PUBLIC EXPENDITURE ON HEALTH SECTOR IN NEPAL

A Thesis

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By

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RECOMMENDATION LETTER

This thesis entitled "Public Expenditure on Health Sector in Nepal" has been prepared by Mr. Surendra Bahadur Chand under my guidance and supervision. I hereby recommend this thesis for the final examination to the thesis committee as partial fulfillment of the requirements for the degree of Master of Arts in Economics.

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Prof. Dr. Ram Prasad Gyawaly

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APPROVAL LETTER

We certify that this thesis entitled “Public Expenditure on Health Sector in Nepal ", submitted by Mr. Surendra Bahadur Chand to the Central Department of Economics, Faculty of Humanities and Social Science, Tribhuvan University, in the partial fulfillment of the requirements for the degree of Master of Arts in Economic has been found satisfactory in scope and quality. Therefore, we accept this thesis as a part of the Degree.

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DECLARATION

I hereby, declare that the thesis entitle “Public Expenditure on Health Sector in Nepal” is my own work and that it contains no materials previously published. I have not used its material for the award of any kind and any other degree. All the relevant authors and sources of information have been acknowledged by references.

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ACKNOWLEDGEMENT

It is my great pleasure to submit this thesis on "PUBLIC EXPENDITURE ON HEALTH SECTOR IN NEPAL" has been designed to fulfill the partial requirement for Master's Degree of Arts in Economics.

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Surendra Bahadur Chand

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ABBREVIATION

CEDECON	Central Department of Economics
CHE	Capital Health Expenditure
CNHE	Capital Non-Health Expenditure
Df	Degree of Freedom
FY	Fiscal Year
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GoN	Government of Nepal
MOF	Ministry of finance
MoHP	Ministry of Health and Population
MS	Mean of Square
NHE	Non-Health Expenditure
NPC	Nepal Planning Commission
NRB	Nepal Rastra Bank
RHE	Recurrent Health Expenditure
RNHE	Recurrent Non-Ealth Expenditure
S.D	Standard Deviation
S.E.	Standard Error
SS	Sum of Square
THE	Total Health Expenditure
TPE	Total Public Expenditure
TSE	Total Social Expenditure
TU	Tribhuvan University
TX	Total Export
WB	World Bank

CHAPTER I
INTRODUCTION

1.1 Background of the Study

Nepal is one of the landlocked countries in the South Asia. It is a least developed country in the world, where per- capita income is only US $ 866 according to the economic survey of 2016/17, and 21.6 percentage peoples are living below the poverty line. The living standard of the people is deteriorating every year. Though, large amount of money is spending from Government and non-government sector to uplift the living standard of the people. Such situation mainly occurs due to slow growth of gross domestic product (GDP) as compare to the rate of inflation.

The term of public expenditure refers to the investment of a state for the day to day administration and for overall development of the Nation. Each and every nation tries to create a welfare state through its expenditure. The role and responsibility of a state is greater in least developed or undeveloped countries than in developing countries. In most of the developed countries private sector are performing the best economic activities while in under developed countries, there is a greater lack of private sector or entrepreneurs.

Public expenditure is the most important instrument of the fiscal policy. It plays an important role in achieving higher rate of economic growth. The main source of finding public expenditure is the public revenue. Public expenditure can cause significance variation in income, output and employment of the country. Public finance today is conceived as the most exciting branch of economy. It deals with the coming in and going out of public part of the resources along with its distinct impact on the economy

In developing countries generally the private sectors not reluctant to involve long term invest for building infrastructure such as road, power generation, telecommunication, and for the development of social sector, such as education, health, drinking water, because the return on such investment is not quick. So public expenditure is required for such investment and provides the service or facility to general people.

Public expenditure is one of the major dimensions of fiscal policy. According to Brown and Jackson (1980) "Total public expenditure is the sum of the expenditure on current and capital accounts of the public sectors and is equal to the sum of consolidated public sector receipts". In other words, public expenditure is the expenditure made by local and national agencies as distinct from those private individuals, organizations or firms.

Public expenditure is one major dimension of fiscal policy. Total public expenditure is the sum of expenditure on current and capital accounts of the public sector and is by definition equal to the sum of consolidated public sector receipt. In other words, public expenditure is that expenditure which is made by local and national government agencies as distinct from those of private individuals, organization or firms (Godde, 1984).

Public expenditure on health consists of health and health related expenditures. Expenditure are defined on the basis of their primary or predominant purpose of improving health, regardless of the primary function or activity of the entity providing or paying for the associated health services.
Government health expenditure includes both the health of individuals as well as of groups of individuals or population. Health expenditure consists of all expenditures or outlays for medical care, prevention, promotion, rehabilitation, community health activities, health administration and regulation, capital formation with the predominant objective of improving health. Health related expenditures include expenditures on health related functions such as medical education and training, research and development.

The improvement of health status of people requires allocating the public resources for the health sector and spending them in such a way that it should insure easy and affordable access of health service to the people. The primary goal public health spending is to produce healthy manpower for economic development of the country and to ensure the access to health service. The size and quality of public expenditure on health sector play a crucial role in the social equity and poverty reduction. It is imperative to examine critically the public health spending and to provide evidence for redesigning health policy and improving budget performance. Health, in every sense, is the fundamental factor of development. Improvement of health contributes to

productivity by raising the quality of the people and these outlays yield or continuing return in the future. No country can achieve sustainable economic development without substantial in human capital i.e. health, education, sanitation etc.
Thus, the government of the LDCs like Nepal is making valuable contribution towards increasing income and opportunity of employment in the country by increasing their expenditure on economic development. Public expenditure in the LDCs therefore plays vital role in raising the level of income and employment in the country.

1.2 Statement of the Problem

Nepal has been starting budget since 1951 and has started the planning process of economic development since 1956. It has crossed around six decades of its experience. But the basic issue of the country is not significantly fulfilled.

Most of the citizens have been suffering from the very normal diseases such as, malariya, tuberculosis, dysentery, leprosy, diabetes, diareya, etc due to the lack of infrastructure and proper expenditure on this sector. But the government of Nepal announced on 19, January2010 that the country becomes free from the normal disease like malaria, diaria, fever, etc.

In the development process of Nepal, public expenditure has increased remarkably and they have mostly been confined to social economic infrastructure development. However, expenditure program are not expanded properly on the social and economic objectives. Rapid population growth is one of the fundamental characteristics of the least developed country Nepal.

Growing population put pressure on the government for the provision of greater social service (health, education, sanitation, etc). In the health sector, there will be made more physical buildings, more furniture's, more doctors are to be appointed and well health services are to be provided.

Health statuses of Nepalese people are still I endangered mode in comparison to other South Asian countries. As per the calculation of 2016, infant mortality rate is 28.9 per 1000 live births. Bacteria, dialaria, and dengue fever are still in awakening mode. On

contrary small pox, polio, leprosy, maternal and Neonatal Tetanus has been eliminated on good terms.

Though the budget speech comes every year, the government sets the goal of economic development and growth. After the first annual budget in 1952, this process has become a routing practice in Nepal. However even sixty four year of experience in Nepal has not been able to achieve a satisfactory economic growth. They can be judged from various development indicators for instance, infant mortality rate, maternal mortality rate, population below poverty line, illiteracy rate are still very high and thirty three percent of GDP is covered by agricultural, which is still depending on weather.

According to budget and the spending system of the government, there is a deviation in budget and the actual spending of the government. The actual public expenditure can be attributed to a few factors. Firstly, resources may not have been allocated realistically and at times, there seems to be very ambitious allocation of the resources. Secondly, the government has not been able to develop the mechanism to utilize the allocated resources to the extent desired on various programmers.

In spite of achievements in health sector, Nepal still bears highest mortality and morbidity rate than other developing countries. All of the people are not accessible to health instructions. Rural areas of Nepal are exhaustively stingy of health posts and health personnel's. So, people have to migrate towards urban states for a hospital visit.

There are so many issues and problems seems in the health sector of Nepal despite the government of Nepal has been increasing the expenditure on health service. However, the study is focused on following research question:

i. What is the trend of public expenditure on health service in Nepal?
ii. What is the impact of health expenditure on economic growths?

1.3 Objectives of the Study

The general objective of the study is to examine the trend of public expenditure on health sector and its impact on growth from 1974/75AD and further.

The specific objectives are:

i. To show the trend of public expenditure on health sector in Nepal.
ii. To analysis the impact of government health expenditure on economic growth.

1.4 Significance of the Study

All economic activities i.e. production, consumption are affected directly or indirectly by people's health situation. Hence, health should remain well to all because it serves as backbone in the economic development of country. This is possible through the public health expenditure.

Health and economic development are highly interrelated because it is confusing to identify which is the cause and which is the effect. However, general view is that economic growth and development results from the good health i.e. economic growth and development through the impact on per capita income and is determinant of good health.

In Nepal most of the people are not yet getting health facilities whether to get health facilities basic right of the people. There is great challenge to the nation to give proper health facility to the citizen. To the fulfillment of that issue government has been allocating the budget in increasing trend.

The study shows the trend of government total health expenditure, composition of health expenditure, total health expenditure as percentage of total public expenditure, annual growth on total public expenditure and health expenditure, per capita health expenditure, health expenditure as percentage of GDP, total public expenditure as percentage of GDP. So, this study is focused on what is the trends of public expenditure during the study period; 1974/75 to 2019/20 and how health expenditure affect the economic growth.

1.5 Limitation of the Study

This study is based upon the study period; 1974/75 to 2019/20. There are some limitations of this study, they are given below:

- This study is based on the published secondary data and information.

- This study would cover the period from it F.Y. 1974/75 to F.Y. 2019/20.
- This study is specially limited to analysis the impact of public health expenditure on economic growth.
- Ordinary least square method has been used to estimate the regression parameters.

1.6 Organization of the Study

This study has been organized in five different chapters as follows:

Chapter I: Introduction

This chapter deals with the subject matter consisting background of the study, statement of the problem, objectives of the study, significance of the study, limitations of the study.

Chapter II: Review of Literature

This chapter includes a discussion on the theoretical as well as empirical aspects and evidences of public expenditure specializing in health sector.

Chapter III: Research Methodology

This chapter describes the research methodology adopted in carrying out the present research. Its deals with research design, nature and sources of data, data collection procedure, tools and techniques of data collection and methods of data analysis which answers how the research has been conducted and what are the tools and techniques applied for presentation and analysis of data to draw the findings and conclusion.

Chapter IV: Data Presentation and Analysis

In this chapter, data with their presentation and interpretation with different statistical tools and techniques in order to draw required findings and conclusion.

Chapter V: Summary of Finding, Conclusion and Recommendations

This chapter is the final chapter which is concerned with the suggestive framework that consists of summary of finding, conclusion and recommendations of the study.

CHAPTER II
REVIEW OF LITERATURE

The purpose of literature review is to find out what research studies have been conducted in field of survey and what remains to be done. The literature review on this topic are many research papers, survey articles, literature has been given below.

2.1 Theoretical Foundation

Many economists developed theory of public expenditure relating to those principles which govern the optimal provision of public goods. Mainly, “ability to pay” principle and “benefit” principles are considered in this context.

2.1.1 Pigou Approach: Ability to Pay Theory

The ability to pay theory to be used to determine the optimum level of public expenditure that has received must comprehensive treatment in hand of Pigou. Singh explains Pigou's view as goods and services which are provided by government which can be sold for fees so arranged as to cover cost of production pose no problem. The amount of resources that should be devoted to this purpose is determined automatically by public demand. Nevertheless, fees can cover neither bulk of non-transfer expenditure of government such defense, civil administration and so forth nor transfer expenditure. Hence, there is no automatic machinery to determine how far expenditure shall be carried and some other method has to be employed (Pigou, 1947).

The optimum amount of government expenditure is determined at the point at which the satisfaction obtained from last rupee spent is equal to the satisfaction lost in respect of the last rupee called upon by government service. Pigou states the condition when government expenditure would be larger. First, the greater the aggregate income of community, the larger will be the optimum amount of government expenditure. Second, under the circumstance, where new opportunities for expenditure through government are opened up with no corresponding opportunities for private expenditure, balance between marginal benefit of expenditure & marginal disutility of revenue will be struck at higher point. Third, given aggregate income and population, greater the concentration of income in hands of a few rich persons, higher the optimum level of public

expenditure. It is because tax scheme can be framed as to rise revenue with lower marginal sacrifice

2.1.2 Samuelson Approach: A Benefit Principle

Samuelson developed a pure theory of public expenditure, which aimed for the optimal resource allocation in an economy in which there are two types of goods, private and public. The theory takes into account both allocation & distribution facets of the problem and thus presents a unified system of general equilibrium (Samuelson, 1955).

Samuelson considers the optimal choice between private consumption good like tea (X), and public consumption good like national defense (G), in a two-man economy (A&B). Since X is a normal private good, which is divisible in consumption; that is amount of X consumed by A cannot be consumed by B, & conversely. This can formally be stated by the condition that Xa+ Xb=X; where, Xa and Xb represent the amount of private good X respectively consumed by A and B.

Since G is pure public good, it is not divisible in consumption. The amount of g is equally available for consumption by each person; the total amount of G is in a sense consumed equally by each. This can be stated formally by the condition that: Ga = Gb= G, where Ga& Gb represent the amount of Consumed by A and B respectively.

Samuelson further assumes that the tastes of A and B are constant and society's production possibility frontier as given. The condition needed for efficiency in a world of private and public good can be stated as follows:

For efficiency between private goods:

$$MRS^{A} = MRS^{B} = MRT$$

For efficiency between private good and public good:

$$MRS^{A} + MRS^{B} = MRT$$

Where,

MRT is marginal rate of transformation between X and G and MRSA and MRSB are the marginal rate of substitution between X and G for individuals A and B respectively.

In general case for an economy characterized by the existence of public goods, private goods and many individuals, the condition for the optimal supply of public goods.

Therefore, that the sum of marginal rate of substitution must be equal to the marginal rate of transformation.

$$\sum_{i=1} \text{MRS}ijk = \text{MRTjk}$$

Where,

i = 1……n (the number of individual consumers), and

j, k=1……m (the number of commodities)

So, the Samuelson's model for the optimum supply of pure public good is a general equilibrium model which determines the existence, uniqueness and stability of a set equilibrium prices of public and private goods.

2.1.3 Lindahl-Johansen (L-J) Approach: A Benefit Principle

At first Lindahl developed the theory and recently viewed by Johansen assumes a fixed distribution of income between individuals who consume a private good X and a public good G. L-J start off with the some assumptions that each individual has fixed budget constraint and the distribution of income as between individuals and group is given.

This theory concerned with the allocation of resources between the public and private sector against the background of 'state of income distribution already accepted by the community as just proper'. In the theory of welfare economics, under certain conditions when consumer and producers maximizes respectively, their utility & profit on the basis of prices which none of them can alter, conditions necessary for Pareto optimality are satisfied. Such conditions do not prevail in the 'bilateral monopoly' discussed in the Lindhal version (Methew, 1972).

2.1.4 Classical Views on Public Expenditure

Classical economists always believed in the existence of the full employment in the economy. They had a strong belief that if the resources are fully employed then the government intervention is not necessary. Thus, the classical economists developed arguments to justify the role of government and defined that areas of public wants.

Government expenditure consists of spending on real goods and services purchased from outside suppliers, spending on employment in state services purchased from administration, defense and education, spending on transfer of payments to pensioners,

the unemployed and the disable spending on subsidies and grants to industries and payments of debts and interests.

The normative orientation of public expenditure reached a higher stage through the seminal articles by Samuelson in the early 1950's. These articles viewed the concept of sure public goods something which people desired but which could not be provided through the normal market mechanism. The way the goods and services are provided insures that they will be equally consumed by citizens. That is no one can be excluded from enjoying service provided whether he pay for it or not. Samuelson work together with a larger independent formulating by Musgrave (1959) has given rise to the large and growing literature on the theory of public goods. In short, classical economists had no faith in the government activities. According to their view, the main theme of the public finance was simply to make the best of a bad lot and to allocate the burden of taxes as fairly as possible among the members of community (Musgrave, 1959).

2.1.5 Keynesian View on Public Expenditure

Keynesian theory shattered the basic foundation of the classical doctrine, when the former asserted that the competitive process of free enterprises economy does not necessarily ensure an effective demand such as to absorb all productive resources at full employment, supply doesn't operate its own demand and the economy may attain equilibrium at under-employment level.

Keynesian economics developed against the background of world depression of the 1930. The severity of decline in economic activity that occurred that time were unprecedented the unemployment rate rose from 3.2 percent of the labor force in 1929 to 25.2 percent in 1933, the low point for economic activity during the depression (Keynes, 1936).

Keyns regarded the inevitability of ta positive fiscal policy. He emphasized the importance and place of fiscal policy in economic policy. At a level of an income corresponding to full employment, the gap between total income and total consumption is so high in mature economy that private investment is inadequate to fill it. If unemployment is to be avoided the gap must be filled either by government expenditure or by increasing the prosperity to consume. But, in a capitalized economy, which is characterized by wide inequalities in the distribution of income and institutional factors

which make for a high propensity to save the propensity to consume cannot easily be raised enough to have a significant effect upon employment falls on the public expenditure designed to narrow the gap between income and consumption at full employment. Further, in Keynesian view, a depression in an advanced industrial economy occurs due to the deficiency of aggregate demand. Thus, during a depression, when the aggregate spending is inadequate to achieve full employment, the government must increase spending directly by undertaking public works programs on a large scale and indirectly by inducing people to spend more (Goffman & Mahar, 1971).

2.1.6 Wagner's Hypothesis

The 19th century economists Adolf Wagner adds new dimension to the concept of public expenditure. His law was based upon historical facts. Wagner presented his former Law of Increasing Sate Activity pointed out the growing importance of government activity and expenditure as an inevitable feature of progressive state. He put his hypothesis on test by examining the industrialization process in various countries such as Britain, USA, Germany, Japan, and France.

The basic cause of the relative growth of government expenditure according to Wagner is Social Process. This factor necessitates in addition to the position of economic goods, including the provision of certain Social Products like communication and education. As real per capita income grow, investment in these Social Products tends to increase which helps to push up the magnitude of government expenditure. As the economy is continuously expanding, government expenditure will also tend to continuously expand (Wagner, 1890).

Among the factors making for charges in the private sector which influence public expenditure decision may be made of the four factors discussed below one by one as follow:

- **Income Effect**

  One of the major factors which determine the demand for goods and services including pubic goods and public services is the magnitude of the flow of real income occurring to the members of the community. As this income increases the effective demand for all kind of goods and services are increases. No special problems arise in this relation between higher incomes and higher demand in the case of goods and services provided through the market mechanism. The relationship here is obvious and straight forward higher income induced and increased demand for such kind of goods and services and the market responds to the increased demand through increase supply of goods and for increased process for these goods.

- **The Population Effect**

  A second factor which has made increase public expenditure is the secular growth of population. With the growth of population and increased in the flow of real income occurring to individuals the place of urbanization has also increased at a rapid rate. This has necessitated and increasing rate of outlay on the provision of public services and urban amenities through public expenditure allocation.

- **The Urbanization Effect**

  Increasing rate of urbanization, however is a major factor accounting for an ever growing rate of public expenditure. There is also the possibility of external effects of an expenditure becoming more and more widely diffused as consequences of the increase in the size of the urban community.

- **The Technical Effect**

  Another development in the private sector of the economy which has been instrumental in bringing about increase in public sector activity is the nature and extends of technological innovations. Many of these innovations have been the cause of substantial increase in external effects necessitating there by increased expenditure.

  Conclusion is that the increase in the real per income technological process, growth in population, rapid urbanization are the main cause of the rapid growth in the public expenditure for the provision of pubic goods and services in the economy.

2.1.7 Peacock-Wiseman Hypothesis

Peacock and Wiseman analyzed the process of growth of public expenditure in terms of 3 separate but related concepts of displacement, inspection and concentration effects (Peacock &Wiseman, 1961).

- **Displacement Effect**

It was during the period of emergencies or of major social disturbances such as war and depression effect by which the previous low level of expenditure were displaced by a new and higher level of expenditure during the emergencies.

- **Inspection Effect**

Association with his displacement effect is the inspections effect, which helps to review the higher levels of public expenditure forced on the public sector institutions. This effect refers to the phenomenon whereby as a direct consequence of the social emergency comes to encompass within economic and social activities which might have been the province of private sector concerning prior to period of crisis (Maddala, 2009)

- **Concentration Effect**

In the secular growth of public expenditure in Great Britain, Peacock and Wiseman discovered the influence of another factor which they call the concentration effect. It refers to the evolution of the expenditure undertaken at different level of the government and its tendency to be concentrated at the national or central level of government. The usually happens when a country is experiencing economic growth.(Rostow, 1971)

2.1.8 Colin Clark: A Critical Limit Hypothesis

Colin Clark put forth what he calls the 'Critical Limit' hypothesis regarding tax tolerance. Colin Clark based his hypothesis on the interwar data of several western countries. He has argued that inflation inevitably occurs when government expenditure financed out of taxed and other receipt exceeds 25 percent of the aggregate national income. This has been alleged to be true even under circumstances when the budget remains in balance. Public expenditure beyond the stipulated level will cause inflation only if there doesn't exist initially sufficiently unused capacity of carter to the increased

demand and if the additional public spending to release resources necessary to meet the requirement of increased public expenditure (Joseph & Mayer, 1992).

Theory holds that by increasing taxes and restricting credit, it is possible to cut down expenditure of the private sector and thereby to accommodate increased public expenditure by releasing sources from private use. Therefore when it is asserted the public expenditure beyond a specified limit will generate inflation it seems to imply that resolution of private expenditure and account of personal consumption and private investment is either possible or undesirable. If any of these contentions is conceded, it will be true that additional public expenditure will cause inflation in the economy.

2.1.9 Productivity Lag Hypothesis

The Productivity Lag Hypothesis or sometimes called Baumol's *Disease* is based on the proposition of productivity differentials, while distinguishing progressive and non-progressive sectors in the economy, maintains that to keep the same output level in the non-progressive sectors in the economy, maintains that to keep the same output level in the non-productive public sectors, labor input has to be increased tremendously. As a result, public sector expansion takes place at the cost of private sector. Baumol's Cost Disease is often used to describe consequences of the lack of growth in productivity in the quaternary sector of the economy and public services, such as public hospitals and state colleges. Since many public administration activities are heavily labor-intensive, there is little growth in productivity over time because productivity gains come essentially from a better capital technology. It follows that productive gains are less likely to be experienced in the public sector than in private sector and hence there will be inherently greater labor intensity in the public sector compared with private sector (Baumol, 1967).

2.1.10 Stanly Peace Hypothesis

Stanley Please Hypothesis deals with the cause and sources of increasing government expenditure in Least Developed Countries (LDCs) with its effectiveness and overall impact on economy. According to Stanley Please public expenditure especially for consumption is driven by available resources rather than the other way around. His question is, is increasing government saving by taxation is reality or mirage? His

conclusion is if government increase the tax, theoretically increases in national saving. But increasing in tax rate that implies to spend more: such expenditure is not only increased in investment but also increased in government consumption (Usman, 2014).

So, increase in national saving is mirage by the taxation. So, Please effect is relevant in developing countries. He suggested some policies in expenditure management.

- Government should be more rational and more self-disciplined in determining public expenditure policy.
- Expenditure on current activities and alternative uses of revenue should be calculated. Spending on education and health is taken as both current expenditure and capital expenditure as it provided benefit to the country after a lag of many years.
- In case of foreign loan, the productivity that it yields and the liability that the country has to pay later should be calculated and has to be used in beneficial project.

2.2 International Context

Taylor (1961) discussed the significance of the public expenditure stressed the expansion of government had often been characterized a movement in the direction of socialism that government obviously tended to socialize through public expenditure. It helped to correct the disorder that had created by cyclical fluctuation which mostly appeared during the depression. "Public works projects and landing functions during the depression were in statute to cushion the effects of the worst feature of capitalism – its recurrent tendency to break down". "Pump-Priming" the injections of public expenditure to fill a void left by deficient private expenditure in recession has as its goal the prevention of serious break down.

Due and Friedlaender (1973) concerned with public expenditure of U.S. for the decade 1963 to 1973 analyzing the magnitudes of government activities. Defining the pure public goods, they suggested that activities relating to the provision of these goods should be exclusively handled by public sector. By their nature, these goods be can't provide by private enterprises, i.e. national defenses. On the other side, increasing

demand social services such as education, health, drinking water, in both developed and developing countries, the government has to invest in low enforcement and justice, fiscal management and operation of the executive department which clearly lies in to the part of public goods; causes a great volume of expenditure to the government.

Tait and Heller (1982) provided a comparable framework for comparison of both functional and economic expenditure pattern of countries having similar economic and demographic position. It further provided an implicit technological norm for predicting the economic characteristics of a country's expenditure pattern, based on its choice of priorities for functional expenditure. They concluded that, first many international cross section studies of government revenue and expenditure used per capita income as a proxy for most of the underlying demographic, social and economic differences, yet it is striking how uncertain per capita income is as an explanatory variable. Second, it is encouraging to note how plausible the modeled relationships are, it is also reassuring to see how most of the expenditure indicates for individual countries performances and attitudes. Third, the technical coefficients functional categories that determine economic categories of public expenditure are powerful and suggestive. Fourth, the appeared to be clear support for the hypothesis that the majority of governments spent excessive amounts on wages relative to amounts had spent on goods and services; some country do appear to overspend on wages relative to other goods and services – some do not. However, a clear bias was evident toward greater than expected current expenditure relative to capital expenditure in Africa and in industrial countries; the same regions spend more than expected on subsidies relative to wages.

Finally, without a doubt, this study has provided departure points for discussions and assessment of government expenditure policies in individual countries.

Goode (1984) believed that Public expenditure is one major dimension of fiscal policy. Total public expenditure is the sum of expenditure on current and capital accounts of the public sector and is by definition equal to the sum of consolidated public sector receipt. In other words, public expenditure is that expenditure which is made by local and national government agencies as distinct from those of private individuals, organization or firms.

Goode also argued that Public expenditure is the expense made by the public authority's i.e. central government and other bodies under government to satisfy the wants of

people. It is for protecting or promoting the citizens economic and social welfare. Government expenditure for good and services may be thought as a means of supplying services that decision makers desire to have provided in appreciably different quantities of qualities from what enterprises would supply through the makers.

Premchand (1990) emphasized to the importance of expenditure controls on the context of growing fiscal problems. And the study provided solution to current and future fiscal problems that it required a combination of policy measures and improvements in controlling techniques and procedures. Although, the exact combination of such policy measures and improvements depends on the scientific situation and type of expenditure, the study mainly devoted to considering the nature of expenditure controls, practices, current problems and future direction. Expenditure controls essentially reflect a managerial process that includes the political and administrative levels, horizontal and vertical relationships within government organization. This study illustrated the continuing need of a regular review of the strategic, institutional and systematic approaches to expenditure controls. Indeed their effective contribution depends upon updating their capability and on eliminating weakness. He concluded that there is an important aspect related to the balance between policy measures and control techniques. An absence of restrictions on subsidies or less specific policies for entitlement payments can hardly be expected to be compensated for by stringent controls. Pragmatic approaches to control should be realistic in policy measures, the role of control and techniques and their mutual complementarily.

Basanti (1990) discussed some of the public expenditure management measures that were included fund supported structural adjustment. It had briefly outlined that the central role of the fiscal programs and their interaction with structural policies, the key area where measures were taken to strengthen public expenditure management in SAP programs. This paper also addressed the question of the degree of effectiveness on such system and process reforms in an attempt to highlight problem areas that may need to be taken into account in the design and implementation of PEM measures. He concluded that during programmer implementation, managing scarce resources in the public sector has often been the critical test to make or break programmers. Public expenditure management issues have usually been most pressing either because domestic resources have been slow to improve or because growth has not yet

materialized; in which case, accommodating political pressures for expenditure may be financially destabilizing and constituting a serious setback to the adjustment efforts.

Goolsbee (1998) investigated the impact of government's research and development spending in the USA. He found that the major proportion of the Government research and development spending crowd out private spending by rising wages and reduction in the total labor force in this sector. The study concluded that research and development can be an inventive activity rather than a chance for windfall gains to the research and development worker.

Hong and Ahmad (2009) investigated the impact of public goods such as education and health service on the per capita income and poverty reduction in India. The study results show that Government expenditure on education and health had a large and positive significant impact on per capita income with substantial reduction of poverty in India

Andrews (2005) concerned with introducing incentives for fiscal producing in developing countries through the budgeting process. He observed that, some governments have shown interest in reforms aimed at establishing result oriented budgeting approach. The emphasis on result of performance in the budgeting process has reflected a belief that public sector accountability should focus on what government does with the money it spends, rather than simply how it controls such expenditures. It is suggested that there are three reasons why reforms still has a way to go in establishing performance based accountability system in governments. First, even though performance based targets are now being developed, they are generally kept separate from the actual budget. Second, performance information suffers weakness commonly allowed to be in literature related to other settings. Outputs are confused with inputs and outcomes remain unconsidered. Third, the lack of rational construct in the budget itself. Even where effective performance based targets are provided, this kind of system commonly fails to specify who should be accountable for results. He concluded that all countries intent to developing a performance based budgeting approach need to understand the sequences involved in introducing result based governance and to know general points for effective reform, because bad performance based reform is probably worse than a good line-item budget.

Schroeder (2007) reviewed the rationales for and techniques available to local government financial managers for forecasting revenues and expenditures in developing and transitional economics. It illustrated how the techniques can be used and buttresses that discussion with illustration of how they are actually used.

Several techniques have been used to forecast both revenues and expenditure. They range from simple judgmental approaches that rely on the knowledge of experts to more sophisticated multivariate statistical technique. For forecasts of revenues that are sensitive to economic conditions, statistical forecasting methods may be most appropriate. But statistical analysis requires considerably more data and forecaster expertise than the alternatives time trend analysis and deterministic approaches. This study revealed that the most commonly used approaches are deterministic approaches in which forecasts of revenues of expenditures are based on simple links to variables assumed to directly influence revenues and expenditure.

2.3 Review of Related Area in Nepalese Context

Singh (1977) In his book 'The fiscal system of Nepal' studied the expenditure pattern of Nepal government during the period of 1956/57 to 1976/77. He found that Nepal government budget show that between 1956/57 and 1962/63 (except 1961/62) revenue was not sufficient to meet even regular expenditure. Since 1963/64, there had been enough to meet development expenditure. Both regular and development expenditure had been rising fast. According to him, investment in the public sector establishment of regional growth centers and decentralizing of administration in a number of case maintenance expenditure social service expenditure increases in salary and dept.

Upadhyay (1981) Studied 'the impact of trend of public expenditure on GDP'. He found the volume of development expenditure was increasing rapidly though of the country and there by the standard living the per-capita income.

He also analyzed the resource allocation practices and observed that large amount of public expenditure was centered to the development region in the study period of 1972/73 to 1977/78. He concluded that the resource allocation practices were only growth promoting rather than balanced regional development. He noticed the volume of development expenditure increased during his study period out contributing to low

rate of economic growth. Consequently, the standard of living along with per capita income did not increase as per expectation. His finding was that government expenditure mainly was confined to the infrastructure of development rather than the basic needs of people.

Basnet (1983) Studied 'the problem of resource gap and analyzed the trend of public expenditure'. He found that the growth rate of development expenditure. It is much higher than the growth rate of regular expenditure of the total expenditure. Economic services alone consume more than 50 percent of it. He found that the share of total expenditure to GDP has increased from 7.9 percent in 1970/74 to 14.08 percent in 1980/81. The share of regular expenditure to GDP has also increased from 3.4 percent to 4.8 percent in1980/81. About 75 percent to 80 percent of the total expenditure is allocated always for meeting the requirement of economic services and economic administration and planning.

Shrestha (1986) Studied 'a significant incensement in the government expenditure during the period of 1961 to 1982'. The dominant scenario, as she observed, was the foreign aid consisting of grants and loans rather than the resource mobilization within the country. She figured out that government spending on an average at the constant price of 192/93 was Rs. 467.07 million yearly during the period mentioned above in the same period, she observed an increase in the per capita GDP was Rs. 2.7 million and the government spending was raised by Rs. 45.4 million in the study period. She noticed a little influence of government expenditure on country's GDP despite the increasing rate of government expenditure.

Khanal (1988) Studied 'the growth pattern and impact of public expenditure different sub-sector of the Nepalese economy'. He studied the log liner regression model to examine the pattern and growth public expenditure using a demand factors. He found that revenue alone doesn't pay an important role in the expansion of regular expenditure but an increase in development expenditure has far-reaching implication for expansion of regular expenditure.

In order to examine the macro-economic impact of public expenditure in different sub sector of the Nepalese economy, Khanal developed a structural macro model of the economy. Khanal's macro-exercise produces a number of interesting result but an auto

correlation problem, an under specified model and an under size sample all suggest show that social service comprising mainly education and health tend to increase at faster rate than other services like economic administrative defense etc. That major expansion has taken place only after the 1970. The elasticity coefficient for total public expenditure, development expenditure, economic services and social has been found to be more then unity. Income elasticity's for a regular expenditure, defense service and administrative service have been obtained to be below unity (Khanal, 1988).

Lohani (1993) analyzed the trend of public expenditure, government revenue and problem of resource mobilization. He has concluded that the public sector is draining a private saving towards unproductive regular expenses instead of channelizing it towards productive investment in the study period of FY 1974/75 to 1990/91. In spite of a tremendous increase in the size of public sector, it has failed to generate surpluses required to finance, generate and sustained the process of development. Nepal's external dependence has risen alarmingly, he has argued that the continuous in extend of budget without evolving medium and long-term investment planning and expenditure programming has delinked planning with annual budgeting for more resources have been allocated to capital items. Both macro and sectorial planning have been found to be weak due to absence of rigorous cost benefit analysis and programmed budgeting, three decade of planning have failed to substantiate a long term perspective plan with the view to maintain consistency among macro and sectorial physical targets on the one hand and insure necessary to the sectorial programmed on the other hand.

Basyal (1994) carried out a research about growth of development expenditure of Nepal in different plan periods and sources of financing it. He has underscored the dominance of foreign capital in Nepal's plan financing. During the fifth (1976 to1980), the sixth (1981 to 1985) and the seventh (1986 to 1990) plan periods, foreign grants and loan financed the total development expenditure of the extent of 47.3 percent, 48.1 percent and 59.5 percent respectively. This has clarified an upward trend in the reliance on foreign resources and consequently.

Upreti (1996) Analyzed 'the trend, pattern and impact of public expenditure during the period 1974/75 to 1991/92'. He found that the growth of public expenditure in Nepal has taken place rapidly than the growth of GDP of the country. The growth rate of development expenditure is almost equal to the growth of development expenditure. He

found that that the large percent of development expenditure has been covered by foreign aid. This trend highlights the expenditure pattern in Nepalese economy that is unable to create more than 80 percent employment which has been provided from agriculture sector but on the other hand, the higher average growth rate of public expenditure to agriculture sector than non-agriculture sector has become unsuccessful to get more GDP growth rate from agriculture sector.

Khadka (1998) In his M.A. thesis, entitled 'role of public expenditure in economic development on Nepal', has made a remarkable study during the period of 1974/75 to 1994/95. The study had estimated the regression model using cross sectional data. The double log transformation model has been used in the study. During the period under consideration, the size of public expenditure has found to be extremely increasing. It has been observed that the internal revenue has mainly helped to increase recurrent and consumption type of expenditures. He has found the high dependence of development expenditure on external sources. The dependence of foreign aid adversely affects the growth rate of the economy through the sustainable increase in the capital output ratio. In the study period, the foreign aid covered 48.5 percent. Development expenditure is 31.6 percent of total expenditure on average. He has also pointed out the weakness in both macro and sect oral planning due to the absence of regional cost benefits analysis and program budgeting. The donor agencies have predominantly influenced in determining the sect oral programs.

WB (2000) On a study under the title 'Nepal: Public expenditure review' concluded that Nepal is not facing a fiscal collapse rather than the fiscal situation is quite stable. This study, however, showed inefficiency and mismanagement on public spending. Deficiencies in the budget planning, resource allocation and expenditure management process has been found a major factor contributing to low productivity. This study pointed out the institutional weakness for the insensitiveness of public spending in Nepal. The report present number of suggestion to improve the effectiveness of public expenditure projection, good governance and transparency, decisive action to formulate an auto-corruption agenda greater local ownership of the public expenditure program, build a partnership between local and central and public and private etc are major.

Pyakuryal (2004) Under the study title 'Nepal's conflict economy; cost, consequences and alternatives', has presented that Nepalese economy has lost its productive capital

and sustained growth due to the government expenditure and revenue pattern. He found that ratio of regular expenditure of GDP in f FY 1996/97 was 8.6 percent but increased to 11.5 percent in 2001/02 on the other hand he found that ratio of development expenditure was decrease with 9.5 to 7.5 percent daring the same period. So, he recommended the explanatory fiscal policy is better that contract nary fiscal policy in war time.

Adhikari (2004) In a thesis entitled 'public expenditure in Nepal trend and determinants' concerns all about the trend and pattern of government expenditure during the time frame 1990/2000. He observed empirically that the determines of public expenditure during the period under review, both demands as well as supply side factors have contributed to rapid growth on the size of public expenditure. Under demand side factors that the public expenditure is highly responsive to GDP. He found that the elasticity coefficient of total expenditure, regular expenditure and development expenditure are 1.01, 1.45 and 0.64 respectively and concluded that the elasticity is grater then one in ease of total expenditure and GDP is the clear indication of the fact that not only demand side factors were influential in determining the size of public expenditure during 1990s. He observes that the overriding trend on the public expenditure reflects alarming situation with regard to fiscal discipline and the overall development program of the country. Following the restoration of multi party democracy system on early 90s, there was tremendous increase in the size of the public expenditure. The massive investment in each successive plan and annual budget for rapid expansion of economic and social infrastructure can be entitled for that increase. However, the massive public expenditure fails to aspirate the peoples' expectation to the country the country continuous to remain at low-level equilibrium trap.

Dulal (2007) In a dissertation entitled 'analysis of the pattern of public expenditure in Nepal, comes up with the following conclusion. "Regarding government expenditure behavior in the conflict economy, the government expenditure on regular expenditure and expenditure on defense has been increasing from the FY 2035/36 B.S. to FY 2060/63 ignoring some fluctuation. Oppositely, government expenditures on development purpose have been decreasing especially very in the conflict period pattern shows perfect application of P.W. hypothesis."

Shrestha (2009) In a research article entitled 'The composition of public expenditure, physical infrastructure and economic growth in Nepal' which asserts a mix of public spending could lead to a higher steady state growth rate for the economy. Based on the model, the empirical model suggests that expenditure on physical infrastructure is productive in Nepal, but its share is declining in slow growth of per capita income. In this context, it would be better to allocate more resources to develop physical infrastructure in Nepal, which is not only facilitates private productive activities, but also generates employment in the economy for the mass an employment."

Nepal has history of health care services from traditional healing practice like Ayurveda (Herbal treatment) people in rural areas in Nepal still go for spiritual healing practice. Nepal is a country with an ancient and deeply rooted tradition in sprite processing and fifth healing for vast majority of ruler village this is the only means of health care. The introduction of new ideas about bacteria, infection and disease are contriving the gad-old beliefs in ghosts, witches and sprits immunizations drugs and medical treatment are odds with widely respected healing power of the Jhankari or local faith healer. More then half population are live in ruler specially mountain region, there are no infrastructure made properly .most of the old age people still believe on healing(Jhankari) . Jhankaris become doctor in these areas. Poor people say reach people only go to the hospital; we could not reach there due to the lack of money. The modern health practice was introduced during the malla regime. The year of 14th century. During Rana regime (1846-1915).few creative dispensaries wear available in country. But these were only for family member of Ranas .After fall of the Rana regimi , and restoration of democracy, since then health has been incorporating in the development plan of the country (Adhakari and Maskey,2003).

Nepal has experienced the inequalities in health services. Hospital are much more unequally distributed than other variables, the available is the number of hospital beds. The number of hospital beds is not evenly distributed with the proportion of the population in different regions of the country. Similarly, the doctors are not equally distributed in the different zones and the different regions of the country. Among the four indicators, the most wide uneven distribution can be seen on the part of doctors. The high gini coefficient shows the most uneven distribution of the doctors in different zones of the country i.e. 67.13 percent and the Gini coefficient of hospitals by taking

the zonal wise distribution is only 4.64 percent. It indicates there is approximately equal distribution of hospitals in different zones of the country. The uneven distribution of doctors brought about a severe problem in the country. Only the hospital beds do not serve the general health of people, but equally, it is necessary apparatus, incentive and facility to operate this apparatus. So it is necessary to distribute the medical personal equally in different regions of the country to serve the people and to operate other available facilities, which has shown the high demand for medical doctors to provide good health service (Dhungel, 2004).

Thus, Nepal has faced growing demands for the extension of health service in the rural areas due to lack of health services, health resources and facilities. The rural population accounts for 85 percent of the nation's population. Rural people have higher risks of infection and disease, mental illness and nutritional deficiencies. Therefore, it may have higher needs for those amenable cares.

MoHP (2003), mentioned that in financial volume relatively little resources are targeted towards programs that benefit women of child bearing age such as family planning, safe motherhood and FCHVs. The share of reproductive health in total expenditure on health was 14 percent in 1999; it reduced to less than 3 percent in 2001/02 because of phasing out the population and family health sector. However, Nepal has higher MMR and morbidity, but unfortunately allocated amount is less inadequate to address the magnitude of the problem since there is less attention for women health for only women program is doubtful. It must be well documented only in the policy level, but less attention in implementation part as usual.

Acharya (2003) analyzed the gender assessment in the health, education and agriculture sector. The study has found that women specific programs have been less focused than pro-women and other in health and education sector, as result, the classification of budget is also very nominal for women specifically. The study covered 1998/99 to 2000/01 of actual and allocated budget on both education and health sectors.

Public expenditure on health sector increased from NRS 3993 to 4626 in 2001/02, where the share of development expenditure increased remarkably from 29 to 40 percent. This indicates the less contribution of public expenditure in changing the health outcomes. In the total public finance on health the share of the central government is

more than 50 percent, which shows and increasing trend. The central government (NG) contributed about 65 percent of public finance in 2002 while the share of EDPs was just over 32 percent in the form of direct and indirect spending (Ministry of Finance, Red books).

A significant change has been noticed in the coverage of health care service with the increase in the health expenditure. Vaccination coverage has improved significantly over the last 10 years. MoH (2004) reported that total public expenditures on health increased form Rs. 3993 to 4626 million in the review period where the share of development expenditure increased marginally from 18 to 20 percent and that of regular expenditure increase remarkably from 29 to 40 percent. This indicates the less contribution of public expenditure on changing the health outcome.

The health expenditure shows more than 90 percent of total budget distributed in central level and less than 10 percent spent in district level (Ministry of Finance 2004). Thus the allocation of budget had very big gap between central and district level. Therefore, the district level also must have increased the budget similarly to central level. The development must be decentralized rather than centralized. However, it is little bit satisfactory in health expenditure in district level. (Sakya, 2005).

Health in Nepal is poor by international standard: especially disease prevalence is higher than in other south Asian Countries, leading disease and lioness include diarrhea, gastrointestinal disorders, goiter, intestinal parasites, leprosy and tuberculosis. Nepal also has high rates of child malnutrition (72 percent in 2001) and, under-five mortality (91.2 deaths per 1000 live births in 2001). According to United Nations data 2003, approximately 60000 persons aged 15 to 49 had human immunodeficiency Virus (HIV) and the HIV prevalence rate was 0.5% in spite of these figures evidence suggests some improvement for example: Nepal's HDI was 0.504 in 2002, ranking Nepal 140 out of 177 countries up from 0.291 in 1975.

About 90 percent of the health expenditure is administered by Ministry of Health in Nepal (NESAC, 1998) though health sectors expenditure grew 3.47 percent in 1991/92 to 6 percent in 1996/97, but as a percent of GDP, this amount still accounts slightly more than one percent. About 40 percent of the government health sector budget expenditure continued to be allocated to the maintenance of hospital and curative health

care. Despite some achievement in health sector, the level of deprivation is still extremely high improvement in the health services is highly unequally distributed across the regions, Rural, urban and income groups. The report stated that in the absence of prioritized set of health intervention inequalities in the status of health and inequalities in health related capabilities will widen.

During the plan period the development expenditure had been decelerating by 1.1 percent annually. The share of development expenditure was proposed to be 56.2 percent of the total plan out lay but unexpected rise in regular expenditure force to limit it to 46.9 percent during the plan period. The targeted expenditure on economic services, infrastructure, social services and miscellaneous (administrative and contingency) was 294, 36.3, 33.4 and 0.9 percent of the development expenditure respectively. The expenditure in unproductive sector especially a miscellaneous heading has exceeded the target, which the expenditure on productive sector like economic services and infrastructure has remained below the target (NPC, 2002).

Timilsina (2010) found that the trend of public expenditure is increasing manner. Development expenditure has increased faster than regular expenditure from 1987 to 1997. There after regular expenditure has increased more than its development expenditure. The major portion of regular expenditure made in debt service payments, maintaining law and order and providing salary to civil servants. He further examined the positive relationship between total import and total government expenditure.

Sharma (2013) examined the role of public expenditure in GDP growth. According to her, the share of development expenditure in total expenditure is in decreasing rate. The share of regular expenditure on the total expenditure at the beginning of the study period was 37.49 percent where development expenditure was 62.51 percent. But at the end of the study period, the share of regular expenditure on total expenditure was 73.3 percent where development expenditure was only 26.7 percent of the total expenditure. It shows that there is very low share of development expenditure on total expenditure. She also argued that in Nepal, many development projects are conducted under the foreign aid. The donor agencies are also involved in the decision making process. On the other side, plans are made in ad-hoc basis. We have to depend upon foreigners for fund as well as skill work force too. Ad-hoc plan, political instability, lack of capital and geographic

constraint are the major difficulties for the implementation and completion of the projects.

Subedi (2013) found that the trend and pattern of public expenditure threat on the fiscal deficit and management. The regular expenditure has increased faster than development expenditure after 1997/98. She also examined the regular expenditure is highly responsive to GDP. Whereas, development expenditure is least responsive to GDP implying that it does not growth at the pace as much as increase in GDP.

MoF (2014) examined the total government expenditure in FY 2013/14 is estimated at Rs.517.24 billion. Of this, 68.3 percent has been allocated to recurrent, 16.5 percent to capital and 8.1 percent for repayment of principal and the rest for share and credit investments. Government's actual expenditure in FY 2012/13 stood at 358.63 billion. Of this amount, 69 percent accounted for recurrent, 15.2 percent for capital, 9.8 percent for repayment of principal and the rest for share investment and loan. Expenditure trend and its structural analysis of past few years show that the share of recurrent expenditure to the total expenditure is on declining trend while capital expenditure recorded growth but not to significant level. The recurrent expenditure that hovered around 72 percent of the total expenditure in FY2009/10 declined in its succeeding years and got confined to 68.3 percent in the FY2013/14. In FY2011/12, about 6 percent of the total expenditure was spent on principal repayment against domestic and foreign loans while it grew to about 10 percent in FY2012/13. Its share in the total expenditure increased due to 216 percent increment in principal repayment of domestic borrowing in comparison to that of previous fiscal year. The average growth rate of aggregate expenditure between FY2010/11 and 2011/12 stood at 11.4 percent, while expenditure in the FY2013/14 recorded a higher growth rate.

Health in development plan was initiated with the establishment of the department of health services in 1953 under the Ministry of Health and Population (MOHP). It was changed with the promotion and management of hospital and dispensaries. The first five –year development plan was launched on 1956, giving top priority to transportation and telecommunication. There were no specific targets set in the first four five – year development plans for health care , though prevailed the specific health programs like prevention and control of the disease like malaria. Small poxes, tuberculosis, Leprosy, were undertaken. By the end of tenth five – year Plan (2062/ 63 B.S) there was 102

hospitals, 1176 health posts , 291 ayurvedic dispensaries , 2617 sub-health posts , and 207 primary health posts are made (Economic Survey, 2010)

2.4 Research Gap

Different theories have examined and analyzed the role of public expenditure on economy. Classical economists said that the resources are fully employed. There should be no government intervention. Keynes said that, employment depends upon effective demand. Deficit could be on effective at the time of depression in lifting the economy upward. Pure theory says amount of resources are determined automatically by public demand.

Even classical economists did not give more emphasis on public expenditure but later on after the Great Depression of 1930s, it came on light. Many economists suggest that government spending is necessary in economy. After the Great Depression of 1930s, many economists had laid more attention on the field of public expenditure.

The trend in public expenditure still has their relevancy with respect to their theoretical justification for the optimal provision of goods in the economy consisting both private and public goods. The hypotheses of different economists help the planners and the policy makers to observe the different effects of public expenditure in the economy in different sectors. They help the planners to know before what happens when public expenditure is low or high in the economy.

In conclusion, various finding have examined and analyzed different types of studies with their own limitations and scope. Some are concentrated mainly in social sectors, some are in the impact of public spending in various sectors and some are concentrated in pattern and growth of public expenditure. After reviewing relevant literature in the context of Nepal, this study is trying to fill the gap of unanswered questions about public expenditure in health sector with scientific way with different appropriate tools and techniques. It’s a tiny work of research among total works under this issue that have been conducted till the date.

CHAPTER III
RESEARCH METHODOLOGY

The main objective of this study is to analysis of the trend and pattern of public expenditure. In order to reach on the objective of the study; different activities will be carried out and different stage will be crossed during the study period. For this purpose, the chapter aim to present and reflect the methods and techniques those will be carried out and followed during the study period. This study will be descriptive analysis of trend and pattern of public expenditure in health sector and the condition of health resources.

3.1 Research Design

A research design is the specification of methods and procedures for acquiring the information needed. It is the overall operation pattern or framework for the project that stipulates what information is collected from which sources and by which procedures. Thus, a research design is a plan for the collection and the analysis of data. In this study, the trend of the government expenditure on health sector is basically analyzed by using descriptive method. The main concern is on what has happened and what is happening. On the other hand, analytical method uses previously available facts or information and analyzes these to make a critical evaluation of the material. This evaluation helps to analyze the impact of government health expenditure on economic growth. This thesis used multiple regression model to analysis the economic growth.

3.2 Sources of Data

This research study is based on secondary data that are available in the published and unpublished form. The required data for the study are collected from different organizations. The data are mainly taken from the following sources:

1. Publication of NRB
2. Publication of Ministry of Finance
3. Publication of CBS
4. Economic Survey
5. A Hand Book of Government Finance Statistics Napal Rastra Bank
6. Human Development Report

7. Redbook Ministry of finance
8. National Health Accounts MoHp
9. Economic Review
10. Related Internet Web-sites

3.3 Data Organization and processing

The nature of study is descriptive as well as analytical; the research is based on the secondary sources of data. Further, since the study is purely based on the descriptive research design its organization is based on descriptive tools accordingly. The collected data are organized, tabulated and other sequences in order to obtain the given objectives for the study.

3.4 Methods of Data Analysis

The collected data from relevant sources is processed according to the need of the study. The available and collected data from various sources have been analysis with the help of table, percentage, chart, figure and pie chart for better explanation and description of this study. It means the statistical tools have been used for the purpose of data analysis on the basis of which the interpretation has been made.

3.5 Tools and Variables of Data Analysis

All the data are presented and analyzed to fulfill the objectives. Tables, figures, charts, pie chart have been used for the presentation of time series data to show the trend of government total health expenditure. There are some variables which is included in this study are TPE, THE, TE, GDP and GFCF.

Regression analysis

The study used multiple linear regression models. The regression model (1) is;

$Y = B_0+B_1X_1+B_2X_2+B_3X_3+B_4X_4+U$ (1)

Let, GDP = Gross Domestic Product (Y)

THE = Total Health Expenditure ($X_{1)}$

NHE = Non- Health Expenditure (X_2)

TX = Total Export (X_3)

GFCF = gross fixed capital formulation (X_4)

Now, the multiple regression model can be expressed as;

$GDP = ß_0+ß_1THE+ß_2NHE+ß_3TX+\beta_4GFCF+U_1$ (2)

Where, GDP is dependent variable

THE, NHE, GFCF, TX are independent variables

B_0 intercept

B_1 partial regression coefficient of GDP on THE when other remaining the same or constant

B_2 partial regression coefficient of GDP on NHE when THE, GFCF, TX are constant

B_3 partial regression coefficient of GDP on GFCF when other variables remain same

B_4 partial regression coefficient of GDP on TX when other variables remain same

Regression Model (2) can be expressed as;

$GDP = B_0+B_1RHE+B_2CHE+B_3TX+U$

Where, GDP is dependent variable, and RHE, CHE, TX are independent variables, B_0 is intercept, B_1, B_2, B_3 are partial coefficient of regression model and U is random variable.

Regression mode (3) can be expressed as;

$GDP = B_0+B_1RNHE+B_2CNHE+B_3TX+U$

Where, GDP is dependent variable and RNHE, CNHE, TX are independent variables, B_0 is intercept, B_1, B_2, B_3 are coefficient of model and U is random variable.

CHAPTER- IV
DATA PRESENTATION AND ANALYSIS

This chapter discusses the public expenditure on health service and status in the health sector. Analysis the health situation in Nepal; Covering the health status, health care services, Situation of health institutions and health resources and others. The health status includes the infant mortality Rate (IMR), Life expectancy (LE) at birth, Child mortality Rate (CMR). The public expenditure presents the government spending in the health sector. This chapter analyzes the trend and pattern of total health expenditure since 1974/75 in Nepal.

The improvement of health status of the people requires allocating the public resources for the health sector and spending them in such a way that it should insure easy and affordable access of health services to the people .The primary goal of public spending is to produce healthy manpower for not only economic development but also for overall sectors of the country. So, it should be ensured the access health service to the people the size and quality of public spending on health sector play a curial role in the social equity and poverty reduction. Moreover, in the economic development It is essential to study critically the public health spending and to provide evidence for redesigning health policy and improving budget performances. This chapter attempt to over the status of public health spending and deficiency of health spending.

4.1 Analysis the Trend of Public Expenditure on Health

The objective of this paper is to examine the trends, composition and rate of growth with regard to Government Expenditure on Health in Nepal during the period of 1974/75 to 2019/20. The paper focuses on expenditure incurred by the Central Government on health sector in Nepal. It covers the period of 1974/75 to 2019/20. Further the study peruses the "Annual Financial Statements" of budget of various years available at the website of Ministry of Finance, Government of Nepal as the chief source for analyzing the expenditure incurred by the Government on health sector in Nepal.

4.1.1 Overview of Health Expenditure in Nepal

In the fiscal year 1974/75, the government expenditure on health in Nepal stood at Rs 87.9 million respectively. It drastically increased to that of Rs 405.9 million in the fiscal

year 1985/86. Similarly, the government health expenditure of Nepal was reached 1714.5 million in the fiscal year 1995/96.

In the year 2005/06, the total public expenditure on health in Nepal stood at Rs. 5745.185 million respectively. It drastically increased to that of Rs. 39122.300 millions in the year 2016/17. Total public expenditure on health in Nepal was increasing continuously from fiscal year 2005/06 to 2016/17 except the fiscal year 2012/13. For the fiscal year 2006/07, the total public expenditure on health was Rs. 7440.718 million. It is Rs. 1695.533 million more than the previous fiscal year 2005/06. The total public expenditure on health in Nepal in fiscal year 2011/12, was Rs. 20240.323 million but fiscal year 2012/13, it was only Rs. 19049.037 million. During the period of 2013/14 to 2016/17 the public expenditure on health in Nepal is raised. In the fiscal year 2016/17, the total public expenditure on health is Rs. 39122.300 million. It is Rs. 9892.484 million more than the fiscal year 2015/16. The government of Nepal had reduced health expenditure in the fiscal year 2017/18 and 2018/19. It was 27370.3 and 24485.6 million (see in annex 1). Again in the fiscal year 2019/20, government of Nepal increases the health expenditure to that of Rs 30885.8 million. The table of public expenditure on health in Nepal is given below.

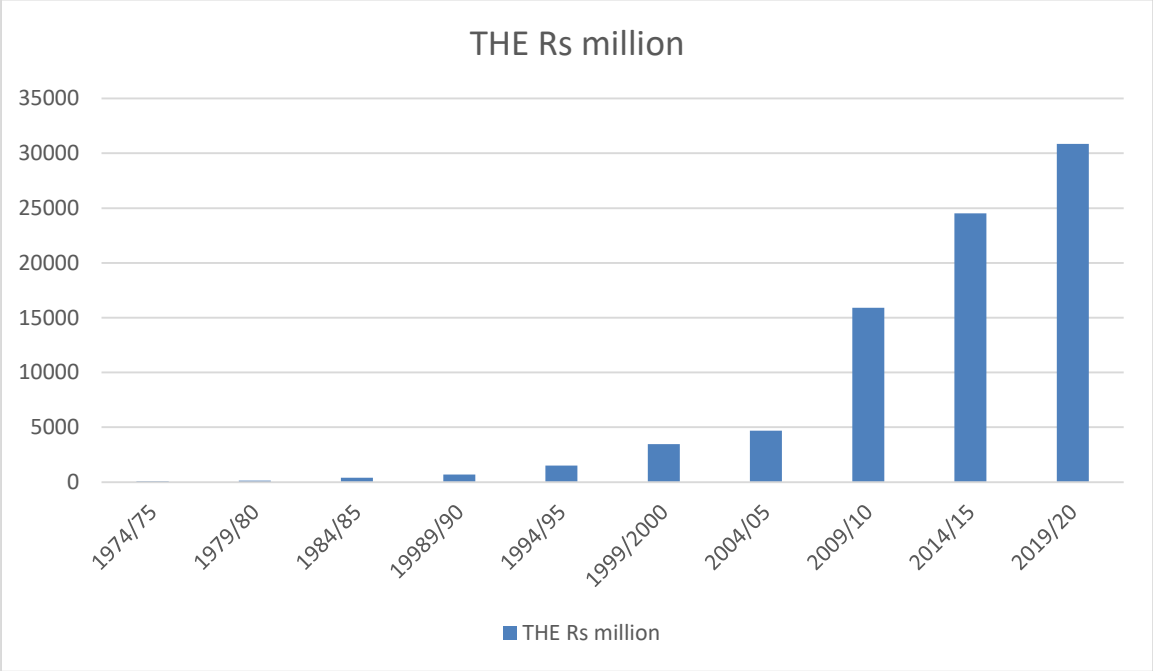
Table 4.1.1 Total public expenditure on health sector in Nepal

Rs in million

Fiscal Year	Total Health Expenditure
1974/75	87.9
1979/80	129.9
1984/85	394.2
1989/90	690.4
1994/95	1495.6
1999/00	3451.5
2004/05	4682.3
2009/10	15913.9
2014/15	24531.3
2019/20	30855.8

Resource: Red Book, Ministry of Finance, A hand book of government finance statistics (Nepal Rastra Bank)

Figure 4.1.1



Based on table 4.1.1

This figure shows that the trend of government THE had been increasing at each and every FY except some FY. The government THE was increasing since the FY 1974/75 to 2017/18 but the FY 2018/19 it was decreased. In the FY 2019/20, government THE was increased. The slope of THE was upward from left to right.

4.1.2 Composition of Total Public Expenditure on Health in Nepal

The increasing trend of recurrent health expenditure shows the government is allocating more amounts only for current expense and salary payment. As the increasing of recurrent health expenditure, the capital health expenditure has not increased. It indicates that government concentration to expand the health care services. The composition (trend and pattern) of the health expenditure has been presented on the table no. 2

Table 4.1.2

Composition of Government total health expenditure

Rs in million

Fiscal Year	THE	RHE	CHE
1974/75	87.9	28.2	59.7
1979/80	129.9	57.7	72.2
1984/85	394.2	139.4	254.8
1989/90	690.4	296.6	393.8
1994/95	1495.6	637.1	858.5
1999/00	3451.5	1324.8	2126.7
2004/05	4682.3	4273.0	409.3
2009/10	15913.9	12826.6	3087.3
2014/15	24531.3	21448.2	3083.1
2019/20	30855.8	23877.6	6978.2

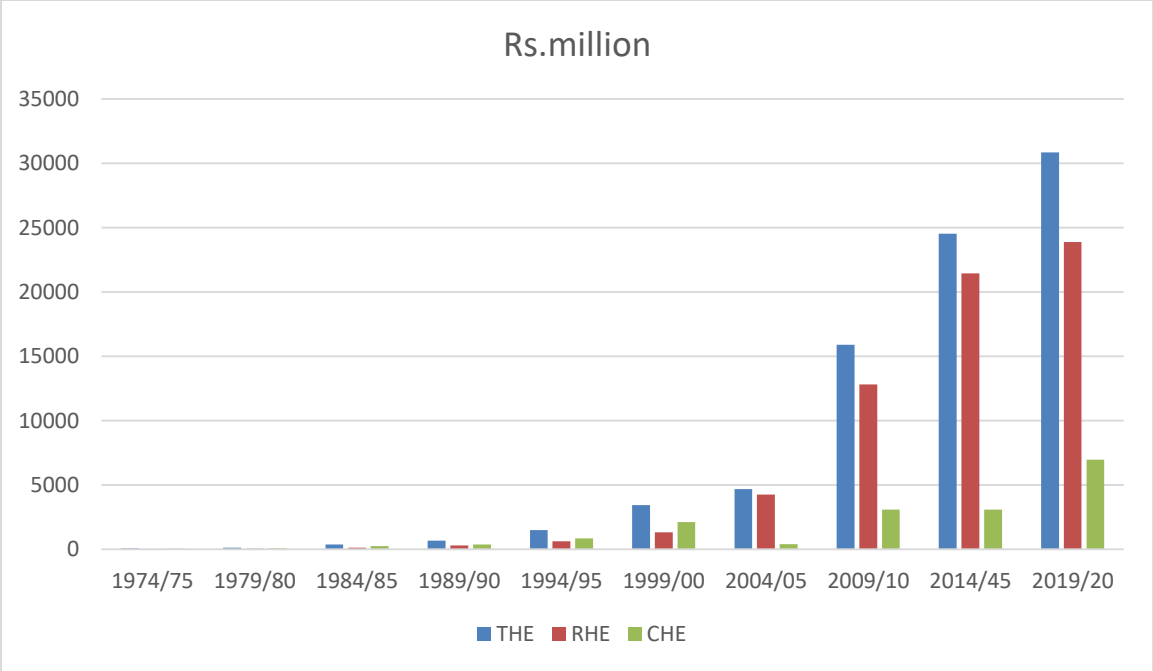
Resource; Redbook Ministry of Finance, A hand book of government finance statistics (Nepal Rastra Bank)

Table 4.1.2 shows the terms of health expenditure (total, recurrent and capital) in the FY 1974/75, the total health expenditure was 87.9 million in which recurrent and capital health expenditure was Rs. 28.2 and Rs. 59.7 million respectively. In subsequent years, total health, recurrent health expenditure and capital health expenditure had been increasing in absolute amount except the FY 2017/18 and 2018/19. But the capital health expenditure had been increasing more amount than recurrent expenditure till the FY 2000/01. in the FY 1985/86, recurrent health expenditure was150.0million in which, capital health expenditure was 255.9 million. In the FY 1995/96 total recurrent health expenditure of government was 799.0 million and capital health expenditure was reached 915.5 million. After the FY 2001/02, the recurrent health expenditure had been increasing more amount than capital heal expenditure. But in the FY 2001/02, total health expenditure of Nepal was 3856.6 million and recurrent health expenditure and capital health expenditure was 2957.3 and 899.3 million respectively.

In the FY 2005/06, THE was 5745.2 million in which recurrent health expenditure and capital expenditure was 4791.5 million, 953.7 million respectively. It was 15108.9 and 3066.4 million in the FY 2010/11. It was Rs. 3066.41 million (only 16.9 percent of the total health expenditure) but the fiscal year 2011/12 capital health expenditure was increased. The amount of total health expenditure on capital was Rs. 3269.96 million which started to decline in the year 2012/13. It was Rs. 2761.01 million (only 14.5 percent of the total health expenditure) from FY 2013/14 it again started to increase. In FY 2016/17 it reached Rs. 5850.10 million in which total and recurrent health expenditure Rs. 39122.30 and 33272.20 million respectively. In the FY 2017/18 THE was 27370.3 million whereas, RHE and CHE was 20687.6 and 6682.7 million. This amount was less than the previous FY 2016/17 (see in annex 1). FY 2019/20, government THE was 30855.8 million and RHE and CHE was 2387.7, 6978.2 million respectively.

Data indicates the government is not able to allocate sufficient budget on the health sector development. The increasing appointment of personal in health sector, excesses expenditure in ongoing conflict, low revenue collection, low foreign aid and disbursement on health sector is the major reasons.

Chart 4.1.2 Composition of Government Health Expenditure



Based on table 4.1.2

This figure shows that the total health expenditure was increasing in each and every fiscal year except some fiscal year. The recurrent and capital health expenditure made by government also increasing but the recurrent health expenditure was less than capital health expenditure since the FY 1974/75 to 2000/01. After the FY 2001/02, recurrent health expenditure was much more than the capital health expenditure. The slope THE, RHE and CHE was upward from left to right.

4.1.3 Composition of Public Health Expenditure to the Total Public Expenditure in Nepal

The decreasing percentage of health expenditure on the total public expenditure except in some years shows that the government is reducing its attention towards the health care of the people however; the percentage is still low. It refers that the government is not providing the proper attentions and not conscious on general health problem. The Share of health Expenditure on total public expenditure has been presented on given table

Table 4.1.3

Percentage of Public Health Expenditure to the Total Public Expenditure in Nepal

Rs. In Million

Fiscal Year	TPE	THE	THE % TPE
1974/75	1513.8	87.9	5.8
1979/80	3470.7	129.9	3.7
1984/85	8394.8	394.2	4.7
1989/90	19669.3	690.4	3.5
1994/95	39060.0	1495.6	3.8
1999/00	66272.5	3451.5	5.2
2004/05	102560.5	4682.3	4.6
2009/10	259689.1	15913.9	6.1
2014/15	531340.0	24531.3	4.6
2019/20	1091333.1	30855.8	2.8

Resource: Redbook; MoF, A hand book of government finance statistics (NRB)

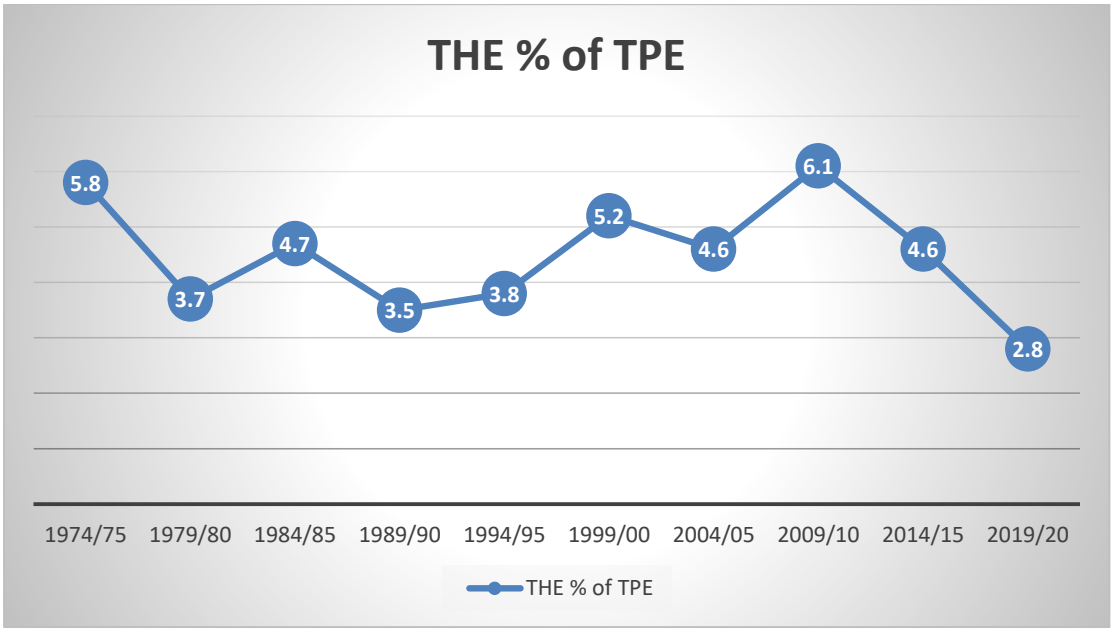
Table 4 shows that the share of health expenditure on total public expenditure. In the FY 1974/75, the percentage of THE on TPE was 5.8, in which TPE and THE was Rs. 1513.8 million and Rs. 87.9 million respectively. The share of health expenditure reached at 6.6 percent in the FY 1975/76 where, TPE and THE were Rs.1913.4 and Rs. 126.5 million respectively. Since 1976/77, the percentage of total public expenditure on health to the total public expenditure started gradually to decline till the year 1990/91. In the FY 1990/91, the share of health expenditure on total public expenditure was only 2.8 whereas, TPE was 23549.8 million and THE was 660.6 million respectively. After FY 1991/92, the share of THE out of TPE was started gradually to increase. In the FY 2000/01, it was 4.4 percent.

Similarly in the FY 2005/06, the share of THE out of TPE was 5.2 percent which is greater than the previous FY 2004/05. FY 2010/11, it was 6.1 percent. In the fiscal year 2015/16 it was 4.9 percent which is greater than previous fiscal year 2014/15. In the fiscal year 2016/17, the share of THE out of TPE was 4.67 percent; total public and health expenditure were Rs. 837247.70 and 39122.30 million respectively. FY 2017/18,

TPE was 1087267.6 million and THE was 27370.3 million which means it was only 2.5 percent. Similarly, FY 2018/19, percentage of THE out of TPE was only 2.2 (see annex 1) . In the FY 2019/20, TPE was 1091333.1 million and THE was 30855.8 million which percentage was 2.8.

The government is not able to allocate sufficient budget on the health sector. There might be various reasons. Some of them are increasing demand for government budget to resolve the ongoing conflict and to stabilize the peace over all in the country. During the study period, low revenue collections in comparison to increasing expenditure, low disbursement of the health sector are major.

Figure 4.1.3 THE as percentage of TPE



Based on table 4.1.3

This chart shows that the government of Nepal how much money expend on the health sector out of TPE from FY 1974/75 to 2019/20. The trend line of government THE as a percentage of TPE was more fluctuated. Some FY the share of THE as percentage of TPE was increasing and in some FY it was decreasing. In FY 1974/75, government THE as percentage of TPE was 5.8. In FY1979/80, it was decreased. But again increased in FY 1984/85. In the FY 2009/10, it was 6.1 percent respectively. After the FY 2009/10, THE as percentage of TPE was start decreasing.

4.1.4 Composition of Health Expenditure to the Total Public Expenditure on Social Services

The more or less constant share of health expenditure on the social expenditure shows that the government has been paying attention equally in every sector of social services. The share of health expenditure on social expenditure is second more with compare to other sector the government has prioritized attention on education sector. But health is also more sensible sector for the human resource development on the average; the share is only around 16 percent of social services. It shows that the government has not given much attention in health sector despite the fact that it plays significant role in the individual and national development. The trend of health expenditure seems not more fluctuation. The composition of health expenditure to total public expenditure on social services given below;

Table 4.1.4

Percentage of Health Expenditure to the Total Public Expenditure on Social Services

Rs. In million

Fiscal Year	TSE	THE	THE as % of TSE
1974/75	347.5	87.9	25.3
1979/80	628.8	129.9	20.7
1984/85	1912.1	394.2	20.6
1989/90	4689.4	690.4	14.7
1994/95	10666.2	1495.6	14.0
1999/00	20734.1	3451.5	16.6
2004/05	31149.5	4682.3	15.0
2009/10	98889.9	15913.8	16.1
2014/15	177196.0	24531.2	13.8
2015/16	209532.9	29229.8	13.9

Source: A Handbook of government Finance Statistics (NRB), Redbook, MOF

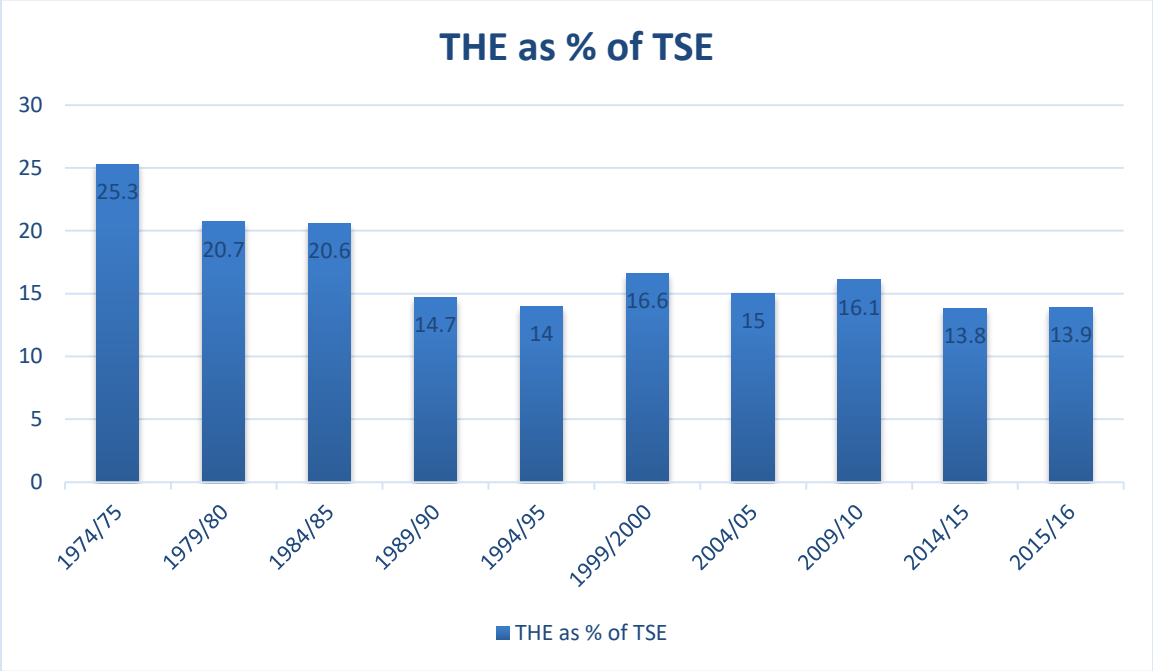
Table 4 shows that the percentages of health expenditure on social expenditure. In the FY 1974/75, THE as a percentage of TSE was 25.3 in which TSE was 347.5 and THE was 87.9 million. Similarly in the FY 1980/81, the share of THE on TSE was 20.8 percentage.it had been decreasing gradually till the FY 1983/84. The share of THE out

of TSE was only 17.1 percentage. But FY 1984/85, it was increased and it reached 20.6 percentage. In the FY 1995/96 the share of THE out of TSE was 13.2 percentages and the total amount of social service expenditure was 12987.8 million, THE was 1714.5 million. The percentage of THE out of TSE was reached at14.8 in the FY 2000/01 when TSE and THE was 23754.9, 3519.7 million respectively. In the FY 2005/06, the share of health expenditure on social expenditure was 16.2 percent, when health and social expenditure was Rs. 5745.1 And 35534.4 million respectively. In the further years, both TSE and THE had been increasing in absolute amounts. But the ratio had more or less similar. Social expenditure had increased quite more than the health expenditure.

The percentage of the health expenditure reached at 18.6 in FY 2011/12. In that year, the social expenditure and health expenditure was Rs. 108506.6 and 20240.3 million respectively. Then the following years, the share started to decline slowly but the absolute amount has seen increasing in further years. The share was only 13.9 percent in FY 2015/16. In which the total public expenditure on social service and health were Rs. 209532.9 and Rs. 29229.8 million respectively.

The table 4 shows that the share of health expenditure on social expenditure excluding some years shows the government is keeping its equal attention every year towards public health care but the share is still lower. It refers that the government is not providing highly attention to the people’s health problems.

Chart 4.1.4



Based on table 4.1.4

This chart shows that there was decreasing trend of government THE as percentage of TSE from the FY 1974/75 to 2015/16. In the FY 201974/75, it was 25.3 percent respectively. In the FY 1979/80 it was decreased. The THE as percentage of TSE was 20.7, 20.6, 14.4, 14 respectively in FY 1979/80, 1984/85, 1989/90, 1994/95. In FY 1999/2000, Percentage of THE to the TSE was increased and it was 16.6 percent. Similarly, the THE as percentage of TSE was decreased in 2004/05. In 2009/10, it was increased but in the FY 2015/16 it was decreased.

4.1.5 Per Capita Public Health Expenditure in Nepal

Per capita public health expenditure is arrived by dividing the total public health expenditure to that of total population in the country. Table 5 provides the per capita public expenditure on health sector in Nepal. In the FY 1974/75, the per capita total government health expenditure was steed at 6.55 rupees. Per capita government health expenditure of Nepal was increasing continually year by year except some fiscal year. In FY 1980/81, the average expenditure of Nepal for each individual to serve their health service facilities was 10.58 rupees. Similarly, in the FY 1985/86, it was reached at 23.60 rupees.

Per capita government health expenditure of Nepal in the FY 1990/91 was 34.05 rupees. The THE was 660.6 million and total population of Nepal was 19.4 million respectively. After the FY 1995/96, it was 77.57 rupees. In the FY 2000/01, per capita government health expenditure was 144.84 rupees. During the FY 2005/06, the per capita public expenditure on health sector in Nepal stood at Rs. 221.94 respectively. The per capita health expenditure drastically increased in the FY 2005/06 to 2016/2017. The per capita health expenditure reached at Rs.673.15 in the fiscal year 2010/11. In the FY 2016/17, the per capita public expenditure on health was Rs. 1417.47 respectively. But after 2016/17, The per capita public expenditure on health was decreasing. In FY 2017/18, it was reached at Rs. 977.52. In FY 2018/19, it was 856.13 rupees (see annex 1). Similarly, in the FY 2019/20 the per capita government health expenditure started to increase and reached to 1060.24 rupees. These data are given below.

Table 4.1.5

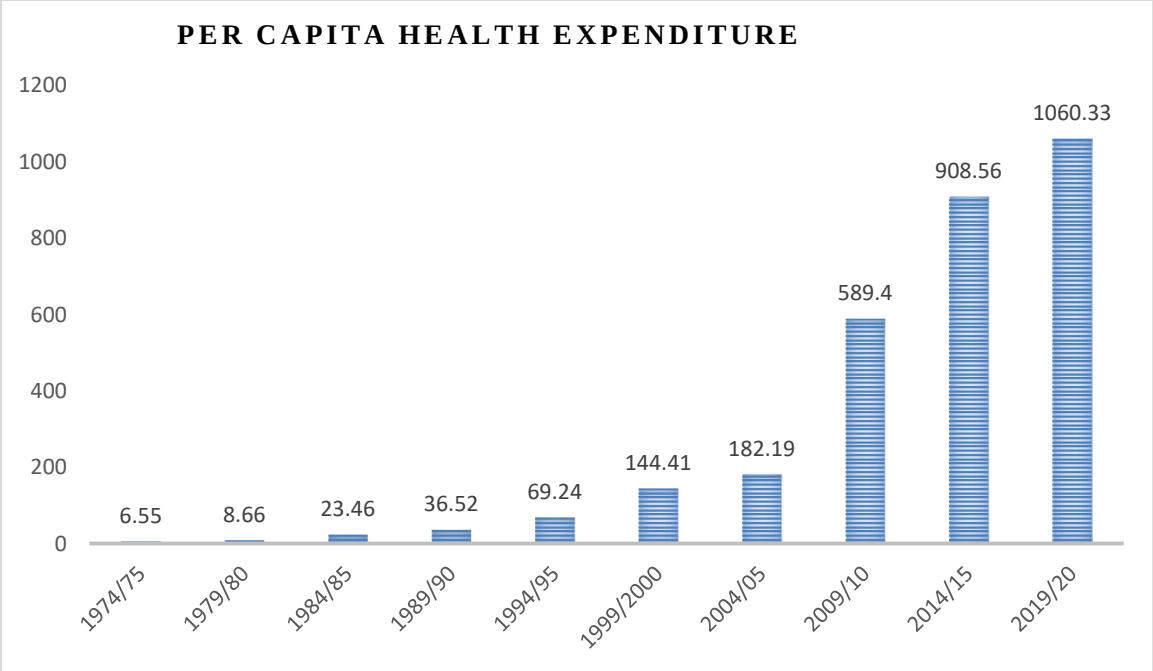
Per capita Public Health Expenditure in Nepal

Fiscal Year	THE (Rs in million)	Population (in million)	Per Capita HE (in Rupees)
1974/75	87.9	13.4	6.55
1979/80	129.9	15.0	8.66
1984/85	394.2	16.8	23.46
1989/90	690.4	18.9	36.52
1994/95	1495.6	21.6	69.24
1999/00	3451.5	23.9	144.41
2004/05	4682.3	25.7	182.19
2009/10	15913.9	27.0	589.40
2014/15	24531.3	27.0	908.56
2019/20	30855.8	29.1	1060.33

Source: 1. Redbook, Ministry of Finance, A hand book of government finance statistics (NRB)

Figure 4.1.5

Rs. NPR



Based on table 4.1.5

This chart shows that the trend of per capita health expenditure was increasing in each FY from 1974/75 to 2019/20 except the FY 2018/19. In the FY 1974/75, per capita health expenditure was Rs.6.55 respectively. In FY 2000/01, it was Rs 144.84. The per capita health expenditure was Rs 1060.33 in the FY 2019/20 respectively.

4.1.6 Growth of Public Expenditure and Government Health Expenditure

This chapter shows the annual growth rate of total public expenditure and health expenditure. It shows that the expenditure in absolute amount on each sector has been increasing every year. The annual growth rate of total public expenditure seems steady but the growth rate of health expenditure seems more fluctuation.

Table 4.1.6

Annual Growth of Health Expenditure

FY	Annual growth Of TPE (Rs. In million)	Annual % change in TPE	Annual Growth of THE (Rs. In million)	Annual % change in THE
1974/75				
1975/76	399.6	26.4	38.6	43.9
1980/81	621.6	17.9	33	25.4
1985/86	1402.3	16.7	11.7	2.9
1990/91	3880.5	19.7	-29.8	-4.3
1995/96	7482.4	19.1	218.9	14.6
2000/01	13562.6	20.5	68.2	1.9
2005/06	8328.7	8.1	1128	24.4
2010/11	35674.3	13.7	2261.5	14.2
2015/16	69691.9	13.1	4698.7	19.1
2019/20	-19124	-1.7	6370.2	26.0

Resource: Red Book, Ministry of Finance, A hand book of government finance statistics (Nepal rastra bank),

Table 6 shows that, the annual growth on total public expenditure seems to be increasing positively every year except the FY 2019/20 but the annual growth on health expenditure seems positive and negative as well. As a whole, the moment seems positively increased. In FY 1975/76, the annual growth of THE was Rs.38.6 million and annual percentage change was 43.9 respectively whereas annual growth of TPE was Rs.399.6 million and it was 26.4 percent respectively. In the FY 1980/81, annual percentage change on TPE was 17.9 and annual percentage change on THE was 25.4 respectively which means THE was increased by 25.4 percentage than the FY 1979/80. Similarly in the FY 1985/86, annual percentage growth of TPE was 16.7 respectively and annual percentage growth of THE was 2.9 respectively. In which annual growth on TPE was Rs.1402.3 million and annual growth on THE was Rs. 11.7 million respectively.

Similarly in the FY 1990/91, annual growth on TPE as Rs.3880.5 million and annual growth on THE was decreased by 29.8 million than the previous FY 1989/90. In the

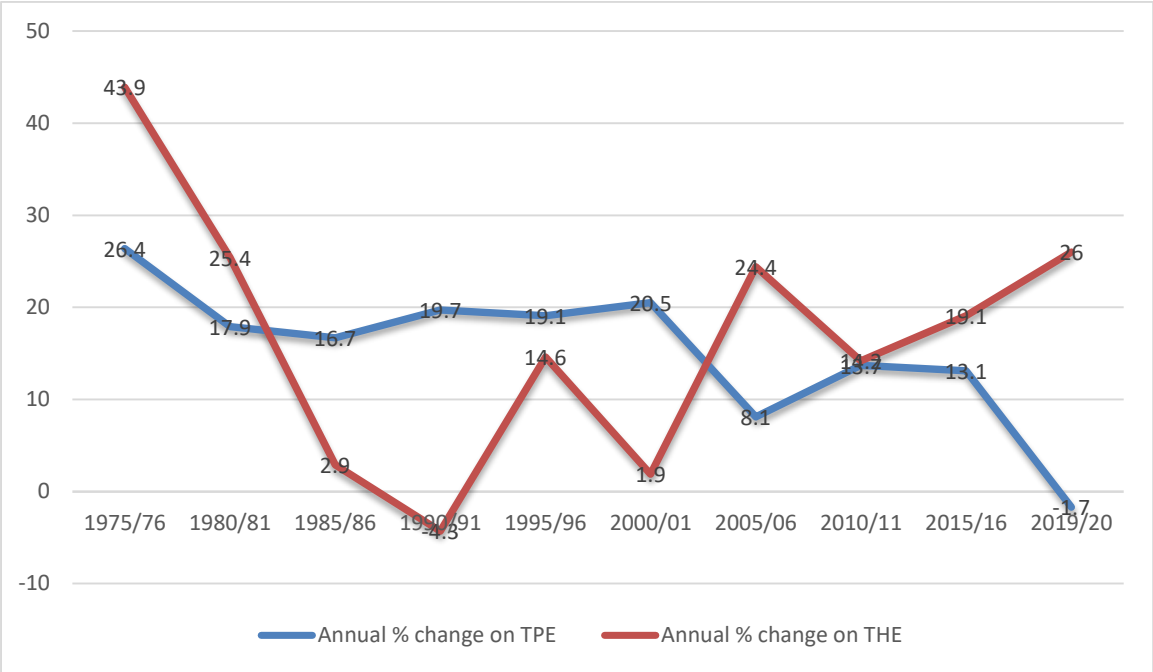
FY 1990/91, annual growth rate of THE was declined by minus 4.3 percent than the previous fiscal years. In the FY 1995/96, annual growth on TPE was 7482.4 million it percentage growth was 19.1 respectively whereas, at the same fiscal year annul growth on THE was 218.9 million. Which means, annual percentage growth on THE was 14.6 respectively.

In FY 2000/01, annual growth on TPE was Rs.13562.6 million and percentage annual growth rate was 20.5 respectively but annual growth on THE was Rs.68.2 million and annual percentage growth rate on THE was 1.9 respectively. In 2005/06, the annual growth of THE was Rs.1128 million and annual percentage change in public health expenditure was 24.4 respectively, whereas the total annual public expenditure was increased by Rs.8328.7 million (only 8.1 percent respectively). Most of the FY, the annual growth of health expenditure was positive but in some FY annual growth rate of government health expenditure was negative. In the fiscal year 2016/17, the annual growth on health expenditure Rs. 9892.5 million and the annual percentage change in health expenditure 33.8 respectively.

In the FY 2017/18, annual growth on TPE was Rs.250019 million and it was 29.9 percent greater than the FY 2016/17 but THE was decreased by Rs.11752 million which was 30.0 percent than the FY 2016/17. In the FY 2018/19, annual growth 0n TPE was Rs.23189.5 million which percentage was 23.5 but again the government THE was decreased by Rs 2884.7 million than the FY 2017/18 which was minus 10.5 percent respectively (see annex 2). In the FY 2019/20, TPE was declined by Rs.19124 million than the FY 2018/19 but at that FY annual growth on government THE was Rs.6370.2 million which became 26 percent respectively.

It indicates more fluctuation on growth of health expenditure. In the average, the annual growth rate of public expenditure on health remained 20 percent whereas the annual growth rate of total public expenditure was around 19.4 percent. In figure the annual growth on health expenditure seems slightly fluctuating than total public expenditure.

Chart 4.1.6 Annual Percentage Growth on Total Public Expenditure and Total Health Expenditure



Based on table 4.1.6

This chart shows that the trend line of annual percentage change on TPE and annual percentage change on THE. In this chart the annual growth on TPE was 26.4 percent in FY 1975/76 than the previous fiscal year. Similarly the annual growth on THE was 43.9 percent than the FY 1974/75. In FY 1990/91, the annual growth on TPE was 19.7 percent and annual growth on THE was negative 4.3 percent which means the TPE was increased by 19.7 percent than the previous fiscal year but the THE was decreased by 4.3 percent than the FY 1989/90. In FY 2008/09 annual growth rate of TPE was 36.1 percent and annual growth rate of THE was 28.9 percent respectively. In 2019/20, TPE was decreased by1.7 percent than the FY 2018/19 and THE was increased by 26 percent than the previous fiscal year.

4.2 An Analysis the Impact of Health Expenditure on Economic Growth

Health is an important indicator to see the standards of living in a country. The productivity of labor depends on health and educational conditions of workers. Therefore, health expenditures which are made by the government are an important

factor to accumulate human capital. This study conducts an analysis the impact of health expenditure on economic growth in Nepal for the period 1974/75 to 2019/20.

4.2.1 Total Public Expenditure and Total Health Expenditure as Percentage of Gross Domestic Product

In the FY 1974/75, GDP at current price was Rs 16601 million respectively. The total public expenditure (TPE) as percentage of GDP was 9.1 and government total health expenditure (THE) as percentage of GDP was 0.53 respectively. In FY 1980/81, the total GDP was Rs 27307 million. The percentage of TPE and THE made by government was 15.0 and 0.60 to the GDP. Similarly in FY 1985/86, GDP at current price was Rs 55734 million. The TPE and government THE as percentage of GDP was 17.6, 0.73 respectively. Likewise, in FY 1990/91 the GDP at current price was Rs 120370 million whereas the TPE and THE as percentage of GDP was 19.6, 0.55 respectively.

Similarly in FY 1995/96, GDP was Rs 248913 million. The TPE and THE as percentage of GDP was 18.7, 0.69 respectively. TPE as a percentage of GDP was 18.1, 17.0, 21.6 and government THE as percentage of GDP was 0.80, 0.89, 1.39 in the FY 2000/01, 2005/06 and 2010/11 respectively. The GDP was Rs 441519, 654084.1 and 1366954.1 million respectively. In the FY 2015/16, total GDP at current price was Rs 2253163.1 million whereas the TPE as percentage of GDP was 26.6 and government THE as percentage of GDP was 1.26 respectively.

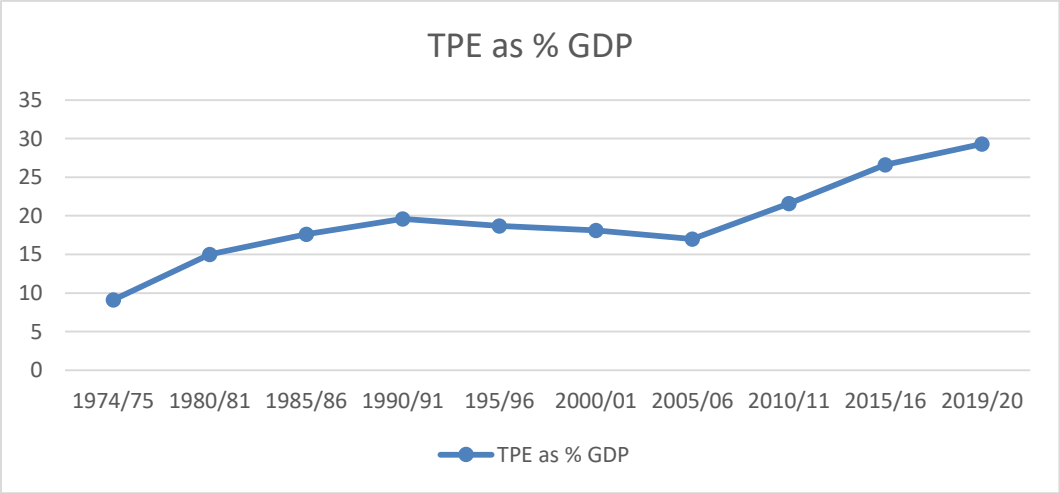
Likewise, in FY 2016/17, total nominal GDP was Rs 2674492.8 million. The TPE as percentage of GDP was 31.3 and THE as percentage of GDP was 1.46 respectively. In the FY 2017/18, 2018/19 GDP amount was Rs 3044927.1, 35654102.9 million. The TPE as percentage of GDP was35.7, 31.4 respectively. The government THE as percentage of GDP0.89, 0.69 respectively (see annex3). In the FY 2019/20, TPE as a percentage of GDP was 29.3 and government THE as percentage of GDP was 0.83 respectively. The amount of GDP at current price was Rs. 3716133.2 million respectively.

Table 4.2.1

FY	GDP (Rs million)	TPE % GDP	THE % GDP
1974/75	16601	9.1	0.53
1980/81	27307	15.0	0.60
1985/86	55734	17.6	0.73
1990/91	120370	19.6	0.55
195/96	248913	18.7	0.69
2000/01	441519	18.1	0.80
2005/06	654084.1	17.0	0.89
2010/11	1366954.1	21.6	1.39
2015/16	2253163.1	26.6	1.29
2019/20	3716133.2	29.3	0.83

Resource; statistical table 2019/20, central bureau of statistics. A hand book of government finance statistics, Nepal Rastra Bank. Red book, MOF

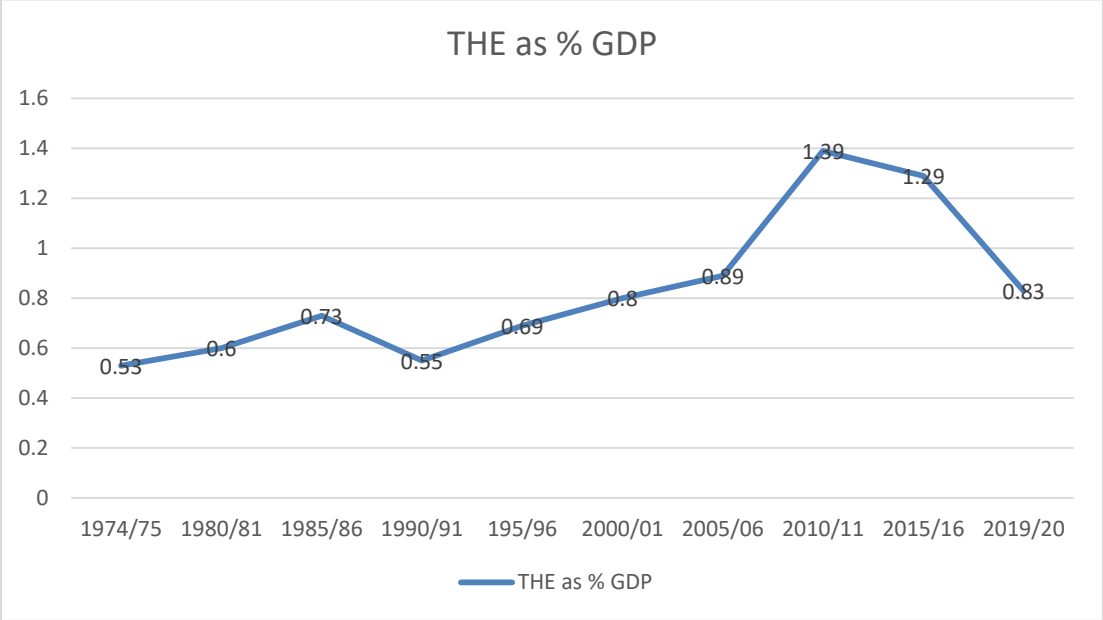
Figure 4.2.1



Based on 4.2.1

This figure show that TPE as percentage of GDP was increasing in most of the FY. There positive relation between the GDP and TPE as percent of GDP in most FY but in some FY, when GDP was increased the TPE as percent of GDP was decreased. In the FY 2018/19, 2019/20, the TPE as percentage of GDP was decreased.

Figure 4.2.2



Based on table 4.2.1

This figure shows that THE as a percentage of GDP was increasing in FY 1974/75, 1980/81, 1985/86 but it was decreased in FY 1990/91. Again it was started to increase from the FY 1995/96 to 2016/17. After the FY 2016/17 it started to decreased. In the FY 2019/20, THE as percentage of GDP was increased.

4.2.2 Contribution of Total Export to the Gross Domestic Product

In the FY 1974/75, GDP of Nepal at current price was Rs 16601 million. In that FY the total export (TX) was Rs. 889.6 million. The contribution of total export to GDP was 5.3 percent respectively. FY 1980/81, the contribution of TX to nominal GDP was increased and it was 5.9 percent whereas nominal GDP was Rs 27307 million and total export was Rs. 1608.7 million respectively. The percentage of TX to GDP at current price was 5.5 in FY 1985/56. Similarly, In the FY 1990/91, 1995/96, 2000/01 it was 6.1, 8.0 and 12.6 percent respectively.

In FY 2005/06, the contribution of TX to GDP at current price was 9.2 percent whereas, the GDP was Rs.654084.1 million and total export was Rs.60234.1 million respectively. The TX and GDP at current price was Rs. 64338.5 and 1366954.1 million in FY 2010/11. The contribution of TX to GDP was 4.7 percent respectively. In FY

2015/16, GDP of Nepal at current price was Rs.2253163.1 million and TX was Rs.70117.1 million. The contribution of TX to GDP at current price was 3.1 percentage respectively. The total export of Nepal in FY 2019/20 was Rs. 97709.1 million and GDP at current price was Rs. 3716133.2 million. The contribution of TX to GDP was 2.7 and 2.6 percent in FY 2018/19 and 2019/20. The table is given below.

Table 4.2.2

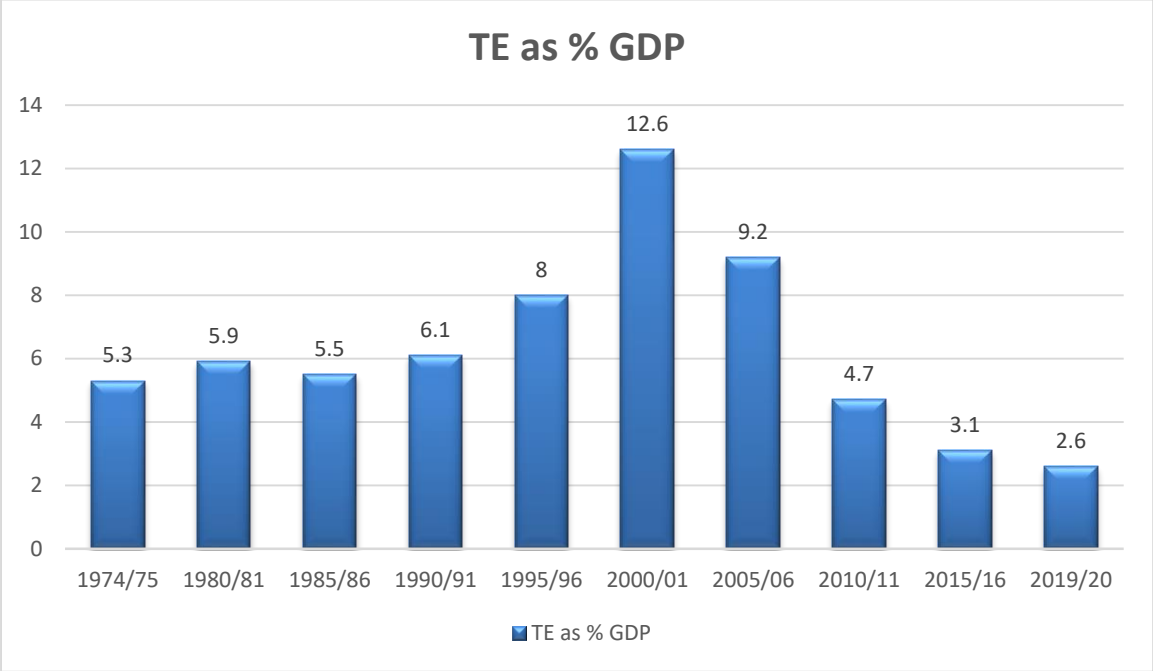
Contribution of Total Export to the Gross Domestic product

Rs in million

FY	GDP	Total Export	TE as % GDP
1974/75	16601	889.6	5.3
1980/81	27307	1608.7	5.9
1985/86	55734	3078	5.5
1990/91	120370	7387.5	6.1
1995/96	248913	19881.1	8.0
2000/01	441519	55654.1	12.6
2005/06	654084.1	60234.1	9.2
2010/11	1366954.1	64338.5	4.7
2015/16	2253163.1	70117.1	3.1
2019/20	3716133.2	97709.1	2.6

Resource; statistical table 2019/20, central bureau of statistics. A hand book of government finance statistics, Nepal Rastra Bank. Red book, MOF

Figure 4.2.3



Based on table 4.2.2

This figure shows that the contribution of TE to GDP had been increasing since 1974/75 to FY 2000/01. After FY 2000/01 to 2019/20, it seems decreasing trends.

4.2.3 Gross Fixed Capital Formation as Percentage of Gross Domestic Product

In FY 1974/75, the GDP at current price was Rs 16601 million and GFCF was Rs 2223 million respectively. The percentage of GFCF to the GDP was 13.4 respectively. In FY 1980/81, the share of GFCF to GDP was 15.7 percent respectively. Similarly in FY 1985/86, total GDP of Nepal at current price was 55734 million and GFCF was Rs 6431 million. It means the percentage of GFCF to GDP was 16.9 respectively. In FY 1990/91, total GDP was Rs 120370 million and GFCF was Rs 22780million. The GFCF as percentage of GDP was 18.9 respectively.

Likewise, in FY 1995/96, the total GDP at current price was Rs 248913 million and GFCF was Rs 56081 million whereas the percentage of GFCF to GDP was 22.5 respectively. Similarly, the GDP and GFCF was Rs 441519, Rs 654084.1 million and Rs 78031, Rs 107624 million in the FY 2000/01, 2005/06. it's percent to GDP was 17.7 and 16.4 respectively. In FY 2010/11 and 2015/16, the GDP of Nepal was Rs

1366954.1, Rs 2253163.1 million and GFCF was Rs 292730, Rs 647294 million respectively. The percentage of GFCF to GDP was 21.4, 28.7 respectively.

Table 4.2.3

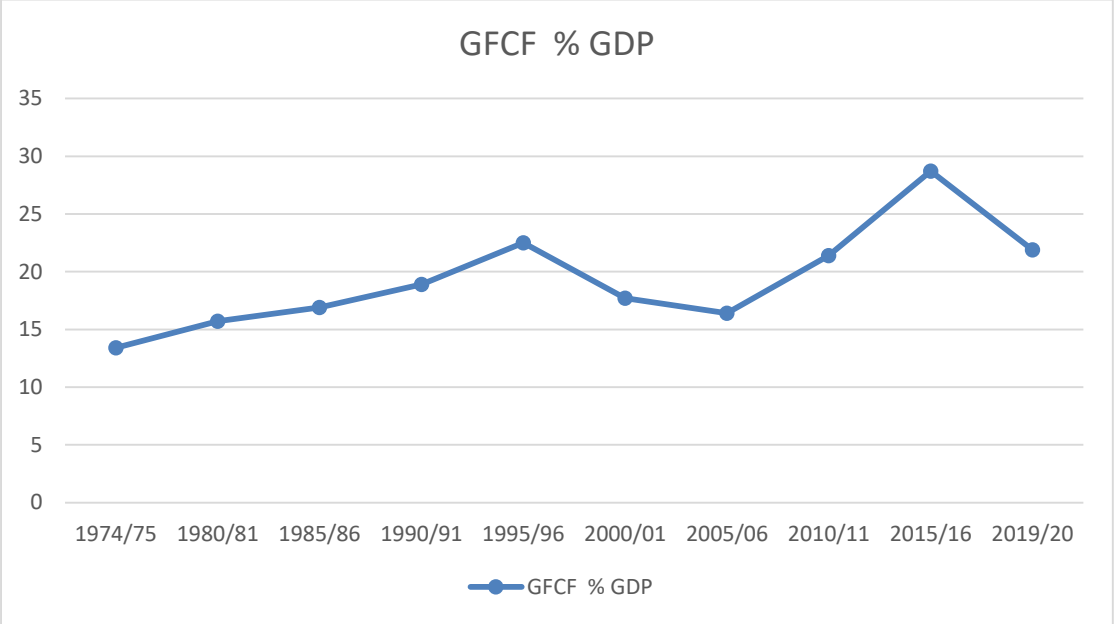
Rs in million

FY	GDP(current price)	GFCF	GFCF % GDP
1974/75	16601	2223	13.4
1980/81	27307	4299	15.7
1985/86	55734	6431	16.9
1990/91	120370	22780	18.9
1995/96	248913	56081	22.5
2000/01	441519	78031	17.7
2005/06	654084.1	107624	16.4
2010/11	1366954.1	292730	21.4
2015/16	2253163.1	647294	28.7
2019/20	3716133.2	815592	21.9

Resource; statistical table 2019/20, central bureau of statistics. A hand book of government finance statistics, Nepal Rastra Bank. Red book, MOF

In FY 2016/17, the GDP of Nepal was Rs 2674492.8 million and GFCF was Rs 840693 million. At that FY the percentage of GFCF to GDP was 31.4 respectively. In FY 2017/18, the percentage of GFCF to GDP was 34.5.The GDP was Rs 3044924.1 million and GFCF was Rs 1051957 million respectively. In FY 2018/19, GDP was Rs 3565102.9 million and GFCF was Rs 765957 million. Which means the percentage of GFCF to GDP was decreased than the previous FY 2017/18. It was it was only 21.5 percent (see annex 3). Similarly in the FY 2019/20, nominal GDP was Rs 3716133.2 million and GFCF was Rs 815592 million where, the percentage of GFCF to GDP was 21.9 respectively.

Figure 4.2.4



Based on table 4.2.3

This figure shows that the trend line of GFCF as percentage of GDP at current price. The slope of this trend line was upward from left to right from the FY 1974/75 to 2017/18. After the FY 2017/18 it was downward. In the FY 2017/18, the GFCF as percentage of GDP was 34.5 respectively. In FY 2018/19, the GFCF as a percentage of GDP was decreased and which was 21.5 percent respectively. But in FY 2019/20, percentage of GFCF to the GDP was increased. It means the GFCF occupied 21.9 percent of total GDP.

4.3 Regression Analysis

Regression is the technique of study how the variations in one series are related to variation in another series. The regression analysis is a statistical method for determining the nature of relationship that exist among two or more variables and making estimate or predictions from that relationship. The unknown variable that we are going to predict (estimate) is called dependent or explains variable or regressed. The known variable whose values used to predict, the values or unknown variable is called independent variable or explanatory variable.

Regression analysis is the technique of finding linear relationship between dependent and independent variables with the help of sample data of these variables to predict the value of dependent variables for the given value of independent variables. This study uses the multiple linear regression model to find the relationship between dependent variable and independent variables. The multiple linear regression model is expressed as;

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + U \qquad (1)$$

Where, Y is dependent variable, X_1, X_2, X_3 and X_4 are independent variables. B_0 is intercept, B_1, B_2, B_3, B_4 are partial regression coefficient and U is random variable.

4.3.1 Regression Model 1

In this study, the Gross Domestic Product (GDP) at current price is dependent variable and total non-health expenditure (NHE), total health expenditure (THE), total export (TX), gross fixed capital formation (GFCF) at current price are independent variables. Now, the multiple linear regression model (1) can also be express as;

$$GDP = B_0 + B_1THE + B_2NHE + B_3TX + B_4GFCF + U \qquad (2)$$

Now taking log in both side of equation (2) the model can be express as;

$$Ln\ GDP = B_0 + B_1 lnTHE + B_2 lnNHE + B_3 lnTX + B_4 lnGFCF + U \qquad (3)$$

Regression analysis indicates the relationship between GDP and total health expenditure (THE), total non- health expenditure (NHE), total export (TX), and gross fixed capital formation (GFCF). Data has taken for the period 1974/75 to 2019/20. The regression output is tabulated as below;

variables	coefficient	Standard error	t-stat	p-value
Intercept	1.386172	0.079636	17040633	0.0000
LnTHE	0.164716	0.053405	3.084260	0.0036
LnNHE	0.265577	0.122376	2.170180	0.0358
LnTX	0.175307	0.026805	6.540210	0.0000
LnGFCF	0.319490	0.131355	2.432257	0.0195
R square 0.997756			F- Statistic = 4558.312	
Adjusted R square 0.997538			prob(F-statistic) = 0.00000	
D-W stat 1.485359				

Resource; appendix 1

Now,

LnGDP =1.3861+0.1647lnTHE+0.2655LnNHE+0.1753LnTX+0.3194LnGFCF+U

The regression model shows that there is positive relationship between the dependent variable (GDP) and independent variables or explanatory variables (THE, NHE, TX and GFCF). The value of B_1, B_2, B_3 and B_4 are 0.164716, 0.265577, 0.175307, and 0.319490 which shows the positive impact of THE, NHE, TX and GFCF on economic growth. If one unit increase in government THE (other variables remain constant) would lead to 0.0.164716 unit increase in GDP. If one unit increase in government NHE (other variable remain constant) would lead to 0.265577 unit increase in GDP at that period. Likewise, if one unit in increase in TX (other variables remain same) would lead to 0.175307 unit increase in economic growth. Similarly, if one unit increase in GFCF (other variable remain same) then, gross domestic product would increase in 0.319490 unit respectively.

The coefficient of R square is `0.997756 which indicates that 99.7 percent of the total variation in GDP is explained by change in explanatory variable (THE, NHE, TX, GFCF) and remaining 0.3 percent of total variation in GDP is due to error. The value of R square 0.997756 signifies that there is greater significant relationship between dependent (GDP) and independent variables (THE, NHE, TX, GFCF). The value of R square shows that, there is greater degree of goodness of fit of multiple regression

model. Moreover, the Darbin-Watson value of 1.485359 is greater than the R square value of 0.997756, which implies that the overall model is significant and well fit at the 5 percent level of significance.

Detection of Heteroscedasticity

The study used the Breusch-Pagan Godfrey test. Now setting the hypothesis as;

Null hypothesis H_0 = there is Homoscedasticity

Alternative Hypothesis H_1= there is Heteroscedasticity

The value of observation*R-square is 5.791335 (see in Appendix 1) and prob. Chi-square (4) is 0.2153 which indicates that null hypothesis cannot reject. It means, the prob. Chi-square (4) is greater than the 0.05, so there is homoscedasticity in the model. The study rejected the alternative hypothesis.

4.3.2 Regression Model 2

Let, Gross domestic product (GDP) is the dependent variable and recurrent health expenditure (RHE), capital health expenditure (CHE), total export (TX) are the independent variables, B_0 is intercept, B_1, B_2, B_3 are partial coefficient and U is random variable. Now the multiple linear regression model can be express as;

$GDP = B_0 + B_1RHE + B_2CHE + B_3TX + U$

After taking log in both sides the regression model can be expressed as;

$LnGDP = B_0 + B_1LnRHE + B_2LnCHE + B_3LnTX + U$

On the basis of Appendix 2 the regression output is tabulated as below;

	coefficient	Standard error	t-stat	p-value
C	2.518193	0.110105	22.87094	0.0000
LnRHE	0.510503	0.039062	13.66894	0.0000
LnCHE	0.171675	0.038020	4.515441	0.0001
LnTx	0.202451	0.050396	4.617279	0.0002

R-square 0.991173, adjusted R-square 0.990543, F-statistic 1572.076, prob. (F-stat) 0.0000, D-W stat 0.570443

Now, LnGDP = 2.518193+0.510503LnRHE+0.171675LnCHE+0.202451LnTX+U

There is positive relationship between the dependent variable (GDP) and independent variables (RHE, CHE, TX). The value of B_1, B_2, B_3 are 0.510503, 0.171675, 0.202451 which shows the positive impact of RHE, CHE, TX on economic growth. If one unit increase in government RHE (other variables remain constant) would lead to 0.510503 unit increase in GDP. If one unit increase in government CHE (other variable remain constant) would lead to 0.171675 unit increase in GDP at that period. Likewise, if one unit increase in TX (other variables remain same) would lead to 0.202451 unit increase in economic growth. The prob. (t-stat) were less than 0.05 (at 5% level of significance) which indicates that the variables are significant.

The coefficient of R square is `0.991173 which indicates that 99.1 percent of the total variation in GDP is explained by change in explanatory variable (RHE, CHE, TX,) and remaining 0.9 percent of total variation in GDP is due to error. The value of R square 0.991173 signifies that there is greater significant relationship between dependent (GDP) and independent variables (RHE, CHE, TX,). The value of R square shows that, there is greater degree of goodness of fit of multiple regression model. Moreover, the value of F-statistic is 1572.076 and prob. (F-stat) is 0.0000 which indicates that the overall model is significant and well fit at 5 percent level of significance. The D-W statistic is 0.570443 which signifies that there is positive autocorrelation in regression model.

Detection of Heteroscedasticity

The study used Breusch-Pagan Gdfrey test. Now, setting the Hypothesis as;

Null Hypothesis H_0 = there is Homoscedasticity

Alternative Hypothesis H_1 = there is Heteroscedasticity

The value of observation*R-square is 10.81662 (see in Appendix 2) and prob. Chi-square (3) is 0.0128 which indicates that null hypothesis can rejected. It means, the prob. Chi-square (3) is less than the 0.05, so there is Heteroscedasticity in the model. The study cannot reject the alternative hypothesis. So the study used Huber-White-Hinkely (CH1) heteroscedasticity consistent standard error and covariance method to removal the heteroscedasticity in regression model (see in Appendix 2.1).

4.3.3 Regression Model 3

Let, the dependent variable is GDP and independent variables are recurrent non-health expenditure (RNHE), capital non-health expenditure (CNHE), total export (TX), B_0 is intercept, B_1, B_2, B_3 are partial coefficient, and U is random variable. The multiple regression model can be expressed as;

$GDP = B_0+B_1RNHE+B_2CNHE+B_3Tx+U$

After taking log in both side the regression model can be expressed as;

$LnGDP = B_0+B_1LnRNHE+B_2LnCNHE+B_3LnTX+U$

The data are taking from the FY 1974/75 to 2019/20. On the basis of Appendix 3 the regression output is tabulated as below;

	coefficient	Standard error	t-statistic	p-value
C	1.119269	0.127185	8.800350	0.0000
LnRNHE	0.216023	0.045555	4.741999	0.0000
LnCNHE	0.404559	0.074797	5.408765	0.0000
LnTX	0.392731	0.056524	6.947981	0.0000

R-squared 0.983804, Adjusted R-squared 0.982647, F-statistic 850.3988, prob(F-statistic) 0.00000, D-W statistic 1.038927

LnGDP = 1.119269+0.216023LnRNHE+0.404559LnCNHE+0.392731+U

There is positive relationship between the dependent variable (GDP) and independent variables (RNHE, CNHE, TX). The value of B_1, B_2, B_3 are 0.216023, 0.404559, 0.392731 which shows the positive impact of RNHE, CNHE, TX on economic growth. If one unit increase in public RNHE (other variables remain constant) would lead to 0.216023 unit increase in GDP. If one unit increase in CNHE (other variable remain constant) would lead to 0.404559 unit increase in GDP at that period. Likewise, if one unit increase in TX (other variables remain same) would lead to 0.392721 unit increase in economic growth. The prob. (t-stat) were less than 0.05 (at 5% level of significance) which indicates that the variables are significant.

The coefficient of R square is `0.993804 which indicates that 99.3 percent of the total variation in GDP is explained by change in explanatory variable (RNHE, CNHE, TX,) and remaining 0.7 percent of total variation in GDP is due to error. The value of R square 0.993804 signifies that there is greater significant relationship between dependent (GDP) and independent variables (RNHE, CNHE, TX,). The value of R-square shows that, there is greater degree of goodness of fit of multiple regression model. Moreover, the value of F-statistic is 850.3988 and prob. (F-stat) is 0.0000 which indicates that the overall model is significant and well fit at 5 percent level of significance. The D-W statistic is 1.038927 which signifies that there is positive autocorrelation in regression model.

Detection of Heteroscedasticity

The study used Breusch-Pagan Godfrey test. Now, setting the Hypothesis as;

Null Hypothesis H_0 = there is Homoscedasticity

Alternative Hypothesis H_1 = there is Heteroscedasticity

The value of observation*R-square is 29.39276 (see in Appendix 3) and prob. Chi-square (3) is 0.00000 which indicates that null hypothesis can rejected. It means, the prob. Chi-square (3) is less than the 0.05, so there is Heteroscedasticity in the model. Thus, study cannot reject the alternative hypothesis. So the study used Huber-White-Hinkely (CH1) heteroscedasticity consistent standard error and covariance method to removal the heteroscedasticity in regression model (see in Appendix 3.1). The value of coefficient remain same as original regression model after using this method but standard error and t-statistic are different and p-value remain below 0.05.

CHAPTER FIVE
MAJOR FINDING, CONCLUSION AND RECOMMENDATIONS

5.1 Major Finding

Government health expenditure consists of health and health-related expenditures. Expenditure are defined on the basis of their primary or predominant purpose of improving health, regardless of the primary function or activity of the entity providing or paying for the associated health services. The above mentioned objectives of this study are to examine the public expenditure on health sector and an analysis the impact of government total health expenditure on economic growth of Nepal during period from 1974/75 to 2019/20. Data indicates that there has been increasing trend in public expenditure in Nepal. This study has also thrown the light on some important and interesting fact of analysis of public expenditure on health in Nepal. The major finding of this study is given below;

i. The government total health expenditure (THE) was increasing year by year from the fiscal year 1974/75 to 2019/20. The THE was Rs 87.9 million in fiscal year 1974/75. The total health expenditure was increased by Rs 30769.9 million in the FY 2019/20 than the FY 1974/75 where the total health expenditure was Rs 30855.8 million.
ii. The total public expenditure (TPE) was increasing year by year from the FY 1974/75 to 2019/20. In the FY 1974/75, TPE was Rs 1513.8 million whereas, it was increased by 1089819.3 million and reached at Rs 1091333.1 million respectively in the FY 2019/20.
iii. From the FY 1974/75 to 2001/02, the capital health expenditure was greater than the recurrent health expenditure but after the FY 2001/02 to 2019/20, recurrent health expenditure was greater than the capital health expenditure. The trend of recurrent health expenditure was increasing year by year from FY 1974/75 to 2019/20 but capital health expenditure was increasing in some year and some year it was decreasing.
iv. The percent of THE to the total public expenditure was fluctuating during the study period from 1974/75 to 2019/20. The share of total health expenditure remained 6.6 percent below on total public expenditure at that study period.

v. Per capita health expenditure was increasing year by year from the study period 197475 to 2019/20. The average health expenditure was Rs 6.55 in FY 1974/75 but in the FY 2019/20, per capita health expenditure was Rs 1060.33 respectively.

vi. The trend of Gross Domestic Product at current price was increasing year by year during the study period 1974/75 to 2019/20. The GDP of Nepal at current price was Rs 16601.0 million in FY 1974/75 respectively. In the FY 2019/20, it was reached at Rs 3716133.2 million.

vii. Total public expenditure as percentage of GDP at current price was increasing in each FY during the study period. Similarly, total health expenditure as percentage of GDP was 0.53 in FY 1974/75 but TPE as percentage of GDP was 9.1 respectively. In FY 2019/20, the TPE as percentage of GDP was 29.3 and government THE as percentage of GDP was 0.83 respectively.

viii. The trend of total export was growing year by year from the FY 1974/75 to 2019/20. Total export as percentage of GDP at current price was 5.3 in FY 1974/75. But in FY 2019/20 it was 2.6 percent whereas the GDP was Rs 3716133.2 million and total export was Rs 97709.1 million respectively. The total amount of export seems increased but the total export as percentage of GDP was seems different in each FY.

ix. The total amount of gross fixed capital formation was increasing year by year during the study period except the FY 2018/19. The GFCF of Nepal was Rs 2223 million in the FY 1974/75 which was only 13.4 percent of GDP. There was positive relationship between the GFCF and GDP at current price. It means the amount of GFCF was increasing in each fiscal year and the GDP also increased in that FY. In FY 2019/20, the total amount of GFCF was reached at Rs815592 million and GDP was Rs 3716133.2 million respectively. The GFCF as percentage of GDP was 21.9 respectively.

x. According the regression model (1), there is positive relationship between the GDP and THE, NHE, TX, GFCF. It means, if one unit of government THE increases then, 0.164716 unit GDP will be increase. Similarly, if one unit of government NHE increases then, 0.265577 unit economic growth will be increase. If one unit of total export increases then, 0.175307 unit economic growth will be increased. If one unit of GFCF increased then, 0.319490 unit gross domestic product will be increases.

xi. According the regression model (2), there is positive relationship between the GDP and RHE, CHE, TX. It means, if one unit of government RHE increases then, 0.510503 unit GDP will be increase. Similarly, if one unit of government CHE increases then, 0.161675 unite economic growth will be increase. If one unit of total export increases then, 0.202451 unit economic growth will be increased.

xii. In the regression model (3) there is positive relationship between GDP and government RNHE, government CNHE, TX.

5.2 Conclusion

Public expenditure on health include expenditure on health related function such as medical education and training, research and development. Health includes both the health of individuals as well as of groups of individuals or population. Health expenditure consists of all expenditures or outlays for medical care, prevention, promotion, rehabilitation, community health activity, health administration and regulation and capital formation with the predominant objective of improving health.

This study has concluded from the economic perspective, Nepal has poor economic status because of low precipitate income, poverty, less economic growth rate, budget deficit, dependency on foreign aid and import oriented trade. And from the political perspective, it is facing the political instability and insurgency due to the unstable government, corruption and strict law. Nepal has been attempting to improve health status of the people. It is improving the conditions of health services as much as possible.

Health being an important component of human capital has always attracted the interests of researchers and policy makers. Governments across the globe in general and in Nepal particularly trying to improve the human capital by pumping more investments in health services. But the issue that whether investing and spending more in health have been resulting satisfying improvement in health service attainment for economic development is still controversial. Some researchers or scholars have kept their view that it is bi-directional relation between government investment and spending in health and economic growth while it has also been suggested that it is the economic

growth and development that stimulates government expenditure more in health, not the other way.

The public expenditure is continuously increasing in Nepal but the growth rate is lower during the study period. The overriding trend on the public expenditure reflects alarming situation with regard to fiscal discipline and the overall development programmed of the country. The government health expenditure is also increasing during the study period but small percentage of total public expenditure and gross domestic product (GDP). Before the FY 2001/02/ government capital health expenditure was much more than the recurrent health expenditure which is necessary to improve the human capital and economic growth. After the FY 2001/02, the recurrent health expenditure was increasing much more amount than the capital health expenditure.

5.3 Recommendation

On the basis of this study, some general suggestions can be recommended as follows;

i. Government should adopt the appropriate policy to convert the unproductive expenditure into productive sector. This can be done by diverting the recurrent expenditure into capital expenditure.
ii. The government should increase capital health expenditure than the recurrent health expenditure.
iii. Government should increase the expenditure on health services to improve the human capacity and economic growth.
iv. The government should increase total health expenditure, total export and increase in gross fixed capital formation to increase the economic growth of Nepal.
v. Government expenditure in health has been found fluctuating. It seems that GoN should maintain between recurrent and capital expenditure in health with appropriate allocation of needy budget for health sector attainment.
vi. Government gradually should increase non-health capital expenditure more amount than the non-health recurrent expenditure to improve economic growth.

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ANNEXES 1

Rs in million

FY	TPE	THE	RHE	CHE	THE % TPE	TSE	THE % TSE
1974/75	1513.8	87.9	28.2	59.7	5.8	347.5	25.3
1975/76	1913.4	126.5	33.2	93.3	6.6	462.4	27.4
1976/77	2330.4	125.1	32.5	92.6	5.4	554.2	22.6
1977/78	2674.9	137.8	41.5	96.3	5.2	613.4	22.5
1978/79	3020.5	150.7	52.2	98.5	5.0	709	21.3
1979/80	3470.7	129.9	57.7	72.2	3.7	628.8	20.7
1980/81	4092.3	162.9	65.2	97.7	4.0	782.7	20.8
1981/82	5361.3	233.3	86.5	152.8	4.4	1309.2	17.8
1982/83	6979.2	318.6	102.3	216.3	4.6	1860.7	17.1
1983/84	7437.3	317.6	117.8	199.8	4.3	1854	17.1
1984/85	8394.8	394.2	139.4	254.8	4.7	1912.1	20.6
1985/86	9797.1	405.9	150	255.9	4.1	2193	18.5
1986/87	11513.2	491.7	182.5	309.2	4.3	2544.5	19.3
1987/88	14105	589.3	204.1	385.2	4.2	2995.4	19.7
1988/89	18005	867.1	251.1	616	4.8	3944.1	22
1989/90	19669.3	690.4	296.6	393.8	3.5	4689.4	14.7
1990/91	23549.8	660.6	293.8	366.8	2.8	4311.9	15.3
1991/92	26418.2	918.1	410.9	507.2	3.5	6039.3	15.2
1992/93	30897.7	1061.0	460.8	600.2	3.4	8514.6	12.5
1993/94	33597.4	1065.6	505.1	560.5	3.2	8456.3	12.6
1994/95	39060.0	1495.6	637.1	858.5	3.8	10666.2	14
1995/96	46542.4	1714.5	799	915.5	3.7	12987.8	13.2
1996/97	50723.8	2506.6	885.4	1621.2	4.9	15190.4	16.5
1997/98	56118.3	3125.1	1049	2076.1	5.6	17316.8	18
1998/99	59579.0	2824.6	1137.4	1677.2	4.7	17642.3	16
1999/00	66272.5	3451.5	1324.8	2126.7	5.2	20734.1	16.6
2000/01	79835.1	2519.7	1547.3	1972.4	4.4	23154.9	14.8

2001/02	80072.2	3856.6	2957.3	899.3	4.8	24880.6	15.5
2002/03	84006.1	3652.0	3492.7	159.3	4.3	25937.8	14
2003/04	89442.6	3968.6	3826.4	142.2	4.4	27943.7	14.2
2004/05	102560.5	4682.3	4273.0	409.3	4.6	31149.5	15.0
2005/06	110889.2	5745.2	4791.5	953.7	5.2	35534.4	16.2
2006/07	133604.6	7440.1	6250.2	1190.5	5.6	45026.9	16.5
2007/08	161349.9	9844.4	7402.9	2441.4	6.1	55356.8	17.8
2008/09	219661.9	12693.3	10065.8	2627.5	5.8	81494.7	15.6
2009/10	259689.1	15913.9	12826.6	3087.3	6.1	98889.9	16.1
2010/11	295363.4	18175.3	15108.9	3066.4	6.1	116132.8	15.6
2011/12	339167.5	20240.3	16970.4	3269.9	6.0	108506.6	18.6
2012/13	358637.9	19049.0	16288	2761	5.3	108516	17.5
2013/14	435052.4	22852.2	19922.2	2930	5.2	137637.4	16.6
2014/15	531340	24531.3	21448.2	3083.1	4.5	177196.0	13.8
2015/16	601031.8	29229.8	25838.4	3391.4	4.9	209532.9	13.9
2016/17	837247.7	39122.3	33272.3	5850	4.2		
2017/18	1087267.6	27370.3	20687.6	6682.7	2.5		
2018/19	1110457.1	24485.6	18625	5860.6	2.2		
2019/20	1091333.1	30855.8	23877.6	6978.2	2.8		

Resource; statistical table 2019/20, central bureau of statistics. A hand book of government finance statistics, Nepal Rastra Bank. Red book, MOF

ANNEXE 2

FY	THE (Rs in million)	Population (million)	Per capita HE (in Rs)	Annual growth on TPE(million)	Annual % change in TPE	Annual growth on THE(million)	Annual % change in THE
1974/75	87.9	13.4	6.55				
1975/76	126.5	13.7	9.23	399.6	26.4	38.6	43.9
1976/77	125.1	14	8.93	414	21.8	-1.4	-1.1
1977/78	137.8	14.3	9.65	344.5	14.8	12.7	10.1
1978/79	150.7	14.7	10.25	345.6	12.9	12.9	9.4
1979/80	129.9	15.0	8.66	450.2	14.9	-20.8	-13.8
1980/81	162.9	15.4	10.58	621.6	17.9	33	25.4
1981/82	233.3	15.7	14.85	1269	31.0	70.4	43.2
1982/83	318.6	16.1	19.79	1617.9	30.2	85.3	36.6
1983/84	317.6	16.5	19.25	458.1	6.6	-1	-0.3
1984/85	394.2	16.8	23.46	957.5	12.9	76.6	24.1
1985/86	405.9	17.2	23.60	1402.3	16.7	11.7	2.9
1986/87	491.7	17.6	27.94	1716.1	17.5	85.8	21.1
1987/88	589.3	18.0	32.74	2591.8	22.5	97.6	19.8
1988/89	867.1	18.4	47.12	3900	27.6	277.8	47.1
1989/90	690.4	18.9	36.52	1664.3	9.2	-176.7	-20.3
1990/91	660.6	19.4	34.05	3880.5	19.7	-29.8	-4.3
1991/92	918.1	19.9	46.13	2868.4	12.2	257.5	38.9
1992/93	1061.0	20.5	51.75	4479.5	16.9	142.9	15.6
1993/94	1065.6	21.0	50.74	2693.7	8.7	4.6	0.4
1994/95	1495.6	21.6	69.24	5462.6	16.2	430	40.3
1995/96	1714.5	22.1	77.57	7482.4	19.1	218.9	14.6
1996/97	2506.6	22.6	110.91	4151.4	8.9	792.1	46.2
1997/98	3125.1	23.1	135.28	5394.5	10.6	618.5	24.7
1998/99	2824.6	23.5	120.19	3460.7	6.1	-300	-9.6
1999/00	3451.5	23.9	144.41	6693.5	11.2	626.9	22.2
2000/01	3519.7	24.3	144.84	13562.6	20.5	68.2	1.9
2001/02	3856.6	24.7	156.13	237.1	0.3	336.9	9.6
2002/03	3652.0	25.1	145.49	3933.9	4.9	-204.6	-5.3
2003/04	3968.6	25.4	156.24	5436.5	6.5	316.6	8.7
2004/05	4682.3	25.7	182.19	13117.9	14.7	713.7	17.9
2005/06	5745.2	25.9	221.82	8328.7	8.1	1128	24.4
2006/07	7440.7	26.1	285.08	22715.5	20.5	1695.6	29.5
2007/08	9844.4	26.7	368.07	27745.2	20.8	2403.6	32.3

2008/09	12693.3	26.9	471.86	58312.1	36.1	2848.9	28.9
2009/10	15913.9	27.0	589.40	40027.2	18.2	3220.6	25.3
2010/11	18175.3	27.0	673.15	35674.3	13.7	2261.5	14.2
2011/12	20240.3	26.9	752.42	43804	14.8	2065	11.3
2012/13	19049.0	26.9	708.14	19470.5	5.7	-1191.3	-5.8
2013/14	22852.2	27.0	846.37	76414.4	21.3	3803.2	19.9
2014/15	24531.3	27.0	908.56	96287.6	22.1	1679	7.3
2015/16	29229.8	27.3	1070.68	69691.9	13.1	4698.7	19.1
2016/17	39122.3	27.6	1417.47	236215.9	39.3	9892.5	33.8
2017/18	27370.3	28.0	977.52	250019	29.9	-11752	-30.0
2018/19	24485.6	28.6	856.13	23189.5	23.5	-2884.7	-10.5
2019/20	30855.8	29.1	1060.33	-19124	-1.7	6370.2	26.0

Resource; statistical table 2019/20, central bureau of statistics. A hand book of government finance statistics, Nepal Rastra Bank. Red book, MOF

ANNEX 3

At current price Rs in million

FY	GDP	TPE	% GDP	THE	% GDP	Total Export	% GDP	GFCF	% GDP
1974/75	16601	1513.8	9.1	87.9	0.53	889.6	5.3	2223	13.4
1975/76	17394	1913.4	11.0	126.5	0.73	1185.8	6.8	2443	14.0
1976/77	17280	2330.4	13.5	125.1	0.72	1164.7	6.7	2580	14.9
1977/78	19727	2674.9	13.6	137.8	0.70	1046.2	5.3	3294	16.7
1978/79	26128	3020.5	11.6	150.7	0.58	1296.8	5.0	3263	12.5
1979/80	23351	3470.7	14.9	129.9	0.56	1150.5	4.9	3681	15.8
1980/81	27307	4092.3	15.0	162.9	0.60	1608.7	5.9	4299	15.7
1981/82	30988	5361.3	17.3	233.3	0.75	1491.5	4.8	5465	17.6
1982/83	33881	6976.2	20.6	318.6	0.94	1132.0	3.3	6576	19.4
1983/84	39290	7437.3	18.9	317.6	0.81	1703.9	4.3	6907	17.6
1984/85	46587	8394.8	18.0	394.2	0.85	2740.6	5.9	9386	20.1
1985/86	55734	9797.1	17.6	405.9	0.73	3078.0	5.5	9431	16.9
1986/87	63864	11513.2	18.0	491.7	0.77	2991.4	4.7	11825	18.5
1987/88	76906	14105.0	18.3	589.3	0.77	4114.5	5.3	13414	17.4
1988/89	89270	18005.0	20.2	867.1	0.97	4195.3	4.7	16392	18.4
1989/90	103416	19669.3	19.0	690.4	0.67	5156.2	5.0	17002	16.4
1990/91	120370	23549.8	19.6	660.6	0.55	7387.5	6.1	22780	18.9
1991/92	149487	26418.2	17.7	918.1	0.61	13706.5	9.2	29277	19.6
1992/93	171474	30897.7	18.0	1061.0	0.62	17266.5	10.1	37278	21.7
1993/94	199272	33597.4	16.9	1065.6	0.53	19293.4	9.7	42032	21.1
1994/95	219175	39060.0	17.8	1495.6	0.68	17639.2	8.0	48370	22.1
1995/96	248913	46542.4	18.7	1714.5	0.69	19881.1	8.0	56081	22.5
1996/97	281513	50723.8	18.1	2506.6	0.89	22636.5	8.1	60794	21.7
1997/98	300845	56118.3	18.7	3125.1	1.04	27513.5	9.1	65375	21.7
1998/99	342036	59579.0	17.4	2824.6	0.82	35676.3	10.4	65269	19.1
1999/00	379488	66272.5	17.5	3451.5	0.91	49822.7	13.1	73324	19.3
2000/01	441519	79835.1	18.1	3519.7	0.80	55654.1	12.6	78031	17.7
2001/02	459442.6	80072.2	17.4	3856.6	0.84	46944.8	10.2	81613	17.8
2002/03	492230.8	84006.1	17.1	3652.0	0.74	49930.6	10.1	87024	17.7
2003/04	536749.1	89442.6	16.7	3968.6	0.74	53910.7	10.0	95124	17.7
2004/05	589411.7	102560.5	17.4	4682.3	0.79	58705.7	9.9	101094	17.1
2005/06	654084.1	110889.2	17.0	5745.2	0.89	60234.1	9.2	107624	16.4
2006/07	727827	133604.6	18.4	7440.7	1.02	59383.1	8.1	132468	18.2

2007/08	815658.2	161349.9	19.8	9844.4	1.21	59266.5	7.3	184859	22.7
2008/09	988271.5	219661.9	22.2	12693.3	1.33	67697.5	6.9	211029	21.3
2009/10	1192773.6	259689.1	21.8	15913.9	1.40	60824.0	5.1	264888	22.2
2010/11	1366954.1	295363.4	21.6	18175.3	1.39	64338.5	4.7	292730	21.4
2011/12	1527343.6	339167.5	22.2	20240.3	1.50	74261.0	4.9	317185	20.8
2012/13	1695011.1	358637.9	21.2	19049.0	1.29	76917.1	4.5	382972	22.6
2013/14	1964539.6	435052.4	22.1	22852.2	1.35	91991.4	4.7	462013	23.5
2014/15	2130149.6	531340.0	25.1	24531.3	1.78	85319.1	4.0	595823	27.9
2015/16	2253163.1	601031.8	26.6	29229.8	1.29	70117.1	3.1	647294	28.7
2016/17	2674492.8	837247.7	31.3	39122.3	1.46	73049.1	2.7	840693	31.4
2017/18	3044927.1	1087267.6	35.7	27370.3	0.89	81359.8	2.7	1051957	34.5
2018/19	3565102.9	1110457.1	31.4	24485.6	0.69	97109.5	2.7	765957	21.5
2019/20	3716133.2	1091333.1	29.3	30855.8	0.83	97709.1	2.6	815592	21.9

Resource; statistical table 2019/20, central bureau of statistics. A hand book of government finance statistics, Nepal Rastra Bank. Red book, MOF

ANNEX 4

At current price Rs in million

FY	NHE	RNHE	CNHE
1974/75	1425.9	503.8	907.6
1975/76	1786.9	625.2	1145.6
1976/77	2205.3	760.4	1405.7
1977/78	2537.1	781.1	1711.7
1978/79	2869.8	932.9	1880.3
1979/80	3340.8	1009.5	2236.4
1980/81	3929.4	109.7	2633.4
1981/82	5128	1444.1	3574.1
1982/83	6660.6	1801.2	4765.8
1983/84	7119.7	1989.2	4964
1984/85	8000.6	2592	5233.9
1985/86	9391.2	3091.2	5957.2
1986/87	11021.5	3602.1	7068.8
1987/88	13515.7	4075.4	9042.8
1988/89	17207.9	4891.1	11712.8
1989/90	18978.9	5573	12603.7
1990/91	22889.2	6537.5	15612.7
1991/92	25500.1	8287.5	16005.6
1992/93	29836.7	9425.4	18813.4
1993/94	32531.8	10005.9	20627.7
1994/95	37564.4	15974.8	18936.4
1995/96	44827.9	17915.4	24065
1996/97	48217.2	19842.5	24921.4
1997/98	52993.2	22194.2	26867.8
1998/99	56754.4	30807.2	21314.9
1999/00	62821.0	34254.3	23554
2000/01	76315.4	44290	26134.8
2001/02	76215.6	45906.6	23874.1
2002/03	80354.1	48597.8	22196.8

2003/04	85474.0	51725.7	22953.4
2004/05	97878.2	57413.4	26931.5
2005/06	105144	62226.3	28652.9
2006/07	126163.9	70872.2	38539.4
2007/08	151505.5	84044	51074.7
2008/9	206968.6	117613.1	70461.4
2009/10	243775.2	173771	38422.5
2010/11	277188.1	195058.8	44261.3
2011/12	318927.2	227489.6	48120.8
2012/13	339588.9	231167.5	51637.4
2013/14	412200.2	285609.5	63264.7
2014/15	506808.7	317830.6	85671.6
2015/16	571802	345148.4	118959
2016/17	798125.4	489942	204699.4
2017/18	1059897.3	676232	266431
2018/19	1085971.5	697792.6	236501.9
2019/20	1060477.3	762656.3	186490.9

Resource; statistical table 2019/20, NRB. A handbook of government finance statistic, NRB. Redbook, MOF

ANNEX 5

At current price Rs in million

FY	Log GDP	Log NHE	Log THE	Log RHE	Log CHE	Log RNHE	Log CNHE	Log TX	Log GFCF
1974/75	4.22013	3.15408	1.94398	1.4502	1.7759	2.7022	2.9578	2.94919	3.34693
1975/76	4.24039	3.2521	2.10209	1.5211	1.9698	2.7960	3.0592	3.07401	3.38793
1976/77	4.23754	3.40433	2.09725	1.5118	1.9666	2.8810	3.1478	3.22133	3.4116
1977/78	4.29506	3.45785	2.13924	1.6180	1.9836	2.8927	3.2334	3.01961	3.51772
1978/79	4.41710	3.52385	2.17813	1.7176	1.9934	2.9698	3.2743	3.11287	3.51361
1979/80	4.36830	3.59432	2.1136.	1.7611	1.8585	3.0041	3.3495	3.06088	3.56596
1980/81	4.43627	3.70994	2.21192	1.8142	1.9898	3.0826	3.4205	3.20647	3.63336
1981/82	4.49119	3.82351	2.36791	1.9370	2.1841	3.1595	3.5531	3.17362	3.7375
1982/83	4.52995	3.85246	2.50326	2.0098	2.3350	3.2555	3.6781	3.05384	3.81796
1983/84	4.59428	3.90312	2.5018	2.0711	2.3005	3.2986	3.6958	3.23144	3.83928
1984/85	4.66826	3.97272	2.59571	2.1442	2.4061	3.4136	3.7188	3.43784	3.97248
1985/86	4.7461	4.04224	2.60841	2.1760	2.4080	3.4901	3.7750	3.48826	3.97455
1986/87	4.80525	4.13083	2.6917	2.2612	2.4902	3.5561	3.8493	3.47587	4.07280
1987/88	4.8859	4.23395	2.77033	2.3098	2.5856	3.6101	3.9563	3.61431	4.1275
1988/89	4.95076	4.27827	2.93806	2.3998	2.7895	3.6894	4.0686	3.62276	4.21462
1989/90	5.01458	4.35963	2.83911	2.4721	2.5952	3.7460	4.1004	3.7123	4.230
1990/91	5.08051	4.40654	2.81999	2.4680	2.5644	3.8154	4.1934	3.86847	4.35755
1991/92	5.1746.	4.474751	2.9628	2.6137	2.7051	3.9185	4.2042	4.13692	4.46652
1992/93	5.23419	4.51230	3.02571	2.6635	2.7782	3.9743	4.2744	4.23720	4.57145
1993/94	5.29944	4.57477	3.02759	2.7033	2.7485	4.0002	4.3144	4.28540	4.6235
1994/95	5.34079	4.65154	3.17481	2.8042	2.9337	4.2034	4.2772	4.24647	4.68457
1995/96	5.39604	4.68320	3.23413	2.9025	2.9616	4.2532	4.3813	4.2984	4.74881
1996/97	5.44795	4.72422	3.39908	2.9471	3.2098	4.2975	4.3965	4.35489	4.78386
1997/98	5.47834	4.754	6.49486	3.0207	3.3172	4.3462	4.4292	4.43954	4.81541
1998/99	5.64545	4.79810	3.45095	3.0557	3.2245	4.4886	4.3286	4.55238	4.81470
1999/00	5.57919	4.88261	3.53800	3.1221	3.2848	4.5347	4.3720	4.69742	4.86524
2000/01	5.64494	4.88204	3.54650	3.1895	3.3369	4.6463	4.4172	4.74549	4.89226
2001/02	5.66223	4.90500	3.58620	3.4708	2.9539	4.6618	4.3779	4.67158	4.91175
2002/03	5.69216	4.93183	3.56253	3.5431	2.2022	4.6866	4.3462	4.69836	4.93969
2003/04	5.72977	4.99068	3.59893	3.5827	2.1529	4.7137	4.3608	4.73167	4.9782
2004/05	5.77041	5.02178	3.67045	3.6307	2.6120	4.7590	4.4302	4.7686	5.00472
2005/06	5.81563	5.100093	3.75930	3.6804	2.9794	4.8939	4.4571	4.77982	5.03190
2006/07	5.86202	5.18042	3.87161	3.7958	3.0757	3.1650	4.5859	4.77366	5.12211

2007/08	5.91150	5.31590	3.99318	3.8694	3.3876	4.9245	4.7082	4.77280	5.26684
2008/09	5.99487	5.38699	4.10357	4.0028	3.4195	5.0706	4.8479	4.83057	5.32434
2009/10	6.07655	5.44277	4.20177	4.1081	3.3195	5.2399	4.5845	4.78407	5.42306
2010/11	6.13575	5.50369	4.25948	4.1792	3.4866	5.2901	4.6460	4.80847	5.46646
2011/12	6.18393	5.53095	4.30621	4.2033	3.5145	5.3569	4.6823	4.87076	5.50131
2012/13	6.22917	5.61518	4.27987	4.2118	3.4714	5.3639	4.7129	4.88602	5.58316
2013/14	6.29326	5.70484	4.35892	4.2533	3.5352	5.4557	4.8011	4.96374	5.66465
2014/15	6.32284	5.75724	4.38972	4.3313	3.4889	5.5021	4.9328	4.93104	5.77511
2015/16	6.35279	5.90207	4.46582	4.4122	3.5303	5.5380	4.0553	4.84582	5.81110
2016/17	6.42724	6.02526	4.59242	4.4572	3.6074	5.6904	5.0453	4.86361	5.92463
2017/18	6.48357	6.03581	4.4372	4.3157	3.6317	5.8300	5.3111	4.9104	6.02199
2018/19	6.55207	6.02550	4.38891	4.2700	3.7042	5.8437	5.4255	4.98722	6.04373
2019/20	6.57009	6.13502	4.48933	4.3779	3.7224	58823	5.3738	4.98993	5.98253

Resource; statistical table 2019/20, central bureau of statistics. A hand book of government finance statistics, NRB. Red book, MOF. Economic servey, various year.

APPENDIX 1

Regression output (model 1)

Dependent Variable: LOG_GDP
Method: Least Squares
Date: 03/24/22 Time: 08:56
Sample (adjusted): 1 46
Included observations: 46 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.386172	0.079636	17.40633	0.0000
LOGTHE	0.164716	0.053405	3.084260	0.0036
LOGNHE	0.265577	0.122376	2.170180	0.0358
LOGTX	0.175307	0.026805	6.540210	0.0000
LOGGFCF	0.319490	0.131355	2.432257	0.0195

R-squared	0.997756	Mean dependent var	5.397699
Adjusted R-squared	0.997538	S.D. dependent var	0.730032
S.E. of regression	0.036227	Akaike info criterion	-3.695721
Sum squared resid	0.053807	Schwarz criterion	-3.496956
Log likelihood	90.00159	Hannan-Quinn criter.	-3.621262
F-statistic	4558.312	Durbin-Watson stat	1.485359
Prob(F-statistic)	0.000000		

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	1.476328	Prob. F(4,41)	0.2270
Obs*R-squared	5.791335	Prob. Chi-Square(4)	0.2153
Scaled explained SS	6.441847	Prob. Chi-Square(4)	0.1685

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 03/24/22 Time: 08:57
Sample: 1 46
Included observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002412	0.004261	0.566131	0.5744
LOGTHE	0.000188	0.002858	0.065642	0.9480
LOGNHE	-0.012488	0.006548	-1.907051	0.0635
LOGTX	-0.000337	0.001434	-0.234907	0.8155
LOGGFCF	0.012274	0.007029	1.746274	0.0883

R-squared	0.125899	Mean dependent var	0.001170
Adjusted R-squared	0.040620	S.D. dependent var	0.001979
S.E. of regression	0.001938	Akaike info criterion	-9.551531
Sum squared resid	0.000154	Schwarz criterion	-9.352766
Log likelihood	224.6852	Hannan-Quinn criter.	-9.477073
F-statistic	1.476328	Durbin-Watson stat	1.800561
Prob(F-statistic)	0.226993		

APPENDIX 2

Regression output (model 2)

Dependent Variable: LOG_GDP
Method: Least Squares
Date: 03/24/22 Time: 08:12
Sample: 1 46
Included observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.518193	0.110105	22.87094	0.0000
LOGRHE	0.510503	0.039062	13.06894	0.0000
LOGCHE	0.171675	0.038020	4.515441	0.0001
LOGTX	0.202455	0.050396	4.017279	0.0002

R-squared	0.991173	Mean dependent var	5.397699
Adjusted R-squared	0.990543	S.D. dependent var	0.730032
S.E. of regression	0.070995	Akaike info criterion	-2.369484
Sum squared resid	0.211690	Schwarz criterion	-2.210472
Log likelihood	58.49814	Hannan-Quinn criter.	-2.309917
F-statistic	1572.076	Durbin-Watson stat	0.570443
Prob(F-statistic)	0.000000		

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	4.304096	Prob. F(3,42)	0.0098
Obs*R-squared	10.81662	Prob. Chi-Square(3)	0.0128
Scaled explained SS	14.56386	Prob. Chi-Square(3)	0.0022

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 03/24/22 Time: 08:16
Sample: 1 46
Included observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004977	0.011740	-0.423933	0.6738
LOGRHE	0.003961	0.004165	0.951052	0.3470
LOGCHE	0.005253	0.004054	1.295711	0.2022
LOGTX	-0.004146	0.005374	-0.771619	0.4447

R-squared	0.235144	Mean dependent var	0.004602
Adjusted R-squared	0.180511	S.D. dependent var	0.008362
S.E. of regression	0.007570	Akaike info criterion	-6.846276
Sum squared resid	0.002407	Schwarz criterion	-6.687264
Log likelihood	161.4644	Hannan-Quinn criter.	-6.786709
F-statistic	4.304096	Durbin-Watson stat	0.722130
Prob(F-statistic)	0.009800		

Appendix 2.1 Removal of Heteroscedasticity

Dependent Variable: LOG_GDP
Method: Least Squares
Date: 03/26/22 Time: 12:04
Sample: 1 46
Included observations: 46
Huber-White-Hinkley (HC1) heteroskedasticity consistent standard errors and covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.518193	0.071899	35.02406	0.0000
LOGRHE	0.510503	0.031527	16.19277	0.0000
LOGCHE	0.171675	0.031182	5.505608	0.0000
LOGTX	0.202455	0.040042	5.056102	0.0000

R-squared	0.991173	Mean dependent var	5.397699
Adjusted R-squared	0.990543	S.D. dependent var	0.730032
S.E. of regression	0.070995	Akaike info criterion	-2.369484
Sum squared resid	0.211690	Schwarz criterion	-2.210472
Log likelihood	58.49814	Hannan-Quinn criter.	-2.309917
F-statistic	1572.076	Durbin-Watson stat	0.570443
Prob(F-statistic)	0.000000	Wald F-statistic	1851.784
Prob(Wald F-statistic)	0.000000		

The above Huber-White-Hinkley heteroscedasticity consistent standard errors and covariance table shows that the coefficient of variables remains same as the regression output (model 2) but only change in the value of standard error and t- statistic and p-values remains below the 0.05 level of significance.

APPENDIX 3

Regression output (Model 3)

Dependent Variable: LOG_GDP
Method: Least Squares
Date: 03/24/22 Time: 08:49
Sample: 1 46
Included observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.119269	0.127185	8.800350	0.0000
LOGRNHE	0.216023	0.045555	4.741999	0.0000
LOGCNHE	0.404559	0.074797	5.408765	0.0000
LOGTX	0.392731	0.056524	6.947981	0.0000

R-squared	0.983804	Mean dependent var	5.397699
Adjusted R-squared	0.982647	S.D. dependent var	0.730032
S.E. of regression	0.096168	Akaike info criterion	-1.762500
Sum squared resid	0.388427	Schwarz criterion	-1.603488
Log likelihood	44.53751	Hannan-Quinn criter.	-1.702933
F-statistic	850.3988	Durbin-Watson stat	1.038927
Prob(F-statistic)	0.000000		

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	25.01319	Prob. F(3,42)	0.0000
Obs*R-squared	29.49276	Prob. Chi-Square(3)	0.0000
Scaled explained SS	44.80094	Prob. Chi-Square(3)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 03/24/22 Time: 08:23
Sample: 1 46
Included observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.062497	0.013365	-4.676099	0.0000
LOGRNHE	-0.038805	0.004787	-8.105890	0.0000
LOGCNHE	0.022556	0.007860	2.869627	0.0064
LOGTX	0.033586	0.005940	5.654227	0.0000

R-squared	0.641147	Mean dependent var	0.008444
Adjusted R-squared	0.615515	S.D. dependent var	0.016298
S.E. of regression	0.010106	Akaike info criterion	-6.268458
Sum squared resid	0.004289	Schwarz criterion	-6.109446
Log likelihood	148.1745	Hannan-Quinn criter.	-6.208891
F-statistic	25.01319	Durbin-Watson stat	1.217177
Prob(F-statistic)	0.000000		

Appendix 3.1 Removal of Heteroscedasticity

Dependent Variable: LOG_GDP
Method: Least Squares
Date: 03/26/22 Time: 17:00
Sample: 1 46
Included observations: 46
Huber-White-Hinkley (HC1) heteroskedasticity consistent standard errors and covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.119269	0.258522	4.329494	0.0001
LOGRNHE	0.216023	0.133898	1.613337	0.1142
LOGCNHE	0.404559	0.120914	3.345828	0.0017
LOGTX	0.392731	0.089663	4.380090	0.0001

R-squared	0.983804	Mean dependent var	5.397699
Adjusted R-squared	0.982647	S.D. dependent var	0.730032
S.E. of regression	0.096168	Akaike info criterion	-1.762500
Sum squared resid	0.388427	Schwarz criterion	-1.603488
Log likelihood	44.53751	Hannan-Quinn criter.	-1.702933
F-statistic	850.3988	Durbin-Watson stat	1.038927
Prob(F-statistic)	0.000000	Wald F-statistic	1220.994
Prob(Wald F-statistic)	0.000000		

The above Huber-White-Hinkley heteroscedasticity consistent standard errors and covariance table shows that the coefficient of variables remains same as the regression output (model 3) but only change in the value of standard error and t- statistic and p-values remains below the 0.05 level of significance.