

CHAPTER I

INTRODUCTION

1.1 General Background

Tax is a compulsory levy made by public authorities for which nothing is received directly in return (James & Nobes, 1997). It is personal obligation to pay tax and there is no direct relationship among tax, benefit, and individual taxpayers.

Taxation is one of the major instruments of social and economic policy. It has three goals; transfer of resources from the private to the public sector, share the overheads of government fairly by income classes (vertical equity) and among the people having the same economic and social circumstances (horizontal equity), and to promote economic growth, efficiency stability, and neutrality in between the territory of the country. These objectives are closely related to the economic development of a country.

The prime concern of the least developed countries (LDCs) is the attainment of rapid sustainable economic development. The rapid economic development in such country requires ample investment in social sectors where the private sector of the economy does not find any incentives to engage on. Experts agree that it is possible when there is huge accumulation of capital in the country. Rao (1979) in this context exposes ideas on the question, how can capital accumulation be achieved? He opines that, in developed countries, the bulk of capital formation takes place through the market mechanism. Nevertheless, such mechanism is proved to provide quick and efficient results only in the presence of a sufficient quantum of capital goods. Evidently for least developed countries, the reliance on such mechanism would be futile since they in general, do not possess even the basic infrastructural facilities such as education, health, power, irrigation, transport, communication, etc. Therefore, the considered opinion is that their government must be responsible for most of the capital accumulation. Thus, the role of taxation in this connection has increased very much in modern days.

The relation between taxation and economic development has long been a matter of concern to policy makers and general people. The classical economists devoted substantial efforts in analyzing the effects of taxation on growth and the distribution of factor incomes. With the rise

of Keynesian economics, in the War Era, the effects of taxation on stability of the economy became an important issue. The classical and Keynesian ideas constituted prominent themes in early analysis of taxation in least developed countries. In the following days, the range of concern widened to include the effects of taxation not just on the rate of growth of national income but also on the distribution of income and on employment.

A core function of the tax system is to generate sufficient revenue to meet the expanding public sector requirements of the state. Nonetheless, Most Least Developed countries face difficulties in generating revenue. In some LDCs, budget deficits and the unproductive use of public expenditures have limited the critical investments in both human resources and basic infrastructure that are necessary for sustainable economic growth (Eltony, 2002).

To accelerate the economic growth for the attainment of socio-economic objectives in developing countries government needs various types of resources in a huge amount. Here two types of resources are undertaken i.e. internal and external; both are mobilized by the government. However, the internal sources are more preferable to external one for sustainable development. Thus, tax revenue and non-tax revenue are the crucial revenue of the government. The tax revenue is received as compulsory payment whereas the remaining is conditional. The non-tax revenue includes duties and fees, penalty, fines and forfeitures, receipts from sales and rent of government property, principal repayment, donation and miscellaneous income. The tax revenue includes both direct tax and indirect tax such as income tax, sales tax, custom duty, excise duty, revenue from land registration etc. Of them tax revenue is major sources of the internal revenue as well as the macroeconomic fiscal instrument of the government.

In the context of Nepal, the role of taxation has increased since the inception of planning in 1956 for the purpose of economic growth and development. Recent thirteenth three year plan has determined the target to upgrade Nepal from least developed to developing country by 2022 A.D. In this respect, the required growth rate that has to be attained is about 8 percent per annum, for which a huge investment in capital is required (Budget 2015/16). For that, the productivity and responsiveness of tax must be increased without deteriorating the private investment. However, in the earlier period the drastic change needed in improving tax structure was not felt due to the low magnitude of government expenditure. Today government expenditure has increased by

greater amount than government revenue; the problem of bridging this gap has become the main issue regarding the fiscal affairs of Nepal.

Earlier studies on tax revenue issues have noted that the level of public expenditure in most LDCs is too low for the physical infrastructure and human capital needs of these countries. In the last two decades, many LDCs have embarked on economic and financial reform programmes that included measures to raise tax revenues and restructure the tax system. LDCs need to rely substantially on domestic revenue mobilization if the Millennium Development Goals (MDGs) are to be realized within the specified time frame.

Thus, there is a greater need of improving tax structure in Nepal. This need becomes more appreciable when we see the higher tax ratio to GDP in developed country. This has generated the strong believe among the economist that the present tax ratio in Nepal which is very low, can be increased substantially, which would be a solution of resource problem. However, how this ratio can be raised and in what magnitude the present tax structure is able in raising revenue becomes a subject matter of study.

Thus, the present study is also directed towards the impact analysis of government of Nepal's tax reform and policy on the structure and responsiveness of Nepalese tax system.

1.2 Statement of the Problem

Wagner's law stipulates that public expenditure is a natural consequence of economic growth (Demirbas, 1999). Many developing countries including Nepal in their attempt to increase growth have increased public expenditure but not been able to match it with revenue mobilization through taxation and has resulted in huge budget deficit. Economic theory posits that instability in an economy may arise out of deficit financing mainly through foreign borrowing which may affect domestic interest rates, balance of payments and the exchange rate of the domestic currency relative to other currencies and consequently may plunge the economy into crisis. Various efforts aimed at obtaining optimal fiscal policies with emphasis on the role of taxation as an instrument of economic development has been implemented but the results seem not to be that encouraging. Economic survey (FY 2014/15) indicates that tax revenue in Nepal as a ratio of Gross Domestic Product (GDP) is about 16.1 percent in 2013/14, whereas the ratio of total government expenditure to GDP is 22.4 percent in the same FY.

The growth in tax revenue must approximate the growth in public expenditure for macroeconomic stability to hold (World Bank, 1990). In LDCs, generally, the major taxes tend to have low elasticity and sometimes low buoyancy estimates. This is mainly due to the inherent weakness in economic structure where a good number of activities remain out of the tax net due to low income levels and the unorganized nature of most economic activities (Bilquess, 2004).

In Nepalese context, revenue mobilization, foreign grant and loan, internal loan and change in cash balance continued to be major sources in meeting government expenditure. Revenue mobilization (annual percentage change), a major source of financing government expenditure, increased by 21.1 percent in FY 2012/13, while in the FY 2013/14 it was increased only by 20.5 percent. Furthermore, based on first eight month data it is estimated to remained 9.4 percent in the FY 2014/15. On the other hand, the budget deficit, which was 1.5 percent of the total GDP on FY 2012/13, 2 percent in FY 2013/14 and is estimated to reach at 4.8 percent in the FY 2014/15, shows a problematic trend on revenue mobilization. However, it is possible to improve the revenue mobilization from the existing structure and responsiveness of Nepalese tax system. But we have some problem in the subject matter. So it is important to know the key issues that are the inherent problem in the Nepalese tax system.

Nepal is one of the least developed countries in the world. Nepalese economy is strictly agro-based economy where about two-third of the population are engaged on agrarian activities. Although most of the people are engaged in agrarian activities, no such great contribution through agriculture tax is reflected on tax revenue.

World Development Indicator (2014) disclosed that Nepal is a very low income economy with per capita GNI \$720 in 2013 and in 2014 it is increased by 1.4 percent accounting about \$730. However, per capita GNI comparison with rest of the world economy shows that it is not only the lowest than the high income economies average of (\$12616) but also lowest in comparison to South Asian countries, except Afghanistan. This clearly gives rise to scarcity of resources for the development process by shrinking the size of economic activities.

Tax structure of Nepal is massively dominated by indirect taxes. As it is said that, direct tax is more progressive than that of indirect tax, it has put more tax system regressive justifying our tax structure. Economic Survey (2014/15) shows the share of indirect tax still covered 72.9 percent.

It has been a problem to bridge the gap between the rich and poor, as Nepal is still dependent on indirect taxes.

The tax administration in Nepal is very weak. There is a lack of specialized revenue services while a revenue group was created within the Nepal administration service in 1992/93, there is still a long way to go in order to develop a specialized revenue offices lack of physical facilities and incentives provided for revenue officials are limited .The situation of local tax administration is even worse.

The base of Nepalese tax system is very narrow, both legally as well as administratively for example: several goods and services, transaction in income sources and wealth are kept out of the tax bracket. In addition, several incentives for the industries in the form of tax holidays, rebates, tax credits and depreciation are given. This means that statutory base is much smaller than the potential tax base.

Nepal have a very low rates of public revenue collection, with total revenue about 18.4 percent of GDP (Economic Survey, 2014/15), compared with an average of 20 percent of GDP in comparable developing countries or emerging economies and with even higher rates in Organization for Economic Co-operation and developed countries. Furthermore, another feature of fiscal landscape in Nepal is the high deficit-to-GDP ratio and the resulting high debt-to-GDP ratio. Debt sustainability analysis shows that Nepal need to reduce debt-to-GDP ratios by reducing the primary deficit, although absolute debt levels continue to rise. In addition, the country cannot depend on higher concessionary foreign assistances because the fiscal situation of donor countries has become increasingly tight. The combination of low revenue, limited borrowing capacity, and stress on donor aid results in inadequate room for spending.

Nepal is facing acute problem of surplus revenue for development expenditure. Development activities in particular depend upon the extent of resource mobilization of the economy. Higher the revenue surplus, greater will be the possibility of building the infrastructure for developing nations. The consistently declining revenue surplus for development expenditure reveals a serious threat for the Nepalese economy.

To bridge the gap between expenditure and revenue, internal and external loans are based in Nepal's case; there is increasing reliance, especially on foreign loan for deficit financing so that increasing outstanding debt the repayments of principal and interest are also increasing each

year, again necessities further borrowing. Hence, our economy is circumscribed by debt trap. Therefore, special emphasis needs to be given to mobilize internal resources in order to meet the resource gap.

Despite the various measures adopted by government of Nepal to boost the revenues collection there still exists substantial gap between revenue and expenditure. Several constraints, such as structural administration and institutional, have hampered government's efforts to increase recourse mobilization through taxation. According to the Economic survey 2014/15, revenue expenditure gap was 4 percentage of GDP in 2013/14 and is expected to increase by 0.9 percent reaching at 4.9 percent in 2014/15.

The level of voluntary tax compliance is very low. The tax consciousness has yet to be developed among the Nepalese. This may be due to illiteracy, complicated tax procedure and the low cost of non-compliance and vice-versa. The study tries to answer the the following research questions.

- a) What is the structure of Nepalese revenue system?
- b) Does the revenue of Nepal is responsive and productive to the change in national income (GDP)?

1.3. Objectives of the Study

General objective of the study is

- a) To Examine the Revenue Structure of Nepal.

The specific objectives of the study are:

- a) To Analyze the Trend and Pattern of Nepalese Revenue System. .
- b) To Estimate the Productivity and Responsiveness of Tax Yields by Estimating Elasticity and Buoyancy Coefficients.

1.4. Significance of the Study

Taxation is cardinal in financing development undertaking. Revenue raised through taxation is more sustainable than reliance on borrowing. However, in order to raise sufficient revenue, there is need to have an effective tax system which should be developed by taking into account the valuable tools and techniques in taxation.

Every country in the process of formulating its budget undertakes revenue projections. When the revenue turns out to be smaller than the budget expenditures, countries end up with deficit financing. Since underdeveloped countries have few possibilities for prolonged external financing of budget deficits, without causing too much disruption in the macroeconomic environment, each country must decide how best to increase its internal tax revenues to meet its expenditure needs. One way that countries raise additional revenue is by making discretionary tax measure changes. The best outcome expected from such changes is that the tax system will automatically yield corresponding tax revenues as income or GDP grows, on a sustainable basis.

Gillani (1986) states that growing expenditure in a country is considered a prerequisite for economic growth, due to which in most of the LDCs expenditure growth rate commonly exceeds the rate of national income growth. On the other hand, economic growth increases the taxable capacity of these countries and enables them to obtain a larger share of national income in the form of tax revenues. Therefore, LDCs usually depend on their tax system to generate adequate revenues in order to finance their ever-expanding expenditures. Generally, they find themselves in growing fiscal problems when their tax responsiveness remains below that of expenditures. So a great effort is needed in this area to analyze the sources of revenue and their responsiveness in order to maximize the revenues.

The response of tax revenues to changes in the GDP is measured by tax elasticity and tax buoyancy. This concept helps to explain the overall structure of a tax system and serves as a valuable analytical tool for designing tax policy. So the study is significant in evaluating the structure and responsiveness of tax system and to prescribe the appropriate measure to solve the acute problem of revenue inadequacy.

1.5 Limitation of the Study

The study is mainly focused to obtain the elasticity and buoyancy of different tax heads after the induction of liberalization and privatization. So, the study covers only the period of 1990/91 to 2013/14.

Since the VAT was introduced in November 1997 in Nepal no time series data prior to that date are available, so the aggregate data of sales tax, hotel tax and contract tax will be used in place of VAT prior to 1997.

Among the method developed for separation of discretionary change only proportional adjustment method is used due to its simplicity and the nature of available data.

In proportional adjustment method, Sahota method will be employed for the correction of discretionary measures.

Since the study is based on secondary data, the study does not test and concern on the reliability and validity of the data.

The study does not take into account the revenue collected by local government (VDCs, DDCs and Municipalities).

GDP is used as proxy base while calculating elasticity and buoyancy. That is, only tax to income (GDP) elasticity and buoyancy is calculated.

1.6 Organization of the Study

The present study is divided into six different chapters. The first chapter is the introductory chapter. The second chapter deals with the review of literature that covers the both theoretical and empirical aspect of the structure and responsiveness of national and Nepalese tax system. The third chapter deals in explaining the methodology employed in the study. The fourth chapter presents the trend and pattern of tax structure in Nepal. The fifth chapter includes the responsiveness and productivity of tax yield in empirical analysis. Finally, the last chapter includes the summary of the findings, conclusion, and recommendation of the study.

CHAPTER II

REVIEW OF LITERATURE

2.1 Theoretical Concept

Goode (1984), states that "A tax is a compulsory contribution to the government made without reference to a particular benefit received by the tax payer". The primary purpose of taxation is to divert control of economic resources from taxpayers to the state for its own purposes. It influences the allocation of economic resources, recognizes social costs that are not reflected in market prices, and affects the distribution of income and wealth.

Shende (2002) explains that, taxation is used as the main policy instrument for transferring resources to the public sector. It can also assist in creating an atmosphere within which the private sector operates in conformity with national objectives. From the efficiency viewpoint, it can be said that taxes provide the best means of financing the bulk of public expenditures. Furthermore, developing countries have resource constraints with low capital formation for economic development. Therefore, balance versus imbalance in economic policy and thought can be found in the taxation policy.

Herber (1967) explained that there is no other road of economic development than a compulsory rise in the share of the national income which is withheld from consumption that the volume of investment in a society can be increased. Thus, taxation can be a powerful engine of forced savings in these countries. Tripathy (1978) points out that in underdeveloped countries, the developmental role of taxation constitute not only in maximizing the volume of resources for public sector but also in maximizing the growth of private investment and guiding it into the most useful and desirable channels. Thus, taxation may be appropriate when it will not only mobilize resources but also contribute to capital formation for investment and growth-led development.

Chelliah (1969) in the book entitled "Fiscal Policies in Underdeveloped Countries" opines that raising the incremental saving ratio, $\Delta S/\Delta Y$, is one of the most difficult problems in underdeveloped countries. As most of the people are low-income earners and their marginal propensity to consume is near unity, their consumption will tend to rise almost as much as their incomes. If this is allowed to materialize, the increase in productivity will be almost fully absorbed by increased consumption. Thus, the justification of commodity taxation lies in the fact that it has a tendency to restrain consumption, whereby a rise occurs in the incremental saving ratio. However, it should be used more for checking potential increase of consumption than for curtailing the actual consumption of the masses, and it should be intended to curtail the consumption of luxuries and other commodities not essential for health and efficiency.

Colm (1955) states the broad objective of the tax policy in LDCs is the promotion of development process for meeting maximum needs of the masses and improving their living standards. To translate the broad objectives in operational terms the mobilization of additional financial resources has remained the predominant concern of the tax policy in developing

countries; it has emerged to be as an accelerating factor for economic growth, equal distribution of income and wealth, equitable allocation of resources, reduction in the gap between poor and rich and attainment of a higher degree of economic stability. Furthermore, he lists the objectives of fiscal policy as the promotion of economic growth, the reduction of income disparities, and use of transfer to others.

Leuthold (2004) in the book entitled "Taxation in Developing Economies" considered the three most widely recognized goals of tax policy are equity or fairness, efficiency and administrative feasibility. In addition, revenue adequacy, tax certainty, political acceptability and justice are sub goals of importance. Tripathy (1978) opines that for underdeveloped countries, the most important role of taxation is to mobilize the resources for development. As an instrument of resource mobilization, its principal function lies in raising the volume of public savings to be used for capital formation consistent with the growth of saving in the economy as a whole. The quantitative role of tax policy for the mobilization of development finance may be considered in two aspects: static and dynamic.

In the former case, the economy tends to stay at a stable level of under development equilibrium in which tax revenue is used mainly on the consumption purpose. In the latter case, the role of tax policy consists in preventing the increment in output from being consumed by deliberately ploughing back an increasing proportion of it into the pool of investible resources of the public sector.

Due and Friedlaender (1977) in their book "Government Finance" expressed that the development of principal of taxation is essentially an application of theory of economic welfare, and further progress must depend in large measure upon advancement in this theory. At the present time the state of welfare theory is such that it can do little more than assist in the development of very broad principle of taxation. For the attainment of optimum economic welfare in developing countries, they believe it can be achieved by the three important goals: maximum freedom of choice, consistency with the welfare of others, optimum standards of living in terms of available resources along with technique and in the light of consumer and factor owner preferences and a distribution of income currently acceptable to society.

Taylor (1974) states that principal necessary ingredient of a tax system designed to promote the required level of employment in a dynamic economy is flexibility, or ability to adjust quickly to changing requirements without violent overhaul.

Hinrichs (1966) states that, equity; growth, efficiency and stability are major objectives of tax policy which are in conflict with each other. A tax system based solely on efficiency grounds is unrealistic, while that designed solely for equity purposes cannot be justified on allocation grounds. The degree of progressivism will, in practice, continue to be dictated by political and social consensus rather than by the optimizing formulae of tax economists. However, it is accepted that high tax rates and narrow and selective tax bases can create distortions, encourage unproductive activities, erode the revenue base and lower the effective tax rates below the intended nominal tax rates. Tax cuts without reforms in the tax base can introduce more distortions of efficiency and equity than they correct, especially, if they result in inflationary finance.

Lindbeck (1990) explains that literature on optimum commodity taxation has formalized old views among economists about how to make a compromise between the allocation efficiency of consumption and concern for the distribution of income while in the interest of economic efficiency tax rates should be relatively high on goods and services for which the demand and supply elasticity are small, for distributional reasons, the rates should be high on goods and services that play a relatively important part in consumption pattern of high income earners. Taxes should, *ceteris paribus*, also be high on goods and services which are close complements, for the consumers of untaxed, or indeed, nontaxable goods and services like leisure. Quite complex formula have in fact been derived to strike a balance between these different and often conflicting aspects, using a social welfare function as the criterion for the trade-off.

Prest (1974) argues that discussion of public financial policy can in principle take two different forms. At one end of the scale, one can attempt to draw up a blueprint for the overall reform of the revenue and expenditure system. Any such blueprint must consider the relative importance of the various ends served by the revenue-expenditure system, the way in which individual taxes and expenditures contribute to these ends and the co-ordination of these individual contributory elements. The other extreme is to discuss the reform of individual taxes or expenditures without

reference to one another, without necessarily attempting to cover the whole field and without much consideration of the overall effect on the economic system.

Due (1973) in his development model explains four dominant goals in developing economies, they are, 1) accelerating growth, 2) attainment of an accepted pattern of income distribution, 3) efficient allocation of resources and 4) price stability. These goals can be attained by the means of government revenue and government expenditure. Government can formulate appropriate tax policy and make government expenditure to achieve these goals and objectives.

In conclusion, one can make a note that to achieve the economic policy objective or planned objective of the economy, it is better to apply the optimum tax mix (direct and indirect) without distorting the private consumption, saving and the level of investment. In general tax policy must be designed in adherence to promote the macroeconomic environment of the economy.

2.2 Empirical Review

2.2.1 International Context

Ayoki et. al (2005) researched on the tax reforms and domestic revenue mobilization in Uganda by using the proportional adjustment method. Their findings revealed that, reforms had a positive impact on direct taxes as tax-to-income elasticity index grew from 0.706 to 1.082 after the reforms while indirect taxes also moved from 1.037 to 1.306. They concluded that the reform was necessary to the economy but there was more room for improvement.

Ariyo (1997) evaluated the productivity of the Nigerian tax system for the period 1970-1990 using the double log form and the proportional adjustment methods. His results revealed an overall satisfactory tax productivity level but wide variations in the level of tax revenue by various tax sources attributable to the laxity in administration of non-oil tax sources during the oil boom periods.

Brafu-Insaidoo and Obeng (2008) studied the effect of import liberalization on tariff revenue in Ghana for the period 1966 to 2003, using the Singer (1968) approach to estimate the duty buoyancy and elasticity. The result indicated overall buoyancy of 0.556 and elasticity of 0.282. The period before import liberalization (1965-1982), gave buoyancy of 0.33 and elasticity of 0.814, and for the period after the import liberalization (1983-2003), buoyancy was 0.313 and elasticity was 0.049. From the result, duty buoyancy outweighed duty elasticity for the entire

study period, meaning that discretionary tax measures (DTMs) have improved tariff revenue mobilization over the period.

Choudhry (1979) estimated the elasticity of tax revenue of the United States, United Kingdom, Malaysia and Kenya. The overall elasticity's were 1.04 and 1.24 for the United States and United Kingdom respectively. Malaysia and Kenya had slightly higher elasticity's of 1.57 and 1.32 respectively. Estimation of buoyancy revealed that in the United States and the United Kingdom, revenue reducing discretionary changes in income taxation contributed to the low buoyancy and elasticity, while in Malaysia and Kenya, revenue increasing discretionary tax measures (DTMs) contributed to the comparatively higher buoyancy and elasticity. Comparison of the Proportional Adjustment method, Constant Rate method and the Divisia index method to estimate the elasticity revealed that while proportional adjustment method gave estimates closer to those of the Divisia index, the constant rate structure approach uniformly gave the lowest estimates. The study differs from others conducted in Ghana in that it adopts the Dummy Variables Approach to correct for the effects of DTMs unlike that of Kusi (1998) which used the Proportional Adjustment Approach applicable to estimated tax data but not actual data.

Mansfield (1972) has studied the "Elasticity and Buoyancy of a tax system: Paraguay" for the period 1962 to 1970 an era of conscious tax reform by examining two major problem (a) What was the elasticity of the system and its components and how is the size of the elasticity coefficient explained? And (b) what was the buoyancy of the system relative its elasticity? He found the elasticity coefficient of total tax system was 1.14 and elasticity of different tax heads such as import duties 7.21, income tax 1.08, wealth taxes 1.52 and export taxes had a low elasticity of 0.06. Whereas the buoyancy coefficient had measured 1.69 which implies that 1 percent change in GDP will bring out 1.14 percent change in total tax and remaining 0.55 percent change in total revenue due to discretionary changes.

Chipeta (1998) studied the effects of tax reforms on tax yields in Malawi for the period 1970 to 1994. The results indicated buoyancy of 0.95 and an elasticity of 0.6 and concluded that the tax bases had grown less rapidly than GDP.

Bilquees (2004) studied the Elasticity and Buoyancy of the Tax System in Pakistan by using the Divisia Index method over the 1974/75 to 2003/04 period. The results gave a total tax buoyancy

and elasticity after the reform as 0.92 and 0.88 respectively and concluded that, overall the use of discretionary tax measures has been relied upon significantly as a source of revenue in Pakistan.

Indraratna (2004) in the study entitled, "The Measurement of Elasticity in Srilanka: A Time Series Approach", concluded, the time series analysis of tax elasticity reveals a very inelastic tax structure for the period 1960-1994. Taxes are not greatly responsive to changes in income with most elasticity coefficients registering below unity. The low elasticity observed in the Sri Lankan tax system is explained through factors such as exemptions, tax incentives, duty waivers, low compliance and vibrant sectors of the economy which are not subject to taxation. Thus, the automatic responsiveness of taxes to income is seen to be low. The pre-reform and the post-reform periods did not reveal a significant difference in elasticity's for most taxes. In fact, the higher coefficients obtained through the buoyancy analysis point to the role of discretionary measures in maintaining a steady source of tax revenue throughout the period under study. Therefore, the tax reforms implemented during the post-1977 period seem not to have brought about an increase in the elasticity of the tax system.

Kusi (1998) on "Tax Reform and Revenue Productivity of Ghana" for the period 1970 to 1993, used the proportional adjustment method in obtaining elasticity and buoyancy coefficient. The result follows that a pre-reform buoyancy of 0.72 and elasticity of 0.71 for the period 1970 to 1982. The period after reform, 1983 to 1993, showed increased buoyancy of 1.29 and elasticity of 1.22. The low buoyancy and elasticity during the pre-reform period was attributed to smuggling, unrecorded trade, tax evasion and laxity in tax collection. The study concluded that the reforms had contributed significantly to tax revenue productivity from 1983 to 1993.

Kabbashi (2005) looked at the impact of trade liberalization on revenue mobilization and stability in Sudan. The result revealed that the overall elasticity was inelastic with an index of 0.82 whiles the elasticity's of the individual taxes were divergent with the following indices: import duty - 0.83, Excise tax - 0.82, income tax - 1.26 and profit tax - 1.57. The conclusion was that less buoyant and elastic system provides an explanation for the low tax efforts and the relatively low and declining government spending.

Mishra (2005) in the study entitled, "Elasticity and Buoyancy of Sales tax in Jharkhand" find that value of buoyancy of sales tax is very high and the proportionate change in sales tax revenue is more than the change in Gross State Domestic product (GSDP). It may be expected that sales tax

revenue will increase more rapidly in future as GSDP is significantly rising and proportion of state income generated by Mining, Quarrying and Manufacturing sector is increasing in recent years. These sectors are major contributors of sales tax (about 60%). It has been found that there is significant increase in sales tax revenue and State Domestic Product of Jharkhand state during 1995-96 to 2004-05; the rise in sales tax revenue being greater than that of the State Domestic Product. The numerical value of sales tax buoyancy is greater than unity and after separation of Jharkhand from Bihar the value of sales tax buoyancy has considerably increased.

Osoro (1993) examined the revenue productivity implications of tax reforms in Tanzania for the period 1979 to 1989. In the study, the tax buoyancy was estimated using double log form equation and tax revenue elasticity using the proportional adjustment method. The result gave an overall elasticity of 0.76 and a buoyancy of 1.06. The study concluded that tax reforms in Tanzania had failed to raise tax revenues. These results were attributed to the government granting numerous tax exemptions and poor tax administration within the sample period. In another study, Osoro (1995) estimated the individual tax elasticity and that of the overall tax system from 1970-1980. He established that the elasticity of the overall tax system declined from 0.85 in 1970 to 0.78 in 1980. Income tax and Sales tax, which were elastic in 1970, became inelastic in 1980. Import duty, which was inelastic in the 1970, became elastic in 1980. He attributed these changes to reduction in import duty rates and a rise in imports, rapid changes in the tax base, stemming from steep exchange rate depreciation.

Ole (1975) estimated income elasticity of tax structure in Kenya for the period 1962/63 to 1972/73. In the study, tax revenue was regressed on income without adjusting for unusual observations. The results showed that the tax structure was income inelastic (0.81) for the period studied. The results also implied that Kenya's tax structure was not buoyant and therefore the country would require foreign assistance to close the budget deficit.

Wawire (1991) assessed the performance of Kenya's tax system from 1958 to 1989 by analyzing the tax capacity factors that were considered to be the main determinants of various tax ratios. Through a regression analysis, the study concluded that increase in the volume of international trade, mining, quarrying, manufacturing, building and construction does increase the tax ratio given by tax/GDP. The result of the study showed an inverse relationship with respect to share of forestry, agriculture and fishing sectors of the economy.

Wang'ombe (1999) analyzed the revenue productivity and some administrative factors of the Kenyan tax system for the period 1989–1998. The result of this study came up with buoyancy estimates of the total tax system as 1.26 while elasticity was 1.27. The study thus concluded that the tax system in general was both elastic and buoyant implying that tax reforms had greatly improved productivity. Discretionary tax measures had a very small effect on tax productivity implying improved efficiency.

2.2.2 Nepalese Context

Adhikari (1995) in his study entitled "Tax Elasticity and Buoyancy in Nepal" has estimated elasticity and buoyancy for the period FY 1974/75 to FY 1993/94, and found the elasticity of total revenue less than unity (0.65) showing that a 10 percent change in national income results in 6.5 percent change in total revenue in Nepal. Buoyancy coefficient, on the other hand, was greater than unity i.e. 1.10. The buoyancy of overall revenue is higher by 0.45 (1.10-0.65) over the elasticity. This clearly implies that one percent change in national income affects 0.45 percentage change in total revenue due to discretionary measures.

The buoyancies of other components of taxes, with respect to national income, were greater than unity. The income tax has highest buoyancy of 1.14 followed by tax on consumption (1.06) and import duties (1.05), while their 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 (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 stands highest at 0.73, as compared to other elasticity's too, was less than unity. The highest elasticity shows that this component has relatively better built-in flexibility with respect to its proxy base. The corresponding buoyancy, on the other hand, was slightly greater than unity (1.05). The difference between buoyancy and elasticity was lowest (0.32) implying that revenue receipt from this source in future would have greater scope for expansion without resorting to further discretionary measures.

Also, the elasticity of income tax with respect to previous year's non-agricultural GDP stands at 0.59 while its comparable buoyancy was significantly higher than unity (1.78). The highest or more than unity difference (1.19) between buoyancy and elasticity of income tax suggests that government was imposing excessive tax on the regular tax payers, despite of a greater scope to bring a great majority of people, who are able to pay tax, in the tax net. Furthermore, both the elasticity (0.40) and buoyancy (0.80) of import duties with respect to its proxy base, value of imports were less than unity.

Timsina (2007), in the study paper entitled "Tax Elasticity and Buoyancy in Nepal: A revisit" reveals that the tax system in Nepal is inelastic (0.51), that is, less than unity in the study period 1975 A.D. to 2005 A.D., with more than unitary buoyancy coefficient (1.12). Thus, reflects that the bulk of revenue collection emanates from discretionary change in the tax policy rather than from automatic. Furthermore, during the review period, total revenue has been assigned the elasticity coefficient of 0.59 implying that total revenue changes by 5.9 percent as a result of 10 percent change in the nominal GDP (removing the revenue from discretionary changes). On the other hand, buoyancy of the total revenue was more than unity (1.14).

Besides, the elasticity of import tax was 0.54 implying that a 10 percent change in the nominal GDP results in a 5.4 percent change in import tax. The buoyancy coefficient, on the other hand was 1.05. It is higher by 0.51 (1.05-0.54) compared to the elasticity coefficient implying that a 5.1 percent change in import tax through discretionary measures was due to a 10 percent change in the nominal GDP. From this, it can be easily observed that import tax in Nepal was inelastic.

In the study period, excise tax, the only tax whose buoyancy was less than unity (0.98) and elasticity of it being 0.49. It means that 10 percent change in nominal GDP results in a 9.8 percent change in excise tax, of which 4.9 percentage points falls in the discretionary measures. It clearly illustrates that there was a low natural growth of excise tax during the review period. Moreover, the buoyancy of income tax was 1.37 with elasticity coefficient is 0.41. This clearly shows that there was very low natural growth of income tax during the review period.

Furthermore, in the study paper elasticity and buoyancy of VAT were calculated for two periods 1975-1996 and 1975-2005, in the first period the elasticity and buoyancy coefficients of VAT were 0.55 and 1.15 respectively and in the period 1975-1996 (prior to the introduction of the VAT), such coefficients (the sum of sales tax, contract tax, hotel tax and entertainment tax) were

0.82 and 1.04 respectively. This result demonstrates that after the introduction of the VAT, tax buoyancy increased but the tax elasticity declined. Though the VAT was introduced in Nepal with an expectation of broadening the tax base, eliminating tax cascading, creating an investment friendly tax system and increasing the revenue, it seems also inelastic.

Dahal (1984) has studied various aspect of Nepalese tax structure for the period 1952/53 to 1981/82 in general and 1964/65 to 1981/82 in particular. In this period the overall elasticity of the total revenue equals almost unity (1.01), for indirect, it was marginally higher than unity (1.02) compared with the elasticity of direct tax (0.68) and the elasticity of tax revenue was 0.92 reflecting the tax system less responsive to change in income. But the buoyancy coefficients for the same time period were 1.54 for total revenue, 1.52 for the tax revenue, 1.63 for indirect taxes and 1.23 for direct taxes.

Among the individual taxes the elasticity of sales tax was 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 was 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 the inelasticity of taxes in the tax structure of Nepal were primarily concentrated on land tax, export duty, import duty, excise duty and to some extent on income tax.

Reejal (1976) in his study "Revenue Productivity and Equity Aspects of Nepalese Taxation: A Structural Analysis for the period 1964/65 to 1970/71" found the elasticity and buoyancy coefficient for the total tax revenue 1.82 and 2.18 respectively for that study period by using proportional adjustment method of Sahota. This study has indicated that the Nepalese tax structure as a whole was elastic. This study found income tax elasticity as high as 4.39 among the different tax head. The buoyancy of income tax for the study period was 3.13. The difference between buoyancy and elasticity coefficient of income tax for the period was (-1.26). The tax system as a whole had buoyancy of 2.18 compare to an elasticity of 1.28 which indicates the positive impact of legislative change on the revenue productivity of the tax system.

IDS (1978) had reported that the elasticity of the Nepalese tax system was extremely low in comparison with the buoyancy for the period 1974/75 to 1984/85. This report has indicated that the government had concentrated only introducing various discretionary measures rather than broadening the tax base. This study showed the elasticity of tax revenue 0.86 and buoyancy 1.35.

Similarly the report found the elasticity of direct tax and indirect tax to be 0.66 and 0.93 respectively. Within these taxes, the elasticity of sales tax, excise duty, import duty, export duty and income tax were reported at 1.00, -0.33, 0.56, 0.66 and 1.06 respectively. Among them, elasticity of the indirect tax was more than that of direct tax and among all taxes; income tax had highest elasticity which was around unitary elasticity. Besides income tax and sales tax, other taxes were inelastic in nature. The buoyancy coefficient of sales tax was highest (1.75) followed by income tax (1.49), excise duty (1.43), import duty (1.24), export duties (-0.03). Except sales and income taxes, the elasticity of remaining taxes reports below either unity or negative whereas the buoyancy of all taxes except export duty was unitary.

Agrawal (1980) made an extensive study of Nepalese taxation covering the period 1967/68 to 1975/76. He found the elasticity and buoyancy coefficient of different tax heads with respect to GDP. For the period 1967/68 and 1975/76, excise tax has the highest value for buoyancy of (2.24) followed by sales tax (2.20), income tax (2.18), custom duties (1.18) and land tax (0.17). Similarly, income tax has the highest elasticity of 2.18 followed by sales tax (1.74) excise tax (1.28), custom duties (0.08) and land tax (0.12). Since both the elasticity and buoyancy coefficients of income tax were greater than unity .Which implies that the income tax of Nepal was positively responsive to change in GDP. The coefficient of buoyancy was 2.18 and the difference between buoyancy and elasticity of income tax is only 0.17 which implies that the 1 percent change in GDP will bring about 2.01 percent change in total revenue due to discretionary measures.

Dhungana (1980) has studied about “Productivity of Nepalese Tax Structure.” This study has basically covered main component of indirect taxation. He had used double log linear function to measure the relationship between income and tax revenue and net series have been arrived by using proportional adjustment method of Chand and Chelliah. He found the elasticity coefficient for total tax revenue 1.24 and that of buoyancy coefficient 1.73. This study indicates that Nepalese tax structure is fairly progressive but is not enough to meet the growing public expenditure.

Das (1985) has tried to compare the tax and non-tax revenue productivity of Nepal. The elasticity coefficient of tax and non-tax revenue for the study period were 0.98 and 1.02 respectively, while that of buoyancy coefficient were 1.77 and 1.53 respectively, indicates that the

discretionary changes made over tax revenue was comparatively more effective than non-tax measures.

Khadka (1988) analyzed the "Responsiveness and Productive of Nepalese Tax System", for the period 1967/68 to 1981/82. During the study period he found the elasticity and buoyancy coefficient of total tax to GDP were 0.80 and 1.56 respectively. This implies that one percent change in GDP will bring out 0.80 percent change in total tax revenue due to the automatic growth and 0.67 (1.56-0.80) percent due to discretionary changes.

Pant (1991) has tried to study "Structural Change in Revenue Administration of Nepal After the Restoration of Multiparty Democracy". He has measured tax elasticity as 0.495 for the period 1974/75 to 1983/84 and on the other hand tax buoyancy has declined to 1.28 in the period 1974/75 to 1988/89 from 1.37 in 1974/75 to 1984/85. During the period elasticity of customs, excise, sales, and import have improved but elasticity of income, contract and hotel tax has declined indicating that efforts to raise revenue through discretionary measure were unproductive.

Nepal (1995) study paper entitled "Structure and Responsiveness of Nepal's Tax System" has covered the period of FY 1968/69 to FY 1992/93. He found that overall elasticity of the total revenue in Nepal's tax structure for the period was 0.64. Furthermore, elasticity of tax revenue was 0.51, non-tax revenue was 1.14, direct tax revenue was 0.14, indirect tax revenue was 0.61, custom duties was 0.44, and income tax was 0.48, which shows only non-tax revenue is greater than unitary elastic. He reveals that the income tax elasticity was less than total revenue due to the exemption of agricultural income from tax-net which leads to narrow tax bases, and due to high evasion caused by loopholes on tax laws. The buoyancy coefficient during the study period was found 1.21. Similarly, buoyancy coefficient of total tax revenue was 1.16 lower than that of total revenue. The high buoyancy but low elasticity of total tax revenue showed the additional government effort to raise the tax revenue. He found that the buoyancy coefficients of the selected groups of taxes were greater than unitary except that of custom duties (0.67).

Shakya (2005) has studied the "Structure and responsiveness of Nepalese Tax System" from the period 1976/77 to 2002/03, further this whole sample period was divided into two sub-period (I) from 1976/77 to 1990/91 and (II) 1991/92 to 2002/03. An important objective of this study was to compare the responsiveness and productivity of Nepalese tax system before and after the

restoration of democracy, using Sahota method for data adjustment. He found the elasticity coefficient of total tax revenue for the whole period as 0.61 and for period (I) 0.58 and period (II) 0.66. At the same time the buoyancy coefficient of the whole period was 1.14 and for period (I) 1.14 and period (II) 1.12.

Guru Gharana (1993) in an article "Weakness of the Tax Policy and Tax Structure in Nepal" has found that the elasticity coefficient of total revenue as 0.49 for the period 1974/75 to 1983/84 and 0.58 for the period 1974/75 to 1988/89. For the same period, buoyancy coefficients were 1.36 and 1.28 respectively. Except for contract tax (1.89) and sales tax (1.05) the elasticity of remaining taxes i.e. customs, excise, income, hotel, entertainment, land revenue etc. were either extremely low (far below unity) or negative whereas the buoyancy of all taxes except land revenue were above unity. This high buoyancy but low elasticity had shown that the government engaged in imposing high rates on a few taxed commodities and regressive nature of the tax system.

2.3 Conclusion

The conclusion that can be derived from the review of Nepalese empirical study is that various studies have found the heterogeneous responsiveness of the particular tax system to the GDP. This may be due to change made by tax authority in fiscal policy over the study period. Moreover, different value of elasticity and buoyancy coefficient estimated by above discussed studies might be due to the choice of the base year, time interval and choice of proxy variable. But, most of the review shows that our tax system as a whole was not adequately revenue responsive to change in income. Also the proxy bases clearly indicate that the tax system was not progressive enough. A progressive tax system needs to have at least greater than unitary value of the coefficient of elasticity and in many of the above case it was found less than unitary.

CHAPTER III

METHODOLOGY

3.1 Research Design

This research study attempts to analyze the tax structure of Nepal along with the computation of elasticity and buoyancy of different tax heads. The analysis is based on the historical time series data of different years, so time series regression approach for the empirical measurement of the elasticity and buoyancy for different types of taxes are used. For all these purposes of data processing Microsoft Excel, 2007 have been used.

3.2 Coverage of the Study Period

The study is focused on analyzing the tax structure of Nepalese economy after liberalization. So, the study covers the period from 1990/91 to 2013/14.

3.3 Sources of Data

Since the study is based on the secondary data most of the data used in this study are taken from various issues of "Budget Speech" and "Economic Survey", Ministry of Finance, Government of Nepal. The other sources of data are various publications of Nepal Rastra Bank and World Bank reports.

3.4 Preparation and Classification of Data

Relevant data have been classified and made usable for the purpose of study. There is a master table comprising the composition and magnitude of total revenue, which covers the period 1990/91 to 2013/14, in appendix I. A separate table, consisting of the contribution of individual taxes to the total revenue has been given and adjusted revenue series have been prepared for total revenue, individual taxes and for non-tax revenue. Furthermore, the magnitude of discretionary change is presented on separate table in appendix III.

3.5 Correction for Discretionary Measures

The study aims to estimate elasticity's of tax revenues with respect to their bases (GDP) for a given tax structure. Therefore, changes in tax revenues due to the endogenous development of the tax bases need to be distinguished from changes arising from policy and/or legislative changes (Barrios and Fargnoli, 2010). The series on tax revenues have to be corrected for the

impact of discretionary measures, including in principle legal changes in tax rates, tax base definitions and tax administration. Furthermore, whether discretionary tax cuts or hikes are implemented can depend on the phase of the business cycle. By correcting for discretionary measures, endogeneity problems are partially tackled in estimation (Wolswijk, 2007).

Tax revenue usually changes due to discretionary measures therefore, total tax revenue must need to separate the changes in revenue emanating through the discretionary measures from that due to automatic measures. This is the way to distinguish tax elasticity from tax buoyancy. Tax revenue series can be adjusted in four different ways: constant rate procedure, the proportional adjustment procedure, the dummy variable procedure and the divisia index procedure. The selection of the appropriate adjustment method depends upon the availability of the data on tax changes and the type and frequency of such changes (Ibid, p.78). The proportional adjustment procedure, which requires calculation of the revenue implications of discretionary measures, is applied in the study to adjust the historical tax revenue data. In this method, to remove the estimated revenue impact through discretionary measures, the annual observed data are adjusted for discretionary changes. The resulting series are converted to the first year's basis by adjusting the year to year changes by the ratio of the tax yield on the basis of the first year rates to the actual tax yield.

Despite the three methods (Prest method, Sahota method and Chand and Chelliah method) available in proportional adjustment method, Sahota method is used instead of other method due to its simplicity. This is accompanied in two steps. Firstly, a preliminary series of adjusted tax yields is prepared by subtracting from the actual yield. Secondly, the adjusted series thus obtained is further refined by using the formula given below to form a final series which excludes the continuing impact of each discretionary change on future years so that the elasticity of a given tax structure in the base year may be established. The proportional adjustment method (Sahota, 1961) is as follows:

$$IT_t = \frac{(AT_t \pm RT_t)}{AT_{t-1}} IT_{t-1}$$

Where,

IT_t = Adjusted or net tax yield at time t

IT_{t-1} = Adjusted or net tax yield of previous year (t-1)

AT_t = Actual tax yield at time t

AT_{t-1} = Actual tax yield at time (t-1)

RT_t = Actual discretionary change at time t

3.6 Definition of the Variables Used in the Model

Total Revenue (TR): The sum of all tax and non-tax revenue is defined as total revenue. Here, total revenue has been divided into two components; Total Tax Revenue and Non Tax Revenue.

Tax Revenue (TXR): The sum of revenue received through different tax head is known as total tax revenue. Under this section tax has also been divided into two parts: Direct Tax and Indirect Tax.

Non-Tax revenue (NTR): It is the recurring income earned by the government from sources other than taxes. Fines, penalties, fees are some of the examples of non-tax revenue.

Direct Tax (DT): The tax which impact and incidence lies on the same person and thus cannot be shifted to other is known as direct tax. In this section, three different categories of tax heads; Income Tax, Land Revenue and Registration Tax are taken.

Indirect Tax (IDT): The tax which impact is on one person and the incidence on other is known as indirect tax. Here, the tax amount can be shifted to other partially or wholly. Indirect tax includes; Custom Duties, Import Duties, Export Duties, Excise duties and Sales Tax/VAT. Under VAT or Sales Tax; the Hotel Tax, Entertainment Tax, Air flight Tax and Contract Tax are taken.

3.7 The Model:

For the case here, the model specified in this study comprises of several equations to examine the responsiveness and productivity of Nepalese tax system. Single regression equation with independent variable GDP is used to estimate both buoyancy and elasticity coefficients of various revenue series. Moreover, regression equations are transformed to double log linear to have the estimate of elasticity and buoyancy of various specified relation.

The equation specified to show the relationship between various variable are given below. These all equation will also be used to find the elasticity and buoyancy coefficient for the whole sample period.

(a) Model for buoyancy coefficient during the whole period

$$\ln TR_t = \ln \alpha + \beta_1 \ln Y_t + \varepsilon_t \quad (1)$$

$$\ln TXR_t = \ln \alpha + \beta_1 \ln Y_t + \varepsilon_t \quad (2)$$

$$\ln NTR_t = \ln \alpha + \beta_1 \ln Y_t + \varepsilon_t \quad (3)$$

$$\ln DT_t = \ln \alpha + \beta_1 \ln Y_t + \varepsilon_t \quad (4)$$

$$\ln IDT_t = \ln \alpha + \beta_1 \ln Y_t + \varepsilon_t \quad (5)$$

$$\ln IT_t = \ln \alpha + \beta_1 \ln Y_t + \varepsilon_t \quad (6)$$

$$\ln LRR_t = \ln \alpha + \beta_1 \ln Y_t + \varepsilon_t \quad (7)$$

$$\ln ST_t = \ln \alpha + \beta_1 \ln Y_t + \varepsilon_t \quad (8)$$

$$\ln CD_t = \ln \alpha + \beta_1 \ln Y_t + \varepsilon_t \quad (9)$$

$$\ln IMD_t = \ln \alpha + \beta_1 \ln Y_t + \varepsilon_t \quad (10)$$

$$\ln ED_t = \ln \alpha + \beta_1 \ln Y_t + \varepsilon_t \quad (11)$$

$$\ln EXD_t = \ln \alpha + \beta_1 \ln Y_t + \varepsilon_t \quad (12)$$

(b) Model for elasticity coefficient during the whole period

$$\ln TR_{a_t} = \ln \alpha + \beta \ln Y_t + \varepsilon_t \quad (13)$$

$$\ln TXR_{a_t} = \ln \alpha + \beta \ln Y_t + \varepsilon_t \quad (14)$$

$$\ln NTR_{a_t} = \ln \alpha + \beta \ln Y_t + \varepsilon_t \quad (15)$$

$$\ln DT_{a_t} = \ln \alpha + \beta \ln Y_t + \varepsilon_t \quad (16)$$

$$\ln IDT_{a_t} = \ln \alpha + \beta \ln Y_t + \varepsilon_t \quad (17)$$

$$\ln IT_a = \ln \alpha + \beta \ln Y_t + \varepsilon_t \quad (18)$$

$$\ln LRR_a = \ln \alpha + \beta \ln Y_t + \varepsilon_t \quad (19)$$

$$\ln ST_a = \ln \alpha + \beta \ln Y_t + \varepsilon_t \quad (20)$$

$$\ln CD_a = \ln \alpha + \beta \ln Y_t + \varepsilon_t \quad (21)$$

$$\ln IMD_{a_t} = \ln \alpha + \beta \ln Y_t + \varepsilon_t \quad (22)$$

$$\ln ED_{a_t} = \ln \alpha + \beta \ln Y_t + \varepsilon_t \quad (23)$$

$$\ln EXD_{a_t} = \ln \alpha + \beta \ln Y_t + \varepsilon_t \quad (24)$$

Note: "a" refers to the adjusted revenue series

Where,

β_1 = Buoyancy coefficient for whole sample periods,

β = Elasticity coefficient for whole sample periods,

α = Intercept parameter,

ε = Stochastic disturbance term,

ln = Natural log,

TR = Total revenue (at current price),

TXR= Total tax revenue (at current price),

NTR = Non-tax revenue (at current price),

DT = Direct tax (at current price),

IDT = Indirect tax (at current price),

IT = Income tax (at current price),

LRR = Land revenue and registration tax (at current price),

ST = Sales tax / VAT (at current price),

CD = Custom duties (at current price),

IMD= Import duties (at current price),

ED= Export duties (at current price),

EXD = Excise duties (at current price),

3.8 Tools of Analysis

To test the goodness of fit of the regression line and the reliability of the result obtained statistical analysis like; adjusted R^2 estimation, standard error of the regression line, t and F test and D-W test has been made.

3.8.1 Adjusted R^2

In each case, the coefficient of determination (R^2) has been calculated in order to test the explanatory power of independent variables. After estimating the regression parameters, adjusted R^2 is used for judging the explanatory power, which measures the dispersion of observations around the regression line. It is essential because the closer the observations to the line, the better explanation of the variations of Y (dependent variable) by the change in the explanatory variables. Thus, in over all, R^2 has been computed to show the percentage of the total variation of the dependent variable that is explained by the independent variables.

3.8.2 t and F-Test

The small sample test, t-test, will be performed in order to identify the statistical significance of an observed sample regression coefficient. Furthermore, F-test is used to measure the overall significance of the estimated regression, which is also a test of significance of R^2 because these two vary directly. When $R^2 = 0$, F is zero and when $R^2 = 1$, F is infinite. That is to say, larger the R^2 , the greater the F value. Thus, large value of F-test implies that the overall significance of the estimated regression is good.

3.8.3 Durbin Watson (D.W.) Test

To test the serial correlation Durbin Watson test is used. In the presence of autocorrelation (serial correlation) the OLS estimators remains no longer efficient. As a consequence usual t and F tests cannot be legitimately applied. So, the Durbin Watson test to detect autocorrelation is applied here.

3.8.4 Standard Error of Regression Line

Standard error of regression line is used here to check the average distance of the observed values from the regression line. It tells that how wrong the regression model is on average using

the units of the response (independent) variable. Smaller values are better because it indicates that the observations are closer to the fitted line and thus is statistically significant.

3.9 Methodology to Examine Tax Structure

For this, various tables along with graphs has been employed to examine the trend and pattern of revenue sources. Furthermore, ratios like: ATR (Average Tax Rate/Tax-to-GDP ratio) and MTR (Marginal Tax Rate) have been calculated to find the tax structure of Nepal. Estimates of trend and magnitude of resource gap in Nepal and the share of important taxes in GDP has been calculated. The average annual growth rates of the variables (e.g. TR, TE, etc.) under study, in chapter IV have been determined by summing up the individual components and dividing the summed value by twenty four (FY considered under study). For example, the average annual growth rate of TR is calculated by summing all the total revenue components from FY 1990/91 to FY 2013/14 and dividing it by twenty four. Thus, the analysis for this purpose is analytical as well as descriptive.

CHAPTER IV

STRUCTURE OF NEPALESE TAX SYSTEM

4.1 Taxation Policies and Existing Problems

The history of taxation in Nepal dates back to antiquity. However, modern tax system begins with the advent of democracy and manifestation of the first consolidated budget comprising revenue and expenditure of the kingdom of Nepal in 1951. From this, contract system collecting taxes was gradually replaced by the system of collecting taxes directly by the tax officials. Since 1951, tariff boards has been constitute at different times to provide suggestion to rationalize the customs schedule.

The Excise Act 1958, the Custom Act 1962, and the Land Revenue Act 1964, were introduced in order to consolidate various excise, custom duties, land revenue laws, and unify tax system throughout the country. Modern taxes like income tax, foreign investment tax, urban house and land tax, were introduced in 1959/60. Sales tax was introduced at the retail level in 1965/66, then moved to the wholesale level in 1968, and further shifted to the import/manufacturing point in 1974. VAT was introduced in 1997, in the place of the sales tax, hotel tax, entertainment tax, air flight tax and contract tax. Until now several new taxes were include in Nepalese tax family after 1951, a few taxes were abolished and some of the abolished taxes were restarted over the year.

However, various reforms have been initiated to improve the quality of services in tax administration, make the administration taxpayer friendly and increase the revenue yield required for meeting expenses of various development activity.

The objectives of the Thirteenth plan (2013-2016) are: to increase revenue elasticity by broadening tax base, maximum mobilization of domestic resource, increase voluntary tax compliance, increase the efficiency of tax administration and gradually reducing dependency on foreign assistance. The quantitative targets during the plan period refers to that revenue to GDP (R/Y) ratio would be 21.1 percent. Non-tax revenue will be increased through reforms in dividends and loan investment. Administrative and legal reform will carry on making tax administration simple, transparent and perfect.

In recent year, GoN has made tremendous efforts to mobilize internal revenue through improving tax system in various ways. That could be summarized as (a) implementation of VAT project in cooperation with DANIDA. (b) Implementation of Income Tax Administration Consolidation (ITAC) project in cooperation with GTZ. (c) Implementation of Automated System for Custom Data (ASYCUDA) and Account project in the department of custom in cooperation with (UNCTAD). (d) Enactment of local self-Government Act 1999 and local self-Government Regulation 1999. (e) Setting up of the Revenue Advisory Board. (f) Establishment of the Local Authority Fiscal Commission (LAFC).

Nepal's tax system is circumscribed by serious structural constraint. The major constraint existing in the tax system is that it lacks simplicity and transparency (Dahal, 1995). With extremely limited tax base, low tax elasticity, relatively higher tax rates, poor voluntary compliance, ineffective tax administration, growing arbitration in assessment, rigid and incomprehensive tax laws and regulation, and numerous tax shelters. Taxation in Nepal has so far been attributed to 'negotiations', resulting in rampant corruption. Tax avoidance, evasion and delinquency have also increased substantially over the year.

A majority of the taxpayers are ignorant of existing laws and regulations and various circulation frequently issued by the tax authorities. The increasing use of discretionary power by the authority for the assessment has been perennial sources of corruption. There is apprehension that the taxpayer is neither sufficiently protected by the law nor is their contribution ever recognized. A significant amount of revenue is missing before reaching treasury in between the taxpayer and tax officials. The tax administration in Nepal appears to be inefficient, indifferent, and corrupt. In fact, corruption has weakened the tax base. The major challenge facing Nepal's tax administration is: how to identify the taxpayers that are still unrecorded and bring them into tax net, thereby improving voluntary compliance.

4.2 Resource Gap in Nepal

Despite the various measures adopted by government of Nepal to boost the revenue collection there still exists substantial gap between expenditure and revenue. Several constraints, such as structural, administrative and institutional have hampered government's efforts to increase resource mobilization through taxation. According to Economic Survey 2014/15, revenue

expenditure gap was 4 percent of GDP in 2013/14 and is expected to reach at 4.9 percent in 2014/15, showing an increasing trend of resource gap.

Resource gap generally signifies the difference between expenditure and revenue known as fiscal deficit. Second, it is the difference between expenditure and revenue plus foreign grant known as budget deficit and the third type is the difference between expenditure and revenue plus foreign aid (grant and loan) plus internal borrowings, known as overall deficit. It is a phenomenon that occurs generally at the initial stage of the development of the country. The origin of the gap is the limitation of the sources of the revenue and rise in expenditure. As we see the budgetary pattern, Nepal, over the years has been facing a wide range of resource gap.

The situation of financial resource gap has been shown in Table 4.1. The resource gap (total expenditure minus total domestic revenues) has been increasing rapidly since 1990/91 to 2013/14 with annual average growth rate of 10.2 percent. This shows a clear appearance of poor performance of domestic resource mobilization to increase revenue. Since the annual average growth rate of total expenditure is 13.9 percent while that of annual average growth rate of total revenue is 16.7 percent only, throughout the study period.

As we consider the resource gap as the difference between total expenditure and total revenue, the gap goes on increasing as the time elapsed. For the FY 1990/91 it was only Rs. 12820.3 million and that for FY 2010/11 it was Rs. 95544.4 million, highest among the whole study period. Similarly, the resource gap, as the difference between total expenditure and total revenue plus foreign grants, was small (Rs. 10654.7 million) for the FY 1990/91 and witnessed the highest record for the FY 2013/14 accounting Rs. 48009.6 million. Furthermore, the resource gap as the difference between total expenditure and that of total revenue including foreign aid and borrowings was lowest for the FY 2010/11 accounting Rs. 4969.2 million in negative term and was highest for the FY 2008/09 having magnitude of Rs. 21418.5 million.

To bridge the gap between expenditure and revenue, foreign aid (grant and loan) and internal borrowings are taken into account in Nepal's case. But, as we see the data below, reliance is increasing, especially on foreign aid, to bridge the gap i.e., for deficit financing, which ultimately increase the standing debt repayments of principal and interest. This again necessitates further borrowing. Hence, Nepalese economy is circumscribed by debt trap. Therefore, special emphasis should be given to mobilize internal resources in order to meet the resource gap.

Table: 4.1 Resource Gap in Nepal

(Rs. In Millions)

Fiscal Year	Total Expenditure	Total Revenue	R-Gap	Foreign Grants	R-Gap	Foreign Loan	Domestic loan	R-Gap*
	A	B	A-B	C	A-(B+C)	D	E	A-(B+C+D+E)
1990/91	23549.8	10729.5	12820.3	2164.8	10654.7	6256.7	4552.7	-153.9
1991/92	26418.2	13512.7	12905.5	1643.8	11261.7	6816.9	2078.8	2366.0
1992/93	30897.7	15148.4	15749.3	3793.3	11956.0	6920.9	1620.0	3415.1
1993/94	33597.4	19580.9	14016.5	2393.6	11622.9	9163.6	1820.0	639.3
1994/95	39060.0	24575.2	14484.8	3937.1	10547.7	7312.3	1900.0	1335.4
1995/96	46542.4	27893.1	18649.3	4825.1	13824.2	9463.9	2200.0	2160.3
1996/97	50723.8	30373.5	20350.3	5988.3	14362.0	9043.6	3000.0	2318.4
1997/98	56118.3	32937.9	23180.4	5402.6	17777.8	11054.5	3400.0	3323.3
1998/99	59579.0	37251.0	22328.0	4336.6	17991.4	11852.4	4710.0	1429.0
1999/00	66272.5	42893.8	23378.7	5711.7	17667.0	11812.2	5500.0	354.8
2000/01	79835.1	48893.6	30941.5	6753.4	24188.1	12044.0	7000.0	5144.1
2001/02	80072.2	50445.5	29626.7	6686.1	22940.6	7698.7	8000.0	7241.9
2002/03	84006.1	56229.8	27776.3	11339.1	16437.2	4546.4	8880.0	3010.8
2003/04	89442.6	62331.0	27111.6	11283.4	15828.2	7629.0	5607.0	2592.2
2004/05	102560.5	70122.7	32437.8	14391.2	18046.6	9266.1	8938.1	-157.6
2005/06	110889.2	72282.1	38607.1	13827.5	24779.6	8214.3	11834.2	4731.1
2006/07	133604.6	87712.1	45892.5	15800.8	30091.7	10053.5	17892.3	2145.9
2007/08	161349.9	107622.5	53727.4	20320.7	33406.7	8979.9	20496.4	3930.4
2008/09	219661.9	143474.5	76187.4	26382.9	49804.5	9968.9	18417.1	21418.5
2009/10	259689.1	179945.8	79743.3	38546.0	41197.3	11223.4	29914.0	59.9
2010/11	295363.4	199819.0	95544.4	45922.2	49622.2	12075.6	42515.8	-4969.2
2011/12	339167.5	244561.1	94606.4	40810.3	53796.1	11083.1	36418.7	6294.3
2012/13	370126.3	296189.0	73937.3	41850.2	32087.1	15517.0	19020.0	-2449.9
2013/14	449850.0	354529.4	95320.6	47311.0	48009.6	23690.0	12552.0	11767.6

Source: A Handbook of Government Finance Statistics, NRB and Budget Speech, MoF.

* R-Gap: Resource Gap

This table therefore shows the disappointing situation of Nepalese fiscal system as the loan component is increasing non-linearly with average annual growth rate of 9.0 percent over the study period which further intensifies the debt serving charges. On the contrary the grants component has increased non-linearly with an average annual growth rate of 18.9 percent showing increasing dependency over foreign aid to bridge the gap.

4.3 Tax-to-GDP Ratio

The tax-to-GDP ratio is an economic measurement that compares the amount of tax collected by a government to the amount of income that country receives for its products. That income is measured in terms of the gross domestic product. Tax-to-GDP ratio is one of the methods used to assess a country's development and is calculated by dividing the tax revenue collected by the government from the GDP of that country. In general, it is the ratio of tax collection against the

national GDP. As the tax revenues grow at a slower rate than the GDP of a country, the tax-to-GDP ratio drops and vice-versa. By comparing GDP to the amount that is collected in tax revenue, one can get a rough idea of how much the economy of a specific government is fueled by its tax collection. Tax-GDP ratio is influenced by a number of things such as that country's labor force, policies, regulations, infrastructures, etc., countries like Sweden, Denmark, and Belgium has the highest tax-to-GDP ratios.

Tax-to-GDP ratio of Nepal, as shown in Table 4.2, ranges between 6.8 percent, lowest ever for the FY 1991/92 to 17 percent, highest among for the FY 2012/13, which is good indication for the tax system. For the whole study period, the tax-to-GDP ratio is growing non-linearly with the rise of both, tax revenue and GDP. Tax revenue and GDP has been increasing over the years but, beyond FY 2007/08 both increase with an increasing pace and witnessed the highest record for the FY 2013/14 with value of Rs. 312621.6 and Rs. 1941600.0 million respectively. Furthermore, tax revenue and GDP both have lowest magnitude for the FY 1990/91 accounting Rs. 8176.6 and Rs. 116127.3 million respectively.

The marginal tax rate shows the ratio of change in total tax revenue to change in GDP. From table, it is evident that there is wide variation in marginal tax rate from 3.8 percent, lowest for the FY 2001/02 to 35.3 percent, highest among for the FY 2012/13. This shows that, in FY 2001/02, the percentage change in total tax revenue to the percentage change in total GDP is lower than that for FY 2012/13. The marginal tax rate is increasing non-linearly showing a problematic trend in revenue collection. Such problems are: tax evasion, low tax compliance rate, rampant corruption, non-modernization of tax system, insufficiency of tax reforms policies and programs, etc.

Table: 4.2 Tax-to-GDP Ratios

(Rs. In Millions)

Fiscal Year	Gross Domestic Product (GDP)	Total Tax Revenue (TTR)	Change in GDP (Δ GDP)	Change in Total Tax Revenue (Δ TTR)	Average Tax Rate (TTR/GDP)	Marginal Tax Rate (Δ TTR/ Δ GDP)
1990/91	116127.3	8176.6	-	-	7.0	-
1991/92	144933.1	9875.8	28805.8	1699.2	6.8	5.8
1992/93	165349.9	11662.6	20416.8	1786.8	7.0	8.7
1993/94	191596.0	15371.5	26246.1	3708.9	8.0	14.1
1994/95	209974.0	19660.0	18378.0	4288.5	9.3	23.3
1995/96	239388.0	21668.0	29414.0	2008.0	9.0	6.8
1996/97	269570.0	24424.1	30182.0	2756.1	9.0	9.1
1997/98	289798.0	25926.6	20228.0	1502.5	8.9	7.4

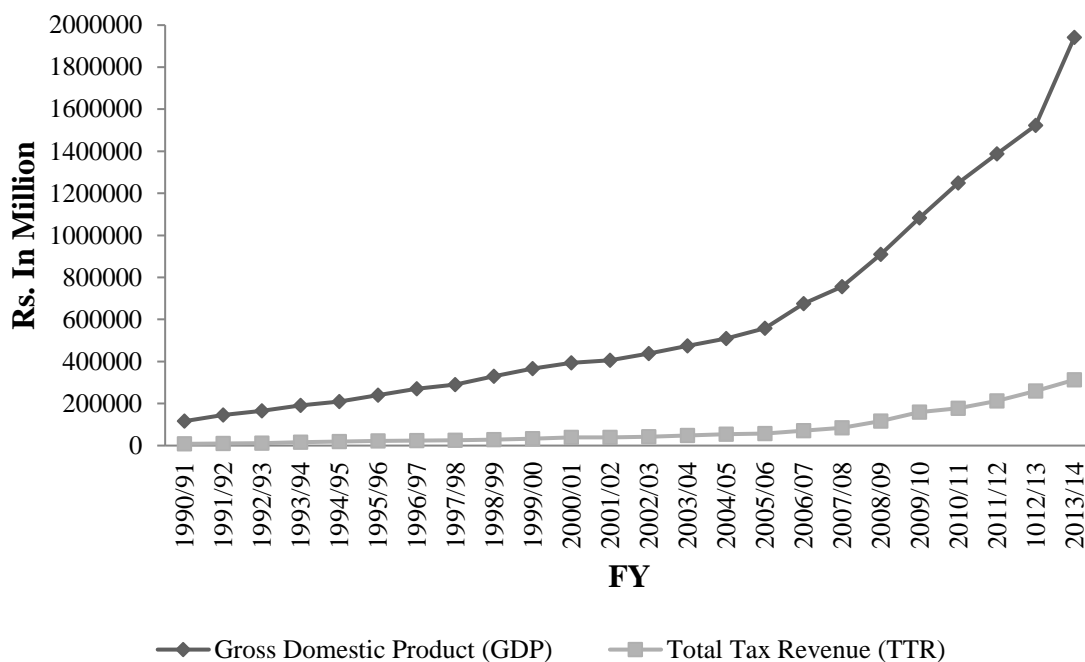
1998/99	330018.0	28753.0	40220.0	2826.4	8.7	7.0
1999/00	366251.0	33148.3	36233.0	4395.3	9.0	12.1
2000/01	394052.0	38865.0	27801.0	5716.7	9.8	20.5
2001/02	406138.4	39332.2	12086.4	467.2	9.6	3.8
2002/03	437545.8	42587.0	31407.4	3254.8	9.7	10.3
2003/04	474918.5	48175.7	37372.7	5588.7	10.1	14.9
2004/05	508651.0	54106.1	33732.5	5930.4	10.6	17.5
2005/06	557869.6	57427.0	49218.6	3220.9	10.2	6.5
2006/07	675859.0	71168.0	117989.4	13741.0	10.5	11.6
2007/08	755256.8	85147.1	79397.8	13979.1	11.2	17.6
2008/09	909528.0	117051.8	154271.2	31904.7	12.8	20.6
2009/10	1083415.0	159785.4	173887.0	42733.6	14.7	24.5
2010/11	1248481.0	177227.2	165066.0	17441.8	14.1	10.5
2011/12	1387482.0	211722.6	139001.0	34495.4	15.2	24.8
1012/13	1522852.0	259573.0	135370.0	47850.4	17.0	35.3
2013/14	1941600.0	312621.6	418748.0	53048.6	16.1	12.6

Source: A Handbook of Government Finance Statistics, NRB and Budget Speech, MoF.

Tax and GDP are related, since a higher GDP will automatically lead to a higher tax collection (a higher GDP is an indicator that there has been an increased overall development in the country and hence a higher per capita income). Increasing that country's tax-GDP ratio may become important if its fiscal deficit is high. This is because the higher the fiscal deficit, the more the gap between the revenue the government is generating from tax and other sources and the expenditure it is incurring in doling out subsidies, running welfare scheme and running the government.

However, countries like Nepal have low tax-to-GDP ratio. The problem arises especially in countries where development is low and tax evasion is high because this means that (1) only those people who can afford to pay taxes contribute towards it, which leads into a vicious cycle where poor development causes more unemployment and poverty, which in turn leads to low tax collection, (2) wealthy people who are obligate to pay a high amount of taxes resorts to avoidance and evasion by exploiting loop holes in the law causing further tax loss to the government. Hence, this is the Nepal's case, where despite of increase in GDP and tax revenue the tax-to-GDP ratio is not much satisfactory.

Figure 4.1 Growth Trends of GDP and Tax Revenue



The growth trend of GDP and tax revenue for the study period is also shown in figure 4.1, above. From which it is evident that, tax revenue has been growing very slowly with comparison to the growth trend of GDP. The GDP after FY 2005/06 has been increasing with an increasing pace but the tax revenue has not grown with the same pace as that of GDP.

4.4 Revenue Expenditure Pattern of Nepal

Development activities in particular depend upon the extent of resource mobilization of the economy. Higher the revenue surplus, greater will be the possibility of building the infrastructure for development. But, the context of Nepal is different, facing difficult problem of revenue surplus (total revenue minus regular/recurrent expenditure) for capital expenditure.

Table 4.3 shows the consistently declining percentage of revenue surplus to total revenue (except for the FY 1993/94) for capital expenditure. Also the revenue surplus for the two fiscal year (FY 2009/10 and 2010/11) is in negative magnitude revealing a serious threat for Nepalese economy.

Table: 4.3 Revenue Expenditure Pattern of Nepal

(Rs. In Millions)

Fiscal Year	Total Revenue	Expenditure				Revenue Surplus*	% of RS to TR	% of CE to TR	% of CE to TE
		Recurrent	Capital	Principal Repayments	Total				
1990/91	10729.5	6831.3	15979.5	739.0	23549.8	3898.2	36.3	148.9	67.8
1991/92	13512.7	8698.4	16512.8	1207.0	26418.2	4814.3	35.6	122.2	62.5

1992/93	15148.4	9886.2	19413.6	1597.9	30897.7	5262.2	34.7	128.1	62.8
1993/94	19580.9	10511.0	21188.2	1898.2	33597.4	9069.9	46.3	108.2	63.0
1994/95	24575.2	16611.9	19794.9	2653.2	39060.0	7963.3	32.4	80.5	50.6
1995/96	27893.1	18714.4	24980.5	2847.5	46542.4	9178.7	32.9	89.5	53.6
1996/97	30373.5	20727.9	26542.6	3453.3	50723.8	9645.6	31.7	87.3	52.3
1997/98	32973.9	23243.2	28943.9	3931.2	56118.3	9730.7	29.5	87.7	51.5
1998/99	37251.0	31944.2	22992.1	4642.7	59579.0	5306.8	14.2	61.7	38.5
1999/00	42893.8	35579.1	25480.7	5212.7	66272.5	7314.7	17.0	59.4	38.4
2000/01	48893.6	45837.3	28307.2	5690.6	79835.1	3056.3	6.2	57.8	35.4
2001/02	50445.5	48863.9	24773.4	6434.9	80072.2	1581.6	3.1	49.1	30.9
2002/03	56229.8	52090.5	22356.1	9559.5	84006.1	4139.3	7.4	39.7	26.6
2003/04	62331.0	55552.1	23095.6	10794.9	89442.6	6778.9	10.9	37.0	25.8
2004/05	70122.7	61686.4	27340.8	13533.3	102560.5	8436.3	12.0	38.9	26.6
2005/06	72282.1	67017.8	29606.6	14264.8	110889.2	5264.3	7.3	40.9	26.6
2006/07	87712.1	77122.4	39729.9	16752.3	133604.6	10589.7	12.0	45.2	29.7
2007/08	107622.5	91446.9	53516.1	16386.9	161349.9	16175.6	15.0	49.7	33.1
2008/09	143474.5	127738.9	73088.9	18834.1	219661.9	15735.6	11.0	50.9	33.2
2009/10	179945.8	186597.6	40509.8	32581.8	259689.1	-6651.8	-3.7	22.5	15.5
2010/11	199819.0	210167.7	47327.7	37868.1	295363.4	-10348.7	-5.2	23.6	16.0
2011/12	244561.1	243460.0	51390.7	44316.8	339167.5	1101.1	0.4	21.0	15.1
2012/13	296189.0	258103.8	53569.7	58452.8	370126.3	38085.2	12.9	18.0	14.4
2013/14	354529.4	316640.0	63870.2	69340.0	449850.0	37889.4	10.7	18.0	14.2

Source: A Hand Book of Government Finance Statistics, NRB and Budget Speech, MoF.

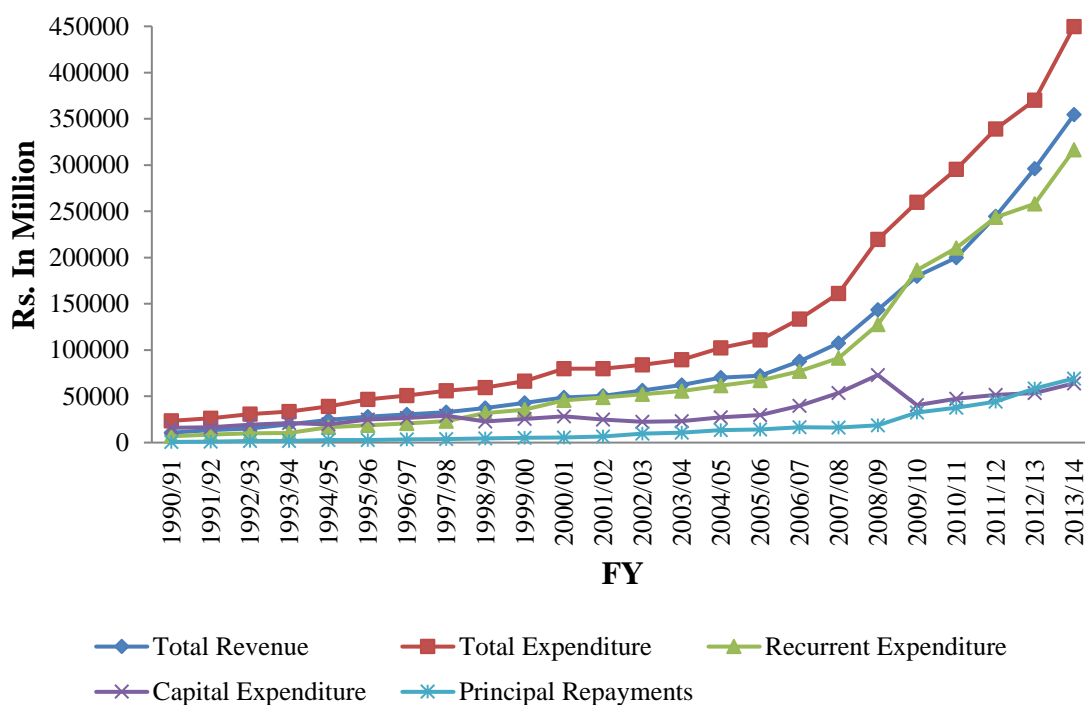
* Revenue Surplus: Total Revenue – Recurrent Expenditure

Note: TR=Total Revenue, RS= Revenue Surplus, CE=Capital Expenditure, TE=Total Expenditure.

Furthermore, the percentage of capital expenditure to total revenue and percentage of capital expenditure to total expenditure was highest for the initial year of study period and goes on decreasing and reaches at the minimum for the last fiscal year, showing a problematic trend on expenditure. Initially, percentage of capital expenditure to total revenue was 148.9 percent and for the final year it drops to 18.0 percent. Similarly, percentage of capital expenditure to total expenditure was 67.8 percent for the FY 1990/91 and for the FY 2013/14 it drops to 14.2 percent, lowest among other FY.

Besides, the average annual growth rate of total revenue is 16.7 percent while that for recurrent expenditure is 18.9 percent showing that revenue the country generating is not sufficient for development activities because the growth rate of recurrent expenditure is higher than that of total revenue. Moreover, the average annual growth rate of capital expenditure and principal repayments are 8.0 percent and 23.0 percent respectively.

Figure 4.2 Revenue Expenditure Pattern of Nepal



The revenue expenditure pattern of Nepal has also shown in figure 4.2. From the figure above it is evident that total expenditure is more than that of total revenue throughout the study period. Thus, expenditure has always pushed the government to follow the budget deficit. Also, the capital expenditure was in the peak level for the FY 2008/09 and has shown the nonlinear trend over the study period. Moreover, until the FY 1997/98 the capital expenditure was more than that of recurrent expenditure but after, capital expenditure decreased sharply despite of increasing total expenditure. Similarly, the principal repayment was in lowest level until FY 2011/12 but after, it has surpassed the capital expenditure.

4.5 Structure of Total Revenue along with GDP

Tax revenue, non-tax revenue and principal refund have been basic components to sum up the total revenue of Nepal. During the study period, tax revenue had played a dominant role in the composition of total revenue.

Table: 4.4 Major Components of Government Revenue

(Rs. In Millions)

Fiscal Year	Gross Domestic	Total Revenue (TR)	Total Tax Revenue	Total Non-Tax Revenue	Principal Refund
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	Product (GDP)	Amt.	% of GDP	Amt.	% of TR	% of GDP	Amt.	% of TR	% of GDP	Amt.*	% of TR
1990/91	116127.3	10730.4	9.2	8176.6	76.2	7.0	2553.8	23.8	2.2	-	-
1991/92	144933.1	13512.7	9.3	9875.8	73.1	6.8	3636.9	26.9	2.5	-	-
1992/93	165349.9	15148.4	9.2	11662.6	77.0	7.0	3485.8	23.0	2.1	-	-
1993/94	191596.0	19580.7	10.2	15371.5	78.5	8.0	4209.2	21.5	2.2	-	-
1994/95	209974.0	24575.2	11.7	19660.0	80.0	9.3	3704.5	15.1	1.7	1210.7	4.9
1995/96	239388.0	27893.1	11.6	21668.0	77.7	9.0	5131.2	18.4	2.1	1093.9	3.9
1996/97	269570.0	30373.4	11.3	24424.1	80.4	9.0	5086.2	16.7	1.9	863.1	2.8
1997/98	289798.0	32937.9	11.4	25926.6	78.7	8.9	5749.9	17.5	2.0	1261.4	3.8
1998/99	330018.0	37251.0	11.3	28753.0	77.2	8.7	6256.4	16.8	1.9	2241.6	6.0
1999/00	366251.0	42889.6	11.7	33148.3	77.3	9.0	7558.4	17.6	2.0	2182.9	5.1
2000/01	394052.0	48893.6	12.4	38865.0	79.5	9.9	7971.5	16.3	2.0	2057.1	4.2
2001/02	406138.4	50445.6	12.4	39332.2	78.0	9.7	9226.1	18.3	2.3	1887.3	3.7
2002/03	437545.8	56229.7	12.9	42587.0	75.7	9.7	12103.0	21.5	2.7	1539.7	2.7
2003/04	474918.5	62331.0	13.1	48175.7	77.3	10.1	12304.8	19.7	2.6	1850.5	3.0
2004/05	508651.0	70124.1	13.8	54106.1	77.2	10.6	14770.3	21.1	2.9	1247.7	1.8
2005/06	557869.6	72282.1	13.0	57427.0	79.4	10.3	13341.5	18.5	2.4	1513.6	2.1
2006/07	675859.0	87712.1	13.0	71168.0	81.1	10.5	15518.5	17.7	2.3	1025.6	1.2
2007/08	755256.8	107622.7	14.2	85147.1	79.1	11.3	19794.7	18.4	2.6	2680.9	2.5
2008/09	909528.0	143474.4	15.8	117051.8	81.6	12.9	22892.2	16.0	2.5	3530.4	2.5
2009/10	1083415.0	179945.8	16.6	159785.4	88.8	14.7	18206.5	10.1	1.7	1954.0	1.1
2010/11	1248481.0	199819.0	16.0	177227.2	88.7	14.2	21149.2	10.6	1.7	1442.7	0.7
2011/12	1387482.0	244561.1	17.6	211722.6	86.6	15.2	32651.5	13.4	2.3	187.0	0.1
2012/13	1522852.0	296189.0	19.4	259573.0	87.6	17.0	36156.1	12.2	2.3	460.0	0.2
2013/14	1941600.0	368657.8	19.0	312439.9	84.7	16.0	50483.7	13.6	2.6	5500.0	1.5

Source: A Handbook of Government Finance Statistics, NRB and Budget Speech, MoF.

*Amt: Total Amount

Note: Since the percentage of Principal Refund to GDP, for the whole study period was not more than 0.7 (FY 1998/99) percent and is not taken into account.

From table 4.4, tax revenue over the time not exceeded 88.8 percent (FY 2009/10) and fluctuated up and down over the years. However, in the FY 1991/92, it was at 73.1 percent, lowest for the whole study period. Initially the contribution of non-tax revenue to total revenue was high but as the time passes its contribution has fallen down up to 10.1 percent in the FY 2009/10. The percentage contribution of non-tax revenue witnessed the highest record in FY 1991/92 which was 26.9 percent. Besides the percentage contribution, the amount of tax revenue and non-tax revenue has been increasing and marked the highest record in FY 2013/14 accounting Rs. 312439.9 and Rs. 50483.7 million respectively.

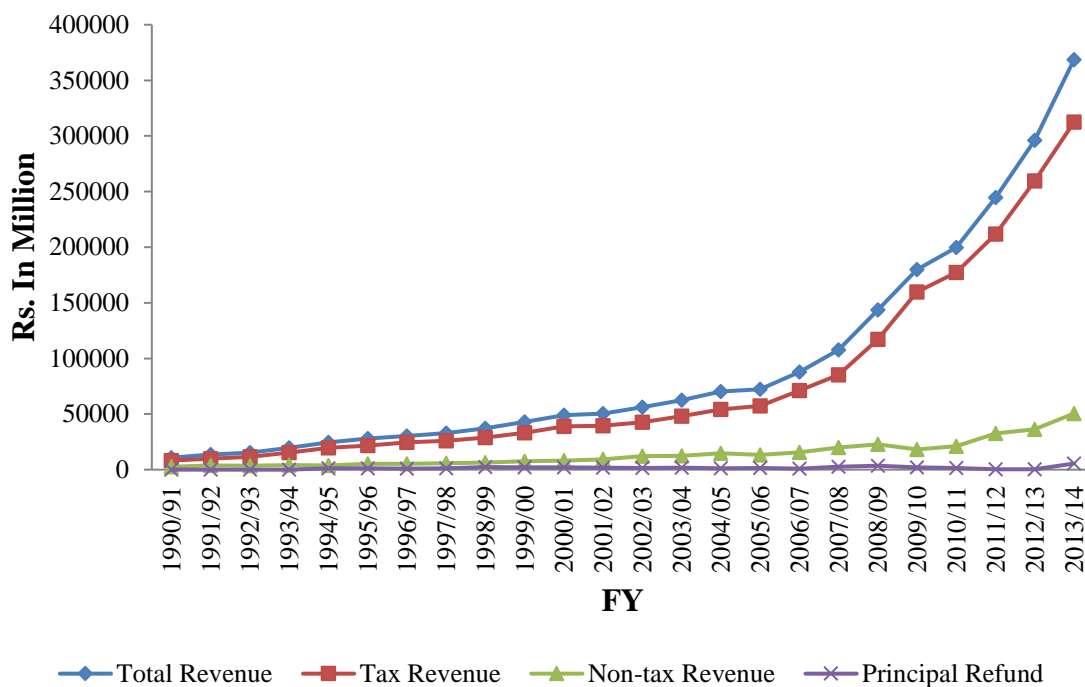
On the other hand, up to the FY 1993/94 principal refund was not a component of government revenue. After, it has been one of the components to sum up the total revenue. The percentage contribution of principal refund to total revenue for the fiscal year 1998/99 was 6.0 percent;

highest for the study period and that for FY 2011/12 it was only 0.1 percent, lowest among other FY. The percentage contribution of principal refund shows the decreasing trend over the year this may be due to the reason of increase in the contribution of tax revenue to total revenue. In spite of decreasing trend of percentage contribution of principal refund the amount has been increasing except for the fiscal year (2011/12 and 2012/13) and reached to the highest amount for the FY 2013/14 accounting Rs. 5500.0 million.

Furthermore, tax revenue has shown an increasing trend with the rise of GDP throughout the year. It was 6.8 percent for the FY 1991/92 and that for the FY 2012/13 it has marked the highest record of 17.0 percent of the total GDP, which is quite satisfactory. Besides, non-tax revenue has shown almost consistent trend to the percentage of GDP, around 2.5 percent throughout the study period. Its lowest percentage is 1.7 for the three fiscal year (1994/95, 2009/10, 2010/11) and the highest percentage to GDP is 2.9 for the FY 2004/05.

The components of government revenue have also shown in figure 4.3, where the tax revenue had played a dominant role over the other components of total revenue. The slope of total revenue and tax revenue is almost similar after the FY 2011/12. On the other hand, non-tax revenue has shown nonlinear increasing trend throughout the study period and the graph below shows that the contribution of principal refund to total revenue is not significant as it almost coincide with the horizontal axis.

Figure-4.3: Major Components of Government Revenue



4.6 Structure of Total Tax Revenue

Total tax revenue can be viewed as the composition of two types of revenues, viz. direct and indirect tax revenue. Table 4.5 shows the contribution of both, direct and indirect tax to total revenue.

During the study period the percentage contribution of direct tax to total tax revenue seems to be far lesser than that of indirect tax. But, the volume of collected revenues through both of the taxes seems to be increasing simultaneously throughout the periods. The percentage contribution of direct tax revenue to total tax revenue was lowest for the FY 1991/92 with the magnitude of 15.0 percent and records a highest percentage for the FY 2011/12 accounting 31.6 percent. Similarly, the percentage contribution of indirect tax to total tax revenue ranges from 85.0 (highest for the FY 1991/92) to 67.7 (lowest for the FY 2013/14) percent throughout the study period.

In 1990/91, the amount collected through direct tax was Rs. 1285.0 million while the amount collected through indirect tax was Rs. 6891.6 million for the same FY. At the last year of the study period the amount was increased simultaneously and reached to Rs. 84728.5 and Rs.

211713.2 million respectively. The reasons behind the increment on both the taxes are due to the expansion of tax base and rate to both deep and wide and increment in the economic activities within the country.

Table 4.5: Contribution of Direct and Indirect Tax Revenue

(Rs. In Millions)

Fiscal Year	Total Tax Revenue (TTR)	Direct Tax		Indirect Tax	
		Amount	% of TTR	Amount	% of TTR
1990/91	8176.6	1285.0	15.7	6891.6	84.3
1991/92	9875.8	1487.3	15.0	8388.5	85.0
1992/93	11662.6	1879.7	16.1	9782.9	83.9
1993/94	15371.5	2657.4	17.2	12714.1	82.7
1994/95	19660.0	3797.0	19.3	15863.0	80.6
1995/96	21668.0	4585.2	21.1	17082.8	78.9
1996/97	24424.1	5233.6	21.4	19190.5	78.5
1997/98	25926.6	6015.3	23.2	19911.3	76.8
1998/99	28753.0	7296.8	25.3	21456.2	74.6
1999/00	33148.3	8551.0	25.7	24597.3	74.2
2000/01	38865.0	9769.7	25.1	29095.3	74.8
2001/02	39332.2	10039.3	25.5	29292.9	74.4
2002/03	42587.0	10105.8	23.7	32481.2	76.1
2003/04	48175.7	11901.9	24.7	36273.8	75.2
2004/05	54106.1	13061.3	24.1	41044.8	75.8
2005/06	57427.0	13961.5	24.3	43465.5	75.6
2006/07	71168.0	18979.7	26.6	52188.3	73.3
2007/08	85147.1	23070.8	27.0	62076.3	72.9
2008/09	117051.8	34552.6	29.5	82499.2	70.4
2009/10	159785.4	41760.5	26.1	114530.2	71.6
2010/11	177227.2	48640.9	27.4	124114.3	70.0
2011/12	211722.6	66906.7	31.6	144811.6	68.4
2012/13	259573.0	81937.5	31.5	177206.1	68.2
2013/14	312439.9	84728.5	27.1	211713.2	67.7

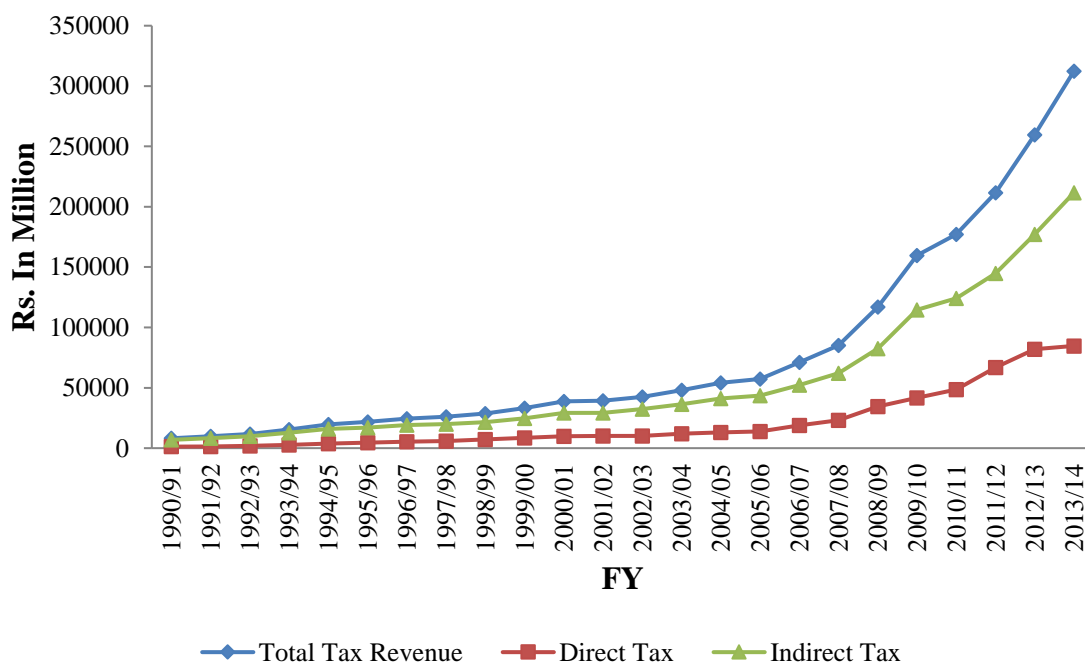
Source: A Handbook of Government Finance Statistics, NRB and Budget Speech, MoF.

Although direct tax system has been considered as the aspect of ability to pay principle in nature however, GoN has not been able to collect adequate amount of money through this source. On an average, the contribution of indirect tax to total tax revenue is about 75.6 percent and that for direct tax is 23.9 percent throughout the study period. Though indirect tax is considered regressive in nature, the tax structure in Nepal is not justifiable on equity ground and progressiveness.

The contribution of direct and indirect tax to total tax revenue has also been shown in figure 4.4, which shows the dominant character of indirect tax over direct tax revenue. Here the line representation of indirect tax is closer to the line of total tax revenue, whereas the line representation of direct tax is far from the line of total tax revenue. This shows that the

contribution of direct tax in total tax revenue is much lesser than that of indirect tax on it. But over the years the contribution of direct tax is found to be increasing which is a good indication for tax system. Large amount of direct taxes on total tax revenue signifies the maturity of the economy. In general, larger the share of direct tax on total tax revenue mature and well development of the countries it signify and vice versa.

Figure 4.4 Contribution of Direct and Indirect Tax to Total Tax Revenue



4.7 Structure of Direct Tax

In Nepal’s tax structure, the premier component of direct tax are income tax, land revenue and registration tax and other direct taxes (house and land rent tax, interest and property tax). In FY 1990/91 their contribution to direct tax were 58.0 percent, 41.9 percent respectively as shown in the table 4.5. The percentage contribution to direct tax revenue of three headings, viz. income tax, land revenue and registration and other indirect taxes was highest for the fiscal year 2000/01 (93.7 percent), 1991/92 (42.5 percent) and 2011/12 (15.6 percent) respectively.

The volume of corporate income tax was smaller than that of individual income tax from the FY 1990/91 to 1992/93, but after corporate income tax has always surpassed the individual one. This is because of the reason, before privatization and liberalization the private corporate house was

very limited to engage on economic activities but after the adoption of open economy the private sector has played a significant role on economic activities. In the components of direct tax revenue, income tax had played a dominant role over other direct taxes.

Table: 4.6 Composition of Direct Tax Revenue

(Rs. In Millions)

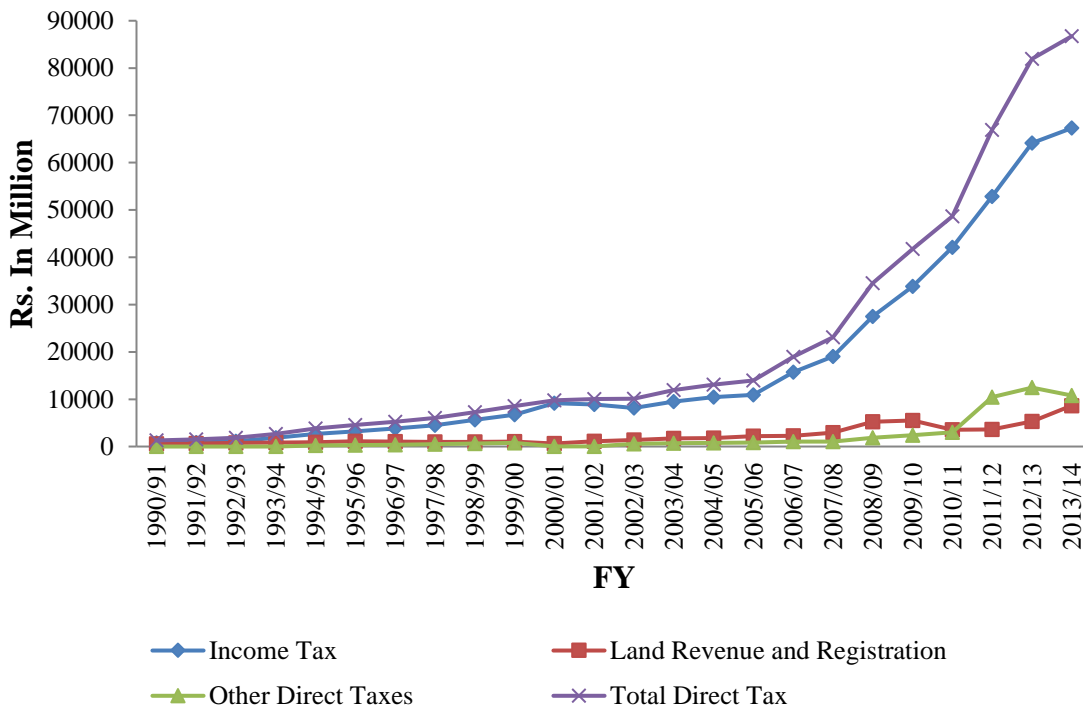
Fiscal Year	Tax on Income/Income Tax				Land Revenue and Registration		Other Direct Taxes*		Total Direct Tax (TDT)
	Corporate Income Tax	Individual Income Tax	Total Amount	% to TDT	Amount	% to TDT	Amount	% to TDT	
1990/91	164.9	581.3	746.2	58.0	538.8	41.9	-	-	1285.0
1991/92	182.9	672.2	855.1	57.5	632.2	42.5	-	-	1487.3
1992/93	267.4	857.4	1124.8	59.9	754.9	40.1	-	-	1879.7
1993/94	555.9	1268.4	1824.3	68.7	833.1	31.4	-	-	2657.4
1994/95	1766.3	874.3	2640.6	69.5	937.7	24.7	218.7	5.7	3797.0
1995/96	2272.5	932.9	3205.4	69.9	1079.6	23.5	300.2	6.5	4585.2
1996/97	2693.3	1136.1	3829.4	73.1	1015.4	19.4	388.8	7.4	5233.6
1997/98	2936.8	1562.2	4499.0	74.8	1006.7	16.8	509.6	8.5	6015.3
1998/99	3462.2	2184.3	5646.5	77.4	996.3	13.7	654.0	9.0	7296.8
1999/00	4439.5	2317.5	6757.0	79.0	1013.3	11.9	780.7	9.1	8551.0
2000/01	7831.2	1322.7	9153.9	93.7	607.8	6.2	8.0	.08	9769.7
2001/02	7252.3	1651.3	8903.6	88.7	1121.3	11.1	14.4	0.1	10039.3
2002/03	5554.0	2578.2	8132.2	80.5	1414.2	14.0	559.4	5.5	10105.8
2003/04	6805.0	2699.0	9504.0	79.9	1697.5	14.2	700.4	5.9	11901.9
2004/05	7331.3	3124.7	10456.0	80.0	1799.2	13.8	806.1	6.2	13061.3
2005/06	7576.6	3357.0	10933.6	78.3	2180.3	15.6	847.6	6.0	13961.5
2006/07	11604.9	4125.1	15730.0	82.9	2238.7	11.8	1011.0	5.3	18979.7
2007/08	13263.2	5804.3	19067.5	82.7	2933.0	12.7	1070.2	4.6	23070.8
2008/09	19646.4	7833.3	27479.7	79.5	5248.4	15.1	1824.5	5.3	34552.6
2009/10	24054.3	9777.8	33832.1	81.0	5510.8	13.2	2417.6	5.8	41760.5
2010/11	28807.2	13259.2	42066.3	86.4	3552.0	7.3	3022.6	6.2	48640.9
2011/12	51313.7	1566.2	52880.0	79.0	3587.5	5.4	10439.2	15.6	66906.7
2012/13	37069.6	27108.7	64178.3	78.3	5309.0	6.5	12450.2	15.2	81937.5
2013/14	45419.7	21881.2	67300.9	77.6	8650.9	10.0	10784.7	12.4	86736.5

Source: A Handbook of Government Finance Statistics, NRB and Budget Speech MoF.

* Includes house and land rent tax, interest tax and property tax.

The amount of income tax was lowest in the fiscal year 1990/91 with volume of Rs. 746.2 million and has shown an increasing trend (except for the FY 2001/02 and 2002/03) and for the final year it has marked the highest value of Rs. 67300.9 million. Similarly, the amount of land revenue and registration for the initial year was Rs. 538.8 million and attained a highest value in FY 2013/14 accounting Rs. 8650.9 million. Furthermore, the amount of other direct taxes was lowest for the FY 2000/01 accounting only Rs. 8 million and reaches the top for the FY 2012/13 having volume Rs. 12450.2 million.

Figure 4.5 Composition of Direct Tax Revenue



Graphically, the structure and composition of direct tax revenue is shown in figure 4.5 above. Here, the line representation of tax on income is closer to the line of direct tax, whereas the line representation of land revenue and registration is far from the line of direct tax. Also, at the initial phase of the study period, i.e., up to the FY 2005/06 the line of other direct taxes almost coincide with the horizontal axis, showing insignificant contribution to direct tax revenue. But, after FY 2010/11 it has surpassed the line of land revenue and registration. Here all the four line has shown the nonlinear trend over the study period.

4.8 Structure of Indirect Tax

Taxes on consumption or indirect taxes have very important contribution in the tax structure of Nepal. In LDCs, it is their characteristics to recognize, most of the tax revenue is contributed by indirect taxes, and same is the case for Nepal as shown in table 4.7.

Table: 4.7 Composition of Indirect Tax Revenue

(Rs. In Millions)

Fiscal Year	Total Indirect Tax (TIDTX)	Custom Duties		Excise Duties		Sales Tax/VAT	
		Amount	% to TIDTX	Amount	% to TIDTX	Amount	% to TIDTX

1990/91	6891.6	3044.3	44.1	1200.3	17.4	2647.0	38.4
1991/92	8388.5	3358.9	40.0	1419.3	17.0	3610.3	43.0
1992/93	9782.9	3945.1	40.3	1452.6	14.9	4385.2	44.8
1993/94	12714.1	5255.2	41.3	1592.3	12.5	5866.6	46.1
1994/95	15863.0	7017.9	44.2	1657.5	10.4	7187.6	45.3
1995/96	17082.8	7327.4	42.9	1945.9	11.4	7809.5	45.7
1996/97	19190.5	8309.1	43.3	2302.1	12.0	8579.3	44.7
1997/98	19911.3	8499.9	42.7	2886.5	14.5	8524.9	42.8
1998/99	21456.2	9517.5	44.3	2952.5	13.7	8986.2	41.8
1999/00	24597.3	10813.3	44.0	3132.7	12.7	10651.3	43.3
2000/01	29095.3	12479.0	42.9	3804.8	13.0	12811.5	44.0
2001/02	29292.9	12492.6	42.6	3973.3	13.5	12826.7	43.8
2002/03	32481.2	14236.4	43.9	4777.5	14.7	13467.3	41.4
2003/04	36273.8	15554.2	42.9	6221.4	17.1	14498.2	40.0
2004/05	41044.8	15701.5	38.2	6446.3	15.7	18897.0	46.0
2005/06	43465.5	15343.7	35.3	6506.4	15.0	21615.4	49.7
2006/07	52188.3	16699.3	32.0	9343.6	18.0	26145.4	50.0
2007/08	62076.3	21062.6	34.0	11229.2	18.0	29784.6	48.0
2008/09	82499.2	26622.5	32.2	16272.5	19.8	39604.2	48.0
2009/10	114530.2	35151.6	30.7	24315.1	21.2	55063.5	48.0
2010/11	124114.3	35708.6	28.8	26542.2	21.3	61863.5	50.0
2011/12	144811.6	43395.4	30.0	30256.2	20.9	71160.0	49.1
2012/13	177206.1	56914.9	32.1	36244.0	20.4	84047.2	47.4
2013/14	211713.2	65191.7	30.8	45411.0	21.4	101110.5	47.7

Source: A Handbook of Government Finance Statistics, NRB and Budget Speech, MoF.

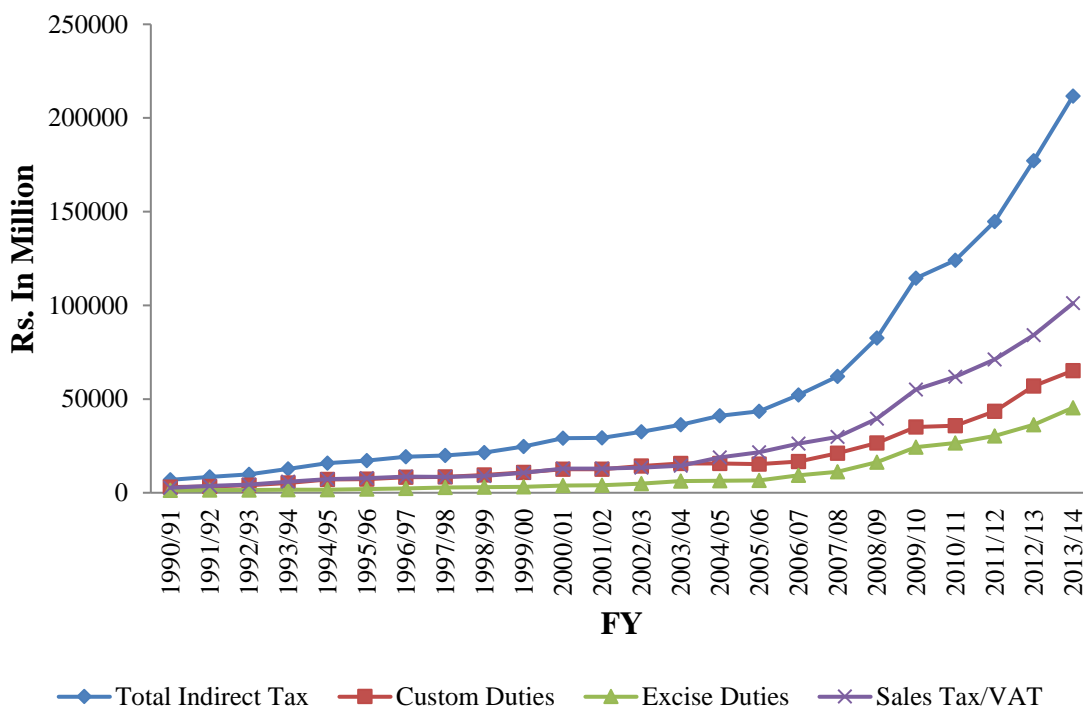
In Nepal's tax structure, the premier components of indirect tax are custom duties, excise duties and sales tax (VAT), in 1990/91 their contribution were 44.1, 17.4 and 38.4 percent respectively. In absolute term their contributions were Rs. 3044.3, Rs. 1200.3 and Rs. 2647.0 million respectively for the same FY. Similarly, the three components on indirect tax, viz., custom duties, excise duties and sales tax has witnessed the highest record for the FY 2013/14 accounting Rs. 65191.7, Rs. 45411.0 and Rs. 101110.5 million respectively. Since, Nepal is not so industrialized; the size of excise duty is also small in comparison to other two components of indirect tax.

Sales tax/VAT has been introduced in Nepal in 1977 with a view to effectively mobilizing internal revenues by improving tax system. But, it does not work properly during the initial preliminary stage. It is because of various technical, economic and socio-political reasons. But after the FY 1999/00 it starts to give some positive results and after FY 2003/04 it became the major important components of indirect tax.

During the study period the percentage contribution of custom duties to indirect tax was at higher level up to the FY 2003/04 but after this its contribution has gradually fallen down. This may be

due to the reason of accession of Nepal to WTO in 2004. The percentage contribution to indirect tax of custom duties was lower for the FY 2010/11 with 28.8 percent. Besides, the percentage contribution to indirect tax of excise duties and sales tax has shown an increasing trend over the study period. Excise duties have attained a highest percentage value for the FY 2013/14 and sales tax have attained highest percentage for the FY 2010/11 accounting 21.4 and 50.0 percent respectively.

Figure 4.6 Compositions and Trend of Indirect Tax



Graphically, the composition and trend of indirect tax is shown in figure 4.6, which clearly shows that after the FY 2003/04 VAT has been the major components of indirect tax. While before this the major components of this was custom duties. Furthermore, up to the FY 2000/01, the line of excise duties is very close to the horizontal axis but after it has shown an increasing trend over the years but has never surpassed the line of other two components. This may be due to the sluggish growth trend of industrialization in the Nepalese economy.

4.9 Composition of Custom Duties

Despite the obligation to reduce tariff on international trade after accession to WTO, still custom duties had played a significant role in revenue collection for Nepal. Table 4.8, shows the composition of custom duties and their contribution of it.

Table: 4.8 Compositions of Custom Duties

(Rs. In Millions)

Fiscal Year	Total Custom Duties (TCD)	Import Duties		Export Duties		Indian Excise Refund	
		Amount	% to TCD	Amount	% to TCD	Amount	% to TCD
1990/91	3044.3	2753.0	90.4	78.5	1.6	212.8	7.0
1991/92	3358.9	2795.0	83.2	114.7	0.7	449.2	13.3
1992/93	3945.1	3178.0	80.5	140.7	1.9	626.4	15.9
1993/94	5255.2	4356.0	82.9	427.0	1.0	472.2	9.0
1994/95	7017.9	5840.0	83.2	332.5	2.6	845.4	12.0
1995/96	7327.4	6247.0	85.2	149.9	3.0	930.5	12.7
1996/97	8309.1	7093.0	85.3	167.0	2.1	1048.3	12.6
1997/98	8499.9	7019.0	82.5	217.1	4.2	1263.8	14.8
1998/99	9517.5	7698.0	80.9	378.0	4.0	1441.5	15.1
999/00	10813.3	8960.0	82.9	432.5	4.4	1420.8	13.1
2000/01	12479.0	10465.0	83.9	492.6	3.3	1521.4	12.1
2001/02	12492.6	9678.4	77.4	917.4	6.0	1896.8	15.1
2002/03	14236.4	10567.7	74.2	855.7	7.3	2813.0	19.7
2003/04	15554.2	10666.9	68.5	527.1	3.9	4360.2	28.0
2004/05	15701.5	12299.1	78.3	697.9	4.0	2704.5	17.2
2005/06	15343.7	11744.6	76.5	625.0	3.9	2974.1	19.3
2006/07	16699.3	13626.1	81.6	708.7	2.5	2372.8	14.2
2007/08	21062.5	17128.2	81.3	445.6	2.0	3488.7	16.5
2008/09	26622.5	22056.5	82.9	793.7	2.0	3942.5	14.8
2009/10	35151.6	29964.7	85.2	907.9	4.7	3521.0	10.0
2010/11	35708.6	31480.3	88.1	358.0	8.1	2831.7	7.9
2011/12	43395.4	37220.2	85.7	861.5	3.5	3685.6	8.5
2012/13	56914.9	52825.3	92.9	405.3	3.4	3409.9	6.0
2013/14	65191.7	62453.3	95.8	1069.8	2.5	1668.6	2.5

Source: A Handbook of Government Finance Statistics, NRB and Budget Speech, MoF.

The composition of custom duties as shown in table has three different sub-tax heads viz., import duties, export duties and Indian excise refund. Among these three sub taxes, import duties had contributed more than other two sub taxes throughout the study period. The average percentage contribution of import duties, export duties and Indian excise refund are 82.9, 3.4 and 13.2 respectively. This shows that Nepal is an import oriented economy with limited export base.

The percentage contribution of import duties to custom duties ranges from 68.5 to 95.8 percent throughout the study period, lowest for the FY 2003/04 and highest for the FY 2013/14. Similarly, the percentage contribution of export duties to custom duties ranges from 0.7 to 8.1

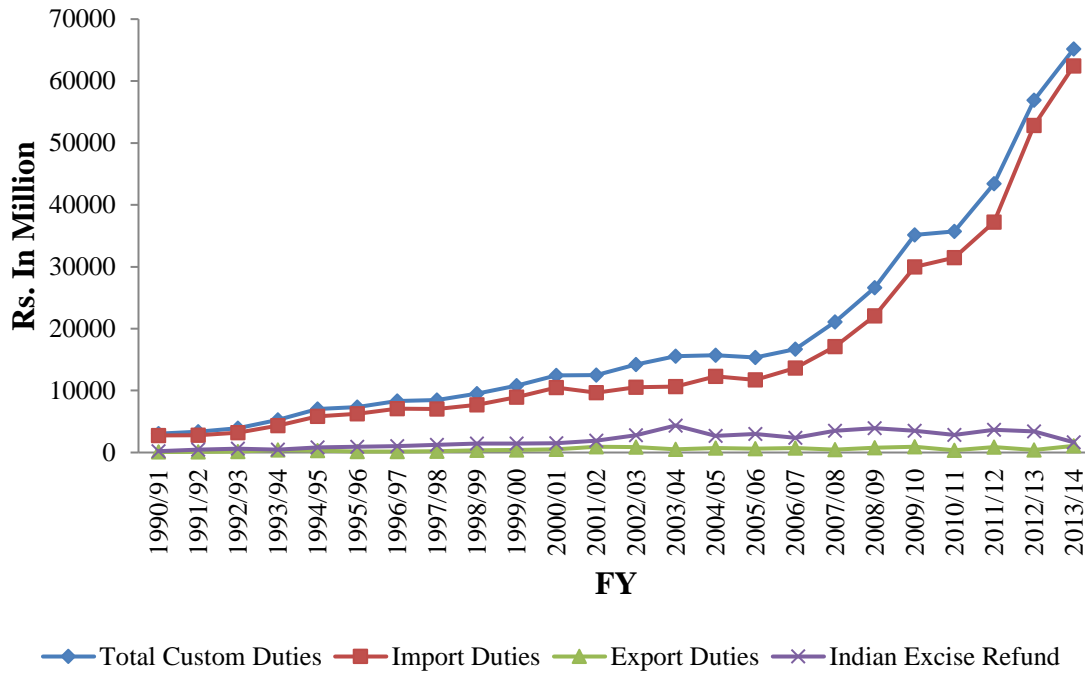
percent over the study period, lowest for the FY 1991/92 and highest for the FY 2010/11 respectively. Besides, the percentage contribution of Indian excise refund to custom duties ranges from 2.5 to 28.0 percent, lowest for the FY 2013/14 and highest for the FY 2003/04.

The amount of import duties has increased fluctuating from Rs. 2753.0 (FY 1990/91) to Rs. 62453.3 million (FY 2013/14). In the same manner, the amount of export duties has increase from Rs. 78.5 (1990/91) to Rs. 1069.8 million (FY 2013/14), but the fluctuation in this case is more than that on import duties. Furthermore, the amount of Indian excise refund was lowest for the FY 1990/91 with Rs. 212.8 million and has harnessed the highest magnitude for the FY 2003/04 with Rs. 4360.2 million.

Finally, the composition of custom duties shows that the amounts of imported goods and services are far more than exported amounts of goods and services. This can also be reflected by huge trade deficit/GDP ratio and lower percentage of export-import ratios. Economic survey 2014/15 had shown that the trade deficit/GDP ratio for the FY 2013/14 is -32.1 percent and export-import (E/I) ratio for the same FY is 12.7 percent. From the above facts it is clear that Nepal is exporting less and importing more, thus such trends can be minimized by industrialization of the economy.

Graphically, the composition and trend of custom duties has shown in figure 4.7, which clearly indicates that import duties had played a dominant role over export duties and Indian excise refund, because the gap between the line of custom duties and import duties are minimum as compared to other two lines. Here, all the four lines had shown nonlinear trend over the study period but, the fluctuation is more on Indian excise refund.

Figure 4.7 Compositions and Trend of Custom Duties



CHAPTER V

RESPONSIVENESS AND PRODUCTIVITY OF TAX YIELDS IN NEPAL: AN EMPIRICAL ANALYSIS

5.1 Estimation of Elasticity Coefficients of Nepalese Taxes

Table 5.1 shows the elasticity of different revenue heads of taxes. The overall elasticity of the total revenue is 0.66, which is significant at 1.0 percent level. The high level of adjusted R^2 with value of 0.95 indicates that 95 percent of total revenue is influenced by GDP. F and t statistics are significant at 1.0 percent level implies that the model is best fitted and the relation is reliable. That means the influence of any other independent variable to total revenue is insignificant. Standard error with value 0.03 shows that the coefficient is statistically significant.

The elasticity coefficient of total revenue shows that 1.0 percent change in GDP causes 0.66 percent change in total revenue. In other words, as the GDP in Nepal grew by 4.6 percent per annum during the period 1990-2014 (Economic Survey, 2000/01 to 2014/15) then total revenue on an average should have increased at a rate of 3.0 percent (i.e., 66 percent of 4.6 percent growth) per year, keeping discretionary change constant. In the period 1975-2005, the elasticity coefficient of total revenue was 0.59 (Timsina, 2005). Clearly, shows that the natural growth of total revenue between the periods under study (1990-2014) has increased but not significantly.

Similarly, for tax revenue the tax to income elasticity coefficient is 0.68 implies that the tax system yielded a 0.68 percent change in tax revenue, as a result of automatic change, for every 1.0 percent change in GDP. Thus a decreasing proportion of incremental income was transferred to the government in the form of tax revenues, meaning that the tax system in Nepal is inelastic. Furthermore, non-tax revenue has an elasticity coefficient of 0.51, which implies that, every one percent change in GDP cause to change only 0.51 percent in non-tax revenue. The elasticity coefficient is significant at one percent level of significance with higher value, 0.86 of adjusted R^2 .

Besides, the elasticity coefficient for direct tax is 0.75 with satisfactory value of adjusted R^2 , 0.95. Clearly shows that direct tax revenue changes by 0.75 percent as a result of 1.0 percent change in GDP, after adjusting for discretionary changes. The result is significant at one percent level of significance. Similarly, the coefficient of elasticity for indirect tax is 0.66 implies that

the tax system yielded a 0.66 percent change in indirect tax revenue, as a result of automatic change, for every one percent change in GDP. The coefficient is significant at 1.0 percent level of significance with 0.93 value of adjusted R^2 , confirms that 93 percent change in indirect tax revenue is caused by the change in GDP and rest are due to other factors outside the model considered.

Table 5.1 Elasticity coefficient (β) of different tax heads for whole sample period

Dependent Variable	Independent Variable (Base)	Coefficient (β)	\bar{R}^2	Standard Error	t	F	D-W Test
TR	GDP(Y)	0.66	0.95	0.03	21.27	452.44	0.37
TXR	GDP(Y)	0.68	0.94	0.03	19.56	382.69	0.32
NTR	GDP(Y)	0.51	0.86	0.04	12.32	151.87	0.94
DT	GDP(Y)	0.75	0.95	0.03	21.33	455.08	0.53
IDT	GDP(Y)	0.66	0.93	0.03	18.03	325.15	0.33
IT	GDP(Y)	0.78	0.93	0.04	18.49	341.96	0.43
LRR	GDP(Y)	0.51	0.54	0.09	5.33	28.45	0.71
ST	GDP(Y)	0.60	0.81	0.05	10.14	102.98	0.21
CD	GDP(Y)	0.69	0.96	0.02	27.18	739.25	0.97
IMD	GDP(Y)	0.69	0.94	0.03	19.07	363.81	0.74
ED	GDP(Y)	0.13	0.02	0.10	1.29	1.68	1.55
EXD	GDP(Y)	0.51	0.91	0.03	15.59	243.32	0.58

Source: Calculation based on data in Appendix- II

Moreover, the tax to income elasticity coefficient for income tax has the value of 0.78, highest among other tax heads, but also is less than one implies that despite of having highest value of coefficient is still inelastic in nature. For the period 1975-2005, the elasticity coefficient of income tax was 0.41 (Timsina, 2005) which is approximately half of the present coefficient indicates that the natural growth in income tax has increased significantly during the period under study. This may be due to the reasons that many private limited companies, foreign airlines, bank and financial institutions were established and fall in the tax net and also there has been increase in income per capita of Nepalese people. Since higher levels of income per capita

are associated with higher revenue to GDP ratios. Lower the income per capita, the lower the personal income tax (PIT) collection (Perry et. al. 2006).

Apart from this, land revenue and registration has the elasticity coefficient of 0.51 indicating that only 0.51 percent change is accompanied by every 1.0 percent change in GDP. Also the value of adjusted R^2 is 0.54 shows that only 54 percent of variation in land revenue and registration is explained by GDP and rest are due to other factors, not included in model. Low compliance rate, various exemptions and un-updated tax laws for land revenue are the principal reasons for low elasticity.

Furthermore, the coefficient of elasticity for sales tax/VAT is 0.60 implies that tax system yielded a 0.60 percent change in sales tax, resulting from economic activity only (result of automatic change only), for every one percent change in GDP. Thus a decreasing proportion of incremental income was transferred to the government in the form of sales tax. For the period, 1975-2005 the coefficient of elasticity was 0.55 (Timsina, 2005), clearly shows that there is only a little improvements in a natural growth of sales tax, leaving a greater scope for its improvements.

Similarly, custom duties and import duties have the same value of elasticity coefficient i.e. 0.69 with sufficiently high value of adjusted R^2 0.96 and 0.94 respectively. This clearly shows that 96 percent variation in custom duties and 94 percent variation in import duties is explained by GDP. The low responsiveness of import duties and ultimately of custom duties are mainly due to the various leakage, informal trade between Nepal and India, corruption and inefficiency of custom administration, under invoicing of bills, decrease in tariff rates, composition of the imports (for example, majority of raw materials and capital goods which attract low duties), despite of continuous increase in trade volume. For the period 1975-2005 the elasticity coefficient of import duties was 0.54 (Timsina, 2005), clearly shows that there has been slightly improvements in import duties collection. The reason is that the volume of imports has been increased continuously due to heavy inflow of remittance from abroad, which is unlikely to occur always.

Among all, the elasticity coefficient of export duty is very discouraging with the value of 0.13, lowest among all the revenue heads and also have very unsatisfactory value of adjusted R^2 , 0.02 implies that only 2.0 percent of variation in export duty is explained by GDP and rest are due to other factors. This clearly shows that the natural growth of export duty is not responsive because

for every 1.0 percent change in GDP there is only 0.13 percent change in export duty. Export duty have very low elasticity for the reason that export volume is continuously declining despite of various incentives (VAT exemption, low tariff rates, etc) given by the government to the exporting firms and industries. After accession to WTO in 2004, Nepalese products must maintain the minimum quality standards which could not have been possible for Nepalese products. Also the export to GDP ratio is declining continuously. For the FY 2013/14 it was 4.7 and is estimated to remain in 4.0 percent for the FY 2014/14. (Economic Survey, 2014/15).

Similarly, excise duties have an elasticity coefficient of 0.51 with the value of adjusted R^2 0.91, indicates that 91 percent variation in excise duty is explained by GDP. The coefficient is significant at 1.0 percent level of significance. For the period 1975-2005, the elasticity coefficient for excise duty was 0.49 (Timsina, 2005) clearly shows that there is only a minor improvements in elasticity. Thus the normal or automatic growth of excise duties is sluggish. Usually low level of industrialization, inefficient administration, various exemptions and leakages in revenue collection may be the prominent reason behind the non-responsiveness of excise duty over the period.

Thus, elasticity less than unity of all tax heads with respect to GDP implies that automatic growth of revenue is not sufficient and it suggests that there is plenty of scope to enhance revenue receipts from various sources.

5.2 Estimation of Buoyancy Coefficient of Nepalese Taxes

Table 5.2, shows the buoyancy of different revenue heads. The buoyancy of total revenue is 1.26 with very high level of adjusted R^2 , 0.99 indicates that 99 percent variation in total revenue is explained by GDP. The result is significant at one percent level. The usual t and F test are significant at one percent level signifies that the model is best fitted and the relation is reliable. That means the influence of any other independent variable to total revenue is insignificant. Standard error with value 0.01 shows that the coefficient is statistically significant.

The buoyancy coefficient of total revenue shows that the tax system yielded a 1.26 percent change in total revenue, as a result of both automatic change and discretionary policy, for every 1.0 percent change in GDP. Thus a increasing proportion of incremental income was transferred to the government in the form of taxes, implying that the tax system is buoyant. In the period

1975-2005, the coefficient of buoyancy for total revenue was 1.14 (Timsina, 2005) implies the slight improvement in the coefficient of buoyancy.

Table 5.2 Buoyancy coefficient (β_1) of revenue heads for the whole sample period

Dependent Variable	Independent Variable (Base)	Coefficient (β_1)	\bar{R}^2	Standard Error	t	F	D-W Test
TR	GDP(Y)	1.26	0.99	0.01	95.02	9029.56	1.48
TXR	GDP(Y)	1.31	0.99	0.01	76.23	5811.34	1.10
NTR	GDP(Y)	1.03	0.96	0.04	25.34	642.38	1.11
DT	GDP(Y)	1.55	0.99	0.02	52.92	2800.84	1.09
IDT	GDP(Y)	1.24	0.75	0.14	8.44	71.35	2.01
IT	GDP(Y)	1.66	0.98	0.04	35.87	1287.10	0.60
LRR	GDP(Y)	0.94	0.87	0.07	12.73	162.20	0.87
ST	GDP(Y)	1.29	0.99	0.02	52.34	2739.93	0.72
CD	GDP(Y)	1.07	0.98	0.02	40.41	1633.45	1.00
IMD	GDP(Y)	1.09	0.98	0.03	34.10	1163.36	0.92
ED	GDP(Y)	0.69	0.53	0.13	5.19	26.98	1.16
EXD	GDP(Y)	1.43	0.97	0.04	32.49	1055.94	0.41

Source: Calculation based on data in Appendix-I

Similarly, the buoyancy coefficient for total tax revenue is 1.31 with the value of adjusted R^2 , 0.99 denotes that 99 percent variation in tax revenue is explained by GDP. Also the coefficient is significant at one percent level of significance. The coefficient of buoyancy for total tax revenue shows that for every 1.0 percent change in GDP there occurs 1.31 percent change in total tax revenue due to both automatic and discretionary measures. Since the national income in Nepal for the period 1990-2014 grew by 4.6 percent per annum and if the automatic changes and the effects of tax changes are included, the buoyancy coefficient indicates that tax revenue collection on average should go up by 6.0 percent (i.e., 131 percent of 4.6 percent). For the period 1975-2005, the buoyancy coefficient for total tax revenue was 1.12 (Timsina, 2005) clearly shows that the effect of discretionary change had increased to mobilize revenue.

Furthermore, the coefficient of buoyancy for non-tax revenue is 1.03 shows that slightly increasing proportion of incremental income was transferred to the government in the form of non-tax revenue. The usual t, F test and the value of standard error shows the coefficient is statistically significant at one percent level. The value of adjusted R^2 is 0.96 shows that 96 percent of total variation in non-tax revenue is explained by the independent variable, GDP.

Moreover, for direct tax the buoyancy coefficient has a value of 1.55, means the tax system yielded a 1.55 percent change in direct tax revenue, as a result of both automatic change and discretionary policy, for every 1.0 percent change in GDP. Thus, direct tax is buoyant because an increasing proportion of incremental income was transferred to the government in the form of direct tax over the period. On the other hand, indirect tax buoyancy coefficient is 1.24 also greater than unity shows that it is also buoyant, with satisfactory value of adjusted R^2 , 0.75. By comparing the buoyancy coefficient of direct and indirect tax, it seems clear that government policy has frequently changed for direct tax than for indirect tax to mobilize revenue. Higher discretionary change to increase direct tax may laid incentive to evade tax and also may affect in the choice of work and leisure. Economy where literacy rate and general awareness is very low more discretionary change in direct tax would result low revenue, which is the common case for Nepal.

Besides, the income tax has the buoyancy coefficient of 1.66, highest among all other revenue heads. The principal reason behind this are: several types of income were brought into the tax net, many firms, industries, bank and financial institutions established was brought into the tax net. Interest, dividend and social security tax were introduced and that most of the sources of income, which were exempted earlier, were brought into the tax net today. Moreover, the income tax rates were changed frequently through the annual budget. These developments in tax structure may lead to the improvement in income tax buoyancy as compared to the period 1975-2005, with buoyancy 1.37 (Timsina, 2005).

Furthermore, land revenue and registration has the coefficient of buoyancy 0.94, less than one indicates that for every one percent change in GDP there is only 0.94 percent change in land revenue and registration tax. Thus, a decreasing proportion of incremental income was transferred to the government in the form of land revenue and registration tax, implying that tax system for land revenue and registration is less buoyant.

Similarly, sales tax/VAT has the buoyancy coefficient of 1.29. Although 60 percent of VAT revenue is on imported goods and the volume of import increased sufficiently throughout the study period due to remittance fueled economy, combined with various discretionary measures adopted by government to mobilize the revenue through VAT, the buoyancy coefficient did not have improved significantly as compared to the period 1975-2005. For this period, the buoyancy coefficient was 1.14 (Timsina, 2005). Sluggish improvement in buoyancy coefficient may follows the reasons like: few registrants (less than five lakhs for VAT) and about 80 percent of VAT registrants actually file returns, various leakages on import, inefficient administration, exemptions and tax holidays.

Moreover, custom duties have the buoyancy coefficient of only 1.07 signifies that 1.07 percent of custom duties transferred to government account for every 1.0 percent change in GDP. On the other hand, buoyancy coefficient for import duties is 1.09 indicates that when the effects of automatic growth and discretionary changes are taken into account, the import duties collection go up by 1.09 percent for 1.0 percent change in GDP. Both the coefficients are significant at one percent level of significance with satisfactory adjusted R^2 value 0.98. For the period 1975-2005, the coefficient of buoyancy for import duties was 1.05, clearly shows that very little improvement in buoyancy had occurs despite of continuous increase in the volume of import. Declining tariff rates due to liberalization, leakages, informal trade between Nepal and India, corruption in administration, may be the principal causes to low improvements in coefficient.

Besides, among other tax heads export duties have the coefficient of buoyancy 0.69, lowest among all other tax heads. This denotes that import duties yielded a 0.69 percent change in tax revenue, as a result of both automatic change and discretionary policy, for every 1.0 percent change in GDP. Thus, a declining proportion of incremental income was transferred to the government in the form of export duties implying that the tax system is less buoyant for export duties. Continuously declining volume of export to GDP ratio in spite of, various incentives (like tax exemption, tax holidays) provided by the government and low internal production of quality goods and services are some principal cause to low buoyancy coefficient for export duties.

Furthermore, excise duties have the buoyancy coefficient of 1.43 with sufficiently high level of adjusted R^2 , 0.97 shows that 97 percent of variation in excise duties is explained by GDP and rest are due to other factors not included in model. The coefficient is significant at one percent

level of significance. The usual t and F test and the value of standard error shows that the model is best fitted and the relationship is reliable. For the period 1975-2005, the buoyancy coefficient for excise tax was 0.98 (Timsina, 2005), clearly shows that there has been high improvements in buoyancy coefficients over the periods due to various discretionary policy adopted by the governments through annual budget (like change in rates, base, etc.). As excise duties fall on the group of indirect tax, it may increase the price of goods and services leading to inflation and thus deteriorating the equity and efficiency objective of taxation. Excessive dependence on discretionary measures to mobilize revenue must be checked in accordance with the objective of taxation.

5.3 Contribution of Discretionary Measures

The elasticity coefficients of different tax heads with respect to GDP which are less than unity and with high value of buoyancy coefficient gives contribution of discretionary measures in revenue collection. The result from table below shows that substantial effort has made by the government to collect the required amount of revenue during the study period.

Table 5.3 below shows the contribution of discretionary measures adopted by the government to mobilize the revenue. From the table, it is clear that excise duty needed a huge contribution from the government effort to collect the total amount of excise revenue, having the discretionary effort of 0.92. As the national income in Nepal grew annually by 4.6 percent during the period 1990-2014, the net effect of discretionary change made for excise duties was 4.4 percent (92 percent of 4.6 percent annual growth). That is, excise duties had grown 4.4 percent annually due to the effect of discretionary change made, given the elasticity and buoyancy coefficient for excise duties 0.51 and 1.43 respectively. Thus, the tax policy was effective in keeping revenue collections at par with increase in national income.

Table 5.3 Contribution of Discretionary Measures

Tax Heads	Independent Variable	Buoyancy Coefficient	Elasticity Coefficient	Discretionary Efforts
TR	GDP (Y)	1.26	0.66	0.60
TXR	GDP (Y)	1.31	0.68	0.63
NTR	GDP (Y)	1.03	0.51	0.52

DT	GDP (Y)	1.55	0.75	0.80
IDT	GDP (Y)	1.24	0.66	0.58
IT	GDP (Y)	1.66	0.78	0.88
LT	GDP (Y)	0.94	0.51	0.43
ST	GDP (Y)	1.29	0.60	0.69
CD	GDP (Y)	1.07	0.69	0.38
IMD	GDP (Y)	1.09	0.69	0.40
ED	GDP (Y)	0.69	0.13	0.56
EXD	GDP (Y)	1.43	0.51	0.92

Source: Calculation based on the data in table 5.1 and 5.2.

Similarly, income tax has the discretionary effort of 0.88 indicates that major portion of income tax was received through discretionary measures rather than automatic growth, as the value of discretionary efforts exceeds the elasticity coefficient. On the other hand, direct tax needed 0.80 discretionary efforts from the government while mobilizing direct tax revenue. Moreover, the lowest degree of discretionary effort was applied by the government in custom duties with value of 0.38, followed by import duties, land revenue and registration, non-tax revenue, export duties, indirect tax, total revenue, tax revenue and sales tax/VAT. Thus, higher value of discretionary effect signifies that government has made tremendous effort to mobilize revenue through improving tax system in various ways.

The overall analysis shows that there is less elastic and more buoyant tax system in Nepalese economy. The higher discretionary effect signifies more burdens to the taxpayers, which is not suitable on the ground of equity and fairness. The less elastic tax system causes many problems like lack of revenue surplus for development, widening resource gap, etc. To bridge the gap, there is increasing reliance on foreign loan which is not on favor of the country. So the government has to focus on the implementation of policies to raise the government revenue by automatic response of tax system rather than that of discretionary efforts. Though, it is also a chief part of increasing revenue.

CHAPTER VI

FINDINGS, CONCLUSIONS AND RECOMMENDATION

6.1 Summary of the Findings

A time series analysis of tax elasticity and buoyancy reveals an inelastic tax structure in Nepal for the period 1990-2014. Taxes are not responsive to change in income with all elasticity coefficients reporting below unity. A progressive tax system needs to have at least greater than unitary value of the coefficient of elasticity (Adhikari, 1995). And a higher degree of progressivity in the tax structure would result in an elasticity greater than 2 (Dahal, 1984). The major findings of the study follow as:

- 1) The tax to income elasticity and buoyancy coefficients for income tax has the value of 0.78 and 1.66 respectively, highest among other tax heads.
- 2) The coefficient of elasticity for sales tax/VAT is 0.60 and that of buoyancy is 1.29.
- 3) Export duty has very low elasticity. Also, the discretionary change made by the government has not influenced much to export duty which is seen by the low buoyancy coefficient with value of 0.69.
- 4) Custom duties and import duties have the same value of elasticity coefficient i.e. 0.69.
- 5) Indirect tax which occupies about 72 percent share in total revenue has the elasticity and buoyancy coefficient of 0.66 and 1.24 respectively. Similarly, the elasticity and buoyancy coefficient of direct tax is 0.75 and 1.55 respectively.
- 6) The elasticity coefficient of excise duty reports below unity with the value of 0.51 and its buoyancy is 1.43. The higher difference between elasticity and buoyancy coefficients clearly shows that government is depending excessively on discretionary measures rather than the automatic response of excise duty.
- 7) Tax revenue has the buoyancy and elasticity coefficient of 1.31 and 0.68 respectively. On the other hand, non-tax revenue has reported, 0.51 and 1.03 respectively for elasticity and buoyancy.
- 8) Land revenue and registration has reported very low value for both the elasticity and buoyancy coefficient (other than export duty).

- 9) The elasticity and buoyancy coefficient for total revenue is 0.66 and 1.26 respectively. The higher difference between elasticity and buoyancy coefficient signifies that there is a greater scope of natural growth to mobilize the revenue.
- 10) Thus, the entire dependent variables included in the model have less than unitary value of elasticity coefficients with buoyancy greater than unity except for land revenue and registration and export duties.
- 11) Resource gap has been increasing continuously over the study period thus shows the increasing dependence on foreign aid to fulfill the gap between revenue and expenditure.
- 12) GDP and tax revenue both are increasing over the year but tax revenue is not increasing as much as the GDP.
- 13) Recurrent expenditure is higher in comparison to capital expenditure. Also the magnitude of total revenue and recurrent expenditure is very close shows that low revenue surplus for development activities.
- 14) Tax revenue had played a dominant role in the components of government revenue. The contribution of tax revenue in total revenue is 84.7 percent while the share of it is 16 percent of GDP for the FY 2013/14.
- 15) In total revenue direct tax contributes 27 percent of GDP while that of indirect tax contribute about 67.7 percent in FY 2013/14. The share of direct tax in total tax revenue has increased sufficiently throughout the study period, from 15.7 percent in 1990/91 to 27.1 percent in 2013/14. Thus, the progressivism in tax system has realized significantly.
- 16) In the composition of direct tax revenue income tax has the dominant contribution over other direct tax. It contributes about 77.6 percent in FY 2013/14.
- 17) The share of custom duties over indirect tax has decreased while that of the share of VAT and excise duties has increased gradually throughout the study period. Initially, the share of custom duties in indirect tax was 44.1 percent and in the FY 2013/14 it has decrease sufficiently and reached at 30.8 percent.
- 18) In the composition of custom duties import duties contributes about 80.0 percent on an average throughout the study period. Thus, import duties had played a dominant role over export duties and Indian excise refund.

Compared to the period 1975-2005, the elasticity coefficients of tax during the period under study did not reveal significant differences except for income tax. However, the higher

coefficients obtained through the buoyancy analysis signifies the role of discretionary measures in maintaining a steady source of tax revenue throughout the study period. Although, it is a prominent factors to mobilize revenue, excessive dependency over discretionary changes would erode the efficiency of the economy by tax evasion, corruption, increase non-compliance rate, discourage private investment, higher inflation (rate increase in indirect tax), hampers in willingness to work and invest, ultimately reducing the revenue collection.

6.2 Conclusions

The current study sheds light on the revenue performance of the country. In conclusion, the study revealed that Nepal has a buoyant tax system. This implies that budgetary changes have increased the responsiveness of tax revenues to income changes. It was found that discretionary tax measures have had an overall impact on growth in total revenue over the period. However, the automatic response of revenue to changes in the tax base was found to be less than unity. The study further revealed that Nepal has an inelastic tax structure. Taxes are not greatly responsive to changes in income with the elasticity coefficient registering below unity.

The low elasticity observed in the Nepalese tax system is explained through factors such as exemptions, tax incentives, duty waivers, low compliance and vibrant sectors of the economy which are not subject to taxation. Therefore, the automatic responsiveness of taxes to income is seen to be low. Although reforms undertaken improved tax elasticity (as compared to the period 1975-2005), it was not sufficient in generating adequate revenue required to finance the budgets. This implies that the ability of the economy to increase revenue on its own remains fairly weak requiring discretionary measures coupled with increased borrowing to make up for the shortfalls in revenue. This leads to the conclusion that, discretionary tax measures impact favorably on total tax revenue. It can therefore be deduced that a big percentage of tax revenue comes from discretionary tax policy and not from pure responsiveness of tax revenue to changes in national income.

Moreover, the estimation of elasticity's and buoyancies for the major taxes and NTR identifies tax sources that have highest revenue generating potentials. The study further indicates that with uninterrupted economic growth and changes triggered by the discretionary measures, revenue structure of the country experience the structural shift where the role of direct tax and VAT has become more prominent than that of the customs duties. In this context, government needs to

design its reform programs, especially focusing on these two revenue categories. In parallel, extended efforts could be fruitful to extract consistent revenue earnings from the NTR, whose share in the total revenue stays around 2.3 per cent of GDP (Economic Survey, 2014/15).

6.2 Recommendations

On the basis of the findings of the present study, the following suggestions have been recommended for a sound and effective tax system, which will help to increase the revenue responsiveness and productivity of the Nepalese tax system:

- 1) The highest difference between buoyancy and elasticity of income tax suggests that government is imposing excessive tax on the regular tax payers while there exists greater scope to bring a great majority of the people, who are able to pay tax, in the tax net. For this to achieve the professional and entrepreneurial income must be brought in tax net effectively, the poor design in PIT, for example; pension contributions or interest expenditures are deducted, while pension income and interest income are exempted, must be checked. Also volunteer disclosure income scheme (VDIS) should be implemented cautiously. This will help to widen the tax net of income tax and help to bring unproductive capital in the main stream of productive activities. Build CITs that are simple, broad based and competitive by standards and set effective tax rates that are reasonably low and uniform across the investment. A single statutory rate is recommended.
- 2) Direct tax bases can be broadened by; expanding the types of income covered by taxes and reducing tax preferences. Similarly, for corporate income tax (CIT), the tax base can be expanded by including more firms but mainly it is expanded by reducing deductions, exemptions and tax holidays.
- 3) With regard to VAT, developing a sound billing system, increase consumer's consciousness on demanding bills, easing the tax deduction and VAT refund process, developing cooperative and positive thinking of VAT personnel to correct the mistakes of the sellers on maintaining the accounts, relevant training for the VAT personnel, right placement of personnel as well as less frequent transfer policy are some of the important measures that need to be taken.

- 4) Export duty has very low elasticity due to VAT exemption and low tariff rates and low volume of export. Its responsiveness and productivity can be increased by providing the skilled human resources, raw materials, better technologies, securities and power in spite of VAT exemption and low tariff rates.
- 5) As the import tax is not responsive to the changes (increase) in the value of import, the need for enhancing the efficiency of custom administration to control the revenue leakage is highly felt. Improvement in custom valuation, discouraging the over-invoicing and under-invoicing, penalizing the wrong declaration of imported goods and miss-utilization of pass book facility at custom points, checking the use of duplicate documents, minimizing LC (Letter of Credit) related frauds, enhancing the ASYCUDA, developing a means to exchange information between the Indian and Nepalese custom authorities, and enhancing the activities of custom patrolling groups are some of the major mechanisms of enhancing the custom reforms.
- 6) Agricultural income, which has been left outside the tax net due to non-economic issues, should be brought under the tax net. As agriculture sector contributes about 32.1 percent to the GDP (Economic Survey, 2014/15), there is no reason to keep this sector outside the tax net. In spite of exemption in agricultural sector incentives like soft loans, irrigation facilities, modern technologies, etc. are some strategies to increase agricultural products.
- 7) The elasticity coefficient of excise duty reports below unity. Increasing the level of industrialization, improving administrative efficiency along with minimal exemptions and leakages in revenue collection are the prominent measures to increase its responsiveness.
- 8) Land revenue and registration has reported very low value for both elasticity and buoyancy coefficient (other than export duty). For this to increase the compliance rate must be increase along with low exemption and deduction with updated tax laws.
- 9) Moreover, to increase the overall elasticity and buoyancy the measures except above prescribed that should be followed are; tax policies need to be framed against the background of two important factors-efficiency and equity, increase in the administrative capacity, broaden the tax base, all services through single window and the reform like the shift from organizations focused on the type of tax they collect to functional (for example, audit, legal or collection) or client-based organization (for example, large

taxpayers unit) must be formed, incentives like exemptions, deduction, tax holidays and preferences must be taken as a way to address the proven market failures not in response to politically strong pressure group, simplification of legal procedure to resolve tax dispute must be considered, use of information technology in tax collection procedures are some crucial measures to be considered.

- 10) As liberalization is on phase in Nepal, the loss of tariffs in international trade must be balanced with domestic sources (for example; direct tax, VAT, excise duties). The pace of industrialization must be increased which will help in mobilizing revenues. This will help to bridge the increasing resource gap and ultimately the dependence on foreign aid will be minimized.
- 11) As GDP and tax revenue both are increasing over year but tax revenue is not increasing as much as the GDP. This clearly shows that all the economic activities within an economy are not contributing towards tax revenue. Since the initial level of urbanization and large share of service sector in GDP creates large unorganized and informal sector within an economy, which hampers in tax revenue collection. So to address this problem unorganized and informal economy must be minimized, the minimum quality standards must be set by the government to plunge in service sector combined with tax awareness program.
- 12) As the recurrent expenditure is higher in comparison to capital expenditure the unnecessary recurrent expenditure must be minimized and capital expenditure must be increased to meet the targeted goals sets by the government. Because it is the capital expenditure which increase the pace of economic development and ultimately the revenue receipts from various sources.
- 13) Resource gap must be minimized by increasing the receipts through tax and non-tax revenue. Thus reduces the excessive dependence on foreign aid to fill up the budgetary gaps.
- 14) Tax awareness programs should be organized by the authority to develop positive attitudes of the people towards tax system. Also, the willingness to pay taxes may rise with the government's provision of quality social services with transparency and accountability.

15) There should be political stability in nation. Political instability creates unfriendly environment for economic activities which is a great set-back for revenue collection.

6.3 Concluding Remarks

Revenue of Nepal is relatively low, averaging about 14.5 percent of GDP (average of 12 years, from FY 2003/04 to FY 2014/15), while the infrastructure and social development needs are huge. Increasing revenues would create fiscal space for more public investment in physical and human capital and lead to faster poverty reduction and more rapid progress towards the Millennium Development Goals (MDGs). With significant requirements for fiscal space, Nepal need to seriously consider further measures to strengthen governance, lower inflation and improve macroeconomic stability, all of which are, *ceteris paribus*, conducive to collecting more revenue.

The conclusions from these observations are that, in Nepal, tax bases are eroded by exemptions and other tax preferences and tax administration needs to be strengthened, cause for low elasticity, and higher buoyancy coefficients indicates that government had made various efforts in collecting revenue. Only the discretionary measures cannot generate more revenue forever. Automatic measures for generating tax revenue are of the great essence in this regard. Moreover, regarding non-tax revenue, it is important that user charges for publicly provided goods and services should reflect the cost of their provision.

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APPENDIX-I

Master Table: GDP, Total Revenue, Revenue from Direct and Indirect Taxes and Individual Tax (Rs. In Million)

Fiscal Year	Total GDP	Total Revenue	Tax Revenue	Non-tax Revenue	Direct Tax	Indirect Tax	Income Tax	Land Revenue and Reg.	Sales Tax/VAT	Custom Duties	Import Duties	Export Duties	Excise Duties
1990/91	116127.3	10729.5	8176.6	2553.8	1285.0	6891.6	746.2	538.8	2647.0	3044.3	2753.0	78.5	1200.3
1991/92	144933.1	13512.7	9875.8	3636.9	1487.3	8388.5	855.1	632.2	3610.3	3358.9	2795.0	114.7	1419.3
1992/93	165349.9	15148.4	11662.6	3485.8	1879.7	9782.9	1124.8	754.9	4385.2	3945.1	3178.0	140.7	1452.6
1993/94	191596.0	19580.9	15371.5	4209.2	2657.4	12714.1	1824.3	833.1	5866.6	5255.2	4356.0	427.0	1592.3
1994/95	209974.0	24575.2	19660.0	3704.5	3797.0	15863.0	2640.6	937.7	7187.6	7017.9	5840.0	332.5	1657.5
1995/96	239388.0	27893.1	21668.0	5131.2	4585.2	17082.8	3205.4	1079.6	7809.5	7327.4	6247.0	149.9	1945.9
1996/97	269570.0	30373.5	24424.1	5086.2	5233.6	19190.5	3829.4	1015.4	8579.3	8309.1	7093.0	167.0	2302.1
1997/98	289798.0	32973.9	25926.6	5749.9	6015.3	19911.3	4499.0	1006.7	8524.9	8499.9	7019.0	217.1	2886.5
1998/99	330018.0	37251.0	28753.0	6256.4	7296.8	21456.2	5646.5	996.3	8986.2	9517.5	7698.0	378.0	2952.5
1999/00	366251.0	42893.8	33148.3	7558.4	8551.0	24597.3	6757.0	1013.3	10651.3	10813.3	8960.0	432.5	3132.7
2000/01	394052.0	48893.6	38865.0	7971.5	9769.7	29095.3	9153.9	607.8	12811.5	12479.0	10465.0	492.6	3804.8
2001/02	406138.4	50445.5	39332.2	9226.1	10039.3	29292.9	8903.6	1121.3	12826.7	12492.6	9678.4	917.4	3973.3
2002/03	437545.8	56229.8	42587.0	12103.0	10105.8	2418.2	8132.2	1414.2	13467.3	14236.4	10567.7	855.7	4777.5
2003/04	474918.5	62331.0	48175.7	12304.8	11901.9	36273.8	9504.0	1697.5	14498.2	15554.2	10666.9	527.1	6221.4
2004/05	508651.0	70122.7	54106.1	14770.3	13061.3	41044.8	10456.0	1799.2	18897.0	15701.5	12299.1	697.9	6446.3
2005/06	557869.6	72282.1	57427.0	13341.5	13961.5	43465.5	10933.6	2180.3	21615.4	15343.7	11744.6	625.0	6506.4
2006/07	675859.0	87712.1	71168.0	15518.5	18979.7	52188.3	15730.0	2238.7	26145.4	16699.3	13626.1	708.7	9343.6
2007/08	755256.8	107622.5	85147.1	19794.7	23070.8	62076.3	19067.5	2933.0	29784.6	21062.6	17128.2	445.6	11229.2
2008/09	909528.0	143474.5	117051.8	22892.2	34552.6	82499.2	27479.7	5248.4	39604.2	26622.5	22056.5	793.7	16272.5
2009/10	1083415.0	179945.8	159785.4	18206.5	41760.5	114530.2	33832.1	5510.8	55063.5	35151.6	29964.7	907.9	24315.1
2010/11	1248481.0	199819.0	177227.2	21149.2	48640.9	124114.3	42066.3	3552.0	61863.5	35708.6	31480.3	358.0	26542.2
2011/12	1387482.0	244561.1	211722.6	32651.5	66906.7	144811.6	52880.0	3587.5	71160.0	43395.4	37220.2	861.5	30256.2
2012/13	1522852.0	296189.0	259573.0	36156.1	81937.5	177206.1	64178.3	5309.0	84047.2	56914.9	52825.3	405.3	36244.0
2013/14	1941600.0	354529.4	312621.6	50483.7	84728.5	211713.2	67300.9	8650.9	101110.5	65191.7	62453.3	1069.8	45411.0

Source: Budget Speech, MoF and Government Finance Statistics, NRB.

APPENDIX-II

Adjusted Total Revenue, Adjusted Revenue from Direct and Indirect Taxes and Individual Tax (Rs. In Million)

Fiscal Year	Total Revenue	Tax Revenue	Non-Tax Revenue	Direct Tax	Indirect Tax	Income Tax	Land Revenue and Reg.	Sales Tax/VAT	Custom Duties	Import Duties	Export Duties	Excise Duties
1990/91	10729.5	8176.6	2553.8	1285.0	6891.6	746.2	538.8	2647.0	3044.3	2753.0	78.5	1200.3
1991/92	12974.5	9544.5	3418.8	1574.9	7968.7	940.2	636.1	3331.8	3271.0	2767.6	114.6	1359.9
1992/93	13946.3	10751.1	3185.6	1940.3	8827.6	1205.4	734.3	3845.3	3616.2	2963.8	140.6	1355.5
1993/94	16372.4	12784.7	3577.5	2296.5	10489.2	1462.8	810.4	4702.9	4325.2	3897.8	122.8	1422.0
1994/95	20043.6	15917.0	4109.8	2933.1	12987.3	1937.9	945.4	5818.0	5601.2	5006.8	95.6	1493.7
1995/96	21598.0	16490.2	5138.7	3090.1	13393.0	2066.6	958.8	6126.4	5537.2	5045.0	43.0	1660.1
1996/97	2374.1	16849.3	4504.6	3295.6	13520.6	2318.6	864.6	5785.6	6048.0	5481.0	48.2	1666.8
1997/98	21802.6	16836.7	4979.0	3546.5	13224.2	2533.8	868.0	5286.4	6061.0	5294.2	61.0	1897.1
1998/99	21241.0	15730.2	5609.5	3273.0	12351.2	2363.6	744.4	4417.3	6378.7	5459.2	74.7	1709.7
1999/00	22921.0	16917.5	6123.6	3703.5	13054.5	2725.9	749.7	4497.2	7045.0	6142.4	84.1	1732.9
2000/01	23633.5	17798.6	5884.01	3810.4	13836.7	3021.0	375.4	4602.5	7574.3	6512.8	92.2	1982.2
2001/02	22884.1	17257.6	5659.0	3792.0	13296.6	2861.3	638.2	4378.7	7532.5	5976.4	164.7	1768.4
2002/03	24461.2	17823.7	6038.5	3438.6	14307.0	2478.1	795.9	4360.4	8310.0	6396.2	147.2	1968.5
2003/04	24937.2	18849.9	5326.3	3805.5	14930.9	2716.1	927.0	4599.8	8621.0	6039.8	90.7	1976.5
2004/05	26389.2	19888.9	6041.0	3697.5	16143.0	2587.1	982.6	5593.2	8477.4	6734.0	120.0	1966.1
2005/06	26142.1	20076.4	5456.7	3974.3	15984.6	2508.7	1653.8	6076.2	8126.7	6278.8	107.6	1796.0
2006/07	30013.4	23574.0	5961.9	5076.3	18231.4	3338.4	1751.5	7051.9	8483.0	6899.7	120.2	2324.6
2007/08	35364.6	26940.4	7445.5	5765.4	20875.0	3726.9	2126.5	7815.4	10405.9	8380.9	76.7	2558.3
2008/09	42946.1	33131.7	8530.0	7556.0	25052.9	4696.3	3299.2	9473.3	12193.3	9804.3	137.0	3113.2
2009/10	48511.0	40753.1	6610.9	7737.0	32697.3	5224.7	2269.4	11942.7	15291.6	14103.8	157.5	3721.2
2010/11	49220.3	40802.2	7426.1	8030.0	32367.8	5732.5	1298.9	12251.8	14369.3	13201.4	61.6	3484.6
2011/12	59796.8	47976.7	11449.9	9872.0	37443.7	7067.8	1285.9	14006.2	16502.7	14843.8	148.2	3945.5
2012/13	72904.6	58738.6	12906.9	12487.8	45287.4	8842.7	1928.1	16472.1	21652.8	19714.3	75.5	4762.9
2013/14	88788.5	69557.4	17676.7	14746.2	53678.9	10365.0	2385.1	19848.7	24295.1	21814.1	169.0	5930.5

Source: Budget Speech, MoF and Government Finance Statistics, NRB.
Calculated by using Sahota method

Appendix-III

Summary of Discretionary Change (DC) for Different Revenue Heads (Rs. In Million)

Fiscal Year	Total Revenue	Tax Revenue	Non-tax Revenue	Direct Tax	Indirect Tax	Income Tax	Land Revenue and Reg.	Sales Tax/VAT	Custom Duties	Import Duties	Export Duties	Excise Duties
1990/91	630.9	598.5	0.0	24.8	593.6	21.1	0.0	158.4	316.0	257.6	0.0	117.8
1991/92	537.8	329.8	217.8	20.0	311.3	18.7	0.0	175.4	87.7	27.4	0.0	54.2
1992/93	622.6	538.8	96.9	70.6	453.4	51.8	20.4	191.2	231.6	184.6	0.0	42.7
1993/94	1795.5	1501.8	294.2	445.1	1077.6	466.9	0.0	400.8	536.5	176.4	304.1	68.6
1994/95	602.0	521.0	79.1	148.4	366.5	144.6	0.0	175.4	212.6	220.4	0.0	-15.0
1995/96	1411.3	1297.9	79.0	586.4	720.9	420.3	168.1	240.6	389.0	386.0	0.0	102.3
1996/97	2767.0	2283.7	492.0	343.3	1944.0	273.4	69.8	1205.9	305.8	306.4	0.0	346.0
1997/98	1953.2	1533.0	422.0	380.6	1155.7	391.8	0.0	695.9	175.1	167.8	0.0	269.8
1998/99	5042.7	4517.0	496.1	1746.8	2842.9	1601.2	170.3	1850.0	569.1	459.6	118.0	352.3
1999/00	2822.4	2227.8	592.3	297.7	1918.6	304.2	0.0	1507.8	108.1	534.9	6.8	134.2
2000/01	4664.4	3983.7	667.9	927.2	3079.6	889.5	47.7	1906.4	925.0	891.6	18.4	193.4
2001/02	3097.3	1644.0	1469.4	354.3	1294.7	271.5	87.2	614.4	175.9	142.3	38.0	442.4
2002/03	2305.4	1963.2	242.0	443.9	1519.9	420.4	0.0	685.0	270.5	209.2	35.4	546.9
2003/04	5005.1	3131.2	1630.7	646.9	2476.4	601.3	49.9	279.4	785.5	688.0	0.0	1421.5
2004/05	4158.2	3273.3	810.9	1371.3	1874.4	1403.5	0.0	1278.5	405.0	405.9	0.0	252.0
2005/06	2811.7	2808.2	0.0	777.6	2034.2	783.9	0.0	1095.8	291.5	276.0	0.0	618.1
2006/07	4718.9	3691.5	981.8	1146.4	2570.8	1181.4	41.2	1009.9	690.0	719.4	0.0	921.2
2007/08	4261.8	3866.0	352.1	1530.7	2358.6	1514.8	65.8	894.5	566.6	575.5	0.0	906.3
2008/09	12769.2	12325.6	224.3	4060.1	8240.0	3207.0	851.6	3557.2	2111.3	2018.2	0.0	2603.4
2009/10	15912.4	15802.8	464.3	4188.9	11413.6	3507.3	645.3	4866.0	1616.5	1814.7	0.0	4757.0
2010/11	17774.5	17244.2	695.8	4809.7	12319.8	4238.4	418.0	5315.4	2617.8	2913.2	0.0	3724.3
2011/12	3347.9	3324.0	42.44	344.3	2971.3	318.0	22.0	432.7	2373.5	2319.4	0.0	192.1
2012/13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2013/14	5787.9	5467.7	65.2	406.7	4988.0	370.5	41.2	586.4	4099.2	4001.2	87.8	290.6

Source: Budget Speech, MoF and Government Finance Statistics, NRB.

Calculated by using Sahota method.