CHAPTER I

INTRODUCTION

1.1 Background of the Study

Economic growth means the sustainable increase in the value of national output or national expenditure in the limited period of time that means within the year. Economic growth can be most simply defined as the increase in the economy's output over time. And the question is arising on how to measure? yes, the best way to measure the national output is real GNP or GNP in constant dollars (Shapiro, 2001). For the economic growth of the nation, the rate of increase in the total output must be greater than the rate of population growth. A developed nation is the dream of all country in the world. And maintain the high rate of economic growth has been one of the most important objective. Those countries who attaining and maintaining the high rate of economic growth over the period of time is called developed countries, and other countries which have very low level of economic growth known as less developed countries (Dwivedi, 2010).

In every economy, high and sustainable economic growth is the primary macroeconomic objective. Every government make a plans and policies to increase the Gross Domestic Product (GDP) growth rate. In the global scenario 3.1 percentage of growth rate in 2016 and 3.7 is predict for 2017 but only 3.6 percentage of growth achieved. Also, in 2017, projected growth rate is 7.2 and 6.6 percentage of our neighbors India and China respectively (MoF, 2017).

Many empirical research shows that export and economic growth are positively correlated. Tyler (1981) argues that export is the main determent of economic growth. Hesse (2008) said that export diversification can lead to higher growth rate in the developing country. From the research, ratio of exports to gross domestic product denotes an open economy index, a higher ratio indicates a relatively higher open economy. On the other hands a lower ratio of exports to gross domestic product reflects to a closed economy.

The classical economists, Adam Smith and David Ricardo are explaining the theories of economic growth. There are several factors which enable increase economic

growth. Productivity of labor, trade, markets role to determining supply and demand and increasing return to scale can enable to increase economy of the nation (Smith, 1937). Also, the technological change was constant and increasing inputs could lead diminishing returns. Trade facilities products output with a relative advantage in country resulting to a higher level of national assets (Ricardo, 2004).

Despite the lack of a unifying theory, there are several theories that discuss the various role in determinants if economic growth. For instance, the neoclassical perspective, which is based on Solow's growth model, has emphasized the importance of investment and, the more recent, theory of endogenous growth developed by Romer and Lucas has drawn attention to human capital and innovation capacity. Furthermore, important contributions on economic development have been provided by Myrdal's cumulative causation theory, and by the New Economic Geography school. In addition, other explanations have highlighted the significant role non-economic factors play on economic performance.

These developments gave rise to a discussion that distinguishes between 'proximate' and 'fundamental' sources of growth. The former takes into account issues such as accumulation of capital, labor and technology while the later places emphasis on institutional structures, legal and political systems, sociocultural factors, and so on. Theoretical developments have been accompanied by a growing number of empirical studies. Initially, research focused on the issue of economic convergence/divergence, since this could provide a test of validity between the main growth theories (i.e. the neoclassical and the endogenous growth theory). Eventually, focus shifted to factors determining economic growth. This second 'wave' of empirical studies has been facilitated by the development of larger and more advanced statistical and econometric techniques in time series data, which have enabled the identification of determinants of economic growth with higher precision and confidence. Finally, it is worth emphasizing that due to the lack of a unifying theory on economic growth, a substantial volume of empirical research has multi-theoretical bases. This means that studies draw on several theoretical frameworks and examine factors highlighted by many paradigms.

Undoubtedly, observing the fact that exports are significant determinants of economic growth. In this regard, export growth is positively related to economic growth. There

are also other relevant factors, which impact the causal association between exports and economic growth. The fundamental a priori dispute is that exports via second-round effects stimulate growth prospects of the country through increasing the productivity factor and gross fixed capital formation factor (Voka,2014). There are many number of empirical studies emphasized the diversified role of private and public investments in growth process. The public investments on infrastructure, in extent to which are proved to be complementary to the private investments, can increase the marginal product of the private capital, augmenting the growth rate of a domestic economy.

Nepalese economy is in the challenging situation. All the economic indicators have not positive sign. Also, the situation of business and trade is not favorable. Every year budget announces without source of the revenue. Nepalese economy suspension into import oriented consumption and remittance oriented income. Most of the development projects are based on the foreign aid, and they didn't give those aid in a time so the development project and infrastructure development also slow. And the mobilization part of those aid also weak. In the last year remittance inflow is slowly decreasing (MoF,2017).

Condition of the capital formation is also same. Both government and private capital formation are not take a speed in that way how much they have to. The development project is functioning very slowly. Also this is become our culture, we cannot make our project before or at the dateline. There is rare project which is complete in time. Government also promote the distribution wealth of the national source without production. Without any plan or policy government leader spend government saving. Because of unstable government, economic growth of the nation is vulnerable situation.

After the peoples' revolution II, nation turn into another system – federal republic of Nepal. Furthermore, the government relies the constitution of Nepal 2015. After that nation divide into seven different provinces. Automatically, the government expenditure also increasing because of seven different province and local government.

In the international market, Nepal cannot impress the international investment for Nepal. Nepal also set a goal to become a developing nation from the least develop

nation in 2022. To achieve this, per-capita total national income has to more than $ 1242. Also, human wealth indicator 66 and economic critical indicator 32 achieve to grow on the developing nation.

Also long-term plan and policy are in problem. Nepalese consume more than 90 percent of national income so low level of saving rate. Most of things we use in production is import. So the production cost and balance of trade also increasing day by day. Only remittance is the medium of import. To achieve the double digits of economic growth and reduction of balance of trade, government focus in the infrastructure development. Every year total expenditure of the government is increasing but the capital expenditure is not in that much.

Unemployment rate also increasing every day. Public expenditure did not create an employment opportunity. We don't have mega project to create mass volume of employment. Government expenditure focus on small project who cannot create an employment opportunity. Government cannot mobilization private sector for generate an employment opportunity. Government plan and policy also failed to create an entrepreneurship. Another problem of the Nepalese unemployment is don't match the demand and supply of the worker. There is high demand of technical manpower, in the other end many people are unemployed. It also helps to the narrow the employment opportunity and economic development.

Access to finance is another part of the Nepal. Most of the Nepalese are not aware about the saving. Saving can help to capital formation so financial development also in the critical situation. Every year net export is increasing dangerously. More than 34 percent of the total GDP is negative trade in this situation. Only 7 percent of import can handle by export(MoF,2017)

This thesis aims to analyze the trend and nature of the macroeconomic variables and determination of economic growth. Every nation wants to be a rich, but what they don't know how to become rich. Macroeconomic variable they are the determinants of the economic growth. In this study only four variables are used to analyze the economic growth.

1.2 Statement of the Problems

Nepal is a landlocked country of the South Asia. Nepalese economy, despite present of great opportunity for higher growth rate through development of potential sectors of the economy including agriculture, tourism, forestry mines and human resources, has been perpetually bearing the challenges of low economic growth rate (Economic Survey, 2016). It facing many economic problems related to very low level of economic growth. There highly unstable economic growth in Nepal. Low level of government revenue and also low level of government expenditure.

Nepal set a target to graduating from the status of least developed country to developing country by 2022. Per capita income has dropped owing, so the index may not be supported for achieving the target of developing country. Recently the constitution assembly render the Constitution of Nepal 2015. In the recent condition the implementation of constitution and its effect on the investment environment also the challenging. So, the government imperative to boost the morel of the investor by creating investment friendly environment. The unemployment rate is also increasing gradually. Government focusing to development of infrastructure with priority. Government also focus in the productivity of the agriculture and also for employment opportunity.

There are only two times the economic growth is more than five percentages in the history of the Nepalese economy. In the fiscal year 2007/2008 and fiscal year 2013/2014 the economic growth is 5.8 and 5.7 percentage respectively. The economic growth of the Nepal in the history all the time is less than 5 percentages. The economic growth rate of the country in the past decade average 3.3 percentage at base prices. Likewise, the average growth rate of the agriculture and non-agriculture sector stood 2.9 percentages and 4.3 percentage in a decade. And, under the non-agriculture sector, industry and serves sector average growth is 2.1 percent and 5 percent respectively in a decade. Only serves sector attend despite rate of growth in a decade. There is not satisfactory rate of growth in the agriculture and industry sector.

Nepalese economy is gradually shifting from agriculture sector to non-agriculture sector. Contributing of the agriculture sector to GDP is in declining trend while that of non-agriculture sector is gradually increasing. In the last decade average contribution

of the agriculture sector is 3.5 percentage of the total GDP. Also the contribution of the non-agriculture sector in the same time is 65 percent of the GDP (Economic Survey, 2017).

Gross fixed capital formation is use as a proxy of investment in this study. In the fiscal year 2015/16 gross fixed capital formation is Rs. 647.29 billion. The share of gross fixed capital formation in GDP, which stood at 28.8 percent in the fiscal year 2015/16. The share of private and government sectors in gross fixed capital formation are estimated to stand at 75.2 percent and 24.8 percent respectively in the fiscal year 2015/16 (Economic Survey, 2017)

Government income increase by 17.98 percent in fiscal year 2015/16 compared to preceding fiscal year. The budget that remained in deficit by Rs. 81.14 billion in fiscal year 2015/16, decrease by 14.2 percentage. The ratio of government expenditure to GDP stood at 26.7 percent in fiscal year 2015/16. This ratio was 25 percent in the previous year (Economic Survey, 2017). More than 60 percent of the total budget spend on current expenditure and only 24 percent of total budget allocation for capital expenditure. And one fact is that only 70 percent of capital expenditure only spend. It shows the mobilization process of means and resources by the government is weak.

At the current situation, remittance has been the characteristic feature of Nepalese economy. Remittance as percentage of GDP was only 0.5parcentaage in 1990/91. This figure increased from 0.5 percentage in 1990/91 to 16 percentage in 2005/06 and to 29.6 in 2015/16 and (Economic Survey, 2016/17). The growth rate of remittance inflows to Nepal is on an average 15 to 20 percent annually since last decade (Bhattarai, 2012). Official remittance inflows to Nepal reached 24.7 percent of GDP in 2012, which makes Nepal the largest remittance recipient in the world (Sapkota, 2013). Unskilled manpower is doing hard work in the middle east country and they generate a little foreign currency. Flow of the foreign employers are decreasing in the last year. It affects directly in the inflow of the remittance.

Increasing remittance induced consumption resulting in higher volume of import attributed to increased total foreign trade and trade deficit. Ratio of the trade deficit to GDP rose 13.2 percent to 31.1 percent. And, ratio of the total export to GDP has dropped to 3.1 percentage from 6.1 percent. During last decade, the share of

merchandise export in total trade has continued to decline. The last five - year average growth rates of export and import stood at 2.7 percent and 14.7 percent respectively. Such lower growth rate of exports is attributable to weak physical infrastructure and other structural bottlenecks including weak investment environment. The average growth rates in imports from India and other countries increased by 13.4 percent and 17.4 percent respectively during the same period (MoF,2017). In this regard Nepal is least developed country so, following question are raised in the economy:

    a)   What is the trend and nature of economic growth and gross fixed capital formation, net export, remittance and total expenditure in Nepal?

    b)   What are the determinants of economic growth in Nepal?

1.3 Objective of the Study

The general objective of the study is to find the determinants of the economic growth in Nepal. And, the specific objective of the study are as follows:

    a)   To assess the trend and nature of economic growth, gross fixed capital formation, net export, remittance and total expenditure in Nepal.

    b)   To examining determinants of economic growth in Nepal.

1.4 Signification of the Study

The study helps to understanding the trend and nature of the economic growth. Economic growth is the summation of the macroeconomic variables. The macroeconomic variables are net export, gross fixed capital formation, foreign direct investment, remittance, total expenditure etc. In this study trying to identify the role of those variable to enhance the real gross domestic product of the country.

After the year of 2007, Nepal turn into another political system. Before 2007, Nepal is kingdom system or monarchy system. After the second people's movement in 2006, whole political situation was change and the nation turn into the federal republic Nepal.

Most of the citizens wish for political stability but after the people's movement Nepal face a long transitional phase.

Every leader announces for high economic growth, but in the last 10 years it is not more than 6 percentages. So this study wants to identified the variable what determine the economic growth and also find the trend and nature of those variables.

1.5   Limitation of the Study

There are many problems arising in the society. But, all the research study is done to solve the particular research problem. So the study cannot give all the information about subject matter. And, this study also not exception.

All the economic variable which affect in the economy are not used in this study. This study only using limited variable. In this study real GDP is the dependent variable and GFCF, Net Export, Remittance and Total Expenditure are the independent variable. In the study secondary data used for limited time from 1975 to 2016. The study has not included long term dynamic nature of the study.

Besides, the methodology is limited. In the study only use graphs to show the trend of the macroeconomic variable and to show the nature of those variables. Also ordinary least square methods use as a methodology.

1.6   Organization of the Study

The study completes under five chapters. Chapter one is introduction. Within this heading following subheadings are included; general background of the study, research problem of the study, objective of the study, significance of the study, limitations of the study and organization of the study. This chapter also called introductory chapter.

Chapter two is review of the literatures. It is further explained by separating theoretical concepts and empirical concepts. Theoretical concepts are studies of the pre-developed theories with the related research topic. Empirical concept is the studies of the existing researches, articles, Reports, bulletins etc. with the related research topic. Empirical concept is further divided into two branches; one is national context and another is the international context.

Chapter three is research methodology. Research design, sample size, description of the variables, source of data collection, method of the data collection and data

analysis tools are the basic subtopics under it. Chapter four is presentation and analysis of data. Under it, whole data processing processes are determined as the demand of research problem and nature of the data.

Last chapter or chapter five is the summary of the findings, conclusions and recommendations. After the data processing major findings are summarized first and in the second they are serially concluded under conclusion sub-topic and in the proper policy recommendation is given to the government and institutions also under the recommendation heading.

CHAPTER II

REVIEW OF THE LITERATURE

2.1   Theoretical Concept

2.1.1   Classical Concepts on Economic Growth

Smith (1937) argued there are several factors which enable increase economic growth. Productivity of labor, trade, markets role to determining supply and demand and increasing return to scale can enable to increase economy of the nation.

Ricardo (2004) argued that technological change was constant and increasing inputs could lead diminishing returns. Trade facilities products output with a relative advantage in country resulting to a higher level of national assets.

Malthus (1998) said that the population would grow faster than the world's capacity of feed. The Classical economists are often regarded as 'pessimistic' in the prognosis for economic growth. There is much to be learned, that is of contemporary relevance, from a close examination of their analytical system. What emerges from such an examination is a complex structure of ideas expressing a deep understanding of the nature of capitalism as an economic system, the sources of its expansionary drive, and the barriers or limits to its expansion. Idea of the study were essentially limited, however, to the conditions of a predominantly agrarian economy, without significant change in methods of production, in which, because of the limited quantity and diminishing fertility of the soil, growth is arrested by increasing costs of production of agricultural commodities.

The analysis underestimated the far-reaching character of technological change as a powerful and continuing force in transforming the conditions of productivity both in agriculture and in industry. While they clearly perceived the possibilities opened up by international trade and foreign investment, they failed to incorporate these elements as integral components of a systematic theory of the growth process.

It remained for Marx to point some of the major limitations and deficiencies of the classical analysis and to develop an analysis of the capitalist accumulation process

that went beyond that of the classical economists in many respects while also leaving many unresolved questions. Subsequent work has continued to address the issues with limited success. Until today, the theory of growth of capitalist economies continues to be one of the most fascinating and still unresolved areas of economic theory.

2.1.2 Neo-Classical Model on Economic Growth

The neo-classical model of economic growth suggests that increasing capital and labor leads to diminishing returns. Therefore, increasing capital has only a temporary and limited impact on increasing the economic growth. If capital increases, the economy maintains its steady-state rate of economic growth. It suggests poor countries who invest more should see their economic growth converge with richer countries. The investment and saving rate are the more cumulative capital per worker in produced (Solow, 1956).

Tyler (1981) investigating a model of 55 developing countries confirmed that exports and investments are the foremost determinants of economic growth. Innovative growth theories are signifying the magnitude of investments, human and physical capital, as explanation factors impacting the economic growth in the long-run. The policies, which influence the level of growth and the investment efficiency settle on the long-run economic growth.

In the Harrod-Domar growth model growth rate depends on a function of the saving rate. Saving provides the necessary fund to finance investment. This is the investment which create further growth.

2.1.3 New Economic Growth Theory

New economic growth theory or Endogenous growth theory was developed by Paul Romer and Robert Lucas placed greater emphasis on concept of human capital. How worker with greater knowledge, education and training can help to increase rates of technological advancement. They place greater importance on the need for governments to actively encourage technological innovation. They argue in the free market classical view firms may have no incentive to invest in new technologies because they will struggle to benefit in competitive markets (Mishra, 2016).

It is the improvement of neo-classical growth theory. And also it is the extension of solow growth model which attempted to explain how technological development and economic growth become endogenous which implies self-sustaining growth. Growth of Income dependent upon the rate of saving, higher rate of saving, higher rate if capital and income growth rate gives the marginal productivity of capital this is the general concept of endogenous growth theory.

2.1.4 Kaldor Growth Theory

This growth theory is the modification of Harrod-Domar model of growth. It considers the relationship between technical progress function and capital investment. Economic growth is the interdependence of fundamental variables of the economy such as savings, investment, productivity etc. Since this model is more realistic and comes close to the real situation prevailing in underdevelopment economics, it can be applicable to both developed and developing economies. The model gives two alternatives either raising the value of technological progress coefficients of control of population are great significance.

2.2   Empirical Review

2.2.1   International Review

There are several studies on the determinants of economic growth.

Barro (1996) empirical findings for a panel of around 100 countries from 1960 to 1990 strongly support the general notion of conditional convergence. For a given starting level of real per capita GDP, the growth rate is enhanced by higher initial schooling and life expectancy, lower fertility, lower government consumption, better maintenance of the rule of law, lower inflation, and improvements in the terms of trade. For given values of these and other variables, growth is negatively related to the initial level of real per capita GDP. Political freedom has only a weak effect on growth but there is some indication of a nonlinear relation. At low levels of political rights, an expansion of these rights stimulates economic growth. However, once a moderate amount of democracy has been attained, a further expansion reduces growth. In contrast to the small effect of democracy on growth, there is a strong

positive influence of the standard of living on a country's propensity to experience democracy.

Barro (1999) analyzed the determinants of economic growth and investment in the study. Study use a panel data of 100 countries observed from 1960 to 1955. The data reveal a pattern of conditional convergence in the sense that the growth rate if per capita GDP is inversely related to the starting level of per capita GDP, holding fixed measurement of government policies and institutions and the character growth rate for per capita GDP from 1996 to 2006 of 3.0% per year, compared to a sample average of 1.6%. The high growth of forecast for Chile reflects particularly relatively low government consumption, high rule of law and investment, and a low fertility rate. Levels of schooling and inflation and the extent of international openness are roughly average in Chile and therefore do not explain the growth rate differential. The convergence force is negative because Chile is relatively rich in the broad sample.

Dewan et.al. (2001) investigated in this paper uses a sample of 41 middle-income developing countries, including Fiji, to develop an empirical model for growth. Both cross-country and time variation specifics were used in an attempt to explain determinants for sustained economic growth in developing countries. This study also presents a wide-ranging examination of both theoretical and empirical evidence on the many ways macroeconomic policies affect growth. Most studies have shown that a macroeconomic policy framework conducive to growth is a necessity. Countries with strong macroeconomic fundamentals tend to grow faster than those without them, though there are many individual cases, of both developing and developed countries, that suggest that satisfying only some of these conditions does not result in faster growth. However, it is important to recognize that the direction of causation is somewhat ambiguous: whether good macroeconomic policies are conducive to growth or whether strong growth is conducive to good macroeconomic policies. The results suggest that apart from growth in the labor force, investment in both physical and human capital, as well as low inflation and open trade, are necessary for economic growth. Furthermore, the ability to adopt technological changes in order to increase efficiency is also important. Since many developing countries have a large agricultural sector, adverse supply shocks in this sector was found to have a negative impact on growth.

Bengoa and Sanchez-Robles (2003) examined the connection between economic freedom, FDI and economic growth using panel estimation methodology on the sample of 18 Latin-America countries over the period 1970-1999. They used Fraser and Institute index of economic freedom. The results show that countries with higher index have more inflows of FDI and thus have greater growth rates. Using both Fixed Effects and first-difference GMM estimation.

Barro (2003) argued that, growth rates vary enormously across countries over long period of time. The study analyze the 113 different countries and the growth rate of them from 1965 to 1995. The reason for that variations is a central issue for economic policy, and cross-country empirical work on this topic has been popular since the early 1990s. The findings from cross-country panel regressions show that the differences in per capita growth rates relate systematically to a set of quantifiable explanatory variables. One effect is a conditional convergence term-the growth rate rises when the initial level of real per capita GDP is low relative to the starting amount of human capital in the forms of educational attainment and health and for given values of other variables that reflect policies, institutions, and national characteristics. As given per capita GDP and human capital, growth depends positively on the rule of law and the investment ratio and negatively on the fertility rate, the ratio of government consumption to GDP, and the inflation rate. Growth increases with favorable movements in the terms of trade and with increased international openness, but the latter effect is surprisingly weak.

Anaman (2004) argued that, the factors that have influenced long-run economic growth in Brunei Darussalamusing are export, government expenditure, investment and total labor force. In that study Data are taken from 1971 to 2001. Multiple regression analysis based on a relatively new co-integration technique was used to construct a variable of the neoclassical growth model. This model was based on annual growth of real gross domestic product (GDP) as the dependent variable. The independent variables were the annual growth of total exports, government size measured as the ratio of total government expenditures with respect to GDP, total investment-GDP ratio, annual growth of labor and a dummy variable representing the effect of the 1997/1998 Asian financial crisis. The results showed that the growth of exports significantly influenced long-run economic growth rates as expected. The

other main factor influencing long-run economic growth was the relative size of government. The relative size of government influenced long-run growth rate in the form of a cubic function. Large government sizes impeded economic growth while moderate government sizes enhanced economic growth.

Petrkos & Arvanitidis (2008) draws on a questionnaire survey to explore experts' views on the factors underlying economic growth. The results of the survey provide empirical support to a number of important research hypotheses, contributing in this way to existing literature. The study need to be emphasized three particular point. First, the areas that experts expect to exhibit the greatest economic dynamism in the near future are China and India, followed by European Union new member states. Second, the survey identified a number of important determinants of economic growth are human capital, innovation, openness, FDI and infrastructure. But in the recent development highlighting the policies and institutional factors are also important role for economic development of the country. Third, study found that the determinants of economic dynamism do not have the same influence in the advanced and the less advanced countries.

Ledyaeva & Linden (2008) attempted to find the evidence on the determinants of economic growth across Russian region. A modification of Barro and Sala-i-Martin empirical framework of growth model is specified to examine determinants of per capita growth in 74 Russian regions during period of 1996-2005.The study focus on the traditional factor of economic growth. Special emphasis is put on dynamic panel data methods to control for indigeneity problems found in growth empirics. In the study also the Oaxaca-Blinder decomposition method to examine the extent to which differences in growth rates between sub-samples of relatively poor and rich Russian regions can be explained. Study used both panel and cross-sectional data. Growth convergence between poor and rich regions in Russia was not found for the period studied.

Pourshahabi et al. (2011), study explored the relationship between Foreign Direct Investment (FDI), economic freedom and growth in OECD countries during 1997-2007. Panel data Method is used to estimate two models. The first model was applied to investigate the factors that stimulate FDI and the second one was applied to find the growth factors in OECD members. The results of first model indicated that Human

Capital, Market Size, Political Stability and Inflation have positive and significant impact on FDI in these set of countries. However, the effect of Economic Freedom on FDI in OECD countries is positive, but it is not significant. As to the second model they found that Foreign Direct Investment, economic freedom, Government Consumption Expenditure, public investment and Human Capital lead to growth in these countries. However, inflation and external debt have negative effect on growth but this negative effect is not significant for inflation.

Phimphanthavong (2014) examined the key determinants of economic growth in Laos, by using annual time series data between 1980 to 2010. To avoid the problems of non-stationary associated with time series analysis, the Dickey-Fuller unit roots statistic is checked in order to ascertain whether the variables are stationary. It prevents problems of spurious results in the regressions by transforming the dependent and independent variables in the first different operator form. Paper contributes on the on-going research issue whether foreign aid and trade liberalization help developing countries to foster their growth. The finding of the study show that trade openness and foreign aid contribute to economic growth in Laos. Furthermore, foreign direct investment, domestic investment, government expenditure, labor force and being a member of ASEAN also found to have positive effects on the performance of the economy, whereas the population growth has a negative impact. This is in line with the argument that a large population is related to the capacity of government expenditure to provide the people with social services efficiently, thereby negatively impact development. To sustain a high rate of growth, this paper suggests improving the trade policy orientation, based on value-added products for exporting, together with investment policy adoption and tourism promotion based on the potential resources of the country. The foreign aid allocation should be focused on specific areas, such as to promoting economic growth and direct intervention for the poor, and ensured the positive effects with accountability and transparency methods for aid allocation.

Voka et.al (2014) paper analyzed the long run relationship of Albania, among export, gross capital formation, foreign direct investments and economic growth relying on Error Correction mechanism (ECM) mode by using quarterly data for the period 1994-2013. To capture the causality effect between the macroeconomic factors of

exports, gross fixed capital formation and inward FDI stock, the paper also employs Granger-Causality analysis. The results of the cointegration test suggest that there is long-run relationship between inward FDI stock, gross fixed capital formation and GDP level in Albania, implying a positive relationship between FDI stock, capital input and GDP level, while Granger causality tests showed that there is a causal relationship between exports, gross fixed capital formation and GDP, on both directions.

Ajide (2014) investigated the role of Frazer Economic Freedom Index on FDI-growth relationship in the study. This study from 1980 through 2010 using annual time series data. A Multivariate Regression approach was employed to estimate augmented growth models. Quite intriguingly, the impact of disaggregated economic freedom over aggregated composite index was found profoundly revealing. Emanated results show that the same set of variables like labor, life expectancy, degree of openness and economic freedom are factors affecting the level of economic growth in both but at different levels of significance. However, the estimates of disaggregated components of economic freedom data show that the size of government (negative effects) and freedom to trade internationally (positive effects) appears as significant out of five variables making the composite index. The study suggested that, curbing unfettered liberalization in the degree of openness, improving and strengthening of the components of economic freedom index, specifically, through reduction in excessive government intervention and that more budgetary allocations should be channeled towards health delivery schemes and education promoting activities since the likelihood of elongating life expectancy is in tandem with such exercises.

Dauti and Pollozhani (2014) investigated the determinants of economic growth by using the quarterly data for the period 1994 to 2013, examines empirically the long run relationship among exports, gross capital formation, foreign direct investments and economic growth relying on Error Correction mechanism (ECM) model for Macedonia. To test the causal relationship between the macroeconomic factors of exports, gross fixed capital formation and inward FDI stock, the paper also employs Granger-Causality analysis. The results of the cointegration test suggest that there is long-run relationship between inward FDI stock, gross fixed capital formation and GDP level in Macedonia, implying a positive relationship between FDI stock, capital

input and GDP level, while Granger causality tests showed that there is a causal relationship between exports, gross fixed capital formation and GDP, on both directions.

Bardhyl & Petrit (2014) argued that, Export, Gross capital formation, foreign direct investments are the determinants of economic growth. This study used the time series data from 1994 to 2013 of Macedonia. Also, the study examines the long run relationship among those determinants. To capture the causality effect between the macroeconomic factors of exports, gross fixed capital formation and inward FDI stock, the paper also employs Granger-Causality analysis. The results of the cointegration test suggest that there is long-run relationship between inward FDI stock, gross fixed capital formation and GDP level in Macedonia, implying a positive relationship between FDI stock, capital input and GDP level, while Granger causality tests showed that there is a causal relationship between exports, gross fixed capital formation and GDP, on both directions.

Kwasi (2015) argued that, Determinants of economic growth in Ghana are analyzed using restricted vector autoregressive(VAR) model for the period 1975-2013. The empirical results reveal that GDP per capita in long run is driven by export, oil and mineral rents while government consumption retard economic growth. Therefore, the dynamic relationship between these variables on economic growth should not be underestimated by policymakers. However, Ghana's economic growth is subject to uncertainty associated with expected risks of price volatility of primary commodities which make a great proportion of the export and the so-called Dutch disease which may hinder economic growth in the long-run.

Chirwa and Odhiambo (2016) examined the determinants of economic growth are different when this distinction is used, it reveals that developing countries the key macroeconomics determinants of economic growth include foreign aid, foreign direct investment, fiscal policy, investment, trade, human capital development, demographics, monetary policy, natural resources, reform and geographic, regional, political and financial factors. In the developed countries, the study reveals that the key macroeconomics determinants that are associated with economic growth included physical capital, fiscal policy, human capital, trade, demographics, monetary policy and financial and technological factors.

Udonwa et.al (2016) analyzed the time series data for the period 1981 – 2013. Using Augmented Cobb-Douglass Production Function and relying on error correction modeling framework, the econometric results established the fact that population growth has the potentials of fostering economic growth in Nigeria. But underlined the fact that this and other benefits would depend on, not only the group of the entire population that is active, but the quality of the population. There has been intense debate in the literature on what determines growth in an economy. Some scholars believe that increases in the population of a nation tantamount to economic progress, in that, it provides a huge base of labor force. However, others have argued that these increases could be a curse rather than a blessing, because if the increase in the number of people in the economy is not supported with conscious efforts at training and holistic development of human capital, then disaster is eminent. But a few scholars also believe that population assumes a neutral position in economic growth process, that is, population does not directly impact growth directly, but it interacts with other growth determinants (such as human capital development, research and development, technology and so on) is what actually determine growth or otherwise in the economy. This paper therefore sought to assess the role of these growth determinants in economic growth performance in Nigeria. Amongst other policy options suggested, it was advocated that policy measures that will foster target-oriented and skill-enhancing education and training should be designed and implemented. Provision of accessible and affordable health care for a healthy population was also advocated if Nigeria's population growth must be advantageous.

Milenkovicet.al (2017) analyzed the data from 2001 to 2015 and find the determinants of economic growth. Study shows that Monetary policy is an important segment of the economic policy of each country where inflation and monetary aggregates represent its significant components. Also, their movement reflects the trends in the volume of money and the price level which is of great relevance for the economic situation in the country. This paper manifest the impact of macroeconomic indicators on the real gross domestic product. In the study, inflation (INF), monetary aggregate (M3), public expenditures (PE) and foreign direct investment (FDI) are used as independent variables, while the gross domestic product is determined as a dependent variable. The results showed that there is a positive relationship between GDP and INF, PE and FDI, but it is statistically not significant. On the other hand, M3 has a negative impact on GDP, it is statistically significant. Using correlation matrix, a very high correlation between INF and PE was found, while the lowest correlation was recorded between GDP and INF.

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2.2.2 National Review

There are not exact literatures about the determinants of economic growth. But some literatures are available which is related to economic growth of Nepal.

Gaudel (2006) analyzed the significance of remittance in Nepal. In the study, uses time series data from 1995 to 2005. Study find that, Remittance as a major source of foreign currency to the developing nation has become a substantial component of making current account surplus in the balance of payments. It is argued that many workers from Nepal going abroad for employment are no doubt young, energetic, laborious and enthusiastic. They do hard work for earning large remittance income to support their families. However, the downside of remittances reflects the view that remaining young generation for long time outside without family may increase their vulnerability and ultimately they will have a tendency to leave their homeland. Thus, in order to recover the loss of economically active labor force to the domestic economy, they should be encouraged to come back again with skilled knowledge for utilizing their savings and working experience for development to the productive areas in accordance with the priority of the national development plans.

Gaire (2013) examined the relevance of Keynesian postulates in the Nepalese context for the period 1975 to 2012 using annual time series data. Study used the co-integration test to show the long-term relationship. The empirical results from the Johansen co-integration tests clearly show that there is long run equilibrium relationship between government expenditure and real GDP, private consumption and gross fixed capital formation. Likewise, Granger Causality test confirms that there is bilateral causal relationship between government expenditure and gross fixed capital formation in Nepal. However, no causal relationship is observed between government expenditure and real GDP and private consumption. Thus, it is confirmed by this study that the Keynesian postulates are relevant for capital formation rather than for increasing real GDP growth and private consumption in Nepal.

Acharya (2016) analyzed the relationship between the public expenditure and economic growth in Nepal. Data uses from 1975 to 2015 for analyze the relationship between public expenditure and economic growth. This study has tried to find out the effect of the public expenditure in the economic growth in case of Nepal. For the study real GDP is taken as the independent variable and government expenditure is taken as the independent variable to find out the relationship between public expenditure and economic growth. Average

annual rainfall(RF), openness of trade (OT) and interest rate (INT) has been used as the control variable. The Study has used the ARDL and ECM model to check the existence of the long run and short run relationship among economic growth and public expenditure respectively after checking the unit root of the concerned variables. It employed the CUSUM and CUSUM of square to test the stability of long-run coefficient in the model and used the LM test to check the serial correlation in the model. Similarly, study has used Breusch- Pagan-Godfrey test to check the existence of the heteroscedasticity and employed normality test to check the normality of the data. Granger Causality test has been used to check the causal relationship between the public expenditure and economic growth in the country. Study also find the increasing trend of both public expenditure and economic growth. Also, there is positive and significant relationship between the Public expenditure and economic growth both in short run and long run. Similarly, openness of trade and rainfall have positive and significant relationship with GDP in short run. Openness of trade has positive and significant relationship with GDP in the long run but interest rate has negative and significant relationship in long run. Rainfall is found to be insignificant in long run and interest rate is found to be insignificant in short run.

2.3 Research Gap

There are many researches about the determinants of economic growth in the international context. Most study have shown the macroeconomic variable determinants of economic growth. Sometimes macroeconomic policy also determined the economic growth as well. Many study examined the relationship between the economic growth and the macroeconomic variable as well as policies in different study with different methodologies. Some study examined the OLS methods, ECM model and some are VAR model and Causality test as well.

In the national context Gaire (2013), Gaudel (2006), Acharya (2015) study about economic growth and, Agide (2014), Bengoa & et.al (2003), Barro (1999), Udonwa (2016) etc. are study on the economic growth in international context. These study helps to create the idea for further study. There are not any studies about the determinants of economic growth from the period of 1975 to 2016 in Nepal. So, there is big gap between the literature review and this study.

CHAPTER III
RESEARCH METHODOLOGY

About the different theories to this study having in the literature review, this chapter was describing the methodology to analyze the data of the variables. The study is based on secondary sources of data. The study is concentrate to identify what macroeconomic variable determinants the economic growth.

3.1 Research Design

The study aims to exploring what are the main determinants of economic growth in Nepal. Also analyze the trend and nature of those variables. The data of this study are used from different national organizations. After collected the data, analyze it with various econometric tools. Quantitative techniques are used also qualitative analysis has been carried out in some cases. This study is based on ordinary least squares methods for the quantitative analysis. And qualitative analysis used to study the trend and nature of the variable.

3.2 Nature and Sources of Data

To complete the study secondary datasets published by the government and non-government institutions: that are published books, magazine, journal etc. are used. Data are also collected from Ministry of finance dashboard, quartile bulletin of Nepal Rasta Bank (NRB) annual and quartile bulletin and central bureau of statistics. Data sets will be from 1975 to 2016 has been taken for research. Also for the trend and nature of the macroeconomic variable data only used from 1975.

3.3 Description of the variables

In the study, macroeconomic variable like gross domestic product, net export, gross fixed capital formation, foreign investment, total expenditure and Remittance are use. Percentage change of the real gross domestic product is the proxy of economic growth.

Gross Domestic Product (GDP) GDP is the total monetary value of final goods and services produced in the geographical territory of the country. It is taking from

website of the Ministry of Finance. Percentage change of GDP is the proxy of economic growth.

Gross Fixed Capital Formation (GFCF) Gross Fixed Capital Formation is the sum of Government Investment in GFCF and Private Investment in GFCF. GFCF means the net increases in physical assets in a year. Gross fixed capital formation is the proxy of investment.

Net Export (NE) Export is the monetary value of goods and services product which sending from one country to another country. And net export is the gap between export and import. In the Nepalese context it is always negative. Because, we import more than export. And net export is the proxy of international trade.

Total Expenditure (TE) Total expenditure means the total government expenditure. Government expenditure is in three ways. Government expenditure is sum of current expenditure, capital expenditure and financial management.

Remittance (RE) Remittance is also the amount of money sent by foreign worker to an individual home country.

3.4 Method of Data Collection

In the secondary data collection, researcher takes the data from any authorized sources. It may be published or unpublished. This study also used secondary data to analyzed time series data.

3.5 Model Specification

This study is focus to identify the determinants of economic growth of Nepal, with the help of time series data. Linear empirical modeling such as ordinary least square (OLS) method will be used. Real gross domestic product is the dependent variable and gross fixed capital formation, net export, total expenditure and remittance are the independent variable. Following economic model will incorporate to find the result:

RGDP = f (GFCF, TE, NE, RE) ……………… (i)

Where,

Dependent Variable:

RGDP = Real Gross Domestic Product

Independent Variables:

GFCF= Gross Fixed Capital Formation

NE = Net Export

RE= Remittance

TE = Total expenditure

3.6 Tools of Data Analysis

Ordinary least square (OLS) is used to analyze the data in this study. OLS means the method we choose that value of estimator which would make the sum of square residual as small as possible.

This economic model equation (i) can expansion in econometric modeling.

$$LNRGDP_t = \alpha 0 + \alpha_1 LNRGFCF_t + \alpha_3 LNRNE_t + \alpha_4\ LNRTE_t + \alpha_5 LNRRE_t + \varepsilon ……. (ii)$$

Where,

Dependent Variable:

LNRGDP = Natural Log Real Gross Domestic Product

Independent Variables:

LNRGFCF= Natural Log of Real Gross Fixed Capital Formation

LNRNE = Natural Log of Real Net Export

LNRRE= Natural Log of Real Remittance

LNRTE= Natural Log of Real Total Expenditure

$\alpha 0$= intercept $\alpha_{i\ =}$ coefficient

ε= error term   t = time period

R^2 test, F-test and t-test is done to test overall significance of model and the significance of coefficient respectively.

3.6.1 Test of Stationary

This empirical study is based on time series data; the underlying time series data should be stationary. So it is essential to test the stationary on time series data. There are several methods to test of stationary, such as, graphical analysis, the correlogram test and unit root test. However, the study uses unit root test as it is quite popular. Again there are various methods to testing unit root test. But this study uses Augmented Dickey-Fuller (ADF) test for the purpose.

$\Delta Y_t = \alpha_1 + \gamma_i Y_{t-1} + \Sigma c_i k_i = 1 \ \Delta Y_t - i + e_t$

The optimal number of lags has determined by the Schwarz Information Criterion (SIC) for the significance of the estimated coefficients.

The ADF technique test the null hypothesis $H_0 : \gamma_i = 0$, against the alternative hypothesis $\gamma_i < 0$. Rejection of the null hypothesis in an indication that the series Y_t is stationary. In above equation (i), the alternative hypothesis indicates is a mean-stationary.

3.6.2 Testing the Overall Signification of a Multiple Regression: F-Test

To test the overall signification of multiple regression, the null hypothesis that all coefficient is jointly zero. This joint hypothesis can be tested by the analysis of variance (ANOVA) technique.

Given the K variable in the models:

$Y_i = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_k X_k + u_i$ …………………………..…………………. (1)

Null Hypothesis: All coefficients are simultaneously zero. (i.e. $\beta_1 = \beta_2 = \beta_3 = \dots = \beta_k = 0$)

And F test is computed by:

$$F = \frac{ESS/DF}{RSS/DF} = \frac{ESS/(K-1)}{RSS/(n-k)}$$

If $F > F_\alpha$ (k-1, n-k) reject null hypothesis; otherwise not. F_α (k-1, n-k) critical value of F at α level of significance. Alternatively, if the P-value of F is sufficiently low, we reject hypothesis. It means that all coefficient is not simultaneously zero or the multiple regression is significance.

3.6.3 Residual Diagnostic Test

This study is based on Ordinary Least Square (OLS) estimation. For the OLS estimators' heteroscedasticity, autocorrelation and multicollinearity are absents because it is the assumptions. Assumptions increase the reliability and validity also it increases the accuracy of the model. Following are the importance residual diagnostic test.

1) Serial Correlation

The lag correlation of the residual series is called serial correlation. The null hypothesis of the serial correlation test is that there is not serial correlation. The alternative hypothesis is there is serial autocorrelation in the model.

Null Hypothesis (H_0) = Residual are not serial correlation.

Alternative Hypothesis (H_1) = Residual are serial correlation.

2) Heteroscedasticity Test

One of the important properties of OLS method is that the variance of the random term is constant. If this property is violated, then it is called heteroscedasticity. It means that heteroscedasticity exists when values of variance of the random term are different for different observations. The null hypothesis of the heteroscedasticity test is that there is no heteroscedasticity in the residual series. The alternative hypothesis is there is heteroscedasticity in the model.

Null Hypothesis (H0) = Residual are not Heteroscedasticity.

Alternative Hypothesis (H_1) = Residual are Heteroscedasticity.

3) Normality Test

The null hypothesis of the test is that the residual series is normally distributed. If the residual series are normality distributed, then the model is considered better. However, when there is the large number of observations, normality test is not much necessary (Gujarati, Porter, & Gunasekar, 2009). In this study, the Jarque-Berra (JB) test is performed to check whether the residual series are normality distributed.

Null Hypothesis (H_0) = Residual are not normally distributed.

Alternative Hypothesis (H_1) = Residual are normally distributed.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

This chapter included nature, trend and growth of gross domestic product, net export, gross fixed capital formation total expenditure and remittance in Nepal. This chapter provides the descriptive analysis of the macroeconomic variables. Data is presented in line graph to analyze the nature, trend and growth of the concerned variables. Furthermore, in the next part of this chapter is find determinants of the economic growth.

4.1   Trend and Nature of the Economic Growth

4.1.1   GDP of Nepal

Figure 4.1: GDP of Nepal
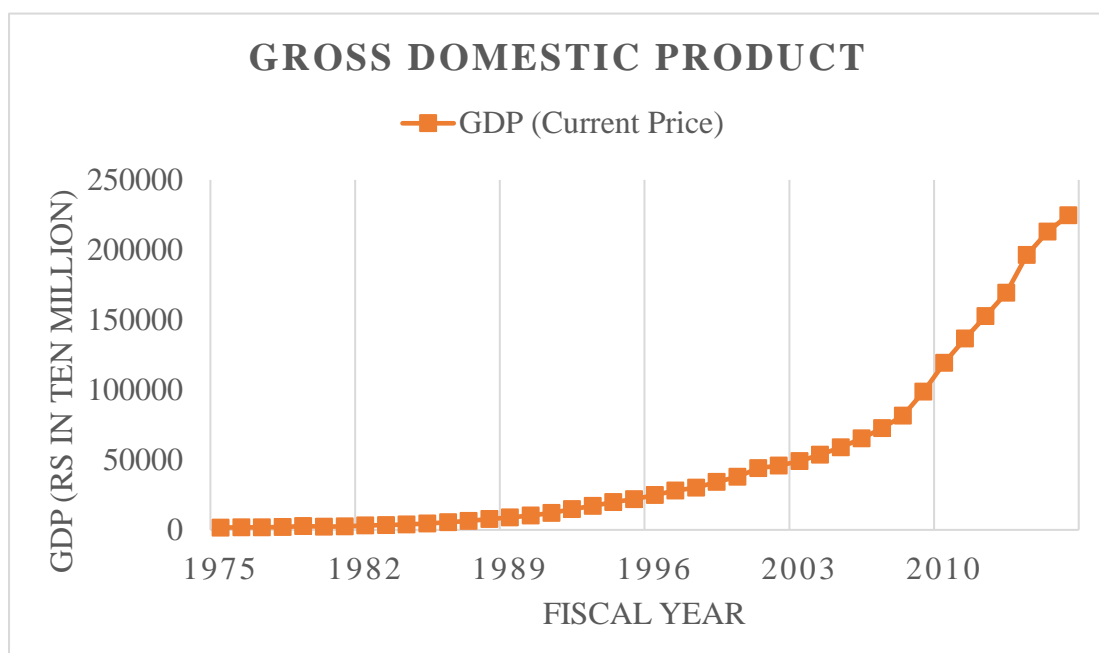
Source: Economic Survey, various issues.

In the history of Nepalese economy liberalization adopted after 1990. So, the whole study divided into two parts, before liberalization and after liberalization. Above line graph clearly shows the trend of gross domestic product of Nepal from 1975 to 2916.

At the very first GDP is small still GDP is rs 103416 million in 1990. In 11975 it was 16601 million only.

But, after the liberalization is increases quite rapidly. The growth rate of GDP is 24 percent in 1991. In 2007, Nepal turn into federal republic nation. At that period Nepali GDP was 727827 million. And it was gradually increase and 815658 million reach in the next year. In 2009, it has been 988271 million. Every year it is sharp increases. In the last five year GDP figure was increased from 1366954 million to 2247427 million. In the 10 years or after the federal republic of Nepal GDP is increase by 208 percentages. In these 10 years' real gross domestic product is higher in 2009. In 2009 and 2010, GDP growth is higher than other years. In 2009 GDP growth is 21 percentages and in 2010 GDP growth rate was 20 percentages. In this transitional period the lowest economic growth is in 2016. In this year only 5 percent of GDP growth is maintaining.

4.1.2 Real Gross Domestic Product (RGDP) of Nepal

Figure 4.2: Real GDP of Nepal
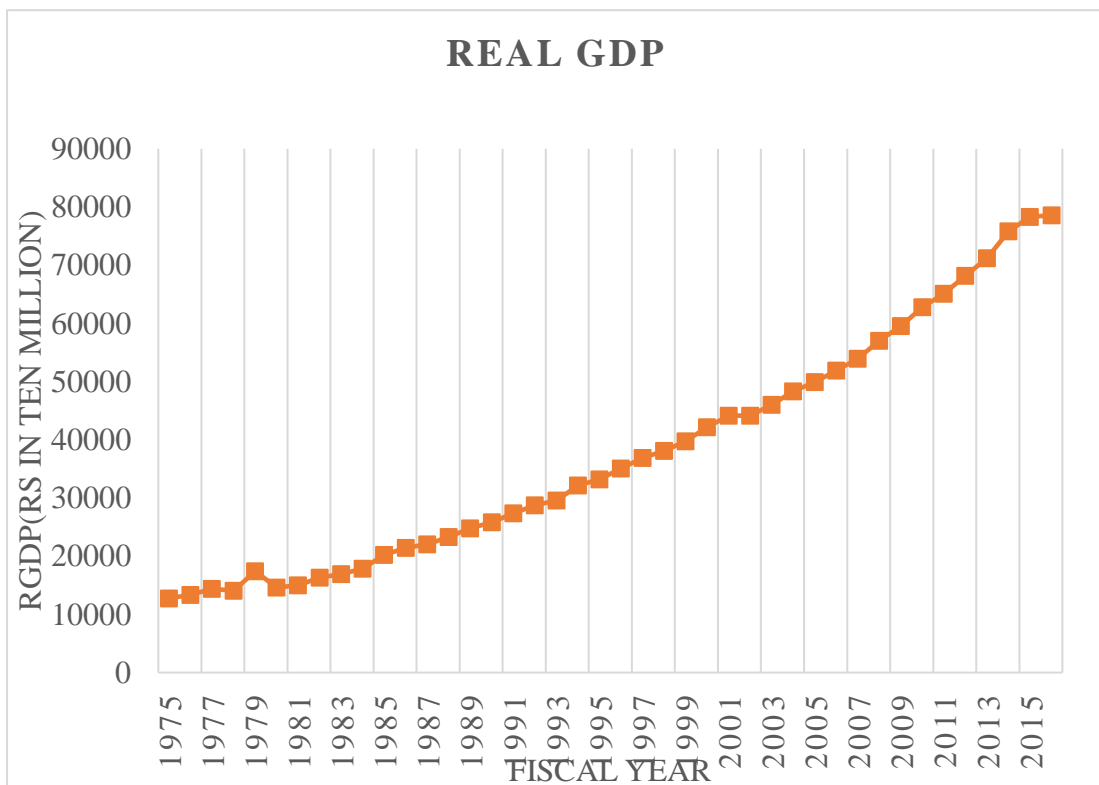
Source: Author's own calculation by appendix I.

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Real Gross Domestic Product is calculating from gross domestic product. If we divided GDP by GDP deflator and multiply by 100, the result is real gross domestic product. From the beginning it is gradually increasing. In 1975 it is 127700 million. And when Nepal practices liberalization it is 258540 million. Before liberalization increasing rate of real gross domestic product is 102 percent.

After liberalization the real domestic product is increased by 204 percent. In this period, it increases from 258540 million to 785804 million. In 2007, Nepal turn into federal republic nation. at that period Nepalese RGDP was 539131 million. And every next year it was gradually increase. In the last five year RGDP figure was increased from 650930 million to 785804 million.

In the 10 years or after the federal republic of Nepal RGDP is increase by 46.23 percentages. In 2014, GDP growth is higher than other years. In 2014 RGDP growth is 6.33 percentages. In this transitional period the lowest economic growth is in 2016. In this year only 0.6 percentage of RGDP growth is maintaining.

4.1.3 Export and Import of Nepal

Figure 4.3: International Trade of Nepal

Source: Economic Survey, various issues.

In the above figure it shows the nature of international trade of Nepal. This nature can be divided into two part one is before liberalization and after liberalization is another. Before the liberalization or before 1991 there is minimum gap between import and export. It means small net export. But, after liberalization the volume of import is gradually increase in increasing rate. In 1975 import is 1981.7 million and export is 1185.8 million. In 1991, import is 31940 million and export is 13706.5 million. The gap between export and import is 18233.5 million.

After liberalization, export is not development but import is increase rapidly in the same rate net export is negatively increase. After 2007, export is increases more rapidly. In 2007, export is 59383 million and import is 194695 million. The gap between them is 135312 million. It means the net export of Nepal is negative because of import is higher than export. In 2007, the gap between export and import is -135312 million. And in the next year this gap is -162671 million. In this way every year it is negatively increases. In 2016 this gap is -703482 million. There is clear view of the negative gap. In this last 10-year net export never decrease. The gap between export and import is negatively increases every year.

4.1.4 Total Expenditure of Nepal

Figure 4.4: Total Expenditure of Nepal
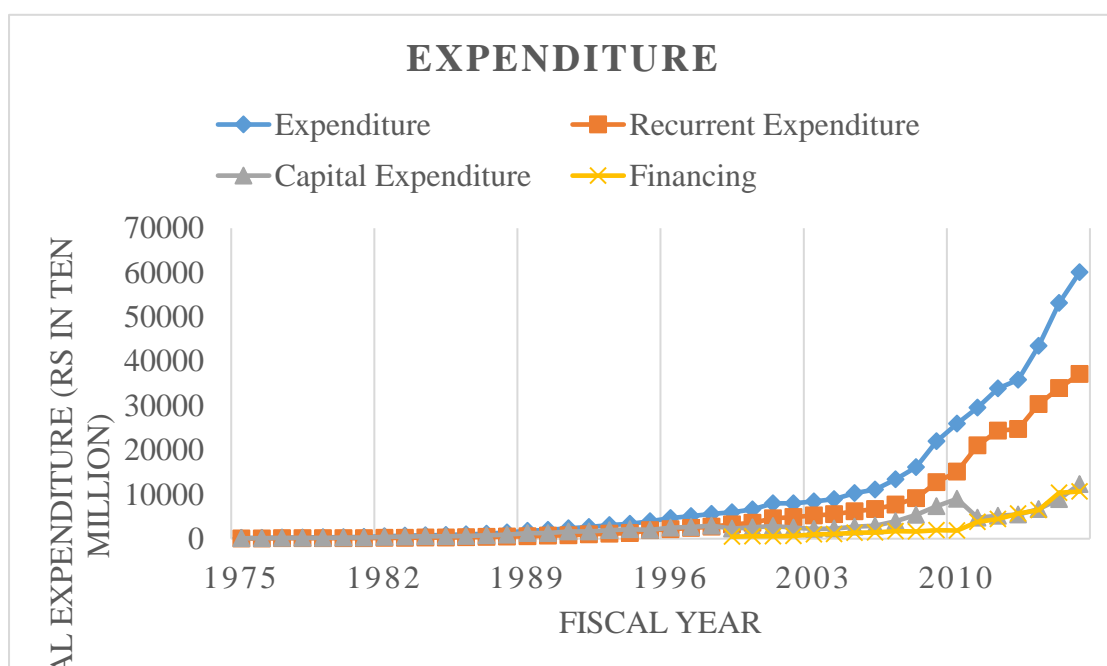
Source: Economic Survey, various issues.

Total expenditure means the sum of capital expenditure, recurrent expenditure and financial management. Before 1999 total expenditure only divided into capital expenditure and recurrent expenditure. After 1999 government add financial management as a part of total expenditure of the government.

In 1975 capital expenditure of Nepal was 967.2 million and the same time recurrent expenditure was 546.5 million. Total expenditure was 1513.37 million. In the starting phase of the liberalization or in 1991 capital expenditure and recurrent expenditure are 15980 million and 7570 million respectively.

In last 10-year the total expenditure is also rapidly increase. In the first year of federal republic of Nepal it is 133605 million and the last year it is 601016 million. Capital expenditure is always higher than financial management but, in 2013 and 2015 financial management is greater than capital expenditure. Also, the recurrent expenditure is gradually increase every year in the high rate.

Before 2011 there are big gap between financial management and capital expenditure. After 2011 there not nor big gap. And recurrent expenditure is always greater than financial management and capital expenditure.

4.1.5 Remittance Inflow in Nepal

Figure 4.5: Remittance Inflow in Nepal
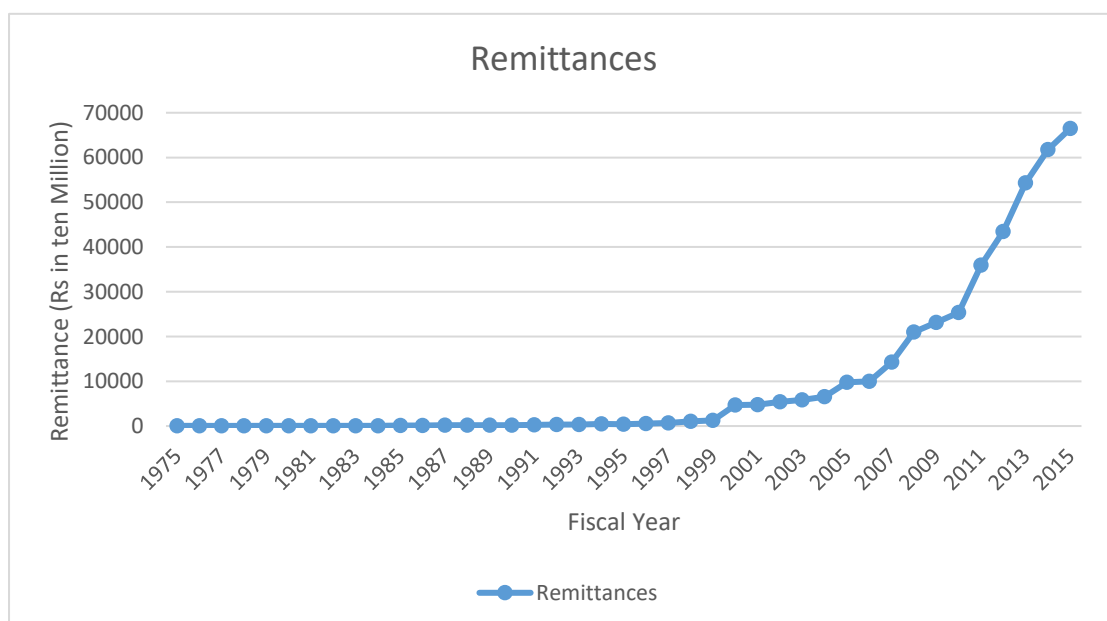
Source: Economic Survey, various issues.

In 1975 remittance inflow in Nepal was only 204.3 million. Before 1999 it was not affect the national economy because in 1998 it was only 6987.8 million but, in the next year in 1999 it was 10314.6 million.

The remittance inflow to Nepal in 2007 was 100145 million. In the next year remittance inflow is 142683 million. After 2011 the remittance inflow is increases rapidly. In 2011 the remittance inflow figure increase from 253552 million to 665064 million in 2016. In the last year we can see the figure increase rapidly. The major reason behind such large and rapid increase in remittance inflow to Nepal is also the increase in the number of international labor migrants from Nepal.

4.1.6 Gross Fixed Capital Formation of Nepal

Figure 4.6: GFCF of Nepal
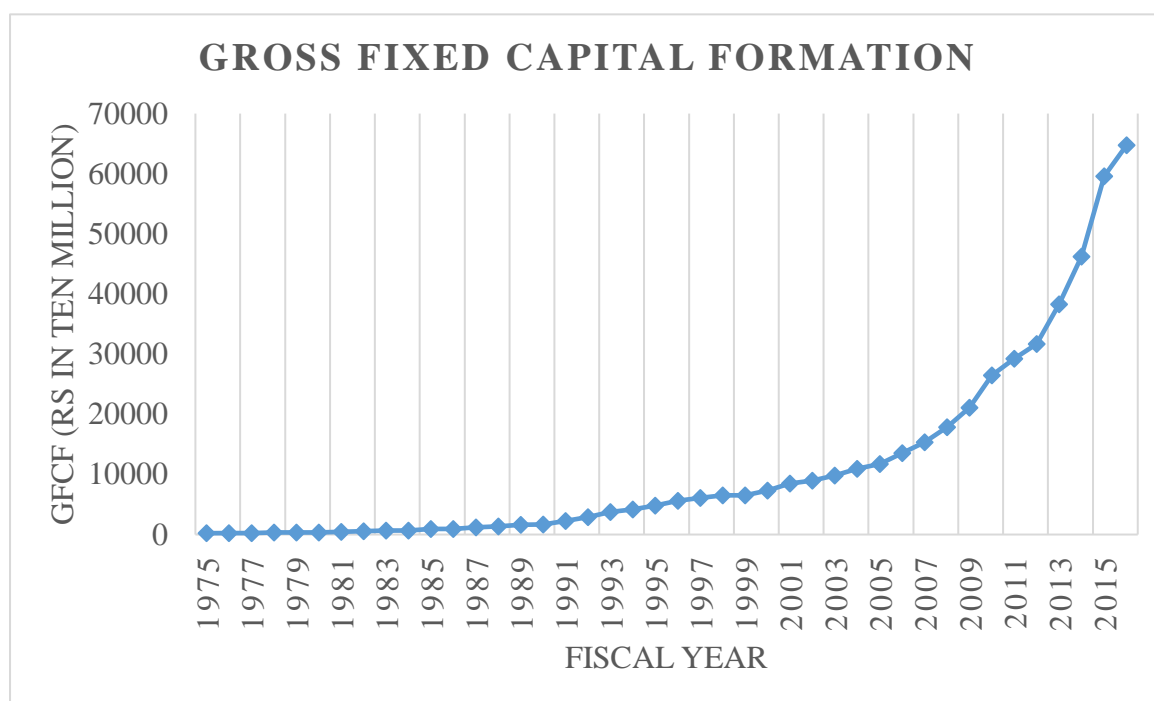
Source: Economic Survey, various issues.

In 1975, gross fixed capital formation (GFCF) was only 2223 million. And before starting the liberalization or in 1990 it was 17002 million. In this period GFCF change only 6.64 percentage. After liberalization the increasing rate of GFCF is high with compare to before liberalization. In 2016 GFCF was 647293.9 million. After liberalization to 2016, it was increased by 37 percent. In the last 10 year GFCF was

increasing gradually. In 2007, GFCF was only 153337 million. In the next year or in 2008 GFCF was 178446 million. In the last four GFCF increasing figure was faster. In the period from 2012 to 2015 increasing rate of FGCF is higher than other year.

4.2 Determinants of Economic Growth

To analyze the determinants of economic growth, the study has used least square multiple regression model. The real gross domestic product is used as a dependent variable. The explanatory variables are gross fixed capital formation, net export, remittance, and total expenditure.

However, in order to run the time series data should be stationary. Therefore, first subtopic under this chapter is to test the stationary. The next topic is regression result analysis. Then the final topic is residual diagnostic.

4.2.1 Stationary Test

To ensure the stationary of the time series data Augmented Dickey-Fuller unit root test of the variable has been done and if the data are not stationary at level then data are making stationary by first difference. The Schwarz Info Criterion is used for automatic lag selection.

It is necessary to check order of integration of the variable. Before testing the stationary of the data, it is better to see the nature of the data. Nature of data is given in Figure.

 Now, it is necessary to test the stationary of the data by using the econometric tools. In this study uses ADF test to test the unit root of the data, i.e.; to test the stationary of the data.

4.2.2 Unit Root Result

Table 4.1: Augmented Dickey-Fuller Test

Variable	Level		First Difference		Remark
	Intercept	Trend & Intercept	Intercept	Trend & Intercept	I(1)
LNRGDP	-2.9099 (0.0540)	-1.8436 (0.6640)	-10.3284 (0.0000)*	-6.4134 (0.0000)*	I(1)
LNGFCF	-0.1052 (0.9420)	-1.6425 (0.7582)	-7.2029* (0.0000)	-7.1000 (0.0000)*	I(1)
LNTE	-1.3609 (0.5918)	-2.0908 (0.5353)	-4.9411* (0.0002)	-4.9245* (0.0015)	I(1)
LNRE	0.5122 (0.9852)	-2.5485 (0.3046)	-7.4563* (0.0000)	-7.5314* (0.0000)	I(1)
LNNE	-1.4416 (0.5526)	-2.8117 (0.2017)	-5.6363* (0.0000)	-5.8099* (0.0001)	I(1)

Source: Author's calculation using Eviews

Note:

H0: has a unit root (non-stationary)

H1: Does not has a unit root (stationary)

* 1%level of significance

Augmented Dickey-Fuller (ADF) tests have been used to check the stationarity of dependent and independent variables of this research study. ADF test result shows that natural logarithm of RGDP series is non-stationary at level both in the intercept, and intercept and trend form. It is stationary at the first difference both in the intercept, and intercept and trend at 1% level of significance. So, LNRGDP is stationary at I (1) at 1 % level of significance. The natural log of GFCF series is a non-stationary at level both in the intercept, and intercept and trend form. It is stationary at the first difference both in the intercept, and intercept and trend at 1% level of significance. In the intercept and intercept and trend form it is stationary at 1% level of significance. Similarly, natural log of TE is non-stationary at level both in the intercept, and intercept and trend form. It is stationary at the first difference both

in the intercept, and intercept and trend at 1% level of significance. So, the order of integration of LNTE is I(1). Similarly, the natural log of RE has unit root at level both in the intercept, and intercept and trend form. It is stationary at the first difference both in the intercept, and intercept and trend at 1% level of significance. It means that LNRE is stationary at I(1). Like LNRGDP, LNGFCF, LNRE and LNTE, the natural log of NE has unit root both in the intercept, and intercept and trend form. It has no unit root at the first difference both in the intercept, and intercept and trend at 1% level of significance. So, LNTE is stationary at I(1). In this way, natural log of RGDP, RE, TE, NE and GFCF are stationary at I(1).

4.3 Regression Result

The whole study divided in the two parts- before liberalization and after liberalization. After 1990, liberalization start in Nepal. This study also shows the effect of economic growth of same variable before and after the liberalization.

4.3.1 Regression before Liberalization

Table 4.2: OLS Result before Liberalization

Dependent Variable: LNRGDP				
Method: Least Squares				
Included observations: 16				
Variable	Coefficient	Std. Error	t-statistic	Prob.
C	5.145974***	0.956220	5.381577	0.0002
LNRGFCF	0.350091	0.366229	0.955934	0.3596
LNRNE	-0.033739	0.146143	-0.230866	0.8217
LNRRE	0.226473	0.146542	1.545448	0.1505
LNRTE	0.104490	0.365058	0.286227	0.7800

Source: Author's calculation by Eviews.

Note: *< 0.1, **< 0.05, ***< 0.01

The p-value for all independent variables are greater than 1 percent. So the variables are not significant determinants the economic growth. The p-value of Goss fixed capital formation (GFCF) is 0.3596. It is greater than 1 percentage level of significance. Therefore, the gross fixed capital formation or investment does not

significantly determinants the real gross domestic product or economic growth in Nepal.

Similarly, p-value for the net export, remittance and total expenditure are more than 1 percent. This means that the coefficient of these variables are not significant even at 1 percent level of significance. Therefore, it is concluded that the net export, remittance and total expenditure are also does not significantly determine or impact on economic growth in Nepal.

More than 20 observation need for the OLS test, there is only 16 observations so the variables are not significant. Other variable which are not mention here are more effective on economic growth more than these variable.

We can express this estimated aggregate growth function as follows.

LNRGDP = 5.145974+ 0.350091LNRGFCF − 0.033739LNRNE + 0.226473LNRRE + 0.104490LNRTE …..(iii)

The equation (iii) shows that in the long run RGDP is the function of LNRGFCF, LNRNE, LNRRE and LNRTE. From above table, GFCF, RE, TE are found to affect RGDP positively whereas NE affects RGDP negatively.

4.3.2 Regression after Liberalization

Table 4.3: OLS Result after Liberalization

Dependent Variable: LNRGDP				
Method: Least Squares				
Included observations: 26				
Variable	Coefficient	Std. Error	t-statistic	Prob.
C	5.893111	0.503741	11.69870	0.0000
LNRGFCF	0.264260	0.133845	1.974379	0.0616
LNRNE	0.031839	0.057668	0.552102	0.5867
LNRRE	0.106534	0.017787	5.989482	0.0000
LNRTE	0.139414	0.108032	1.290491	0.2109

Source: Author's calculation by Eviews.

Note: *< 0.1, **< 0.05, ***< 0.01

The p-value for remittance is 0.0000. It is less than 1 percentage level of significance. Therefore, the remittance significantly determinants the real gross domestic product or economic growth in Nepal. But the coefficient is 0.10. Its means if the remittance is increases by one percentage, then the economic growth also exponentially increases by 0.10 percentage on average. Or, if the investment decreases by one percentage, economic growth also exponentially decreases by 0.10 percentage on average. There is positive correlation between remittance and GDP.

But, the p-value for the gross fixed capital formation, net export and total expenditure are more than 1 percent. This means that the coefficients of these variables are not significant even at 1 percent level of significance. Therefore, it is concluded that the gross fixed capital formation, net export and total expenditure does not significantly determine or impact on economic growth in Nepal.

Only remittance help to positively affect the economic growth, other variable does not affect. Because, government expenditure and GFCF spend only for consumption. Government does not focus on production of the goods and services in the country. Also, our import is more than export so the net export is negative. So it is also not significantly determinants the economic growth. But other variable can help to economic growth.

We can express this estimated aggregate growth function as follows.

$$LNRGDP = 5.893111 + 0.264260LNGFCF + 0.031839LNNE + 0.106534LNRE + 0.139414LNTE \ldots\ldots\ldots\ldots\ldots\ldots(iv)$$

The above equation shows that in the long run real gross domestic product is the function of LNGFCF, LNNE, LNRE and LNTE. There exist long run relationship between RGDP and NE, GFCF, RE and TE. From above table all variables, gross fixed capital formation, remittance, net export and total expenditure are found to affect real gross domestic product (RGDP) positively.

4.3.3 Overall Regression Result

This shows the regression result of the research study.

Table 4.4: OLS Regression Result

Dependent Variable: LNRGDP				
Method: Ordinary Least Square				
Number of Observations: 42				
Variable	Coefficient	Std. Error	t-statistic	Prob.
C	4.4038	0.3770	11.6788	0.0000
LNRGFCF	0.6160	0.1072	5.7455	0.0000
LNRNE	-0.0181	0.0662	-0.2746	0.7851
LNRRE	0.0766	0.0188	4.0573	0.0002
LNRTE	0.0231	0.1111	0.2086	0.8359

Source: Author's calculation by Eviews.

Note: $* < 0.1$, $** < 0.05$, $*** < 0.01$

The p-value for gross fixed capital formation (GFCF) is 0.0000. It is less than 1 percentage level of significance. Therefore, the gross fixed capital formation or investment significantly determinants the real gross domestic product or economic growth in Nepal. But the coefficient is 0.61. It means if the investment is increases by one percentage, then the economic growth also exponentially increases by 0.61 percentage on average. Or, if the investment decreases by one percentage, economic growth also exponentially decreases by 0.61 percentage on average. There is positive correlation between GFCF and GDP.

Similarly, the p-value of remittance is 0.0002 which is less than one percent. That means remittance is significance at one percent. Therefore, remittance is significantly determinants the real gross domestic product in Nepal. Also the coefficient of remittance is 0.076. It means remittance increases by one percentage, then the economic growth is exponentially increasing by 0.076 percentage on average. And, if remittance decrease by one percentage, economic growth exponentially decreases by 0.076 percentage on average.

But, the p-value for the net export and total expenditure are more than 1 percent. This means that the coefficients of these variables are not significant even at 1 percent level of significance. Therefore, it is concluded that the net export and total expenditure does not significantly determine or impact on economic growth in Nepal.

Economic growth is negatively affected by net export. When net export increases GDP growth will decrease. The ratio of import and export is very high, that is also a reason to insignificant. Also the most of the portion of government expenditure is spend on recurrent expenditure. Recurrent expenditure is uses for the salary of the government employee. That part is spending on consumption. The predictive capacity of Nepal is very weak; we consume must of the imported goods.

We can express this estimated aggregate growth function as follows.

$$LNRGDP = 4.4038 + 0.6160LNGFCF - 0.0181LNNE + 0.0766LNRE + 0.0231LNTE \dots(v)$$

The above equation shows that in the long run real gross domestic product is the function of LNGFCF, LNNE, LNRE and LNTE. There exist long run relationship between RGDP and NE, GFCF, RE and TE. So, gross fixed capital formation (GFCF), net export (NE), remittance (RE) and total expenditure (TE) are the determinants of real gross domestic product (RGDP) in the long run. From above table, gross fixed capital formation, remittance and total expenditure are found to affect real gross domestic product (RGDP) positively whereas net export (NE) affects real gross domestic product negatively.

4.4 Residual Diagnostic

Diagnostic tests of the residuals are very important to the model. The property or assumption should be fulfilled for the accurate results. Otherwise, it provides the spurious result (Wooldridge, 2012).

Table 4.5 Residual Diagnostic

Diagnostic Test	Value
R-squared	0.9885
Adjusted R-squared	0.9873
S.E. of regression	0.0636
Sum squared residual	0.1496
Log likelihood	58.7790
F-statistic	797.99
Prob(F-statistic)	0.0000
D-W	1.3472
$\varkappa^2_{(Autocorrelation)}$	5.11(0.07)
$\varkappa^2_{(Normality)}$ /JB test	2.013(0.36)
$\varkappa^2_{(Heteroscedasticity)}$/BPG test	2.819(0.58)

Source: Author's calculations.

From above table 4.5, it is clear that the R-squared and adjusted R-squared values are respectively 0.9885 and 0.9873 showing spurious regression. But, the OLS regression model is in overall good as the F-statistics value is statistically significant at 1 % level of significance.

4.4.1 Heteroscedasticity Test

To test the heteroscedasticity in residuals, the Breusch-Pagan-Godfrey Test has been used by setting following null hypothesis. The Breusch-Pangan-Godfrey test regressed the square residuals on the original regressions.

Null hypothesis: Residuals are not heteroscedasticity.

From the table 4.5, the corresponding probability value for f-statistics, observed R-squared and Scaled explained SS are more than 5 percent. It means that the null hypothesis is not rejected rather it is accepted. Hence it is concluded that the model is free from heteroscedasticity. BPG test result shows that the variance of the residual series for the given OLS regression model is homogeneously distributed.

4.4.2 Serial Correlation

To test the serial correlation, Bueusch- Godfrey Serial Correlation LM test has been used by setting following null hypothesis.

Null hypothesis: There is no Serial Correlation.

Table 4.5 shows serial correlation LM test (χ^2_{Auto}) shows the condition of rejection of the null hypothesis. It means the model is free from serial correlation. Because of the P-value is 0.077 which is significance on 5 percent.

4.4.3 Normality Test

To test the normality of residuals, Jarque-Bera test has been used by setting following null hypothesis.

Null hypothesis: Residuals are normally distributed.

Table 4.5 shows the result of JB value is 2.013 with a p-value 0.36. Since, P-value is more than 5 percentage level of significance, the null hypothesis is not rejected. That means the residuals are normally distributed. The JB test shows that error term of the OLS regression is normally distributed.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary of the Study

After 2007, Nepal turn into federal republic nation. In this last decade gross domestic product increases 208 percent. In 2007 GDP was 727827 million. Every year it is sharp increases. In these 10 years' real gross domestic product is higher in 2009. In 2009 GDP growth is 21 percentages and in 2010 GDP growth rate was 20 percentages. In this transitional period the lowest gross domestic product is in 2016. In this year only 5 percent of GDP growth is maintaining. Also, the other macroeconomic variables also increase in every year. After the end of monarchy system, trade condition of Nepal is more critical. Export is constant but import increases rapidly. In the same rate, net export also increases. Net export means the difference of import and export. The gap between export and import is negatively increases every year.

Sum of government expenditure and private expenditure is also rapidly increase. But, government expenditure higher than the private expenditure. In the first year of federal republic of Nepal it is 133605 million. And the last year it is 601016 million. The remittance inflow to Nepal in 2007 was 100145 million but, after 2011 the remittance inflow is increases rapidly. in 2011 the remittance inflow figure increase from 253552 million to 665064 million in 2016. International labor migrants are increases every year this is the major reason behind such large and rapid increase in remittance inflow to Nepal. Gross fixed capital formation is the proxy of the investment. In the last 10 year GFCF also increasing gradually. In 2007, GFCF was only 153337 million. In the last four GFCF increasing figure was faster.

Also, this study analyzes the determinants of economic growth in Nepal. Data uses from 1975 to 2015 for analyze the study. This study has tried to find out the effect of the macroeconomic variable in the economic growth in case of Nepal. For the study real GDP is taken as the independent variable and gross fixed capital formation, net export, total expenditure and remittance are taken as the independent variable to find out the determinants of economic growth. The Study has used the line graph to show the nature of the variables. Also, OLS and multiple regression model used to check the existence of the long run and short run relationship among economic growth and the variable. And the

study has used Breusch- Pagan-Godfrey test to check the existence of the heteroscedasticity and employed normality test to check the normality of the data. Study also finds the increasing trend of all independent variable and economic growth. Also, there is positive and significant relationship between the remittance and economic growth in long run. Similarly, net export also has positive and significant relationship with GDP in long run.

5.2 Conclusion

This paper has to determine the determination of economic growth in Nepal: using ordinary least square methods from 1975 to before liberalization and after liberalization to 2016. This paper shows the trend and nature of economic growth, gross fixed capital formation, net export, remittance and total expenditure.

After estimation of ordinary least square it is obtained gross fixed capital formation and remittance significantly determinants the economic growth. But, total export and net export does not significantly impact on economic growth.

5.3 Recommendation

Following recommendations are made based on this thesis.

i) As the regression result shows that the real gross fixed capital formation is significantly impact on the economic growth and remittance also significantly impact on economic growth but, net export does not have significant impact on economic growth. This is notable result of the study so, like to recommend that net export is the evil of the economic growth. So, the government and concerned stakeholders have to serious on this matter.

ii) Study already proved that either private or governmental, investment can increase the economic growth. And, there is a scenario Nepal only spend 70 percent of capital budget (MOF, 2017). If the investment significantly determinants the economic growth, the government have to lunch the investment-friendly policy in order to achieve the high rate of economic growth.

iii) Now, government announced to achieve double-digit growth rate without any policy. So, I recommend that for the researcher to further study on related to issue of economic growth.

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ANNEX I: RAW DATA

In Ten Million

Fiscal Year	GDP (Current Price)	Gross Fixed Capital Formation	GDP Deflator	Total Expenditure	Export	Import	Net export	Remittances
1975	1660.1	222.3	13	151.37	118.58	198.17	-79.59	20.43
1976	1739.4	244.3	13	191.33	116.47	200.8	-84.33	23.13
1977	1728	258	12	233.04	104.62	246.96	-142.34	26.83
1978	1972.7	329.4	14	267.49	129.68	288.47	-158.79	21.94
1979	2612.8	326.3	15	302.05	115.05	348.01	-232.96	30.31
1980	2335.1	368.1	16	347.07	160.87	442.82	-281.95	35.73
1981	2553	429.9	17	409.23	149.15	493.03	-343.88	48.42
1982	3098.8	546.5	19	536.13	113.2	631.4	-518.2	42.71
1983	3382.1	657.6	20	697.92	170.39	651.43	-481.04	54.97
1984	3929	690.7	22	743.73	274.06	774.21	-500.15	61.41
1985	4658.7	938.6	23	839.48	274.5	934.12	-659.62	69.07
1986	5573.4	943.1	26	979.71	301.14	1090.52	-789.38	80.91
1987	6386.4	1182.5	29	1151.32	411.46	1386.96	-975.5	129.26
1988	7690.6	1341.4	33	1410.5	419.53	1626.37	-1206.84	160.84
1989	8927	1639.2	36	1800.5	515.62	1832.49	-1316.87	162.86
1990	10341.6	1700.2	40	1966.9	738.75	2322.65	-1583.9	174.79
1991	12037	2278	44	2355	1370.65	3194	-1823.35	212.83
1992	14948.7	2927.7	52	2641.8	1726.65	3920.56	-2193.91	231.65
1993	17149.2	3727.8	58	3089.8	1929.34	5157.08	-3227.74	299.43
1994	19927.2	4203.2	62	3359.7	1763.92	6367.95	-4604.03	346.91
1995	21917.5	4837	66	3906	1988.11	7445.45	-5457.34	506.36
1996	24891.3	5608.1	71	4654.24	2263.65	9355.34	-7091.69	428.36
1997	28051.3	6079.4	76	5072.37	2751.35	8900.2	-6148.85	559.5
1998	30084.5	6537.5	79	5611.83	3567.63	8752.53	-5184.9	698.78
1999	34203.6	6526.9	86	5957.9	4982.27	10850.49	-5868.22	1031.46
2000	37948.8	7332.4	90	6627.25	5565.41	11568.72	-6003.31	1266.23
2001	44151.9	8475.06	100	7983.51	4694.48	10738.9	-6044.42	4721.61
2002	45944.3	8988.93	104	8007.22	4993.06	12435.21	-7442.15	4753.63
2003	49223.1	9807.28	107	8400.61	5391.07	13627.71	-8236.64	5420.33
2004	53674.9	10918.13	111	8944.26	5870.57	14947.36	-9076.79	5858.76
2005	58941.2	11753.89	118	10256.04	6023.41	14947.4	-8923.99	6554.12
2006	65408.4	13553.2	126	11088.92	5938.31	17378	-11439.7	9768.85
2007	72782.7	15333.69	135	13360.46	5926.65	19469.5	-13542.9	10014.48

2008	81565.8	17844.55	143	16134.99	6769.75	22193.8	-15424.1	14268.27
2009	98827.2	21103.9	166	21966.2	6769.8	28447	-21677.2	20969.85
2010	119277.4	26488.75	190	25968.91	6082.4	37433.5	-31351.1	23172.53
2011	136695.4	29273.04	210	29536.3	6433.9	39617.6	-33183.7	25355.16
2012	152734.4	31718.46	224	33916.8	7426.1	46166.8	-38740.7	35955.44
2013	169501.1	38297.18	238	35863.8	7691.72	55674.03	-47982.3	43458.17
2014	196454	46201.34	259	43505.5	9199.13	71436.59	-62237.5	54329.41
2015	213020	59582.26	272	53155.4	8531.91	77468.42	-68936.5	61727.88
2016	224740	64729.39	286	60101.56	7011.71	77359.91	-70348.2	66506.43

Source: Economic Survey, various issues and various economic bulletins, NRB

ANNEX II: PROCESSED DATA

In ten million

Fiscal Year	RGDP	RGFCF	RTE	RNE	RRE	RNE
1975	12770	1710	1164.385	-612.231	157.1538	612.2308
1976	13380	1879.231	1471.769	-648.692	177.9231	648.6923
1977	14400	2150	1942	-1186.17	223.5833	1186.167
1978	14090.71	2352.857	1910.643	-1134.21	156.7143	1134.214
1979	17418.67	2175.333	2013.667	-1553.07	202.0667	1553.067
1980	14594.38	2300.625	2169.188	-1762.19	223.3125	1762.188
1981	15017.65	2528.824	2407.235	-2022.82	284.8235	2022.824
1982	16309.47	2876.316	2821.737	-2727.37	224.7895	2727.368
1983	16910.5	3288	3489.6	-2405.2	274.85	2405.2
1984	17859.09	3139.545	3380.591	-2273.41	279.1364	2273.409
1985	20255.22	4080.87	3649.913	-2867.91	300.3043	2867.913
1986	21436.15	3627.308	3768.115	-3036.08	311.1923	3036.077
1987	22022.07	4077.586	3970.069	-3363.79	445.7241	3363.793
1988	23304.85	4064.848	4274.242	-3657.09	487.3939	3657.091
1989	24797.22	4553.333	5001.389	-3657.97	452.3889	3657.972
1990	25854	4250.5	4917.25	-3959.75	436.975	3959.75
1991	27356.82	5177.273	5352.273	-4143.98	483.7045	4143.977
1992	28747.5	5630.192	5080.385	-4219.06	445.4808	4219.058
1993	29567.59	6427.241	5327.241	-5565.07	516.2586	5565.069
1994	32140.65	6779.355	5418.871	-7425.85	559.5323	7425.855
1995	33208.33	7328.788	5918.182	-8268.7	767.2121	8268.697
1996	35058.17	7898.732	6555.268	-9988.3	603.3239	9988.296
1997	36909.61	7999.211	6674.171	-8090.59	736.1842	8090.592
1998	38081.65	8275.316	7103.582	-6563.16	884.5316	6563.165
1999	39771.63	7589.419	6927.791	-6823.51	1199.372	6823.512
2000	42165.33	8147.111	7363.611	-6670.34	1406.922	6670.344
2001	44151.9	8475.06	7983.51	-6044.42	4721.61	6044.42
2002	44177.21	8643.202	7699.25	-7155.91	4570.798	7155.913
2003	46002.9	9165.682	7851.037	-7697.79	5065.729	7697.794
2004	48355.77	9836.153	8057.892	-8177.29	5278.162	8177.288
2005	49950.17	9960.924	8691.559	-7562.7	5554.339	7562.703
2006	51911.43	10756.51	8800.73	-9079.12	7753.056	9079.119
2007	53913.11	11358.29	9896.637	-10031.7	7418.133	10031.74
2008	57039.02	12478.71	11283.21	-10786	9977.811	10786.05
2009	59534.46	12713.19	13232.65	-13058.6	12632.44	13058.55
2010	62777.58	13941.45	13667.85	-16500.6	12196.07	16500.58
2011	65093.05	13939.54	14064.9	-15801.8	12073.89	15801.76
2012	68185	14160.03	15141.43	-17295	16051.54	17294.96
2013	71218.95	16091.25	15068.82	-20160.6	18259.74	20160.63
2014	75850.97	17838.36	16797.49	-24029.9	20976.61	24029.91
2015	78316.18	21905.24	19542.43	-25344.3	22694.07	25344.31
2016	78580.42	22632.65	21014.53	-24597.3	23254	24597.27

Source: Author's calculation.

ANNEX III: DATA ON NATURAL LOG FORM

Fiscal year	LNRGDP	LNRGFCF	LNRTE	LNRNE	LNRRE
1975	9.454854	7.444249	7.059948	6.417109	5.057225
1976	9.501516	7.538618	7.294221	6.474959	5.181351
1977	9.574983	7.673223	7.571474	7.078482	5.409784
1978	9.553271	7.763386	7.555195	7.033695	5.054424
1979	9.765298	7.684937	7.607713	7.347987	5.308598
1980	9.588391	7.740936	7.682108	7.474311	5.408572
1981	9.616981	7.835509	7.786234	7.61225	5.65187
1982	9.699501	7.964266	7.945108	7.911092	5.415164
1983	9.73569	8.098035	8.157542	7.785388	5.616225
1984	9.790268	8.051833	8.125806	7.729036	5.6317
1985	9.916168	8.314065	8.202459	7.96134	5.704796
1986	9.972834	8.196246	8.23433	8.018321	5.740411
1987	9.9998	8.31326	8.286539	8.120825	6.0997
1988	10.05642	8.310132	8.360362	8.204423	6.189073
1989	10.11849	8.423615	8.517471	8.204664	6.114542
1990	10.16022	8.354792	8.500505	8.283936	6.079876
1991	10.21672	8.552034	8.585277	8.329411	6.181474
1992	10.26631	8.635899	8.533142	8.347367	6.099154
1993	10.29443	8.768301	8.580589	8.624265	6.246608
1994	10.37788	8.821637	8.597643	8.912723	6.327101
1995	10.41056	8.899565	8.685785	9.020232	6.642763
1996	10.46476	8.974458	8.788024	9.209169	6.402454
1997	10.51623	8.987098	8.806	8.998457	6.60148
1998	10.54749	9.021032	8.868354	8.789228	6.785058
1999	10.59091	8.93451	8.843296	8.82813	7.089553
2000	10.64935	9.005419	8.904306	8.805427	7.24916
2001	10.69539	9.044883	8.985133	8.706891	8.459905
2002	10.69596	9.064528	8.948878	8.875694	8.427443
2003	10.73646	9.123222	8.968401	8.948689	8.530253
2004	10.78634	9.19382	8.994407	9.009116	8.571333
2005	10.81878	9.206425	9.070108	8.930984	8.622335
2006	10.85729	9.283266	9.08259	9.113732	8.955842
2007	10.89513	9.337703	9.19995	9.213509	8.911683
2008	10.95149	9.431779	9.331071	9.286009	9.208119
2009	10.99431	9.450396	9.490443	9.477199	9.444023
2010	11.04735	9.542622	9.522801	9.711151	9.408869
2011	11.08357	9.542485	9.551438	9.667877	9.3988
2012	11.12998	9.558178	9.62519	9.75817	9.68356
2013	11.17351	9.686031	9.620383	9.911487	9.812454
2014	11.23653	9.789106	9.728985	10.08705	9.951163
2015	11.26851	9.994481	9.880343	10.14031	10.02986
2016	11.27188	10.02715	9.952969	10.11039	10.05423

Source: Author's Calculation through Excel.

ANNEX IV: Residual Test for serial correlation

Breusch-Godfrey Serial Correlation LM Test:				
F-statistic	2.426427	Prob. F(2,35)		0.1031
Obs*R-squared	5.114311	Prob. Chi-Square(2)		0.0775
Test Equation:				
Dependent Variable: RESID				
Method: Least Squares				
Date: 04/12/18 Time: 08:28				
Sample: 1 42				
Included observations: 42				
Presample missing value lagged residuals set to zero.				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.029295	0.365980	0.080046	0.9367
LNRGFCF	-0.046843	0.105501	-0.444003	0.6598
LNRNE	0.010118	0.064424	0.157059	0.8761
LNRRE	-0.004797	0.018545	-0.258684	0.7974
LNRTE	0.037648	0.109074	0.345165	0.7320
RESID(-1)	0.291584	0.175487	1.661568	0.1055
RESID(-2)	0.221284	0.188942	1.171174	0.2494
R-squared	0.121769	Mean dependent var		4.29E-16
Adjusted R-squared	-0.028785	S.D. dependent var		0.060423
S.E. of regression	0.061286	Schwarz criterion		-2.305905
Sum squared resid	0.131459	Hannan-Quinn criteria.		-2.489363
Log-likelihood	61.50586	Durbin-Watson stat		1.866904
F-statistic	0.808809	Prob(F-statistic)		0.570126

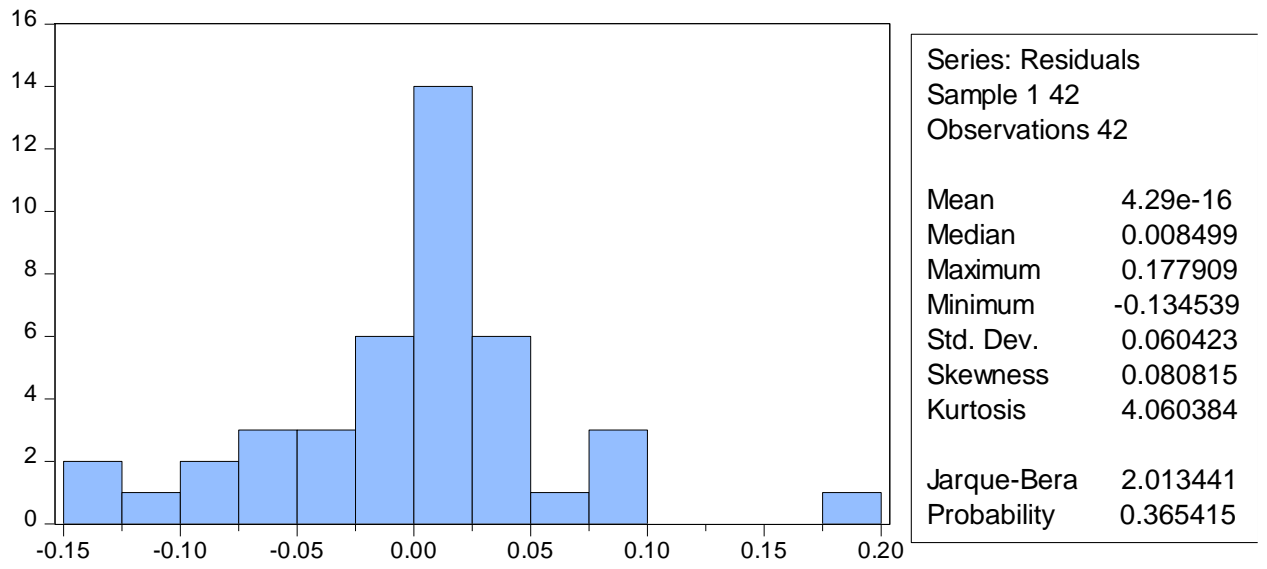*Source: Author calculation by Eviews.*

ANNEX V: Residual Test, For heteroscedasticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey				
F-statistic	0.665525	Prob. F(4,37)		0.6200
Obs*R-squared	2.819018	Prob. Chi-Square(4)		0.5886
Scaled explained SS	3.347716	Prob. Chi-Square(4)		0.5014
Test Equation:				
Dependent Variable: RESID^2				
Method: Least Squares				
Date: 04/12/18 Time: 08:31				
Sample: 1 42				
Included observations: 42				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.026592	0.038036	0.699117	0.4889
LNRGFCF	-0.013606	0.010815	-1.258073	0.2162
LNRNE	0.001943	0.006683	0.290697	0.7729
LNRRE	0.000211	0.001906	0.110536	0.9126
LNRTE	0.008983	0.011208	0.801477	0.4280
R-squared	0.067119	Mean dependent var		0.003564
Adjusted R-squared	-0.033732	S.D. dependent var		0.006310
S.E. of regression	0.006416	Akaike info criterion		-7.148729
Sum squared resid	0.001523	Schwarz criterion		-6.941863
Log-likelihood	155.1233	Hannan-Quinn criter.		-7.072904
F-statistic	0.665525	Durbin-Watson stat		1.750268
Prob(F-statistic)	0.619956			

Source: Author calculation by Eviews.

ANNEX VI: Residual Test, Normality test

Series: Residuals		
Sample 1 42		
Observations 42		
Mean	4.29e-16	
Median	0.008499	
Maximum	0.177909	
Minimum	-0.134539	
Std. Dev.	0.060423	
Skewness	0.080815	
Kurtosis	4.060384	
Jarque-Bera	2.013441	
Probability	0.365415	

Source: Author calculation by eviews.

ANNEX VII: Regression before liberalization

Dependent Variable: LNRGDP

Method: Least Squares

Sample: 1975 1990

Included observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.145974	0.956220	5.381577	0.0002
LNRGFCF	0.350091	0.366229	0.955934	0.3596
LNRNE	-0.033739	0.146143	-0.230866	0.8217
LNRRE	0.226473	0.146542	1.545448	0.1505
LNRTE	0.104490	0.365058	0.286227	0.7800

R-squared	0.899349	Mean dependent var	9.781543
Adjusted R-squared	0.862749	S.D. dependent var	0.229247
S.E. of regression	0.084930	Akaike info criterion	-1.843673
Sum squared resid	0.079344	Schwarz criterion	-1.602239
Log-likelihood	19.74938	Hannan-Quinn criter.	-1.831310
F-statistic	24.57227	Durbin-Watson stat	1.715959
Prob(F-statistic)	0.000019		

Source: Author calculation by Eviews.

ANNEX VIII: Regression after liberalization

Dependent Variable: LNRGDP

Method: Least Squares

Date: 04/26/18   Time: 22:41

Sample: 1991 2016

Included observations: 26

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.893111	0.503741	11.69870	0.0000
LNRGFCF	0.264260	0.133845	1.974379	0.0616
LNRNE	0.031839	0.057668	0.552102	0.5867
LNRRE	0.106534	0.017787	5.989482	0.0000
LNRTE	0.139414	0.108032	1.290491	0.2109

R-squared	0.988670	Mean dependent var	10.76835
Adjusted R-squared	0.986511	S.D. dependent var	0.324323
S.E. of regression	0.037667	Akaike info criterion	-3.549022
Sum squared resid	0.029795	Schwarz criterion	-3.307080
Log-likelihood	51.13728	Hannan-Quinn criter.	-3.479351
F-statistic	458.1047	Durbin-Watson stat	0.955042
Prob(F-statistic)	0.000000		

Source: Author calculation by Eviews.