DETERMINANTS OF INFLATION IN NEPALESE ECONOMY

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By
NIM PRASAD BHANDARI
Central Department of Economics
Tribhuvan University, Kirtipur Kathmandu, Nepal
Roll No: 86 / 066; TU Reg. No. 6-2-40-1692-2005
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LETTER OF RECOMMENDATION

This thesis entitled "***Determinant of Inflation in Economy***" has been prepared by Mr. Nim Prasad Bhandari under my guidance and supervision. I hereby recommend this thesis for examination to the thesis committee as a partial fulfillment of requirements for the Degree of Master of Arts in Economics.

.....

April 3, 2017

Dr. Chandra Bahadur Adhikari
Associate Professor
Centre for Nepal and Asian Studies
Tribhuvan University, Nepal

G.P.O.: 3821, Kirtipur, Kathmandu, Nepal. Ph.: ++977-1-4330950, 4333616 Fax: ++977-1-4333539
Email: cedecon@mail.com.np Web: http://www.cedecontu.edu.np

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Office of the Head of the Department

APPROVAL LETTER

This is to certify that the thesis entitled "***Determinants of Inflation Nepalese Economy***" submitted by Mr. Nim Prasad Bhandari to the Central Department of Economics, Faculty of Humanities and Social Sciences, Tribhuvan University, Kirtipur for partial fulfillment of the Degree of Master of Arts in Economics has been found satisfactory. Therefore, we accept this thesis as a part of the degree.

Thesis Examination Committee:

……

Dr. Ram Prasad Gyawali, Ph.D
Head, Central Department of Economics,
Tribhuvan University

.....

Dr. Chandra Bahadur Adhikari
Associate Professor (Thesis Supervisor)
CNAS, Tribhuvan University

……

Dr. Yogesh Ranjit
Associate Professor (External Examiner)
Central Department of Economics, Tribhuvan University,

Date: April 12, 2017

G.P.O.: 3821, Kirtipur, Kathmandu, Nepal. Ph.: ++977-1-4330950, 4333616 Fax: ++977-1-4333539
Email: cedecon@mail.com.np Web: http://www.cedecontu.edu.np

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ABSTRACT

The major objective of this study is to analyze the determinants of the inflation in Nepalese economy. The study is based on time series secondary data over the period from 2001 to 2015. Inflation can be measured through CPI (inflation from the perspective of consumers) and WPI (from the perspective of producers). This study hypothesizes that the inflation depends on various macroeconomic factors including GDP growth rate, broad money supply, exchange rate, interest rate, budget deficits, unemployment, Indian inflation, and remittances inflow. The main findings of this thesis are derived by analyzing the relationship between the inflation (CPI and WPI) and these macroeconomic variables.

SPSS software is used to analyze the secondary data which includes descriptive statistics, correlation analysis and least square regression analysis. Based on the analysis of the data, the major findings of this thesis are that CPI oriented inflation is positively correlated with all explanatory variables (except unemployment rate); and WPI oriented inflation is positively related with all variables except foreign exchange rate and unemployment rate.

Based on the findings of the thesis, this study recommends that if the government of Nepal and NRB wish to control inflation, there should be control of excessive money circulation in the economy, control of exchange rate, decrease the bank rate, give up deficit financing and adopt anti-inflationary budgetary policy, generate employment opportunities, apply appropriate tools and techniques to control Indian inflation, utilize remittances in productive sectors to boost the economy, and effort should be targeted to increase GDP growth rate

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LIST OF ABBREVIATIONS

AD	Aggregate demand
ADB	Asian Development Bank
ARDL	Autoregressive Distributed Lag
AS	Aggregate Supply
BOP	Balance of Payments
CBS	Central Bureau of Statistics
CPI	Consumer's Price Index
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GMM	Generalized Method of Moment
IMF	International Monetary Fund
INGO	International Non-Governmental Organization
MENA	Middle East and North Africa
NGOs	Non-government Organizations
NPC	National Planning Commission
NRB	Nepal Rastra Bank
NRs	Nepalese Rupees
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Square
PPI	Producer Price Index
SPSS	Statistical Package for Social Science
UK	United Kingdom
UN	United Nations
USA	United States of America
VAR	Vector autoregressive
Viz	*videlicet*
WB	World Bank
WPI	Wholesale Price Index

CHAPTER I
INTRODUCTION

1.1 Background of the Study

Inflation is one of the burning issues which greatly impedes the economic growth of the country. It is becoming more hectic to academia, economists, policy makers and even the politicians. Both in developed and developing economies, high inflation is very dangerous and chronic economic problem as all aspects of the stockholders in the economy get greatly affected by it. Inflation affects the development of all sectors of the economy, the individual, the society and the country. Furthermore, inflation badly impacts on the standard of living of the general people. An American Economist Milton Friedman (a recipient of the Nobel Prize in Economic Science) famously quotes "Inflation is the one form of taxation that can be imposed without legislation" (Friedman, 1963: 16). Protecting and safeguarding all stakeholders from inflation has been the most prioritized responsibility for the government. So, in recent years, empirical analysis on determinants of inflation and their impacts on growth and development have received great attention of economists, academicians and policy makers. This study extracting data mainly from secondary sources, attempts to analyze and explore the determinants of inflation and their impacts on growth and development in the Nepalese economy.

In simple words inflation indicates persistent rise in the general price level of goods and services in the free market economy. When inflation occurs, each unit of money will buy fewer goods and services than before. Inflation thus reduces the purchasing power of money. Peterson quotes (1977: 245) "inflation refers to the sustained rise in the general price level and is generally measured by changes in the consumer price index". Ackley (1969: 421) defines inflation as "a persistent and appreciable rise in the general level or average of prices". Crowther (1940: 115) states “inflation as a state in which the value of money is falling, i.e., prices is rising”. According to Coulborn (2017: 125) Inflation is a situation of “too much money chasing too few goods". Keynes (1932:181)

clarifies "the get higher in general price level after full employment had been achieved is called inflation".

To sum up, inflation is persistence, steady and continuous rise in the general price of all outputs as well as inputs. In other words, inflation is a state of rising prices, but not high prices. It constitutes, thus, an overall increase in price level and reduces the purchasing power of money. So, inflation occurs when the general level of prices and costs is getting higher. Keynes (1924: 61) rightly concludes "The fluctuations in the value of money have been on a scale so great as to constitute with all that this involve, one of the most significant event in the modem world." In case, the rise in prices exceeds the rise in output, then the situation is generally called as inflationary situation.

Inflation has become and always been one of the burning issues in the economy all over the world. Nepal is no exception in this regard. For the macroeconomic management, low rates of inflation are prerequisites particularly in developing countries (Khan and Gill, 2010). However, high inflation is not always in favour of the economy as it adversely affects economic performance and purchasing power of the society. When the price level rises, each unit of currency buys fewer goods and services. Consequently, inflation reflects a reduction in the purchasing power per unit of money, loss real value in the medium of exchange and unit of account within the economy. Inflation is a monetary phenomenon. There are two main price indexes that measure inflation, consumer price index (CPI) and wholesale price index (WPI). CPI measures the price change from the perspective of the purchaser while WPI measures price change from the perspective of the seller.

There is a large body of literature on the determinants of inflation. It is the mostly discussed topic all over the world among policy makers, Economists and academia. It is because of the fact that its effects are widespread and severe and the impacts are far reaching (Paudyal, 2014). Inflation has been the major concern for the government as well, since it has serious implication for the living of general people. Moreover, it may affect numerous economic variables including saving, investment, interest rate, wages, income, level of employment. During inflationary situation domestic currency is

depreciated and imports become more expensive which further push up the domestic prices. Thus, inflation has been a burning issue in the macroeconomics and main objective and function of the central bank is to control it (Friedman and Schwartz, 1970).

Inflation may affect the economy in both positive and negative ways. Negative effects of inflation include an increase in the opportunity cost of holding money, uncertainty over future inflation which may discourage investment and savings (Mankiw, 2002). If inflation were rapid enough, consumers begin hoarding out of goods expecting that prices will increases in the future. As a result of which there is shortages of goods in the market. Positive effects includes reducing the real burden of public and private debt, keeping nominal interest rates above zero so that central banks can adjust interest rates to stabilize the economy, and reducing unemployment due to nominal wage rigidity.

There is a general agreement amongst economist that economic inflation may be caused by either an increased in money supply or a decrease in the quality of goods being supplied (Lim and Sek, 2015). Fundamentally, there are four types of inflation including creeping inflation, walking inflation, running inflation and jumping inflation or hyper-inflation. The creeping inflation is a mild inflation which may not be so dangerous to the economy. Sometimes, creeping inflation might be an important instrument of economic development. Walking inflation occurs when prices rise moderately remaining the annual inflation rate in a single digit. While running inflation refers to the annual inflation rate is double digits and treated as a signal for hyper-inflation. When the price rises to running inflation, it affects the deprived and middle classes people. Hyper-inflation is a condition when the rate of inflation becomes immeasurable and fully uncontrollable. High inflation and fluctuation in price causes uncertainty and cost push shock which affects the stability and performance of the economy. Therefore, low inflation and stability in prices is always one of the core objectives targeted by the policymakers in designing the monetary policy.

Various theories of inflation have been presented by the economists (Bashir, Yousaf and Aslam, 2016). Among them, demand pull inflation theory is the most common and conventional. It occurs when aggregate demand (AD) is exceeded as compared to

aggregate supply (AS). There is an increase in aggregate demand categorized through four sectors of the economy including business, households, foreign buyers and government. Cost push inflation occurs in the economy when there is an increase in the cost of production. During this time overall price level also increases. Such type of inflation is occurred due to an increase in cost of any one of the four factors of production including land, labour, capital and entrepreneurship. Quantity theory of money presented by Fisher (2006) purpose that money supply is the main cause of inflation. Keeping other things constant, the price level is directly related to the money supply. Doubling the money supply would double price level.

Keynesian economics focuses on the analysis of the short run behavior of the economic variables. In the short run, price level is determined by the aggregate demand and fixed aggregate supply (Shapiro, 1982). For this reason, any pressure of excess demand over fixed quantity of aggregate supply of goods and services causes inflationary gap. However, the oil shock of 1974 created a new problem of stagflation. In other words, the worldwide economy faced the new types of economic problem of hyperinflation and recession simultaneously. This problem could not be explained by the old Keynesian Philip Curve. Many countries faced double digit inflation rate due to supply shocks originated outside the economy. Supply shocks had a dominant role on the determination of inflation and the shocks generated outside the country could not be controlled by the domestic policy.

In Asia, the depreciation of the exchange rate and the increase in the value of imports, the consumer price index (CPI), producer price index (PPI) and gross domestic product (GDP) deflators have led to inflation (Enu, Dodzi and Havi, 2014). The increase in these deflators was because of the devastating floods that affected agricultural products. Europe has been exemplified with the issue of inflation for several years. For more than two decades the Turkish and Greek economies have been hit by a high and persistent inflation. Due to inflation, South American countries, over the past fifteen years, have been volatile because of the supply shocks inflation, which do not reflect on aggregate demand pressures or imbalance in the money market.

In African countries, inflation is the major problem of under-development. In Zimbabwean economy, the root causes of inflationary situation are highly characterized by nominal monetary growth, exchange rate, interest rate, labour cost and real income etc. (Chibber and Shaffik, 1991). In Egypt, inflation is largely affected by the rate of growth of money supply, interest rate, depreciation of the exchange rate and trade deficit. In the same way, inflation on Nigerian economy has been characterized by increase in money supply, huge government spending, external shocks and growth in domestic credit. Likewise, the gradual increase of inflation in Ghana has been as a result of several military interventions, devaluation of currency and increase in the money supply to finance government deficits. Over the years, the country has been working towards reducing inflation rate and is currently hovering in the single digit range as targeted. There are other macroeconomic factors which has influenced the inflation in African countries that include population growth of the country, foreign direct investment (FDI), foreign aid and so on.

As a land connected country of Asia, Nepal is not exception with regards to the problem of inflation. Nepalese economy has been facing ups and downs in all sectors of the economy over the years due mainly to inflation (NRB, 2001). Generally, the agricultural production growth, the supply of goods and services, the devaluation of Nepalese currency to US dollar, the weakness of monetary policy, the price hike in fuels, printing too much money, increase in production costs and tax rise, decrease in the availability of limited resources such as food or oil, instability caused by war and other events are the factor causing economic inflation. Inflation creates the uncertainty on that people do not know what the money they earn today will buy tomorrow. Uncertainty in turn, discourages productive activity, saving and investment. Inflation reduces the competitiveness of the country in international trade. If this is not offset by a devaluation of the national currency against other currencies, which makes the country's exports less attractive and makes the imports into the country more attractive. It eventually tends to create unbalance in trade (NRB, 2006).

The above discussion shows that studies dealing with the determinants of inflation are of greater significance. A large body of literature in economics has tried to show the

relationship between determinants of inflation and economic growth. However, no such investigations using more resent data exist in the context of Nepal. Against this background, this study attempts to analyze and explore the determinants of inflation and their relationship with growth and development in the Nepalese economy extracting data mainly from secondary sources.

1.2 Statement of the Problems

In Nepal, rising inflation has been a serious concern to the government. The construction of price indexes that measures the general price level in the economy was initiated in 1973. Since then, Nepal has witnessed inflation rate as low as 3.73 percent to as high as 21.07 percent. Necessary steps are taken to keep inflation in a reasonable level but there are several constraints in this direction. Price of petroleum products had been adjusted several times on the higher level. Such adjustment helped pushing up the cost of freight and carriages and cost of other goods and services. Rise in the wages and salary in agriculture and industry further pushed up the inflation up. Several seasonal constraints such as price rise on sugar and sugar made products, vegetables, fruits, heavy and continuous rain in the past helped the prices to go up. Furthermore, rising inflation in India also transmitted in Nepal through imports. Therefore, inflation in Nepal is affected by several factors (NRB, 2011).

Though there are large bodies of empirical evidences in the context of other countries around the world, no such evidences using more recent data exist in the context of Nepal. In this context, studies such as this which relate inflation and major macroeconomic variables are considered urgently needed. This study aims at filling this gap with particular emphasis on Nepal, by looking the major determinants of inflation. More specifically, the study investigates whether the independent variables (GDP growth rate, broad money supply, exchange rate, interest rate, budget deficits, unemployment rate, Indian inflation and remittance inflows) are significantly correlated with consumer price index and wholesale price index as a measure of inflation. This study provides empirical evidence on the major theoretical debates regarding the linkage between inflation and macroeconomic variables under study by answering the following research questions.

a) What are the latest trends of major macroeconomic variables particularly related to the inflation?
b) What are the roles of selected individual macroeconomic variables on CPI in Nepal?
c) What are the roles of selected individual macroeconomic variables on WPI in Nepal?

1.3 Objectives of the Study

The main objective of this study is to analyze the determinants of the inflation in Nepalese economy. Other general objectives of the study are as follows:

a) To analyze the latest trend of major macroeconomic variables related to the inflation.
b) To examine the role of selected individual macroeconomic variables on CPI in Nepal.
c) To evaluate the role of individual selected macroeconomic variables on WPI in Nepal.

1.4 Hypotheses of the Study

The following research questions are tested against the objectives set out in Section 1.3.

a) H_1: GDP growth is positively related to inflation,
b) H_2: Broad money supply is positively related to inflation,
c) H_3: Exchange rate is positively related to inflation,
d) H_4: Interest rate is positively related to inflation,
e) H_5: Budget deficit is positively related to inflation,
f) H_6: Unemployment rate is negatively related to inflation,
g) H_7: Indian inflation is positively related to inflation and
h) H_8: Remittance inflow is positively related to inflation.

1.5 Significance of the Study

Inflation is a global phenomenon and significant macroeconomic variable which affects the real economic growth of almost all countries around the world. Some degree of inflation is inevitable and perhaps it is necessary to accompany development. However, beyond certain limit, it is harmful for the economy. Many developed as well as developing countries of the world are experiencing inflation above the mild rate. Control of inflation has, therefore, become one of the primary objectives of government as well as central bank in many developing countries.

Inflation is a dominant factor for affecting economic condition. So, it has to be studied properly. Furthermore, all people would have get knowledge and information about their strength of currency so that they make right decision on the saving and investment. The main purpose of this study is to explore the possible determinates of inflation and investigate whether these determinants contribute to the inflationary situations experienced in Nepalese economy over the study period. Therefore, this study is significantly different from the previous studies and important too.

Based on the empirical findings, this study provides important policy implications which are expected to be very useful for concern authorities including the government, the central bank, business person and general Nepalese people. To some extent, this will assist to uplift the living standard of general people. Thus, this study attempts to analyze the dynamic determinants of inflation and their impact in Nepalese economy, where only few studies have been carried out. This study further helps generalize the concept of inflation and acts as a bridge for the literature gap on the subject matter under consideration.

1.6 Limitations of the Study

Following are the major limitations of this study:

a) This study aims to test the relationship between determinants of Nepalese inflation in presence of independent variables (GDP growth rate, broad

money supply, exchange rate, interest rate, budget deficits, unemployment rate, Indian inflation and remittance inflow). There are some other variables that influence the inflation such as foreign direct investment, trade, deficit, corruptions, black marketing. This study has not included these variables due mainly to the lack of data availability.

b) The study is based on the assumption of linear relationship between dependent and independent variables. This study has not considered the non-linearity relations which are normally characterized in emerging countries.

c) The study has only taken data over the period from 2001 to 2015 due mainly to the availability of the data of all macroeconomic variables. The short duration of data availability may not truly demonstrate strong conclusions.

d) The study has used the annual time series data of macroeconomic variables, though there are some studies which have used quarterly macroeconomic data. In Nepal, data other than annual form are hardly available.

e) The study is based on the ordinary least square (OLS) method. However, many of the similar studies have used vector autoregressive (VAR) model, co-integration and generalized method of moment (GMM) model which may conclude diverse results.

1.7 Organization of the Study

This study is organized into five broad chapters. Chapter one contains the introduction part of the study. This chapter covers general introduction, statement of the problem, objectives of the study, significance of the study, research questions and assumptions. The second is for review of important literature. This chapter initially reviews theoretical analysis and then briefly review empirical literature available including Nepalese context. This chapter also presents conceptual framework regarding inflation and other macroeconomic variables. The third chapter provides the research methodology employed in the thesis. Under this chapter research design research plan, nature and

source of data, tools and method of data analysis, and variable specification for each variable is briefly explained. Chapter four provides data presentation and analysis. In this chapter, firstly trend of each variable is reported followed by descriptive statistics, correlation analysis, and regression analysis. Finally chapter five provides major findings, conclusions and recommendations of the thesis. At the last of the thesis a list of references is included.

CHAPTER II
REVIEW OF LITERATURE

This chapter reviews the theories and findings of researches that have done around the world in the same area of the study. The chapter is divided into three major sections. Section 2.1 presents reviews of related theoretical literature; Section 2.2 provides empirical literature review, Section 2.3 presents the conceptual framework of determinants of inflation and finally, Section 2.4 concludes the chapter.

2.1 Theoretical Review

Prior to the 1960s, little attention was given to the effect of inflation on economic growth, both theoretically and empirically. With the birth of Phillips curve, much attention has been directed to the role of inflation that plays on employment and hence on economic growth. Initially, with the increase in inflation rate, there will decrease in unemployment rate and this tends to the economy towards higher rate of growth. Implication of the Phillips curve is that for an economy to continue growth moderate inflation should be tolerated. Then, this issue generated a debate between structuralist and monetarists. Structuralists are in favour of inflation for economic growth, whereas monetarists argue that inflation is harmful to economic growth; therefore, it should be controlled (Mallik and Chowdhury, 2001).

The literature substantiates that a great deal of researches are available which is concerned with the question of what causes inflation and what are the determinants of it. There are different schools of thought as to what causes inflation. These can be divided into two broad categories: quality theory of inflation and quantity theory of inflation (Nawarathna Banda, 2009). The quality theory of inflation is based on the premise of a seller accepting currency to be able to exchange that currency later for goods that are desirable as a buyer. The quantity theory of inflation hinges on the quantity equation of money that relates the money supply, its velocity and the nominal value of exchange.

The quantity theory of money is widely accepted as an accurate model of inflation in the long run (Mmasi, 2013). Consequently, there is now consensus among economists that in long run, the inflation rate is basically dependent on the growth rate of money supply but in the short and medium term, inflation is affected by supply and demand pressures in the economy and influenced by the relative elasticity of wages, prices and interest rates. The question of whether the short-term effects last long enough to be important is the central topic of debate between monetarist and Keynesian economists (Wennerlind, 2005). In monetarism prices and wages adjust quickly enough to make other factors merely marginal behaviors on a general trend-line while in the Keynesian views, prices and wages adjust at different rates, and these differences have enough effects on real output to be long term in the view of people in the economy (Gordon, 1988).

2.1.1 Keynesian View

Keynesian economic theory argues that changes in money supply do not directly have an effect on prices and that noticeable inflation is the consequence of pressure in the economy expressing themselves in prices. There are mainly three major types of inflation (Gordon, 1998): (i) Demand-pull inflation, (ii) Cost-push inflation and (iii) Built-in inflation.

Demand-pull theory asserts that the rate of inflation accelerates whenever aggregate demand is increased beyond the ability of the economy to produce. Hence, any factor that increases aggregate demand can cause inflation. Gordon (1988) offers that demand-pull inflation is beneficial to a rapid economic growth in view of the fact that the excess demand and favourable market conditions will stimulate investment and expansion. Cost-push inflation is a consequence of a drop in aggregate supply. This may be because of natural disasters, or sudden increased prices of inputs. For example, an unexpected decrease in the supply of oil, leading to increased oil prices, can cause cost-push inflation. Producers for whom oil is a part of their costs could then pass this on to consumers in the form of increased prices. Built-in inflation is induced by adaptive expectations, and is often linked to the price spiral. It involves workers trying to keep their wages up with prices, and firms passing these higher labour costs on to their

customers as higher prices. Built-in inflation reflects events in the past, and so might be seen as hangover inflation.

Whenever governments finance spending in a crisis, such as a civil war, by printing money excessively, the effect of money on inflation is most obvious. This sometimes leads to hyperinflation (a condition where prices can double in a month or less). Money supply plays a major role in determining moderate levels of inflation, although there are different opinions on how important it is (O'Sullivan and Sheffrin, 2003). For example, Monetarists believe that the link is very strong; Keynesian economists, by contrast, typically emphasize the role of aggregate demand in the economy rather than the money supply in determining inflation. For Keynesians, the money supply is only one determinant of aggregate demand.

2.1.2 Monetarist View

The assumption Monetarists made is that at least in the long run, the velocity of money is not affected by monetary policy and real value of output is determined in the long run by the productive capacity of the economy (Mankiw, 2002). Under this assumption, the primary driver of the change in the general price level is changes in the quantity of money. With exogenous velocity, the money supply determines the value of nominal output. The velocity is not exogenous in the short run and so the formula does not necessarily imply a stable short run relationship between the money supply and nominal output. However, in the long run, changes in velocity are assumed to be determined by the evolution of the payments mechanism. If velocity is relatively unaffected by monetary policy, long run inflation rate is equal to the long run growth rate of the money supply plus the exogenous long run rate of velocity growth minus the long run growth rate of real output.

2.1.3 Rational Expectations Theory

Rational expectations theory holds that economic actors look rationally into the future when trying to maximize their well-being and do not respond solely to immediate

opportunity costs and pressures. In these view, while generally grounded in monetarism, future expectations and strategies are important for inflation as well.

Hanish (2005) state that a core assertion of rational expectations theory is that actors will seek to 'head off' central bank decisions by acting in ways that fulfil predictions of higher inflation. This means that central banks must establish their credibility in fighting inflation or economic actors will make bets that the central bank will expand the money supply rapidly enough to prevent recession even at the expanse of exacerbating inflation. Thus, if central bank has a reputation as being soft on inflation, when it announces a new policy of fighting inflation with restrictive monetary growth, economic agents will not believe that the policy will persist; their inflationary expectations will remain high and so will inflation. On the other hand, if the central bank has a reputation of being 'tough' on inflation, then such a policy announcement will be believed and inflationary expectations will come down rapidly, thus allowing inflation itself to come down rapidly with minimal economic disruption.

2.2 Empirical Review

Review of literature is written by the scholars to determine the existing knowledge which include major findings as well as theoretical and methodological contributions to a particular topic. The major purpose of literature review is, thus to find out what research studies have been conducted in the chosen field of study and what remains to be done (Pant, 2012). This section briefly reviews the existing studies, related to the subject matter of the study as follows.

2.2.1 GDP Growth Rate and Inflation

Fisher (1993) studied the relationship between inflation and economic growth using the data set of several macroeconomic variables including inflation for 93 countries. The study has applied a simple alternative to mixed regression. The result showed that inflation negatively affects economic growth by reducing investment, and by reducing rate of productivity growth. The study concluded that inflation distorts price mechanism

and this affects the efficiency of resource allocation and hence influences economic growth negatively.

Sarel (1996) tested for the existence of a threshold effect between inflation and economic growth. The study using panel data of 87 countries covering the period 1970-1990 found the evidence of a structural breakpoint at an annual inflation rate of 8%. Inflation does not have significant effect on economic growth or it may even show a marginally positive impact below the rate structural breakpoint. Thus, above that level, the effect is negative. The relationship is statistically significant and very strong. Ignoring the existence of the threshold effect would substantially bias the impact of inflation on economic growth.

Ghosh and Philip (1998) using a complete data set consisting of 3603 annual observations on real per capita GDP growth and consumer price inflation corresponding to 145 countries over the period of 1960-1996 found a statistically and economically significant negative relationship between inflation and growth. The study summarizes that there are two important nonlinearities in the inflation-growth relationship. At very low inflation rates, inflation and economic growth are positively correlated; otherwise, inflation and economic growth are negatively correlated. Nonetheless, the relationship is convex.

Boschen and Weise (2003) investigated the inflation during a period of either stable or declining inflation of the OECD countries. The study indicated that three factors tend to lead up to these sustained increases in inflation: (i) high rates of real GDP growth increases the probability of an inflation because that rapid growth reflects policy makers' attempts to exploits the short run Phillips curve, which eventually leads to higher inflation in most cases, (ii) the gap between inflation in the US and domestic inflation raises the probability of inflation, because inflation shocks in the world's largest economy tend to be distributed internationally and (iii) the probability of an inflation start in a particular year is higher if a general election takes place. The study concluded that government policies aimed at influencing voters are most of the time inflationary but oil price hikes, fixed exchange rate, fiscal policy and political initiations of the government do not have a large effect on the probability of an inflation start.

Chuan (2009) using cross sectional data of 140 countries over the period from 1970 to 2005 estimated the causal interrelationships between inflation and economic growth within a simultaneous equation frame work. The study indicated that a bilateral causal relationship between growth and inflation exists. It also showed that inflation is harmful to growth whereas the effect from growth to inflation is beneficial. The study grouped the data set into high income countries, low income countries and developing countries, and the result indicated that the negative impact of inflation on growth in low income countries is greater than in developing countries and high income countries. Table 2.1 summarizes the review of literature related to GDP growth rate and inflation.

Table 2.1: **Summary of Empirical Findings on GDP Growth Rate**

Study	Major Findings
Fisher (1993)	Inflation negatively affects economic growth by reducing investment and by reducing rate of productivity growth.
Sarel (1996)	Below 8%, inflation does not have significant effect on economic growth or it may even show a marginally positive impact. Above that level, the effect is negative, statistically significant and very strong.
Ghosh and Philip (1998)	At very low inflation rates, inflation and economic growth are positively correlated; otherwise, inflation and economic growth are negatively correlated.
Boschen and Weise (2003)	High rates of real GDP growth increase the probability of inflation.
Chuan (2009)	Inflation is harmful to growth whereas the effect from growth to inflation is beneficial.

2.2.2 Broad Money Supply (M2)

Domac and Elvert (1998) investigated the determinants of inflation in Albania using monthly data from January 1993 to September 1997 employing three different approaches. The first approach decomposes inflation into four components: seasonal, cyclical, trend and random. The second approach relied on Granger causality test by using both consumer price index and the key economic variables. The third approach applied co-integration and error-correction techniques to the inflation process. From the analysis of the first approach, the study concluded that inflation exhibits strong seasonal patterns associated with agricultural seasonality. The exchange rate also exhibits a stable seasonality. The results of the Granger Causality tests indicated that M_1 (currency in circulation plus demand deposits) and the exchange rate have an important predictive

content for almost all the individual items of the consumer price index. In addition, the findings showed that credit to government is a good predictor of medical care, transportation and communication prices. The results of co-integration and error-correction techniques confirmed that in long run, inflation is positively related to both money supply and exchange rate while negatively related to real income.

Moroney (2002) explored the quantity theory of money growth, inflation rate and GDP in the long-run. The study found that the inflation rates are explained almost entirely by average broad money growth rates. The Study showed that for the countries having high rate of money supply growth and inflation rate, the estimated M2 growth coefficient was close to one which strongly justified quantity theory of money and vice versa. Comparatively, in countries with relatively low money growth and inflation, the estimated money growth coefficient is only 0.69; hence the quantity theory offers a less complete explanation of inflation. Money growth and GDP growth are orthogonal, consistent with long run monetary super neutrality. Study concluded that the quantity theory is a reliable model of inflation for most countries, but not those experiencing slow long run money growths.

Xie, Tang and Cui (2009) using the data from 1998 to 2007 analyzed the relationship between money supply, economic growth and inflation in China employing co-integration and Granger causality test approaches. The results suggested that there is no co-integration relationship among money supply, inflation and economic growth but there is co-integration relationship between money supply and inflation while there is no long run relationship between money supply and economic growth. Thus, the study concluded that there is contradiction between the goal of economic growth and price stability in China.

Adenuga et al. (2012) using annual data from 1970 to 2009 of Nigeria examined weather inflation is purely monetary phenomenon employing ordinary least square (OLS) method. This study comes out with empirical evidence that inflation is not a purely monetary phenomenon in Nigeria as the coefficient of broad money supply is less than unity.

However, the variable is highly significant in explaining inflation. The result indicated that the regressors in the model are highly significant in causing inflation.

Alexander, A. A., Andow, A. H. and Danpome A. (2015) using data from 1986 to 2011, investigated the main determinants of inflation in Nigeria. The Augmented Dickey-Fuller (ADF) unit root statistics test reveal that all the variables are stationary after first and second difference at 5% level of significance. The co-integration result reveals long run equilibrium relationship between the rate of inflation and its determinants. The Granger causality test revealed evidence of a feedback relationship between inflation and its determinants. The estimated VAR result showed that fiscal deficits, exchange rate, imports of goods and services, money supply and agricultural output have a long run influence on inflation rate in Nigeria. Only lending rate influenced inflation in the short and long run horizon. However, this study discourages excessive waste of public funds through fiscal deficit. The study recommends that the monetary authority should encourage a lending rate policy that promotes investment as well as retention of a desired level of money supply and interest rate that reduce the inflation rate in Nigeria. Therefore, the authorities should be greatly be proactive in financing agriculture and manufacturing sector to increase local production of competitive goods that appreciate the Nigerian currency in relation to major international currencies. Table 2.2 summarizes the review of literature on the relationship between broad money supply and inflation.

Table 2.2**: Summary of Empirical Findings on M2 and Inflation**

Study	Major findings
Friedmen (1968)	Inflation is the function of money supply and real output.
Domac and Carlos (1998)	In long run, inflation is positively related to both money supply and exchange rate while negatively related to real income.
Moroney (2002)	Countries experiencing high money growth and inflation had estimated coefficients of broad money supply (M_2) growth.
Xie et al. (2009)	There is co-integration relationship between money supply and inflation.
Adenuga et al. (2012)	Inflation is not a purely monetary phenomenon as the coefficient of broad money supply is less than unity. However, the variable is highly significant in explaining inflation.

2.2.3 Foreign Exchange Rate

Pahlavani and Rahimi (2009) employing the ARDL approach analyzed the major determinants of inflation in Iran. The study uses annual time series data from 1971 to 2006. The study investigates the effect of liquidity, the exchange rate, GDP, expected rate of inflation and imported inflation along with dummy variable presenting the effect of Iran/Iraq war on Iraq's economy. The study showed that in the long run, all selected determinants of inflation affects the price level in Iran. All these variables had significant effects on the inflation rate in the short run. Moreover, the destructive eight year war with Iraq had a positive effect on the inflation rate in the Iranian economy.

Ali and Mim (2011) carried out different model estimations to examine the impact of five mainstream variable groups on inflation i.e., structural, business-cycle-related, openness-related, external and monetary variables. For this purpose a sample of 8 Middle East and North Africa (MENA) countries over the period from 1980 to 2009 is used. The empirical findings confirmed the existence of a strong evidence for a persistent inflation dynamics as lagged inflation produced an important and significant positive effect on inflation. The study also report a negative effect of output gap on inflation which suggests that an increase in the output gap releases pressure on the supply side and weakens inflation. The most significant and important effect is the one produced by government spending. The effect has always been negative and significant for all the regressions. Moreover, the effect produced by the output gap reflects the effects of fiscal and monetary policy on inflation. This implies, a decrease in government spending over a long period should enhance growth, reduce the output gap and generate inflation whereas an increase in money supply should produce inflation by enhancing growth and reducing the output gap.

Imimole and Enoma (2011) conducted a study of the impact of exchange rate depreciation on inflation in Nigeria using data over the period from 1986 to 2008. Employing an auto regressive distributed lag co-integration procedure the study found that exchange rate depreciation, money supply and GDP growth rate are the main determinants of inflation in Nigeria. Further, exchange rate depreciation has long run

positive and significant effect on inflation implying that exchange rate depreciation can bring about an increase in inflation. The study concluded that although Naira depreciation is relevant in ensuring an improvement in the production of exportable commodities, it must not be relied on a potent measure for controlling inflation.

Sek, Ooi and Ismail (2012) examined the relationship between exchange rate and inflation targeting regime in the three developed countries and three emerging Asian economies. The study revealed a significant correlation between exchange rate and inflation. Inflation targeting regime also has significant impacts on movements of inflation. Inflation targeting regime is associated with higher volatility in exchange rate movement and it is very volatile in emerging Asia compare to the developed economies. The implementation of inflation targeting does not lead to the trade-off of inflation in Asia but the trade-off relationship is detected in developed economies. The study concluded that inflation targeting regime is effectively used to lower the inflation rate and boost up the emerging economies in Asia.

Inyiama and Ekwe (2014) using data over the period from 1979 to 2010 explored the nature and impact of exchange rate fluctuations on inflationary pressure and other selected macroeconomic indices in Nigeria. Employing ordinary least square method to evaluate the relationship and impact, the study revealed that exchange rate and inflationary rate are positively related, though the relationship is not very significant. The study concluded that interest rate and GDP growth rate have no significant impact on exchange rate in Nigeria.

Table 2.3: Summary of Empirical Findings on Foreign Exchange Rate

Study	Major findings
Pahlavani and Rahimi (2009)	Exchange rate, liquidity, the rate of expected inflation and the rate of imported inflation had significant effects on the inflation rate in the short run.
Ali and Mim (2011)	Effective exchange rates and world inflation produce a significant and positive effect on inflation.
Imimole and Enoma (2011)	Exchange rate depreciation, money supply and GDP growth rate are the main determinants of inflation in Nigeria.
Sek et al. (2012)	There is significant correlation between exchange rate and inflation.
Inyiama and Ekwe (2014)	Exchange rate and inflationary rate are positively related, though the relationship is not very significant.

Table 2.3 summarizes the review of literature on foreign exchange rate and inflation.

2.2.4 Interest Rate

Fama (1975; 1977) to predict the one-month-ahead rate of inflation developed a model using Long-Run Relationship between Interest Rates and Inflation of 43 consumers' price index (CPI). The size of the response of nominal interest rates to changes in expected inflation is broadly known as the Fisher effect which suppose that that there should be a long run relationship in the adjustment of the nominal interest rate corresponding to changes in expected inflation. Fisher postulated that the nominal interest rate consists of an expected real rate plus and expected inflation rate. The real rate of interest is determined largely by the time performance of economic agents and the return on the real investment. These factors are believed to be roughly constant over tome and therefore a fully perceived change in the purchasing power of money should be accompanied by a one-for-one change in the nominal interest rate.

Gul and Ekinci (2006) empirically analyzed the interaction between nominal interest rate and inflation for Turkey over the period of 1984 to 2003. The study ascertained the existence of the unit root and then implies the Johansen co-integration test. Evidence of this study supports the idea that there is a long run relationship between interest rate and inflation for Turkish markets. The study concluded by employing Granger causality test that causality exists in only one direction from nominal interest rate to inflation.

Teker, Alp and Kent (2012) employing the threshold vector error correction analysis, examined the relationship between interest rate and consumer price index. The study concluded that if percentage changes in the difference between inflation and interest rates are more than 11%, a shock experienced in interest rates rapidly converges to equilibrium. When ECM is examined for inflation, it is observed that in the typical regime, the return to equilibrium is very slow and statistically insignificant. However, in the case that the gap between inflation and interest rates in the extreme regime is further increased, it is observed that the ECM coefficient is still significant and is higher than it is in the typical regime. The study reported that interest rate and inflation are positively affected by their past two and one periods respectively.

Jaradat and AI-Hhosban (2014) attempted to examine the possibility of existing relationship between interest rate and inflation in Jordan over the period of 1990 to 2012. Firstly, this study test the impact of inflation, economic growth, money supply and budget deficits on interest rate in order to determine the relationship between interest rate and inflation. Secondly, this investigated the causal relationship between these two variables using multiple regressions, correlation, unit root tests, co-integration tests and causality tests. The results showed that there is a positive relationship between inflation and interest rate. Table 2.4 summarizes the review of literature on the relation between interest rate and inflation.

Table 2.4**: Summary of Empirical Findings on Interest Rate**

Study	Major findings
Fama (1975)	There is long run relationship between interest rate and change in inflation.
Gul and Ekinci (2006)	Supports the idea that there is a long run relationship between interest rate and inflation for Turkish markets. Causality exists in only one direction from nominal interest rate to inflation.
Teker et al. (2012)	Interest rate and inflation are positively affected by their past two and one periods respectively.
Jaradat and AI-Hhosban (2014)	There is a positive relationship inflation and interest rate in Jordanian economy.

2.2.5 Budget Deficits

Abizadeh and Yousefi (1986) showing linkages between budget deficits and inflation argued that one way of resolving the controversy over deficits and inflation is to test the possibility of a causal link between the growth of government expenditures and inflation. This should be done in light of the fact that governments can grow without necessarily generating deficits. The study led to conclude that the hypothesis of a direct link between the size of the deficit and the size of government is maintained. An implication of the study was that large deficits are caused by increased government expenditures. If increased government expenditures result in higher deficits, and higher deficit in turn causes inflation and then increased government expenditure can cause inflation.

Meltzer (1989) attempted to test the monetarist approach whether budget deficits have an effect on inflation. The study found that during the 1980s Argentina, Bolivia and Brazil

provide examples of inflation that was financed by money issued to pay for government spending. Furthermore, the experience in most developed countries does not support the view that deficits must sooner or later increase money growth and produce inflation. Italy experienced a budget deficit of about 10 percent of GNP throughout the 1980s but inflation was reduced from about 20 percent to about 5 percent a year during this period. In Japan the inflation rate was almost zero while the budget deficit climbed during the 1980s. During the same period the inflation rate in the U.S. declined from 10 percent to about 4 percent, despite the increasing budget deficit of the 1980. The reason for the decline in inflation rates can be attributed to the decline of money growth despite borrowing.

Datta and Mukhopadhyay (2011) attempted to show the relationship between budget deficit and inflation in Indonesia which is one of the important and controversial issues in the academic literature as well as in economic policy perspective. This study implied annual data of Indonesia over the period of 1971 to 1999 and found an existence of a stable long run relationship between inflation and budget deficits. The study also reported that there exists a unidirectional causality from inflation to budget deficits over the period of the study. Therefore, economic policy must support a contractionary fiscal policy to control budget deficit and hence inflation in Indonesia.

Devapriya and Ichihashi (2012) examined the relationship and causal structure between government budget deficits and inflation in Sri Lanka employing VAR model. The study using the time series data over a period of 1950 to 2010 found that budget deficits and inflation have a positive relationship. Causality analysis suggested a bi-directional causal structure between budget deficits and inflation. The main determinants of inflation rate are budget deficits, growth of money supply, interest rate and exchange rate. Furthermore, the results reported that domestic borrowings affect inflation more positively than foreign borrowings and there was a bi-directional causal structure between domestic borrowings and inflation. Among the three domestic debt instruments for deficit financings i.e., treasury bills, rupee loans and treasury bonds in Sri Lanka, long-term rupee loans are currently the most inflationary debt instrument of the country.

Yasmin et al. (2013) tried to explore the relationship of inflation with government borrowing from the central bank and money supply using monthly data from January 2008 to February 2013 in Pakistan. The study utilizes VAR model and causality analysis to check their interdependence. Based on the fully modified OLS method, the study reported that government borrowing and money supply have a strong effect on inflation in the long run. In the recent past, inflation is largely affected by its lagged values, money supply and government borrowing. Moreover bidirectional causality exists between inflation and money supply but unidirectional causal relationship is found between government borrowing and inflation as well as in case of government borrowing and money supply. Keeping in view of the results the study recommended that if government of Pakistan wants to control inflation, it must restrict its borrowing from the central bank and money supply. The following Table 2.5 summarizes the literature review on budget deficits and inflation.

Table 2.5**: Summary of Empirical Findings on Budget Deficits**

Study	Major findings
Abizadeh (1986)	Increase in government expenditures result higher deficits, and higher deficit in turn causes inflation and then increased government expenditure can cause inflation.
Meltzer (1989)	Most developed countries do not support the view that deficits must sooner or later increase money growth and produce inflation.
Datta and Mukhopadhyay (2011)	There is a stable long run relationship between inflation and budget deficits. The study also concluded that there exists a unidirectional causality from inflation to budget deficits over the period the study.
Devapriya and Ichihashi (2012)	Budget deficits and inflation have a positive relationship. Also, this analysis found that the main determinants of inflation rate are budget deficits, growth of money supply, interest rate and exchange rate of country.
Yasmin et al. (2013)	Government borrowing and money supply has a strong effect on inflation in the long run in case of Pakistan.

2.2.6 Unemployment Rate

Karanassou and Sala (2010) using a semi-annual dataset over a period of 1960 to 2005 of United States validate econometrically that a long-run inflation-unemployment trade-off can be obtained via the application of the SVAR and GMM econometric techniques. The study reported that money and productivity growth leads to decrease in unemployment, while supply shocks like oil prices leads to increase in unemployment. In the case of

1970, monetary expansion led to increase in and reduce the unemployment which is very negligible. Slowdown in productivity also led to increase in inflation and unemployment. While in 1990, losing monetary policy led to increase inflation but decrease unemployment very significantly and increase in productivity also led to decrease the rate of inflation and unemployment. The study concluded that increase in productivity growth causes decrease in inflation and also fall in unemployment.

Bhutto et al. (2011) identified the relationship between inflation and unemployment in SAARC countries from the perspective of Phillips Curve. Unbalance annual panel data of eight SAARC members i.e., Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka and six expected members of SAARC i.e., China, Russia, Indonesia, Iran, Myanmar and South Africa have been used over the period 1980 to 2010. This paper has found that there is a negative relationship between inflation and unemployment rate in the SAARC countries. This implies that the concept of Phillips curve holds true.

Fei and Qianyi (2013) investigated the correlation and causality between inflation rate and unemployment rate in Chine for the period of 1978 to 2011. Surprisingly, an empirical proven Phillips curve i.e. there is negative relationship between unemployment rate and inflation rate is ineffective to find a causal relationship between inflation and unemployment rate in china. Therefore, this study concluded that the complex economic nature of China injustice the generalization of Phillips curve.

Bicaku, Permeti and Kolaneci (2015) investigated the quarterly inflation rate, quarterly unemployment rate and the relationship between them in Albania during the period from 2004 to 2013. The study reported that the unemployment rate and the unemployment rate in Albania contradict the central limit theorem at the confidence level 99.99%. This study also found that the correlation between quarterly inflation rate and quarterly unemployment rate is 0.359. In other words, there exists a moderate positive correlation between these two variables. Table 2.6 reviews the literature on the relationship between unemployment rate and inflation.

Table 2.6**: Summary of Empirical Findings on Unemployment Rate**

Study	Major Findings
Karanassou and Sala (2010)	Trade-off between inflation and unemployment in long run in United States. Increase in productivity growth causes decrease in inflation and also fall in unemployment.
Bhutto et al. (2011)	There is a negative relationship between inflation and unemployment rate in the SAARC countries.
Fei and Qianyi (2013)	An empirical proven Phillips curve (i.e. there is negative relationship between unemployment rate and inflation rate) is ineffective to find a causal relationship between inflation and unemployment rate in china.
Bicaku et al. (2015)	There exists a moderate positive correlation between unemployment rate and inflation rate.

2.2.7 Indian Inflation

Ginting (2007) analyzed the impact of Indian inflation on Nepalese inflation by taking the monthly data over a period of 1996 to 2006 by applying econometric approaches. The paper attempted to shed some lights on the inflationary process in Nepal as well as the scope for the control of domestic inflation. The transmission of inflation from India and its influence on the inflationary process in Nepal has important implication for monetary policy. The paper has reviewed international transmission of inflation in a small open economy, made it possible to examine the long and short run relations, not only between headline inflation in Nepal and India, but also between core inflation measures in the two countries. As Nepali currency is pegged with the Indian rupee and the two countries share an open boarder, price development in Nepal would be expected to mirror to those in India. The result showed that inflation in India and inflation in Nepal tend to converse in the long run. The estimation of the study indicates that the speed of adjustment to the long-run equilibrium is about 7 percent per month, suggesting that the pass-through time period from India to Nepal is about seven to eight.

Patnaik (2010) studied the inflation in India by using co-integrated VAR approach. The result showed that the CPI is influenced by the index of industrial production, reserve money and import index. The ECM equation is highly significant which implies that the CPI adjusts to past period trend and lags in other variables. The study also revealed that external sectors influence the inflation, but the impact does not last very long. The most significant impact on inflation comes via the index of industrial production. The study

concluded that the Indian inflation is mainly demand pull inflation because both the money supply and index of industrial production represent the existing demand in the economy. However, the supply side factors which come via the imports also influence the inflation in the short run. Moreover, the short duration impact of the imports shows that the external factors are not the major factors influencing the inflation. This implies that inflation in India in the post liberalization era is due to external factors is incomplete. As a result the stabilization policies should be proactive by focusing on the demand management policies on a long term basis, and supply management policies keeping in mind their short term impact on inflation.

Rao et al. (2013) analyzed the Indian inflation by taking the annual time series data over a period of 2005 to 2010. The statistical data revealed that the inflation in India is higher especially in food items. The cause of inflation was demand/supply side, which reduces the purchasing power of people. This in turn impacts on saving of the people. The paper suggests that the agricultural productivity and sophisticated techniques and reforms in retail industry help to protect people from inflation. Government policies like monetary policy and industrial policy should be prepared in such a manner which decreases inflation in India. Table 2.7 reviews the literature on the relation between inflation in Nepal and Indian.

Table 2.7**: Summary of Empirical Findings on Indian Inflation**

Study	Major findings
Ginting (2007)	Inflation in India and inflation in Nepal tend to converse in the long run. Study indicates that the pass-through of inflation from India to Nepal takes about seven months.
Patnaik (2010)	Consumer price index (CPI) is influenced by the index of industrial production (IIP), reserve money (RM) and import index (IMP).
Rao et al. (2013)	Inflation in India is higher especially in food items because of demand/supply. This paper also explained about as per given statistics, the agricultural productivity and sophisticated techniques and reforms in retail industry which help to protect people from inflation.

2.2.8 Remittances

Acosta, Lartey and Mandelman (2008) analyzed the effects of remittances on emerging market economies including the case of increasing price level when remittances are high.

Using data for El Salvador and Bayesian techniques the authors developed a two-sector dynamic stochastic general equilibrium (DSGE) model to estimate the variables. The study reported that an increase in remittance inflows raises the household income which in turn causes a fail in the labour supply. The shrinking labour supply induces higher wages which leads to higher production costs and further contraction of the tradable sector. Therefore, both the real exchange rate and the ratio of tradable to non-tradable output stimulate high spending and resource movement which can potentially generate an inflationary pressure. A BVAR analysis provides results that are consistent with the dynamics of the model.

Khan and Islam (2013) analyzed the impact of remittances on the macroeconomic variables including inflation covering the time period from 1972 to 2010 in Bangladesh. The study has applied Vector Autoregressive (VAR) techniques and results suggested that there exists unidirectional positive causal relationship from remittances inflows to the inflation. The empirical results found that a one percent increase in remittances inflow increase inflation rate by 2.48 percent in the long run. The relationship is significant in long run but no relationship is found between them in the short run. Results also indicated that any shock in the short run inflation adjusted to the long run equilibrium.

Iqbal, Nosheen and Javed (2013) reported that the inflow of foreign remittances in Pakistan has been an important source of foreign exchange while economy of Pakistan is consumption oriented. So, it makes interesting to explore the nexus between remittances and inflation in Pakistan. The study used Johansen co-integration techniques in order to check the long run behavior of inflation while to test short run dynamics, the study used vector error correction model (VECM). The time series data covers from 1980 to 2012. The empirical findings show that remittances have significantly positive impact on inflation, thus underlining the need to channelize foreign remittances into productive investment in order to boost up economic growth in order to counter the inflationary impact of remittances in Pakistan.

Nisar and Tufail (2013) examined the impact of remittance on inflation and its different categories, i.e., food inflation, footwear and textile inflation, housing and construction

inflation. That means the study have been formulized four vectors to capture the determinants of overall inflation with particular focus on remittances. The study employed Johansen and Juseliusco-integration technique to check the existence of long run relationship between remittances and inflation. Vector error correction technique is further applied to examine the extent and direction of relationship between variables. The result indicated that there exists a long run relationship between inflation and remittances. Moreover, remittances, money supply and real per capita income are found to have positive impact on inflation and its different categories. The result also revealed that among different inflation categories, food inflation is most affected and housing and construction inflation is least affected by remittances. Budget deficit is significant in reducing footwear and textile inflation only. Moreover, trade openness is effective in reducing all type of inflation by same magnitude and strength. Table 2.8 provides the summary.

Table 2.8**: Summary of Empirical Findings on Remittance Inflows**

Study	Major findings
Acosta et al. (2008)	An increase in remittance inflows raises the household income which in turn causes a fail in the labour supply. The shrinking labour supply induces higher wages which leads to higher production costs and inflation raises.
Khan and Islam (2013)	There exists unidirectional positive causal relationship from remittances inflows to the inflation.
Iqbal et al. (2013)	Remittances have significantly positive impact on inflation.
Nisar and Tufail (2013)	There exists a long run relationship between inflation and remittance. The result also revealed that among different inflation categories, food inflation is most affected and housing and construction inflation is least affected by remittance.

2.2.9 Literature Review Regarding Inflation and Other Variables

In the context of India, John (2003) tried to find out the relative contribution of monetary aggregate in explaining the inflation in better way. The study highlighted that the broad money measure (M_3) is relatively better indicator however the explanatory power of different monetary aggregates have been weak. In order to understand the inflation dynamics, Madhu and Giri (2013) utilized the index of industrial production (IIP) as an indicator of volume of demand in the economy, the reserve money (RM) and broad

money (M_3) representative of money supply in the economy, and the crude oil prices, gold and silver prices for measurement of the external influences on the domestic prices.

Malik and Khawaja (2006) found that money supply causes inflation with a lag effect in Pakistan. Tang and Lean (2007) observed that the effect of money supply on inflation in Malaysia is negative and statistically significant. Nath and Silva (2012) applied VAR model on the monthly data of Mexico to analyze the impact of remittances on the distribution of prices in receiving countries. The outcomes of research are that if remittances increase in short run, it decreases prices of many consumption items. Mughal (2012) examined the role of remittance as a development strategy in case of Pakistan and found that remittance has an impact in increasing the demand-push inflation. The study suggests that remittance should be treated as a temporary flow and can be used to improve the macroeconomic situation but it should not be considered as long term strategy.

Sowa (1994) estimated an inflation equation for Ghana over the period 1963-1990 and found that inflation is influenced more by output volatility than by monetary factors, both in long run and the short run. Metin (1995) analyzed the inflationary process in Turkey by using the general framework of sectoral relationships and found that fiscal expansion was the determining factor for inflation. The excess demand for money affected inflation positively, but only in short run. On the other hand, imported inflation, the excess demand for goods and excess demand for assets in the capital markets had little or no effect on inflation. Odedokun (1995) conducted a study regarding the causes of inflation in Africa by employing econometrics to analyze data for 35 countries. The findings suggested that monetary growth, the rate of domestic currency depreciation and expectation of inflation have a positive effect on inflation while expansion of per capita food production as well as overall economic growth served to reduce inflation rates.

Imimole and Enoma (2011) examined the determinants of inflation in Nigeria by using the auto regressive distributed lag procedure. The study found that exchange rate depreciation, money supply and real gross domestic product were the main determinants of inflation and exchange rate depreciation had positive and long run effect on inflation.

Rodrik (2008) provided evidence that a rise in remittances inflow leads to an underestimation of long term economic growth through the overvaluation of real exchange rate which can potentially cause an inflationary pressure. This is particularly for developing economies, where the production of tradable goods suffers from market failures and weak institutions.

Roy and Rahman (2014) concluded that inflow of remittances in Bangladesh is an important demand side variable of inflation and is expected to affect inflation from the perspectives of exchange rates, money supply and balance of payments. Worker's remittance inflow has a spending effect in the recipient economies. At the micro level remittances directly lead to an increase in household income which in turn raises their demand for goods and services. This excess demand brings inflationary pressure to economy.

Madesha, Chidoko and Zivanomoyo (2013) examined the empirical relationship between exchange rate and inflation in Zimbabwe and the result revealed that both the exchange rate and inflation have long run relationship. David and Ann (2014) estimated increase in money supply is proportionately matched by the increase in inflation rate in Nigeria. Therefore, the study concluded that inflation is a purely monetary phenomenon in Nigeria as the coefficient of broad money supply is equals to unity.

Simwaka et al. (2012) indicated that inflation in Malawi is a result in monetary and supply side factors. Monetary supply growth drives inflation with lags of about three to six months. On the other hand, exchange rate adjustments play a relatively more significant role in fuelling cost-push inflation. It further observed that slumps in production generate inflationary pressure.

Musa, Usman and Zoramawa (2014) empirically analyzed the long run relationship and dynamic interactions between the broad money supply (inflation) and government revenue in Nigeria. There is the existence of a long run relationship between money supply and revenue when money supply is made dependent variable but such relation is not observed when revenue is made dependent variable. This indicates that change in

government revenues in the past have significant effect on money supply and on inflation.

Gomme (1993) examined the relationship between the inflation and employment. The study revealed that efficient allocations of resources satisfy the condition so that the marginal value of the last unit of today's consumption equals the marginal cost of the last unit of work. A rise in inflation reduces the marginal value of today's last unit of consumption, thus inducing people to work less. With less labour, the marginal product of capital is permanently reduced, resulting in a slower rate of capital accumulation. This study also found that eliminating a moderate inflation rate results very small gain in the growth of output.

Arif and Ali (2012) analyzed the major determinants of inflation and long run relationship between the variables in Bangladesh. The study concluded that the GDP, broad money, government's expenditure and export have a negative effect on inflation in the long run but government revenue and export have a positive effect. The government expenditure coefficient is 0.466 and the money supply coefficient is 0.337, implying a one percent increase in government expenditure and one percent increase in money supply elicit 0.466% and 0.337% increase in inflation respectively. In the short run, money supply has been found to be the major factor influencing inflation in the country.

Fischer (1993) found that economic growth is negatively associated with inflation, large budget deficits and distorted foreign exchange markets. The study presented both pure cross-sectional regressions as well as panel regressions, which exploits time series as well as cross-sectional variation in the data. It also explored non-linearity in the relationship between inflation and economic growth. The study revealed that inflation reduces economic growth by reducing investment and productivity growth. Further, budget deficits also reduce both capital accumulation and productivity growth. The study concluded that while low inflation and small deficits are not necessary for high growth even over long periods, high inflation is not consistence with sustained economic growth.

2.2.10 Review of Major Nepalese Studies

There are very few studies in the Nepalese context in relation to the inflation and macroeconomic variables that affect it. Some of the leading literature is reviewed as follows.

Neupane (1992) explored the appropriate model for Nepal with regard to monetarist (closed economy) and structuralist approaches and examined the inflation process in Nepal. The study uses time series data over the period from 1965 to 1988 and OLS technique for analysis. The findings of the study suggested that monetary policy is an important instrument to control inflation. A policy of increasing money supply in line with the GDP growth would help to control inflation because growing government budget deficit and financing it from external borrowing help to increase money supply which is found to be inflationary. The regression result showed that one-year lagged money supply and cost of holding real balances are the important explanatory variables. However, the structuralist approach suggested that a shortfall in commodity producing sectors, increasing import prices, government budget deficit and slow growth of agricultural and industrial production generates inflationary pressure.

Institute for Sustainable Development (1994) studied the major sources of inflation in Nepal. This study concluded that money supply, international prices (particularly Indian prices), exchange rate, real output, government expenditure and expectation factors are the major sources of inflation in Nepalese economy. Similarly, infrastructural bottlenecks, imperfect market condition and market oriented economic policies are also instrumental for inflation escalation. The study also concluded that a ten percent increase in Indian prices causes an eight percent rise in domestic price level in Nepal.

NRB (2006) conducted a study with regard to the relationship between inflation and price situation in Nepalese economy. The study uses the annual time series data from 1975 to 2006 and open economy monetary model for the study. The study found an important relation that Indian inflation have significant and near unitary effect on Nepalese inflation.

Bhusal and Silpakar (2011) estimated the threshold level of inflation in Nepal using annual time series data for the period 1975-2010 and revealed the positive relationship between the inflation and economic growth. The inflation and economic growth are one way related to each other and there is one way causal relationship from inflation to economic growth but not from economic growth to inflation. The Granger causality test predicted that the threshold value of inflation is found to be 6% for Nepal. Beyond that level of inflation rate, higher or lower than the threshold value, the economic growth can be jeopardized. Nepal Rastra Bank (NRB) can apply expansionary monetary policy for supporting economic growth until the inflation rate does not exceed the threshold level (6%) and contractionary monetary policy after the inflation rate exceeds that threshold level or till inflation under control.

Paudyal (2014) using time series data covering from 1975 to 2011 examined the short term and long term effects of the macroeconomic variables on the inflation in Nepal. The author employed the Wickens-Breusch Single Equation Error Correction model and the variables considered for the analysis are budget deficits, Indian prices, broad money supply, exchange rate and real gross domestic product. The regressions results show that all variables considered are significant in the long run implying that these variables are the main determinants of inflation in Nepal. However, only budget deficit, money supply and Indian prices causes inflation in the short run. The results are consistent with monetarists' hypothesis of money matters and inflationary gap theory of Keynesian as well as supply constraints approach to inflation.

The author further concluded that Budget deficit is largely considered as one of the major factors of inflation. Deficit compels the central bank to print new money to finance the budget deficit which leads to increase in money stock. Deficits can be financed by other sources such as borrowing from market which also indirectly affects inflation. Moreover, such effect of budget deficits pass through interest rate to the major macroeconomic variables such as investment, price level, consumption, exports and imports in the economy. As the additional resources that are borrowed from the financial market by the government to finance the budget deficits may slow down the private investment. This increases the demand for credit that leads to higher interest rate. Central bank therefore,

normally attempts to monetize deficits to control the interest rate from rising. For this, it purchases back the government securities pumping the new money in the market which normally pushes up the price level. The monetary authority adopts thus the expansionary monetary policy that nullifies the rise in interest rate by increasing money supply but it causes inflation. In this way, deficits have indirect effects on the inflation through neutralized interest rate. However, the growth of budget deficits has been lower in later years but not the growth of money supply. This indicates that deficit is not only the cause of an increase in money supply.

Pant (1997) found that there is weak association between money and prices by using basic statistical analysis. This study generally looked at the inflationary process in Nepal from the closed economy monetary perspective and observed that inflation in Nepal is not much explained by the movement of monetary aggregates, rather it is mainly due to structural changes in the economy. This conclusion contradicts with the findings of Sharma (1987) which found a relatively strong relationship of both narrow money and Indian prices with Nepalese prices. Table 2.9 summarizes review of literature.

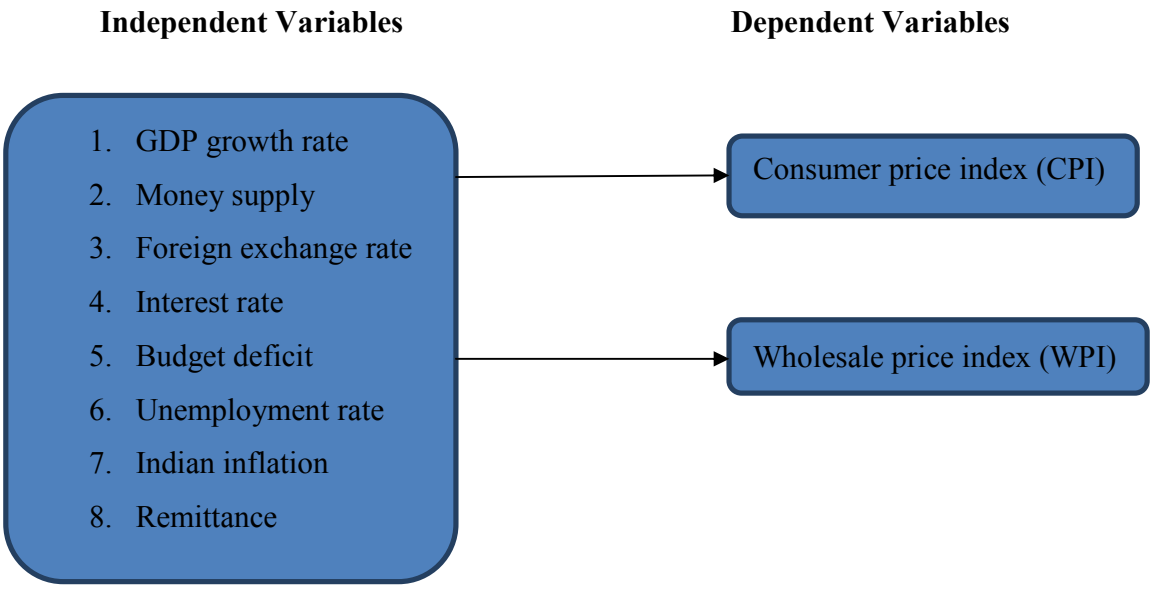
Table 2.9**: Summary of Empirical Findings on Nepalese Reviews**

Study	Major findings
Neupane (1992)	Monetary policy is an important instrument to control inflation. An increase in money supply along with growth of GDP could help to control the inflation.
ISD (1994)	Money supply, international prices (particularly Indian prices), exchange rate, real output, government expenditure and expectation factors are the major sources of inflation in Nepalese economy. The study also conclude that a ten percent increase in Indian prices causes a more that eight percent rise in domestic price level.
NRB (2006)	Indian inflation have significant and near unitary effect on Nepalese inflation.
Bhusal and Silpakar (2011)	There is one way causal relationship from inflation to economic growth but not from economic growth to inflation.
Paudyal (2014)	Budget deficits, Indian prices, broad money supply, exchange rate and real gross domestic product are the determinants of inflation in Nepal. However, only budget deficit, money supply and Indian prices causes inflation in the short run.
(NRB, 2014)	Budget deficit is one of the major factors of inflation but not only.

2.3 Conceptual Framework

Inflation means a sustained increase in the aggregate or general price level in an economy; consequently there is an increase in the cost of living. Some empirical studies

such as Pahlavani and Rahimi (2009) examined that even the international inflation and expected inflation have influential bearings on domestic inflation. Furthermore, inflation in Iran is largely determined by money supply, exchange rate, gross domestic product, expected inflation rate and imported inflation along with dummy variables. Vuyyuri and Sethaiah (2004) found that budget deficits cause the inflation. Kumar (2013) examined that money supply and imports index are the most important variables in explaining inflation in India. Rana and Dowling (1983) suggested that foreign inflation is the most influencing factor in explaining the change in local price level in nine less-developed countries of Asia. The study reported that these countries cannot exercise much control over domestic inflation. Bamidele and Joseph (2014) examined the relationship between inflation and money supply in Nigeria based on Quantity Theory of Money. The result indicated that there is a strong correlation between inflation and money supply and that inflation and money supply have a significant impact on the Nigerian economy. However, the Chow test result rejected the hypothesis that there is significant difference between the two periods. In general there is a strong correlation between inflation and broad money supply in case of second model.



GNP is a basic determinant of a country's economic performance and is the market value of all final goods and services made within the borders of a nation in a year. Bruno and Easterly (1998) found an inconclusive relationship between inflation and economic

growth of 26 countries below threshold inflation rate of 40%. Empirical analysis reported that there exists a temporal negative relationship between inflation and economic growth beyond this threshold level. At lower rate of inflation, growth and inflation may be troubled by various demand and supply shocks and hence shows no consistent pattern. Mallik and Chowdhury (2001) empirically examined long run and short run dynamics of the inflation-economic growth relationship for four South Asian countries using annual time series data. The study found two motivating results. Firstly, the long run relationship between inflation and economic growth was found to be positive and statistically significant. Secondly, the sensitivity of inflation to changes in growth rates was larger than that of growth to changes in inflation rate. The study also concluded that moderate inflation promotes economic growth. Based on it, this study developed the following hypothesis:

H_1: GDP growth is positively related to inflation.

Broad Money Supply (M_2)

McCandless and Weber (1995) examined the data for 110 countries over 30-year period which suggests that growth rates of money supply and the general price level are highly correlated (almost unity) in the long term. Nassar (2005) found that the money supply has significantly positive impact on inflation in Madagascar. Oomes and Ohnsorge (2005) investigated the impact of money demand on inflation in Russia by using error correction model. The result confirmed that an excess supply of effective broad money is inflationary while other excess money measures are not. Further, the effective broad money growth has the strongest and most persistent effect on short run inflation. Pelipas (2006) investigated the money demand and inflation by using quarterly data. The study noted that the money supply is significantly and positively correlated with inflation. Similarly, Hossain (2010) investigated the behaviour of broad money demand in Bangladesh taking annual time series data by using Johansen co-integration test and ECM technique. The empirical results suggested the existence of a causal relationship between money supply growth and inflation. Based on it, this study developed the following hypothesis:

H_2: Broad money supply is positively related to inflation.

Foreign Exchange Rate

Changes in exchange rate have a great impact on the economy as a whole. Exchange rate fluctuations strongly influence the level of prices through the aggregate demand and aggregate supply in the system of floating exchange rate. The weakening of exchange rate will cause the price of inputs more expensive. This contributes to a higher cost of production. Manufacturers will certainly increase the cost to the price of goods that will be paid by consumers. As a result, the aggregate price level in the country increases. If it continues, it will cause inflation. Adetiloye (2010) adopted the technique of correlation and found the significance relationship between consumer price index and the exchange rate in Nigeria. Khattak and Tariq (2012) revealed that real exchange rate depreciation raised inflation in Pakistan. Kamas (1995) observed that exchange rates did not play an important role in explaining the variation in inflation in Colombia and that inflation appeared to be primarily inertial with respect to the exchange rate but largely determined by demand shocks. Based on it, this study developed the following hypothesis:

H_3: Exchange rate is positively related to inflation.

Interest Rate

Interest rates impacts on both individuals and the economy, and the impact of interest rates depends upon the current level of economic activity. Increasing interest rates can also lead to unexpected inflation, reduced investment and lower confidence among household and investors. Nelson and Schewert (1977) and Mishkin (1981) have verified positive relationship between inflation rate and interest rate. On the other hand, Barsky (1987) concluded that there is no strong relationship between interest rate and inflation rate. Likewise, Huizinga and Mishkin (1986) and Ghazali (2003) revealed that there is still no consensus relationship between interest rates and inflation. Based on it, this study developed the following hypothesis:

H_4: Interest rate is positively related to inflation.

Budget Deficits

Government budget deficit has been one of the topical issues in the country's historical economic problems. The budget deficit-inflation relationship is not always obvious and it differs depending on the country of concerned. For most episodes of high inflation in developing countries, the source of inflation is an imbalance in the fiscal sphere. Government will finance its deficit by borrowing or by printing money. Edwards and Tabellini (1991) in their study used cross section techniques for a wide sample of developed countries and found that budget deficits are important determinants of inflation. Solomon and DeWet (2004) studied the relationship between relatively high inflation rate and high fiscal deficit in Tanzania. The study concluded that due to monetization of the budget deficit, significant inflationary effects are found for increase in the budget deficit. Mohseni, Hashemi and Faraji (2011) investigated the relationship between budget deficits and inflation on Iranian economy and found strong evidence towards supporting a significant and positive relationship. The study also obtained volatility of budget deficit and showed that volatility of budget deficit has positive effect on the inflation. Based on these findings, this study developed the following hypothesis:

H_5: Budget deficit is positively related to inflation.

Unemployment Rate

The unemployment rate is a measure of the prevalence of unemployment and it is calculated as a percentage dividing the number of unemployed individuals by all individuals currently in the labour force. During a period of recession, an economy usually experiences a relatively high unemployment rate. Ribba (2003) argued that when a country's economic system faces recession, inflation and unemployment go in conflicting directions. When the economy is smooth, both move in the same direction. Hodge (2002) found that there is no short run trade-off between inflation and unemployment. Aguiar and Martins (2005) and Hassler and Neugart (2003) found that Phillips curve is linear and it is statistically significant. There is trade-off between

inflation and unemployment. Based on these evidences this study developed the following hypothesis.

H_6: Unemployment rate is negatively related to inflation.

Indian Inflation

The Reserve Bank of India (RBI) has shifted from monetary targeting to a multiple indicator approach to provide the most useful information about future inflationary trends (Callan and Chang, 1999). The paper concluded that while the broad money target has been de-emphasized, developments in the monetary aggregates remain an important indicator of future inflation. The exchange rate and import prices are also relevant, particularly for inflation in the manufacturing sector. Srinivasan, Mahambare and Ramachandran (2006) found that supply shocks have only a transitory effect on both headline inflation and core inflation. The paper concluded that monetary policy in India is more focused towards the core inflation. Based on it, this study developed the following hypothesis:

H_7: Indian inflation is positively related to inflation in Nepal.

Remittances

The increase in remittances is expected to have multitude effects in the economy. Since remittances bring an increase in personal income, improving the living standard of the recipients, these eventually increase the demand for consumption goods and thus boosting up the economic activity and demand for money. In this way, remittances have an indirect effect on the macroeconomic variables like inflation. Narayan, Narayan and Mishra (2011) showed that increase in remittances generates an increase in inflation. While Katesli and Glytsos (1986) found that in Greece remittances affect negatively the inflation in the home country. Balderas and Nath (2008) studied on Mexico by using monthly data over the period from 1995 to 2005 which is differing from above study. This study found that remittances have significant and positive effects on inflation in the short run, which gradually tapers off in the long run, as different exchange rate regimes

have considerably different effects on macroeconomic variables. Remittances can also contribute towards foreign reserves accumulation and thus generate a surplus in balance of payment. If the central bank fails to fully sterilize the rise in foreign reserves, it will lead to an increase in the monetary base and appreciation of real exchange rate. Thus, there will be a rise in the price level (Bugamelli and Paterno, 2009). Based on these evidences this study developed the following hypothesis.

H_8: Remittance inflow is positively related to inflation.

2.4 Concluding Remarks

The review of the available literatures has contributed to enhance the fundamental understanding and knowledge, which is required to make the study meaningful and purposeful. These studies have attempted to examine the determinants of inflation in Nepalese economy. This is one of the important macroeconomic variables because if inflation is not maintained properly then the whole economy will be damaged. Inflation is always and everywhere a monetary phenomenon and is interestingly touchy issue in macroeconomics.

There are many national and international studies in the field of determinants of inflation. These studies have attempted to find out the factors that influence the inflation of economy. The reviewed literatures show that there is no uniformity in the findings. Study performed in foreign countries taking some variables may not be valid in Nepal due to different general environment, economic and political context. Thus, the empirical result found in the other countries cannot be generalized in the context of Nepal.

In Nepal, separate study is required considering only those variables that seem to be relevant in Nepalese context. However, in the context of Nepal only few efforts have been made to examine the issues related to factors that affect the inflation. Many graduate students are showing interest regarding this topic. Specifically, the study is primarily designed to fill the gap of similar studies in Nepalese context. This study has attempted to carry out distinctly from other previous studies in terms of sample size and the research methodology used. This study has covered the data of 15years. Thus, it is believed that

this study is different from earlier studies of Nepalese context. The importance of this study may be viewed from its contribution to fill gap between the previous studies and also finding of this study can add value to the existing body of the literature

CHAPTER III
RESEARCH METHODOLOGY

Research methodology refers to the various methods of practices applied in the entire aspect of the study. It helps to solve the research problem in a systematic way. The clear and well described research methodology ensures the valid analysis and interpretations of the data under study. This chapter focuses on the research design, population and sample of the study. This also discusses nature and sources of data, sampling technique and the data collection method and the procedures. Further, this chapter specifies the major statistical tools and models used to examine the relationship between the variables of interest. The methods employed for data analysis techniques and details on overall analysis plan have also been dealt. Section 3.1 presents research design while Section 3.2 explains description of sample. Section 3.3 deals with nature and sources of data. Tools and data analysis is discussed in Section 3.4. Section 3.5 provides variable specification and finally Section 3.6 is about data analysis plan.

3.1 Research Design

This study has employed descriptive and causal comparative research designs to deal with the fundamental issues associated with determinants of inflation. The descriptive research design has been adopted for fact-finding and searching adequate information about factors affecting inflation. Beside this, an effort has also been made to describe the nature of data of the macroeconomic variables consisting of 145 observations from the fiscal year 2001 to 2015 by using descriptive statistics with respect to key macroeconomic variables including CPI, WPI, GDP growth rate, broad money supply, interest rate, foreign exchange rate, budget deficits, unemployment rate, Indian inflation and remittance inflows.

This study is based on causal comparative research design. It deals with the relationship between different independent variables and dependent variables. Causal comparative research design helps ascertain and understand the magnitudes and directions of observed

relationship between consumer price index and wholesale price index as a measure of inflation and corresponding variables.

3.2 Description of Sample

Table 3.1 shows the sample of ten key macroeconomic variables of Nepal. Data are collected for over the time period from 2001 to 2015 which make 15 observations in order to analyze the determinants of inflation. The time series data is limited to 15 years due mainly to the availability of the macroeconomic data and time constraint. Table 3.1 shows the list of variables along with the study period and number of observations.

Table 3.1**: Selected Macroeconomic Variables for the Study**

S.N.	Variables	Study Period	Observations
1	Consumer price index	2001-2015	15
2	Wholesale price index	2001-2015	15
3	GDP growth rate	2001-2015	15
4	Broad money supply	2001-2015	15
5	Exchange rate	2001-2015	15
6	Interest rate	2001-2015	15
7	Budget deficits	2001-2015	15
8	Unemployment rate	2001-2015	15
9	Indian inflation	2001-2015	15
10	Remittances	2001-2015	15
	Total Observations:		**15**

Thus, the study is based on 15 observations of time series data.

3.3 Nature and Sources of Data

Data are collected from the multiple sources for the purpose of determining the variables that affect the inflation of Nepalese economy. This study has collected the economic data for the analysis from the data base of World Bank and International Monetary Fund (IMF), publications of NRB, Central Bureau of Statistics (CBS) and Asian Development Bank (ADB) and other Nepalese journals of economics and Business that we have taken

for the sample. All the secondary data are compiled, processed and tabulated in the time series as per the need to fulfill the objectives of the thesis.

The time series data consists of key economic variables over a period from 2001 to 2015 covering 15 years. There are many economic variables that influence the Nepalese economy, however due to time constraint and data availability only eight variables are taken into consideration to analyze the determinants of inflation.

3.4 Tools and Methods of Data Analysis

The main purpose of data analysis in this study is to analyze the magnitude and direction of relationship of GDP growth rate, broad money supply, interest rate, foreign exchange rate, budget deficits, unemployment rate, Indian inflation and remittances inflow with CPI inflation and WPI inflation as measures of inflation. CPI and WPI are taken as a proxy for inflation. Therefore, this section mainly deals with statistical methods used for the purpose of analysis of secondary time series data. The methods of the data analysis used in the study include descriptive statistics, correlation analysis and ordinary least square regression analysis. Different statistical tests of significance for validation of models such as *t*-test, *F*-test and R^2 are applied.

This study mainly estimates two groups of econometric models. The first group of models estimates the role of selected major macroeconomic variables individually on CPI. In these models the dependent variable is CPI and independent variables include GDP growth rate, broad money supply, foreign exchange rate, interest rate, budget deficit, unemployment rate, Indian inflation and remittance inflow. In this way, this study estimates eight models to show the relationship between CPI and each explanatory variable.

Second group of models investigate the role of the same selected major macroeconomic variables individually to WPI. In the second group of models, the dependent variable is WPI and independent variables are the same as in first group. As in the case of first group, each independent variable is regressed to WPI to show the individual impact of independent variables to inflation.

A wide variety of analytical techniques are available in the literature to examine the determinants of inflation and their relation to CPI as well as WPI. This study adopts an ordinary linear regression analysis for partial equilibrium analysis. The general econometric empirical equation estimated for both groups of the models is as follows:

$$y_t = \alpha + x_t'\beta + \varepsilon_t \qquad t=1, 2, \ldots, 31. \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where,

y_t is the observed value of dependent variables at time t (CPI in model 1 and WPI in model 2),

x_t represents the set of control variables at time t including GDP growth rate-GDP, broad money broad money supply-M2, foreign exchange rate-FEXR, interest rate-IR, budget deficit-BD, unemployment rate-UR, Indian inflation-II and remittance inflow-RT in both models),

α denotes the constant term,

β represents the set of unknown parameters to be estimated,

ε stands for the error term distributed normally, and,

t refers to time ranging from 2001 to 2015 (15 observations).

Data was analyzed by using Statistical Package for Social Science (SPSS) software in order to derive the meaningful relationship among the dependent and independent variables.

3.5 Variable Specification

CPI: The Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by consumers for a market basket of consumer goods and services. CPI shows the average price change of goods included in the index and is often expressed as a ratio or percentage, and the change is one indicator of a country's level of inflation

WPI: The wholesale price index is an index that measures and tracks the changes in the price of goods in the stages before the retail level. WPI shows the

average price change of goods included in the index and is one indicator of a country's level of inflation.

GDP Growth Rate: GDP growth rate is the increase in the market value of the goods and services produced by an economy over time. It is conventionally measured as percentage. GDP is a good indicator of a country's macroeconomic status and development. GDP can be seen from two sides such as the expenditure approach and the income approach. Expenditure approach takes account of all goods and services within a given time period. A good example will be such as household items that we buy daily, purchases from a foreign investors and services. On the other hand, income approach is best described as the level of worker's compensation, rent, and interest.

Broad Money Supply (M2): Broad money supply is a measure of money supply that includes cash and checking deposits (M_1) as well as near money. Near money in M_2 includes saving deposits, money market, mutual funds and other time deposits, which are less liquid and not as suitable as exchange mediums but can be quickly converted into cash or checking deposits.

Interest Rate: The rate of interest paid on deposits and other investments determined by the interaction of the demand and supply of funds in the money market is known as interest rate. It is based on duration (longer the duration, higher the rate) and amount (higher the amount, higher the interest rate). In the theory of economy, interest rate can be described as a value that is gained in the effort of a value that has been saved or invested. There are short term and long term rates. Short term rates is influenced by the Central bank, thus money is being monopolized accordingly. Long term rates however, show the condition of inflation (Goodfriend and McCallum (2007). Both of the rates are linked and work with one another.

Exchange Rates: Exchange rate is a value that a currency has compared to another currency. Exchange rate can be divided into two categories, fixed exchange rate and flexible exchange rate. Fixed exchange rate is set by the government whereas flexible exchange rate is set by the market with or without the influence of the government.

Budget Deficits: Budget deficit is the state that total government expenditures exceed total government revenues. There are two possible channels through which higher deficit leads to higher inflation. Firstly, the government's borrowing requirements normally increase the net credit demand in the economy, driving up the interest rate and crowding out private investment. The resulting reduction in the growth rate of an economy will lead to a decrease in the amount of goods available for a given level of cash balances and hence the increase in the price level. Secondly, deficit can also lead to higher inflation even when the central bank does not monetize the debt when the private sector monetizes the deficits.

Unemployment Rate: Unemployment occurs when a person who is actively searching for the work is unable to find it. This is the number of unemployed persons divided by the number of people in the labour force. It has been one of the challenges for developing countries to sustain low inflation. In 1960, the concept of Phillips curve emerged in UK. This curve suggests negative relationship between the rate of inflation and unemployment.

Indian Inflation: The role of Indian inflation has direct impact on the Nepalese inflation in both short and long term. In the short term, inflation in Nepal is generally affected by Indian inflation with narrow money. In the long-term, however, the price level in Nepal is mainly determined by Indian price level. Inflation in India and Nepal move via similar growth trajectory. In the long run Nepal and Indian inflation have a generally one-to-one relationship. Since inflation in Nepal is significantly influenced by Indian inflation, having an inflation target within the present domestic context requires making more vigorous exercise especially in the context of present arrangement that suggests Nepal has been importing the favorable inflation performance of India.

Remittances: International remittances are the money or its equivalent send from one country to another country. Inflow of remittances is an important demand side variable of inflation. It is expected to affect inflation from the perspectives of exchange rates, money supply and balance of payments. Moreover, inflow of workers' remittances has a spending effect in the recipient economies. At the micro level remittances directly lead to

an increase in household income which in turn raises their demand for goods and services. This excess demand brings inflationary pressure to the economy.

3.6 Data Analysis Plan

This section discusses how analyses have been carried out in chapter four. It is necessary to follow certain steps and procedures in analyzing data in order to understand the results and generalize the findings. The analysis of secondary data intends to study the relationship and cause and effect between the variables. This section deals with the descriptive statistics of the sample observations including the mean, median, standard deviation, minimum and maximum values of observations. Correlation analysis has been carried out followed by the step wise regression analysis. Test of significance, multicolinearity and the autocorrelation have also been tested to make the results more valid. All the observed relationship and findings have been interpreted to derive the meaningful conclusions regarding variables.

CHAPTER IV
DATA PRESENTATION AND ANALYSIS

This chapter provides systematic presentation and analysis of the data to deal with various issues associated with inflation in Nepalese economy. Section 4.1 explains the trend of selected macroeconomic variables. Section 4.2 provides descriptive statistics while Section 4.3 analyzes correlation. Section 4.4 is for regression analysis and finally Section 4.5 concludes the chapter.

4.1 Trend of Selected Macroeconomic Variables

This section deals with the structure and movement of dependent and independent variables considered on this study. Two dependent variables i.e., CPI inflation and WPI inflation are used separately to establish the relationship with same explanatory variables including GDP growth rate, broad money supply, foreign exchange rate, interest rate, budget deficit, unemployment rate, Indian inflation and remittance inflow.

4.1.1 Trend of CPI

The observed values of annualized CPI inflation in Nepalese economy from 2001 to 2015 are presented in table 4.1.

Table 4.1**: Trend of CPI Inflation (in %)**

Fiscal Year	CPI Inflation	Year	CPI Inflation
2001	3.3	2009	12.6
2002	2.9	2010	9.6
2003	4.8	2011	9.6
2004	4	2012	8.3
2005	4.5	2013	9.9
2006	8	2014	9.1
2007	6.4	2015	7.2
2008	7.7	**Average:**	**7.19**

Source: NRB, Quarterly Economic Bulletin IV, 2015

Table 4.1 shows the CPI inflation (in percentage) of Nepalese economy from year 2001 to 2015. The CPI inflation is highest in the year 2009 (12.6 percent) followed by 2013(9.9 percent), 2010 and 2011 (9.6 percent), 2014 (9.1 percent), 2012 (8.3 percent), 2006 (8.0 percent), 2008 (7.7 percent), 2015 (7.2 percent), 2007 (6.4 percent), 2003 (4.8 percent), 2005 (4.5 percent), 2004 (4.0 percent), 2001 (3.3 percent) and 2002 (2.9 percent). Furthermore, the average of CPI inflation over the study period is 7.19. The CPI inflation is lowest in the year 2002 (2.9 percent). The trend of CPI inflation in Nepalese economy from the time period 2001 to 2015 is shown in figure 4.1.

Figure 4.1: CPI inflation Trend

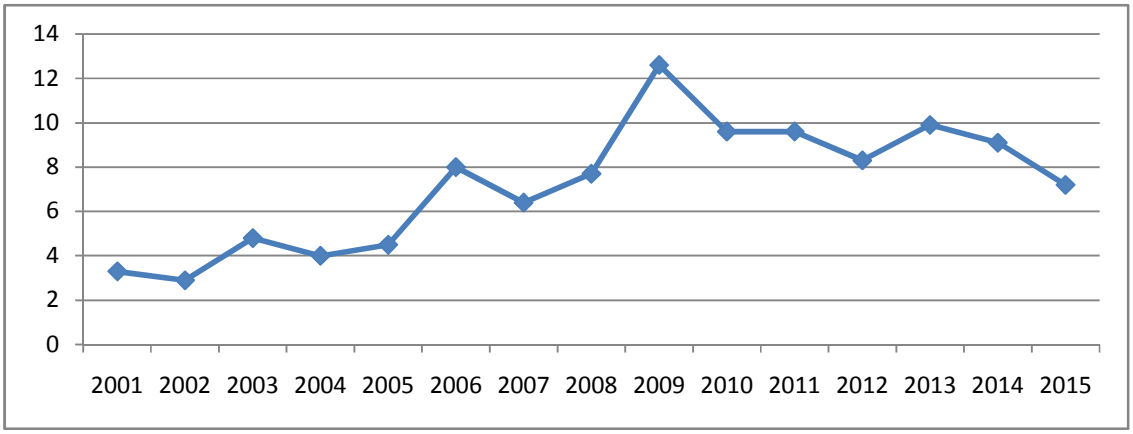


Figure 4.1 shows the trend of CPI inflation ranging from 2001 to 2015. The horizontal axis (X- axis) represents the time duration and vertical axis (Y-axis) represents the CPI inflation of Nepalese economy. First, CPI inflation is in increasing trend from 2001 to 2009 and reaches the maximum value in 2009. After occurrence of highest value, it is found to be in decreasing trend to 2015. Thus the maximum value of CPI inflation can be observed in the year 2009 and minimum can be observed in 2002.

4.1.2 Trend of WPI

The observed values of WPI inflation of Nepalese economy from the time period 2001 to 2015 are presented in table 4.2.

Table 4.2 shows the WPI inflation (in percent) of Nepalese economy from the 2001 to 2015. The WPI inflation is highest in the year 2009 (12.8 percent) followed by 2010(12.6

percent), 2011 (9.9 percent), 2008 (9.1 percent), 2007 and 2013 (9.0 percent), 2006 (8.9 percent), 2014 (8.3 percent), 2005 (7.3 percent), 2012 (6.4 percent), 2015 (6.0 percent), 2002 (4.9 percent), 2004 (4.1 percent), 2003 (3.8 percent) and 2001 (1.4 percent).

Table 4.2**: Trend of WPI Inflation (in %)**

Year	WPI Inflation	Year	WPI Inflation
2001	1.4	2009	12.8
2002	4.9	2010	12.6
2003	3.8	2011	9.9
2004	4.1	2012	6.4
2005	7.3	2013	9
2006	8.9	2014	8.3
2007	9	2015	6
2008	9.1	**Average:**	**7.56**

Source: NRB, Quarterly Economic Bulletin IV, 2015

Furthermore, the average of WPI inflation over the study period is 7.56. The WPI inflation is lowest in the year 2001 (1.4 percent). In the year 2006, 2007, 2008 and 2013, the WPI inflation is more or less constant at 9.0 percent. The trend of WPI inflation in Nepalese economy from the time period 2001 to 2015 is shown in figure 4.2.

Figure 4.2**: WPI Inflation Trend**

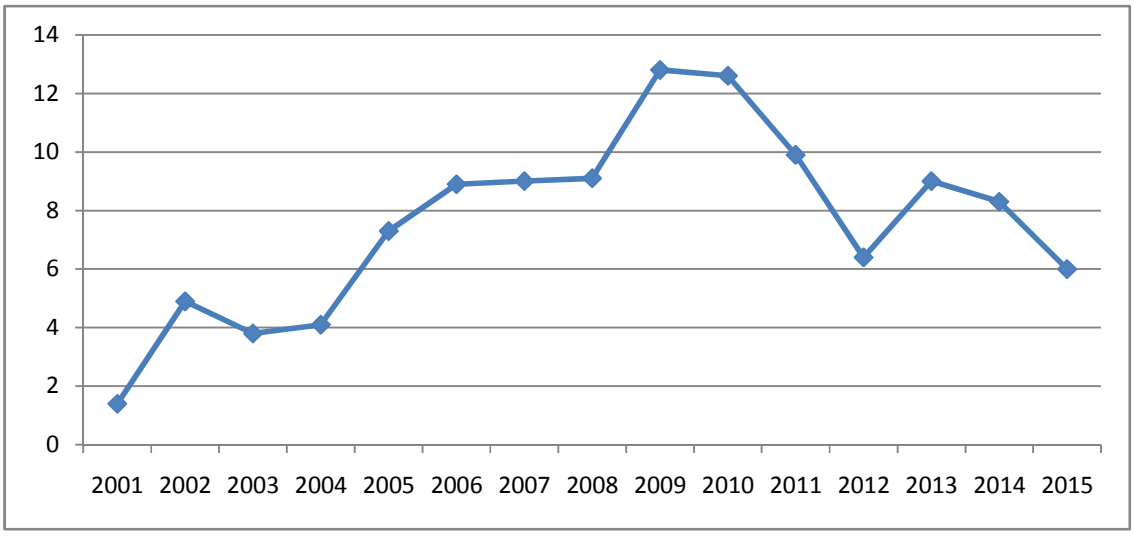


Figure 4.2 shows the trend of WPI inflation ranging from 2001 to 2015. The horizontal axis (X-axis) represents the time duration and vertical axis (Y-axis) represents the WPI inflation of Nepalese economy. First, WPI inflation is in increasing trend from the year 2001 to 2009 and reaches the maximum value in 2009; however it is decreased in 2003. After occurrence of highest value, it is found to be in decreasing trend to 2015. Thus, the maximum value of WPI inflation can be observed in the year 2009 and minimum can be observed in 2001.

4.1.3 Trend of GDP Growth Rate

The observed values of GDP growth rate from the time period 2001 to 2015 in Nepalese economy are presented in table 4.3.

Table 4.3**: Trend of GDP Growth Rate (In %)**

Year	GDP Growth Rate	Year	GDP Growth Rate
2001	4.8	2009	4.5
2002	0.1	2010	4.8
2003	3.9	2011	3.4
2004	4.7	2012	4.9
2005	3.5	2013	3.8
2006	3.4	2014	5.5
2007	3.4	2015	4.6
2008	6.1	**Average:**	**4.09**

Source: Economic Survey of World Bank

Table 4.3 shows the GDP growth rate (in percent) of Nepalese economy from the year 2001 to 2015. The GDP growth rate is highest in the year 2008 (6.1 percent) followed by 2014 (5.5 percent), 2012 (4.9 percent), 2001 and 2010 (4.8 percent), 2004 (4.7 percent), 2015 (4.6 percent), 2009 (4.5 percent), 2003 (3.9 percent), 2013 (3.8 percent), 2005 (3.5 percent), 2006, 2007 and 2011 (3.4 percent) and 2002 (0.1 percent).

Furthermore, the average of GDP growth rate in Nepalese economy over the study period is 4.09. The GDP growth rate is lowest in the year 2002 (0.1 percent). In the years 2006, 2007 and 2011, the GDP growth rate is constant having 3.4%. Similarly, it is same in the

years 2001 and 2010 with the value 4.8%.The trend of GDP growth rate in Nepalese economy from the time period 2001 to 2015 is shown in figure 4.3.

Figure 4.3**: Trend of GDP Growth Rate**

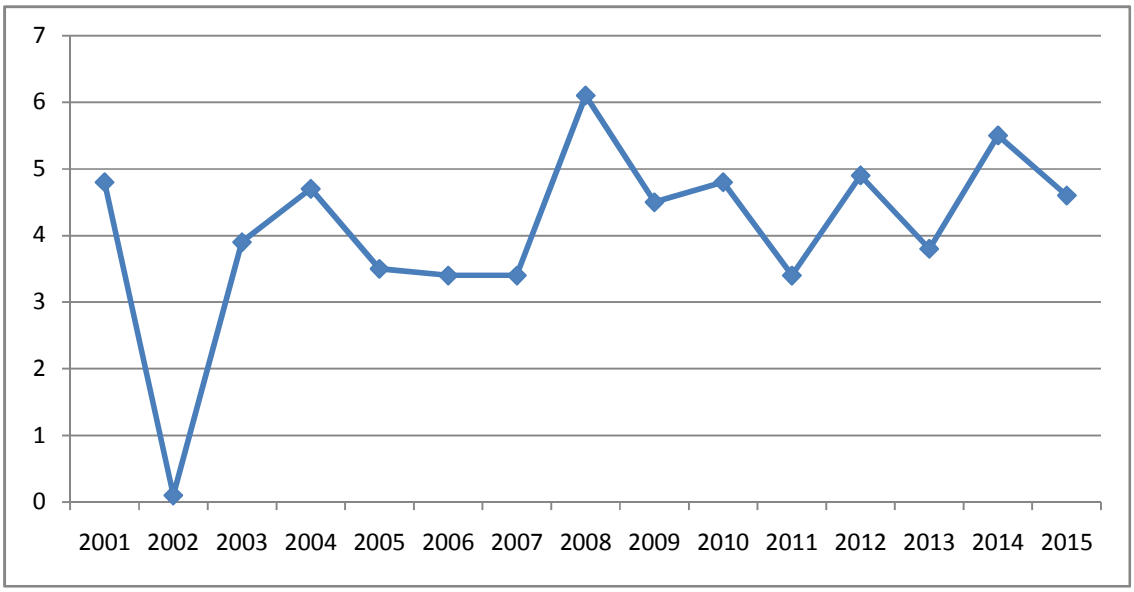


Figure 4.3 shows the trend of GDP growth rate running from 2001 to 2015. The horizontal axis (X-axis) represents the time duration and vertical axis (Y-axis) represents the GDP growth rate of Nepalese economy. First, GDP growth rate has been sharply declined and reaches the lowermost value in the year 2002. Then, it has increased rapidly up to the year 2004. After that it has slightly decreased and become nearly constant for the years 2005, 2006 and 2007. Now, it has increased and reaches the highest point in the year 2008 and then decreases slowly. During the last six years, it has increased and decreased alternatively up to 2015. Therefore, the maximum value of GDP growth rate can be observed in the year 2008 and minimum can be observed in 2002.

4.1.4 Trend of Broad Money Supply (M2)

The observed values of broad money supply (M_2) in Nepalese economy from the time period 2001 to 2015 are presented in table 4.4.

Table 4.4 shows the amount of broad money supply (in million rupees) of Nepalese economy from the year 2001 to 2015. The broad money supply is highest in the year

2015 followed by 2014, 2013, 2012, 2011, 2010, 2009, 2008, 2007, 2006, 2005, 2004, 2003, 2002 and 2001.

Table 4.4: Structure and Pattern of Broad Money Supply (M_2) (In %)

Year	Broad Money Supply	Year	Broad Money Supply
2001	214,454.1	2009	630,521.2
2002	223,988.3	2010	820,986.8
2003	245,911.1	2011	921,320.1
2004	277,306.0	2012	1,130,302.3
2005	300,440.0	2013	1,315,376.3
2006	347,421.6	2014	1,565,967.2
2007	395,518.6	2015	1,840,011.3
2008	495,377.1	**Average:**	**714993.46**

Source: NRB, Quarterly Economic Bulletin IV, 2008 and IV, 2015.

Moreover, average broad money supply in Nepalese economy over the study period is NRs 714993.46 million. The trend of broad money supply in Nepalese economy from 2001 to 2015 is shown in figure 4.4.

Figure4.4**: Trend of Broad Money Supply (M_2)**

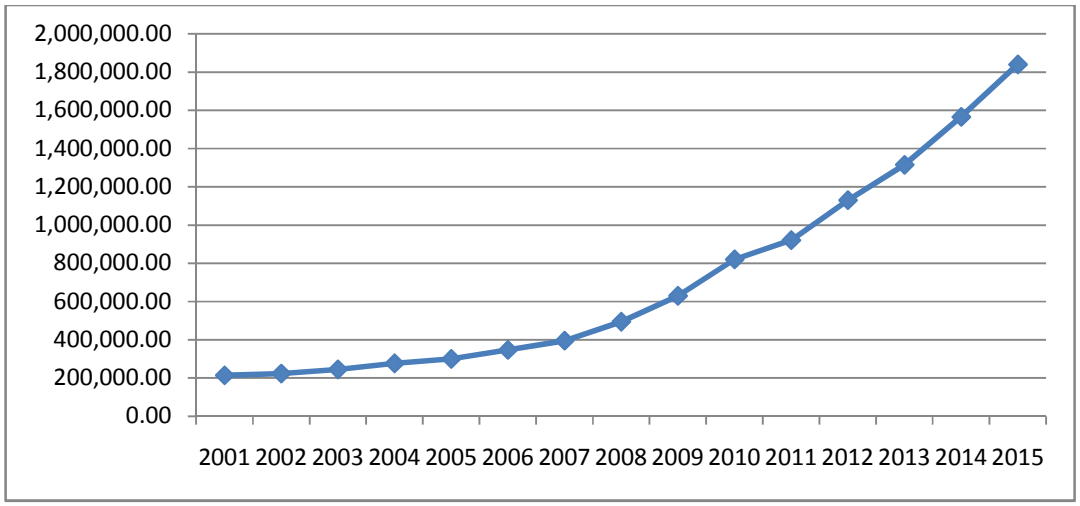


Figure 4.4 shows the trend of broad money supply ranging from 2001 to 2015. The horizontal axis (X-axis) represents the time duration and vertical axis (Y-axis) represents the broad money supply of Nepalese economy. The broad money supply has increased

exponentially from beginning to end. Therefore, the maximum value of broad money supply can be observed in the year 2015 and minimum can be observed in 2001.

4.1.5 Trend of Foreign Exchange Rate

The observed values of foreign exchange rate in Nepalese economy from the time period 2001 to 2015 are presented in table 4.5.

Table 4.5**: Trend of Foreign Exchange Rate**

Years	Foreign Exchange Rate	Years	Foreign Exchange Rate
2001	73.48	2009	76.58
2002	76.53	2010	74.24
2003	77.49	2011	72.07
2004	73.49	2012	80.72
2005	71.76	2013	87.66
2006	72.03	2014	97.95
2007	70.2	2015	99.19
2008	64.72	**Average:**	**77.87**

Source: NRB, Quarterly Economic Bulletin IV, 2015 and IV, 2008.

Table 4.4 shows the exchange rate of Nepalese currency with US dollar from the year 2001 to 2015. The exchange rate is highest in the year 2015 (NRs. 99.19) followed by 2014 (NRs. 97.95), 2013 (NRs. 87.66), 2012 (NRs. 80.72), 2003 (NRs. 77.49), 2009 (NRs. 76.58), 2002 (76.53), 2010 (NRs. 74.24), 2004 (NRs. 73.49), 2001 (NRs. 73.48), 2011 (NRs. 72.07), 2006 (NRs. 72.03), 2005 (NRs. 71.76), 2007 (NRs. 70.20) and 2008 (NRs. 64.72).

Furthermore, the average exchange rate of Nepalese currency with US dollar is 77.87 over the study period. Its value is lowest in the year 2008 (NRs. 64.72). The value of US dollar for Nepalese currency is almost same in the years 2006 and 2011. The trend of exchange rate of Nepalese currency with US dollar in Nepalese economy from the time period 2001 to 2015 is shown in figure 4.5.

Figure 4.5: Trend of Exchange Rate of Nepalese Currency with US Dollar

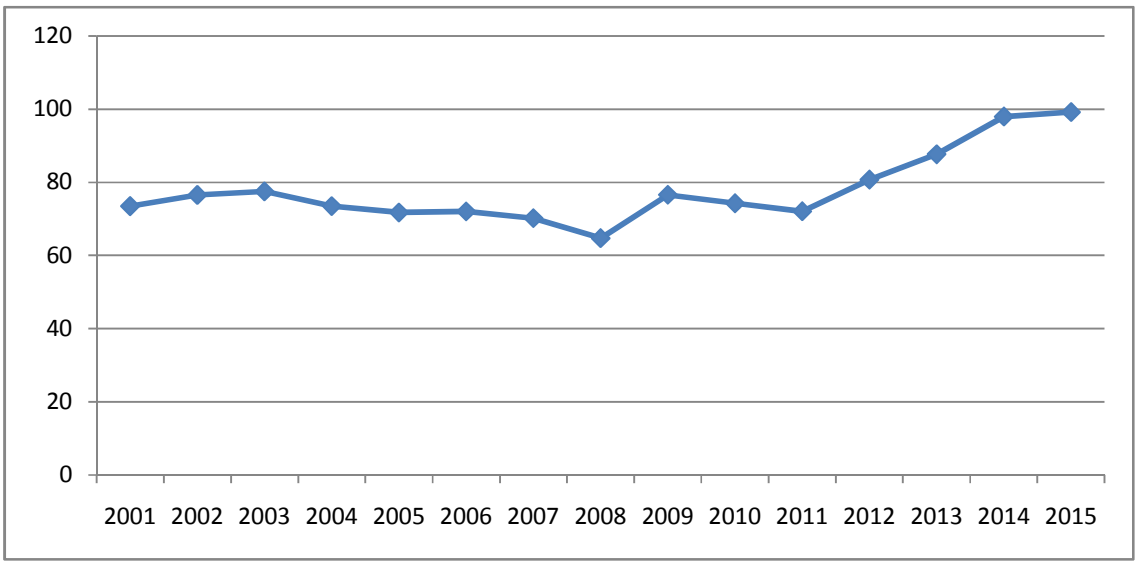


Figure 4.5 shows the trend of exchange rate of Nepalese currency with US dollar ranging from 2001 to 2015. The horizontal axis (X-axis) represents the time duration and vertical axis (Y-axis) represents the exchange rate of Nepalese currency with US dollar. First, exchange rate has been slightly increased up to 2003 and then it has decreased to some extent for five years and reaches the lowermost value in the year 2008. After that it has increased continuously, however decreases in the years 2010 and 2011, and reaches the highest point in the year 2015. Therefore, the maximum value of exchange rate can be observed in the year 2015 and minimum can be observed in 2008.

4.1.6 Trend of Interest Rate

The observed values of annualized interest rate of Nepalese economy from the time period 2003 to 2015 are presented in table 4.6.

Table 4.6 shows the interest rate (in percent) of Nepalese economy from the year 2001 to 2015. The interest rate is highest for the year 2013, 2014 and 2015 (8.0 percent) followed by 2011 and 2012 (7.0 percent), 2009 and 2010 (6.5 percent), 2006, 2007 and 2008 (6.3 percent), 2003, 2004 and 2005 (5.5 percent), 2001 and 2002 (5.0 percent).

Table 4.6**: Trend of Interest Rate (in %)**

Years	Interest Rate	Years	Interest Rate
2001	5	2009	6.5
2002	5	2010	6.5
2003	5.5	2011	7
2004	5.5	2012	7
2005	5.5	2013	8
2006	6.3	2014	8
2007	6.3	2015	8
2008	6.3	**Average:**	**6.64**

Source: NRB, Quarterly Economic Bulletin IV, 2008 and IV, 2015.

Furthermore, the average bank rate provided by Nepal Rastra Bank is 6.64 percent over the study period. Its value is lowest for the years 2001 and 2002 (5.0 percent). In the years 2003, 2004 and 2005, interest rate is constant (5.5 percent). In the years 2006, 2007 and 2008, the interest rate is constant having 6.3 percent. Similarly, it is same in the years 2009 and 2010 with the value 6.5 percent. Likewise, its value remains unchanged for the years 2011 and 2012 at 7.0 percent. The trend of interest rate in Nepalese economy from the time period 2003 to 2015 is shown in figure 4.6.

Figure4.6**: Trend of Interest Rate**

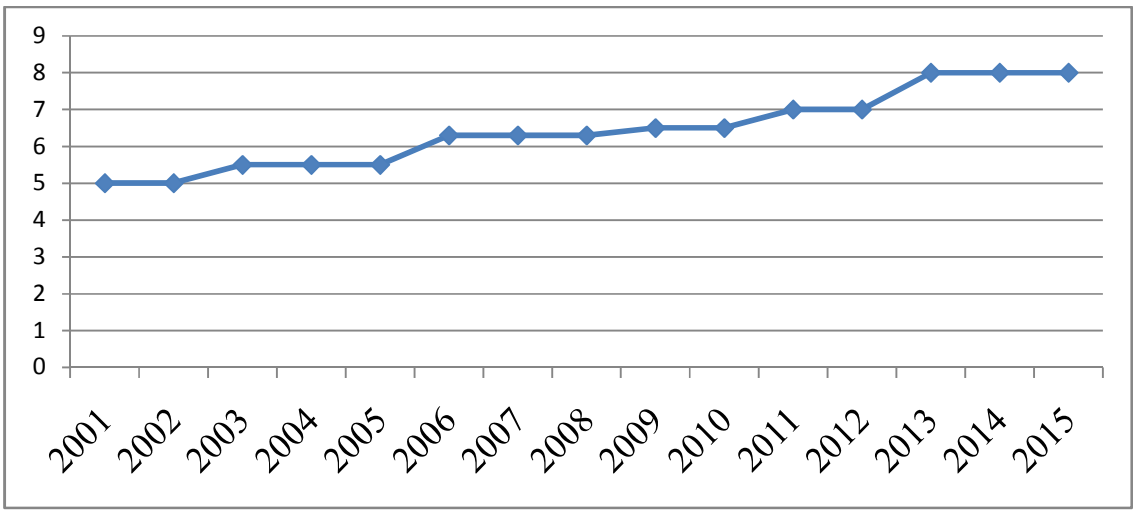


Figure 4.6 shows the trend of interest rate in Nepalese economy ranging from 2001 to 2015. The horizontal axis (X-axis) represents the time duration and vertical axis (Y-axis) represents the interest rate. For the first two years, it has constant and slightly increases from 2002. Again, it has constant for three years and it slightly increases from 2005 to 2006 and again remains unchanged up to 2008. Again, it has increased to some extent stepwise in every two years. In the year 2012, it has increased by one percent than previous year and remains same up to 2015. By analyzing above figure, we can say that the interest rate has been increasing stepwise in every two or three years. Therefore, the maximum value of interest rate can be observed in the year 2013, 2014 and 2015 and minimum can be observed in 2003, 2004 and 2005.

4.1.7 Trend of Budget Deficit

The observed values of budget deficit in Nepalese economy from the time period 2001 to 2015 are presented in table 4.7.

Table 4.7**: Trend of Budget Deficit (in %)**

Year	Budget Deficit	Year	Budget Deficit
2001	15,458.00	2009	34,356.10
2002	18,339.00	2010	40,731.80
2003	12,577.00	2011	50,506.30
2004	12,662.80	2012	22,343.70
2005	14,295.40	2013	31,207.60
2006	16,427.80	2014	13,750.90
2007	18,762.80	2015	38,615.50
2008	22,475.80	**Average:**	**24789.46**

Source: NRB, Quarterly Economic Bulletin IV, 2008 and IV, 2015.

Table 4.7 shows the amount of budget deficit (in million rupees) of Nepalese economy from the year 2001 to 2015. The budget deficit is highest in the year 2011 (NRs. 50,506.3million) followed by 2010 (NRs. 40,731.8 million) 2015 (NRs. 38,615.5 million), 2009 (NRs. 34,356.1 million), 2013 (NRs. 31,207.6 million), 2008 (NRs. 22,475.8 million), 2012 (NRs. 22,343.7 million), 2007 (NRs. 18,762.8 million), 2002

(NRs. 18,339.0 million), 2006 (NRs. 16,427.8 million), 2001 (NRs. 15458 million), 2005 (NRs. 14,295.4 million), 2014 (NRs. 13,750.9 million), 2004 (NRs. 12,662.8 million) and 2003 (NRs. 12,577.0 million).

Moreover, the average budget deficits in Nepalese economy over the study period are NRs. 24789.46 million. The trend of budget deficits in Nepalese economy from the time period 2001 to 2015 is shown in figure 4.7.

Figure 4.7**: Trend of Budget Deficit**

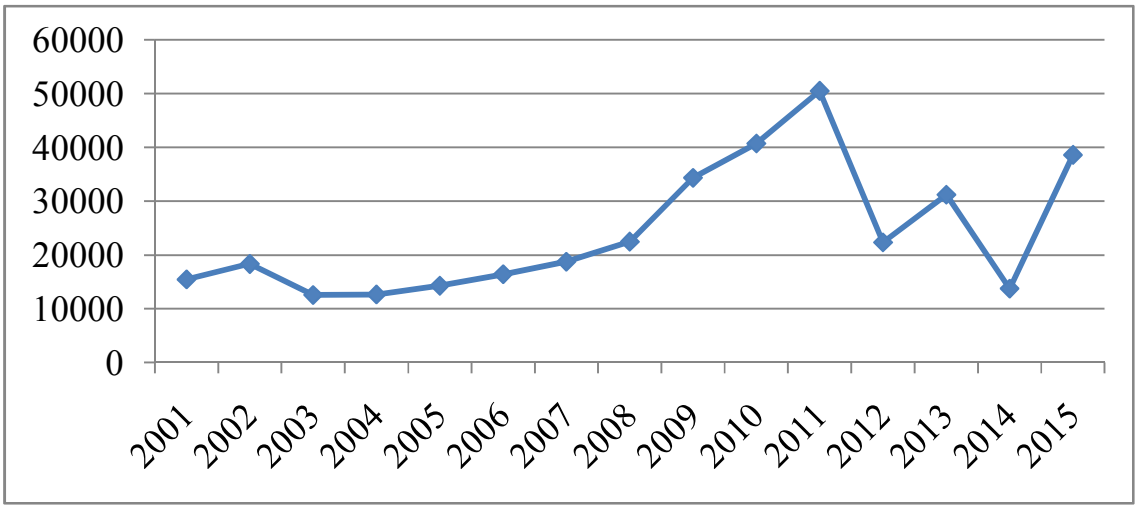


Figure 4.7 shows the trend of budget deficits in Nepalese economy ranging from 2001 to 2015. The horizontal axis (X-axis) represents the time duration and vertical axis (Y-axis) represents the budget deficits in million rupees. First, budget deficit increased from 2001 to 2002 and has been decreased from 2002 to 2003 and reaches the lowermost value in the year 2003. Then, it has increased continuously up to 2011 and reaches highest point in the year 2011. After that it has sharply declined and inclined alternatively up to the year 2015. Therefore, the maximum value of budget deficit can be observed in the year 2011 and minimum can be observed in 2003.

4.1.8 Trend of Unemployment Rate

The observed values of unemployment rate in Nepalese economy from the time period 2001 to 2015 are presented in table 4.8. Table 4.8 shows the unemployment rate (in

percentage) in Nepalese economy from the year 2001 to 2015. Unemployment rate is highest in the year 2001 (8.80 percent) followed by 2008 (3.00 percent), 2002 (2.79 percent), 2009, 2010, 2011, 2012 and 2013 (2.7 percent), 2014 and 2015 (2.6 percent), 2006 and 2007 (2.59 percent), 2005 (2.50 percent), 2003 and 2004 (2.09 percent).

Table 4.8: Trend of Unemployment Rate (in %)

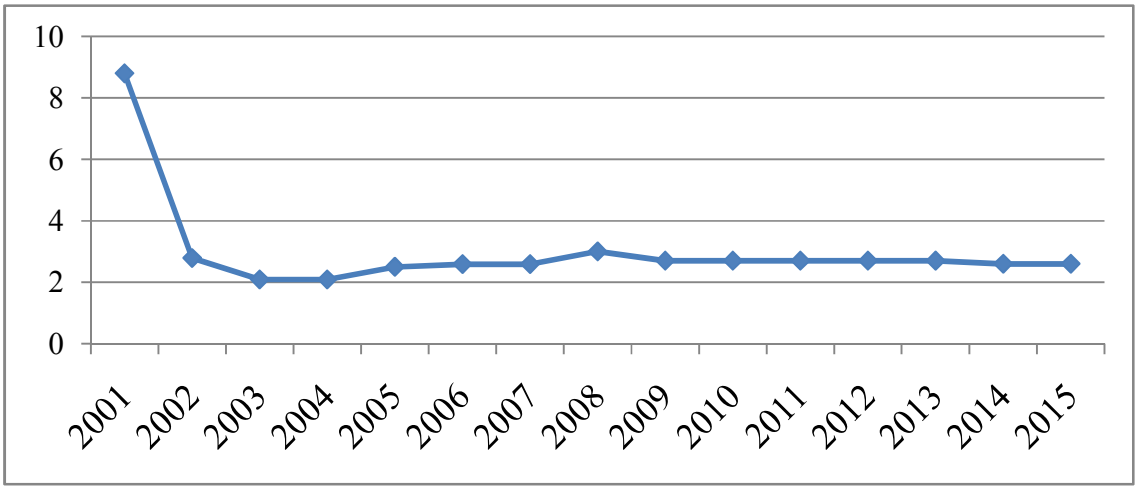
Year	Unemployment Rate	Year	Unemployment Rate
2001	8.8	2009	2.7
2002	2.79	2010	2.7
2003	2.09	2011	2.7
2004	2.09	2012	2.7
2005	2.5	2013	2.7
2006	2.59	2014	2.6
2007	2.59	2015	2.6
2008	3	**Average:**	**3.01**

Source: Central Bureau of Statistics, Nepal

Furthermore, the average unemployment rate in Nepalese economy is 3.03 over the study period. Its value is lowest in the years 2003 and 2004 at 2.09 percent. The unemployment rate is constant in the years 2014 and 2015 at 2.60.Similarly; it is same in the years 2006 and 2007 with the value 2.59 percent. Likewise, its value remains unchanged for the years 2009, 2010, 2011, 2012 and 2013having 2.70 percent. The trend of unemployment rate in Nepalese economy from the time period 2001 to 2015 is shown in figure 4.8.

Figure 4.8 shows the trend of unemployment rate in Nepalese economy ranging from 2001 to 2015. The horizontal axis (X-axis) represents the time duration and vertical axis (Y-axis) represents the unemployment rate. First, unemployment rate has been sharply decreased from 2001 to 2003 and increases slowly four years. Then, it remains constant from 2009 to 2013. After that it has slightly decreased and become constant for the years 2014 and 2015. Therefore, the maximum value of unemployment rate can be observed in the year 2001 and minimum can be observed in 2005.

Figure 4.8**: Trend of Unemployment Rate**



4.1.9 Trend of Indian Inflation

The observed values of Indian inflation from the time period 2001 to 2015 are presented in table 4.9.

Table 4.9: Trend of Indian Inflation (in %)

Year	Indian Inflation	Year	Indian Inflation
2001	3.7	2009	10.9
2002	4.4	2010	12
2003	3.8	2011	8.9
2004	3.8	2012	9.3
2005	4.2	2013	10.9
2006	6.1	2014	6.4
2007	6.4	2015	5.6
2008	8.4	**Average:**	**6.98**

Source: The World Bank Annual Report

Table 4.9 shows the Indian inflation (in percentage) based on consumer price index from the year 2001 to 2015. The Indian inflation is highest in the year 2010 (12.0 percent) followed by 2009 and 2013 (10.9 percent), 2012 (9.3 percent), 2011 (8.9 percent), 2008

(8.4 percent), 2007 and 2014 (6.4 percent), 2006 (6.1 percent), 2015 (5.6 percent), 2002 (4.4 percent), 2005 (4.2 percent), 2003 and 2004 (3.8 percent) and 2001 (3.7 percent).

Furthermore, the average Indian inflation is 6.98 percent over the study period. Indian inflation is lowest in the year 2001 (3.7 percent). In the years 2003 and 2004, the Indian inflation is constant having 3.8 percent. Similarly, it is same in the years 2007 and 2014. Likewise, its value remains unchanged for the years 2009 and 2013 at 10.9 percent. The trend of Indian inflation based in consumer price index from the time period 2001 to 2015 is shown in figure 4.9.

Figure 4.9: Trend of Indian Inflation

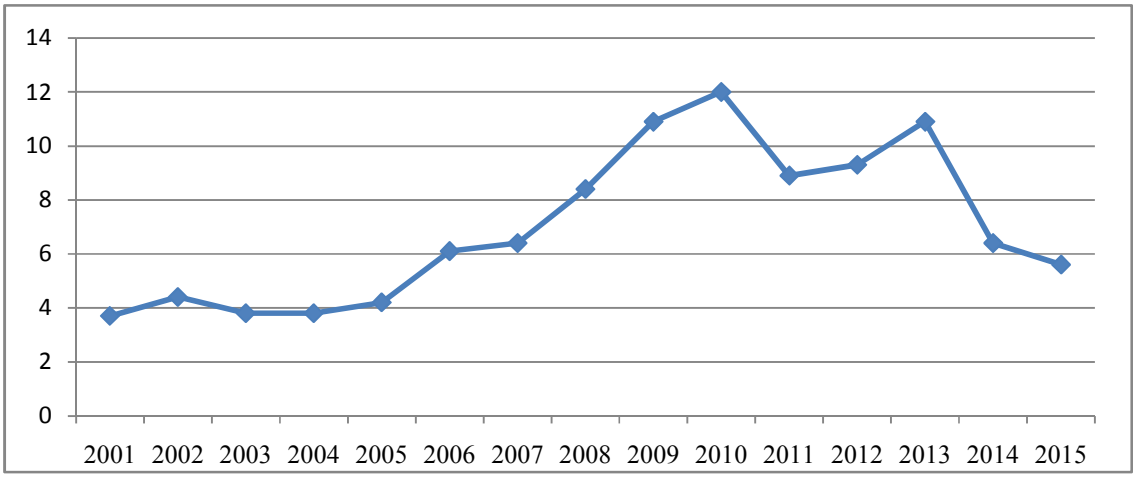


Figure 4.9 shows the trend of inflation in Indian economy ranging from 2001 to 2015. The horizontal axis (X-axis) represents the time duration and vertical axis (Y-axis) represents the Indian inflation in percentage. First, Indian inflation has increased from 2001 to 2002 and then decrease slowly by remaining constant for two years. Then, it has increased continuously and reaches the highest point in the year 2010. After that it has decline gradually up to 2015, however increases to some extent in the year 2013. Therefore, the maximum value of Indian inflation can be observed in the year 2010 and minimum can be observed in 2001.

4.1.10 Trend of Remittances

The observed values of remittance inflow of Nepalese economy from the time period 2001 to 2015 are presented in table 4.10.

Table 4.10**: Trend of Remittances (in%)**

Year	Remittances	Year	Remittances
2001	46,767.02	2009	209,698.50
2002	49,290.70	2010	231,725.30
2003	54,203.30	2011	253,551.60
2004	58,587.60	2012	359,554.40
2005	65,541.20	2013	434,581.70
2006	97,688.50	2014	543,294.10
2007	100,144.80	2015	551,742.20
2008	142,682.70	**Average:**	**238691.99**

Source: NRB, Quarterly Economic Bulletin IV, 2008 and IV, 2015.

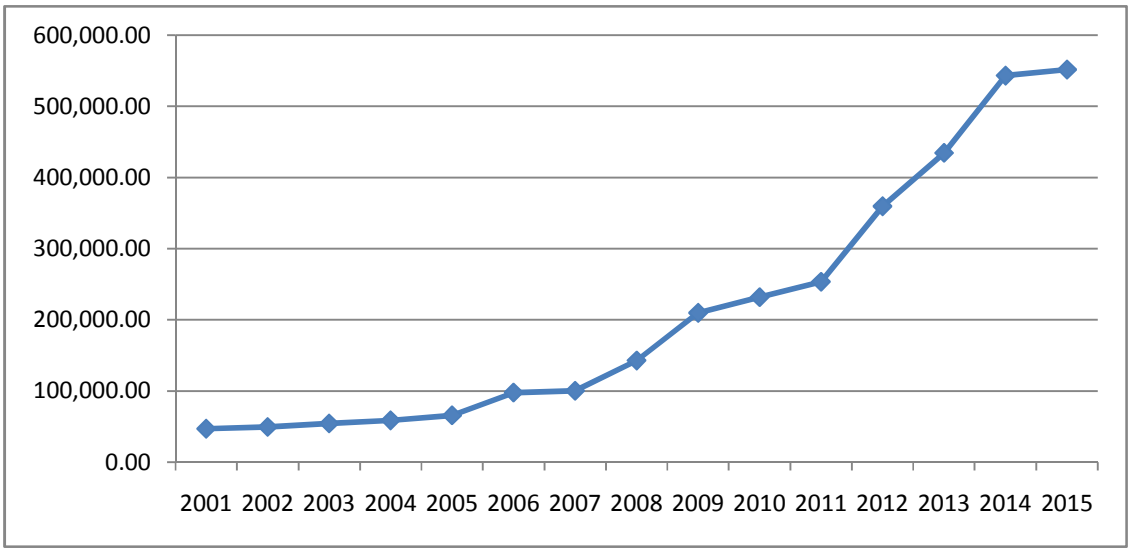
Table 4.10 shows the remittance inflows (in million rupees) in Nepalese economy from the year 2003 to 2015. The remittance is highest in the year 2015 (NRs. 551,742.20 million) followed by 2014 (NRs. 543,294.10 million), 2013 (NRs. 434,581.70 million), 2012 (NRs. 359,554.40 million), 2011 (NRs. 253,551.60 million), 2010 (NRs. 231,725.30 million), 2009 (NRs. 209,698.50 million), 2008 (NRs. 142,682.70 million), 2007 (NRs. 100,144.80 million), 2006 (NRs. 97,688.50 million), 2005 (NRs. 65,541.20 million), 2004 (NRs. 58,587.60 million), 2003 (NRs. 54,203.30 million), 2002 (NRs. 49,290.70 million) and 2001 (NRs. 46,767.02 million).

Moreover, the average remittance inflows in Nepalese economy are NRs. 238691.99 million over the study period. The trend of remittance inflows in Nepalese economy from the time period 2001 to 2015 is shown in figure 4.10.

Figure 4.10 shows the trend of remittance inflows in Nepalese economy ranging from 2001 to 2015. The horizontal axis (X-axis) represents the time duration and vertical axis (Y-axis) represents the remittance in million rupees. First, remittance has increased

continuously from 2001 to 2011. After that it has increased sharply up to 2015 and reaches highest point in 2015. Therefore, the maximum value of remittance can be observed in the year 2001 and minimum can be observed in 2015.

Figure 4.10**: Trend of Remittances**



4.2 Descriptive Statistics

Descriptive statistics has been used to describe the characteristics of variables during the study period. The descriptive statistics used in this study consists of maximum values, minimum values, mean and standard deviation associated with variables under consideration. The descriptive statistics for the variables used in this study is presented in table 4.11.

Table 4.11 shows the descriptive statistics for the variables considered in this study. Clearly, CPI inflation ranges from 2.90 percent to 12.60 percent with an average of 7.19 percent. The average of WPI inflation during the study period is noticed to be 7.56 percent with minimum of 1.40 percent and maximum of 12.80 percent. The GDP growth rate ranges from a minimum 0.10 percent to maximum 6.10 percent with an average of 4.09 percent and standard deviation of 1.37 percent.

Table 4.11: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
CPI (in percent)	15	2.9	12.6	7.19	2.82
WPI (in percent)	15	1.4	12.8	7.56	3.19
GDP (in percent)	15	0.1	6.1	4.09	1.37
M2 (in million NRs.)	15	214454.1	1840011	714993.5	530780.86
FER (in NRs)	15	64.72	99.19	77.87	9.83
IR (in percent)	15	5.5	8	6.64	0.91
BD (in million NRs)	15	12577	50506.3	24789.46	12174.19
UR (in percent)	15	2.09	8.8	3.01	1.619
II (in percent)	15	3.7	12	6.98	2.88
RT (in million NRs)	15	54203.3	551742.2	238692	180190.48

Source: Calculated from Time Series Dada

The broad money supply varies from the minimum value of NRs. 214454.10 million to maximum values of NRs. 1840011.30 million with an average of NRs. 714993.46 million. The exchange rate of Nepalese currency with US dollar ranges from the minimum value of NRs. 64.72 rupees to maximum NRs. 99.19, leading to the average exchange rate of Rs.77.87 and standard deviation of NRs. 9.83.

Likewise, the average of interest rate during the study period is noticed to be 6.64 percent with minimum of 5.50 percent and maximum of 8.00 percent. The budget deficit of Nepalese economy ranges from minimum NRs. 12577.00 million to maximum NRs. 50506.30 million with average of NRs. 24789.46 million. The unemployment rate varies from minimum 2.09 percent to maximum 8.80 percent, leading to average unemployment rate of 3.01 percent and standard deviation of 1.619 percent. The average of Indian inflation during the study period is noticed to be 6.98 percent with minimum 3.70 percent and maximum 12.00 percent. The remittance ranges from the minimum NRs. 54203.30 million to maximum NRs. 551742.20 million with the average of NRs. 238691.99 million and standard deviation of NRs. 180190.48 million.

4.3 Correlation Analysis

Correlation analysis is used to quantify the association between two continuous variables. Therefore, it is reasonable to expect some kind of statistically significant relationship among these pairs of variables. This section therefore is devoted to explaining the direction and magnitude of relationship among different pairs of these variables used in the study. A strong or high correlation means that two or more variables have a strong relationship with each other while a weak or low correlation means that the variables are hardly related. The Pearson correlation coefficients have been computed and the results are presented in table 4.12.

Table 4.12: Correlation Matrix for Dependent and Independent Variables

Variables	CPI	WPI	GDP	M2	FER	IR	BD	UR	II	RT
CPI	1									
WPI	.850**	1								
GDP	0.38	0.15	1							
M2	.688**	0.43	0.23	1						
FER	0.23	-0.1	0.14	.544*	1					
IR	.579*	0.23	0.22	.843**	.783**	1				
BD	.657*	.620*	0.08	.621*	0.11	0.5	1			
UR	-0.3	-0.5	0.14	-0.1	-0.1	0.49	.546*	1		
II	.877**	.826**	0.28	.628*	0.03	0.43	.744**	-0.2	1	
RT	.675*	0.33	0.34	.864**	.721**	.957**	.602*	.575*	.572*	1

* Correlation is significant at the 0.05 level (2-tailed)

**Correlation is significant at the 0.01 level (2-tailed)

Having indicated the descriptive statistics, the Pearson correlation coefficients have been computed and the results are presented in table 4.12. The CPI inflation is positively related to GDP growth rate, broad money supply and foreign exchange rate which indicates that higher the GDP growth rate, broad money supply and foreign exchange rate, higher would be CPI inflation. Similarly, interest rate, budget deficit, Indian inflation and worker's remittance are also positively related to CPI inflation. It indicates that increase in interest rate, budget deficit and workers' remittance leads to increase the

CPI inflation. Whereas, CPI inflation is negatively related to unemployment rate indicating that higher the unemployment rate, lower would be CPI inflation.

Likewise, WPI inflation is positively related to the GDP growth rate, broad money supply, interest rate and budget deficit. This implies that higher the GDP growth rate, broad money supply, interest rate and budget deficit WPI inflation, higher would be WPI inflation. Similarly, Indian inflation and worker's remittance are also positively related to WPI inflation indicating that increase in Indian inflation and workers' remittance leads to increase the WPI inflation. However, WPI inflation is negatively correlated to foreign exchange rate and unemployment rate which indicates that higher the foreign exchange rate and unemployment rate lower would be the WPI inflation in Nepalese economy.

4.4 Regression Analysis

Regression analysis is a statistical tool for estimating the relationship among dependent and independent variables. This section involves the regression in order to test the statistically significance and robustness of the results. As discussed in Chapter III, this study mainly estimates two groups of econometric models. The first group of models estimates the role of selected major macroeconomic variables individually on CPI.

4.4.1 Model Analysis for CPI

The regression results of group 1 models with dependent variable CPI inflation are presented in table 4.13. The table presents individual regression results of CPI inflation with other determinants. In these models the dependent variable is CPI and independent variables include GDP growth rate, broad money supply, foreign exchange rate, interest rate, budget deficit, unemployment rate, Indian inflation and remittance inflow. In this way, this section estimates eight models to show the relationship between CPI and each explanatory variable. Regression results of each model analysis for CPI are reported in the following points.

- The table shows that beta coefficient for GDP growth rate is positive with CPI inflation. The result hence indicates that higher the GDP growth rate, higher

would be the CPI inflation. This accepts our prior hypothesis H_1 (inflation is positively related with GDP growth rate).This finding is consistent with the findings of Boschen and Weise (2003) but the relationship is not statistically significant (at 5 percent level).

- The beta coefficient for broad money supply (M2) is positively related with CPI inflation. Thus, it represents that greater the broad money supply, higher would be the CPI inflation. The finding is significant at 1 per cent level and consistent with the finding of Domac and Carlos (1998).

Table 4.13: Regression Results between CPI Inflation and its Determinants

NO	Intercept	Regression Coefficient								R^2	F
		GDP	M2	FEXR	IR	BD	UR	II	RT		
1	3.99 (-1.76)	0.781 (-1.48)								0.144	2.12
2	-33.28 (-2.80)		1.51** (-3.41)							0.473	11.67
3	2.17 (-0.35)			0.065 (-0.83)						0.051	0.69
4	-2.49 (-0.56)				1.55* (-2.3)					0.335	5.55
5	-82.54 (-2.76)					3.777* (-3.02)				0.431	9.1
6	8.85 (-5.69)						-0.551 (-1.20)			0.1	1.45
7	1.18 (-1.21)							0.86** (-6.57)		0.769	43.26
8	-43.49 (-2.57)								1.982* (1.168)	0.456	9.214

** denotes that the results are significant at one percent level of significance.

* denotes that the results are significant at one percent level of significance.

Figures in parentheses are t-value.

- The beta coefficient for foreign exchange rate is positive with CPI inflation indicating that increase in exchange rate of Nepalese currency with US dollar leads to increase the CPI inflation however, the relationship is not significant (even at 5 per cent level).
- The beta coefficient for interest rate is positive with CPI inflation. This indicates that increase in interest rate leads to increase the CPI inflation. The relationship is significant at five percent level of significance. The finding is consistent with the findings of Sek, Ooi and Ismail (2012).

- The regression table of CPI inflation also shows that there is positive and significant relationship at five percent level between CPI inflation and budget deficit. This indicates that larger budget deficit causes the higher CPI inflation. This accepts our prior hypothesis H_5 (There is positive relationship between budget deficits and inflation). This finding is consistent with the finding of Abizadeh (1986).
- The beta coefficient for unemployment rate is negative which indicates that higher the unemployment rate, lower would be CPI inflation. However, the coefficient is not statistically significant.
- The regression results reveal that Indian inflation positively impact on the Nepalese CPI inflation. This accepts our prior hypothesis H_7 (There is positive relationship between Indian inflation and Nepalese inflation). The coefficient is statistically significant at one per cent level.
- Finally, the regression result for remittances shows that there is a positive relationship between CPI inflation and remittances. Therefore, increase in remittance inflow in Nepalese economy also increases the CPI inflation. The result is significant at five percent level of significance. This result is consistent with the findings of Acosta et al. (2008) and Iqbal et al. (2013).

4.4.2 Model Analysis for WPI

The second group of models investigates the role of the same selected major macroeconomic variables individually to WPI. In the second group of models, the dependent variable is WPI and independent variables are the same as in first group. As in the case of first group, each independent variable is regressed to WPI to show the individual impact of independent variables to inflation. The results of regression analysis for group 2 with dependent variable WPI inflation are presented in table 4.14. The table presents regression results of WPI inflation with other independent variables including GDP growth rate, broad money supply, foreign exchange rate, interest rate, budget deficit, unemployment rate, Indian inflation, and remittance inflows. The regression results of each model for WPI are briefly discussed in the following points.

- The table shows that beta coefficient for GDP growth rate is positive with WPI inflation. The result hence indicates that higher the GDP growth rate, higher would be the WPI inflation. This accepts our prior hypothesis but the relationship is not statistically significant (even at 5 percent level).
- The broad money supply (M2) impacts the WPI inflation positively. It thus, represents that greater the broad money supply, higher would be the WPI inflation. The finding is consistent with the finding of Adenuga, Bell and Ejumedia (2012). However, the relationship is not statistically significant.
- The beta coefficients for foreign exchange rate is negative with WPI inflation indicating that higher the exchange rate of Nepalese currency with US dollar, lower would be WPI inflation however, the relationship is not significant (even at 5 percent level of significance).

Table 4.14: Regression Results between WPI Inflation and its Determinants

NO	Intercept	Regression Coefficient								R2	F
		GDP	M2	FEXR	IR	BD	UR	II	RT		
1	6.139 (2.239)	0.349 (0.594)								0.023	0.299
2	-20.78 (-1.24)		1.606 (1.698)							0.182	2.883
3	9.671 (1.376)			-0.027 (-0.302)						0.007	0.091
4	3.747 (0.633)				0.677 (0.767)					0.051	0.589
5	-79.72 (-2.48)					3.681* (2.735)				0.384	7.480
6	10.286 (6.252)						-0.903 (-1.863)			0.211	3.470
7	1.172 (0.899)							0.915** (5.280)		0.682	27.87
8	-20.03 (-0.82)								1.092 (1.168)	0.110	1.364

** denotes that the results are significant at one percent level of significance.

* denotes that the results are significant at five percent level of significance.

Figures in parentheses are t-value.

- For the interest rate, beta coefficient is positive which indicates that higher the interest rate, higher would be the WPI inflation. This accepts our prior hypothesis H_4 (There is positive relationship between foreign exchange rate and inflation). The finding is consistent with the findings of Jaradat and AI-Hhosban (2014) but the relationship is not significant even at 5 percent level of significance.

- The result shows that budget deficit is positively and significantly related to WPI inflation at five percent level of significance. This indicates that larger budget deficit causes the higher WPI inflation. This accepts our hypothesis, H_5 (There is positive relationship between budget deficit and inflation). This finding is consistent with the finding of Abizadeh (1986).
- For the unemployment rate, beta coefficients are negative with WPI inflation that indicates higher the unemployment rate, lower would be WPI inflation. But the result is not significant even at 5 percent level of significance.
- The table shows that the beta coefficient for Indian inflation is positive with WPI inflation. This accepts our hypothesis H_7 (There is positive relationship between Indian inflation and Nepalese inflation) and relationship is significant at one percent level of significance.
- The regression result for remittances shows that there is a positive relationship between WPI inflation and remittance. Therefore, increase in remittance inflow in Nepalese economy also increases the WPI inflation. This result is consistent with the findings of Khan and Islam (2013) and Iqbal et al. (2013) but the coefficient for remittances is not statistically significant.

4.5 Concluding Remarks

This chapter is devoted to analyze and present results derived from the use of secondary data. This study attempts to assess the determinants of inflation and relationship between dependent and independent variables in Nepalese economy.

The Pearson Correlation Analysis reveals that the proxies for the inflation in economy i.e. CPI inflation and WPI inflation have positive correlation with GDP growth rate, broad money supply (M_2), interest rate, budget deficits, Indian inflation and remittance inflows, While it is negatively correlated with unemployment rate. For the exchange rate of Nepalese currency with US dollar, it is positively related with CPI inflation but negatively related with WPI inflation.

Both dependent variables CPI inflation and WPI inflation that represent the inflation in Nepalese economy were regressed with all independent variables individually. The results with all the dependent variables are more or less similar. GDP growth rate, broad money supply (M_2), interest rate, budget deficits, Indian inflation and remittance inflows have positive impact on CPI inflation and WPI inflation. However, unemployment rate has negative impacts on CPI inflation and WPI inflation

CHAPTER V
MAJOR FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This study is about the determinants and role of inflation in Nepalese economy. The preceding chapters provided introduction, review of literature, research methodology and results and discussion. This concluding chapter provides major empirical findings, conclusions and presents a set of important policy implications based on evidence from literature and empirical analyses. Section 5.1 provides major findings of the study. Section 5.2 offers conclusions while Section 5.3 presents policy recommendations. Finally, Section 5.4 gives important points for future study.

5.1 Major Findings

Inflation is a sustained increase in the general price level of goods and services in an economy over a period of time. The literature shows that inflation affects the economy in both positive and negative ways. Negative effects of inflation include an increase in the opportunity cost of holding money, uncertainty over future inflation which may discourage investment and savings. One of the positive effects of inflation is the reduction in the real burden of public and private debt. In the same way inflation benefits borrowers because they will have to pay the same amount of money they borrowed. Moreover, a moderate level of inflation can increase investment in an economy leading to faster growth or at least higher steady state level of income. This is due to the fact that inflation lowers the return on monetary assets relative to real assets, such as physical capital.

Inflation is affected by many factors. The major objective of this thesis is to analyze the determinants of the inflation in Nepalese economy. However, the specific objectives of the study are to analyze the role of inflation to macroeconomic variables including GDP

growth rate, broad money supply, exchange rate, interest rate, budget deficits, unemployment rate, Indian inflation, and remittance inflows.

The study is based on secondary time series data of 15 observations and ten key macroeconomic variables collected from the World Bank, NRB, IMF, CBS and ADB over the period of 2001 to 2015. This study hypothesizes that the inflation depends on various factors such as GDP growth rate, broad money supply, exchange rate, interest rate, budget deficits, unemployment, Indian inflation, and remittance inflows. SPSS software was used to analyze the secondary data which includes descriptive statistics, correlation analysis and OLS estimation. Based on the analysis of the data, following are the major findings of this study:

The CPI inflation is highest in 2009 and lowest in 2002, whereas the WPI inflation is highest in 2009 and lowest in 2001. GDP growth rate is highest in 2008 and lowest in 2002. GDP growth rate is sharply declined from 2001 and become nearly equal to zero in 2002. After that its values has been moving in fluctuation trend. M2 is maximum in 2015 and minimum in 2001. M2 is in increasing trend over the study period. The exchange rate of Nepalese currency with US dollar is highest in 2015 and lowest in 2008. The interest rate is highest in 2013, 2014 and 2015 and lowest in 2003, 2004 and 2005. The structure of interest rate is increasing trend in Nepalese economy.

The budget deficit in Nepalese economy is maximum in 2011 and minimum in 2003. The budget deficit is in increasing trend from 2002 to 2011, after that it has been moving in fluctuated style. However, the unemployment rate in Nepalese economy is in decreasing. Indian inflation is highest in 2010 and lowest in 2001. CPI inflation ranges from 2.90 percent to 12.60 percent with an average 7.19 percent. The WPI inflation varies from 1.40 percent to 12.80 percent having an average 7.56 percent and standard deviation 3.19.

CPI inflation is positively correlated with all explanatory variables except unemployment rate and also WPI inflation is positively related with all variables except foreign exchange rate and unemployment rate. The beta coefficient for GDP growth rate is positive with CPI inflation. Thus, the result indicates that higher the GDP growth rate

higher would be the CPI inflation. There is positive and significant relationship between money supply and CPI inflation. Therefore, the result indicates that increase in broad money supply also increases the CPI inflation and vice versa.
Foreign exchange rate impacts the Nepalese CPI inflation positively as the coefficient is positive indicating that higher the exchange rate of Nepalese currency with US dollar, higher would be the CPI inflation. The coefficient for interest rate is positive and significant with CPI inflation which indicates that higher the interest rate higher would be the CPI inflation. Likewise, there is a positive and significant relationship between CPI inflation and budget deficit. This indicates that larger budget deficit causes the higher CPI inflation.

Unemployment rate influences the CPI inflation negatively as the coefficient is negative indicating that higher unemployment rate leads to lower CPI inflation. There is a positive and significant relationship between CPI inflation and Indian inflation. This implies that higher the Indian inflation, higher would be Nepalese inflation. The coefficient for remittances is positive and significant with CPI inflation. Therefore, increase in remittances inflow in Nepalese economy also increases the CPI inflation. The coefficient for GDP growth rate is positive with WPI inflation. The result hence indicates that higher the GDP growth rate higher would be the WPI inflation but the relationship is not statistically significant.

M_2 impacts the WPI inflation positively since the coefficient is positive whereas the relationship is not significant. There is negative relationship between WPI inflation and foreign exchange rate indicating that the higher exchange rate of Nepalese currency with US dollar will lead to lower WPI inflation however, the relationship is not significant. For the interest rate, this study found a positive relationship with WPI inflation which indicates that higher the interest rate higher would be the WPI inflation but the relationship is not significant.

The coefficient for budget deficit is positive and significant with WPI inflation. This indicates that larger budget deficit causes the higher WPI inflation. There is a negative

relationship between unemployment rate and WPI inflation since the coefficient is negative which indicates higher unemployment rate lead to lower WPI inflation but the result is not significant. Indian inflation influences the Nepalese WPI inflation positively and strongly. Thus, higher the Indian inflation, higher would be Nepalese WPI inflation. The coefficient for remittances is positive with the WPI inflation. Therefore, increase in remittances inflow in Nepalese economy also increases the WPI inflation but the relationship is not significant.

5.2 Conclusions

The major conclusion of this study is that GDP has a positive relationship with inflation which indicates that higher the GDP higher would be the inflation. There is significantly positive relationship between broad money supply and inflation implying that a rise of money circulation in the economy leads to the higher inflation. The relationship of Nepalese inflation with exchange rate of US dollar is positive, that means depreciation of national currency leads to an increment of inflation. Moreover, higher the interest rate offered by NRB higher will be the rate of inflation.

This study also concludes that increment in budget deficit would increase the inflation. However, unemployment rate has negative association with inflation indicting that higher the unemployment rate lower will be the inflation. Indian inflation impacts the Nepalese inflation positively and strongly. A higher the Indian inflation higher would be the Nepalese inflation and vice versa. An increase of worker's remittances also increases the inflation in Nepalese economy.

The first hypothesis (H_1) that deals with positive relationship between GDP growth rate and inflation in Nepalese economy is accepted as the result is positive. Similarly, the second hypothesis (H_2) of the study has been accepted as the study shows a positive significant impact of broad money supply with inflation. Third hypothesis (H_3) has also been accepted as exchange rate of Nepalese currency with US dollar is positively related with inflation. Again, the fourth hypothesis (H_4) has also been accepted as the interest rate is positively related with inflation.

The fifth hypothesis (H_5) that deals with a positive relationship between budget deficit and inflation has been accepted as budget deficit with higher amount have higher inflation. The sixth hypothesis (H_6) of negative relationship between unemployment rate and inflation has also been accepted because the result shows that increase in inflation leads to decrease in unemployment rate. Likewise, the seventh hypothesis (H_7) that assume the positive relationship between Indian and Nepalese inflation holds true as the result indicate higher the Indian inflation, higher would be Nepalese inflation. The last hypothesis (H_8) has also been accepted as the study shows the positive relationship between remittance inflows and inflation in Nepalese economy.

5.3 Recommendations

Based on the findings of the study, the following major recommendations have been made:

- As broad money supply has a positive impact on inflation, thus, if the economy wishes to control inflation then excessive money circulation in the economy should be controlled.
- The study observed a positive and significant relation between inflation and exchange rate. Hence if the government wants to control inflation, it should control exchange rate as well.
- The study suggests that central bank should focus on to decrease the bank rate and credit creation to control the inflation as the result indicates the positive and significant relationship between inflation and bank rate.
- The study observed a positive and significant impact of budget deficit on inflation. So, an important measure is to adopt anti-inflationary budgetary policy. For this purpose, the government should give up deficit financing and instead have surplus budgets. It means collecting more in revenues and spending less.
- The regression result reveals that there is a negative relationship between unemployment rate and inflation. Therefore, the economy should generate employment opportunities to control the inflation.

- Concerned government bodies must be alert and apply appropriate tools and techniques to control inflation when there is probability of huge rise in Indian inflation, as the regression result indicates the positive and significant relationship between Indian and Nepalese inflation.
- The regression result suggests a positive and significant impact of remittances on inflation. Since remittances bring an increase in personal income, improving the living standard of the recipients, eventually increasing the demand for consumption goods, remittances thus increases inflation. Therefore, remittances should be utilized in productive sectors to boost the economy.
- The study revealed that there is a positive relationship between inflation and GDP growth rate. Therefore, the government should effort to increase GDP growth rate because increase in inflation along with increase in GDP growth rate is beneficial for the economy.

5.4 Scope for Future Studies

This study can be regarded as a preliminary step in investigating the determinants of inflation in the context of Nepalese economy. The study remains enough ground for future research. Main themes are listed below:

- This study examined the determinants of inflation in Nepalese economy using selected variables. However, there are so many variables that were not included in this study. Thus, future researchers may be interested in validating the consistency of the result and provide supplementary results for this study by including other variables.
- The study is conducted mainly based on secondary data sources. So, future study should be suggested for using data based on both primary and secondary sources to see the determinants of inflation in Nepalese economy.
- This study has taken time series data of only 15 years. Academicians are suggested to take the data of several years for more reliable results.

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