CHAPTER – I

INTRODUCTION

1.1 Background of the Study

Consumption is an important concept in terms of economy and many social sciences. Household consumption expenditures consist of the market prices of all goods and services purchased by households to satisfy their needs and wants. It includes all durable and nondurable goods such as cars, household washing machines, television etc. Household consumption expenditures excludes purchases of residences but includes owner-occupied residences imputed rent.

Over the years, economists are varied in their opinions on the variability of income and consumption relationship. For instance scholars like Alfred Marshall on income elasticity of demand, Ernest Engel on Engel curve, J.M. Keynes on Absolute Income Hypothesis, Duesenberry J.S. on Relative Income Hypothesis, Modigliani F. on Life Cycle Income Hypothesis, Milton Friedman on Permanent Income Hypothesis, etc. According to Alan and Angus (2011) The relationship between consumer spending and income is one of the oldest statistical analysis of macroeconomics and one of the sturdiest. Like the aging movie star, it needs a little touching now and again, but always seems to be bouncing back. Within all the countries of the world, there are significant numbers of socio-economic and demographic influences which affect the consumer's income and expenditure patterns. Among these factors includes population, number of households and associated data, Gross Domestic Product, annual inflation, and employment indicators.

Consumption accounts for two-third national income; hence it is a main factor to promote economic growth. Hence for this reason, exploring the relationship between consumption and income, generally labeled as consumption function has played main role in economic theory since Keynes introduced Absolute Income Hypothesis (AIH) from The General Theory. Keynes thinks current consumption expenditure mainly depends on current income. In the other words, current consumption is a stable function of current income. After Keynes' AIH, many economists extended the theory to a numbers of consumption models which provide the practical guidance for empirical work. Such as James Duesenberry's (1949) Relative Income Hypothesis

(RIH) is introduced in his seminal work, Income, Saving and the Theory of Consumer Behaviors, Franco, Modigliani's (1954) Life Cycle Hypothesis (LCH) and Milton Friedman's (1957) Permanent Income Hypothesis (PIH). In favor of this statement, this research tries to investigate the relationship between the disposable income and final consumptions in Nepal.

Disposable income is personal income minus personal income taxes (Colander, 2004). To Ande (2002) it is the income left to an individual or household for either spending or savings after the deduction of personal income tax. Hence income (national or disposable) can either be spent as consumption expenditure or saved. For the purpose of this study, Researchers focus explicitly on income-consumption expenditure relationship.

Some international literatures show that consumption affects on income, inflation, remittances, output, and interest rate. But there is no significant amount of research in context of Nepal. This research tries to examine the relationship between the disposable income and final consumption in Nepal. This paper tries to specifically answer how does disposable income affects to final consumption pattern in Nepal.

1.2 Statement of the Problem

Consumption function is the functional relationship between consumption and its various determinants. There are various determinants of consumption like income, price, inflation, remittances, output, and interest rate, age, sex, geographical location, and environment etc. but, out of all these determinants income is the main determinant of consumption.

The main determinant income is not for the particular case but same for all individual and all country. But the main different from individual to individual and country to country is the responsiveness of income to consumption. That is, the marginal propensity to consume (MPC) is different for different individual as well as different country. So, what is the marginal propensity to consume (MPC) in Nepal is one of the matters of investigation.

Similarly, what is the trend of income, trend of expenditure and its relationship between income and expenditure is also another curious question. On the other hand the composition of final expenditure and share of different component in total consumption expenditure is also under investigation. The main focus of the study of

Economics is concerned with the inquiry in the income and consumption behaviour. So, these questions are most important in Economics. All these matters of inquiries in Nepal are not still systematically done. This study tries to fulfill the scarcity of literature related to consumption and its determinant income.

This research formulates the problem as: how these two variables income and consumptions relationship exists into quantified and what can be done. Nepal has not portrayed such relationship with a quantitative approach. This paper tries to fill the void of existing research gap in the context of income and consumption.

The general research question is how to measure the effects on consumption due to income growth. And following are specific research questions:

i. Does any econometric causality exist between income and consumption?
ii. How incomes behave upon consumptions pattern in Nepal?

1.3 Objectives of the Study

The general objective is to trace out the effect of income on consumptions pattern in Nepal. The following are the specific objectives of the study:

i. To analyze consumptions trend of Nepal.
ii. To analyze linear relations of income and consumption in Nepal.

1.4 Significance of the Study

Consumption is that part of income spent on goods and services for the direct satisfaction of needs of the population and/or general needs of the society. Final consumption includes all the expenditure that enables direct satisfaction of human needs, individual and collective. Depending on the subject of consumption, it is divided into two categories: household consumption and government consumption.

There are various determinants of consumption out of which income is the main determinants of consumption. There are various theories propounded to explain the relationship between consumption and income and several research works were done. But, in case of Nepal there is not the sufficient research done to explain the relationship between the consumption and income. This study is tried to explain the relationship between the gross national disposable income and final consumption expenditure of Nepal. So, this study on the consumption and income helps to understand the linear correlation between these two variables. Furthermore these

variables are interrelated and so the study on consumption and income is more important to explain the interdependency for the case of Nepal.

This paper will try to estimate the relationship of income and consumptions. Such estimation can have significance on policy intervention. The directionality and relation help to understand income and consumptions in context of Nepal while there is a lack of quantitative analysis. The study will help to explore the effect of consumptions on income and such effect can illuminate the further discussions. While there is a severe lack of literature this study will fulfill such gap and foster the quantitative perspective to the problem. So, this study is important for researcher, student, policymakers and those who are interested to know the relationship between income and consumption.

1.5 Limitations of the Study

The limitations of this study are that the analysis of consumptions depending upon the income on the financial side of the economic behavior and it predicated on the future looking like the past. The preliminary literature review has confirmed the fiscal, remittances, inflation, interest rate and other shocks have played much of a role in consumptions. But this study only considers the income and consumption. Yet, there may exit numerous macroeconomic variables. Upon various methodologies available, this study considers VAR while VECM, ARDL, and simulation approach are trended new methodologies. This study has analyzed only the 16 year of data form FY 2000/01-2015/16, and tried to find out the valid result. Similarly, time and budget constraints and lack of experiences are other limitations of the study.

1.6 Organization of the Study

The whole study divided into five chapters. The first chapter deals with introduction. This includes background of the Study, statement of problem, objectives of study, significance of the study and limitations of study. The second chapter concern with the review of literature. It includes theoretical review and empirical review of literature and review of international literature as well as national literature.

The third chapter explains the research methodology used in the study. It includes research design, nature and sources of data, Variables including dependent and independent variable, model specification, setting hypothesis and data analysis and presentation, etc.

The fourth chapter related with the econometric analysis of data. This chapter includes trend of income, trend of consumption and relationship between income and expenditure in Nepal. The last chapter summarizes the main conclusion that flows from the study and offers suggestions for further improvement and conclusion of the study.

CHAPTER – II

REVIEW OF LITERATURE

Review of literature means looking back or past event of experiences. Every scientific research must be based on past knowledge. The previous studies cannot be ignored because it provides the foundation to the present study of the perspective titles. So this chapter contains review of the relevant literature in the published books, journals, articles, theses and previous research works related to the past study.

2.1 Theoretical Review

The consumption function is about the functional relationship between consumption and income. It expresses the functional income-consumption relation and all its determinants. It is a single mathematical function used to express consumption expenditure, it can be written as:

$$C = f(Y^d) \ldots\ldots\ldots\ldots (1)$$

Where:

C = consumptions

Y^d = disposable income

The concept of the consumption function first formulated in Keynes' book General Theory of Employment Interest and Money (1936).The function is used to calculate the amount of total consumption expenditure in an economy. It is consisted of autonomous consumption which is not affected by current income and induced consumption that is influenced by the economy's income level. The simple function is written as the linear function:

$$C_t = \alpha_0 + \alpha_1 Y_t^d \quad \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where:

C_t is the total consumption at time t

α_0 is autonomous consumption, which represents consumption when income is zero. In estimation, it is assumed to be positive $(\alpha_0 > 0)$

α_1 is the marginal propensity to consume ($0 < \alpha_1 < 1$)

Y_t^d is disposable income at time t

2.1.1 Absolute Income Hypothesis (AIH)

Keynesian theory (1936), what is known as the Absolute Income Hypothesis (AIH), and postulates that the consumption level of a household only depends on its absolute level (current level) of income and ignores the potential future income. The hypothesis also states that as income rises, consumption will also rise but not necessarily at the same rate. That means income-consumption relationship is not proportional.

The features of the absolute income hypothesis (AIH):

1. Consumption is a stable function of disposable income. Consumption will rise as disposable income rises.
2. It is possible for consumption to exhibit the non- linear functions. An increase in consumption will be smaller than the increase in disposable income. That is to say the marginal propensity to consume (MPC) is greater than zero but less than unity, $(0<\alpha 1<1)$
3. The average propensity to consume (APC) falls with increase in income but it is larger than MPC. This result from the existence of autonomous consumption. It implies that at very low income levels or at zero income, consumption expenditure will be higher than income or still exist respectively.

2.1.2 The Life-Cycle Hypothesis (LCH)

Modigliani and Brumberg (1954) proposed the life-cycle hypothesis (LCH), it is opposite to what Keynesian function of consumption assumes. Unlike the Keynesian consumption theory is entirely based on the current income of the individuals while the concept of LCH assumes that all individuals consume a constant percentage of present value of their life income. The life cycle model also assumes that all individuals save while they work in order to finance consumption after they retire. The key assumption is that all individuals choose to maintain stable lifestyles. That means they keep their consumption levels approximately the same in every period instead of saving in one period to spend furiously in the next period. He emphasized that the way individuals save their expected income YP is based on forwarding looking expectations, hence, an individual's consumption over her/his life time should be equal to Y + Holding of assets that come from sources instead of work.

According to the theory, consumption is a function of the consumer's life expected income. Individual's consumption can be said to depend on the available resources, the rate return on capital, the spending plan and the retirement age of individual which the plan is made. The theory makes three assumptions as follow:

1. There is no change in price level during the consumer's life time

2. Interest rate is stable throughout the lift time of the consumer.

3. The consumer does not inherit any assets. Savings are his/her net assets.

The life cycle model can be expressed as:

$C = (W + RY)/T$

Where W = Initial endowed wealth, R = retirement age, Y = Income, and T = Years of life remaining.

Rewriting consumptions function of this consumer

$$C = \gamma_1(1/T)W + \gamma_2(R/T)Y \text{ ……..} (4)$$

If every individual plans their consumption in such way, the aggregate consumption function of the economy, will take the form

$$C = \alpha W + bY \text{……} (5)$$

Where parameter a is the marginal propensity to consume out of accumulated wealth and b is the marginal propensity to consume out of income

2.1.3 The Permanent Income Hypothesis (PIH)

The permanent income hypothesis (PIH) is developed by Friedman (1957). In its simple form, the hypothesis argues that consumption is not by current income but depends on expected average income and transitory income. The key conclusion of this theory is that transitory, short-term changes in income have little effect on consumer spending behavior. Friedman uses permanent income as the determinant of income. He split the consumption and income into permanent and transitory components. That is

$$C_t = C_t^p + C_t^q \text{ ……} (6)$$

$$Y_t = Y_t^p + Y_t^q \text{ ……} (7)$$

Where:

C_t^p is permanent consumption, and C_t^q is transitory consumption

Y_t^p is permanent income, and Y_t^q is transitory income.

Permanent income refers to the amount a consumer spends on consumption while keeping his/her wealth intact. Transitory income is the differences between permanent income and the measured income. Friedman concluded that the individual will consume a constant percentage of his or her permanent income and earners with low income level have a higher marginal propensity to consume while high income earners have a higher transitory element to their income and a lower than average propensity to consume.

In Friedman's PHI model, the key determinant of consumption is an individual's real wealth, other than his or her current income. The theory makes four flowing assumptions:

1. There is no correlation between permanent and transitory incomes

2. There is no correlation between permanent and transitory consumptions

3. There is no correlation between transitory income and transitory consumption.

4. Only differences in permanent income affect consumption.

According to PHI, individuals with measured income are higher than their permanent income will consume smaller fractions of their measured income than those with a measured income that is less than their permanent income. The short run consumption function can be written as:

$$C_t = \sigma_0 + \sigma_1 Y_t \text{ .....(8)}$$

Where $\sigma_1 Y_t$ measures the consumption differences associated with difference in income. We then come to conclude that $0 < \sigma_1 < 1.$

2.2 Methodological Review

Theoretical interest stimulated empirical work. According to Keynes's AIH, current consumption expenditure only depends on current income, the marginal propensity to consume was less than average propensity to consume, therefore, the percentage of income saved increased with income. But then numerous conflict of evidence arose. James Tobin and Arthur Smithies in separate studies found that Keynes's hypothesis was true only in the short run. They revealed that in the long run, the relationship between consumption and income is relatively proportional. This found to be due to the influence of other factors on the long run consumption. Tobin found that factors such as assets holding, rural-urban migration, introduce of new goods and the population of dependents result in the consumption line to shift upward by almost the amount needed to produce a proportional relationship between income and consumption over the long run. Furthermore, Kuznets made estimation of savings in the United States for the period since 1899 and found no rise in the percentage of income saved during the past half-century despite a substantial increase in real income. On the basis of his estimates, the percentage of income saved was the same over the whole of the period. Examination of budget studies for early periods strengthens the appearance of conflict. The average propensity to consume (APC) is roughly the same for widely separated dates, despite substantial differences in average real income. Yet lots of budget studies separately yield a marginal propensity to consumption (MPC) is lower than the average propensity to consumption (APC). Finally, in the period after World War II the saving ratio was sharply lower than the ratio which would have been consistent with findings on the income-savings relation in the interwar period. This experience remarkably underlined the inadequacy of a consumption function relating consumption or savings solely to current income. In 1946, Kuznets published estimates of aggregate consumption and income over the period 1869-1938. He like Tobin and Smithies revealed that the relationship between consumption and income tends to be proportional over a long period. This implied a significant variation in the long and short run behavior of consumption. A serious of new theories explained this variation, each one replacing the absolute current income with a variant of income. Such as the life-cycle hypothesis (Modigliani and Brumberg 1955; Ando and Modigliani 1963) and the permanent income hypothesis (Friedman 1957).

Friedman's permanent income hypothesis (PIH) suggested that current consumption is a function of permanent income as opposed to the current income, where the current consumption is the sum of permanent and transitory income. Therefore, when the there are short term changes in income, consumer will not change their consume habit. For example if China's GDP temporally goes down for few days, would consumers change the consume habit just for those few days? Friedman thought the answer was no. This indicated that the key determinant of the consumption function is permanent income, other than current income. Later, Hall (1978) demonstrated the permanent income hypothesis (PIH) is implied that consumption follows a random walk. This argument is true because the permanent income changes only when the changes in GDP is on the basis of long term. While permanent income hypothesis temporally reconciled the dilemma faced by US economy. Therefore after its introduction, the permanent income hypothesis attracted remarkable empirical attention. Several experiments such as Modigliani, (1966); Davidson et.al, (1978); Ghatak, (1998); and Wen-Jen and Hsing, (2005) are famous in literature which focus on the different aspect of the hypothesis including the test of linearity and co-integration between income and consumption in different countries.

Modigliani also populated that consumption goes through a life cycle just as a person finishes his or her life cycle. While the young and old generations spend a higher proportion of their income, the middle aged people become conservative according to lowering the proportion of income spent. So life cycle hypothesis provided another way to resolve the US economy dilemma. But, life cycle hypothesis have some defects as well. The main defect of the LCH is difficult to empirically test the hypothesis with inability to observe life cycle income Furthermore, as no one exactly knows how long they will live, it is hard to precisely know what level of savings would be sufficient for the retirement period. Moreover, the theory does not detail the age points that signify the entry into middle age or retirement age. The assumption also states a consumer plans his consumption over his life time is unrealistic because observed behavior show that consumers care for their present and immediate future needs.

2.3 Empirical Review

2.3.1 Review at International Level

Kumar & Aggarwal (2004/05) determined the extent of poverty in Delhi slums through consumption patterns, employment and educational status of the slum population. They found a very low level of education of the migrants, gender disparity in economic status, and a significant number of households below the poverty line. Most of the household made an average expenditure on food from their income. A sample of 196 was taken for the study, reflecting diverse age, income, education, households' size and food consumption pattern. Simple random sampling was used to include every item of the population with an equal chance to avoid personal bias. The survey work was conducted in July 2001.

Campbell & Cocco (2004) using micro data revealed that fluctuations in house price affect household consumption through increased rent and a rise in loan installments. The fluctuations tend to impact more the older homeowners than the younger renters. A house which is wealth collected by older generation becomes less transferable and mobile as such changes in house price will affect consumption.

Gangopadhyay & Wadhwa (2004) examined the changing pattern of household consumption expenditure to examine the household behaviour which was purely a statistical exercise, suggesting what can be done, rather than what should be done. In particular, it was not an econometric exercise. It was more of an exploratory trip, trying to identify issues that are worth examining in a more rigorous fashion. They have found a general growth in expenditure is sufficient to clear us of poverty. They have suggested that, given our self-sufficiency in food availability, it is time to improve the availability of those services that improve the quality of life. Policies need to be directed towards the group miscellaneous services, many of which depend on the available infrastructure.

Guisan (2004) explored the causal relationship between real consumption and real GDP in Mexico and United States by using several tests of Granger Causality, Modified Granger Causality, Engle-Granger Cointegration and Hausman. Granger Causality test put forth that there is no causality in Mexico but there is bilateral causality in US. Modified Granger Causality indicated that there is bidirectional relation in both country. According to Engle-Granger Cointegration, there is co-

integrated relationship between consumption and GDP in the US, but the results for the case of Mexico is uncertain.

Reddy (2004) showed a large difference in both production and consumption of pulses across regions, and the increase in imports due in the name of modernization. He stated that, as there is a growing demand for pulses for consumption in the domestic market, as pulses contribute essential amino acids in the human diet. Short supply of pulse crops has led to increase in prices, there by pushing pulses out of the reach of poor households which negatively affects their nutrition and productivity. The evidence showed that to increase pulses production and consumption, there should be a region specific approach, as different pulse crops grow in different regions. The study argues that an improved package of practices, technological interventions and region-specific approach are needed to alleviate the problem of short supply of pulses and chronic malnutrition among the people.

Aguiar & Hurst (2005) used a large cross-section data of United States households on food diaries disclosed that, "despite the decline in food expenditures, neither the quantity nor the quality of food intake deteriorates with retirement status". Hence a decline in consumption expenditures following retirement of the American people this phenomenon is offset by an equivalent rise in time spent on home production.

Johnson, Parker & Souleles (2006) investigated the change in consumer expenditure as a result of 2001 federal income tax rebates. They also tested the validity of the permanent income hypothesis. The consumers spent some 20 to 40 percent of their rebates on nondurable goods. The impact on consumption demand was substantial especially for those with low income and wealth.

Chetty & Szeidl (2007) studied risk preferences in the utility theory dealing with consumption commitments since they believe that the majority of households spent a large portion of their income on consumption. Using portfolio analysis which is useful for determining between high and moderate risk aversion they come out with the optimal design for social insurance and tax policies.

Fernandez & Krueger (2007) examined facts from consumer expenditure survey data and stated that both expenditures on nondurables and durables have a sizable hump, around 50 percent of which is accounted for by changes in household demographics. The other half remains to be explained by factors not present in the standard complete

markets life cycle model of consumption. They plotted life cycle profiles of total expenditure i.e. expenditure on durables and expenditure on nondurables, controlling for group and time effects. They gave special emphasis on the comparison of different approaches to control for changes in demographics over the life cycle. Significant changes have been observed over the life cycle for total, nondurable, and durable expenditure.

Nwabueze (2009) examined the casual relationship between gross domestic product and personal consumption expenditure with regression analysis by using the data of Nigeria for the years of 1994 – 2007. The results indicated that an increase in gross domestic product has no significant effect on the personal consumption expenditure of Nigeria and the gross domestic product explained about 3.5 percent of the personal consumption expenditure of Nigeria.

Pavithra, Basavaraja, Kiresur, Mahajanshetty & Mageri (2009) studied on the food consumption pattern in Karnataka taking NSSO data conducted in 1993-94 and 61st round 2004/05-05. They use the percentage calculation to analyze the changes in pattern of food consumption over years and state that the monthly per capita cereal consumption has declined from 13.15 kgs to 10.73 kgs in rural areas, while in the urban sector it was from 10.87 kgs to 9.7 kgs. They found that the consumption of cereals has declined in Karnataka over the periods. The monthly per capita consumption of pulses was almost stable over the two periods in rural and urban areas of Karnataka. The monthly per capita expenditure (MPCE) on food was Rs.167 during 1993-94 in rural areas and it increased to Rs.283 during 2004/05-05. In urban area, the MPCE increased from Rs.236 to Rs. 447. The expenditure elasticity for all food groups were less than unity in urban areas with the highest value being 0.96 for vegetables.

Mishra (2011) explored the relationship between real consumption expenditure and economic growth in India with the co-integration test and the vector error correction regression for the years of 1950-51 to 2008-09. Results indicate that there is long-run equilibrium relationship among variables. According to the results of causality test in the error correction model, it has been found that there is unidirectional causal relationship from real private consumption expenditure to economic growth in the long-run. But in the short run applied Granger causality test indicated that there is no causality between them.

Mustapha (2011) in his study claimed that households should spend wisely according to their urgent needs. A budget is the best way to help check and direct their spending. By setting amounts for the budget categories, it can assure that they fit to their personal preferences. Individual consciousness is the key point to be emphasized to make sure that households are careful in spending their income. They should be encouraged to save for their future needs. In short, learning to manage the money wisely takes time and effort. Surely, it depends on individuals in the society and their realization of the importance of saving.

Sakib (2011) analyzed the causal relationship between consumption expenditure and economic growth in Bangladesh using annual data from 1976-2009. The method used in the study is Johansen and ARDL co-integration tests. The results put forth that there is co-integration between consumption expenditure and economic growth in the long run. Granger causality test used in the study, revealed a long run unidirectional causal relationship running from economic growth to consumption expenditure.

Akekere & Yousuo (2012) examined the effect of income changes on private consumption expenditure in Nigeria by using the Ordinary Least Square simple regression analysis for the years of 1981-2010. Results revealed that there exists positive impact of Gross Domestic Product on Private Consumption Expenditure with a slope of 0.6708253 and it explains 98.4 percent of private consumption expenditure.

Brewer & Cormac (2012) in their study found that adding the imputed income or consumption from housing to our measure of household resources makes a substantial difference to average annual growth rates in living standards, even after an appropriate correction to the price deflator, and particular so for elderly households. Inequality and relative poverty grew less rapidly when measured with consumption, partly because consumption at the bottom grew more strongly than income in the 1980s, and because consumption at the top grew less strongly than income in the 1990 and 2000s. In recent years (but not in 1978 and the early 1980s), the relative position of elderly households in the distribution of living standards improves markedly if we assess living standards by consumption or (especially) broad income, compared to the usual measure of near-cash income. There are clear cohort effects amongst the elderly when considering broad income and consumption, with each successive cohort of adults aged 65 being less likely to be in the bottom decile group of living standards than their predecessors, but these are not present when considering HBAI income. In

the most recent data, broad income and consumption give statistically-significantly- and substantively- different impressions of whether older individuals are worse off than their younger peers, whether those with large families are worse off than those with small families, and whether the self-employed are worse off than others.

Tehteb (2012) investigated the relationship between income and consumption in Bulgaria and Russia over the period 1990-2010 by using co-integration model. The study put forth that there exist positive and significant long run relationship between GNI and consumptions for Bulgaria and Russia.

Michael, Jeremy & Karl (2012) in their study examined the well-known problem of how to test theories of consumer behavior when consumption expenditures include durable goods purchases. They have presented theoretical and empirical arguments for relating real consumption of non durable goods and services to measures of real income and wealth that are defined relative to a price index for nondurables and services consumption; this contrasts with the usual procedure of deflating income and wealth with a price index for total consumption. In two empirical exercises, they demonstrated that this choice of deflation method can significantly affect the interpretation of observed consumption behavior as well as the results obtained from standard tests of the predictions of the permanent income hypothesis.

Beyond the substantive results relating to tests of consumer behavior, a more general lesson that they take from these findings is that macroeconomists may need to be somewhat more careful regarding their treatment of real variables. It is perhaps understandable that economists, who are generally schooled in the dictum that real variables control for increases in the price level, might conclude that deflation by a broad-based price index is always the appropriate way to construct a real income, output, or wealth series. However, their analysis shows that this practice can sometimes result in a poor empirical approximation to the underlying theoretical relationship that we seek to capture.

Ofwona (2013) determined a consumption function for Kenya for the period 1992 to 2011 by using Keynes's Absolute Income Hypothesis. In the study the relation between total household consumption expenditure and total income were analyzed with the method of ordinary least square. The results showed that consumption is determined by income in Kenya in accordance with AIH.

Santos (2013) investigated the relationship between consumption expenditure and income according to Keynes' Absolute Income Hypothesis (AIH) in Nigeria. The model was tested by ordinary least squares for the period of 1970-2011. In the study MPC and APC were estimated both in the short and long run. Results show that as income increases, the average propensity to consume is reduced as Keynes indicated. But in the long run although MPC is less than one it is not stable.

Khan & Ahmad (2014) made a research to test the previous established theories of consumption. Both the primary data and secondary data of consumption was used as dependent variable. The results shows that the determinants income, education, family size were highly effecting the consumption. The overall result support the view of Keynes as consumption is a positive function of income so our study also supports the theory of Keynesian Consumption. The potential of consumption was higher in higher income group. Findings are also in line with the Absolute theory of consumption, which suggest that as income increases consumption also increases but as income decreases, consumption does not decrease in the same proportion.

Tapsin & Hepsag (2014) analyzed the household consumption expenditure in EA-18. Panel Data model in this study covers the data between the years of 2000-2012. Gross domestic product (GDP) is used as a proxy for income. The data in terms of dollar are constant according to the base year of 2005 and have been taken from World Development Indicators Data Base. In light of some test, some deviations from assumptions and meaningful results are gained. GDP is meaningful and positive on 99 percent trust level. In this study carried out for Euro Zone, 1 Dollar increase in GDP will increase the household consumption by 0.566 Dollar.

Constantin, Lucian & Daniel (2015) evaluated the evolution of the three indicators: the final consumption, gross investments and available income, for the Romanian economy, during the last 25 years for which official annual data are available. The econometric approach has identified a model, based on the dataset described in table one, which can properly characterize the correlation that is the subject of our research. The tests applied on the model show its reliability and validity, even for future researches and forecasts. As final conclusion, we consider that the model we propose is relevant for the analysis of final consumption, depending on the gross investments and gross available income.

Prodan (2015) claimed that multiple regression analysis has followed the evolution of final consumption in terms of changing household and government consumption in Romania. The statistical data used were collected from publications made available by the National Institute of Statistics of Romania and covers the period 1990-2014. A linear relationship between the variables subject to the research was identified. A positive influence on the evolution of the final consumption was the household consumption; the regression coefficient for this indicator had the value of 1.000097 and the government consumption, with a regression coefficient of 1.002014. Estimated multiple regression model proved to be a precise one, having a determination ratio close to 1 and suggest a strong dependence between the resultant variable final consumption and the factorial variables included in the model. Finally, test the value of Prob (F-statistic) is zero, which confirms the claims above, whereby an econometric regression model using the resultant variable final consumption, and as factorial variables household and government consumption is a correct one and it, can be used to predict the economic developments in Romania.

2.3.2 Review at National Level

Maharjan & Joshi (2009) stated that income-poverty and consumption-poverty are significantly correlated with each other. Income-poverty shows higher incidence, depth, and severity of poverty compared to food insecurity. This could be due to the inclusion of non-food expenses while constructing income-poverty line, whereas consumption-poverty considers only the food needs. In addition, nature of consumption itself, which is relatively continuous compared to income, could be another reason for such difference.

They further stated that income-poverty shows that poverty is significantly related with gender of HHs, family size, education and occupation. Whereas, consumption-poverty shows significant relation with all of the variables considered. Characterized by the low level of resource possession and relatively higher family size, female headed and OC households are suffering significantly higher incidence, gap/depth, and severity of poverty. Also given limited employment opportunities and smaller landholdings, large family sized households have significantly higher incidence, gap/depth, and severity of poverty. Education and occupation are closely related to each other. Most of the illiterate households are also the one who are engaged in laboring, agriculture, and petty business. Therefore, significantly higher proportion of

households who's HHs is illiterate and engaged in laboring or agriculture is trapped into poverty with significantly higher gap/depth, and severity. In case of landholdings, incidence, gap, and severity do not vary significantly for income-poverty, i.e., even the larger landholding household is suffering income-poverty. But in terms of consumption poverty, significant association of poverty with landholding is revealed, i.e., incident, depth, and severity are significantly higher for small landholding households.

Chudali, Choudhary & Ali (2011) claimed that there is a wide range of variation on educational expenditure in different income groups of farm households. The benefit of knowledge, medical expenses, and education goes to higher income group of rural households. The expenditure shows a direct relationship with level of income. The study relates the consumption patterns with income and employment of Nepalese people at different topographical situation. Five villages have been selected to conduct the study. They found that, income elasticity of demand for food overall is 0.40 which means that the 0.41 per cent change in demand for food, if 1 percent change in the income.

Gaire (2013) examined co-integration and causality between the Government Expenditure (GE) vis-à-vis real Gross Domestic Product (GDP), Private Consumption (PC) and Gross Fixed Capital Formation (GFCF) with an aim of testing the relevancy of Keynesianism in the context of Nepal using time series data of 1975 to 2012. Using the methods of the unit root tests and co-integration tests, the study confirmed that there is long-run equilibrium relationship between the Government Expenditure variables and Economic Growth variables in Nepal. However, Granger Causality test revealed that there is no causality between the Government Expenditure and real GDP as well as private consumption for the review period. However, there is bilateral causality between Government Expenditure and Gross Fixed Capital Formation (GFCF) in Nepal.

Khan, Anwar, Ahmed & Kamal (2015) estimated the MPCs for five SAARC countries, namely Bangladesh, India, Nepal, Pakistan and Sri Lanka. The MPCs under the PIH are estimated in both: short run and long run. Results of the study show that in the short run the MPCs using the PIH is very small for Bangladesh, India, Pakistan and Sri Lanka. Hence, it indicates that in the short runs it is difficult for households to predict their permanent income in developing countries like Bangladesh, India,

Pakistan and Sri Lanka. However, this empirical results demonstrate that in case of Nepal the MPCs are high in short and as well long run. Thus, is concluded that in a small though developing country like Nepal the households can predict the permanent income in both short and in the long run. Hence the PIH holds for such countries.

2.3.3 Research Gap

Previous studies describes about the consumption pattern and income pattern of various countries. Some literatures tried to explain about the relationship between GDP and private consumption as well as the household consumption, but the study is not sufficient. The private consumption only cannot represent the expenditure pattern of all country. Similarly household consumption is the micro study which can not represent the macro level. So, this study tries to explain the macro analysis on consumption pattern of Nepal with the help of 16 years of data form FY 2000/01 to FY 2015/16 and tried to obtain the significant result.

CHAPTER – III

RESEARCH METHODOLOGY

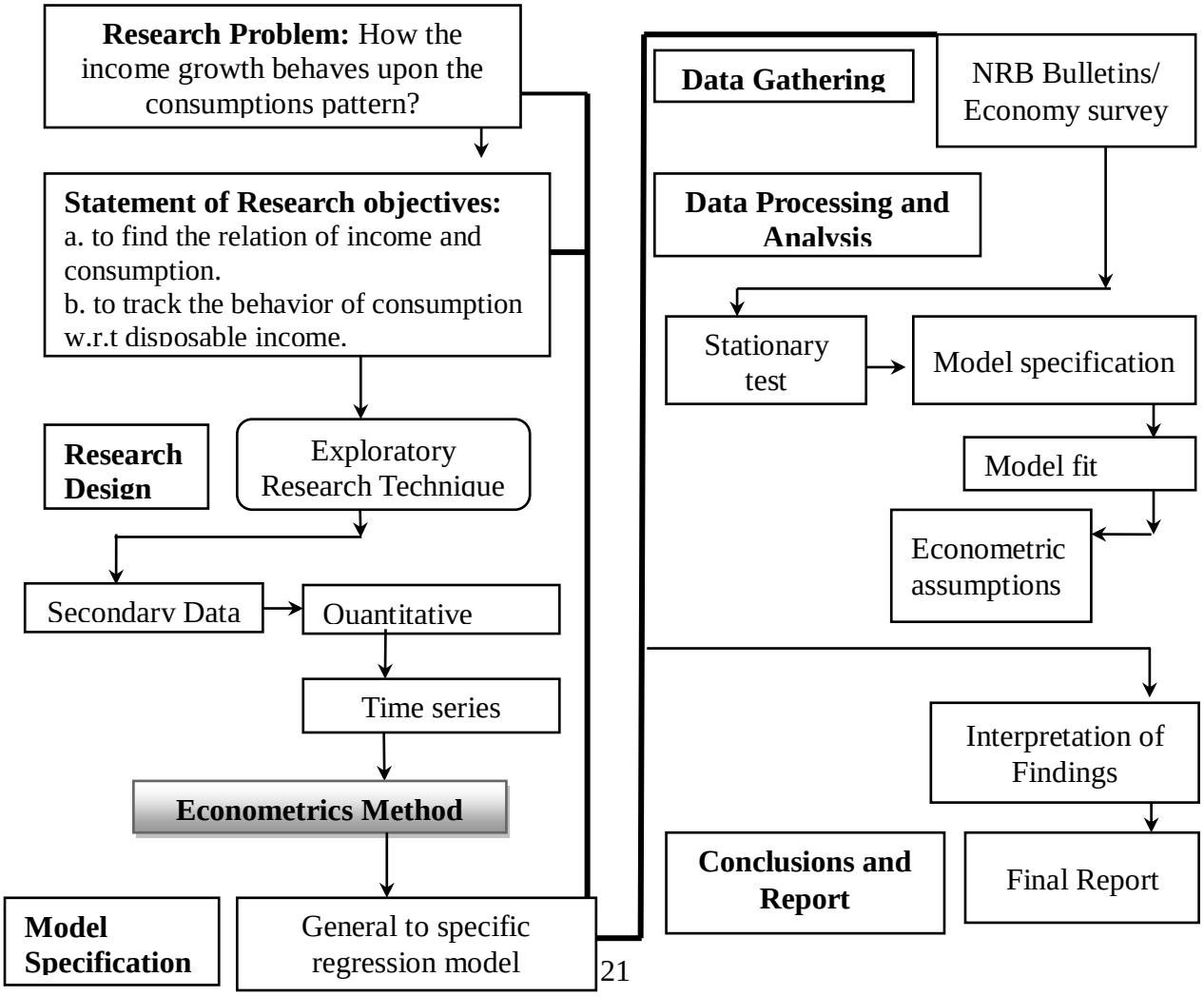
This chapter describes the methods and processes applied to conclude this research. In addition, it also identify the variables and explain the regression model used in this research. Following procedure has been applied to find out the relationship between gross national disposable income and final consumption expenditure.

3.1 Research Design

This thesis follows an exploratory research technique to track how the income growth be have upon the consumptions. This research design is based upon econometric modelling considering time series secondary data. The research design tries to direct both the structure of the research problem and the plan of study used to find empirical evidence on relations of the problem.

3.2 Conceptual Framework

Figure 3.1: Framework of Research Design



3.3 Nature and Sources of Data

This research pursues an econometric approach to trace out the relationship between income and consumption. The nature of this study is descriptive as well as analytical. This study is based on secondary data and information only. The variables are time series macro-economic variables, so the secondary data available from Economy Survey published by Ministry of Finance and other sources have also considered. The secondary sources of data has mainly taken from FY 2000/01 to 2015/16 to fulfill the objective of this study.

3.4 Variables

This study is based on quantitative and qualitative in nature. So the idea of dependent and independent variable is made here to simplify the analysis. The variables are explained as below.

3.4.1 Dependent variables

The dependent variable is the variable whose value is determined by the other variables. Based upon the model specification for regression analysis, the final consumption expenditure is considered as the dependent variable in this study. This is because final consumption expenditure depends upon various factors, here in this research it is assumed that final consumption expenditure depends upon the gross national disposable income.

3.4.2 Independent Variable

The variable which influences the other variable are called independent variable. Gross national disposable income is considered as independent variables based on the model explanation in this study. Gross national disposable income play an important role in the determination of final consumption expenditure. Thus, to explain with the regression analysis gross national disposable income is taken as independent variable.

3.5 Model Specification

The study specifies a model to explain the relationship between gross national disposable income and final consumption expenditure in Nepal with the help of regression analysis. In this model, gross national disposable income is considered as the function of final consumption expenditure.

In functional form:

C = f (Yd)

In Linear Form:

$C = \alpha + \beta\ Yd + \varepsilon$

Where,

C = final consumption expenditure → dependent variable (explained, endogenous);

Yd = gross national disposable income → independent variable (explanatory, exogenous);

α = Autonomous consumption expenditure, $\alpha > 0$.

β = Slope of the line (which determines the change in C per unit change in Yd), $0 < \beta < 1$

ε = residual variable (error term).

3.6 Setting Hypothesis

To test the relationship between gross national disposable income and final consumption expenditure, this study carried out the t-test for the validity and reliability of result. To test the long run relationship the hypothesis is set as below;

Null Hypothesis (H0)

H0 : There is no any relationship between Gross National Disposable Income and Final Consumption Expenditure.

Alternative Hypothesis (H1)

H1 : There is significance relationship between Gross National Disposable Income and Final Consumption Expenditure.

3.7 Data Analysis and Presentation

The available data from the various sources has been classified and analyzed scientifically with the help of computer software like excel as well as manually. Different tables are preparing for different variables. Mathematical calculation and statistical operations and tests are performed for quantitative information. Qualitative information is presented in descriptive way. To visualize information different table, diagrams and charts are prepare.

CHAPTER - IV

ECONOMETRIC ANALYSIS OF DATA

Consumption function is the functional relationship between consumption and its various determinants. The various determinants of consumptions are income, wealth, demographical factors, age etc. In this study gross national disposable income is considered as a main determinant of consumption.

Consumption means final consumption of goods and services. Final consumption consists of the value of purchases made by private households and public sector as well as the expenditure made by of nonprofit institutions activities results that do not represent changes in the size of the material heritage sector.

Private consumption includes all purchases made by population and private organizations. The purchase of durable goods (capital) are treated as private consumption except housing construction, construction materials, processed goods in households, products used for insemination, which represents intermediary consumption.

Income is an important determinant of consumption, by size and dynamic, it constitutes the main source of purchase of the economic goods. Gross disposable income measures the income available to the nation for the performing of the final consumption and savings operations. Gross economy is part of the gross disposable income which is not subject to final consumption expenditure.

In this study, researcher highlighted the effective possibilities for the use of linear regression model to analyze the evolution of final consumption. In this context, researcher considered this indicator as a dependent variable, whose variation is significantly determined by the evolution of gross disposable income as a parameter of social and economic life of a country. To emphasize the practical aspects related to the use of linear regression in the analysis of the macroeconomic developments in general and the analysis of the final consumption, in this particular case, researcher have developed a practical study in which we defined as the independent the variable gross disposable income in the economy of Nepal.

Simple linear regression model is a relatively easy and highly effective way of determining the correlation between two economic indicators. Thus, macroeconomic

research use of this method of analysis allows the determination of how a certain economic variables defined as independent, determines the evolution of a second results indicator.

Based on the aforementioned elements here is identified the relationship that exists at Nepal level between the evolution of the final consumption (regarded as a summation of the two fundamental components - private consumption and public consumption) and change in gross disposable income. To this end here is used as a method of simple linear regression analysis.

The main problem for any regression model is the model parameter estimation, an operation which can be carried out using least squares method (Least Squares).

In functional form:

$C = f(Yd)$ …… (1)

In Linear Form

$C = \alpha + \beta\ Yd + \varepsilon$ …… (2)

Where,

C = Final Consumption Expenditure

Yd = Gross National Disposable Income

α is autonomous consumption, $\alpha > 0$

β is Marginal Propensity to Consume (MPC), $0 < \beta < 1$

ε is error term,

The above equation (2) shows that consumption is the MPC times disposable income.

To analyze the correlation between consumption and disposable income, here is used the data of Nepal, who have a yearly basis, covering the period 2000/01-2015/16 and were collected by the Ministry of Finance. This information can be summarized in table form:

Table 4.1: Final Consumption Expenditure, Gross National Disposable Income and Gross National Saving

(Rs. In million)

Fiscal Year	Final Consumption Expenditure (FCE)	Gross National Disposable Income (GNDI)	Gross National Saving	APC	MPC
2000/01	390017	508815	118797	0.77	-
2001/02	415843	527024	111181	0.79	1.42
2002/03	450090	567088	116998	0.79	0.85
2003/04	473684	619954	146269	0.76	0.45
2004/05	521301	688753	167451	0.76	0.69
2005/06	595327	785185	189858	0.76	0.77
2006/07	656374	864251	207876	0.76	0.77
2007/08	735470	1006422	270952	0.73	0.56
2008/09	895042	1249508	354466	0.72	0.66
2009/10	1056185	1484539	428354	0.71	0.69
2010/11	1176030	1682362	506332	0.70	0.61
2011/12	1359539	1962407	602868	0.69	0.66
2012/13	1516122	2205791	689662	0.69	0.64
2013/14	1730312	2628792	898479	0.66	0.51
2014/15	1934046	2864669	930623	0.68	0.86
2015/16	2130520	3096225	965706	0.69	0.85

Source: MoF, Economic Survey (2015/16)

Keynes called the relationship between aggregate consumption and current disposable income the "propensity to consume." He gave names to two measures of the sensitivity of consumption to income. The average propensity to consume (APC) is the ratio of consumption to income: C/Y; the marginal propensity to consume (MPC) is the amount by which consumption increases as current disposable income rises by a dollar, $\partial C/\partial Y$. Both the average and marginal propensities are generally believed to be between zero and one.

Here, the minimum gross national disposable income is 390017 million and the minimum final consumption expenditure is 508815 million. Similarly the minimum gross national saving is 118797 million. On the other hand the maximum GNDI is 2130520 million, maximum FCE is 3096225 million and GNS is 965706 million during the period of FY 2000/01 to 2015/16. Here, the minimum amounts are occurred at the initial period, i.e FY 2000/01 and the maximum amount are occurred at the last period of this study, i.e. FY 2015/16.

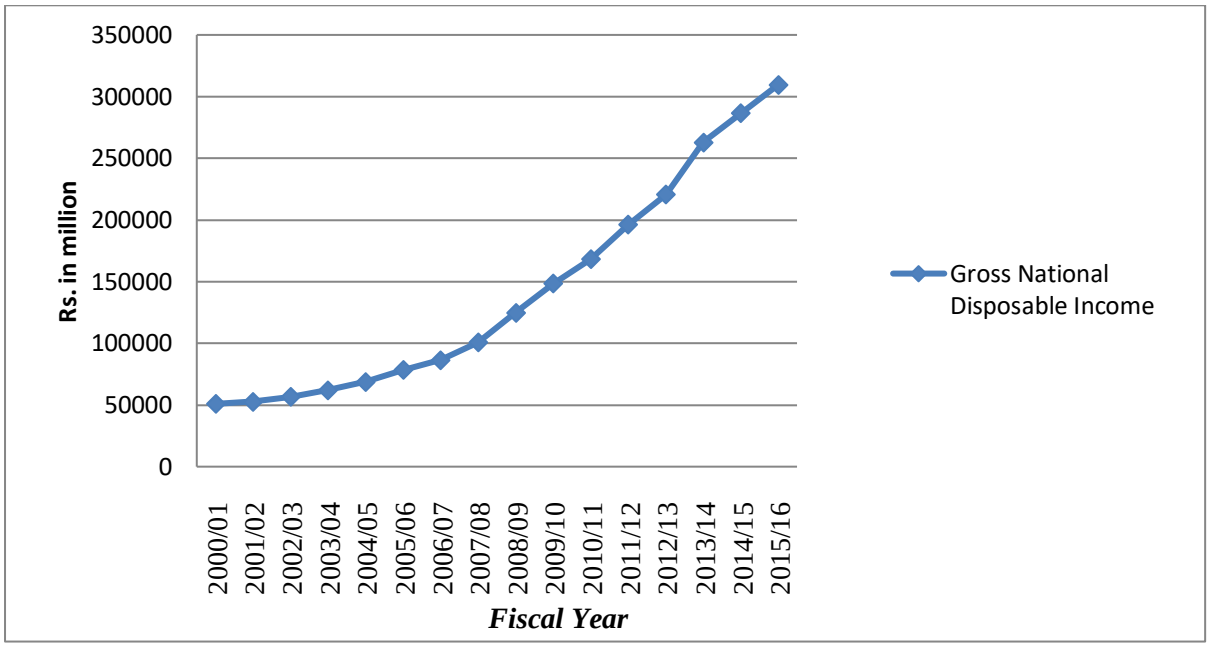
In the above table both APC and MPC are going to decline continuously up to FY 2013/14 and going to increase afterward. This indicates that as income increases consumption also increases but the increase in consumption is less that the increase in income. The result helps to justify Keynesian forecasting about the consumption.

In order to achieve the analysis of correlation between the two indicators is necessary the identification of the particularities that regards the evolution of each scale considered in the specified time interval. In this regard, by using different tools in excel here is studied in a first stage the individual evolution of the two indicators.

4.1 Trend of Gross National Disposable Income

To find out the trend of final gross disposable income of Nepal here is presented the data during 2000/01-2015/16. Key information obtained from the analysis performed using the graph with the help of excels which can be presented as follows:

Figure 4.1: Trend of Gross National Disposable Income



Source: Table 4.1.

Summary of Descriptive Statistics

Gross National Disposable Income	
Mean	142136.1563
Standard Error	22158.98931
Median	112796.5
Mode	#N/A
Standard Deviation	88635.95725
Sample	2000/01-2015/16
Kurtosis	-0.8580825
Skewness	0.723308864
Range	258741
Minimum	50881.5
Maximum	309622.5
Sum	2274178.5
Count	16

From the above figure and analysis table it can say that the average value of this indicator for the period FY 2000/01-2015/16 is 1421361.563 million lei, with a range between a minimum of 508815 million (recorded at the end of FY 2000/01) and a maximum of 3096225 million (at end FY 2015/16). Similarly, the trend of gross national disposable income is going to increasing continuously.

The values of the statistical tests previously conducted allow us to state that the distributions of gross disposable income for the period is not considered perfectly symmetrical (Skewness test value is zero), because Skewness test value is greater than zero we can say that the distribution is inclined to the left, with more extreme values to the right. Kurtosis test value being less than 3 means that we have a platikurtic distribution, flatter than a normal distribution, having values dispersed on a bigger interval around the average. The probability of extreme values is lower than a normal distribution.

4.2 Composition of Consumption Expenditure

Composition of expenditure helps to understand and analyze the data. It shows that the share of all components on the final consumption expenditure. The component with larger share has higher influencing power and the component with small share have smaller influencing power on consumption expenditure.

In general final consumption expenditure includes of government consumption and private consumption. But, in this study final consumption expenditure includes of government expenditure, private expenditure as well as expenditure made by nonprofit institutions also included because of data availability form the Ministry of Finance, in economic survey.

The composition of consumption expenditure of 16 years form FY 2000/01 to 2015/16 is given in the following table:

Table 4.2: Composition of Consumption Expenditure

(Rs. In million)

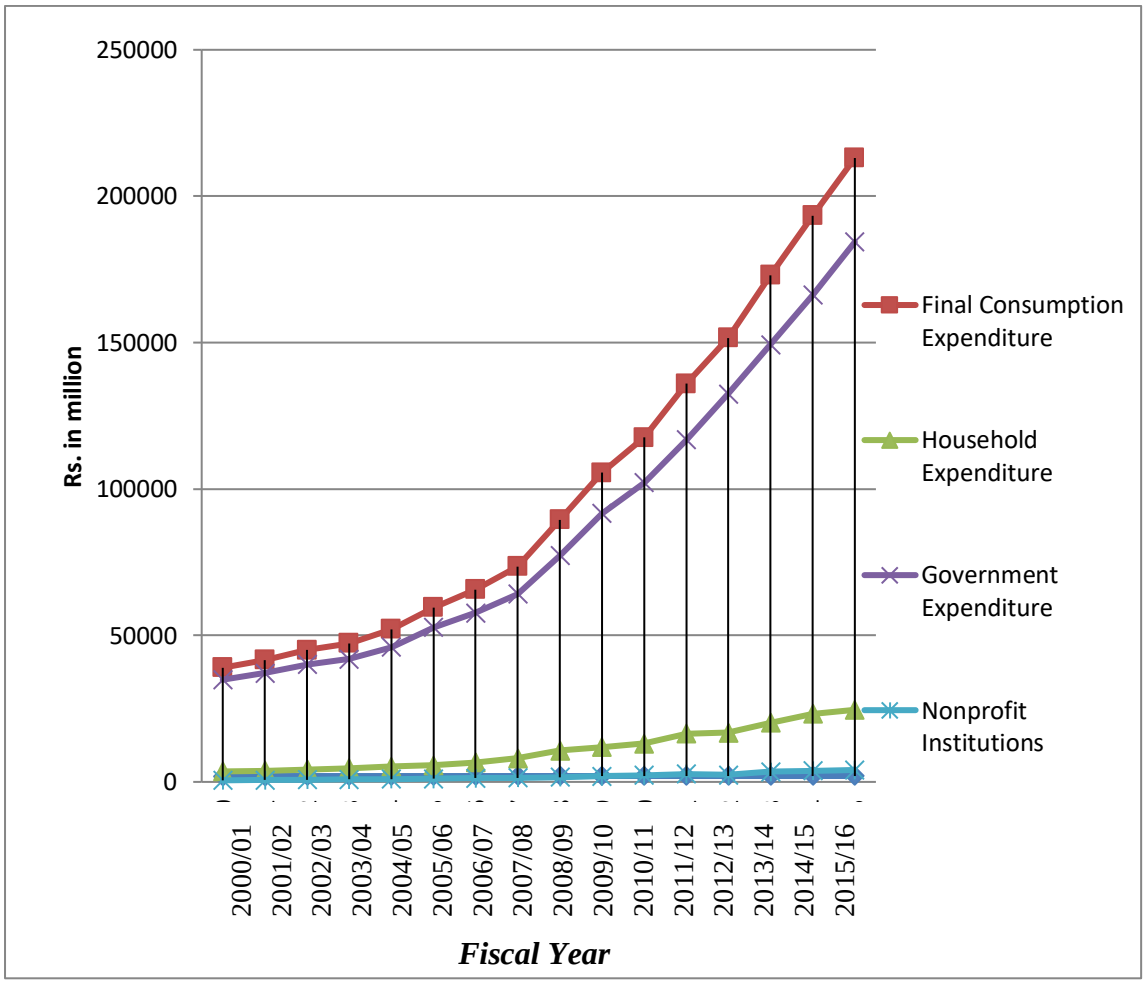
Fiscal Year	Final Consumption Expenditure	Household Expenditure	Government Expenditure	Nonprofit Institutions
2000/01	390017	35785	348989	5243
2001/02	415843	38586	371402	5855
2002/03	450090	42652	400468	6970
2003/04	473684	46397	419290	7997
2004/05	521301	52453	459530	9318
2005/06	595327	56794	527814	10719
2006/07	656374	66949	576911	12514
2007/08	735470	80663	641085	13722
2008/09	895042	106527	772762	15753
2009/10	1056185	119189	916993	20013
2010/11	1176030	130917	1022126	22987
2011/12	1359539	164370	1167861	27308
2012/13	1516122	16,8192	132,4363	23567
2013/14	1730312	201915	1493375	35022
2014/15	1934046	232532	1662962	38552
2015/16	2130520	246146	1843715	40659

Source: Economic Survey (FY 2015/16)

The above table shows the final consumption expenditure from FY 2000/01 to 2015/16 which includes of private consumption, government expenditure and nonprofit institutions expenditure. The trend of all these expenditure is in increasing trend. In total consumption expenditure the largest share is from government expenditure, which is more than 8 times greater than the private consumption. But the share of nonprofit institutions is very small in comparison to private and government expenditure in total consumption expenditure. The share government expenditure in total expenditure indicates that the government is increasing its expenditure year to year. This increase in government expenditure indicates that there may be the increasing the development activities around the country.

The composition and trend of final consumption expenditure is shown in the following figure.

Figure 4.2: Composition and Trend of Final Consumption Expenditure



Source: Table 4.2.

The figure 4.2 shows the composition and trend of final consumption expenditure of Nepal during the period of FY 2000/01-2015/16. The final consumption expenditure includes of house hold expenditure government expenditure and nonprofit institutions expenditure. The share of nonprofit institutions is very small in portion. And the share of private expenditure is relatively high and the share of government expenditure is 8 times higher than the public expenditure.

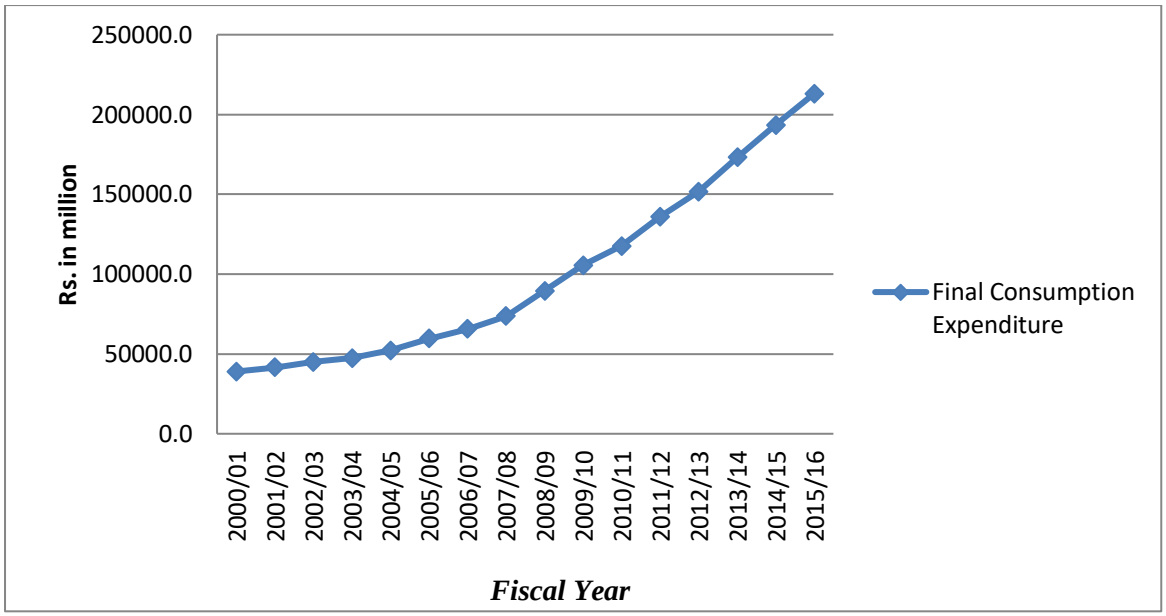
The trend of government expenditure is increasing rapidly but the trend of public expenditure is increasing but in very slowly. Similarly, the expenditure of nonprofit institutions is also increasing but by negligible level.

Trend of consumption expenditure show that government expenditure is increasing rapidly where as the trend of private expenditure is increasing slowly. From this result it can be said that due to the public expenditure increases due to the rapid increase in expenditure on infrastructure and other government activities. But the private expenditure is not going to increase may be due to not increase in private income or may be due to the lack of purchasing power. But the small increase in private expenditure means increasing in the need of household wants. Finally, form above trend stricture it can be concluded that the expenditure increases as income increases for all sector but the increasing trend of government expenditure exceed expenditure of all other sectors.

4.3 Trend of Final Consumption Expenditure

A similar analysis can be performed in terms of final consumption expenditure of Nepal within the timeframe considered. Key information obtained from the analysis performed using the graph with the help of excels which can be presented as follows:

Figure 4.3: Trend of Final Consumption Expenditure



Source: Table 4.1.

Summary of Descriptive Statistics

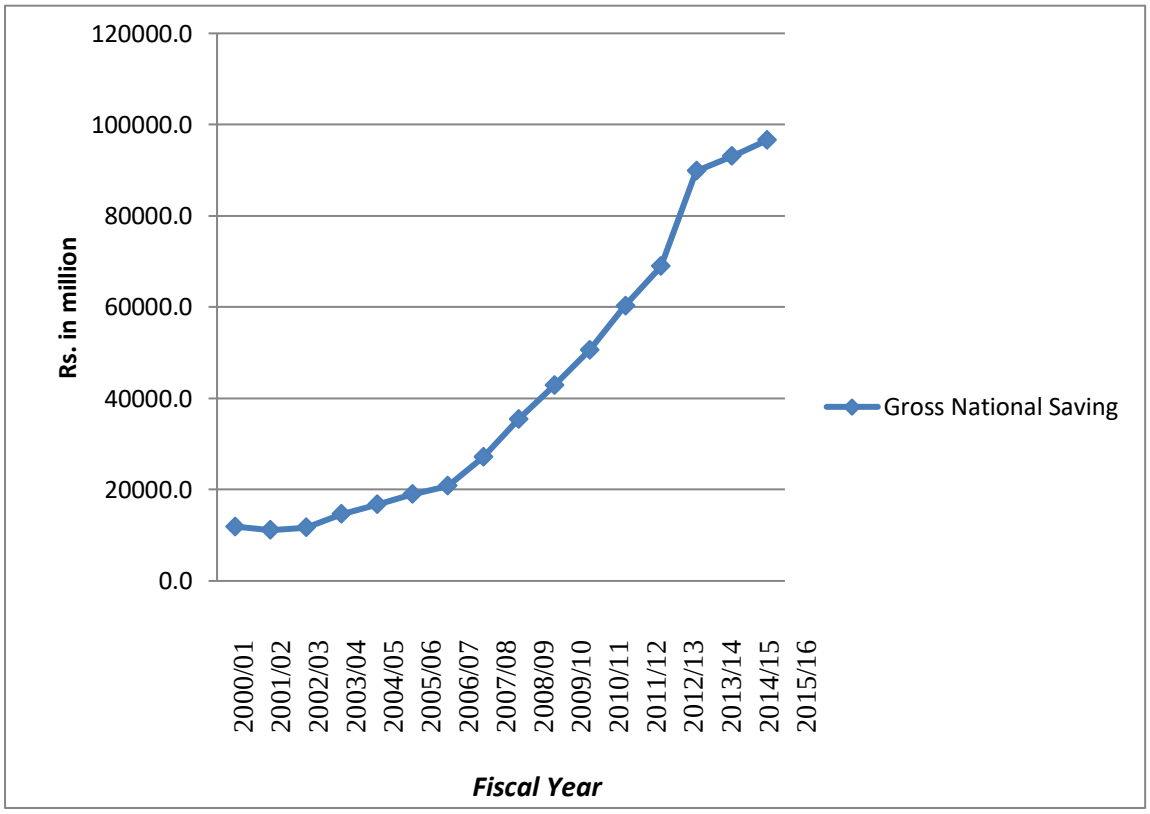
Final Consumption Expenditure	
Mean	100224.3875
Standard Error	14431.30031
Median	81525.6
Mode	#N/A
Standard Deviation	57725.20123
Sample	2000/01-2015/16
Kurtosis	-0.772318542
Skewness	0.72512401
Range	174050.3
Minimum	39001.7
Maximum	213052.0
Sum	1603590.2
Count	16

As can be seen from analyzing the data series subjected to the research, and especially in the graph above, within the timeframe considered, the final consumption expenditure in Nepal has seen a steady increase from year to year. In the year of 2001/02 it is seems about 390017 million (minimum), which is increased continuously and in 2015/16 it reached about 2130520 (Maximum) million. Similarly, the average value of this final consumption expenditure for the period 2000/01-2015/16 is 1002243.87 million lei. As seen above, the values of Skewness and Kurtosis tests allow us to state that the considered distribution is not perfectly symmetrical, predominant values located between the minimum and average values of the data series. From the above data it can be concluded that the consumption expenditure cannot be decreases rather it increases continuously with increase in income.

4.4 Trend of Gross National Saving

A similar analysis can be performed in terms of gross national saving of Nepal within the timeframe considered. Key information obtained from the analysis performed using the graph with the help of excels which can be presented as follows:

Figure 4.4: Trend of Gross National Saving



Source: Table 4.1.

Summary of Descriptive Statistics

Gross National Saving	
Mean	41911.7
Standard Error	7751.951644
Median	31270.9
Mode	#N/A
Standard Deviation	31007.80658
Sample	2000/01-2015/16
Kurtosis	-0.935347195
Skewness	0.738143926
Range	85452.5
Minimum	11118.1
Maximum	96570.6
Sum	670587.2
Count	16

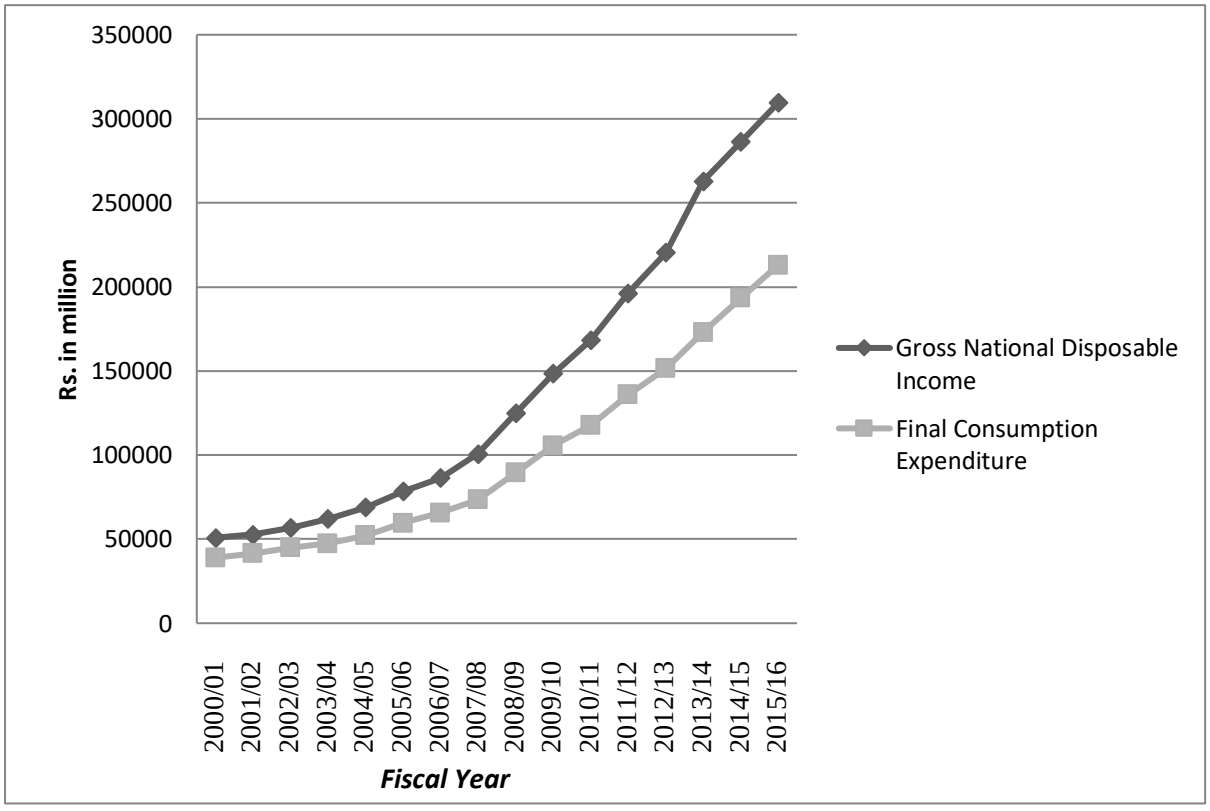
As can be seen from analyzing the data series subjected to the research, and especially in the graph above, within the timeframe considered, the gross national saving in Nepal has seen a steady increase from year to year. In the FY of 2001/02 it is seems about 854525 million (minimum), which is increased continuously and in 2015/16 it reached about 965706 (Maximum) million. Similarly, the average value of this final consumption expenditure for the period 2000/01-2015/16 is 41911.7 million. As seen above, the values of Skewness and Kurtosis tests allow us to state that the considered distribution is not perfectly symmetrical, predominant values located between the minimum and average values of the data series. From the above data it can be concluded that the as income increases saving trend also increases.

4.5 Relationship between Final Consumption Expenditure and Gross National Disposable Income

From the two previous analyzes it was possible to get a very important conclusion on the analysis of the correlation between the two indicators of the research - final consumption and gross available income. Thus, it notes that the evolution of the two macroeconomic indicators is very similar, with sharp increases for the period 2000/01-2015/16 included in the time frame under investigation. Also, it can be seen that the statistical tests performed on the data sets for the two indicators are almost identical. Based on these findings, we can say that the value of final consumption and gross disposable income is highly interdependent.

The graphical representation of the relationship between gross disposable income and final consumption expenditure is presented below:

Figure 4.5: Relationship between Final Consumption Expenditure and Gross National Disposable Income



Source: Table 4.1.

Figure 4.5 shows that both gross national disposable income (GNDI) and final consumption expenditure are in increasing trend. Gross National Disposable Income

is greater than final consumption expenditure indicates that as gross national disposable income increases final consumption expenditure also increases but these both indicators are not going to equal. That means all gross national disposable income is not spend for consumption of goods and services some portion of it is saved for future uncertainty and risk.

One another important finding from above figure is that the gap between gross national disposable income is going to increasing which indicates that as income increases consumption also increases but the increase in consumption is less than the increase in income. The main cause behind that is; in the initial stage there are many wants of consumer that have to satisfy, but later basic necessities are going to fulfill so consumers have to spend less on these goods and services. So, marginal propensity to consume is going to fall.

Based on the graphic representation can be said that between final consumption and gross disposable income, there is a direct and linear form. The regression analysis is used as statistical tool for determining the nature of relationship that exists between gross national disposable income (Yd) and final consumption expenditure (C).

To build a linear regression model we defined gross national disposable income as an independent variable, while the value of final consumption expenditure was considered a dependent variable. The hypothesis is set as below;

Setting Hypothesis

Null Hypothesis (H0)

H0 : There is no any relationship between Gross National Disposable income and Final Consumption Expenditure.

Alternative Hypothesis (H1)

H1 : There is significance relationship between Gross National Disposable income and Final Consumption Expenditure.

The regression model may be given under the following mathematical equation:

$C = \alpha + \beta\ Yd$

From the econometric point of view, the model considered should include also the residual component, seen as a representation of the differences that arise between the values of the theoretically determined and measured in the real economy.

$C = \alpha + \beta\ Yd + \varepsilon$

Where,

C = final consumption expenditure → dependent variable (explained, endogenous, outcome);

Yd = gross national disposable income → independent variable (explanatory, exogenous);

α = Autonomous consumption expenditure, $\alpha > 0$.

β = Slope of the line (which determines the change in C per unit change in Yd), $0 < \beta < 1$

ε = residual variable.

We can find the value of 'α' and 'β' either by using excel program or by using the following regression formula as;

$$\sum C = n\,\alpha + \beta \sum Yd$$

$$\sum C.Yd = \alpha \sum C + \beta \sum Yd^2$$

Here, the result is obtained by using excel program, which is presented below;

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.99941266
R Square	0.998825665
Adjusted R Square	0.998741784
Standard Error	2047.590613
Observations	16

ANOVA

	Df	*SS*	*MS*	*F*
Regression	1	49924286075	49924286075	11907.63745
Residual	14	58696782.44	4192627.317	
Total	15	49982982858		

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	7710.92631	990.353369	7.786035319	1.87489E-06
Gross National Disposable Income	0.650879154	0.005964686	109.1221217	6.45499E-22

To interpret the results using linear regression model is necessary to establish, from the start, whether it can be regarded as correct and the results that it provides can be used in real macroeconomic analysis.

As shown in the summery of output, the probability that this model is the correct one is very high - about 99.88 percent, this conclusion can be made based on the values determined by using excel program for R-squared (0.998826) and Adjusted R-squared (0.998742) tests. In this example, the gross national disposable income (Yd), explains the variation of final consumption expenditure (C), in a proportion of 99.88 percent. Resulting situation can be regarded as normal in the conditions in which it is known that the income is the main source of consumption.

Also, the validity of this regression model is confirmed by the F-statistic tests values (11907.637 - value far superior from the table level which is considered to be benchmark in the analysis of the validity of econometric models).

For each independent and constant variable, shown in the summary table, reports the coefficient standard error, t-Statistic test and the associated probability. Working at 5 percent level of relevance, as the probability attached to the t-statistical test is below this level for Yd, than the coefficient is considered statistically significant. Free term coefficient is not significant because the probability attached to the t-statistical test is superior to the materiality threshold of 5 percent.

Based on the foregoing, we can consider the regression model that describes the correlation between the value of final consumption and gross disposable income as a

fair, faithfully reflecting the real evolution of the two macroeconomic indicators. It is possible to transcribe the unifactorial linear regression model in the following form:

C = 7710.92631 + 0.650879154 Yd

This regression model allows us to establish a number of issues concerning the relationship between the two variables considered. Thus, we can say that with the increase of one million lei of the gross disposable income, the final consumption will increase by 0.650879154 million lei, so between the two variables studied there is a direct relationship. It is noted that between the two indicators studied in the period 2000/01-2015/16 there is a significant direct relation.

Here the positive value of intercept 7710.92631 indicates that even if gross national disposable income is zero the final consumption expenditure is 7710.93. That means even if the income level is zero consumption of basic necessities does not stopped.

Further describe the degree and direction of linear relationship between two variables correlation coefficient is calculated as below.

$r_{y/x} = \sqrt{R^2}$

$= \sqrt{0.99882566}$

$= 0.9994$

$\therefore$ The obtained value of r is 0.9994

Decision:

The value of correlation coefficient lies between -1 to +1

a) If r = 1, there is perfect positive relationship.

b) If r = -1, there is perfect negative relationship.

c) If r = 0, there is no correlation at all.

The correlation coefficient $r_{y/x} = 0.9994$ indicates a strong and direct relation between the two variables.

To check the meaning of the linear correlation coefficient t (student) test is applied, by calculating of the t_{calc} variable from the relation:

$t_{calc} = \frac{r_{y/x}}{\sqrt{1 - r_{y/x^2}}} \times \sqrt{n-2}$

Where,

$r_{y/x}$ = linear correlation coefficient;

n = number of pairs of values observed = 25.

$t_{calc} = \frac{0.99941266}{\sqrt{1 - 0.99941266^2}} \times \sqrt{16-2}$

$t_{calc} = \frac{0.99941266}{\sqrt{1 - 0.99882566}} \times \sqrt{14}$

$t_{calc} = \frac{0.99941266}{\sqrt{0.00117434}} \times \sqrt{14}$

$t_{calc} = \frac{0.99941266}{0.03426864456} \times \sqrt{3.741657386}$

$t_{calc} = \frac{0.99941266 \times 1.93433642}{0.03426864456}$

$t_{calc} = \frac{1.9332003/041}{0.03426864456}$

$t_{calc} = 56.413$

With a 95 percent probability and for 14 freedom degrees $t_{tabelat}$ has the value of 2.145. Here, $|t_{calc}| > |t_{tabelat}|$, $|56.413| > |2.145|$ null hypothesis is rejected and alternative hypothesis is accepted. So, from this finding it can be appreciated that the hypothesis of the correlation significance is checked and that between the researched variables there is a significant relation, so $r_{y/x}$ is statistically significant and the analyze model is specified correctly.

CHAPTER – V

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Main Findings

This is the descriptive as well as analytical study concern with the relationship between income and consumption in Nepal. The purpose of this study is to estimate the gross national disposable income influence on the evolution of final consumption expenditure in Nepal by using correlation analysis and regression. In this context, here is used simple linear regression to analyze the evolution of final consumption expenditure and developed a practical study in which we defined as independent variable the gross national disposable income in the economy of Nepal, in the period 2000/01-2015/16. The statistical data used were collected from economic survey made available by the Ministry of Finance of Nepal.

The major findings of the study are summarized as follows:

- The analysis of data form FY 2000/01-2015/16 shows that average propensity to consume and marginal propensity to consume are going to decline continuously up to FY 2013/14 and going to increase afterward. This indicates that as income increases consumption also increases but the increase in consumption is less that the increase in income. The result helps to justify Keynesian forecasting about the consumption.
- The average value of this gross national disposable income for the period of FY 2000/01-2015/16 is 1421361.563 million lei, with a range between a minimum of 508815 million (recorded at the end of 2000/01) and a maximum of 3096225 million (at the end of 2015/16). Similarly, the trend of gross national disposable income is going to increasing continuously.
- The final consumption expenditure in Nepal has seen a steady increase from year to year. In the FY of 2001/02 it is seems about 390017 million (minimum), which is increased continuously and in FY 2015/16 it reached about 2130520 (Maximum) million. Similarly, the average value of this final

consumption expenditure for the period FY 2000/01-2015/16 is 1002243.87 ten million lei.

- The trend of expenditure of all components of final consumption expenditure including of private consumption, government expenditure and nonprofit institutions expenditure is in increasing trend. In total consumption expenditure the largest share is from government expenditure, which is more than 8 times greater than the private consumption. But the share of nonprofit institutions is very small in comparison to private and government expenditure in total consumption expenditure.
- The trend of government expenditure is increasing rapidly but the trend of public expenditure is increasing but in very slowly. Similarly, the expenditure of nonprofit institutions is also increasing but by negligible level.
- The gross national saving in Nepal has seen a steady increase from year to year.
- After the analysis of data, the result was that between final consumption expenditure and gross national disposable income there is a linear connection, direct and positive relationship. The value of β is 0.65, which indicates that with the increase of one million lei of the gross disposable income, the final consumption will increase by 0.65 million lei, so between the two variables studied there is a direct relationship.
- Similarly, the positive value of intercept (α) 7710.92631 indicates that even if gross national disposable income is zero the final consumption expenditure is 7710.93. That means even if the income level is zero consumption of basic necessities will not stopped. It is noted that between the two indicators studied in the period of FY 2000/01-2015/16 there is a significant direct relation.
- The correlation coefficient $r_{y/x} = 0.9994$ indicates a strong and direct relation between the two variables.
- The value of R^2 is 0.9988 represent that the gross national disposable income (Yd), explains the variation of final consumption expenditure (C), in a proportion of 99.88 percent.

5.2 Conclusion

The focus of this study is to test whether the gross national disposable income and final consumption expenditures are co-integrated or not for Nepal. The results show that there are positive and significant long run relationships between gross national disposable income and final consumption expenditures for Nepal. The sign for gross disposable income are consistent with many consumption theories. It states that the consumption depend on income; a rise in income increases the consumption. And from the long run results we can see that the coefficient (MPC) of Yd is 0.65 for Nepal.

In addition, from the results, it can be seen that gross national disposable income has positive and significant effects on final consumption expenditure in Nepal. 1 percent increase in gross national disposable income will result in 0.65 percent increase in final consumption expenditure for Nepal.

The validity of this regression model is confirmed by the F-statistic tests values, higher value of the table level that is considered to be benchmark in the analysis of the validity of econometric models and also the null risk degree reflected by the value of F-statistic test which indicates a high significance of the estimation results, respectively of the analyzed model.

Based on the previous analyzes, we can say that there is linear, direct and positive correlation between the gross national disposable income the final consumption expenditure. That means as income increases consumption also increases.

5.3 Recommendations

Based on the major findings, some recommendations are as follows:

- The marginal propensity to consume is very high, which indicates that most of national income spend on the consumption expenditure. Higher the MPC means lower the saving and lower the marginal propensity to save (MPS). Lower the saving means the lower investment lower capital formation and lower economic development. So, there is the need to reduce MPC and increase in MPS by lowering consumption expenditure.
- As income increased consumption also increased but increase in consumption is less than increase in income implies that marginal propensity to consume

(MPC) rich is lower than MPC of poor. So, for the economic point of view, inequality is seems better to increase in investment and economic growth and development, but, for the social point of view inequality is harmful. There is the tradeoff between economic growth and equality. So, government have to choose one of them i.e. either growth or inequality.

- The private consumption pattern is very low in comparison to public expenditure indicates that private income is also very low. So, to increase in private consumption expenditure there is need to increase in the private income or household income. So, government should focus on the creation of income generating activities and the government expenditure should spend on such activities.

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