

**THE RELATIONSHIP BETWEEN INCOME TAX AND  
GDP: A CASE OF NEPAL**

**A Thesis**

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## LETTER OF RECOMMENDATION

This thesis, entitled **The Relationship between Income Tax and GDP: A Case of Nepal** submitted by **Rabina Thapa** under my supervision and guidance. I hereby, recommend this thesis for examination to the thesis committee as a partial fulfillment of the requirements for the degree of Master of Arts in Economics. Therefore, I forward it with recommendation for approval and acceptance.

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## **APPROVAL LETTER**

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I take sole responsibility for any errors and discrepancies that might have been occurred in this study.

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## ABBREVIATIONS/ACRONYMS

ADF	Augmented Dickey-Fuller
AIC	Akaike Information Criteria
ARDL	Auto Regressive Distributive Lag
ARMA	Auto Regressive Moving Average
CBS	Central Bureau of Statistics
CUSUM	Cumulative Sum of Squares
CUSUMQ	Cumulative Sum of Squares of Recursive Residuals
ECM	Error Correction Model
EG	Engle-Granger
GDP	Gross Domestic Product
IT	Income Tax
INV	Investment
REM	Remittance
NTR	Non- tax Revenue
TR	Tax Revenue
OECD	Organization for Economic Co-operation and Development
NRB	Nepal Rastra Bank
IRD	In-land Revenue Department
VAT	Value Added Tax
R & D	Research and Development
CIT	Corporate Income-tax
MoF	Ministry of Finance
NPR	Nepalese Rupees

# **CHAPTER - I**

## **INTRODUCTION**

### **1.1 Background of the Study**

Rapid economic growth is today's top priority for every country in the world, and Nepal is no exception to this trend. Nepal aspires to have a self-sufficient economic structure to improve its people's living standards. As a result, a significant amount of revenue will be required to achieve development goals, operate day-to-day administration, maintain peace and security, and promote other public welfare operations. Following that, the government raises funds to fund its regular spending and development programs. Every country wants to improve its status by increasing revenue streams. There are two types of government resources: external and internal. External sources include overseas subsidies, foreign loans, and other financial instruments that are employed for economic development, crisis relief, and productive purposes. Another form of government revenue is internal revenue, which comprises both tax and non-tax revenue. Non-tax revenue is conditional which includes fees, fines, royalties, administration, and commercial gains (Podder, 2018). Customs, excise, and value added tax, as well as corporate income tax and personal income tax, are all domestic sources of revenue.

Taxation is the most powerful tool reserved in the hand of the government. It is the taxation that holds the most control of resources on the country's economy. Taxes are used to fund infrastructure projects like as water, power, and roads, as well as federal and provincial spending of the bodies and other critical social welfare programs. Maximizing revenue from within the country is far safer and more sustainable for developing countries. Taxation not only contributes to the nation's economic development and stability, but also contributes to the equitable distribution of national revenue among its citizens. Taxation is a mandatory but non-penal levy imposed by the government on the profits, income, or consumption of its subjects or citizens. It is also seen as a mandatory and obligatory contribution given by people and businesses to help the government fulfill its obligations (Dandago & Alabede, 2001). Taxes play an important role in the

generation of income and, as a result, in the economic progress of a country. The taxation process is critical, effective, and accountable to the states because it encourages interaction between states and their citizens. Tax administration reforms have the potential to spread to other parts of the government. In terms of transparency and fairness, tax system design is also closely linked to effective domestic and international investment decisions. Strengthening domestic resource mobilization is about more than just raising revenue: it's about designing a tax system that promotes inclusiveness, good governance, and social justice by aligning society's views on appropriate income and wealth inequalities. It is important to note, however, that an effective tax system must always strike the proper balance between government revenue and economic development. A tax system with relatively higher tax rates tends to discourage savings and development in general, nonetheless taxes can influence both supply and demand factors. Reduced marginal tax rates on wages and salaries, for example, can encourage people to work longer hours. Lower marginal tax rates on asset returns (such as interest, dividends, and capital gains) can encourage people to save. Likewise, reduced marginal tax rates on business income may encourage some firms to invest domestically rather than abroad. However, tax cuts can have a negative impact on supply. If a cut raises workers' after-tax income, some may choose to work less and spend more time on leisure activities. This "income effect" works against the "substitution effect," which occurs when marginally lower tax rates increase the financial reward of working. So, the government should use an adequate strategy to maintain the balance.

Nepal, being an underdeveloped country, has been relying heavily on tax revenue for government financing. Tax revenue is also a significant source of government revenue in Nepal. Public expenditure has been utilized to carry out core governmental duties such as welfare initiatives and social spending, which are influenced by an economy's long-term financial strength. State budgets are supported by both tax and non-tax revenue. As a source of regular revenue and mandatory payments by citizens, taxes will always be a significant part of the government's budget. Structure, policy, and relief are the three components of taxation. Empirical research is paying close attention to policymakers' core issues because different countries use different strategies based on their national makeup and long-term goals, tax systems are not universal. The tax aims to redistribute

wealth while also balancing resource management. Mobilization and poverty eradication are both possible with revenue generation (Johansson and Colleagues, 2008).

Nepal comprised seven provinces, and its system is characterized as quasi-federal, which limits the provinces' ability to function freely. On the fiscal federation front, there is much sharing between center and province regarding the components of fiscal policy via public expenditure, revenue, and public debt. The composition of spending components identifies the greater dominance of revenue expenditure in the total expenditure for all the provinces. However, the share of capital expenditure has been observed to increase in the last few years in the majority of the province.

Every government requires a substantial amount of money to finance government activities, which the government obtains from both internal and external sources. Internal sources of funds can be divided into two types. They are tax sources and non-tax sources. Tax source is one of the most important sources of government revenue. Direct Tax sources include vat, custom duty, excise duty, income tax. There is a high contribution of tax source than non-tax source in total GDP of Nepal. Therefore, tax revenue is the major source of government revenue. Income tax is the major component of tax revenue for the government whether it is developed or developing country. Income tax can be defined as the contribution from people and business organization to the government from their income either by service or from business without taking the corresponding or direct benefit. A tax imposed on income base is called income tax. Generally, tax can be classified into two types. They are a) Direct tax and b) Indirect tax. Direct tax is directly paid by a person and is legally imposed. Some of the direct taxes are Income tax, Property tax, health tax and vehicle tax. Direct tax is the most important component of Nepal's tax system. It is a popular type of tax since it is levied on a taxpayer's income or wealth (Adhikari, 2020).

A direct tax is one that is paid directly to the government by the taxpayer. Individuals and businesses in Nepal pay income tax, which is imposed and collected under the Income Tax Act of 2058. To pay for the war with France, Great Britain became the first government in the world to enact a modern income tax in 1799. To pay for the civil war, the United States adopted an income tax in 1862. In India, income tax was first

introduced in its current form in 1860, and full income tax legislation was approved in 1886 (Agrawal, 1980). Taxation has a long history in Nepal, however the current tax structure received attention with the arrival of democracy. The first unified budget was established in 1951 (Dahal, 2013). Income tax is thus a form of direct tax imposed by a government on the incomes of its citizens. Money obtained as a wage is not the only source of income. It also includes revenue from real estate, corporate earnings, and professional gains (such as a bonus), as well as income from capital gains and other sources.

The tax system can be divided into three categories: Progressive, Regressive, and Proportional tax.

### ***Progressive taxation***

Progressive taxation is a tax system in which the tax rate rises as income rises, so that a person with a higher income will pay a higher tax burden and vice-versa. A progressive tax system assesses taxes based on the taxable amount of an individual's income. Because they progress at a faster rate, high-income workers' pay more than low-income earners. As an individual's wealth grows, so does the tax rate and as well as the tax burden.

### ***Regressive taxation***

Regressive taxation refers to a tax system in which the tax rate decreases as income rises, resulting in a lower tax burden for lower-income individuals. In a regressive tax system, low-income individuals pay a greater tax rate than high-income ones. Because tax is calculated as a percentage of the value of the asset that a taxpayer acquires or possesses, this is the case. This form of tax has no bearing on a person's earnings or income level. Regressive taxation is most seen in property taxes, sales taxes on products, and excise duties on consumables.

### ***Proportional taxation***

Proportional taxation is a tax system flat tax system in which a defined proportion of the total amount to be taxed is charged, regardless of the amount to be taxed. As a result, the same tax rate applies to various people with varied taxable income. Individual or a

family, a firm, a company, or a society, as well as goods and services, may be subject to taxation. In a proportionate, everyone pays the same tax rate, regardless of their income or wealth. The goal of this system is to achieve parity between marginal and average tax rates. Advocates of proportional taxes believe that they boost the economy by encouraging people to work more because there is no penalty for earning more money (Podder, 2018).

Nepal employs a progressive and proportional taxation system. In Nepal's tax system, slab-based taxation is used for income tax, whereas proportional taxation is used for other taxes such as excise duty, customs duty, VAT, service tax, wealth tax. Furthermore, lottery income, long-term capital gains, and in some situations, short-term capital gains are all taxed proportionally under the income tax. A proportional taxation system is used for the assessment of corporations, firms, and cooperative societies, whereas a progressive taxation system is used for individuals and organizations.

Direct tax exhibits two types of taxes, namely income tax and wealth tax.

- Income tax: under Nepali income tax law both flat rate (proportional tax) and slab rate (progressive tax) apply where the tax is computed on total income. On lottery income, long-term capital gain, and in some cases short-term capital gain is taxed under proportional taxation system. Again, the income of assesses such as for companies, firms, etc. proportional taxation system is applied while for individual and cooperative society, a progressive taxation system is followed.
- Wealth tax: wealth tax is levied at 1% on the net wealth of individual, family, and company if net wealth exceeds Rs.30 lakhs on the valuation date. It is payable in every assessment year based on the valuation of net wealth on the respective valuation dates. Valuation date means the last day of the corresponding previous year relating to each assessment year. Net wealth is computed as the difference between the value of assets and the value of liabilities. Assets include House, Motorcar, Jewelry, Urban land, Cash in hand, boat, aircraft etc. Important indirect tax regimes include excise duty, service tax, customs duty, and sales tax.

## **1.2 Statement of the Problem**

Every least developed nation, including Nepal, is more concerned about economic growth and development due to the budding issues of rapid population growth, rising unemployment, resource constraints and high dependence on traditional agriculture, low living standards and poor infrastructure, etc. Additionally, the GDP contribution of the main revenue sources like income tax, VAT, investment, and total tax revenue is not as satisfactory as it ought to be. So, the nation's budget has a significant resource shortfall that is covered through both internal and external borrowing. Since income tax was implemented in Nepal in 1959, several changes have been made to the income tax act, laws, tax system, procedures, and among other things. However, the trend of income tax collection is not sufficient. Individual income is not rising favorably, according to Nepal's economic report, which has a direct impact on income taxation, government revenue, and thus government activities. The main hurdle to income generation may be a lack of a good environment for proper functioning of income-generating activities as a result of the current unstable political scenario and the numerous recurring environmental and health hazards.

Direct tax contributions tend to be effective for the country's economic development than indirect tax contributions, but Nepal's main tax structure appears to be dominated by indirect tax. Among direct taxes, income tax is significant; however, it is unfortunate to note that income tax contributes very little to national revenue in Nepal. To boost income tax's contribution to national revenue, several studies and research projects should be carried out, to bring transparency and efficiency but there aren't enough of them being done. Instead of low revenue performance in Nepal, the fiscal deficit is growing due to the government's increasing expenditure. Besides that, the country is dealing with an increasing burden of foreign loans. Nepal being a country with a long history of dependency on agriculture, might face a significant challenge in promoting economic growth through increases in output and productivity as well as income and employment. Hence, increasing revenue through direct taxation needs a smartly tricky policy games in Nepal for a sustainable growth instead of blind replication of any other successful stories.

The study seeks to find out the answer to the following questions;

- What is the trend and composition of direct tax and indirect tax in Nepal?
- What is the relationship between income-tax and GDP of the Nepalese Economy?

### **1.3 Objectives of the Study**

The general objective of the study is to examine the impact of income tax on the economic growth of Nepal.

The specific objectives are as follows;

- To examine the trend and composition of various taxes in Nepalese economy.
- To assess the relationship between income-tax and GDP.

### **1.4 Significance of the Study**

Income tax is a tax paid by individuals or entities depending on the level of earnings or gains during a financial year. The Government of Nepal determines the rate of income tax as well as income tax slabs on which individuals are taxed. Those under higher income slabs are taxed at higher rates. On the other hand, taxable income slabs are changed from time to time, keeping in mind the price levels. Sometimes, the government also provides income tax rebates, which benefit people in the lower-income group and provides income tax incentives to long-term funds. The amount invested in tax-saving schemes is deducted from gross income, which reduces the amount of taxable income and benefits the taxpayer. Taxation being the most powerful tool reserved in the hand of the government. It can be used in the federal as well as provincial development activities.

As a developing country, Nepal's resources are often scarce and limited. Income tax, as a significant source of revenue, tends to aid in the creation of a fairer society through the allocation of resources and wealth. Moreover, for the balanced regional economic development, the provision of transparent income tax can be a great advantage to deal with the scarcity and limitation. It has evolved into an effective tool for ensuring balanced socioeconomic growth (Dahal, 2013).



## **1.5 Limitations of the Study**

This study has the following limitations that are mentioned below:

- This study focuses on the relationship of Income-tax and Nepal's economic growth but ignores other factors that can significantly affect the economic growth.
- This study only uses secondary data from different sources so that validity and reliability may depend on the goodness of these data related to government revenue and economic growth.
- The coverage of the period is from FY 1975/76 to FY 2019/20 for the accuracy and simplicity of data resources.
- This study does not cover the whole aspect of tax revenue and its impact on the economy.
- Only the link between income tax and GDP has been discovered; however, the channel through which that link can be influenced has not been identified.
- In this study, VAT is regarded as a controlled variable rather than the main variable.

## **1.6 Organization of the Study**

This research is divided into five chapters. The first chapter is the introduction, which provides the background, a statement of the problem, objective, significance, limitations, and the organization of the study. Similarly, second chapter is a review of the literature that includes theoretical concepts as well as empirical reviews including international as well as national contexts. Similarly, the third chapter discusses research technique, which includes research design, data nature and sources, sample period coverage, tool and method specification, model specification, hypothesis testing, and residual testing. Similarly, the fourth chapter discusses data presentation and analysis, while the fifth chapter contains the major findings, conclusion, and recommendation.

# **CHAPTER - II**

## **REVIEW OF THE LITERATURE**

This chapter provides the review of theoretical and empirical literature related to the nexus between the tax and economic growth. First part of this is related to theoretical review which includes theory related to economic growth and taxation. Second part related to review of empirical literature which includes both international and national empirical study.

### **2.1 Theoretical Concept**

The phenomenon of relationship between income tax and economic growth has been discussed since the period of public economics. Different economic schools of thought have expressed their views on the relationship between taxation and economic growth. Some of the major theory has review as given below:

#### **A Classical Taxation Theory**

The classical taxation theory was regarded the most important for a long period of time. As a result, taxes have become the government's principal source of revenue. Adam Smith is credited with developing scientific taxation theory. In his work "An Assessment of the Nature and Causes of National Wealth," he examines the nature and causes of national wealth. Adam Smith described the taxation system, outlining the major needs for its creation and advocating four basic taxation principles: fairness, determination, convenience, and tax administration (Musgrave and Musgrave, 1989).

#### **Keynesian Taxation Theory**

John Keynes, the founder of the Keynesian taxation theory, outlined its fundamental concepts in his book "The General Theory of Employment, Interest, and Money," in which he argued the government intervention in market economy regulatory processes. Keynes argued that the high-level progressive taxation is required, and that low tax rates result in lower state income, contributing to economic instability (Musgrave and

Musgrave, 1989). According to Keynes taxes must play the most important role in the system of state regulation. High taxes encourage economic activity, influence economic stability, and operate as "integrated flexibility mechanisms" in the framework of the economic system.

### **Neo-classical Taxation Theory**

According to the neo-classical theory, the state is compelled to abolish obstacles to free market competition since the market can and must rule itself and attain economic equilibrium without external intervention. Tax policy should be formed based on the same assumptions and taxes should be as low as feasible, and corporations should be granted significant tax exemptions. Otherwise, a high tax burden would discourage economic activity and constrain corporate investment strategies, resulting in a decline in production fund renewal and an economic recession. Laffer (1981, 2004, and 2008) in his book argues that higher tax rates will discourage work and production by removing incentives, triggering to sluggish growth, and thereby diminishing tax revenue collected by the government.

### **Neo-Keynesian Taxation Theory**

(Musgrave and Musgrave, 1989) emphasized in his book that taxation is an important part of Neo-Keynesian philosophy. According to Neo-Keynesian theory, taxing separately based on consumption, taxing the ultimate cost of consumer goods, and saving as a percentage of the deposit is regarded the basis for a consumption tax, which serves as both a savings incentive and a weapon against inflation. Long-term savings are regarded as an important component of future economic growth. Based on this theory a progressive consumption tax with exemptions and tax credits for different categories of commodities was more egalitarian for low-income people than a flat sales tax. Furthermore, unlike income taxes, consumption taxes do not cover essential reserves for future investments, hence stimulating their growth.

### **2.1.1 Principle of Taxation**

Principles of taxation are those formal guidelines which are widely accepted and/or discussed and should be considered whenever specific laws are proposed, discussed, and implemented.

#### ***Ability to Pay Principle***

Ability to pay refers to a person's ability to pay. Taxation should be based on a taxpayer's ability to pay, according to the philosophy of taxation. The rationale of ability-to-pay taxation is that everyone should make an equal sacrifice in terms of paying taxes, and that paying more of them does not inflict a greater burden because people who have more money have less need for a particular rupee.

**According to Musgrave and Musgrave (1989)**, A progressive income tax is based on the idea that people who can afford to pay a higher percentage of their income should pay a higher percentage of their income. This idea is founded on the principles of equality and expediency. This theory discusses two types of equity.

a. Horizontal equity: Equal should be treated equally. Like the same taxes to the people who are in the same economic circumstances. The notion of horizontal equity suggests that those who are in the same or similar situations will face the same tax burden.

b. Vertical equity: People with greater incomes should pay more tax, according to the idea of vertical equity, which is based on proportional or progressive tax rates. Because the effective average tax rate does not change with income, everyone pays the same proportion of their income in taxes.

Personal levies, such as income tax and consumption tax, are the most appropriate taxes in terms of ability to pay principal.

#### ***The Benefit theory of Taxation***

As per the benefit principle, taxes help determines what activities the government will undertake and who will pay for them, like how prices in private transactions help determine what activities the government will undertake and who will pay for them.

The benefit principle is most effectively implemented in the financing of highways and roads via motor fuel levies and road-user fees. Payroll taxes used to fund social security may imply a link between benefits and contributions, but this link is often shaky because contributions do not flow into individual contributors' accounts.

### ***Economic Surplus Theory of Taxation***

Economic surplus refers to the respective gains that a consumer or producer gets within an economic activity and is the combined benefit, sometimes referred to as "total welfare." When a producer sells a good for more than the minimum price at which they are willing to sell it, a surplus is created. Economic surplus is governed by supply and demand laws. Customers want to feel like they're getting a good deal, while businesses want to make as much money as possible without alienating customers. In mainstream economics, economic surplus, often known as overall welfare, total social welfare, or Marshallian surplus basically refers to two related quantities:

- **Consumer surplus** is the monetary advantage that consumers acquire because of being able to make a purchase for a lower price than the utmost price they would be willing to pay.
- **Producer surplus** is the amount that producers profit from selling at a market price greater than the lowest price for which they would be ready to sell; it is roughly equal to profit.

As stated by Musgrave and Musgrave, in a completely competitive market, total surplus, which is the sum of consumer and producer surplus, is maximized at the equilibrium price and quantity. In economic surplus theory of taxation, a tax liability amount is taxed based on this basic concept. When a market's surplus is maximized, the market is said to be efficient.

### ***Neutrality Theory of Taxation***

One of the key functions of taxation is to raise revenue, the OECD observes that, taxation should seek to be neutral and equitable between forms of business activities. A neutral tax theory contributes to efficiency by ensuring the optimal allocation of the means of production is achieved (Musgrave and Musgrave, 1989). It simply explains that

distortion, and the corresponding deadweight loss, will occur when changes in price trigger different changes in supply and demand.

### ***Simplicity Theory of Taxation***

The principle of simplicity advocates that Tax system should be plain, simple to understand by the common taxpayers (Musgrave and Musgrave, 1989). It states that the tax assessment and determination should be easy to understand by an average taxpayer. Normally taxpayers find it easy to comply when a tax system is easy to deal with. When taxpayers find it easy and convenient to make a tax payment, the likelihood to comply is high.

#### **2.1.2 Concept of Taxation**

In Nepal, tax revenue refers to the compulsory transfers to the government for public purposes. But it excludes certain compulsory transfers such as fines, penalties, and most social security contributions. The government collects tax revenue by imposing both direct and indirect taxes. Direct taxes include income tax, estate duty, wealth tax, gift tax, land revenue, hotel receipts tax, and expenditure tax. Similarly, indirect taxes include customs duty, excise duties, service tax, value added tax, taxes on vehicles, taxes on electricity and taxes on goods and passengers (Kharel, 2021).

Taxation is the major tool of fiscal policy and a source of revenue collection for government in Nepal. The effective tax system is crucial and indispensable for economic growth in developing countries. Theoretically, we know that the burden of tax may have worse effects on economic growth of a country in different ways. First, the tax burden may lead to falling in the investment and stock of capital or it may discourage the level of investment, which lowers the efficiency of the economy. Second, tax policy may depress the productivity growth of research and development which is the only way to improve the productivity of labour and capital. Third, taxes can also lead to falling in intensive to work which lead to falling in the contribution of labour productivity by reducing their hours of work. Fourth, the tax may lead to falling in the marginal productivity of capital as it forces capital to leave high taxed sector which is more productive to a low taxed sector which has low productivity. There is also some evidence that shows a positive

impact of taxes on economic growth which conclude that taxes can lead to economic growth. Therefore, taxes play a major role in the generation of revenue and hence, in the economic growth of the country. Insufficient tax revenue can distort resource allocation and reduce the economic welfare and growth. Hence, an ideal buoyant tax system is essential to achieve a balance between resource allocation and economic growth with stability. However, it is crucial to note that an ideal tax system always must compromise between the government's revenue and the economic development of the country. A tax system with relatively higher rates of taxes would deter savings and development, while relatively lower tax rates would lead to less revenue to the Nation (Poddar, 2018).

### **2.1.3 Classification of Taxes**

The tax can be classified in to two categories namely direct tax and indirect tax.

#### **a. Direct Tax**

Direct tax is collected directly by the government from the person who bears the tax burden. The impact and the incident are on the one and the same person. In other words, the same person pays and bears the tax burden. Following taxes are remains under the direct tax, which are: income tax, property tax, interest tax, capital gain tax, vehicle tax, death tax, gift tax, expenditure tax.

Advantages of Direct Tax:

- It is imposed on person as per the income, so it is equitable.
- Time, procedure, and amount of tax to be paid is known with certainty.
- In the direct taxpayer knows his contribution to the government revenue so they can insist the government to spend their contribution for the welfare of the community (Kandel, 2004).

Disadvantages of Direct Tax:

- Tendency to evade tax may increase to avoid tax burden.
- It gives mental pinch to the taxpayer as they must curtail their income to pay to the government.
- The taxpayers are limited in direct tax so the direct tax lacks mass participation (Kandel, 2004).

#### **b. Indirect Tax**

Indirect tax is imposed on one person but partly or wholly paid by another. In indirect tax the imposed and incident of tax are on different persons. In other words, the person paying and bearing the tax is different. Following taxes are remains under indirect tax; which are: value added tax, excise duty, sales tax, import and export duties, entertainment tax, and service tax

Advantages of Indirect Tax:

- There is less chance of tax evasion because the taxpayers pay the tax collected from customer.
- Each consumer pays tax while consuming the goods and services. So, there is mass participation.
- The government can reduce the consumption of harmful goods by imposing higher taxes (Kandel, 2004).

Disadvantages of Indirect Tax:

- It is not equitable because the burden to the rich and the poor is same.
- Most of taxes are included in the price of goods or services. As a result, the taxpayers do not know how much tax they are paying to the government.
- There is uncertainty of government revenue from indirect tax. With the fluctuation in demand, the tax amount can also fluctuate (Kandel, 2004).



### **2.1.4 Income Tax**

According to Barreix & Roca (2007), Income tax is the government certain percent levy on financial income generated by all entities within their jurisdiction. An income tax is a tax imposed on the financial income of individuals, corporations, or other legal entities. It is one of the main sources of revenue for the government. It is assessed on a person's or a business's taxable income following the deduction of permitted expenses.

The national economy relies heavily on income tax as it is a significant source of revenue for the government. Furthermore, it is regarded as a tool for achieving social and economic objectives since it can be used to reduce disparities in income and wealth distribution; to eliminate regional economic imbalances; to boost industrialization; to channel resources toward developmental activities, and so on. Thus, besides being a source of revenue, income tax has become an effective instrument to ensure imbalanced socio-economic growth and development. An income tax is the state's share of a person's taxable earnings. It is levied on the previous year's total income at the rate in effect during the relevant assessment year. Some earnings are not included in the total income, like festival bonuses, medical expenses, etc. Income tax can be broadly classified into Individual income tax and corporate income tax:

#### **Types of Income Tax**

##### **i. Individual or Personal Income Tax**

A personal or individual income tax is levied on the total income of the individual (with some deductions permitted). It is often collected on a "pay as you earn" basis, with small corrections made soon after the end of the tax year. Bala, Enoch, and Yakubu (2018), "Personal income tax is a tax levied on all incomes of individuals employed by a business or organization, either public or private." The Cambridge Dictionary (2019) views an individual tax as "a tax paid by people on the money they earn, not a tax that a company pays on its profits".

## **ii. Corporation Income Tax**

Corporation income tax is a direct tax levied by various jurisdictions on the profits made by corporations or associations, and it frequently includes a company's capital gains. The history of taxation began in the United States in 1909, when a 1% excise was levied on corporations, i.e., businesses, for the privilege they enjoy. Since then, corporate tax has contributed a substantial amount of revenue to the state treasury of most developed and developing countries. Government corporations, public limited businesses, and private limited companies are all taxed on corporate revenue at a single rate in Nepal as well. It is assessed on a company's income from Nepalese sources as well as money from Nepalese operations that is obtained abroad. For a foreign company, tax is levied only on the income earned from a source in Nepal under the Income Tax Act, 2058 (2002).

### **Income Tax in International Context**

During early days, taxes were considered as immediate source during scarcity and were calculated during the time of emergencies to finance wars and to provide communal services. Taxes were not compulsory but levied based on welfare of the people.

The history of income tax is full of theory of wars, confrontation, and resistance. Great Britain was the first country to adopt a general income tax in 1799 to fund the Anglo-Napoleonic war (Machlup, 1974) the war with France. The British government taxed citizens' incomes in order to generate income for the revolutionary war with France. The primary motive for its implementation was that it was a better alternative to customs and excise duties for raising money (Harris, 2006).

In 1862, the United States of America enacted the first income tax to fund civil war expenses. However, after the 16th amendment to the United States Constitution was adopted in 1913 (ADB, 2009) and became a permanent element. Several German states introduced income tax during 1840. After the Prussian reforms in 1891, the income tax was used as effective fiscal instrument in these states. Until 1920, German income taxes were exclusively state taxes, which became federal taxes from 1920 to 1945. At the end of the Second World War, it was reclassified as a state tax and is currently governed by federal legislation. Similarly, the first income tax system was established in Italy in 1864.

In 1870. Italy adopted the income tax in 1864 as one of its first product of its unification. It was until 1925 that a nationwide tax on total family income was imposed with graduated ones. In France, the effort towards income tax began in 1870. The income tax bill was enacted as an emergency measure in 1914 and the permanent income tax system was adopted in 1917 (ADB, 2009).

Norway introduced the income tax in 1892 and made its rates progressive in 1896. Sweden accepted modern income tax on the permanent basis in 1910. New Zealand adopted income tax in 1891. Australia and Canada had followed the income tax in 1915 and 1917 respectively. In many developed countries, income tax became an important source of revenue after World War I. Sir James Wilson imposed an income tax in India in 1860 to alleviate the financial difficulties caused by the 1857 mutiny. The income tax was abolished in 1865, reintroduced in 1869, and finally set on solid ground in 1886.

Today, it is very challenging to find a country that does not levy an income tax. It is, in fact, firmly established in the monetary systems of the large majority of states in the world. The evolution of income tax has been sluggish, with numerous ups and downs. "As a result, the story of income tax is the tale of wars, and the story of war taxes being held even after the conflict is over." Taxes are now seen as key policy tools in conducting a new kind of battle, the war against poverty and inequality" (Agrawal, 2004). There is now almost no country on the planet that does not have an income tax system, though the amount of success in terms of revenue and equity varies depending on the country's economic progress. With this, income tax has become the regular source of national income for all the countries of the world. In the beginning, income tax was generally levied at a flat rate. The principle of progressive tax was introduced in the United Kingdom and New Zealand in 1999. Norway's, a progressive rate of income tax is generally used all over the world (ADB, 2009).

### **Origin and Development of Income Tax in Nepal**

In ancient Nepal, taxes were levied in the form of kind, cash and labors, on merchants, travelers and farmers. Specific portions of agricultural product were payable to the king as Tax. On some occasions compulsory manual work as well as gold were a common way of paying taxes for special purposes, but the nature of these taxes was temporary. In

the Lichhavi rule, income tax from agriculture and business were introduced as direct tax for the first time before unification of Nepal. During Lichhavi rule the tax levied on agriculture was called “Bhagn” and tax levied on business income was called “Kara”.

Between 1846 and 1950, however, there was no clear provision for taxation. There was no budgeting system in place, and taxes were charged at the Rana Prime Minister's discretion. Because there were no development activities in the country and the surplus of earnings over spending was deemed Rana Prime Minister's personal income, the administration never bothered to mobilize financial resources. There was no direct tax in the country except for land tax, which was collected on a contractual basis, and "Salami," which was a small portion of employees' pay given to the government. “Taxes were collected under the middleman system until the 1950s in the time of Rana regime. Whereas land revenue was collected through Mukhiya and Zimwal in the hilly areas and through Patwari and Jamindar in the Terai Region (Bhattraï & Koirala, 2011).

Following the country's independence from Rana Rule in 1951, the government was obligated to carry out development efforts in addition to maintaining law and order. The notion of imposing an income tax in Nepal only came about in the early 1950s, in order to raise excess government money for the implementation of development programs. "A proposal to levy an Income tax comprising tax on agricultural income is under consideration," the finance minister remarked in his 1951 budget speech (Nepal's first budget statement). However, in the next two or three years, the tax will not generate much income. The tax will be used to familiarize individuals with the tax rather than to generate income at first. As the tax develops, it will be a major source of revenue” (Budget speech, Government of Nepal 1951)

Income tax was finally introduced by a first elected government in the fiscal year 1959/60. It was known as business profit and remuneration Tax. The imposition of the tax was governed by Business profit and Remuneration Tax Act, 1960 (2017 B.S.) and the rules were made under it. According to the Act only business profit and remuneration income were subject to tax but the revenue from their taxes could not be collected properly according to original estimate. The tax was later introduced on an experimental

basis on business and salaries, which are easier to assess than other form of income such as agricultural in come (Kandel, 2003).

## **2.2 Empirical Studies**

Empirical context of the literature review shows the pre-developed study of the related research papers, books, reports, bulletins etc. which are related to the own research topic. It may be from domestic land and or from overseas. So that for the more precision empirical study is divided under two sub- heading, one is international context, and another is national or Nepalese context. Empirically various study has been carried out on nexus between income tax and growth. However, the current study basically focuses on the studies that have been carried on the trends and impact of income tax.

### **2.2.1 International Context**

Barro (1990) pointed out a turning point in the research on the effects of personal income taxes on economic growth. In Barro's model, raising income tax rates boosts economic growth, while raising income tax rates above a certain point slows it down. In the literature, a direct relationship between economic growth and personal income tax has also been proposed.

Jain (2005) investigated a comparative analysis of selected tax provisions such as tax structure, tax unit, computation of taxable income, determination of salary income, depreciation, computation of capital gain, tax incentives & impact on tax revenue, assessment & compliance procedure, etc. in her work *Some Aspects of Income Taxation: A Comparative Study of India and Selected Countries in Finance India*. She stated that certain countries have different rules than others. Individual taxpayers in a few countries were subjected to a progressive tax rate structure. In comparison to emerging countries, industrialized countries have greater tax rates. In comparison to India, all countries had high marginal tax rates. It demonstrates that India's marginal tax rates were low. According to the analysis, India's income tax base is small. In India, income tax revenue was 3 percent of GDP, while it was 12 percent in wealthy countries. As per the report, India has the highest tax-free threshold for gross total income. In India, the loss of tax revenue was minimal due to several tax advantages. She further stated that the provision

for asset seizure was only accessible in India. The penalty and prosecution provisions were highest in India and Malaysia in compared to other countries.

Sanni (2007) explored those taxes may be used as a social engineering tool to boost overall and/or sectoral economic growth. Taxation could have a beneficial or negative impact on both the individual and the government in this regard. A low-income tax rate is an incentive to work or save for an individual, whereas a high-income tax rate is a disincentive to work or save. High tax rates provide the government with the most reliable, vital, and dominant source of money for boosting the nation's economic development. The tax rate is frequently a crucial factor in determining the organizational type of a company and it may also be linked to different amounts of foreign direct investment. Using panel unit root tests and panel co-integration analysis, this research explored the long-run link between tax structure and economic growth and other economic indicators.

Mertens and Ravan (2012) observed the exogenous changes in personal and corporate income taxes had an impact on growth in the United States after WWII. The study discovered that lowering the average personal income tax rate by one percentage point increased real GDP per capita by 1.4 percent in the first quarter and up to 1.8 percent after three quarters. Similarly, lowering the average corporate income tax rate by one percentage point increased real GDP per capita by 0.4 percent in the first quarter and 0.6 percent after a year.

Chigbu, Akujuobi, and Appah (2012) examined the relationship between tax income and Nigeria's economy that has resulted in increased tax income at the extent of economic growth. The broad conclusion is that the main causes of tax buoyancy and tax effort in Nigeria are macroeconomic instability and the degree of economic activity. They discovered that taxation is an essential tool for boosting economic growth.

Okafor (2012) inspected the impact of income tax revenue on Nigeria's economic growth as measured by the gross domestic product. From 1981 to 2007, the researcher used the ordinary least square regression method to investigate the association between GDP as a proxy for economic growth and a collection of federal government income tax revenue heads. However, the study discovered that tax revenue and economic development in

Nigeria own a favorable association, as well as a strong relationship between income tax revenue and money supply.

Gale, Krupkin, and Rueben (2015) explored the relationship between taxes and economic growth at the state level. To analyze company activity, this study examined data from 1977 to 2011. The variables studied in this analysis were personal income per capita, employment-population ratio, total state and local tax revenue, statutory marginal personal income tax rate, adjusted marginal personal income tax rate and unemployment rate. The findings run counter to the popular idea that cutting top state income tax rates will automatically or inexorably enhance GDP. Furthermore, the findings show that marginal tax rates have no effect on employment and have statistically significant but economically inconsequential effects on company formation rates.

Tanchev (2016) conducted an econometric study using the OLS method to assess the impact of the personal income tax on the economic growth in Bulgaria for the period 2004–2012. He found that progressive income taxation has a positive impact on growth. Many of the publications included in this evaluation suggest that taxes have a negative influence on economic growth. It does, however, reveal that the sample of nations utilized, their level of development, the time frames used, the control variables included, and the technique used, among other things, have an impact on government spending on economic growth. As a result, future research should employ the most cutting-edge methods. In the theoretical and empirical literature, several factors such as the selection of country samples, the development level of nations, the period of time, the control variables included, and the technique used, in general, yield varying conclusions.

Rueben and Randall (2017) also noted that the growing unpredictability in state tax collections has made it harder for certain states to forecast revenues accurately. According to research published in 2014, corporate and personal income tax receipts, which are closely tied to stock market success, have been more volatile since 2001. The corporate income tax, which includes the extremely unpredictable capital gains tax, is generally the most volatile source of tax collection; the personal income tax, which includes the very volatile capital gains tax, is a close second. Taxes are becoming more sensitive, energy costs are falling, and states are becoming more dependent, according to

research on revenue volatility. The authors make some suggestions on how states can lessen revenue volatility. The authors use the standard deviation of annual percent change in revenues to measure state revenue volatility and conclude that states with the most volatile revenues are those that rely heavily on severance taxes from oil, gas, and minerals from California (which derives significant revenue from its personal income tax, which is very volatile because California residents earn significant income from capital gains and stock options). South Dakota and Kentucky, both of which rely significantly on sales tax revenue streams, have little revenue fluctuation.

Ali, Ali, and Dalmar (2018) revealed that domestic tax revenue has a positive significant impact on economic growth, but grants have a negative impact on GDP. Domestic revenue is critical for economic growth, and more emphasis should be paid to domestic tax revenue collection. Grants, as earlier mentioned, cannot be used to replace domestic revenue production because domestic revenue is the more significant of the two variables.

Personal income tax is positively and significantly related to economic growth in China and Pakistan. People's earnings and wages are taxed more heavily, which resulted in increased tax revenue and economic growth (Amin, Chen, and Huang, 2018). They further viewed that trade openness is positively associated with economic growth in Pakistan, whereas it has no effect on growth in China. Inflation has a positive and substantial association with economic growth in Pakistan and China. The dependency ratio has a negative yet significant influence in China and Pakistan. The ECM coefficient is negative but substantial in the economic growth model, showing convergence to the long-term equilibrium.

The IMF (2018) explored a comparative examination of Asian countries' tax-to-GDP ratios and discovered that the tax-to-GDP ratios range from 15 to 20 percent. It is also mentioned that Asian countries maintain a tax-to-GDP ratio of roughly 15 percent. Whereas, most countries in the region have a debt-to-GDP ratio of less than 15 percent. To provide a broad guideline for tax reform, Dadson, Bayraktar, and colleagues (2012) used a cross-country survey of 110 developed and developing countries to examine tax capacity and effort. Countries can be categorized into four groups based on tax effort and



actual tax collection: low tax collection and low tax effort, high tax collection and high tax effort, high tax collection and low tax effort, and inadequate tax collection and high tax effort.

Mertens and Olea (2018) observed the effects of marginal tax rates on individual income using time series data from 1946 to 2012. They discovered that cutting marginal rates resulted in both an increase in real GDP and a decrease in unemployment. By the third year after the tax change, a one-percentage-point reduction in the tax rate raises real GDP by 0.78 percent. They also discover that, regardless of the change in the average tax rate, changes in income following a tax change are responsive to the marginal rate change. This shows that the positive GDP improvements seen by the authors are related to changes in incentives rather than an increase in aggregate demand via the consumption channel. Reduced tax rates for the top 1 percent have a positive influence on other income categories, which is consistent with a supply-side narrative that shows how lowering top marginal rates can raise earnings for other groups over time. Tax reductions for the top 1 percent, on the other hand, increase inequality.

Odum, Odum, and Egbunike (2018) studied the impact of income tax on GDP growth with the focus on the Nigerian fiscal policy framework while employing time series data. In the study the data set was analyzed using Granger Causality test, Pearson Coefficient Correlation, OLS method of regression, Johansen Cointegration test and Error Correction Model (ECM). The results obtained indicated that income tax and GDP growth were positively related and statistically significant at 5 percent level. Using different data set obtained from different economic environment, Dackehag and Hansson (2012) analyzed how tax on income impact upon GDP growth. More specifically, they studied how statutory tax rates on personal income and corporate income influence GDP growth by using panel data for 25 rich OECD countries. The findings reveal that both taxation of personal and corporate income negatively influence GDP growth. However, the correlation between corporate income tax and GDP growth was found to be more robust.

Alqadi and Ismail (2019) determined taxation as one of the most important fiscal policy instruments, and its impact on economic growth is debatable. He feels that neither the theoretical nor empirical literature offers a clear picture of the relationship between taxes

and economic development. He also concludes that the studies may be classified into three categories: (1) positive tax effects on economic growth, (2) negative government expenditure effects on economic growth, and (3) nonlinear tax effects on economic growth.

Maganya (2020) experimentally investigated the extent to which tax income fosters economic growth in developing nations, with the author attempting to identify the drivers of economic growth in Tanzania as a result of deliberate government taxing activities. Between 1996/97 and 2019/20, that study looked at the effect of taxation on economic growth empirically. The outcomes of that study revealed that domestic taxes on goods and services have a large positive impact on GDP.

In India, Neog and Gaur (2020) observed the long- and short-run relationships between tax structure and state-level growth performance. According to empirical data from linear regression, property taxes boost growth whereas commodity and service taxes stifle it. The conclusions of the non-linear regression are confirmed for property taxes, where high property taxes are beneficial to growth. The analysis found that lowering the total tax burden and transferring revenue generation from income and commodity taxes to property taxes is the most promising approach for long-run growth performance in Indian states.

Nguyen et al. (2021) investigated the effects of individual income, corporation, and consumer taxes in the UK from 1973 to 2009. They found that income tax cuts, defined as the sum of individual and corporation income in their research, have significant effects on GDP, private consumption, and investment. GDP grows by 0.78 percent for every percentage point drop in the average income tax rate. Although the effects of consumption tax cuts are less and do not yield statistically significant effects, the paper indicates that shifting from an income to a consumption tax base has a favorable impact on growth. Consumption taxes are generally thought to be less distortive than other forms of taxation since they have less impact on the incentives to work and invest that are necessary for long-term economic growth. Reduced income taxes have a significant impact on GDP, private spending, and investment. The benefits of lower consumption

taxes on GDP and its components are minor and statistically insignificant. It is expansionary to shift the tax burden from income to consumption.

### **2.2.2 National Context**

Kandel (2004) criticized the income tax Act 2002 on several grounds. The main issues he raised in his article were the exemption of agricultural income from income tax, export duties levied on exports, inequality between different capital earned income (i.e. tax on interest, dividends, and capital gains), abrupt withdrawal of the exemption provision, and no inflation adjustment. He further questioned the act for levying an income tax on exports of 0.5 percent of overall exports, claiming that this was a poor choice of income tax basis.

Bhandari (2007) studied the structure, rate, and contribution of income tax to national revenue in Nepal and figure out that direct tax plays a significant part in Nepal's tax revenue structure. Clear Acts, Rules, and Regulations, Effective Tax Administration, Conscious and Honest Taxpayers, Morals and Honest Tax Officers, and Political Non-Interruption are all crucial variables for increasing government revenue in Nepal, according to the author. According to the study, income tax policy should be created based on a critical analysis of the current circumstances.

The resource gap in developing countries is crucial and rising, resulting in massive fiscal and budgetary deficits (Dahal, 2009). He further mentioned that the burden of debt is frequently shifted to prosperity as a result of mobilizing domestic and external borrowings to close the expanding resource deficit. Similarly, the legal basis of taxation is constrained by a lack of tax shelters, and tax administration lacks the inventive method to detect and bring new taxpayers into the tax net. He goes on to say that the tax system is hampered by structural constraints, such as the enormous administrative and procedural complexity envisaged in the current Income Tax Act, which lacks openness and simplicity. The author points out the major problems of taxation in Nepal as marginally high tax rates, limited tax base, low tax elasticity, poor voluntary compliance, and inefficient, indifferent, and corrupt tax administration.

Wasti (2010) further explored Nepal's income tax system and discovered that it is ineffective and inefficient, owing to inefficient tax administration, tax evasion, and a lack of taxpayer awareness. Tax education, according to the report, is critical for increasing tax awareness among taxpayers and honest tax officials. It is critical to clarify the tax legislation so that people and tax officials do not become perplexed. Similarly, the most essential aspect in determining the success of income tax in Nepal is laws and regulations. The ineffectiveness of the Nepalese tax administration is attributed to a lack of qualified and professional tax personnel, difficult tax regulations, and unreasonable delay non-conducting assessments.

Maharjan (2018) studied about the relationship between the income tax and GDP, where he found out the long-term association between tax income and economic growth in Nepal. Tax revenue, non-tax revenue, and economic growth in Nepal are found to be co-integrated over the period 1974/75 to 2016/17. When non-tax revenue is considered, tax revenue and economic growth have a favorable long-run connection. He goes on to say that policymakers and planners must provide a good framework to improve tax collection for long-term economic growth.

K.C (2019) highlighted that taxing is a more sustainable source of revenue than borrowing. However, in order to generate sufficient money, it requires an effective, suitable, justifiable, and ecologically acceptable tax structure, which should be established using the principles outlined. The study discovered a clear link between taxation and economic growth. And it further recommends on to say that Nepal needs to alter its income tax principles to maximize economic growth, ensure equity, and facilitate tax revenue simplicity.

Kharel (2021) further explained how tax collection, total revenue, and government spending affect Nepal's GDP. According to the finding, changes in revenue levels and the tax system's structure affect economic activity where the income tax has a significant positive effect on GDP. Adjustments in revenue levels and tax structure can affect economic activity, although not all tax adjustments have the same, or even favorable, long-term effects. And per the study, lower income taxes stimulate growth and this has been repeated so frequently that it has become orthodoxy. Tax cuts, on the other hand,

have the potential to boost economic growth by increasing incentives to work, save, and invest. They do, however, have an income effect, lowering demand for active economic work, so tax cuts alone (i.e., without spending cuts) will almost always increase the federal deficit. The increase in the deficit will reduce national saving, reduce capital stock and future national income, and raise interest rates, which will harm investment. According to the findings, not all tax changes will have the same impact on growth. Reforms that increase incentives, reduce existing subsidies, limit windfall gains, and avoid deficit financing will benefit the economy's long-term size, but may result in trade-offs between equity and efficiency in some cases. In terms of long-term economic growth, these data demonstrate both the potential benefits and hazards of income tax reform.

### **2.3 Research Gap**

Nepal's budgetary system has been a deficit one since the beginning of the development phase. Every year, the rate of government spending outpaces the rate of government revenue. Meanwhile, one of the most important ways to increase revenue collection is to use income taxation to mobilize internal resources. In this context, a study on the "relationship between income tax and the GDP of Nepal" is being conducted. This research aims to assist reviewers in determining the most recent and changed economic situation as well as the investment and individual's attitude toward the income tax system. As previously stated, the above research work was primarily concerned with Nepal's income tax. In the past, the indirect tax was the backbone of the government's revenue. Now Income taxes are part of Nepal's overall tax structure as well as the backbone of the government revenue. Therefore, this study tends to examine the role of income tax in government revenue in a thorough and analytical manner. There have been very few empirical studies of both qualitative and quantitative data in this field. Similarly, no such research has been conducted in recent years. So, this study will be of interest to policymakers, planners, tax administration academics, students, and anyone else interested in Nepalese income tax. This study is an improved one and the objective is untouched in comparison to other earlier studies as it is based on improved models have been used and it captures the link between GDP and major macroeconomic variables i.e.,

GDP, IT, VAT, NTR, INV & REM. Furthermore, this study is relevant and attempts to bridge the research gap by analyzing time series data from 1975 to 2020 to assess the relationship using the ARDL short run method, which is based on the OLS method.

# CHAPTER - III

## RESEARCH METHODOLOGY

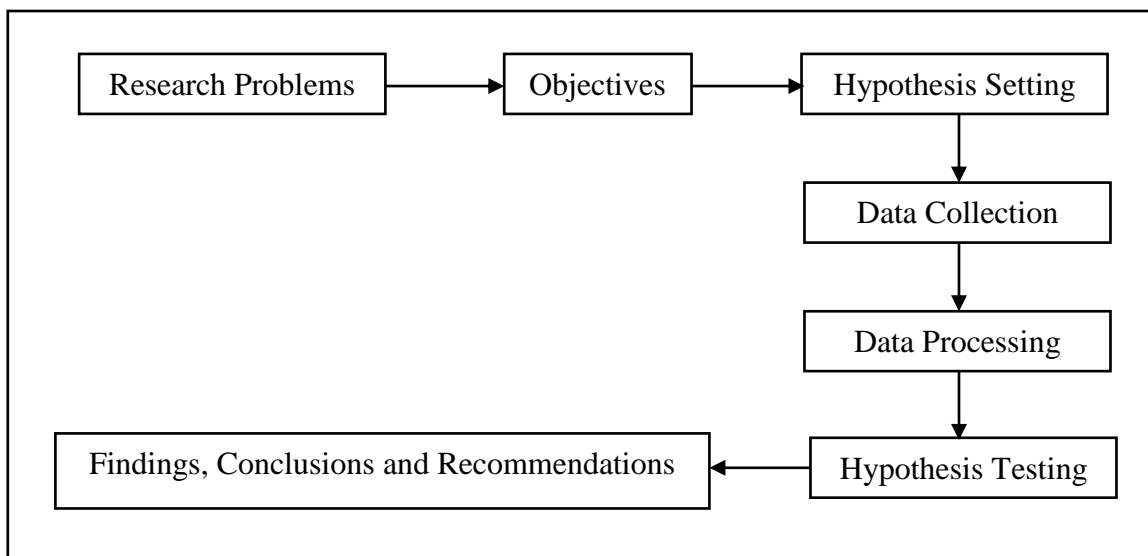
This chapter discusses about the research methodology that has been used in this research. The major heading of this chapter are research design, nature and source of data, sample period, model specification and method of data analysis.

### 3.1 Research Design

This study is a combined form of both analytical and descriptive type of design. Depending on the nature and source of the data and information, both qualitative and quantitative techniques were used. In this study, various tools such as econometric models, graphs, tables, and statistical tools has been applied. First, the unit root test of variables is checked. After doing so, a mixed set of variables of I (0) and I (1) are found. An Autoregressive Distributed Lag (ARDL) model is used to estimate the long run relationship between Economic growth and other different variables while Error Correction Model (ECM) is used to estimate the short run relationship between GDP and other explanatory variables.

### 3.2 Conceptual Framework

Figure 3.1: Conceptual Framework of Research Design



Source: Researcher's own research

A research question served as the catalyst for the entire research. The second procedure involves identifying goals and formulating hypotheses. In the third step includes and data collecting and processing. After that the hypothesis has been tested and the relevant institutions are given the proper findings, conclusions, and recommendations. The process of gathering data includes applied secondary data. Whereas, the superior findings are determined using econometric methods. In this study, null and alternative hypotheses are separated and tested using hypothesis testing.

After that, descriptive statistics including mean, median, standard deviation, etc., of the variables are calculated and presented in the table. The study analyzed the trend of income tax and economic growth by using tables and graphs. Primarily, the unit root test of variables is checked, different econometrics tools and methods have been used. Then, Augmented Dickey-Fuller test has been employed to test the stationary of the variables and to estimate the long run relationship between GDP and different variables, while the Error Correction Model has been used to estimate the short run relationship between exports and other explanatory variables. Therefore, this study is descriptive as well as analytical in terms of research design.

### **3.3 Sample Size**

The study covers the annual dataset of 45 years from the Fiscal Year 1975/76 AD to 2019/20 AD. This time period is chosen due to the unavailability of data of all variables before this time period. The variables used in this study has been collected via economic survey, quarterly economic bulletin, and annual report from different government bodies like CBS, NRB, IRD, etc.

### **3.4 Nature and Sources of Data**

The research is based on the secondary information and data. Secondary time series data was gathered from a variety of sources, including various issues of the Ministry of Finance's economic Survey, the Nepal Rastra Bank's quartile economic bulletin, Nepal's



national account and statistical yearbook published by the Central Bureau of Statistics, and the World Bank's website.

**Table 3.1: Data and Sources**

<b>Variables Definition</b>	<b>Sources</b>
Income Tax	Inland Revenue Department (IRD) and Economic Survey, Ministry of Finance (MoF)
Gross Domestic Product (GDP)	Central Bureau of Statistics (CBS) and Nepal Rastrya Bank (NRB)
Investment (GFCF)	Economic Survey, Ministry of Finance (MoF)
Value Added Tax (VAT)	Inland Revenue Department (IRD) and Economic Survey, Ministry of Finance (MoF)
Remittance	World Bank and Nepal Rastrya Bank (NRB)
Non-Tax Revenue	Inland Revenue Department (IRD) and Economic Survey, Ministry of Finance (MoF)

Source: Researcher's own research

### **3.5 Method of the Data Collection**

A secondary data collection method has been adopted to gather the data from legitimate source. In order to seek the information regarding this study the relevant information are gathered and thoroughly reviewed from the various published and unpublished secondary sources. The secondary time series data from the period 1975/76-2019/20 is collected from different sources like various issues of Economic Survey published by the Ministry of Finance, quartile economic bulletin of NRB, journal articles, website of the World Bank etc.

### **3.6 Techniques of Data Analysis**

To assess the data for the study, quantitative tools and econometric methodologies have been adopted. Time series data was employed in this investigation. The unit root of the series was examined to determine whether the data were stationary or not, which is the first step in data analysis. The co-integration test, which is an enhanced Dicky Fuller unit root test, was used to examine the link between the variables under study. ARDL modeling is used as an outcome of the co-integration test. To assess the model's stability, post estimation tests such as serial correlation, normality, heteroscedasticity, granger causality, and cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMQ) were used.

### **3.7 Description of the Variables**

In the study, Gross Domestic Product (GDP), Income Tax (IT), Investment (GFCF), Value Added Tax (VAT), Remittance (REM), all the variables are used in the nominal form. All the detail about the description of the Variables which are used in the study are represented bellow:

#### *Income Tax*

Nepalese income tax law applies both a flat rate (proportional tax) and a slab rate (progressive tax). The tax is calculated on the entire income. The proportionate taxation system taxes long-term capital gains and, in some cases, short-term capital gains on lottery prizes. Individuals and cooperative societies are taxed using a progressive taxation system, whereas corporations, firms, and public organizations are taxed using a proportional taxation system.

#### *Value Added Tax*

Value-added tax (VAT) a form of indirect tax that's charged on items sold within a state. The Value Added Tax is a modern method of taxing goods that was established to replace the previous sales tax system. A tax is charged on the value added at each stage of production or distribution under the VAT system. As a result, it is a multi-point value-

added taxation system. It was implemented to prevent cascading (double taxation) and to combat tax evasion.

### *Non-Tax Revenue*

Non-Tax Revenue is the recurring income earned by the government from sources other than taxes. Non-tax revenue is charged against services provided by the government. It also includes interest charged on loans advanced by the government for various purposes. Note that it is compulsory to pay a part of the income earned/generated and the amount of goods and services consumed as tax. However, non-tax revenue becomes payable only when services offered by the government are availed. The sources of non-tax revenue are for instance, when people avail services offered by the government, like electricity, telecommunication, broadband, etc., they pay bills, which include the share of non-tax revenue as the government provides infrastructure support to facilitate the services.

### *Investment*

The engagement of an asset to increase in value over time is referred to as investment. Investment necessitates the loss of a current item, such as time, money, or effort. The goal of investing in finance is to make a profit from the asset you've put money into. It is made up of resident producers' investments in fixed assets over a certain time, after subtracting disposals. Fixed assets are tangible or intangible assets that are formed as byproducts of manufacturing operations and are used repeatedly or continuously for more than a year. "Gross fixed capital formation" is another term for investment. The relevant assets are assets that are expected to be used in the production of other goods and services for longer than a year.

### *Remittance*

A remittance is a monetary payment sent to another person or organization. A remittance is any payment made to an invoice or bill in general. However, the word is currently most usually used to refer to a sum of money transmitted from a person working abroad to his or her family back home. Remittances are monetary payments made by people working outside of their home countries to recipients in the country from which they came. This is usually done via an electronic network, wire transfer, or letter. People, communities,

businesses, and governments all over the world have been linked by advances in communication, transportation, and information technology. Many countries now rely heavily on remittances as a source of revenue.

### 3.8 Model Specification

This study has applied some macro-economic development indicators such as GDP, IT, NTR, REM, INV and VAT. However, this study is an improved one in comparison to other earlier studies based on using forty-five years of data from 1975/76 to 2019/20 also is based on improved models have been used and it captures the link between GDP and major macroeconomic variables i.e., GDP, IT, VAT, NTR, INV & REM.

Main purpose of this study is to explore the relationship between income tax and domestic gross product because in most of the observations there is a common argument that direct tax basically income tax is not effectively utilized for the government financing purpose. So, in this study consumption function took the following form:

The general model is:

$$GDP = f (IT, VAT, NTR, INV \& REM) \dots\dots\dots (1.1)$$

Where,

GDP= Gross Domestic Production in Nominal Value

IT= Income Tax

VAT= Value Added Tax which is regarded as a Controlled Variable

NTR= Non-Tax Revenue

INV= Investment

REM= Remittance

Model 1.1 can be rearranged into natural logarithm form.

$$\ln GDP_t = \alpha + \beta_1 \ln (IT_t) + \beta_2 \ln (VAT_t) + \beta_4 \ln (NTR_t) + \beta_5 \ln (INV_t) + \beta_6 \ln (REM_t) + \mu_t \dots\dots\dots (1.2)$$

Where,

$\alpha$  = Constant term

$\beta_1, \beta_2, \dots, \beta_6$  = Coefficients of the variables of the model

t = Time (1975/76- 2019/20)

$\mu_t$  =Error term

Regression analysis is done to find out the relationship between income tax and gross domestic product which have an impeccable effect on the performance of Nepal. Time series data is used for which annual data spanning from 1975/76 to 2019/20 is taken. The financing and budgeting performance have been a pivotal issue for developing countries. We have developed the research methodology to address our concern about the relationship between income taxation and GDP of Nepal. With regard to the objective Income tax, VAT, Nontax revenue, are an independent variable in the model which is taken as the proxy of economic growth and development. VAT is also regarded as a controlled variable that does not have any control on the model and the role is less as well. The Investment and Remittance Index are included in the model to capture the macroeconomic impact on GDP. Therefore, each variable is equally important and cover overall factors that influence the growth of the country.

Domestic investment is believed to be positively connected with income and business profit taxes, VAT, and indirect tax receipts, all of which are favorably correlated with national income in this study. Domestic investment, direct taxation, and indirect taxation are all functions of national income (GDP). The current level of dependent variables is influenced by previous variables, while previous dependent variables are directly influenced by the previous level of GDP. As a result, the function now includes lag GDP. Similarly, remittance is one of the most important factors of investment because it is used as a cost of capital in business. The study's goal is to determine the relation of income taxation and GDP because the ratio of direct tax to GDP has been rising.

Based on our model, ARDL bounding test will be as:

$$\Delta \text{LnGDP}_t = \beta_0 + \sum_{i=0}^q \beta_{1i} \Delta \text{LnGDP}_{t-i} + \sum_{i=0}^q \beta_{2i} \Delta \text{LnIT}_{t-i} + \sum_{i=0}^q \beta_{3i} \Delta \text{LnVAT}_{t-i} + \sum_{i=0}^q \beta_{4i} \Delta \text{LnNTR}_{t-i} + \sum_{i=0}^q \beta_{5i} \Delta \text{LnINV}_{t-i} + \sum_{i=0}^q \beta_{6i} \Delta \text{LnREM}_{t-i} + \beta_7 \text{LnGDP}_{t-1} + \beta_8 \text{LnIT}_{t-1} + \beta_9 \text{LnVAT}_{t-1} + \beta_{10} \text{LnNTR}_{t-1} + \beta_{11} \text{LnINV}_{t-1} + \beta_{12} \text{LnREM}_{t-1} + \mu_t \dots\dots\dots(1.3)$$

Where  $\Delta$  is the first difference operator,  $q$  is the optimum lag length,  $\beta_1, \beta_2, \dots, \beta_6$  are short run dynamics of the model and  $\beta_7, \beta_8, \dots, \beta_{12}$  are long run elasticity.  $\mu_t$  is the error term. We conducted bound test based on the above equation. As per the result of the bound test, if the value of calculate F statistics, is greater than the upper bound I (1), the null hypothesis should be rejected. If the calculated value of F statistics is greater than the upper bound, there exists co-integration and the study further proceeds for error correction version of the above equation. If F statistics is less than the lower bound or inconclusive value comes between the lower bound I (0) and upper bound I (1) in this case we run ARD short run which is based on OLS method.

$$\Delta \text{LnGDP}_t = \beta_0 + \sum_{i=0}^{q_1} \beta_{1i} \Delta \text{LnGDP}_{t-i} + \sum_{i=0}^{q_2} \beta_{2i} \Delta \text{LnIT}_{t-i} + \sum_{i=0}^{q_3} \beta_{3i} \Delta \text{LnVAT}_{t-i} + \sum_{i=0}^{q_4} \beta_{4i} \Delta \text{LnNTR}_{t-i} + \sum_{i=0}^{q_5} \beta_{5i} \Delta \text{LnINV}_{t-i} + \sum_{i=0}^{q_6} \beta_{6i} \Delta \text{LnREM}_{t-i} + \lambda \text{ECT}_{t-i} + \mu_t \dots\dots\dots (1.4)$$

Where  $q_1, q_2, q_3, \dots, q_6$  are optimal lag length and  $\lambda$  is the speed of adjustment parameter. ECT represents the error correction term derived from long run relationship from the above equation.

# CHAPTER - IV

## PRESENTATION AND ANALYSIS OF DATA

### 4.1 Trend Analysis of Direct Tax in Nepalese Economy

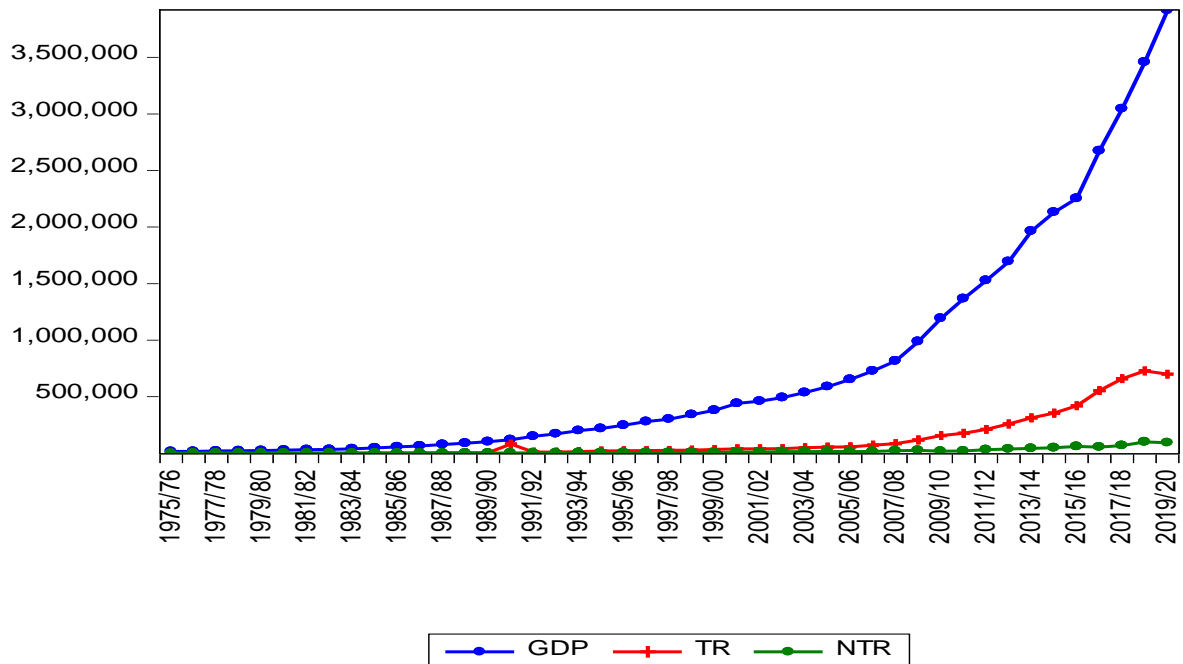
This is the most important aspect of the research. This chapter examines and presents the trend and nature of income taxation and other variables. Data analysis entails organizing and evaluating statistical results from various figures, tables, and charts. In this chapter, previously published data, and information on taxation in Nepal are presented and analyzed in order to determine the trend and contribution of income tax to government revenue. The study about trend of the variables which can be explained with the help of following various points separately:

#### 4.1.1 Observation of Trends

Various variables are used in the study which is defined as follows:

a. *Contribution of Tax Revenue and Non- Tax revenue*

**Figure 4.1: Contribution of Tax Revenue and Non-Tax Revenue**



Source: Various issues of Economic Survey from 1975/76 to 2019/20, MoF

To understand the growth pattern of taxation properly, it would be necessary to examine the share of total revenue, tax revenue and non-tax revenue in GDP. The graph above presents an account of total revenue, tax revenue and non-tax revenue as the percent of GDP. With respect to the contribution of GDP, tax revenue has been increasing much higher than the non-tax revenue over the past years. The table shows that the total revenue is in the increasing trend with the exceptions of the FY 1998/99, 2005/06 and 2010/11. In FY 1996/97, the share of total tax revenue to the GDP was 10.8 percent which increased to 11.90 percent in 2000/01 and then to 18.7 percent in FY 2013/14 and 24 percent in year 2018/19. Similarly, the share of non-tax revenue on GDP was 7.1 percent in the FY 1996/97 that reached to 11.9 percent in the FY 2014/15. Similarly, the ratio to GDP of tax revenue was 9.50 percent in 2000/01 whereas it was 21.40 percent in 2018/19. Last but not least, the GDP growth rate was 8.20% in 2000/01, 14.30% in 2018/19, and 19.9% in 2019/20.

*b. Nature of Investment (GFCF)*

**Figure 4.2: Nature of Investment**



Source: Various issues of Economic Survey from 1975/76 to 2019/20, MoF

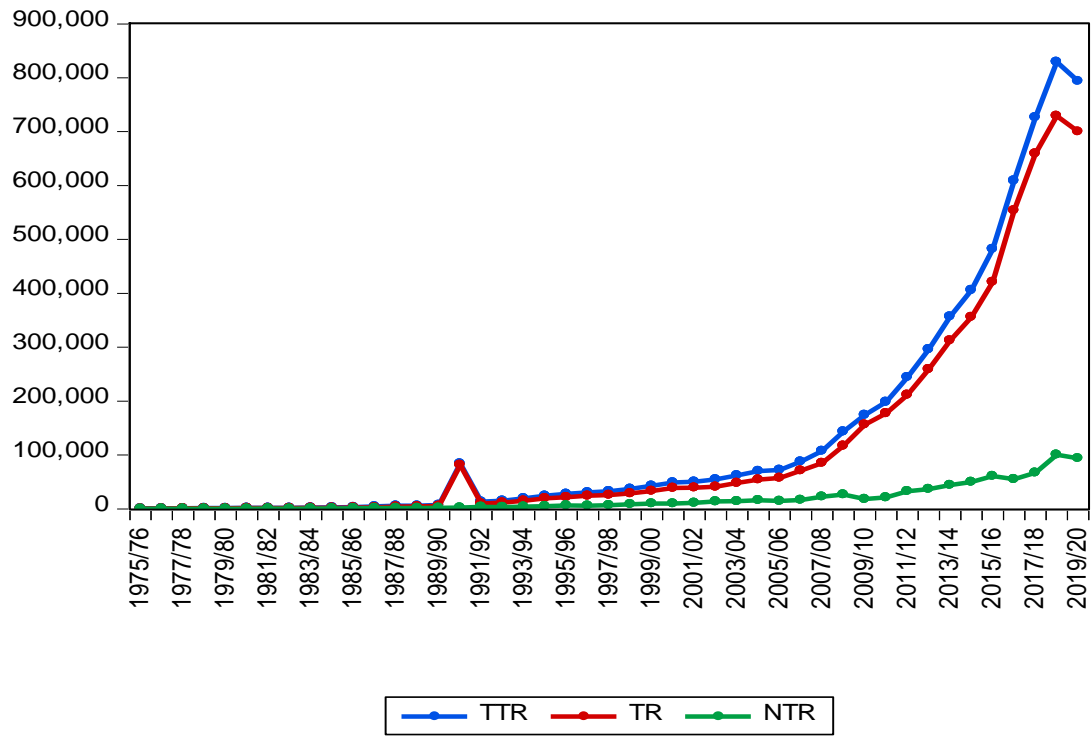
Above figure 4.2, shows an increasing trend of investment over the year. From year 1975/76 to 2019/20 there is a steady rise in the gross fixed capital formation of Nepal. Nepal's GFCF index was about Rs. 1112900 million in the past year (2020). Despite the COVID-19 pandemic in FY 2019/20, the ratio of investment shows a gradual increment,



it may be assumed that the investment is being made to respond to the pandemic and invest in the SDGs to support recovery from the pandemic and its after-effects. It is probable that the country's investment is increasing in response to the need for growth and development.

*b. Nature of Total Tax Revenue (TTR)*

**Figure 4.3: Nature of Total Tax Revenue**



Source: Various issues of Economic Survey from 1975/76 to 2019/20, MoF

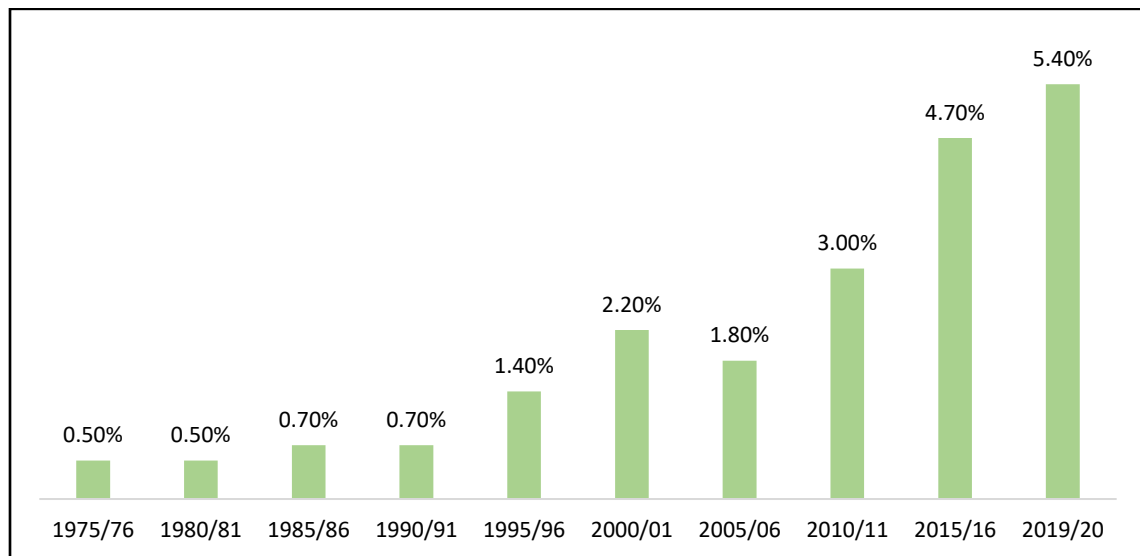
Nepal's government revenue is made up of tax and non-tax revenue, as it is in many other countries. The income structure of Nepal's first national budget, published in FY 1951/1952, was typical of a traditional economy, with 73 percent of government receipts coming from non-tax sources and land tax. Because of the increasing contribution of indirect tax on international commerce, the share of overall tax income has practically remained constant since FY 1985/86.

Tax revenue accounted for 80.4 percent of total revenue in FY 1996/97, totaling Rs. 24424.1 million out of Rs. 30373.4 million. Following this year, the share of tax revenue

steadily decreased until FY 2005/06, when it gradually increased to 87.6 percent (Rs. 312441.0 million) out of total revenue of Rs. 356620.5 million in FY 2013/14, and then increased to 87.70 percent (Rs. 355955.7 million) out of total tax revenue of Rs. 405866.5 million in FY 2014/15. Then, in FY 2018/19, total tax revenue (TTR), tax revenue (TR), and non-tax revenue (NTR) all increased dramatically, reaching Rs. 829620.6 million, Rs. 100590.1 million, and Rs. 729030.5 million, respectively. When the COVID-19 pandemic hit in FY 2019/20, the Nepalese economy was also impacted along with the drop in TTR, TR, and NTR. The report has left officials surprised because several surveys had shown that small and medium enterprises suffered more than the large enterprises due to the pandemic. As per the survey by the Nepal Rastra Bank conducted in June 2021 showed that around 64 percent of the small enterprises had fully closed due to the pandemic, while such closure among large enterprises was around 48 percent.

*c. Nature of Income Tax (IT) and GDP*

**Figure 4.4: GDP To Income Tax Ratio**

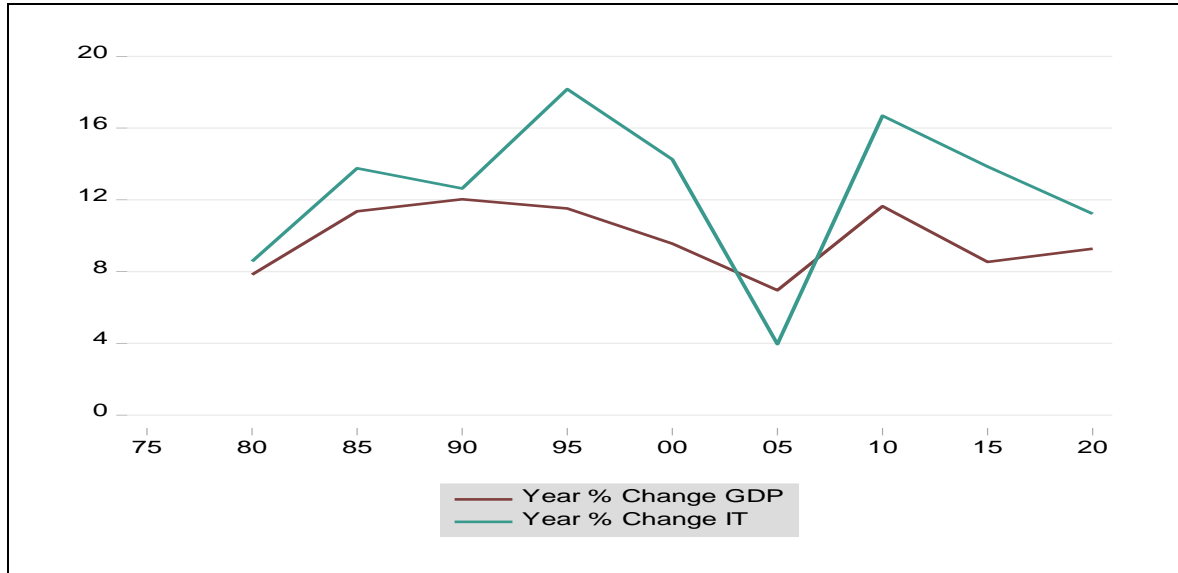


Source: Various issues of Economic Survey from 1975/76 to 2019/20, MoF

The above figure illustrates the ratio of GDP to Income tax over the year. The ratio was lowest in FY 1975/76(0.5%) and highest in the past year i.e., 2019/20 (5.40%). Throughout the survey year, the ratio of GDP and Income tax shows an increasing trend.

However, in year 2005/06 there was a significant drop in the ratio from 2.20% to 1.80%. Nonetheless, GDP to income tax ratio presents an optimistic trend in the recent year.

**Figure 4.5: Nature of Income Tax and GDP**



Source: Various issues of Economic Survey from 1975/76 to 2019/20, MoF

The amount of total income tax has increased significantly from FY 1975/76 (Rs. 87.2 million) to FY 2019/20 (Rs. 213237.4 million), as seen in the graph above. Among the various components of income tax, corporate income tax has accounted for a significant portion. However, the percentage of corporate income tax to total income tax shows a fluctuating trend, from FY 2002/03 (68.37 %) to FY 2019/20 (57.76 %). The amount of individual income tax on the other hand in the FY 2002/03 was 15.35 percent of the total income tax. Its share decreased from FY 2006/07 to 2010/11 but rose to 29.15 percent in the FY 2018/19 and later decreased to 27.17 percent in FY 2019/20 with the share of Rs.57927.8 million.

Considering, the graph it can also be seen that the country's GDP changes visibly with the certain level of change in income tax. The ratio of change is not the same as of income tax but there exists a significant change.

*e. Trend, Structure and Composition of Income Tax in Nepal*

Income tax revenue was divided into corporate income tax, individual income tax, and tax on remuneration until the fiscal year 1993/94. However, from fiscal year 1994/95, income tax revenue has been divided into four groups that includes corporate income tax, individual income tax, house and rent tax, and interest tax. Appendix F provides information on the trends of the various groupings as of 2002.

After FY 2002/03, the income tax was revised and now components of income tax include corporate income tax, individual and sole traders' tax on remuneration, tax on investment, windfall gain and others. The corporate income tax includes tax revenue obtain from government corporation public limited corporation and private limited corporation. Individual income tax comprises personal or sole trading income taxes. Similarly, the income tax on investment includes tax on lease or rent an interest.

The system of income taxation in Nepal has 45 years history commencing from FY 1959/60. Initially, Income tax was levied on business income and salary income. For every year, Finance Act prescribes the exemption limit for individual, family and couples which is provided in the appendix D and E. The rate of income tax has been changing continuously since its inception and the exemption limit has also been gradually increased. The exemption limit for the FY 2015/16 has been Rs. 250000 for an individual and Rs. 300000 for the couple and families. Appendix D and E presents the tax rate and tax exemption limit for a residential individual or residential couple having taxable income from employment. A resident or a couple having taxable income exceeding Rs. 20 lakhs are imposed an additional tax of 36 percent of tax liability. The resident share normally taxed as two single individuals. A resident individual and the resident spouse of the individual may be treated as couple. Even if the assessable income from employment is less than exemption limit, 1 percent social service tax is imposed on whole exemption amount. An individual having pension income is entitled to a 25 percent additional exemption. A disabled resident individual or couple is taxed only after deducting 50 percent of additional exemption from their taxable income. A female having taxable income from employment is taxed after deducting 10 percent from payable tax amount. If a resident has invested (life) insurance, annual premium paid for Rs. 20000 (whichever is lower) is subject to deduction from taxable income. An individual working in a remote

area is entitled to a hardship allowance called a remote area allowance up to a maximum of Rs. 50000 by way of additional basic exemption.

Income Tax Act 2002 has provided rebates of facilities to special industries. So, only 20 percent tax is levied on the income of special industries. Entities are taxed on a flat basis. Taxable income of a non- resident person providing shipping, air transport or telecommunication service is taxed at the rate of 5 percent. Windfall gain or casual income is taxed as final taxed income at 25 percent.

As discussed earlier, for every year, finance Act prescribes the exemption limit for individual, family, and couple. Above the exemption limit, different income tax rate has been levied in different fiscal year.

## 4.2 Income Tax, Total Tax Revenue and GDP

### 4.2.1 Unit Root Test

In a research study, it is critical to use time series data. Non-stationary data is common in time series data, and non-stationary data is unexpected and cannot be predicted or projected. The conclusion drawn from non-stationary time series data may be misleading and unreliable. Therefore, the study's findings should be reliable and consistent. As a result, if the data is non-stationary, it should be converted to stationary data.

This study employs Augmented Dickey-Fuller (ADF) unit root test to check the stationary. The result obtained from the formal unit root test is summarized as:

**Table 4.1: Augmented Dickey Fuller Test**

Variables	Level constant and trend	First difference constant and trend	Order of integration
LNGDP	-1.489048 ( 0.8181)	-5.957588 ( 0.0001)	<i>I</i> (1)
LnIT	-4.475729 (0.0047)	-5.032025 ( 0.0010)	<i>I</i> (0)
LnVAT	-3.333431 ( 0.0755)	-3.279269 ( 0.0230)	<i>I</i> (1)
LnNTR	--1.333331 ( 0.8656)	-7.202516 ( 0.0000)	<i>I</i> (1)
LnINV	-1.853278 (0.6614)	-6.370750 ( 0.0000)	<i>I</i> (1)
LnREM	--2.424256 ( 0.3626)	-9.036907 ( 0.0000)	<i>I</i> (1)

Source: Researcher's own calculation

As illustrated in Table 4.1, the variable under examination, namely LnIT, is stationary at the level determined by the ADF test while, others are not. When all data is converted to the first difference, all variables become stationary. This indicates that the data are of mixed type I (0) and I (1). When the data have a mixed order of integration, the Johansen Co-integration test cannot be performed. Thus, the Auto-regressive Distributive Lag (ARDL) model is used for further processing.

#### 4.2.2 Bound Testing

The data used in this study are mixed order, and after being subjected to the first difference, they were found to have become stationary. When dealing with data of types I (0) and I (1), the only model that may be used is the ARDL bound testing model. Bound testing can be performed to determine whether there is co-integration among the variables in this study. The following are the decision criteria provided by Pesaran et al (2001):

- i) A co-integration can be validated if the calculated value of F statistics is greater than the upper bound of the critical values.
- ii) If the computed value of F statistics is less than the lower bound of the critical values, the study determined that the variables do not co-integrate.
- iii) If the estimated value of the F statistics falls between the upper and lower bounds of the critical values, it can be argued that there is inconclusive co-integration or that it is not proven whether co-integration exists.

**Table 4.2: Bound Test**

Test Statistic	Value	Significance.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	3.632239	10%	2.08	3
k	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Source: Researcher's own calculation

From table 4.2, F- statistic 3.632239 is greater than upper bound I (1) so we can reject null hypothesis and accept there exist long run relationship at 10 percent of significance level. So here we can run long run, short run and ECM through ARDL.

### 4.2.3 ARDL Estimation

As it is described in chapter third, sub point 3.7 it is tested one by one in level form and first difference. Each category further tested as intercept and another form is intercept and trend. The study introduces the variables lnIT, lnTTR, lnREM, lnINV and lnGDP are checked one by one with the null and alternative hypothesis as follows example:

$H_0$  = the variable lnY has unit root/ the variable lnY is not stationary.

$H_1$  = the variable lnY has not unit root/ the variable lnY is stationary and so on.

The study employed ARDL estimation to examine the short-run and long-run association among the variables. First, the ARDL bound test is conducted and the result obtained from the test is presented as:

**Table 4.3: Long Run Coefficients of ARDL Model Dependent Variable D (LNGDP)**

Variable	Coefficient	Std. Error	t-Statistic	Probability
lnIT	0.074220	0.097470	0.761464	0.4538
lnVAT	0.022922	0.192478	0.119086	0.9062
lnNTR	0.176001	0.118738	1.482253	0.1513
lnINV	0.526728	0.275574	1.911386	0.0680
lnREM	0.047314	0.023037	2.053817	0.0510
C	3.990240	0.732059	5.450709	0.0000
EC = lnGDP - (0.0742*lnIT + 0.0229*lnVAT + 0.1760*lnNTR + 0.5267				
*lnINV + 0.0473*lnREM + 3.9902)				

Source: Researcher's own calculation

Table 4.3 reveals that lnIT, lnVAT, lnNTR, lnINV and lnREM are insignificant. So, 1 percent increase in income tax leads to increase 7.42 percent in tax GDP, as like, 1 percent increase in VAT contribute to increase 2.29 percent in GDP as the same way other macroeconomic variables like lnNTR, lnINV and lnREM are also contribute to 17.60 percent, 52.67 percent and 4.73 percent respectively to the GDP. These variables have the positive and insignificant impact on GDP in Nepal in the long run.

**Table 4.4: Error Correction Representation of the Selected Model: ARDL Model  
Dependent Variable D (LNGDP)**

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Probability
D(lnGDP(-1))	0.331927	0.110556	3.002337	0.0062
D(lnGDP(-2))	0.339665	0.119658	2.838627	0.0091
D(lnGDP(-3))	0.417089	0.090960	4.585422	0.0001
D(lnVAT)	0.264048	0.049699	5.312938	0.0000
D(lnNTR)	0.023268	0.022763	1.022172	0.3169
D(lnINV)	0.028581	0.055124	0.518476	0.6089
D(lnINV(-1))	-0.114464	0.058435	-1.958812	0.0619
D(lnINV(-2))	-0.204190	0.055033	-3.710341	0.0011
D(lnINV(-3))	-0.101449	0.059328	-1.709964	0.1002
D(lnREM)	-0.012611	0.008063	-1.564044	0.1309
CointEq(-1)*	-0.384286	0.068165	-5.637561	0.0000
R-squared	0.766922	Mean dependent var		0.126140
Adjusted R-squared	0.689230	S.D. dependent var		0.040625
S.E. of regression	0.022647	Akaike info criterion		-4.513374
Sum squared resid	0.015387	Schwarz criterion		-4.053635
Log likelihood	103.5242	Hannan-Quinn criter.		-4.345963
Durbin-Watson stat	2.349761			

Source: Researcher's own calculation

An error correction model belongs to a category of multiple time series models most commonly used for data where the underlying variables have a long-run stochastic trend, also known as cointegration. ECMs are a theoretically driven approach useful for estimating both short-term and long-term effects of one time series on another. The term error-correction relates to the fact that last-periods deviation from a long-run equilibrium, the error, influences its short-run dynamics. Thus, ECMs directly estimate the speed at which a dependent variable returns to equilibrium after a change in other variables.

Table 4.4 shows the error correction representation of the ARDL model that was chosen. There are two kinds of elasticity: short-term elasticity and long-term elasticity. The error correction term has a highly significant negative sign, which makes it more likely that there is a long-term relationship between the variables. However, the speed of adjustment from previous year's disequilibrium in GDP added to current year's equilibrium is only 38.42 percent.



#### 4.2.4 Diagnostic Test

Conducting numerous diagnostic tests is a vital step in time series modeling. Diagnostic testing on data series thus offers information regarding how these data might be modeled. When a model is assessed, diagnostic tests can be applied to appraise model residuals, which also help as tests of model competence. Diagnostic test of the residuals is very important test for the study of ordinary least square (OLS) method. The properties or the assumptions should be fulfilling for the fulfilled for the accurate results. Unless it provides us the spurious result (Wooldridge, 2012). When there are the large number of observations normality test should not be necessary (Gujarati, Porter, & Gunasekar, 2009).

**Table 4.5: Diagnostic Test**

Test	F-Statistics /Jarque-bera	Obs*R- squared	P- Value
Breusch-Godfrey Serial Correlation LM Test:	0.963794	3.302929	0.1918
Heteroscedasticity Test: Breusch-Pagan- Godfrey	0.595353	11.64933	0.7677
Normality	1.753532	-----	0.416127

Source: Researcher's own calculation

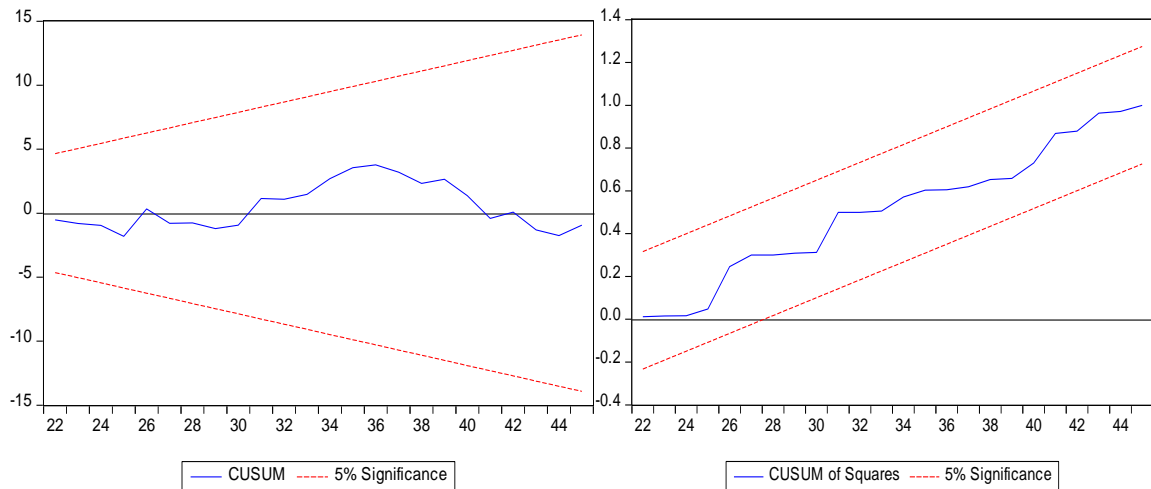
The P- value of Breusch-Godfrey serial Correlation LM Test, Heteroscedasticity test: Breusch-Pagan-Godfrey and normality test is greater than 5 percent which is desirable. So, this model is free from autocorrelation and heteroscedasticity. The residual is normally distributed.

#### 4.2.5 The Stability Test

The CUSUM test is one of the most used techniques to perceive change points. It started in quality control and moved to time series analysis since time series data suffer from changes due to the change of public policies and serious social measures. It is easy to know and execute in real usage and can be applied for both testing and estimating the positions of changes.

The study employs cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMQ) test to check the stability of the model. The result of the CUSUM and CUSUMQ is presented by the following figures respectively.

**Figure 4.5: CUSUM Test and CUSUM of Square Test**



Source: Researcher’s own calculation

The study conducted the CUSUM and CUSUM of Square test to test the stability of the model. If the plot of CUSUM lies within the 5 percent critical bound, then we cannot reject the null hypothesis of the stability of the parameters. As it is observed in the figure 4.5, it can be seen that the lines are between the significant of 5 percent. It implies that this model is robust and stable as both lines long run and short run coefficients are acceptable over the study period 1975/76 to 2019/20. The diagnostic tests confirm that the models have the desired econometric properties and conclude that the models are structurally stable.

## CHAPTER - V

### SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Summary

The study reports a brief scenario of income tax and its relationship with economic growth in the context of Nepal. In this regard, the role of income tax in GDP is also investigated employing the ARDL approach of co-integration with unit root analysis using annual data from FY 1975/76 to 2019/20. The variables  $\ln IT$ ,  $\ln TTR$ ,  $\ln REM$ ,  $\ln INV$ , and  $\ln GDP$  were checked one by one with the null and alternative hypothesis and further employed ARDL estimation. In which case, the study reveals that  $\ln IT$ ,  $\ln VAT$ ,  $\ln NTR$ ,  $\ln INV$ , and  $\ln REM$  are insignificant. As little as, 1 percent increase in income tax results in a 7.42 percent increment in tax GDP. 1 percent increase in VAT contribute to increase 2.29 percent in GDP. In the same way,  $\ln NTR$ ,  $\ln INV$  and  $\ln REM$  also contribute to 17.60 percent, 52.67 percent and 4.73 percent respectively to the GDP. Likewise, income tax, along with other independent variables, is found to have a positive and insignificant relationship with GDP in the long run. Slightly more than three-fourth (76.69 %) variation in tax revenue depends upon GDP, and the rest 23.31 percent variation from other factors. Furthermore, the coefficient of tax revenue variation is found to be greater than the coefficient of GDP variation (Appendix C). Hence, in the long run, there is a positive and significant relationship between income tax and GDP. However, the income tax-to-GDP ratio cannot ensure economic development or the fulfillment of financial resources in the short run. As a result, it is necessary to increase GDP to offset the tax revenue increment.

The study displays that the tax revenue, non-tax revenue and economic growth are co-integrated over the period from FY 1975/76 to 2019/20. If controlling the effect of non-tax revenue, it shows that there is a positive long run relationship between tax revenue and economic growth. Similarly, the ratio of income tax on GDP is increasing gradually. The longitudinal during the study period suggest that the institutional income tax

contributes 68.61 percent to GDP. Following that the investment income contributes 16.31 percent, and salary income contributes 14.23 percent. Meanwhile, the income tax ratio was as low as 1 percent in fiscal year 1975/76, 2.2 percent in fiscal year 2000/01, 4.7 percent in fiscal year 2015/16, and finally 5.4 percent in fiscal year 2019/20, indicating that the impact of income tax on GDP is positive and its contribution to GDP is favorable during the study period.

## **5.2 Conclusion**

Tax is regarded as one of the major instruments of economic policy. Savings as well as investments on resource allocation across different economic sectors are all significantly impacted through taxation. To increase the contribution of income tax to government revenue, effective taxation strategy is crucial. The few points that are considered from the study are listed below:

- Over time, variables like tax revenue, non-tax revenue, investment, and remittance have a small but favorable impact on Nepal's GDP. On the other hand, the coefficient of tax revenue variation is more than the coefficient of GDP variation. Therefore, the ratio of income taxes to GDP cannot guarantee economic growth or the fulfillment of financial resources in the short term.
- Income tax is the composition of corporate income tax, individual income tax and investment and other income tax. Over the year, the share of Income tax, salary income tax, corporate income tax, investment income tax, and capital gain tax is increasing in a significant manner. Except these, income tax payable by corporation and institution has the great contribution in the GDP of Nepal. Similarly, the trend of tax- to-GDP ratio of Nepal is expanding the tax revenue is highly dependent on the GDP of Nepal. Therefore, based on the longitudinal as well as quantitative data, Nepalese economy is found to be largely influenced by the income tax paid by businesses and other entities. Also, Nepal's tax-to-GDP ratio is improving in an encouraging manner.

### 5.3 Recommendations

Having a look at the scenario of taxation, the Nepalese economy is severely constrained by a lack of financial resources, according to trends and statistics from various financial years, i.e., the gap between public spending and tax revenue is widening. In the meantime, the Nepalese economy is heavily dependent on external as well as domestic loans, which are considered unfavorable as they further widen the imbalance between expenditures and tax revenue. In order to address the resource deficit and raise enough money to cover government spending, income tax plays a critical role in Nepal. The effectiveness of income tax completely depends upon the implementation of income tax laws and provisions, which are the major responsibilities of income tax administration.

In the light of objectives, hypothesis and empirical findings of the present study, major suggestions for policy makers and future researchers are listed below: -

- The economic situation in Nepal has demonstrated that a greater tax-to-GDP ratio alone cannot guarantee high economic growth. Rather than focusing primarily on customs revenue and income tax, it can be beneficial if the government broadens the tax net. So that the government can prioritize on tax flexibility so as to maximize GDP, which further allows the maximization of tax revenue. Similarly, the tax ratio should be increased gradually on a long-run basis to meet the government's expenditure. The tax basis should be widened to cover this. Enlargement of the tax base can be a fruitful way to raise the tax revenues in Nepal. On the other hand, investment is discouraged by a high tax-to-GDP ratio. whereas lowering the tax rate is required to allow investors to increase their investments. As a result, it is crucial to consider the impact on private investment when determining on the tax rate as well as to raise the proportion of direct tax revenue in total tax revenue by implementing a system of taxes that is both effective and efficient.
- This study tries to examine the relationship between income tax and GDP along with tax revenue. As per the study, the tax revenue is likely to enhance economic growth through income tax, but from what channel has not been figured out. So,

for future researchers, it would be interesting to extend analysis on the effects of income taxation for different income groups (Mertens and Montiel-Olea, 2018) and its time-varying effect depending on the tax shocks. Additionally, there is no comparison of direct and indirect taxes in this study. Therefore, it would be wiser to compare how direct and indirect taxes affect the country's economic growth.

## APPENDIX A: NOMINAL DATA

(Rs. in million)

Year	TTR	IT	VAT	NTR	REM	TR	INV	GDP
1975/76	931.7	87.2	181.9	205	97.7	726.7	2443	17394
1976/77	1075.6	133.3	247.3	222.8	125.4	852.8	2581	17280
1977/78	1275.9	136.8	306.2	338.2	120.0	937.7	3294	19732
1978/79	1414.4	103	397.3	334.9	146.3	1079.5	3263	22215
1979/80	1446.8	111.2	443.2	351.2	150.3	1095.6	3681	23351
1980/81	1815.2	144	604	383.5	216.8	1431.7	4299	27307
1981/82	2000.8	189.7	678.7	468.2	205.5	1532.6	5465	30988
1982/83	2021.5	240.1	825.1	420.5	292.5	1601	6576	33761
1983/84	2501.8	290.9	907.5	672.3	280.0	1829.5	6907	39390
1984/85	2904.2	307.3	1012.6	765.6	275.4	2138.6	9710	46587
1985/86	3471.5	364.4	1173	985.2	346.7	2486.3	10124	55734
1986/87	4610.4	437.5	1363	1601.7	478.7	3008.7	12459	63864
1987/88	5737.9	579	1612.5	1597.6	589.8	4140.3	15321	76906
1988/89	6081.8	861.1	1698.9	1493.5	602.1	4588.3	16176	89270
1989/90	7359	919	1953.8	2028.9	676.8	5330.1	16671	103416
1990/91	10,730.90	829.7	2354.4	2553.5	549.7	8177.4	22780	120,370.0
1991/92	13512.7	959.1	3283.6	3637.1	423.6	9875.6	29277	149,487.0
1992/93	15148.4	1281.3	4007.7	3485.9	549.7	11662.5	37278	171,474.0
1993/94	19580.9	2022.1	5380.9	4209.4	223	15371.5	42032	199,272.0
1994/95	24605.1	2911.6	6857.1	4945.1	2906.7	19660	48370	219,175.0
1995/96	27893.1	3589.6	7429.3	6225.1	2660.2	21668	56081	248,913.0
1996/97	30373.3	4324.6	8162.9	5949.2	2938	24424.1	60794	280,513.0
1997/98	32924.7	5183.7	8020.6	6998.1	4084.2	25926.6	65375	300,845.0
1998/99	37251.4	6512.9	8765.9	8498.4	6520.6	28753	65269	342,036.0
1999/00	42889.9	7935.6	10259.7	9741.6	6031.4	33148.3	73324	379,488.0
2000/01	48893.8	9546.5	12382.4	10028.8	9797.6	38865	84750.6	441,519.0
2001/02	50448.2	9465.7	12267.3	11116	14859.8	39332.2	89889.3	459,442.6
2002/03	54538.9	8691.4	13459.7	13642.9	41630	40896	98072.8	492,230.8
2003/04	62333.7	10215.1	14478.9	14158	56629.8	48175.7	109181.3	536,749.1
2004/05	70124.1	11272.6	18885.4	16018.0	61784.8	54106.1	117538.9	589,411.7
2005/06	72278.5	11787.0	21610.7	14851.5	92748.6	57427	135532	654,084.1
2006/07	87753.4	16726.8	26095.6	16585.4	107417.4	71168	153337	727,827.0
2007/08	107622.5	20147.0	29815.7	22467.0	139421.5	85155.5	178446	815,658.2
2008/09	143474.5	29097.4	39700.9	26422.6	194215.6	117051.9	211039	988,271.5
2009/10	174500.5	33821.3	54920.9	18205.6	213998.9	156294.9	264890	1,192,773.6
2010/11	198375.9	41350.3	61663.6	21148.7	225909.4	177227.2	292730	1,366,954.1
2011/12	244373	51303.0	70930.4	32651.2	333366.8	211721.8	317180	1,527,343.6
2012/13	296021.1	64186.7	83418.4	36806.2	394348.7	259214.9	382970	1,695,011.1
2013/14	356620.8	75613.6	101104.6	44179.5	490302.5	312441.3	462010	1,964,539.6
2014/15	405866.4	86165.6	112521.8	49910.7	540053.2	355955.7	595820	2,130,149.6
2015/16	481961.6	105648.8	122411.9	60865	594588.3	421096.6	647290	2,253,163.1
2016/17	609179.9	144846.1	161068.3	55313.4	602497.4	553866.5	840690	2,674,492.8
2017/18	726717.5	154790.0	206809.8	67233.3	654003.1	659484.2	1051960	3,044,927.1
2018/19	829620.6	188413.6	240121.3	100590.1	750690.0	729030.5	1164940	3,458,792.9
2019/20	793750	213237.4	224016.5	93690	754470.8	700060	1112900	3,914,701.1

Source: Various quarterly economic bulletins, NRB and Economic Survey

## APPENDIX B: NATURAL LOGGED DATA

Year	LnTTR	LnIT	LnVAT	LnNTR	LnREM	LnGDP	LnINV
1975/76	6.8370109	4.4682043	5.2034571	5.32301	4.5819016	9.7638806	7.8009821
1976/77	6.9806339	4.8926022	5.5106022	5.4062745	4.8315086	9.757305	7.8559322
1977/78	7.1514071	4.91852	5.7242385	5.8236374	4.7874917	9.889997	8.0998579
1978/79	7.2544607	4.634729	5.9846917	5.813832	4.9856593	10.008523	8.0904023
1979/80	7.2771095	4.7113304	6.0940211	5.8613559	5.0126333	10.058395	8.2109397
1980/81	7.5039509	4.9698133	6.4035742	5.9493396	5.3789753	10.214898	8.3661377
1981/82	7.6013024	5.2454439	6.5201792	6.1488956	5.325446	10.341355	8.6061194
1982/83	7.6115951	5.4810555	6.7155046	6.0414445	5.6784647	10.427062	8.7911819
1983/84	7.8247658	5.6729796	6.8106936	6.5107047	5.6347896	10.581267	8.8402907
1984/85	7.9739132	5.7278245	6.9202766	6.6406598	5.6182246	10.749077	9.1809116
1985/86	8.1523421	5.8982522	7.0673198	6.8928447	5.8484599	10.928346	9.2226641
1986/87	8.4360699	6.0810767	7.2174434	7.3788208	6.1710741	11.064511	9.4301985
1987/88	8.6548486	6.3613025	7.385541	7.3762578	6.3797835	11.250339	9.6369797
1988/89	8.713056	6.7582106	7.4377363	7.3088776	6.4004235	11.399421	9.6912839
1989/90	8.9036793	6.8232861	7.5775315	7.6152491	6.5173758	11.546515	9.721426
1990/91	9.2808827	6.7210642	7.7640412	7.8452202	6.3093727	11.698326	10.033638
1991/92	9.5113853	6.8659953	8.0966957	8.1989419	6.0487896	11.914965	10.284558
1992/93	9.6256502	7.1556305	8.2959728	8.1564815	6.3093727	12.052187	10.526159
1993/94	9.8823099	7.6118919	8.5906109	8.3450754	5.4071718	12.202426	10.646187
1994/95	10.110709	7.976458	8.8330399	8.5061525	7.9747737	12.297626	10.786635
1995/96	10.236135	8.1857961	8.9131869	8.7363448	7.8861566	12.424859	10.934552
1996/97	10.321319	8.3720749	9.0073548	8.691012	7.9854844	12.544375	11.015246
1997/98	10.401978	8.5532744	8.9897685	8.853394	8.3148811	12.61435	11.087895
1998/99	10.525445	8.7815401	9.0786245	9.0476332	8.7827217	12.742671	11.086272
1999/00	10.666392	8.9791142	9.2359789	9.1841607	8.7047344	12.846578	11.202643
2000/01	10.797406	9.1639299	9.4240314	9.2132162	9.1898927	12.997976	11.347468
2001/02	10.828702	9.15543	9.4146925	9.3161408	9.6064149	13.037769	11.406334
2002/03	10.906669	9.0700893	9.5074553	9.5209745	10.636576	13.106703	11.493465
2003/04	11.040257	9.2316223	9.5804477	9.5580351	10.944291	13.193286	11.600765
2004/05	11.158022	9.3301303	9.8461444	9.6814684	11.031413	13.28688	11.674525
2005/06	11.188282	9.3747525	9.9809438	9.6058561	11.437648	13.390991	11.816963
2006/07	11.382286	9.7247675	10.169522	9.7162781	11.584477	13.497819	11.940393
2007/08	11.586385	9.9108107	10.30279	10.019803	11.845257	13.611751	12.092041
2008/09	11.873913	10.278404	10.589129	10.181975	12.176724	13.803713	12.259798
2009/10	12.069683	10.428846	10.913649	9.8094845	12.273726	13.991792	12.48707
2010/11	12.197919	10.629835	11.029449	9.9593337	12.327889	14.128096	12.587006
2011/12	12.406451	10.845505	11.169454	10.393637	12.716999	14.239041	12.667225
2012/13	12.598186	11.069551	11.331624	10.513422	12.884991	14.3432	12.855712
2013/14	12.784428	11.233391	11.523911	10.696016	13.102778	14.490768	13.043342
2014/15	12.913779	11.364026	11.630902	10.817991	13.199423	14.571703	13.297694
2015/16	13.08562	11.567876	11.715147	11.016414	13.295625	14.627846	13.38055
2016/17	13.319869	11.883427	11.989584	10.92077	13.308839	14.79927	13.641978
2017/18	13.496293	11.949825	12.239555	11.115924	13.390867	14.928988	13.866166
2018/19	13.628724	12.146395	12.388899	11.518809	13.528748	15.05643	13.96818
2019/20	13.584524	12.270161	12.319475	11.447747	13.533772	15.18025	13.92248

Source: Author's own calculation



### APPENDIX C: PROCESSED DATA

Year	GDP to IT	GDP to TTR	GDP to TR
1975/76	0.5%	5.4%	4.2%
1976/77	0.8%	6.2%	4.9%
1977/78	0.7%	6.5%	4.8%
1978/79	0.5%	6.4%	4.9%
1979/80	0.5%	6.2%	4.7%
1980/81	0.5%	6.6%	5.2%
1981/82	0.6%	6.5%	4.9%
1982/83	0.7%	6.0%	4.7%
1983/84	0.7%	6.4%	4.6%
1984/85	0.7%	6.2%	4.6%
1985/86	0.7%	6.2%	4.5%
1986/87	0.7%	7.2%	4.7%
1987/88	0.8%	7.5%	5.4%
1988/89	1.0%	6.8%	5.1%
1989/90	0.9%	7.1%	5.2%
1990/91	0.7%	7.5%	6.0%
1991/92	0.6%	9.0%	6.6%
1992/93	0.7%	8.8%	6.8%
1993/94	1.0%	9.8%	7.7%
1994/95	1.3%	11.2%	9.0%
1995/96	1.4%	11.2%	8.7%
1996/97	1.5%	10.8%	8.7%
1997/98	1.7%	10.9%	8.6%
1998/99	1.9%	10.9%	8.4%
1999/00	2.1%	11.3%	8.7%
2000/01	2.2%	11.1%	8.8%
2001/02	2.1%	11.0%	8.6%
2002/03	1.8%	11.1%	8.3%
2003/04	1.9%	11.6%	9.0%
2004/05	1.9%	11.9%	9.2%
2005/06	1.8%	11.1%	8.8%
2006/07	2.3%	12.1%	9.8%
2007/08	2.5%	13.2%	10.4%
2008/09	2.9%	14.5%	11.8%
2009/10	2.8%	14.6%	13.1%
2010/11	3.0%	14.5%	13.0%
2011/12	3.4%	16.0%	13.9%
2012/13	3.8%	17.5%	15.3%
2013/14	3.8%	18.2%	15.9%
2014/15	4.0%	19.1%	16.7%
2015/16	4.7%	21.4%	18.7%
2016/17	5.4%	22.8%	20.7%
2017/18	5.1%	23.9%	25.0%
2018/19	5.4%	24.0%	25.3%
2019/20	5.4%	20.3%	17.9%

Source: Author's own calculation

#### APPENDIX D: INDIVIDUAL INCOME LEVEL

<b>For Individual (Income level NPR)</b>	<b>Tax Rate</b>	<b>Taxable Amount</b>
Up to Rs.4 lakh	1 %	NRP 4,000
Additional 1 lakh	10 %	NRP 14,000
Additional 2 lakh	20 %	NRP 54,000
Next 1,300,000	30 %	NRP 444,000
Additional tax above 2,000,000	36 %	NRP 624,000

Source: Annual Report, IRD 2020-21

#### APPENDIX E: COUPLE INCOME LEVEL

<b>For Couple (Income level NPR)</b>	<b>Tax Rate</b>	<b>Taxable Amount</b>
Up to Rs.450,000	1 %	NRP 4,500
Additional 1 lakh	10 %	NRP 14,500
Additional 2 lakh	20 %	NRP 54,500
Next 1,300,000	30 %	NRP 429,500
Additional tax above 2,000,000	36 %	NRP 609,500

Source: Annual Report, IRD 2020-21

**APPENDIX F: COMPONENT OF INCOME TAX AND THEIR SHARE**

(Rs. in million)

<b>Fiscal Year</b>	<b>Total Income Tax</b>	<b>Corporate Income Tax</b>	<b>% to Total Income Tax</b>	<b>Individual Income Tax</b>	<b>% to Total Income Tax</b>	<b>Investment Income TAX</b>	<b>% to Total Income Tax</b>
2002/03	8132.2	5554	68.37	1249	15.35	1321.5	16.25
2003/04	9504	6805	71.6	1392.9	14.65	1291.9	13.59
2004/05	10456	7331.3	70.11	1678.2	16.05	1425.9	13.63
2005/06	10933.5	7576.5	69.29	1771.1	16.19	1546.6	14.14
2006/07	15730	11604.9	73.77	2006.8	12.75	2080.1	13.22
2007/08	19067.5	13263.2	69.55	5452	12.85	3271.7	17.15
2008/09	27479.7	19646.4	71.49	3398.5	12.36	4169.7	15.17
2009/10	33832.1	24054.3	71.09	4420	13.06	5087.9	15.03
2010/11	42066.3	28807.2	68.48	5863.8	13.93	7108.9	16.89
2011/12	52880	30415.8	59.27	12382.7	23.41	8515.3	16.1
2012/13	64178.3	37069.6	57.76	15532.9	24.2	11575.8	18.02
2013/14	75609.2	45429.8	60.09	19433.2	25.7	10746.3	14.2
2014/15	86168.0	51900.3	60.23	22718.1	26.36	11549.7	13.40
2015/16	114138.0	70969	62.18	29965	26.25	11320.4	9.92
2016/17	144846.1	92648.4	63.96	34854.5	24.06	17343.1	11.97
2017/18	154790	87596.8	56.59	41406.9	26.75	25786.3	16.66
2018/19	188303.8	104868.1	55.69	54895.3	29.15	28540.5	15.16
2019/20	213237.4	123155.5	57.76	57927.8	27.17	32154.0	15.08

Source: Various quarterly economic bulletins, NRB and Economic Survey

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