, etc. The reason of VAT efficiency are pointing out by Emran and Stiglitz (2005) are tax evasion and informal economy of the country. Adhikari, (2020) has pointing output effect of VAT as different output effect depending on the income level of the country, citing some distinctive features of developing countries such as the prevalence of tax evasion. The threshold

and their impact of VAT efficiency was pointing out as “Developing countries tend to reduce the entry threshold in the tax system, although the low threshold, in several countries, is listed as one of the weaknesses of VAT (Đurović-Todorović, Đorđević and Risti, 2019 p.17

The role of taxation to enhance the GDP is explained as the level of taxation is assumed to affect the level of country’s GDP ((Kadenge, 2021, P.2). The performance of VAT collection is measured by use of VAT to GDP ratio. The study of Islam (2016) has shown collection of indirect taxes has perfect positive correlation with GDP and a statistically significant effect on the GDP of Bangladesh. The GDP of Nepal in 2020/021 showed Rs.229088 (in 10 million) and the VAT occupied 11.84 percentage of GDP.

Erero (2021) studied the impact of VAT rate increase in GDP of South Africa. The researcher taken major data of 2018-2021 and used different regression model and others. The efficiency of VAT on government revenue was measured by use of C efficacy ratio and regression. The study showed average C-efficiency ratio approximately 64 percent. The VAT rate 14 percent raised to 15 percent showed negative impact on GDP 0.0002 percent in 2018 but showed positive impact 0.0028 percent in 2019. The GDP was increased by 3.2 billion in 2021.

Hassan (2015) analyzed performance of VAT collection in Pakistan with the help of panel data from 1991/92 to 2011/012. In this research he has used VAT to GDP ratio, VAT efficiency ratio, C efficiency ratio and Gross compliance ratio. The studied showed VAT to GDP ratio 1.5 percent in 1991/1992 which is increased to 3.9 percent in 2011/2012. The average of the period were showed 2.9 percent. But VAT efficiency ratio were found average 19 percent in study period with 11.4 percent in 1991/1992 and 22.9 percent in 2011/2012. Likewise the study showed c-efficiency ratio 17.3 in 1991/1992 raised to 25.3 percent in 2011/2012. The average C- efficiency ratio were noted 25 percent. The average GCR ratio found 22 percent in the study period.

Kadenge (2021) analyzed economic performance by the helps of different sources of taxes (VAT, income tax, custom and excise duty) on the helps of regression, correlation. The correlation coefficient of VAT with GDP 0.98. Similarly regression showed income tax has negative role with GDP. But the custom, VAT and excise duty have positive effect on economic performance.

The analysis of C efficiency of VAT in 12 EU developing countries and Serbia by Đurović-Todorović, Đorđević and Ristić (2019). The analysis showed that highest average C efficiency ratio 0.84102 of Croatia and lowest average C efficiency of Romina 0.35439 with average C-efficiency of studied countries 0.54321. In case of Serbia C efficiency ratio continuity of fall since 2005 to 2016 study period. They also concluded that increase in VAT rate decline in C efficiency ratio. The VAT rate of Serbia changed in 2008 including other studied countries after economic crises 2008. The compared mean t test analysis of Serbia before and after VAT rate change showed significant difference in C-efficiency in study period. They also concluded that high level of C-efficiency ratio is the indicator of VAT performance at high level (Đurović-Todorović, et. al. 2019, p18.)

A report of IMF (2015) showed average C. efficacy ratio of South Africa is 18.5%, which is low when compared to the previous findings of IMF (P. 34).

Statement of the problems

The country which has not alternative sources of government revenue like natural resources and others excessively reliance upon taxes revenue. The analysis of income sources of Nepal has not

shown far from this facts. The total revenue collected by Nepal government in financial year 2020/021 captured about 88 percent by taxes revenue, out of which 32 percent shared by VAT. The modern history of taxation in Nepal was started since 1960 up to now it has ultimate objective to increase in tax collection efficiency for robust economic development of the country. In this circumstances it has adopted VAT as world trend in 1997. Unfortunately hug budget deficit low level of government revenue create pressure to Government depend on internal as well as external loan and subsidy. From these reality the Government of Nepal has followed the world trend of new tax practices since 1997. The reality of Nepalese economy economic pointing out by International Monetary Fund (IMF, 2022) as Nepalese economy as after a sharp drop in 2020, imports have rapidly grown, fueling a large current account deficit (8.3 percent of GDP in Financial Year 2020/2021, p.1). The Government of Nepal have pressure to improve their sustainable source of revenue. The researches have shown that VAT is major sources of Government revenue. What is the VAT collection efficiency of Government of Nepal? Is VAT contributes revenue generation of Government of Nepal?

Objectives of the Study

The objective of this research is to analyze the VAT collection efficiency of Nepal. The specific objectives of this research are:

- To analyze the contribution of VAT to the economic growth of Nepal.
- To assess the VAT collection efficiency of Nepal.

Research methodology

This study has been organized to analyze the VAT collection efficiency of Nepal. For this purpose, secondary data published by Nepali government authorities has been collected and analyzed. descriptive research method was used for describing the present phenomena of VAT collection and their impact on gross domestic production. For the analysis purpose, GDP and VAT amounts for FY 2010/011 to 2020/021 were collected from the Economic Survey (Arthik sarveshyan) published by the Ministry of Finance the Central Bureau of Statistics (national account), and the Department of Inland Revenue (report and bulletin). Researchers' research articles, seminar papers and books were studied and reviewed for the justification of research findings. The collected data were analyzed using trend analysis, the VAT to GDP ratio, the VAT efficiency ratio and C-efficiency ratio under consign of previous researchers. Economic performance was measured by the GDP per capita growth rate, while income tax, consumption tax, foreign trade, government consumption were measured as ratios of GDP (Kadenge 2021).

The main variables of this study were GDP and VAT. The role of VAT on GDP in Nepal's economic growth has been exhibited data. So the VAT and GDP collection trend of Nepal Government showed in table. For trend analysis purpose, the data of GDP and VAT of FY. 2010/011 was taken as base year.

VAT to GDP ratio: It is used to measure the collection performance of VAT on GDP (Hassan, 2015). The ratio showed the percentage of VAT on total GDP. The higher ratio showed higher efficiency of VAT collection.

VAT efficiency Ratio: The ratio showed the efficiency of VAT on GDP and standard VAT rate. The VAT efficiency ratio is calculated as VAT revenue is divided by GDP, the outcome is again divided by the standard VAT rate (IMF, 2002, Hassan, 2015).

C-efficiency ratio: It is the ratio of VAT revenue to total consumption (private and general government consumption), divided by the standard VAT rate (IMF, 2002, Hassan, 2015, Todorović, 2019). The ratio is more reliable to measure the VAT efficiency than other ratio. This ratio is focused on consumption, actually VAT is consumption type tax. The coefficient value 1 showed perfect tax policy of the government. The lower coefficient refers reverse position of efficiency.

Data presentation and analysis

Table 1

GDP Trend, VAT Trend, GDP/VAT Ratio, VAT efficiency and C-efficiency ratio

Years	GDP Trend	VAT Trend	VAT Rate%	VAT/GDP Ratio	VAT efficiency	C-efficiency
2010/011	1	1	13	3.95	30.38	32.8
2011/012	1.05	1.15	13	4.35	33.46	36.6
2012/013	1.08	1.35	13	4.94	38	42.2
2013/014	1.15	1.64	13	5.64	43.38	49.3
2014/015	1.19	1.82	13	6.04	46.46	53.1
2015/016	1.12	1.99	13	6.54	50.38	56.3
2016/017	1.31	2.61	13	7.9	60.77	72.3
2017/018	1.41	3.35	13	9.43	72.54	87.7
2018/019	1.5	3.89	13	10.26	78.92	94.1
2019/020	1.46	3.63	13	9.81	75.46	84.7
2020/021	1.53	4.57	13	11.84	91.12	102.78
Average				7.34	56.44	64.7

Source: Economic Survey 2011/012 to 2021/2022

The Table showed, the trend of GDP and VAT in increased trend on the basis of base year 2010/011. But the trend of 2019/020 showed less than previous year 2018/019 of GDP and VAT. The increased trend of VAT have found faster than trend of GDP. The GDP increased to 1.53 from base year. That is 4.57 of base year in case of VAT. The rate of VAT has found constant in the study period. VAT to GDP ratio have found in increased each year than previous year except 2019/020. That is 3.95 in 2010/011 to 11.84. Similarly VAT efficiency ratio has found increased 30.38 to 91.12 in 2020/021. Similarly C-efficiency reaches to 102.7. All these factors of efficiency showed positive efficiency of VAT in macro-economy of Nepal.

Discussion

The trend analysis of GDP and VAT has shown that VAT is increasing faster than GDP. In the study period GDP was found to be 1.57 times the base year. But VAT increased to 4.57 times of base year. Every year, VAT and GDP increased except in 2019/020 due to COVID. The GDP has different sources, including VAT. Other sources of income from primary sector, treasury sector, and industrial sectors may not be increased as VAT income. The incremental trend of VAT raised the hope of boosting

government revenue. The results showed the VAT policy is properly applied by the government. The Nepali market is a consumption base, showing that consumption pattern increased during the study period. The GDP of Nepali economy is more than 50 percent occupied by the service sector. It means that the primary sectors and industrial sector should not contribute a significant amount to GDP. The researchers argued that sustainable sources of government income are industrial and primary sectors. The relationships between VAT and GDP were shown by (Kadenge, 2021, Egbunike, Emudainohwo, & Gunardi, 2018). The study by Emmanuel (2013) also supports the statement, as a 1 percent increase in VAT boosts GDP by 1.47 times.

The Nepal Government has followed single VAT rate from the date of introduction of VAT in the country. The adjustment is made in tax rate from 10 percent to 13 percent after 7 year of implementation. Most of the researchers preferred single VAT rate in order to reduce administrative hurdle and possibility of tax evasion. The research work of Acotra-Ormaechea & Murozomi (2021), Đurović-Todorović, Đorđević and Ristić (2019) etc. support the single rate than multiple rate of VAT.

VAT to GDP ratio of Nepal has found 3.95 at the beginning of the study it raised to 11.84 in 2020/21. The average ratio was found 7.34 in study period. Nepal is consumption based country relevance with principles concept of VAT. The average ratio has found at higher level than Pakistan 2.9 (Hussan, 2015). The analysis implied that the rate of VAT increased higher than GDP.

VAT efficiency ratio of study period has found increasing trend 30.38 percent to 91.12 percent with average of period 56.44 percent which was higher than Pakistan 19.15 (Hussan, 2015). The C-efficiency ratio of Nepal was 32.8 percent at the beginning, which reached to 102.7 at the end of study period with average 64.7 percent. The average ratio of 25 percent of Pakistan (Hussan, 2015), 18.5 percent of South Africa (IMF, 2015), approximately 64 percent Erero (2021), 0.84102 of Croatia and Romina 0.35439 Đurović-Todorović, Đorđević et.al. (2019).

Higher ratio refers better efficiency of VAT collection in the economy of a country. The countries in the world were interested to improving the VAT collection efficiency. In modern era it has special role to generate the government revenue. But there has been found different variables have negative reflection in VAT collection efficiency. The import and export situation has been depicted in IMF report 2022. The collection efficiency of a country is influenced by threshold (Đurović-Todorović, Đorđević et.al. (2019). On the name of public welfare the government has made provision of threshold, zero rate goods and services and tax exempted goods and services. The efficiency of VAT are influenced by government expenditure, unemployment, household consumption, export and import business of the country (Bikas & Andruskit, 2013). The Government of Nepal has been unable to expend their capital expenditure from many years, unemployment or partial unemployment has raised per year. The Nepalese economy is suffering from double standard of accounting and open boarder also helps to evasion of VAT. Adhikari (2020) rightly pointed that prevalence of tax evasion affected the VAT efficiency. On the other side, political instability, political commitment and capacity of tax administration may affect the VAT performance. The Nepalese VAT policies have found suffering from stipulated variables from the very beginning. However all the indicators VAT and GDP trend, VAT/GDP ratio, and C-efficiency ratio are at increasing trend refers Nepalese VAT system at right track. The theoretical and empirical researches were proved that, VAT has better tax collection tools of government revenue. It is consumption based and transparent tax system than direct tax system. The studied indicators proved

that VAT has improving collection efficiency, increasing trend of collection and improving in role on GDP on Nepalese economy. From all these, VAT should be more income generative in the future and help to minimize the budget deficiency of Nepal Government. .

Conclusion and recommendation

In the modern era VAT has become Government's money machine (Keen & Woodlock, 2006) to generate government revenue to recover the ever growing budget deficit. The literature showed that a broad base of tax with low tax rate is more beneficial to boost the efficiency of VAT. The VAT collection efficiency of a country is influenced by various factors. Such factors as tax rate, threshold, list of zero rate or tax exempted list of goods and services, balancing in resource allocation, strengthening the capacity of tax administration, raising in GDP, proving employee opportunities, control over the tax evasion, control over the import of goods from open market etc. should enhance the performance of VAT collection. The government should be responsible for maintaining all these factors properly. The present efficiency factors are at a satisfactory level. The government has to try to identify causes of higher C-efficiency in 2020/021, if that, the rate of VAT should be revised. This research is organized on the helps of performance measurement ratios. There is a need for further analysis with the help of considering all the influencing factors of VAT applying correlation and regression and other evaluation tools.

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