

Performance of Nepalese Tax System

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Abstract

Nepal is a republican nation which is federal and democratic. The government has to do lots of things as an autonomous, indivisible, sovereign, secular, inclusive, multicultural, socialism-oriented federal democratic republican state. On the one side, by addressing basic needs, the government has to raise people's health and living standards. On the other hand, physical and socio-economic infrastructures have to be built by the government. Large quantities of resources are required for this. Among the various sources of government revenue, the primary source is tax. Therefore, by addressing basic needs, the government has to improve people's health and living standards. The government also has physical and socio-economic infrastructures to be built. The main objectives of the article are to analyze, by measuring elasticity and buoyancy coefficients, the responsiveness and productivity of the Nepalese tax system during the period from FY 1991 to 2019. Nepal has faced the challenges of low tax yield responsiveness and productivity, indirect tax-dominated tax structures, low tax effort ratios, narrow tax bases, and poor tax administration. In order to solve these problems, raising tax revenues is not an end in itself, but rather a means of addressing fiscal imbalances, reducing wealth and income inequalities, and providing adequate allocation of resources and incentives to work and invest, which would lead to an increase in productivity and, therefore, in national income. Increasing revenue is therefore just one of many objectives, and a tax system must be administratively feasible. In addition, the principle of equality cannot be neglected and the tax system must be designed not to misallocate resources. It is not possible to achieve all these objectives simultaneously, so tax reform is a question of trade-offs.

Keywords: Tax, Elasticity, Buoyancy,

1. Introduction

Nepal is a landlocked federal and democratic republican country located between India and the Tibetan Autonomous Region of China. In the modern world the role of the government is increasing. On the one hand the government has to increase welfare and living standard of the people by fulfilling basic needs. On the other hand the government have to develop physical and socio-economic infrastructures. In order to perform these duties and responsibility, the government has to expend on different economic, social, cultural and other development activities. For this, government needs huge amount of resources. Revenue of the country may be internal and external. External sources consists bilateral and multilateral aids, grants and loans. External sources are uncertain, inconvenient, and not good for healthy development of nation in case of high dependency because of their vested interest and they have to pay after certain time period also. If foreign loans are not mobilized properly and misused, it becomes burden for the country and it can push the country into debt crisis. So, it is better to mobilize internal sources rather than external sources. The tax and non-tax revenues are main two sources of internal sources of revenue of the government. The government can receive the tax revenue as a compulsory payment where as non-tax revenue is a conditional source. Non-tax revenue includes fees, fines, penalties, royalties, receipt from sales and rent of government property and services, interest, dividends, principle payment, donation royalties, and miscellaneous income etc. Income tax, value added tax (VAT), property tax, sales tax, excise duties, custom duties, hotel tax,

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revenue from land registration etc. are the source of tax revenue. The share of non-tax revenue is very low as compared to tax revenue in our macroeconomic fiscal instrument of the government.

Tax is a compulsory contribution to government made without references to a particular benefit received by the taxpayers. It is a personal obligation to pay tax and there is no direct relationship among tax, benefit and individual tax payers. Tax revenue can be divided into two parts. They are direct and indirect tax. A direct tax is really paid by the person on whom it is legally imposed. Direct taxes are levies on the income, property and registration. It can't shift to another. The direct taxes have been taken as the best policy to reduce of income and wealth inequality in the society. Through which, government can implement the policy to reduce the inequality and collect the huge amount of funds. On the other hand, an indirect tax is imposed on one person but paid partly or wholly by another. Moreover, the indirect taxes are imposed on the consumption of Goods and services. The taxes on such goods and services are integrated with their price. Selling those goods and services on higher price, the tax payers easily transfer the burden on general consumer. Custom duties, VAT, excise duties and sales tax etc. are the example of indirect tax. In the developed economies the contribution of direct tax in total revenue is more than that of indirect tax. But in the developing and least developed countries like Nepal it is reverse. Taxes are compulsory contributions to public authorities to meet the general expenses of the government which have been incurred for the public good and without reference to special benefits. The relationship between taxation and economic development has long been a matter of concern to policy makers. The primary purpose of taxation is to divert control of economic resources from taxpayers to the state for its own use or transfer to others. Taxation not only restraints total spending by households and enterprises but influences the allocation of economic resources, recognizes social costs that are not reflected in market prices and affects the distribution of income and wealth (Shirras, 1929).

Tax revenue may change due to a variety of factors, such as changes in income, changes in tax rate and tax base, change in efficiency of tax administration and collection, among others. The responsiveness of tax revenue to such changes can be explained with the help of tax elasticity and buoyancy. Tax Elasticity may be defined as the ratio of a percentage change in adjusted tax revenue to percentage change in gross domestic product (GDP). On the other hand, tax buoyancy refers to ratio of percentage change in total tax revenue to a percentage changes in GDP as well as due to the changes in discretionary measures such as tax rates and tax bases. This distinction between the tax elasticity and buoyancy is very useful in analyzing and evaluating whiter future revenues will be sufficient to meet the resource needs without changing the rates or bases to the existing tax. To measure the tax elasticity historical tax series must be adjusted so as to eliminate the effects of tax revenues from discretionary changes. Therefore, the terms 'Elasticity' is also called "Built-in-flexibility" or "stabilized-coefficient" and likewise, the term buoyancy may also called as "sensitivity" or "exploitation co-efficient". Musgrave called it "formula flexibility" to measure the buoyancy, historical tax revenue series. Therefore, buoyancy is estimated without allowing for discretionary changes (Musgrave, 1948).

It is hypothesized that the tax revenues of a state economy would be sensitive to the macro economic performance of the state economy measured in terms of inflation and the growth of real income (Dholakia & Dholakia, 2000). Tax revenue may change due to a variety of factors, such as changes in income, changes in tax rate and tax base, changes in efficiency of tax assessment and collection, among others. The responsiveness of tax revenue to such changes can be explained with the help of tax elasticity and buoyancy

(Bonga et al., 2014). The concepts of tax buoyancy and elasticity are used as estimates of the efficiency of a tax system, that is, the ability of the tax system to mobilize revenue with and without tax policy changes (Cotton, 2012). It assists in identifying a sustainable revenue profile for the country and also helps in determining appropriate modifications to the existing tax structure and rates as well as areas for improving tax administration. A strong belief among the economists that the present tax ratio in Nepal is low and can be increased substantially, would be a solution to the resource problem. Thus, the present study is directed towards the structure analysis and estimate responsiveness of the Nepalese tax system.

Dahal (1984) has studied various aspect of Nepalese tax structure for the period FY 1964/65 to FY 1980/81. In this period the overall elasticity of the total revenue equal, almost unity (1.01) for indirect taxes, it is marginally higher than unity (1.02) compare with the elasticity of tax revenue is 0.92 reflecting the tax system less responsive to change in income. However, the buoyancy coefficients for the same period are 1.54 for total revenue, 1.52 for the tax revenue, 1.63 for indirect taxes and 1.23 for the direct taxes. Among the individual taxes the elasticity of sales tax is the highest (1.96) followed by income tax (1.38), import duties (1.05), export duties (0.77), and land tax (-0.04). The buoyancy coefficient for sales tax is again highest (2.56) followed by the excise duties (2.23), income tax (1.86), import duties (1.79), export duties (1.14) and land tax (0.31). These figures imply that Nepal is primarily concerned on the land tax, export duty, import duty, excise duty and to extent same on income tax.

Bilquees, F. (2004) examines the elasticity and buoyancy of the tax system for the period 1974/75 to 2003/04. The elasticity of the total tax revenue both with respect to the total GDP and the non-agricultural GDP base is less than unity. Overall, sales tax takes the lead by way of improving revenues. The high coefficient of income tax inclusive of withholding tax, which is an indirect tax, is high. Excluding the withholding tax leads to a lower coefficient. Sales tax with respect to imports and manufacturing also takes care of loss of revenue due to lowering of tariff and excise duties. However, the sales tax coefficient with respect to the GDP base reflects the inclusion of service sector and utilities in the sales tax net, which has serious implications for the poor. The estimates of buoyancy suggest that tax changes did not lead to significant revenue augmentation. The low buoyancy of income tax exclusive of the withholding taxes implies that imposition of massive withholding taxes coupled with an increase in the taxable income limits is working at cross purposes.

Mansfield, C. (1972) analyzes the growth of tax revenues over the 1962-70 period-an era of conscious tax reform-by examining two major questions: (1) what was the elasticity of the system and its components, and how is the size of the elasticity coefficient explained? and (2) what was the buoyancy of the system relative to its elasticity? With respect to individual taxes, where were the major differences between buoyancy and elasticity found? The results show that Paraguay's tax ratio rose significantly, even though the built-in elasticity of the tax system was only slightly more than unity and tax-to-base elasticities of major taxes were substantially less than unity. Balanced against these unfavorable factors were important discretionary changes-mainly rising rates of indirect taxes, such as import and stamp taxes-and the adoption of a new sales tax falling mainly on imported goods. These discretionary changes resulted in a buoyancy of 1.69 for total taxes, a much higher figure than the built-in elasticity of tax revenue to income. Another important favorable influence on both elasticity and buoyancy was the relatively high base-to-income elasticity of most major taxes.

Vadikar & Rami (2018) studied the tax elasticity and buoyancy of Center, State and Combine government of India during 1990-91 to 2015-16. This study used OLS regression model. The study analyzed the data of GDP, Corporate tax, Personal Income Tax (PIT), wealth tax, sales tax, service tax, customs duty and excise duty. Apart from this, the study also revealed the tax elasticity and buoyancy for Centre government, the State governments and combine governments for the study period. Tax elasticity and buoyancy of center government for the study period were found to be 1.04 and 0.98 respectively whereas 1.09 and 1.03 of state governments accordingly. The combine elasticity coefficient of center and state was 1.07 and buoyancy coefficient was 1.01. The study also found that discretionary changes and increase in GDP both proved tax productive.

Samwel & Isaac (2012) researched on the elasticity and buoyancy of tax components and tax systems in Kenya using time series data of 1987-2011 through Ordinary Least Square method. Income tax, import duties, excise duties and sales/VAT tax were taken as independent variables. Furthermore, in this paper, nominal figures were converted to real figures which mean the study applied for both the nominal and real data. The elasticity in nominal term of whole tax system was found as 0.509 while the buoyancy in nominal term of the whole tax system was 0.525. In real term the elasticity and buoyancy of the whole tax system were -0.108 and 0.261 respectively. All the four major taxes showed in nominal term an elasticity of approximately 0.525. The overall elasticity for Kenya's tax system was 0.509. The Kenya tax system was neither income elastic nor buoyant. In general, all major tax components in Kenya were inelastic. Income tax and excise duties had unity buoyancies over the study period. Import duties were the most buoyant tax component while the sales tax was least buoyant.

Adhikary (1995) in his study entitled "Tax Elasticity and Buoyancy in Nepal" estimated elasticity and buoyancy for the period FY 1974/75 to FY 1993/94, and found the elasticity of total revenue was less than unity (0.65). Buoyancy coefficient, on the other hand, was greater than unity i.e. 1.10. The buoyancy of overall revenue was higher by 0.45 (1.10-0.65) over the elasticity. The buoyancies of other components of taxes, with respect to national income, were greater than unity. The income tax had highest buoyancy of 1.14 followed by tax on consumption (1.06) and import duties (1.05), while their 17 elasticity's were less than unity as in the case of total revenue. The elasticity coefficients of consumption tax, import duties and income tax were respectively at 0.73, 0.51 and 0.39. The buoyancy and the elasticity coefficients of these taxes were substantially different. The highest difference witnessed in case of income tax was (0.75) followed by import duties (0.54) and consumption tax (0.33). Base elasticity and buoyancy of different sources of taxes also gave the similar results. Moreover, the elasticity of consumption tax with respect to its proxy base, the consumption of private sector which stood highest at 0.73, as compared to other elasticity's too, was less than unity. The corresponding buoyancy, on the other hand, was slightly greater than unity (1.05).

2. Objective

The concept of "elasticity" and buoyancy" of taxes are often used to examine the responsiveness of tax collection to variation in national income. In other words measuring responsiveness of Taxes in the tax system, 'elasticity and buoyancy are two popular concepts, frequently referred to as automatic stabilizers. If tax system is elastic then the functioning of the economic system does not need to deliberate or discretionary action of any external authority. Elasticity or built-in-flexibility; which measures the

responsiveness of particular tax system is also known as “stabilized coefficient” which is the static concept, would indicate what size and magnitude of tax would have been over a period of time when there would be no change on the tax rate and legal bases. This article aims to analyze the responsiveness and productivity of Nepalese tax system during the period of FY 1991 to 2019 by measuring elasticity and buoyancy coefficient.

3. Methodology

The model defined in the study comprises several equations to analyze the Nepalese tax system's sensitive single regression productivity estimate of the buoyancy and elasticity coefficients of different revenue sequences. Moreover regression equations are transformed to double log linear to have the estimate of the elasticity and buoyancy of various specified relation.

To estimate the elasticity and buoyancy coefficients for the specified tax groups, the following regression equation are employed.

For elasticity

$$\ln T_a = \ln \alpha + \beta \ln Y + U \dots\dots\dots (1),$$

For buoyancy

$$\ln T = \ln \alpha_1 + \beta_1 \ln Y + V \dots\dots\dots(2),$$

Where,

T_a = Adjusted tax revenue series

T = Actual tax revenue series

Y = Total GDP at current price

U and V = Stochastic Variables

β = elasticity coefficient

β₁ = buoyancy coefficient

α = constant coefficient of elasticity

α₁ = constant coefficient of buoyancy

ln = natural log

Then elasticity coefficient (β) can be calculated by solving these two normal equations

$$\sum \ln T_a = n \ln \alpha + \beta \sum \ln Y \dots\dots\dots(3)$$

$$\sum \ln Y \times \ln T_a = \ln \alpha \sum \ln Y + \beta \sum [\ln Y]^2 \dots\dots\dots(4)$$

Which gives,

$$\beta = \frac{\sum \ln(Y) \ln(Ta) - n[\text{Mean} \ln(Y)] \times [\text{Mean} \ln(Ta)]}{\sum [\ln(Y)]^2 - n[\text{Mean} \ln(Y)]^2}$$

and, $\ln\alpha = \text{mean} \ln(Ta) - \beta \text{mean} \ln(Y)$

And buoyancy coefficient (β_1) can be calculated by solving these two normal equations

$$\sum \ln T = n \ln\alpha_1 + \beta_1 \sum \ln Y \dots\dots\dots (5)$$

$$\sum \ln Y \times \ln T = \ln\alpha_1 \sum \ln Y + \beta_1 \sum [\ln Y]^2 \dots\dots\dots (6)$$

Which gives,

$$\beta_1 = \frac{\sum \ln(Y) \ln(T) - n[\text{Mean} \ln(Y)] \times [\text{Mean} \ln(T)]}{\sum [\ln(Y)]^2 - n[\text{Mean} \ln(Y)]^2}$$

and, $\ln\alpha_1 = \text{mean} \ln(T) - \beta_1 \text{mean} \ln(Y)$

This study computation is done by using SPSS programs.

4. Result

4.1 Estimation of Elasticity Coefficients of Nepalese Taxes

Elasticity of particular tax revenue series is said to be proportionate change in tax revenue due to proportionate change in nominal GDP without discretionary changes. It measures the automatic response of tax revenue without the effect of discretionary change in the tax base, tax rate etc. Hence elasticity is result of built-in-effects of tax structure. If an elasticity coefficient is unity ($\beta=1$) implies that one percent change in nominal GDP response one percent change in tax yield through automatic growth. If elasticity coefficient exceeds unity ($\beta>1$), then tax structure is said to be elastic and implies that one percent change in nominal GDP response more than one percent change in tax yield though automatic growth. If elasticity coefficient is less than unity ($\beta<1$), then tax structure is said to be inelastic and implies that one percent change in nominal GDP response less than one percent change in tax yield though automatic growth and elasticity is equal to two or more than two indicates high degree of progressiveness.

A developing country like Nepal, which is struggling in an initial stage of its development movement which needs more revenue to get economic development, stability and equity, should adopt an elastic tax system. If tax system is elastic, then additional efforts may not be desirable to mobilize additional revenue. If the economy performing low elasticity of tax system, government can always improve the revenue mobilization by introducing new tax (i.e. change in tax base) and changing in tax rates. The elasticity coefficient of different revenue heads of Nepalese economy during the period of 1991 to 2020 has been presented in the table 1.

Table 1: Elasticity Coefficient (β) of different Tax heads for the study period

Dependent Variable (in ln)	Independent Variable (in ln)	Elasticity Coefficient (β)	\bar{R}^2	S. E.	t-Statistic	F-Statistic	D-W
TR	GDP	0.68	0.92	0.04	16.72	279.67	0.21
TTR	GDP	0.71	0.91	0.04	16.05	259.67	0.19
NTR	GDP	0.53	0.85	0.05	11.60	134.66	0.74
DT	GDP	0.79	0.93	0.04	18.07	326.65	0.41
IDT	GDP	0.82	0.72	0.11	7.87	62.04	2.33
IT	GDP	0.93	0.96	0.04	23.73	562.86	0.56
VAT	GDP	0.62	0.79	0.89	9.64	92.93	0.16
ED	GDP	0.58	0.88	0.04	13.29	176.68	0.32
CD	GDP	0.76	0.97	0.03	27.02	729.83	0.58
IMD	GDP	0.71	0.93	0.04	17.31	299.57	0.44
EXD	GDP	-0.26	0.14	0.12	-2.18	4.75	1.31

Source: Calculated based on data in Appendix

4.2 Estimation of Buoyancy Coefficients of Nepalese Taxes

If tax structure of the economy is inelastic tax revenue will not response with increase in GDP. In order to make the tax system more responsive, government efforts is needed to form additional taxation and improve administrative competence. These governmental efforts are called discretionary measures, and can be seen for buoyancy estimate of a tax system. The buoyancy coefficient of tax revenue is given by the ratio of proportionate change in tax revenue due to proportionate change in nominal GDP including discretionary changes i.e. introducing new taxes and change in tax rates. Buoyancy coefficient of a tax system reflects change in revenue collection due to two factors viz. automatic growth and discretionary change. If the buoyancy coefficient is seemed to be greater than unity, we can conclude that the particular revenue head is buoyant. The buoyancy coefficient of different revenue heads of Nepalese economy during the study period of FY 1991 to 2019 has been presented in the table 2.

Table 2: Buoyancy Coefficient (β_1) of different Tax heads for the study period

Dependent Variable (in ln)	Independent Variable (in ln)	Buoyancy Coefficient (β_1)	\bar{R}^2	S. E.	t-Statistic	F-Statistic	D-W
TR	GDP	1.25	0.99	0.02	56.89	3236.92	0.43
TTR	GDP	1.30	0.99	0.03	50.53	2552.93	0.36
NTR	GDP	0.96	0.96	0.04	26.24	688.50	1.03
DT	GDP	1.48	0.98	0.03	46.91	2200.35	0.58
IDT	GDP	1.25	0.98	0.03	44.72	1999.42	0.33

IT	GDP	1.57	0.97	0.04	33.71	1136.37	0.40
VAT	GDP	1.26	0.98	0.03	43.06	1854.36	0.34
ED	GDP	1.46	0.98	0.04	37.17	1381.66	0.50
CD	GDP	1.06	0.98	0.03	36.28	1316.25	0.53
IMD	GDP	1.12	0.97	0.04	28.76	827.30	0.43
EXD	GDP	0.34	0.14	0.15	2.21	4.86	0.96

Source: Calculated based on data in Appendix

As shown in the table 2 elasticity coefficient has been computed and table 2 buoyancy coefficient has been computed during the study period of FY 1991/92 to 2019. The interpretation of the results of different revenue heads are as follows:

Total Revenue (TR)

The elasticity coefficient of total revenue is 0.68 implying that 1 percent change in the nominal GDP results 0.68 percent change in total revenue. Here, elasticity coefficient is inelastic in nature ($\beta < 1$). The result is significant at 1 percent level with a satisfactory coefficient of determinant adjusted R square 0.92 which indicates 92 percent of total revenue is influenced by GDP.

On the other hand, buoyancy coefficient is 1.25, which is significant at 1 percent level with satisfactory adjusted R square 0.99. This implies that one percent change in GDP results 1.25 percent change in total revenue including discretionary changes. F and T statistics significant at 1 percent level implies that the model is best to fit. DW statistics is 0.43 also shows the little positive autocorrelation in the equation. The buoyancy coefficient is higher by 0.57 (1.25-0.68) implying that 1 percent increase in GDP results 0.57 percent increase in total revenue through discretionary changes which denotes that after many tax reforms in this period, revenue mobilization is heavily depends upon the discretionary measures.

Total tax Revenue (TTR)

Total tax revenue which occupies approximately 85 percent of the total revenue mobilization in Nepal has been assigned elasticity coefficient is 0.71 implies that 1 percent change in the nominal GDP results 0.71 percent change in total tax revenue. The result is significant at 1 percent level with a satisfactory adjusted R square 0.91. On the other hand, buoyancy coefficient is 1.3, which is significant at 1 percent level with satisfactory adjusted R square 0.99. The buoyancy coefficient is higher by 0.59 (1.3-0.71) implying that 1 percent change in GDP results 0.59 percent change in total tax revenue through discretionary measures.

Non-Tax Revenue (NTR)

The elasticity coefficient of non-tax revenue is 0.53 implying that 1 percent change in the nominal GDP results 0.53 percent change in non-tax revenue. The result is significant at 1 percent level with a satisfactory adjusted R square 0.85. On the other hand, buoyancy coefficient is 0.96 which is significant at 1 percent level with satisfactory adjusted R square 0.96. The buoyancy coefficient is higher by 0.43 (0.96-0.53)

implying that 1 percent change in GDP results 0.43 percent change in non-tax revenue through discretionary measures.

Direct Tax (DT)

Direct tax revenue which occupies approximately one third part of the total tax revenue mobilization in Nepal. The elasticity coefficient of direct tax revenue is 0.79 implying that 1 percent change in the nominal GDP results 0.79 percent change in direct tax revenue. The result is significant at 1 percent level with a satisfactory adjusted R square 0.93. On the other hand, buoyancy coefficient is 1.48 which is significant at 1 percent level with satisfactory adjusted R square 0.98. The buoyancy coefficient is higher by 0.69(1.48-0.79) implying that 1 percent change in GDP results 0.69 percent change in direct tax revenue through discretionary measures.

Indirect Tax (IDT)

Indirect tax revenue which occupies approximately two third part of the total tax revenue mobilization in Nepal. The elasticity coefficient of direct tax revenue is 0.82 implying that 1 percent change in the nominal GDP results 0.82 percent change in indirect tax revenue. The result is significant at 1 percent level with adjusted R square 0.72. On the other hand, buoyancy coefficient is 1.25 which is significant at 1 percent level with satisfactory adjusted R square 0.98. The buoyancy coefficient is higher by 0.43(1.25-0.82) implying that 1 percent change in GDP results 0.43 percent change in indirect tax revenue through discretionary changes. DW statistics of elasticity coefficient 2.33 denotes no autocorrelation in the equation and DW statistics of buoyancy coefficient is 0.33 reflecting the little positive autocorrelation in the equation.

Income Tax (IT)

The elasticity coefficient of income tax revenue is 0.93 implying that 1 percent change in the nominal GDP results 0.93 percent change in income tax revenue. The result is significant at 1 percent level with a satisfactory adjusted R square 0.96. On the other hand, buoyancy coefficient is 1.57 which is significant at 1 percent level with satisfactory adjusted R square 0.96. The buoyancy coefficient is higher by 0.64(1.57-0.93) implying that 1 percent change in GDP results 0.64 percent change in income tax revenue through discretionary measures.

Value Added Tax (VAT)

VAT revenue covers about forty percent of the indirect tax revenue mobilization in Nepal. The elasticity coefficient of VAT revenue is 0.62 implying that 1 percent change in the nominal GDP results 0.62 percent change in VAT revenue. The result is significant at 1 percent level with adjusted R square 0.79. On the other hand, buoyancy coefficient is 1.26 which is significant at 1 percent level with satisfactory adjusted R square 0.98. The buoyancy coefficient is higher by 0.64(1.26-0.62) implying that 1 percent change in GDP results 0.64 percent change in income tax revenue through discretionary changes.

Excise Duties (ED)

The elasticity coefficient of excise duties is 0.58 implying that 1 percent change in the nominal GDP results 0.58 percent change in excise duties. The result is significant at 1 percent level with a satisfactory adjusted R square 0.88. On the other hand, buoyancy coefficient is 1.46 which is significant at 1 percent level with satisfactory adjusted R square 0.98. The buoyancy coefficient is higher by 0.88 (1.46-0.58) implying that 1 percent change in GDP results 0.88 percent change in excise duties through discretionary measures.

Custom Duties (CD)

The elasticity coefficient of custom duties is 0.76 implying that 1 percent change in the nominal GDP results 0.73 percent change in custom duties. The result is significant at 1 percent level with a satisfactory adjusted R square 0.97. On the other hand, buoyancy coefficient is 1.06 which is significant at 1 percent level with satisfactory adjusted R square 0.98. The buoyancy coefficient is higher by 0.30(1.06-0.76) implying that 1 percent change in GDP results 0.64 percent change in custom duties through discretionary changes.

Import Duties (IMD)

Import duty has dominant role about ninety four percent in the custom duties in Nepal. The elasticity coefficient of import duties is 0.71 implying that 1 percent change in the nominal GDP results 0.71 percent change in import duties. The result is significant at 1 percent level with a satisfactory adjusted R square 0.93. On the other hand, buoyancy coefficient is 1.12 which is significant at 1 percent level with satisfactory adjusted R square 0.97. The buoyancy coefficient is higher by 0.41(1.12-0.71) implying that 1 percent change in GDP results 0.41 percent change in import duties through discretionary changes.

Export Duties (EXD)

Export duty has minor role about six percent in the custom duties in Nepalese tax structure. The elasticity coefficient of export duties is -0.26 shows that automatic mechanism has negative impact. The result is significant at 1 percent level with unsatisfactory adjusted R square 0.14. On the other hand, buoyancy coefficient is 0.34 which is significant at 1 percent level with unsatisfactory adjusted R square 0.14. The buoyancy coefficient is higher by 0.60(0.34-(-0.26)) implying that 1 percent change in GDP results 0.60 percent change in export duties through discretionary changes. DW statistics are 1.31 of elasticity coefficient and 0.96 of buoyancy coefficient reflecting the little positive autocorrelation in the equation.

During the study period the elasticity of all revenue heads are less than unity which shows that Nepalese tax structure as a whole could not be considered elastic and automatic growth of revenue is not sufficient to fulfill the required fund of the government. Further, the negative elasticity of export duties (-0.26) shows that automatic mechanism has negative impact.

Similarly, buoyancy coefficient of all revenue heads except non-tax revenue (NTR) and export duties (EXD) are greater than unity which shows that revenue are found to be buoyant. But, buoyancy coefficient of NTR and EXD are found not to be buoyant. Higher values of discretionary measures indicate that frequently change in tax rates and introducing new taxes to improve revenue mobilization in Nepalese economy.

5. Conclusion and Recommendations

Nepal has to face the problems of low responsiveness and productivity of tax yields, indirect tax dominated tax structure, low tax effort ratio, narrow tax base and weak tax administration. In order to solve these problems, increasing the tax revenue is not an end in itself, rather it is a means to meet the fiscal imbalance, reduce inequality of wealth and income, and make proper allocation of resources and incentives to work and invest, which would lead to increase in productivity, and hence, the national income. Thus, raising revenue is only one of many goals and a tax system must be administratively feasible. Moreover, the equality principle cannot be neglected and the tax system must be directed not to misallocate resources. All these goals cannot be achieved simultaneously, so tax reform is a matter of trade-offs.

Since, government expenditure is higher than government revenue. The required amount of revenue can be obtained with higher tax rates, but if the tax base is narrow it leads to higher chances of tax evasion. So, broadly-based taxes are supposed to be useful with smaller rates. As increased revenue is necessary to enhance and strengthens overall domestic resource mobilization, the more upward adjustment in the rates or even the introduction of new taxes may not be able to ensure desirable increase in revenue.

As the study reveals that import tax isn't responsive to changes in the value of imports, the need for enhancing the efficiency of the customs administration to control the revenue leakage is highly felt. Export duty has minor role about six percent (including other taxes on international trade) in the custom duties in Nepalese tax structure. The elasticity coefficient of export duty is -0.26 shows automatic mechanism has negative impact. Government should promote industries of exportable goods and tax exemption on export duties should be reduced properly. High buoyancy and low elasticity indicate that discretionary changes are dominant role in the tax generation. Therefore, an attempt should be made to increase automatic response of taxation and to broaden the tax base. Government effort should be made towards encircling every sector of the economy under tax net as much as possible. Sound administrative capacity is one of the major bottlenecks that have to be overcome for increasing the built-in-flexibility of Nepalese tax system. In order to make elasticity coefficient of different revenue heads as elastic, tax administration should be improved, corruption should be controlled, tax base should be widened, dependency on foreign loans should be reduced and domestic resources should be mobilized properly. The tax policy should have a clear-cut direction and be consistent with a long-run perspective of the policy. The tax policy should be concentrated on optimum revenue mobilization for reducing tax revenues and expenditures gap.

The absence of a progressive tax structure creates disparity in the distribution of income and wealth. Therefore, progressive direct taxes like: income tax and property tax are to be considered as an effective measure to reduce inequality in the distribution of income and wealth. Hence, prudent wealth tax should be imposed on unproductive accumulation of wealth while making productive investment tax free.

References

- Adhikary, R.P. (1995). *Tax Elasticity and Buoyancy in Nepal*. NRB Economic Review; an Occasional Paper, 8, 1-26.
- Bilquees, F. (2004). *Elasticity and Buoyancy of the Tax System in Pakistan*. The Pakistan Development Review, 43(1), 73-93.
- Bonga, W. G., Dhorogwaendepi, N. L., & Mawire-Van Strien, F. (2014). Tax Elasticity, Buoyancy and Stability in Zimbabwe. *IOSR Journal of Economics and Finance*. Vol 6(1), 21-29.
- Cotton, J.J. (2012). The Buoyancy and Elasticity of Non-Oil Tax Revenues in Trinidad and Tobago (1990-2009). Working Paper Series, Research Department, Central Bank of Trinidad and Tobago.
- Dahal, M.K. (2000). *Measuring the Responsiveness and Productivity of Tax yields: A Survey of the Contemporary Approaches*. *Economic Journal of Department Issue*, Department of Economics, Patan Multiple Campus, 1 (2).
- Dahal, M.K. (1984). *Built-in flexibility and sensitivity of tax in Nepal's Tax System*. *The economic Journal of Nepal*.
- Dholakia, R.H. & Dholakia, A.R. (2000). Macroeconomic Performance and Tax Revenue: The Case of Gujarat State. IIMA Working Papers. Retrieved from: <https://www.researchgate.net/scientific-contributions/43913100>.
- Lemberger, J. (1925). C. Gill. The Rise of the Irish Linen Industry. *The Economic Journal*, 35(138), 262-267. doi:10.2307/2222689.
- Mansfield, C (1972) *Elasticity and Buoyancy of a Tax System: A Method Applied to Paraguay*. IMF Econ Rev 19, 425-446.
- Musgrave, R., & Thin, T. (1948). *Income Tax Progression, 1929-48*. *Journal of Political Economy*, 56(6), 498-514.
- R.A. & Miller, M. (1948). *Build -in-Flexibility*. American Economic Review.
- Samwel, K. C. & Isaac, M. K. (2012). *Elasticity and Buoyancy of Tax Components and Tax Systems in Kenya*. *Research Journal of Finance and Accounting*, 3(5), 116- 125.
- Shirras, G.F. (1929). *Taxable capacity and burden of taxation and public debt*. *Journal of the Royal Statistical Society*, 38 (4).
- Vadikar, P.I, & Rami, G.D. (2018). *Tax Buoyancy and Tax Elasticity In India: A Log Regression Model*. *IOSR Journal of Business and Management* 49-55.