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Editorial

It is the matter of immense pleasure to publish economics Review of Nepal published by Department of Economics, Ratna Rajyalaxmi Campus. It is making striving efforts for the publication of scholarly articles on various areas of economics in english medium. It is our second attempt which contains eighteen articles. This journal has variety of writing in sphere of economics. It is highly useful to those who are interested about micro and macro variables of economics literature.

It is clear that the twenty first centaury is the age if globalization and commercialization. So, economics issues are taken as a key component of this age. We hope the thirst of reader may be fulfilled to some extend by this academic work. The journal has expanded its field opening up new exploration of studying various burning issues of economics.

Finally, we claim that the strength of this journal rest on inclusion of diverse issues of micro and macro variables. It is hoped that journal is useful for the interested scholars and students of economics and other interested readers. Constructive suggestions from the side of readers are highly encouraged and will be incorporated in the coming issues to make it more comprehensive.

Editorial Board

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Application of Instruments of Fiscal Policy in Nepal

krisnaraj Acharya[1]

Abstract

Fiscal policy is an important component of government policy to bring high, broad based and sustainable economic development. Budget, taxation, public expenditure and public debt are the instruments of fiscal policy and these instruments are not using appropriately, effectively and efficiently in the context of least developed countries so that they trapped as a low-income nation. In Nepalese context, government of three-layer formulating and implementing budget to mobilize national, provincial and local level resources and to follow the norms of decentralization. The ratio of capital expenditure in relation to recurrent expenditure is high indicator of low economic development in the coming years. In eleven months of fiscal year, only 50 percent of the development expenditure can utilize is the symbol of gloomy situation of our economy. Regarding to tax base and rate, it has some regressive nature so that collection of tax became difficult task. People are interested to evasive tax due to administrative hurdles and its poor utilization policy. Resources can divert into productive sector due to better public expenditure policy. Government of Nepal can utilize the resources of its citizen on the basis of the trust of government. Ultimately better fiscal policy can pave the way for higher, sustainable and broad-based economic growth rate. We can graduate our nation in the list of developing nation by 2030 as well as can fulfill sustainable development goals.

Keywords: Fiscal, development, taxation, domestic resources, public debt

Introduction

Government policy is an important instrument that can bring adjustment in micro and macro-economic variables. Fiscal and monetary are two policies of the government and the uses of these instruments depend on the condition of an economy. Fiscal policy is a powerful instrument of government control after 1930s. Tax, budget, public expenditure and public debt are the instrument under fiscal policy. Budget is the economic manifesto

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of income and expenditure of government of a year. Surplus, balance and deficit are three types of budgets popular all over the world. In Nepal like least developed countries, deficit budget is an important instrument to bridge the fiscal mismatch. Similarly, tax is the compulsory payment toward the support of government. Direct tax is taken as superior as indirect tax in the sense that the burden of direct tax falls equally, exploit to the poor section of society. Public expenditure is a powerful instrument that can influence the distribution of income and wealth in society. The government fails to spend their given income in their priorities sectors; it is categorized under failure government. The role of public debt is prominent in Nepalese economy because government cannot mobilize domestic resources due to poor tax capacity of its citizen. One's expenditure is another income so that government should spend more. Fiscal deficit can be bridged with the help of public debt and it is useful for appropriate and efficient utilization of human and natural resources.

Fiscal policy was popular when there was a great depression in the world. In 1930s-decade, supply does not create its own demand so that say's law of market became failure that demand and supply did not bring automatically adjustment in economic variables. Only monetary policy unable to control all these fluctuations since monetary policy was regulated on the basis of full employment of human and natural resources.

Macroeconomic management should contribute to higher economic growth without disturbing the macroeconomic stability, which is essential for attaining sustained higher level of economic growth. Sound macroeconomic management would also improve the external sector competitiveness of the economy on a sustainable basis, a precondition for reducing the external sector vulnerability of the economy. Balance of payments crises and foreign debt problems are often caused and aggravated by imprudent fiscal policy the solution of which would involve some combination of cutting public spending and raising additional revenue, thereby freeing resources for export and debt servicing. With increased fiscal expansion or fiscal deficit, current account deficit widens and the level of government debt in proportion to GDP increases accordingly. Unsustainable fiscal deficit would encourage capital flight which would deteriorate the debt problem (Basyal, 2006).

Objectives of the Study

The major objective of this research paper is to study the role of fiscal policy in Nepal. The specific objectives of the study are:

- To analyze the nature of fiscal policy of Nepal.
- To explore the impact of fiscal policy related variables on total revenue collection of Nepal.

Review of Literatures

Seligman (1908), asserted an important idea put by the Mercantilists on fiscal principle. The Mercantilists idea was that men should be taxed according to the benefits they received from the state. The duty for the state is to protect the nation, it requires expenditure and it comes from taxation. Petty, the first English writer on fiscal attitude forwarded, "it is generally allowed by all those men should contribute to the public charge but according to the share and interest they have in the public place; that is according to their Estate and Riches. In general, the Mercantilists put the idea of fiscal operation on the benefits the people received and the test for benefit should be expenditure.

According to Lerner (1951), the volume of employment depends on the rate of spending. He has given more important on expenditure side of the fiscal policy. There are five elements in the total spending of an economy. They are consumption by the individuals, consumption by the government, investment by the individuals, investment by the government and investment by the private individuals. Any policy for full employment has to work on one or multiple of these five elements which make up the total spending on currently produced goods and services. In addition, he mentioned the government's three fiscal weapons for fighting deflation. By increasing government expenditure directly for own purchases or indirectly to spend money for social security's benefits to people who will spend it and less taxes from the individuals so that they can spend more.

Lipsey & Steiner (1978), there is little doubt that, when appropriately used, fiscal policy can be an important tool for influencing the economy. In the heyday of fiscal policy in 1940s, 1950s and 1960s, many economists thought that the economy could be

adequately regulated solely by varying the size of the government's deficit or surplus. That day is now past, although a few "pure fiscalists" are still to be found. The role of fiscal policy in the economy and its employment by the economists are increasing day by day. When Milton Friedman said, "we are all Keynesian now", he was referring to the general acceptance of the view that the government's budget is much more than just the revenue and expenditure statement of a very large organization. Whether we like it or not, the very size of the government's budget inevitably makes it a powerful tool for influencing the size of the GNP and total amount of employment in the economy.

The IMF approach emphasizes, that "fiscal space can be defined as the availability of budgetary room that allows a government to provide resources for a desired purpose without any prejudice to the sustainability of a government's financial position" (Heller 2005:). The desired purpose of the fiscal policy is very important where the government can arrange resources and there is fiscal space for it.

Sloman (2006) in his analysis of the relative merits of changing government expenditure and changing taxes, has given the opinion, "changing government expenditure has the advantage that it affects aggregate demand directly and has a bigger multiplier effect. Changes in government expenditure can be more specifically targeted than changes in taxation. For example, government expenditure can be directed to regions of high employment or to the specific sectors, such as transport. Taxes cannot be used so selectively. Therefore, the most effective tool of fiscal instruments for a specific purpose is becoming public expenditure.

Karimi and Khosravi (2010) have studied the impact of monetary and fiscal policies on economic growth in Iran using autoregressive distributed approach to co-integration between 1960 and 2006. The empirical evidence shows the existence of long-run relationship between economic growth, monetary policy and fiscal policy. In conclusion, they found that a negative impact of exchange rate and inflation as proxies for monetary policy, but a positive and significant impact of government expenditure on growth.

'It should also be noted that public sector "institutions" are also likely to affect economic growth. For example, Persson and Tabellini (1992) outline a theory that relates different political incentives and political institutions to growth. They conclude that income

inequality is “bad” for growth in democracies, while land concentration is bad for growth everywhere.

Relatedly, there is much empirical work that suggests that factors such as the number of local governments, the presence of tax and expenditure limitations (TELs), and the political composition of the governing party affect (and are in turn affected by) fiscal policies.

Babalola and Aminu (2012) investigated the impact of both fiscal revenue and expenditure on economic growth in Nigeria. They classified the fiscal expenditure into productive and unproductive government expenditure while direct income tax was used as a proxy for distortionary fiscal revenue. In order to avoid spurious estimates, the unit roots of the series were verified using Augmented Dickey-Fuller (ADF) technique after which co-integration was conducted. The error correction models were also estimated to determine the short-run dynamics. The result in the analysis is that there is long-run positive impact of productive government expenditure on economic growth. Unexpectedly, distortionary revenue positively influenced economic growth. The analysis recommends improvement in government expenditure on health, education and economic services, as components of productive expenditure, to boost economic growth.

Methodology

The main objective is to present the empirical strategy employed by the government in fiscal instruments after the restoration of democracy in Nepal. Opinions expressed by experts and politicians are taken into analysis in the time of completion of objective. The study is based on annual data on different fiscal years.

The study is descriptive, analytical as well as explorative in nature. So, it utilizes quantitative data collected from secondary sources. The research is based on data of economic surveys published from ministry of finance, Nepal.

Quarterly Economic Bulletins (NRB), Banking and Financial Statistics (NRB), Government Finance Statistics (NRB), Economic Surveys (MOF, GON); National Accounts of Nepal (CBS), Statistical Year Book of Nepal (CBS); Statistical Pocket Book (CBS); International Monetary Fund and World Bank Data sheet were the major sources of data and information for the study.

Data and Methods

This study is related to analyze the trend and structure of fiscal instruments in Nepal. The analysis was based on secondary data from economic surveys of Nepal published by ministry of finance. Regarding to the fulfillment of above listed objectives, various studies from the side of scholar has taken as key sources. Thereafter, data has been managed and systematized on the basis of their nature in this research work. Data of various years were used to explore the condition of tax, public expenditure, budget and public debt. All these instruments were compared with the economic growth of Nepal. It is basically focused on the role of these instruments to obtain economic objectives of fiscal policy. It is also compared and linked with the international theories to the Nepalese actual situation. Descriptive method was used to analyze the variables in this article.

Result and Discussion

On the basis of data, it is cleared that the entire fiscal instrument used according to its norms. Deficit budget is the key sources of income to the Nepalese government. The trend of budget deficit is increasing in the sense that the recurrent expenditure of Nepalese government is increasing. When budget deficit is analyzed of FY 2073/74 and FY 2074/75, budget deficit has increased by 129.93 percent. Such a huge deficit is a indicator of fiscal imbalance and it should be limited in a desirable range.

Table 1

Trend of Budget Deficit in Nepal (Nine Month Comparison)

Fiscal Years	Government Income (In Crores)	Percent Change	Budget Deficit (In Crores)	Percent Change
		-		-
2073/74	36669.7		3346.34	
2074/75	45212.13	23.8	7694.92	129.93
2075/76	45460.61	0.55	8629.12	12.25

Sources. Financial control general office, 2075

According to government data, deficit budget is increasing in Nepalese context. Government income is not increasing rapidly when it is compared with the budget deficit.

Budget deficit in Nepal to its gross domestic product (GDP) was equal to 8.90 percent in 2018. Government budget in Nepal averaged – 3.50 percent of GDP from 1999 AD until 2018 AD, reaching all time high of 0.90 percent of GDP in 2014 AD and a record low of – 8.90 percent of GDP in 2018 AD (Trading Economics, 2019).

In the one hand budget deficit is increasing and on the other, recurrent expenditure is increasing. When deficit budget is financed through internal and external debt and it is used for recurrent expenditure, it will not be productive to a nation.

Figure 1

Trend of Government Income and Budget Deficit

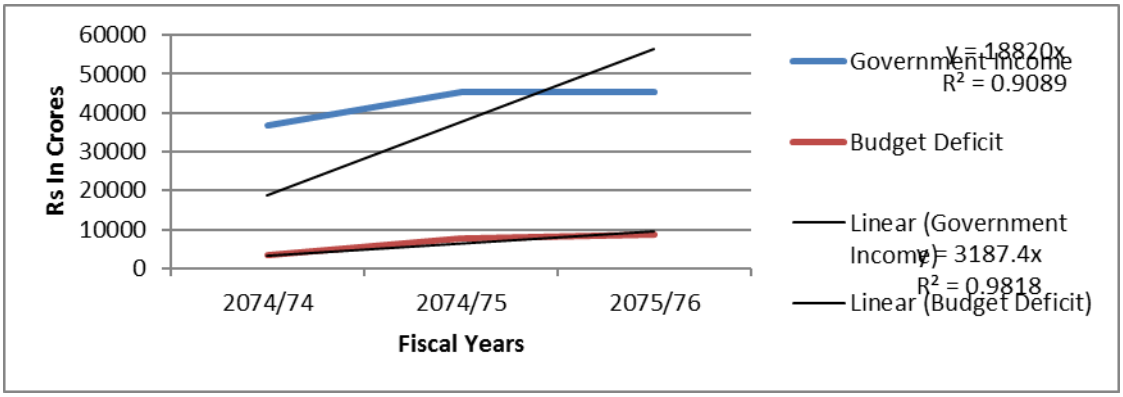


Figure 1 shows that government income increased but at slower pace while budget deficit is increasing at rapid rate. If the situation continues, keeping fiscal balance is not a easy task to the concerned authorities. When trend lines were drawn, it is cleared that budget deficit is increasing in approximately at same pace but government revenue is at lower rate.

According to Keynesian economics, a rise in the budget deficit during a recession is a good instrument to combat with recession. During a recession, there is fall in private sector spending and increase in budget deficit stimulates economic activities. In this situation, it is useful to increase effective demand in an economy. However, a budget deficit during a boom period will be harmful to some extent in the sense that it may reflects on rise in price as well as it drives out private investment. Similarly, it is also important to analyze whether the deficit is used in recurrent or capital expenditure. All other things remaining same, if the government deficit is used to invest in capital expenditure, it might improve the productive capacity and employment scenario of the economy.

Taxation as a Fiscal Instrument in Nepal

Tax is a compulsory payment toward the support of government and people have no expectation of return from that payment. Tax can be used to make equal distribution of income and wealth in the society so that human and natural resources may allocate appropriately, efficiently and effectively. Taxable capacity of Nepalese people is low due to low level of income. Nepal itself is in the trap of vicious circle of poverty so that revenue collection through direct taxes is daunting task. The base of tax is increasing in Nepal since very small transaction is also in the threshold of permanent account number (PAN).

The last few months have seen the problems in taxation intensifying after local governments began increasing the existing tax rates and imposing several new taxes. From levying taxes on street vendors, sale of cattle, movement of citizens, re-introduction of the long-abolished scrap and octroi taxes, alongside multifold increases in government service fees and surcharges, (which many see as ridiculous and irresponsible of the local bodies), a lengthy list of recently surfaced tax related problems from across the country can be prepared (Sharma, 2018).

In several areas across the country, members of the business community and general people alike have taken to the streets to protests the tax hikes and imposition of new tariff rates. Birgunj Metropolitan City, for instance, revoked the imposition of taxes on scrap goods, the sale of petroleum and the raised business registration fees after the Birgunj Chamber of Commerce and Industry (BCCI) organized a mass protest (Sharma, 2018).

The Nepali business fraternity had long feared that the problem of double taxation would spiral out of control after the country started practicing the federal system of governance. This fear has now become a reality. Recently, cement producers in the Argakanchi found themselves in a difficult position when one of the municipalities in the district-imposed taxes on every sack of produced cement as well as clinker, in a clear breach of the tax collection jurisdiction implemented by the Ministry of Federal Affairs and General Administration (MoFAGA). As per the guidelines, local bodies are entitled to levy tax on business transactions only once a year in their jurisdictions (Sharma, 2018). Trend of total revenue and their share on GDP can be presented as;

Table 2

Trend of Total Revenue and Their Share on GDP

Fiscal Year	Share of GDP in %		Total Revenue	Budget deficit on GDP (In %)
	Tax Revenue	Non- TaxRevenue		
2070/71	15.9	2.25	18.15	-1.94
2071/72	16.71	2.34	19.05	-3.81
2072/73	18.69	2.7	21.29	-3.09
2073/74	20.71	2.07	22.78	-7.1
2074/75	21.76	2.22	23.98	-10.46

Sources: Economic Survey, 2019

Table 2 revealed that share of tax revenue increasing year after year. However, the share of non-tax revenue is less or more constant. Budget deficit on GDP is increasing which is the big obstacle in the field of rapid economic development. Revenue collection from the side of state is not satisfactory. It can be presented in a diagram as;

Figure 2

Trend of Total Revenue and Their Share on GDP

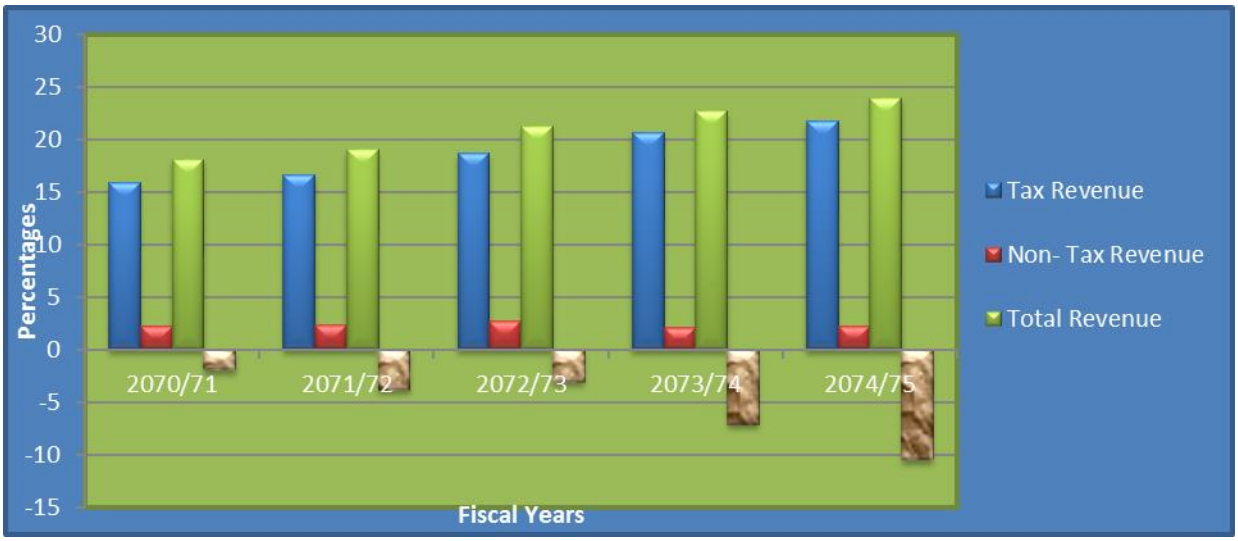


Figure 2 depicted that the share of tax revenue is increasing and the share of budget deficit is increasing. It is not a healthy fiscal indicator and should be managed timely. Fiscal deficit became more rampant with the introduction of federal system in Nepal.

Public Expenditure as a Fiscal Instrument

It is an important fiscal tool popularly exercised by concerned authorities all over the world. It became more popular and effective when the concept of welfare government was realized in the globe. According to classical economists, that government is ideal which collect least revenue from its citizen implies that they had least expenditure. In

their thinking, government is irrational and individual is rational regarding to the utilization of available resources. After the great depression of 1930s, the concept had totally changed. The role of this instrument became prominent thereafter.

There are so many theories on public expenditure. Classical economists gave less attention on public expenditure on economy. They gave narrow view that the government should not make interfere in the general activities. They advocated the laissez-fair policy. They suggested that government should reduce their expenditure, they believed on the existence of the full employment in the economy and there is no need of government intervention (Acharya, 2016).

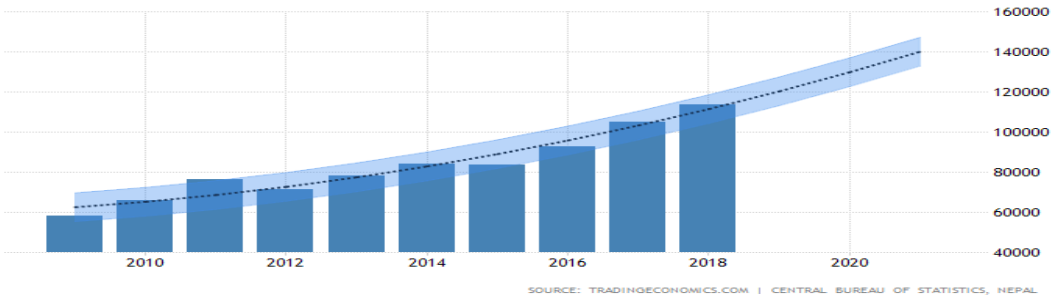
But later, after the Great Depression of 1930's, many economists suggested that the government must intervene in the economy. A moderate level of government intervention is necessary to run the economy smoothly. Hence, the analysis of public expenditure in different time period and theories are examined. That can be divided in to the classical view, Keynesian view, Neo-classical growth model, Endogenous growth model, Peacock and Wiseman hypothesis, Colin Clark hypothesis, Baumol‟s hypothesis, and Stanly Please hypothesis (Acharya, 2016).

Public expenditure is the expenditure made by public authorities' i.e., central government and other local bodies to fulfill the demand of the people. It is for protecting the citizens and for promoting their economic and social welfare. Public expenditure is one of the instruments through which government influence economic variables. Public expenditure to carry out essential functions of administrating justice and providing national defense and to supply certain additional goods and services that is advantageous to a welfare society but that would not be supplied by private enterprises because doing so would not be profitable (Goode, 1984). Moreover, most of the government is spending money in the economy in the different sector. Basically, it is divided in to two categories that are current expenditure and development expenditure. Current expenditure is the regular government expenditure that is useful to run the day-to-day administration of the country. The development expenditure is one that is useful for the infrastructure building, providing different services in the education, health, agriculture etc. And, public expenditure is an important instrument of the state policy to make control over the economy of the state (Sharma, 1999).

In the context of Nepal, public expenditure is increasing. In this pattern, recurrent expenditure is increasing rapidly when it compared with development expenses. One expenditure is the sources of others income so that government try to optimize their level of public expenditure especially in the field of capital formation. The trend of public expenditure can be presented as;

In the time of analyzing the trend of public expenditure, government Spending in Nepal increased to 113731 NRs Million in 2018 from 104989 NRs Million in 2017. Government Spending in Nepal averaged 65645.63 NRs Million from 2000 until 2018, reaching an all-time high of 113731 NRs Million in 2018 and a record low of 35785 NRs Million in 2000.

When public expenditure is projected, its trend can be presented in the diagram as;



Public expenditure is increasing but the sources of income are weakened because poverty is rampant in Nepal. If increased income is not used in the field of productive sectors, then it may reflect on inflation.

Public Debt as an Instrument of Fiscal Policy

Public debt is an important source of government financing not only for underdeveloped but also for developing countries. Public debt fulfills resource gap of country required for development of nation. Government expenditure is ongoing process although its revenue is in surplus or deficit. If government revenue is in surplus position, there is no need of additional fund but if it is in deficit, government needs to borrow fund either internally or externally to meet its expenditure. Mostly in the case of underdeveloped and developing countries, external debt has greater role because in such countries people don't have capacity to fulfill country's budgetary deficit. As domestic resource is incapable of meeting deficit, foreign aid and debt are required for meeting the expenditure (Karna, 2019).

However, there are various views regarding public debt. Some economist view that public debt is good for short run as it gets necessary fund to invest in required economic growth. Whereas some view it as dangerous in long run because in long run, it may lead country in other's hand. Some economist views it as safe way for foreigners to invest in country by buying bond which is much safer than Foreign Direct Investment (FDI). It is considered as much safer because purchasing at least 10% interest in countries' company, business or real state is less risky than investing in Countries Company through stock market whose overall profit is ruined by investing company. Further, if public debt is used in productive sector, it improved living standard of people as people enjoys benefit from improved and advanced road and bridges, education and jobs, transportation and communication and so on. But, FDI only provides job opportunities to limited number of people and benefit from it is enjoyed by other investing countries. Though, debt is important and useful in many aspects, there are some aspects in which it lags behind. Generally, investors measure the level of risk by countries GDP - countries total economic output. Debt to GDP ratio acts as an indicator, how likely country can pay off its debt. And a country with high debt lags behind in further investment (Karna, 2019).

Public debt is an important source of government financing basically in the Least Developed Countries like Nepal where there is acute shortage of resources to finance public expenditure. So, they need to borrow. However, in modern world, not only for

LDCs but also for Developed Countries, public borrowing is becoming an important technique of government finance along with other source of revenue e.g. tax and non-tax of revenue. Public debt comprises of both internal and external sources of government. Internal source includes borrowing from internal sources and banking sector whereas external source includes foreign loan, grants and borrowing from bilateral and multilateral agencies. Taxation is the most important source of government financing to build up socio economic infrastructure such as health education, transportation, communication etc. for economic development. But it is quite impossible to raise adequate fund through taxation in underdeveloped countries because of poor tax payable capacity of the people. The only way to collect the needed fund is public debt. (Katuwal, 2017).

It shows that government borrowing and annual growth rate from the period of 2002/2003 to 2015/2016. It is shown that government borrowing has been increased from Rs.13426.8 million to Rs. 67983.1 million and was estimated to be Rs. 182964.7 million in FY 2015/2016. External borrowing also increased from Rs. 4546.4 million to Rs. 25615.6 from FY 2002/2003 to 2014/15 and was estimated to be Rs. 94964.7 in FY 2015/16. However, in FY 2015/16, the share of external debt was estimated to be more than the internal debt.

External borrowing became the way to bridge the fiscal gap. In the case of Nepal, where taxpaying capacity of people is too low because of low per capita income, external debt plays vital role to fulfill the resource gap. Foreign loans basically from multilateral agencies like World Bank, ADB, IFD having long maturity period has great contribution in development and other activities.

The total outstanding public debt was Rs. 627.79 billion in mid of March, 2017. Out of this domestic debt was 38.1 percent and foreign debt was 61.9 percent respectively. In the period of first eight month of fiscal year 2016/17, total foreign aid commitment was Rs. 212.04 billion which was higher by 35.76 percent compared to corresponding period of previous fiscal year. Out of total foreign aid, 21.5 percent share was of grant and 78.5 percent of loan (Karna, 2019).

The trend of public debt can be analyzed on the basis of a table;

Table 3

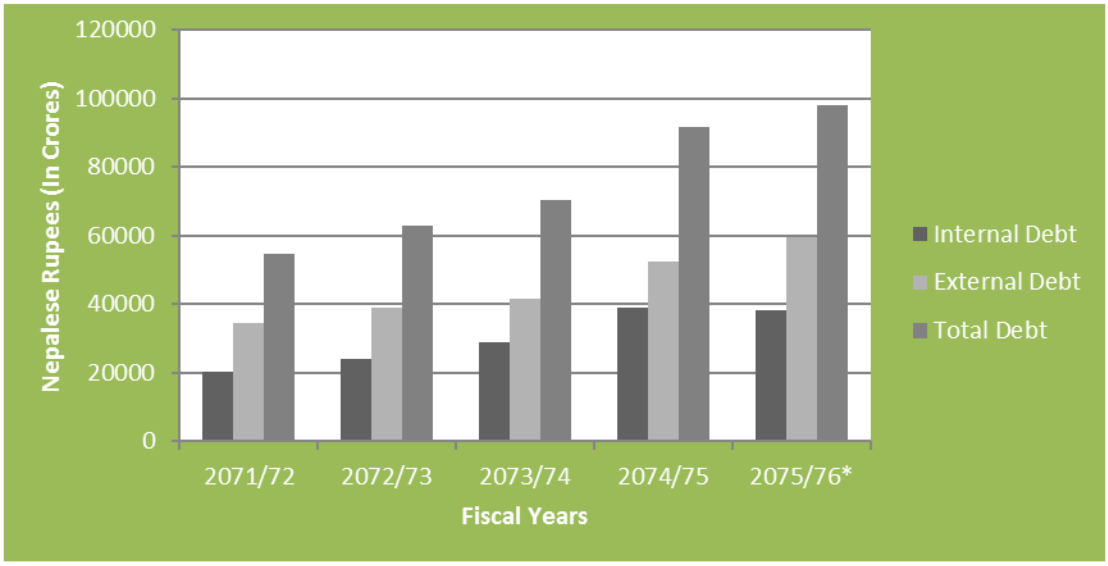
Trend of Internal, External & Total Debt in Nepal (In Crores)

Fiscal Year	Internal Debt	% Change, **	External Debt	% Change, **	Total Debt	% Change, **
2071/72	20165.68	-	34326.18	-	54491.86	-
2072/73	23902.9	118.533	38876.28	113.255	62779.18	115.21
2073/74	28858.18	120.731	41397.88	106.486	70256.06	111.91
2074/75	39116.15	135.546	52535.12	126.903	91651.27	130.45
2075/76*	38358.85	98.064	59485.81	113.231	97844.66	106.76

Sources: Financial Control General Office & Nepal Rastra Bank, 2075 * = *Falgun(Nine Month of FY 2075/76), ** is calculated from author on the basis of given data.*

It is clear that the trend of public debt in increasing. The share of debt is increasing in the sense that its expenditure is increasing. Public debt is the way to bridge the gap between revenue and income of a country.

Figure 4



Trend of Internal, External & Total Debt in Nepal (In Crores)

Figured 4 cleared that public debt regularly increasing and external debt has a lion share on total public debt. Public debt has been using to fulfill recurrent expenditure so that it has a negative impact on national economy. In nine month of FY 2075/76, the size of public debt had already crossed the data of previous year.

Conclusion and Recommendations

Fiscal instrument is an important component to attain fiscal stability in the world. A country can choose any of the instruments (tax, budget, public expenditure and public debt) according to the condition of that economy. A rise in the budget deficit during a recession is a good instrument to combat with recession. During a recession, there is fall in private sector spending and increase in budget deficit stimulates economic activities by increasing effective demand. In this situation, it is useful to increase effective demand in an economy. However, a budget deficit during a boom period will be harmful to some extent in the sense that it may reflects on rise in price as well as it drives out private investment. Similarly, it is also important to analyze whether the deficit is used in recurrent or capital expenditure. All other things remaining same, if the government deficit is used to invest in capital expenditure, it might improve the productive capacity and employment scenario of the economy. It is depicted that the share of tax revenue is increasing and the share of budget deficit is increasing. It is not a healthy fiscal indicator and should be managed timely. Fiscal deficit became more rampant with the introduction of federal system in Nepal. Public expenditure is increasing but the sources of income are weakened because poverty is common phenomena in Nepal. If increased income is not used in productive sectors, then it may reflect on inflation. External borrowing became the way to bridge the fiscal gap. In the case of Nepal, where taxpaying capacity of people is too low because of low purchasing power, external debt plays vital role to fulfill the resource gap.

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Reshaping the Future of Nepal's Economy

Anjeela Pradhan (Gorkhaly)[2]

Abstract

Nepal's economy has not been of any great success and satisfactory. Nepal has encountered inherent development constraint, which includes poverty; widening income inequality; unemployment and underemployment; rise in leisure class; decrease in production and productivity, capital flight; extensive corruption; absence of rule of law and order; institutionalized crime, BOP deficit, environmental degradation etc. The failures in economy have been more than the achievements and the problems created have been more than the problems solved, so ordinary people are unable to get the fruit of development. In these years every one use to feel development works do not seem satisfactory related to rapid increase in the economic problem normally day by day plus especially after the pandemic. However, it does not mean Nepal's economy is heading towards wrong direction and we should abandon the path of economy. But the pace of heading is slow. So, for the reshaping the economy the Government need to be more liberal as well as strict where production, income and employment can be increased and be more watchful in disciplining both private and public sector and use of PPPs model for improving its efficiency especially in agriculture sector.

Keywords: per capita income, public private partnership

Background

Nepal has been declared Federal Democratic Republic with seven states by its Constitution of 2015. It is further divided into 753 local levels including 460 Village Municipalities, 276 Municipalities, 11 Sub-metropolises and 6 Metropolises with 77 administrative districts (CBS, 2018). Around 79.85 percent of the populations of Nepal live in rural areas and the remaining 20.15 percent in urban areas (Macrotrends, 2020). Many political and economic changes have taken place in the history of Nepal during past decades. The political changes in Nepal in remarkable speed. Nepal has undergone a radical political transformation since 2006 i.e., dramatic changes marked by the end of

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the civil war and abolition of the monarchy. Nepal inherited a crippled economy from the Rana regime and continues to be (Pyakurel, 2013).

Nepal's masses are steeped in poverty both in rural and urban areas, its agriculture is in back – geared and industry is in bad shape. There was wide spread unemployment in the all sectors of the economy, price level is rising continuously etc. All these problems helped to make Nepal to be grouped on low-income countries within the third world country not even the developing economy.

Whatever political changes have taken place; economic performance of the country has remained less than satisfactory. Nepal has remained one of the world's poorest countries, with seven million Nepalese lacking adequate food or basic health and education. The majority of Nepalese have continued long-suffering with their rural lives. So, the purpose of this article is to get the over view picture of Nepalese economics before and after the March 24 i.e., Lockdown which is only deteriorating not alarming. As precaution is better than cure, though actual fact the situation is not so desperate, we need to think about betterment of the economy. I have suggested some of the necessary strategies Nepal need to follow for reshaping the future of Nepalese Economy. This paper is prepared without inclining in any group or political party, but only through the experience, literature review and knowledge keeping in the mind of one and only of people's benefit. This paper is written with keeping in the mind of one of the French Philosopher's sayings "the one and only religion of mankind is and always has been hope i.e., being optimistic".

Objectives:

- To give the overview current economic picture of Nepal before and after the lockdown (March 24, 2020)
- To suggest strategies to reshape the Nepal's Economy.

Methodology

The writing is specially based on the secondary data based on economic surveys published by MOF and other literature reviews and descriptive analysis is done by comparing the Nepalese economy before and after the pandemic.

Overview of Current Economic Picture of Nepal (Before March 24, 2020)

Before the Nepal Government announced a nationwide strict lockdown on March 24 to protect its people from corona virus, a majority of the macroeconomic indicators have remained satisfactory as economic activities in all production sectors have remained high, economic growth rate is expected to be 7 per cent during this Fiscal Year.

Gross domestic product per capita has reached US $ 1,085 in fiscal year 2019/20 (MOF, 2019). The disposable per capita income has increased to $ 1388 from $1364. Poverty has gradually decreased due to factors like high economic growth, investment on social and economic infrastructure and increment in the flow of remittance. Handfuls of the Nepalese people are enjoying the income of the developed countries people. But the proportion of employed population below $1.90 purchasing power parity a day is 12.5% (ADB, 2017). Absolute poverty was 18.7 percent in 2018/19.

In 2018/19 as Nepal's overall economic activity has been encouraging in the fiscal year and the annual GDP growth rate achieved of 7 percent which is the highest recorded growth in the last ten years since FY 1993/94. Economy has expanded as a result of increase in agricultural production due to favorable monsoon, speed up in reconstruction works and resolution of energy crisis. Likewise, additional factors contributing in the expansion of economic activity include the commercialization of agriculture, stability-oriented politics, reduction in closures and strikes, and reform in government policies and programs (MOF, 2018).

Nepalese economy is in the stage of structural transformation. Contribution of agriculture sector (28.2 percent) and industrial sector (13.7percent) in GDP is declining, whereas share of service sector (58.1percent) increased (MOF, 2019), which is not a good sign. The service sector only consumes the goods produced by agricultural and industrial sectors; means do not produces the goods but only flows the income in the economy which increases the purchasing power. This again tends to increase inflation; the import and it arise the BOP disequilibrium.

Agriculture, the backbone of Nepalese economy, has provided direct employment to about two third of the population of working force. Though the proportion of population depending on agriculture for livelihood continues to be two third of working

labor force, contribution of the agriculture sector to the economy is declining. In spite of sizeable of the working force engaged in agriculture, the motive of production is still far from being commercial; their main objective of production is to meet their own needs rather than to sell in market. This sector has not developed to the extent desired level for failing to link these sectors with other sectors of the economy. In rural area, especially the outflow of men and the inflow of remittances have made Agriculture sector suffered in two ways -- Firstly there is less labour farm available and we can see productive agricultural farms left uncultivated. Secondly remittance earner's families do not consider agriculture as a dignified occupation. Whereas in urban sector migration there used to be population pressure on land and small land holding decreased the agro productivity.

Human capital level is also lower, though it is difficult to measure the level of human capital; however, it can be indicated with the statistics about education, health etc. Better education system and the proper health conditions are vital to grow the economy in future. Research has shown that the rate of return is highest on the investment in education, particularly in primary education. This tends the economy to grow faster in the future. In economic survey (MOF, 2019), it is stated that as per the statistics of Academic Session 2018, net enrollment rate at primary level (grade 1-5) has reached 97.1 percent, 93.1 percent at basic level (grades 6-8) and 47.6 percent at secondary level (grades 9-12). The contribution of education and health sector to GDP has reached to 7.1 and 1.7 percent in fiscal year 2018/119.

Nepal has less and poorer level of physical capital, which includes factories, infrastructures like road, railways, schools and hospital etc. which has decreased the production potentiality.

By mid-March 2020 the total length of road has extended to 34,347 Km which was 32,879 Km in 2018/19. The operating time of the airport has been expanded to 22 hours per day. No. of international airlines operating flights to Nepal was 29 till 2018/19 and reached to 30 by mid-March 2020. No. of airports operating in all season are 35. The other means of transportation, Nepal's railway line has total length of 56 km out of which only 5 km is currently operating. By mid-March 2019, the total number of telephone users has reached to 407 million, By February of FY 2018/19, the total number of mobile phone users has been 407 million and internet users are 187 million. Mobile facility has

been expanded to all 77 districts of the country, and its access has covered about 90.0 percent of the total land area.

In case of External Sector**, a**fter the adoption of trade liberalization, Nepal's trade deficit has continued to rise with the increase at higher rate since last few years. But in this fiscal year Due to recent adoption of double-edged strategy of substituting imports and enhancing exports by Nepal government, the growth rate of merchandise import has been decreasing and export sector has been improving during the last few months of FY 2018/19. By the mid – March 2020 merchandise exports have increased by 12.9 percent whereas imports have decreased by 7.5 percent, which helped to reduce down the merchandise trade deficit and betterment of BOP with 36 billion 610 million BOP Surplus and 1trillion 156 billion foreign currency reserve. Till mid-March of FY 2019/20, trade deficit has contracted by increased by 4.3 percent; Rs. 887.88 billion to 847.23 billion. The BOP recorded a surplus of Rs. 37.84 billion during mid-March of FY 2019/20 against the deficit of Rs. 59.99 billion during the same period of the previous FY. Current account balance had been in deficit of Rs. 124.93 billion till mid-March 2019/20 and during the same time of the previous FY it has been recorded the deficit of Rs. 191.49 billion. Remittance inflow recorded a notable growth of 23.4 percent to Rs. 582.19 billion during the mid-March of FY 2018/19. But in the same period of this FY 2019/20, it had increased by 1.8 percent to Rs. 592.42 billion. Total foreign exchange reserve has been US $ 9.50 billion by mid- July 2019 and $ 9.60 by mid – March 2020. Out of the total foreign exchange reserve, the share of reserves with Nepal Rastra Bank has been 86. 5 percent, and the share of Indian currency reserves to total reserve has been 22.3 percent by mid-March 2019. Considering the merchandise imports till the mid-March of FY 2018/19, the foreign exchange reserve of banking sectors is sufficient to finance the imports of goods equivalent to 10 months and imports of goods and services equivalent to 8.8 months, (MOF, 2018/19).

There is a rapid shift of population from the rural area to urban area and country to abroad known as migrants **(**includes brain drain as well as muscles drain**)**. This both internal and external migration has a negative impact on the development of Nepal. There are insufficient farm labor and industrial workforce. Rural migrants often fail to get the job i.e., productivity in rural will may be low but zero in urban. Nepal is heavily

dependent on remittances, which amount to as much as 29% of GDP (USCIA, 2017) also according to the report of Department of Immigration of Tribhuvan International Airport 1500 plus Nepali youths migrate abroad daily to foreign job market. These two facts depict how severe is the situation of youth migration in Nepal. Though muscles drain will helps to bring the return in the form of remittance (nearly one hundred billion each year), it is used in unproductive sector which is most sensitive to justify. There is increment in consumption. With imbalance in import and export, existence of uncultivated land, trade deficit is prevalent and inflation has challenged Nepalese economy. Besides educated migrants (brain drain) not only provide their expertise in especially developed countries but settle there by discarding Nepali citizenship, sell their property and take it to their residence country to live in comfort i.e., capital flight as well as take their families and relatives also.

The financial sector mobilizes savings and allocates credit across space and time. An efficient financial sector reduces the cost and risk of producing and trading goods and services and thus makes an important contribution to raising the standard of living (Herring and Santo Mero, n.a.). Status of overall financial soundness indicators has been satisfactory while that of access to finance is improving. Financial sector has helped towards maintaining macroeconomic stability. Macroeconomic indicators have remained satisfactory as a result of satisfactory progress of the financial sector. Though number of Banking and Financial Institution has decreased, financial transaction has been expanded significantly along with the enhancement in financial sector accessibility. By the mid-March of 2020, there are all together 162 banks and financial institutions in operation including 27 Commercial Banks, 23 Development Banks, 22 Finance Companies and 89 Micro Finance Institutions. Similarly, one Infrastructure Development Bank is also in operation. Furthermore, 40 insurance companies, 34,837 Cooperatives, Employees' Provident Fund, Citizen Investment Trust and Postal Savings Banks are also in operation.

Foreign Dependency**:** In the time of Rana regime Nepal used to be like a closed economy which only depend on Great Britain in some extend and after the democracy of 1951, Nepal has to depend highly on foreign assistance both aid and grant to lead it in the path of development. Nepal received the foreign assistance. Over-dependency on foreign aid has made the people parasites.

Overview of Current Economic Picture of Nepal (Before March 24, 2020)

After the lockdown started Nepalese economy headed to the worst condition than before as almost all the economic activities has been completely halted. This lockdown has highly affected almost all the classes' and all the sectors of the economy of people though the degree is different. The outbreak has affected each and people's lives.

The impact has already started to surface in number of sectors like tourism, trade and production linkages, supply and health. Especially the entire service industries: tourism, aviation and hospitality sector have been hit hardly by the outbreak. All the businesses and movements shut down for three months. Even after lockdown has been loose the business is unable to be run smoothly. All the economic indicator like remittance inflows, private sector credit, capital expenditure and foreign trade is going down. "Remittance inflows declined by 6.1 per cent in the 10 months of the current fiscal year against an increase of 19.6 per cent in the same period of the previous year,". Similarly, the government revenue collection was just Rs. 16.1 billion in the tenth month of the current fiscal compared to Rs. 59.1 billion last year. Private sector credit mobilization witnessed a negative growth to -15.9 billion in May-June this year. Nepal's import also declined nearly by 50% compared to last year. The export trade also suffered badly. The country's export decreased by 65% in mid-May to mid-June respectively to last year. The trade deficit contracted because of lower imports; the current account deficit narrowed by 44.3 percent during the first half of FY2020. The export-import ratio increased to 8.0 per cent in the review period from 6.7 per cent in the corresponding period of the previous year.

A prolonged outbreak of COVID-19 is likely to affect growth significantly with a further deceleration or contraction in services and industrial production. So, economic growth is expected to fall in Nepal to a range between 1.5 and 2.8 percent in FY2020 reflecting lower remittances, trade and tourism, and broader disruptions caused by the COVID-19 outbreak. Economic growth during FY2021 is also likely to remain subdued due to the lingering effects of the pandemic with some recovery expected in FY2022, (IBRD, 2020).

Meanwhile, foreign direct investment (FDI) has increased by 84% in the 10 months of this fiscal against the last year. Balance of Payments (BOP) remained at a surplus of Rs. 120.90 billion against a deficit of Rs. 68.20 billion of the previous year; meaning that outflow of money from the country is lower than what the country is earning in this year than previous year. The trade deficit narrowed down by 14.2 per cent in the ten months of 2019/20, such deficit had expanded by 19.7 per cent in the same period of the previous year**.** Narrowed trade deficit, improvement in foreign direct investment leads to a BOP surplus of Rs 120.9 billion in first 10 months of current FY 2019/20. Foreign exchange reserves and current account witnessing surpluses. The total foreign exchange reserves, reserves held by NRB increased by 20% in mid-May 2020 than mid-July 2019. According to the NRB, the reserves can support 10.8 months of imports of goods and services. This year also there was loss in Current Account but the loss has been decreases nearly by 50% than previous year. Meanwhile, the inflation rate stood at 5.83% in the first ten months, down from 6.74% in the first nine months of the current fiscal year, (NRB, 2020).

Due to the pandemic everywhere, economic activities have slowed down and world economy in 2020 is going to sink by 3 percent according to IMF's prediction. So, there is and will be the return of migrated population both sellers of muscle as well as brain. As per the analysis by the Asian Development Bank, the outbreak of this deadly disease will hit almost every sector of the Nepali economy, shaving up to 0.13 per cent off the gross domestic product and rendering up to 15,880 people jobless, (ADB, 2020). About 31.2 percent of the population that are estimated to live between $1.9 and $3.2 a day face significant risks of falling into extreme poverty, primarily because of reduced remittances, foregone earnings of potential migrants, job losses in the informal sector, and rising prices for essential commodities as a result of COVID-19. It is forecasted that GDP of Nepal will be 2.3 and 3.1 in 2020 and 2021.

Strategies for Reshaping the Future of Nepalese Economy

Nepal experiences inherent development constraints such as hyperinflation; low production and productivity; rise of leisure class, widening income inequality, rising unemployment, absence of the rule of law etc. Additionally, the emerging structural

problem in trade, foreign direct investment, poverty etc has affected Nepal's growth potential negatively (Pyakurel, 2013).

Every people must be able to live better life. Poverty, inequality and underdevelopment in one place is the threat to other, we need to think about reshaping of Nepal's economy for the future generation as well as future of the world economy also.

The above scenario especially after lockdown situation shows that Nepal has a challenge to reshape the future of its economy and there is a pressing need to reshape the future of the Nepalese economy, which helps to achieve sustainable, inclusive, balanced growth of Nepal with greater equity, reduced poverty, and guarantee of competitiveness, improved social development, good governance, and a clean and healthy environment.

Now which is the key sector that should be emphasized to uplift the economy? To reshape the Nepalese economy in future, after the lockdown, here I put few strategies that Nepal needs to include within the new policy to revive the economy. In my opinion in this situation even expenditure on tourism that is considered never ending and ever-increasing business can't reshape the economy as tourist will not be able to come.

Agriculture

First and foremost, strategy a government should be the development of the agriculture sector. Agriculture in Nepal is a mode of living rather than a profitable profession. As long as agriculture remains merely subsistence in nature the country can't be prosperous. It is said that agriculture is tale of despair to tell. The situation must be change concentrating on commercialization, modernization and diversification of agriculture sector as the aim of long-term Agriculture Perspective Plan (1995-2015) to alleviate poverty. Here modernization in agriculture incorporates application of the latest technology, use of high yielding variety of seeds, chemical fertilizer, crop protection measures etc. which helps to increase the productivity. Commercialization is the production of agricultural crops for sale in the market, rather than for family consumption. It requires a thorough repair to make it an economic nature. Irrigation facility and other technical aids must be provided. Off season vegetable must be encouraged to produce whose value will be high. There is a need of Agriculture diversification; transforming itself from a supply-driven to a demand-demand scenario, which helps to increase income, employment and output, enhance export and reduce

import. Besides traditional food crop farming, there must be encourage cash crop, mix of crop, high value commodities like milk, fruits, vegetables, spices, asparagus, mushroom etc., off season vegetables, poultry farming, horticulture, livestock, fisheries, farm forestry, herbs production etc. (Gurung,2012).

Priority for agriculture will help to wipe the vulnerability of Remittance as it directly generates provides the employment opportunities at home for hundreds of millions of young people who are joining the labour market every year, so Nepalese people do not have depend on foreign employment specially in gulf countries. Similarly, it helps to correct the BOP deficit by increase in export and decrease in import of agricultural product. It also helps to bring political stability in the economy, etc. that leads Nepal in the path of development.

Education

We can develop our country by increasing the number of skilled, semi- skilled and unskilled human resources through education and training and providing the employment opportunity in nation and it help to increase the per capita income. Education is a basic human right and a significant factor in the development of children, communities, and countries. Education is most valuable factor to reshape the economy by helping to increase the income and leading a person from intergenerational poverty to prosperity. Education gives people the skills they need to help themselves out of poverty and moves toward the prosperity. If one gets education then s/he will be able to get to a better job than uneducated labor's work.

Especially education for women/girl helps to benefited to all the society (Summers, 1994). Chief economist of the World Bank and current top economic advisor for President Obama, Lawrence Summers, claimed that “educating girls’ yields a higher rate of return than any other investment available in the developing world.” The education also plays a great role in the development of agriculture. If education is given it can change the concept of people about agriculture i.e., it is also one of the occupations which uplift the std. of living, the students can perform better in the agriculture field, they can invent the new ideas which improve the rate of agriculture and their quality. Nowadays the nation gives a chance to the student to study about the agriculture which is very good process because if the new talent knows the advantages of agriculture in the

role of country, then they can solve all the problems in the field of agriculture if they study the agriculture. In this way education also helps to uplift the agriculture sector that helps to reduce the migration problem. And by this way if the agriculture of a country is healthy then that country can perform better in the competition of advancement in the world. Therefore, the education plays a great role in agriculture which is very important for the development of country. Similarly, if the leaders of a country are well educated and qualified then they can control all the system of that country very well. They can think positive and can compete with another country easily in the field of development and prosperity of a country.

Giving the education is same as giving fishing rod rather than fish i.e., empowering. Developing education sector is that strategy which helps to remove the gender, income inequality. It brings marginalized, minor and backward Citizens like children, youths, women, senior citizens, Madhesi, Muslim, Dalit, indigenous people, ethnics (Janajatis), physically challenged people and socially, economically and geographically backward communities into mainstream of the society by empowering them.

The present education system of Nepal is wholly theoretical, which has created the problem of educated unemployed. Proper attention should be paid to develop technical and vocational education. Higher education facility must be filtered; means only sharp brain person who wants to be engage in research should be provided the higher education and others has to divert in technical and vocational education according to the need of the economy as well as the liking of the person. Besides, education helps in the development of every field of life.

Here public health care is not as effective as private health care and the private health care is not affordable for everyone. Government should take extensive measures of having effective and affordable public health care which is accessible at every part of a country.

Infrastructure

Nepal is an infrastructure deficient country. To maintain current growth rates and meet demands for infrastructure, Nepal requires an additional investment which can be done through PPPs model (Public-private partnerships model). PPPs can help to close this

growing funding deficit and to meet the immense demands for new or improved infrastructure and service delivery in sectors like water, transport, and energy (among others). In countries with diverse and numerous needs, PPPs can fill gaps in implementation capacity as well as the scarcity of public funds.

Others

As corruption is a major threat of our economy, there should be immediate judgment and severe punishment for the corruption, which should dare people to get into the world of corruption

In case of bribery both giver and taker are responsible for such crimes. This should be considered as a huge crime and punishment should be severe and given to both. Then bribery will be eradicated. For rapid industrialization, Government should follow the policy of encouraging the cottage and small industry in the country.

Many migrated people will lose their jobs, they will be treated as second class citizens and they will be in a hard time mentally as well as physically and returns back to Nepal which directly and indirectly brings the problem of unemployment. This can be solved by redirecting their skill, knowledge and energy to strengthen the county's economic system. According to the experts returned peoples new skill and mindset could act as the "changing agent "of the economy. The outbreak of the COVID-19 has given the fresh challenges. Remembering the proverb "Success is an awful teacher and failure teaches you more" one can take advantage by engaging youths who are in the country as well as returned migrants and potential-to-return migrant in economic activities. The returned migrant's skill can be used in their specialization field and other options. Financial sector must be properly guided and watched.

Conclusion

It is believed that to reshape the future of Nepal's economy, Government with selfless, without political biasness must build a healthy system based on liberal and strictness in which health, education must be affordable and approachable to all the citizens. This will tend to develop the agriculture sector, tourism sector and all the sectors that reshapes Nepal's economy. The concentration on the development of Agriculture, education, tourism, infrastructure helps to uplift of the economy and achieve the challenges i.e., to achieve balanced and inclusive development by addressing

geographically between village and towns, mountains, hills and terai as well as on the basis of castes, groups and genders.

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Contribution of Foreign Direct Investment to Trade Balance

Bashu Dev Dhungel[3]

Abstract

This article on contribution of foreign direct investment on trade balance in Nepal during the study period 1995–2018 shows the significant positive relationship between inflows of FDI and trade balance. The main objective of this study was to investigate the impact of FDI on trade balance of Nepalese economy. This study has employed Ordinary Least Squares Method to explore relationship between FDI inflows and trade balance in Nepal. The results indicate that there is significant and positive relationship between FDI and trade balance in Nepal. This study has its implication for policymakers to raise FDI inflows to keep the trade balance in Nepalese Economy. To raise the inflows of FDI, it is necessary to make investment friendly environment for foreigners that lead to raise the export and trade moves towards favorable.

Keywords: foreign direct investment, export, import, trade balance, ordinary least squares method

Introduction

Foreign direct investment has been played the important role for trade balance of the nation. Foreign direct investment is an important channel for technology transfer from developed countries to developing countries. It helps to correct the trade through rise in export of goods and service from one country to other countries. Foreign capital-based industries have not created the fear of hegemony; it raises the knowledge efficiency and competition. A country is unable to catch the pace of economic development without rise in investment because developing countries have no sufficient resources to mobilize the available resources. Foreign investment therefore, plays the important role to raise export as well as economic development of the nation (khoury & Savvides, 2006).

The export of Nepalese goods and services has been limited in comparison with import. Thus, foreign direct investment is necessary to reduce volume of trade deficit through rise in exportable products. However, government of Nepal has made the various

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efforts (subsidies for exportable goods production, no tariff for exports, and tax rewards) to rise the export of goods and services. Export has been accelerating the economic growth and that makes positive multiplier effects on income and employment. It has also enhanced the technological which is necessary condition for economic development of the country (Ajmi et al., 2013).

An increase in investment within the country has been accelerated the economic growth of the country. An increase in inflows of FDI has raised the productive capacity of the economy. Increase in productive capacity of the economy leads to raise the exports of goods and services and it helps to reduce the trade deficit that rise the aggregate demand of the economy. An increase in aggregate demand has raised consumption demand, income, and employment within the country that are the major components of economic development of the nation. Thus, the objective of this paper is to examine the contribution of foreign direct investment on trade balance of the country.

Literature Review

Large number of empirical literature (Athukorala & Menon,1996; Bosworth & Collins, 1999; Hill, 2010; Pang, 1998; Sekkat &Varoudakis, 2004; Temiz & Goken, 2009) have focused on the study impact of FDI on trade balance. These studies found the positive and significant impact of FDI on trade balance.

Pacheco- Lopez (2005) explored the impact of foreign direct investment on trade in Mexico by employing time series data of 1980- 2000. This study employed Engel Granger cointegration test to explore the causal relationship between FDI and trade balance of Mexico. The finding of this study showed the bidirectional causal relationship between FDI, export and import.

Varamini and Kalash (2013) examined the impact of FDI on trade balance of European emerging countries. This study used Engel Granger cointegration test to explore the role of FDI on trade balance of 10 emerging countries of Europe. The finding of this study showed the short run as well as long run significant positive relationship between FDI and trade balance in ten European countries before joining the European Union.

Rana (2014) analysed the relationship between FDI inflows and trade balance in Bangladesh by employing time series data during the period of 1972-2011. This study

employed the Engel Granger cointegration approach to cointegration to explore the long run as well short run relationship between FDI inflows and trade balance of Bangladesh. This study found that FDI was positive and significant factors that directly helps to correct the trade balance.

Mahmoodi and Mahmoodi (2016) examined the causal relationship between FDI and export of goods and services in developing countries by using time series data during the period of 1992-2013. Panel Vector Error Correction Model to cointegration was used to explore the impact of FDI on export. This study found the bidirectional causality between FDI and export of goods and services in European developing countries.

Methodology

This study employed regression analysis to explore contribution of FDI on trade balance of Nepalese economy. Time series data during the period of 1995-2018 were used to examine the contribution of FDI on trade balance. Trade balance refers to export is equals to import of goods and services from Nepal to other countries. Thus, FDI is a positive function of trade balance for Nepal. The effect of FDI on the trade balance (TB) of the economy presented in the following Keynesian open macroeconomic model:

$$TB = C+I+G+X-M \quad \text{(I)}$$

Where, Y = value of national income (GDP)

C = Aggregate consumption expenditure

I = Gross capital formation

G = Government expenditure

X = Value of export

M= value of import

By rearranging this equation XI and written as

$$X - M = C + I + G \quad \text{(II)}$$

Equation (II) explains the trade balance. On the basis of Equation (XVII), this study developed the following model:

$$TB = F(FDI, GDP, GCF, GCE)$$

$$\text{Or, } TB = \alpha + \beta_1 FDI + \beta_2 GDP - \beta_3 GCF - \beta_4 GCE + \mu \quad \text{(III)}$$

Where GDP is the gross domestic product, GCF is the gross capital formation and GCE is the gross consumption expenditure

Data Analysis and Results

Contribution of FDI on trade balance of Nepal has based on Keynesian model. According to Keynesian equation Y = C + I + G + X - M, where Y is the national GDP, C is the consumption expenditure, I is the gross capital formation, G is the government expenditure, X - M was the net export or trade balance. Therefore, trade balance (TB) or X-M is equal to Y- C - I - G. Thus, this study has been employing the Keynesian equation to examine the impact of FDI on net export of Nepal into foreign countries.

Descriptive Statistics

Descriptive statistics have been used to describe the characteristics of variables during the study period. Table 1 presents the summary statistics of dependent trade balance (TB) and independent variables [foreign direct investment (FDI), gross capital formation (GCF), gross consumption expenditure (GCE), gross domestic product (GDP), and life expectancy at birth (LE)] used for the study. It shows number of observations, measures of central tendency, measure of dispersion (standard deviation), minimum and maximum values, skewness, kurtosis, and Jarque-Bera test respectively.

Table 1

Descriptive Statistics of Variables

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	J-B
B	-299995.7	-135311.4	-51849	-1161194	317376.3	-1.3	3.69	6.96
CF	4073679.	2087790.	6724210	80170.0	4246016.	.51	4.75	11.73
CE	965127.9	656374.0	491115.	14487.0	729276.5	.81	2.31	3.00
DI	3408.00	961.40	7512.80	-470	4821.54	.59	4.71	12.56
DP	1088555.	727827.0	007246.	48913.0	828999.0	.89	2.58	3.23
E	65.96	66.60	1.60	-8.52	3.78	-0.42	2.16	1.37

Note. Adapted from Economic Survey and Quarterly Economic Bulletin, by Government of Nepal,2020.

Table 1 highlights the nature of variables used in the model. It indicates that the data sets of TB and LE are negatively skewed. Similarly, FDI, GCF, GCE, and GDP are positively skewed. The coefficient of kurtosis of dependent variable (TB

=3.69) and independent variables (FDI=4.71, GCF = 4.75, GCE = 2.31, GDP = 2.58, and LE = 2.16) indicates that the data sets are normally distributed.

Descriptive statistics for the variables FDI, GCF, GCE, GDP, and LE have positive mean and median whereas TB has negative mean and median. The result indicates that the average net export was-299995.7 million with minimum value of -1161194 million and maximum of -51849 million. The standard deviation of TB was 317376 respectively. Similarly, mean values of FDI were 3408 million with minimum value of -470 and maximum value of 17512. The variability of FDI was represented by value of standard deviation which was 4821.54. Similarly, mean value of GCF, GCE, GDP, and LE were Rs. 4073679 million, Rs. 965127.9 million, Rs. 1088555 million, and Rs. 65.96 million with standard deviations of 4246016, 729276.5, 82899, and 3.78 respectively. Finally, Table 6.I also presents the value of Jarque-Bera, which shows the nature of distribution of variables included in the study.

Regression Analysis

Regression analysis between dependent TB and independent variables FDI, GCF, GCE, GDP, and LE have demonstrated in Model 1

Model 1

Estimated Relation between TB and FDI, Dependent variable is TB .

$TB = -711627.70 + 3.49^{***}FDI - 0.06^{***}GCF - 0.50^{***}GCE + 0.32^{**}GDP + 12157.88^{***}LE$

T	(-6.91)	(2.82)	(-8.53)	(-3.96)	(2.07)	(6.82)

$AdJ.R^2 = 0.99, \quad F = 4417.79, \quad DW = 1.72, \quad N = 23$

(Note * significant at ten percent or better, ** significant at five percent or better. *** significant at one percent or better)

Model 1 exhibits the coefficient of FDI is 3.49 which is positive and statistically significant at 1 percent level. This positive coefficient explores the direct positive relationship between trade balance (net export) and inflows of FDI in Nepal. Large chunk of inflows of FDI leads to rise the export of goods and services that makes the favorable trade for Nepal. The coefficient of FDI demonstrated that Rs. 1million increase in FDI leads to Rs. 3.49 million increases in net export from Nepal. Similarly, coefficient of GCE and GCF are negative and statistically significant at 1 percent level. This implies that there

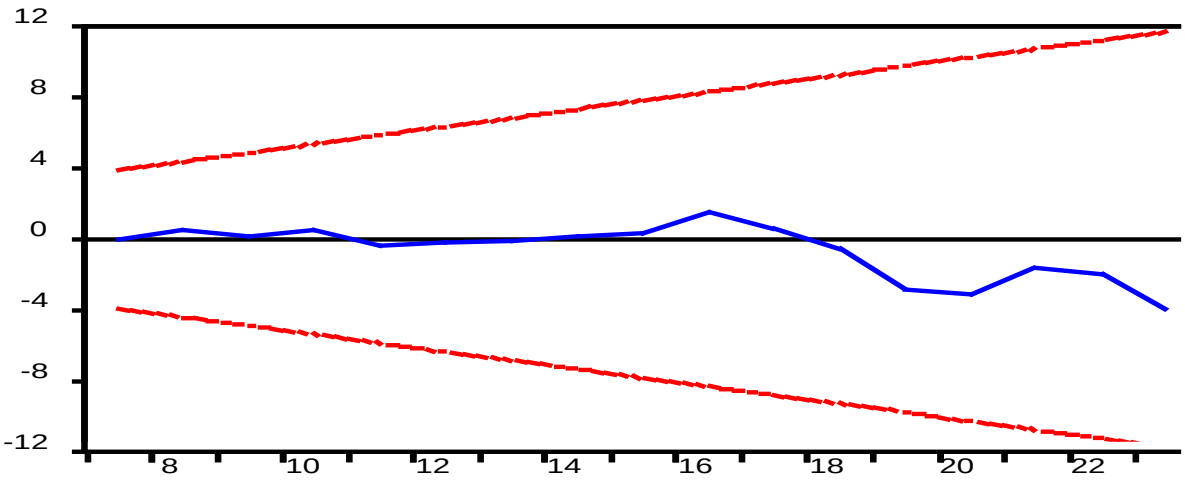
is inverse relationship between net export and gross investment as well as gross consumption expenditure. The coefficient of GDP is 0.32. This implies that one million increases in GDP led to Rs. 0.32 million rises in net export from Nepal. The coefficient of GDP is positive and statistically significant at 5 percent level. Net export from any countries have determined by their National income (Keynes, 1936). Thus, this study also found consistent result with Keynesian result. Furthermore, coefficient of LE is 12157.88 that indicate the positive and statistically significant relationship between trade balance and LE.

The coefficient of determination i.e., the value of adjusted R^2 was 0.99. This implies that 99 percent of trade balance in Nepal is explained by FDI, GDP, GCF, GCE, and LE. The F statistics value is 4417.79 that shows the significant impact on TB by FDI, GDP, GCF, GCE, and LE in Nepal. DW statistic value was found 1.72, which confirms that there is no autocorrelation problem in the analysis. Thus, the finding of the impact of FDI on trade balance has been vital and significant factor.

Stability Test of the Model

It has been important to investigate whether the estimated relationship is stable or not during the study period.

Figure 1



Plot of Recursive Residual (CUSUM)

To test the stability of the model Recursive CUSUM test at 5 percent level of significance is used. If the plots of CUSUM statistics study with in the critical bounds at 5% level of significance all co-efficient in the given regression are stable. In Figure 1, straight lines represent critical bounds at 5% significance level. It shows that the CUSUM plots lie within the bound (red line). Thus, it has provided the evidence that all the parameters include in the Model was stable over the study period.

Diagnostic Test Result of the Variables

To ensure that Models have not been misspecified, Table 2% result of test for serial correlation, and heteroscedasticity. The results of the diagnostic test reveal that all the models have well specified indicating that the estimated regression model performs well. There was no serial correlation problem in the model because Breusch-Godfrey serial correlation LM test confirms that there was no evidence of serial correlation in the model. Similarly, Breusch-Pagan-Godfrey of heteroscedasticity test also confirms that model has no problem of heteroscedasticity. The diagnostic test of estimated regression model suggests that the model has no problem of serial correlation and heteroscedasticity because the F-statistic and obs* R-squared values were greater than 0.05. Hence, it rejects the hypothesis serial correlation as well as heteroscedasticity prevails in the model.

Table 2

Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.1260	Prob. F (2,15)	0.88
Obs*R-squared	0.3801	Prob. Chi-Square (2)	0.82

Heteroscedasticity Test: Breusch-Pagan-Godfrey

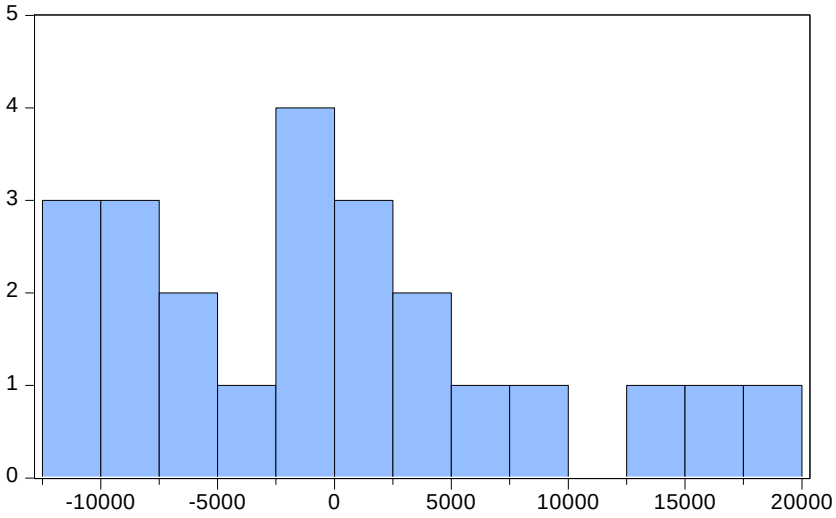
F-statistic	0.7914	Prob. F (5,17)	0.57
Obs*R-squared	4.3428	Prob. Chi-Square (5)	0.50
Scaled explained SS	1.8941	Prob. Chi-Square (5)	0.86

Note. Calculation based on Model1.

Similarly, the residual terms included in the model were normally distributed. The normality of residual terms has tested below;

Figure 2

Plot of Residual Terms (Normality test)



The Jarque-Bera test statistics was 1.71, this implies that it accepts the hypotheses that residual series were normally distributed from the model. Hence, in the regression model residual terms were normally distributed. The model consists of all assumptions of ordinary least squares regression model therefore, findings were appropriate for policy implication.

Conclusion and Policy Recommendations

This study analysed the effects of FDI inflows on trade balance of Nepalese economy. Trade balance is a main component of the current account of balance of payment. Therefore, to make the favorable balance of payment, it is necessary to raise the export of goods and services. It is only possible, if the country raises the investment in exportable goods and services. But Nepal's government has no sufficient money to make the large amount of investment. In this situation, FDI is a prominent source of investment to produce the exportable goods and services. Nepal has been facing high trade deficit due to inappropriate use of foreign investment and Nepalese current account is negative. Therefore, as a policy implication increase in FDI inflows might cause to increase in export that makes trade balance and it direct the current account towards surplus. Thus, the policy makers should make a favorable environment to raise the inflows of foreign investment into the Nepal.

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Resource Gap Analysis in Nepalese budgetary System

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Abstract

Resource gap analysis in the Nepalese budget system has attempted to focus on both the situation at the current level and the estimated future value. Therefore, the study has applied both the OLS and ECM models, to look at the GNS and GCF relation to GNI. The result has been compared to the current situation and the target level of performance in the future. With the analysis of unexplained residual factors, RGA in budgetary operation has been examined between GNI as a resource and what rate of resource would be needed to satisfy future needs at the national level. However, these models gave the same conclusion that resource gaps have got irregular with the rate of 12 per cent speed of disequilibrium. With this performance of resource gap, the government agency and others rigorously understood the resource it currently has and the need for resources to meet the goal. The forecasting further would also provide valuable suggestions for expanding other areas of development by diverting their capacity to correct the resource gap in the budgetary system.

Keywords: national income, saving, capital formation, budget, deficit financing

Background

The government budget is a set out of a plan that forecasts revenues and expenditures within a year (Shah, 2019). The budget is the deciding policy of a government that governs through revenues and expenditures (Singh, 2014& Shah, 2019). A good national budget is visualized major macroeconomic indicators of an existing condition and indicates the priorities of economic areas through the inclusion of new development projects for economic and social development in a year. Further, a budget is an instrument used to guide the efficient allocation of resources through expenditure allocation on an annual basis (Musgrave & Musgrave, 1984). Further, the budget is the

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means of policy building and implementation through the planning decision. It acts as the supporting framework for the policy and law of the government (Bhandari, 2010).

The budget is the financial administration of revenue and expenditure that play a vital role in the functioning of the federal state (Shah, 2016). All the economics, financials, and social functions are influenced and operated either in surplus or deficit financing. The form and size of the budget also provide ingredient features of the country's level of development in the global economy. Most of the evidence proves that a transparent and appropriate execution of a budget can successfully accelerate the country's development in a timely and systematic way.

The state can establish a relationship with the national and international levels for the budget operation and implantation. A policy assignment by the government and different institutions and the people's demands have been documented in the budget. In a federal system, the assignment of the centre can be implemented through the budget delegation to other tiers of the government level. Implementation of fiscal federalism is based on the measures of diversity, equivalent, centralized redistribution, location neutrality, centralized stabilization, correction of spillover, minimum provision of public service, and equalization of the fiscal position in the country is heavily relies on the budgetary operation. The proper decentralization of authority power to the vertical level of government can be minimized the resource gap situation in tiers of government. The proper implication of budget then also can be increased completion among the inter jurisdiction. Thus, the budget is a means that provides to implement new policies in a federal system (Rao & Sen, 1995; Oates,1999; Ranjitkar, 2014).

Despite proper implications of budgetary operation can link people's desires. The heavy burden of deficit financing from the pre-federalism in the country can evade the post-fiscal federalism macroeconomic indicators of Nepal (JBR, 2009). The country's size of gross domestic product (GDP) has existed with a sluggish growth rate. This has indicated a low level of per capita income resulting in a wide gap between gross domestic saving (GDS) and gross capital formation (GCF) in the past (MOF/GON, 2008/09). Thus, the study focused to analyze the actual situation of the resource gap that prevails in the Nepalese budgetary operation system and making decisions for correcting measures on resource gap.

This study signified that the task became difficult for understanding the issue that resources must be a value and scarce for sustainable development. To understand these issues, the impact of her two macroeconomic variables such as GNS and GCF should be compared to draw the actual resource gap in GNI. This resource has a scarce value is to achieve the current need of people. However, it has been hindering development action at the current time need. Therefore, the analysis has heavily taken into account the measurement of the current resource gap in a moral sense that has value in the future.

Statement of the Problems

Resource gap analysis in the budgetary system of Nepal has endeavored to the GNS and GCF relation on GNI at the current state of the situation. This is an attempt to compare that result to the target level of performance in the future. In other words, RGA in budgetary operation has been decided to examine the actual gap between GNI as a resource and what level of resource would be needed to satisfy future needs at the national level.

Nepal has been facing a severe resource gap problem for decades. The difference between growing expenditure and revenue received basis was the cause of increasing public debt to meet the budget deficit over the years. The study further focuses on the low revenue received has prevailed due to ineffective tax policy on both direct and indirect tax bases. The lack of a country's effective fiscal policy is another root cause of the resource gap problem. The continuation of RG has hindered the economic development of the country. In this context, the differences between the macroeconomic indicators like GNS and GCF have been taken RGA to examine the current trend of GNI received. The hindrance of the development function has not happened at the recent time would have been measured for correcting in a plan. If priority has been taken into mind, it would decide to account for reducing the gap between GNS and GCF in the future time.

Objective

To analyze the resource gap trends and speed in the study period of Nepalese budgetary operation.

Literature Review

The theoretical concept of resource gap (RG) is also known as a fiscal deficit, occurring the difference between expenditure and revenue in raw data. The second type

of RG is a budget deficit, stirred by the difference between expenditure and revenue plus foreign grants (JBR, 2009). The third type of RG is an overall deficit, happening when the difference between expenditure and revenue plus foreign aid (grant or loan) plus internal borrowings. In Economic Survey Report (MOF/GON, 2017/18) resource gaps have been shown in the difference between Gross National Saving and Gross Capital Formation/ Investment made in different periods. Similar data have been drowning through the handbook report of Nepal Rastra Bank (2014).

In an assessment, Bandari (2010) examined the potential output and the output gap relation by adopting different methodologies. The assessment has based on the assumption of no inflationary pressure on the economy. The study has concluded that the output gap relied on a relatively narrow band from the used methodology of the observations. Finally, the study has shown that people's demand narrowed due to the regular decline in factors productivity hindered the sustainable development of the economy of Nepal (Bhandari, 2010).

Intentionally, an attempt has gone to the research gap has applied of aforementioned three macroeconomic variables in the budgetary process of Nepal.

Methodology

Methods of this RGA of government budgetary process applied descriptive techniques data carried through the government agencies from FY 1990 to FY 2018. The macroeconomic indices such as the gross national income (GNI), gross national saving (GNS), and gross capital formation (GCF) at the current price have been used to indicate the budgetary resource gap in Nepal. Findings of the study have been described in the table, graph, and OLS estimation by using advanced excel and Eviews modules for using the statistical tools follows-

Regression analysis

The regression analysis of dependent GNI at the current price on GNS and GCF has followed the estimating model.

GNI= F (GNS, GCF, dist) in time period

Or, $Y= C+ b_1 X_1 +b_2 X_2 + u$

Where, Y= Gross National Income (GNI), X_1 = Gross National Saving (GNS) and X_2 = Gross Capital formation or investment. In a simple word, it is the remaining GNS

and GCF which affect GNI, and b_1 and b_2 represented the explanatory coefficient of GNS and GCF for estimating the average equation in the system of GNI_t

$$GNI_t = C + b_1 GNS_t + b_2 GCF_t + u_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad 1$$

Where, C, b_1, and b_2 are parameters: C the intercept, b_1, and b_2 are the slope of GNI concerning GNS and GCF, an u_t the unexplained residuals factor of GNI by explaining GNS and GCF.

Estimation equation 1 has transformed into logarithms form. So that, the new log transforms OLS being a long-run association.

$$\ln GNI_t = C + b_1 \ln GNS_t + b_2 \ln GCF_t + u_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad 2$$

An Augmented Dicky-Fuller (ADF) Test has been done for the testing unit root of variables. For this, the following three models should be checked one by one.

Model 1: Intercept only $dY_t = b_1 + zy_{t-1} + a_i + e_t$

Model 2: Trend and Intercept $dy_t = b_1 + b_2 y_t + zy_{t-1} + a_i + e_t$

Model 3: No Trend and no Intercept $dy_t = zy_{t-1} + a_i + e_t$

For the decision, all three models should be stationary.

The log transform model has become a long run time series at the first difference level after checking co-integration.

$$d\ln(GNI_t)) = C + b_1 d\ln(GNS_t)) + b_2 d\ln(GCF_t) + u_t \quad 3$$

When introducing residual in equation 3 we have an error correction equation as given below

$$d\ln(GNI)) = C + b_1 d\ln(GNS)) + b_2 d\ln(GCF) + b_3 u_{t-1} + z \quad .4$$

Where, b_3 is the coefficient of the residual term (t-1) and z is the new residual in the system

Result and Discussion

Based on the observed data from 1990 to 2018, GNI has been looking at the increasing trend. However, another GCF alone was changed negatively in 1999 and both were changed negatively in 2002, 2014, and 2016 with a higher negative change in 2014. The details of the variables attribute have been generalized in descriptive analysis, in which the mean value of GNI in millionth rupees has stood at Rs.529198.0, followed by GNS Rs. 166663.8, and GCF by Rs. 164315.2 during the 29 years as has shown more detail in Table 1.

Table 1

Descriptive Statistics of the GNI, GNS, and GCF at Current Price by their Percentage Changes and Change in Stock, Sample Period from FY 1990 to 2018

Rs. In Million

	CGI	CGNI	GNS	CGNS	GCF	STOCK	CSTOCK
Mean	529198.0	12.84385	166663.8	15.61314	164315.2	13.47233	2348.548
Median	352917.0	12.71786	111180.6	15.27049	93019.50	18.40670	-1020.000
Maximum	1705721.	24.22929	681706.0	68.02566	624645.0	58.33115	75979.00
Minimum	105350.0	3.523807	10249.00	-86.81983	19076.00	-87.05185	-29125.00
Std. Dev.	440025.5	4.558526	179844.7	24.76851	165072.4	24.43964	25505.39
Skewness	1.376351	0.396474	1.607469	-2.167580	1.611068	-2.232307	1.065165
Kurtosis	3.846213	3.312474	4.580489	11.70391	4.391429	11.21942	3.976664
Jarque-Bera	10.02124	0.877740	15.50748	114.2500	14.88453	105.7192	6.636387
Probability	0.006667	0.644765	0.000429	0.000000	0.000586	0.000000	0.036218
Observations	29	29	29	29	29	29	29

Note. CGNI= Percentage change in GNI, CGNS= percentage change in GNS, CGCF= Percentage change in GCF, and CSTOCK=change in stock/inventory or the difference between GNS and GCF.

Source: Hand Book of Government Statistics, 2018; Economic Survey of Nepal 2017/2018.

Table 1 shows that the GNI has been found to fluctuate with a range maximum of 1705721 to a minimum of 105350.0 million during the 29 years, followed by the GNS with a maximum of 681706.0 and a minimum of 10249.0, and the GCF with maximum 624645.0 to minimum 19076.00 million respectively. Data further have indicated a higher standard deviation of all three macroeconomic variables rather than the change in their respective percentages. Similarly, all three variables have positively skewed rather than their respective percentage changes. Likewise, the values of kurtosis are good in these three variables, indicating good symptoms of normality. While the value of Jarque-Bera has higher than 10 per cent in these variables. Finally, the probabilities of these three variables have well at a 5 per cent level of significance rather than their respective percentages.

Even though, the descriptive statistics of these three variables hold good for further analysis, the respective percentages of these variables are not good. The Jarque-Bera of CGNI is not satisfactory to the other two variables. Similarly, probably of CGNI

is not significant at the 5 per cent level. Thus, in sum, the selected data is not normally distributed along with the 29 years. The study suggested testing another attribute for concluding.

From the aforementioned data, regression equation 1 has given the following results-

GNI= 119223.2 + 1.77248 GNS + 0.692402 GCF
SE = (22358.70) (0.693235) (0.755273)
R^2 = 0.969716, DW= 0.127646

The regression equation of the observed data has indicated that with the positive intercept of 119223.2, per unit change if GNI has influenced by 1.77248-unit positive change in GNS, followed by 0.692-unit change GCF per year. However, the result of the equation has based on the following rule of thumb.

1. The R^2 = 0.969716, means the dispersion of GNI by the dispersion of GNS and GCF has jointly 96 per cent is good.

2. Standard error (SE) is always representing the margin or the error of estimate at a 5 per cent level of significance. The coefficient of variables must be twice the corresponding value of SE.

3. The t- statistics is the ratio of the absolute value of coefficient to the SE is always representing, indicating that the calculated value of t-statistics must be greater than 2.

$$t - stat = \frac{coef}{SE} > 2$$

Now using the rule of thumb-

i. At C, t- stat is greater than 2 is significance.

ii. At GNS, a t-stat greater than 2 is the significance

iii. At GCF, a t-stat is less than 2 is insignificance.

iv. The value of DW= 0.127646, and is not just near 2.66 and also R^2 > DW. The estimation has got spurious or nonsense at raw data. For a good estimation $R^{2,}$ < DW is non-spurious.

There have been mixed results when we interpret the result of the regression line. The model suggested that the correlation between GNI and GCF has weaker. The weakness of the interpretation has suggested further calculation of unit rout of each variable one by one as given below-

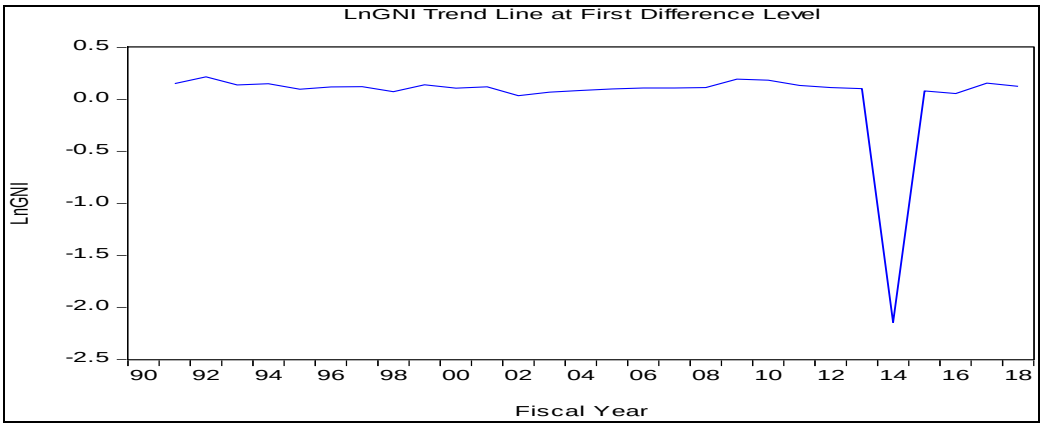
Analysis of GNI

The GNI figure at the current price is the money value of final goods and services that the produced in a year including net income from abroad. It is also known as factor income in net value. In other words, it is the sum of factors earned in the form of wages, rent, interest, and profit. In the budgetary process, government sources of revenue for maintaining expenditure in a different portfolio. Further, the disposable GNI is divided into consumption and saving/ investment as Disp GNI=C+S or I. Thus, consumption and saving are surely dependent upon National income.

In the budgetary system of Nepal, GNI was included as a factor of income during the period 1990 and then segregated into disposable income and factors earning till now. The economic importance of GNI during the 29 years has been non-stationary. The actual trend line of GNI has been de-trending in log GNI `at first difference level having non-stationary as in figure in figure 1.

Figure 1

GNI Trend Line by Log Transform at First Difference Level



Note. Ln= Natural logarithm

Figure 1 shows that LnGNI has almost got stationary at the first difference level. The graph itself detects the period 1991 to 2018, indicating the line is stationary from 1991 to 2013, became negative in 2014, and again stationary from 2015 to 2018. It was the abnormal situation in FY 2014 that was created by earth quack and blockade by India that affect macroeconomic indicators as reported mentioned by the economic survey (MOF/GON, 201718).

Now, the result of model 1 of the ADF unit root test at the first difference level, has been laid on

$d(LnGN_t)= 0.0339 – 1.01089\ LnGNI_{t-1} + a_i + e_t$, DW-stat=2.000327 and t_{cal}=-5.057> t_{crit}= -2.97 at 5 percent level of significance.

Similarly, all three models have got significance at the first difference level at 5 per cent level with calculated t-statistics is greater than tabulated value of t and D-W statistics around 2 has a satisfactory result for analyzing time series data in long run estimation.

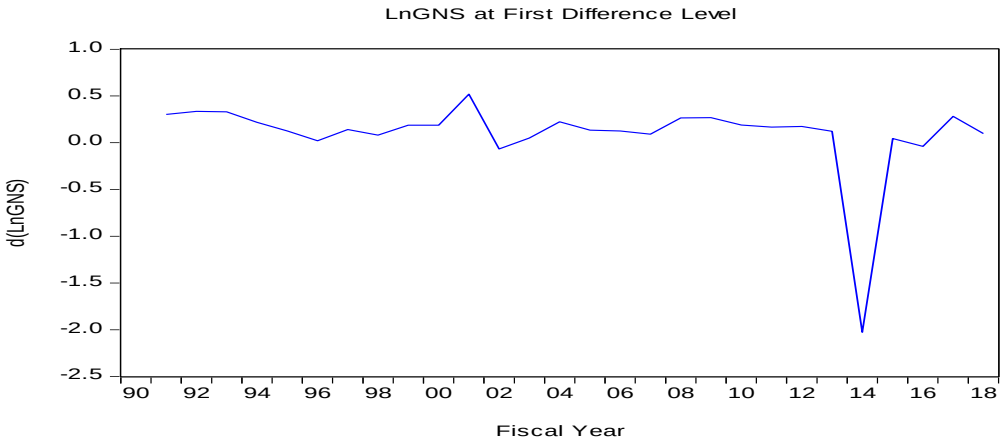
Analysis of GNS

Usually, GNS have derived by deducting final consumption expenditure (household and government) from gross national disposable income. It has consisted of personal savings plus business savings (including capital consumption allowance), retained business profit, plus government saving (excess of tax revenue over expenditure), but deducted foreign savings (import over export). Most of the figures are presented in percentage of GDP. A negative sign means dissaving or spending more income than produced, showing that drawing down gross national income and wealth (CIA Fact Book, 2018).

However, here we have analyzed the total figure of GNS with percentage change. The percentage change of GNS has 10.25 per cent in 2018, it was 32.26 per cent in 2017, but negative in 2002 (-6.26 per cent), 2014 (-86.82 per cent), and 2016 (-3.88 per cent). Thus, the figure has not stationary when the log is transformed at level, it has stationary when the log transforms at the first difference, as visualized in figure 2.

Figure 2

The Trend Line of GNS by log Transform at the First Difference Level



Note. Ln = Natural logarithm

Figure 2 shows that LnGNS at the first difference level automatically detects 1991 to 2018. The graph has stationary from 1991 to 2013, it was discontinuous in 2014, and have got stationary from 2015 to 2018.

However, the ADF- unit root of LnGNS indicated the following result.

Model 1: On the intercept form LnGNS has not stationary at level, but stationary at the first difference level and second difference level. For example, the model at the first difference level has given the result:

$d(lnGNS_t) = 0.789 - \quad 0.959 lnGNS_{t-1} + a_i + e_t,$

SE (0.087) (0.198)

Where, DW-stat = 2.012, and t_{cal}=-4.823> t_{crit}= -2.97 at 5 percent level of significance. Thus, LnGNS have no unit root at the first difference level.

Similarly, the other two models have no unit root at the first difference level.

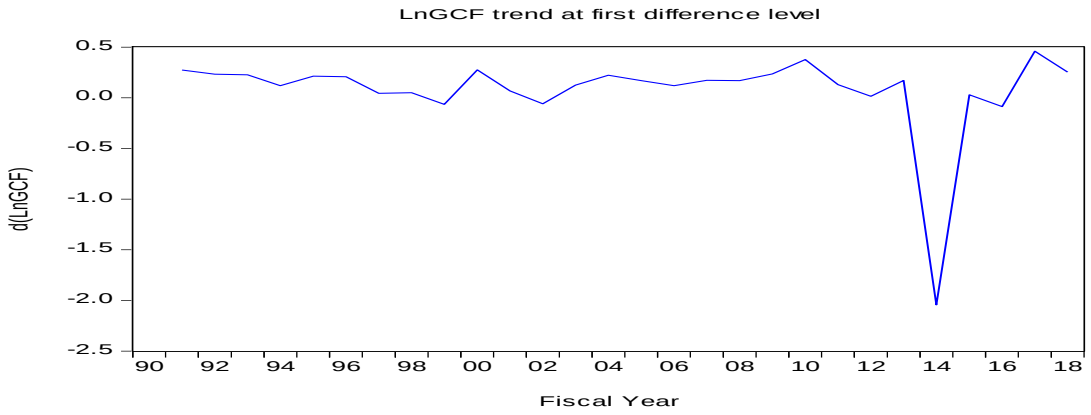
Analysis of GCF

The gross capital formation or gross domestic investment included total outlay made with fixed assets of the economy plus net changes in the level of inventories, a fixed asset with land improvement (fence, ditches, drain, etc), plant, machinery and equipment, and equipment purchase and construction of roads, railways, schools, colleges, and commercial and industrial building.

The study considered gross figures with percentage changes from FY 1990 to 2018. The percentage change in GCF has 28.77 percent in 2018; it was 58.33 percent in 2017, but it was negative in 1999 (-6.25%), 2002 (-5.71%), 2014 (-87.05%) and 2016 (-8.38%) respectively. The GCF has not stationary at the level and LnGCF have been tested for further analysis as shown in graph 3.

Figure 3

Trend Line of GCF by Log Transform at First Difference Level



Note. Ln= Natural logarithm

Graph 3 shows that GCF is automatically detected from FY 1991 to 2018 at the first difference level. The graph has got almost stationary from FY 1999 to 2013 and 2015 to 2018, but it has got negative in 1999, 2002, 2014, and 2016 respectively.

Further, the ADF unit root test of GCF has indicated the following results

Model 1: On the intercept form LnGCF has not stationary at level, but stationary at the first difference level and second difference level as the result is given below-

$D(LnGCF) = 0.667 \quad -0.986LnGCF_{t-1} + a_i + e_t$

SE (0.078) (0.199),

Where, DW-stat=2.004, and t_{cal}=-4.93> t_{crit}= -2.97 at 5 percent level of significance. Thus LnGNS have not got unit root at first difference level or stationary.

Similarly, the other two models have not got unit root at the first difference level.

Integrated Model for GNI

After analysis of GNI, GNS and GCF it has been decided that these variables have got spurious at the raw level then the study has prescribed to transform in log form. The separated unit root at the different levels of each variable suggested only one equation that is appropriate for future prediction in the long-run model.

Now, running data according to model 3 that predetermined decision has provided result as in below-

$dln(GNI)) = -0.04486 + \quad 0.534dLn(GNS)) + \quad 0.452dLn(GCF))+u_t$

SE (0.016291) (0.120340) (0.119985)

R^2=0.96 <DW-stat=2.203077

Looking at the equation, the coefficients of LnGNS and LnGCF have positively related to the GNI. The dependence on LnGNI at the first difference level to those independent variables has an economically viable relationship, indicating that as GNS and GCF increased the volume GNI increased in the same direction. In other words, per unit change in GNI has positively been influenced by GNS and GCF by 0.534 % and by 0.52 % jointly. The model has a long-run association due to the following rules of thumb-

1. The probability (P-value) of each variable and joint probability (F- statistics) are less than 5 per cent means the model has significance.
2. The R^2 value (0.96) has less than Durbin-Watson statistics (2.203), a variable that has stationary
3. The Breusch- Godfrey serial correlation LM test of observed R^2= 5.364 with a corresponding P-value is 6 per cent indicating that residuals have a serial correlation.
4. The Heteroskedasticity test on Brusch-Pagan-Godfrey, obs. R^2= 2.223 corresponding P-value 33 per cent proved residuals have homoskedasticity.
5. In The histogram normality test of series residuals the value of Jarco-Bera (JB) =37 per cent and P-value=83 per cent indicating residuals are normally distributed, some problem is the JB test. It has symptoms of irregularity in residuals means the resource gap must have suffered the problems of disequilibrium.

ECM Model

The result of the ECM equation 4 has been given in the following form

$$\text{dln}(GNI_t)) = -0.0141 + 0.526\ \text{dln}(GNS)) + 0.463\ \text{dln}(GCF) - 0.1268\ u_{t-1} + z$$

SE (0.016671) (0.123087) (0.122634) (0.204504)

Where, R^2 =0.96<DW-stat=2.116

The ECM equation said that the coefficient of GNS and GCF are positive means there is a positive relationship between independent and dependent (GNI) variables, but there is a negative relation between GNI and unexplained residual factor. The coefficient of the residual sign has negative means the speed rate of disequilibrium leads GNI negatively influenced by residual at short run by 12 per cent. The residual has no unit root at the level means stationary for future prediction. Finally, the study surely identified that economic development remained inadequate and that the government was ignorant about relevant policy variables. This has been a severe limitation of the

government budgetary system in past. In the context of new fiscal federalism, the unexplained residual should be disaggregated into recognizable elements by developing new projects with advanced technology at the policy level and organizational knowledge. However, the gap is difficult to specify exactly how much yield in GNI, but the budget should be operating effectively for the well-being of people in a new context of the political and socio-economic environment.

The model has satisfied the resource gap analysis on the following rules

1. High R^2 value at 5 per cent significant level has satisfied,
2. No serial correlation in residuals has satisfied
3. No heteroscedasticity in residual has been satisfied, and
4. Residual should be normally distributed has satisfied

Conclusion

The resource gap in the Nepalese budgetary system is derived based on the regression model of dependent GNI concerning GNS and GCF. The first difference level is only on log transformation best fitted than other techniques. The model has been applied best after testing the unit root of each variable and the de-trend line of each response variable. Every three variables have no unit root at the first difference level, resulting in the best prediction of the study objectives. The estimated regression output of variables indicates both the GNS and GCF apply to the resource gap in the Nepalese budgetary system. The almost estimated de-trend line from the first difference level on given observations indicates that the resource gap in the Nepalese budgetary system has irregular means fluctuated in abnormal conditions and other political changes.

However it has got unpredictable at the data level, the derivation suggested, that it should be stationary at the current when government expands new development projects to meet the people's needs in the future. The study further opens the door to generalising the gap between potential GNI and actual GNI at the current time. Any freelance researcher and policy level can take lesions for analyzing resource gap on the immediate objective to meet the future need by reforming policy at present by improving the technique of planning to raise income bearing forces to constitute the resource gap. The study further, does not oppose other income depressing forces such as the growing

population, the transitional context of the socio-economic and political environment, and other existing administrative chaos in the country.

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The Difference in Paddy Production Through Irrigation and No Irrigation: A Survey of Households in Phalelung Rural Municipality

Kul Prasad Lamichhane[5]

Abstract

This study was designed to examine the difference in paddy production through irrigation and no irrigation, and to explore the problems faced by the farmers in the study area in Phalelung Rural Municipality, as well as their possible solutions. As for the method, this study used the descriptive tools (tables, percentage, means, and standard deviation) and inferential tools (*t* test and interval estimates (95% confidence interval) at the $\propto = .05$ level. Kilograms were used as a unit of measuring the paddy produced by 50 households in both irrigated and no irrigated farmlands. Concerning the first objective, the study found statistically significant evidence in favor of the alternative hypothesis (H_1), at the specified $\propto = .05$ level, that population annual-mean-(paddy) production from the irrigated farmland (μ_1) became larger than that from the nonirrigated farmland (μ_0). Regarding the finding of second objective, on the problems and prospects of farmers, this study found as main problems the lack of irrigation, faulty irrigation management system, lack of technology, monsoon-based agriculture, and low productivity. According to the farmers in the study area, the possible solutions of the problems could be managing irrigation facilities, providing credit, and providing agro-training to farmers.

Keywords: agriculture production, *t* test, irrigated farmland, nonirrigated farmland, problems and prospects

Introduction

Irrigation is crucial for the development of the agriculture sector; however, the sector has not developed properly in Nepal because of its heavy dependence on rainfall. The earliest system irrigation is believed to have begun in 6000 thousand B.C. in Egypt and Mesopotamia. In Egypt, the Nile floodwater diverted to the field for few months each year to enable farmers to grow crop. In Mesopotamia, the Tigris and Euphrates floodwater were used in the same way. Terrace irrigation was an ancient technique used all over the world, including in China and especially in

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America. Chaco and Hohokama were two kinds of irrigation system in the North America: The Chaco irrigation was used in Mexico, and the Hohokama one in Arizona. The Dujiangjy an irrigation system of China, built in 256 B.C., irrigated huge agriculture land (Andreas et al., 2020).

Farmland is irrigated in Nepal mainly through small and medium type of irrigation system. The irrigation system from underground system is a main source of livelihood for most Nepalese. A majority of people in Nepal seem to depend on rain-fed water for irrigation. In 1923, Nepal government-built infrastructure of the modern engineering technique of Chandra canal, a large-scale irrigation structure; similarly, another large scales irrigation structure, Juddha canal, was built in 1940 in Nepal. In 1952, the department of irrigation was set up to develop Nepalese's irrigation system. A farmer management irrigation system was set up by the then government to manage irrigation. A new and system of developing irrigation seems to have started from the first five years plan; large-scale irrigation structures were then constructed in different parts of the Terai with the World Bank's assistance. About 100 years ago, Rani, Jamara, and Kuleriya irrigation systems were constructed by farmers themselves to irrigate 15000 hectares of land. The study focused on the need for increasing agriculture productivity to become self-sufficient in food and to minimize poverty (Pradhan and Belbase, 2018).

Objectives

This study was designed to examine the difference in paddy production through irrigation and no irrigation, and to explore the problems faced by the farmers in the study area in Phalelung Rural Municipality, as well as their possible solutions.

Hypotheses

For this objective, this study has set these two hypotheses for the population-mean paddy production (μ_i) consisting of two hundred household farmers (N = 200), using one (right) tailed test based on the experiences and practices: The null hypothesis is that there is no difference in the population-mean paddy production through irrigation and no irrigation (that is, H_0: $\mu_1 = \mu_0$) against the alternative hypothesis that the population-mean paddy production through irrigation is greater than that through no irrigation (that is, H_1 : $\mu_1 > \mu_0$) , where i = 1, 0; the subscript 1 ≡ irrigation; the subscript 0 ≡ no irrigation; H_0 ≡ null hypothesis; H_1 ≡ alternative hypothesis.

Review of Literature

The agriculture sector, having about 64.4% of total population, contributes 27% to GDP. The fifteenth plan aims to increase the contribution of the agriculture sector to 23% by the end of the planning last year. This plan aims to maintain traditional irrigation and to construct new

technical irrigation structures—as well as to achieve the trade balance in agriculture sector by becoming self-reliant in major agriculture products by the end of this plan (National planning commission [NPC], 2019/20–2023/24).

The significance of farmer-managed irrigation systems in Nepal is viewed in different ways. At the household level, many families in hills rely on the increased production, for their survival, made possible by their irrigation systems. At the national level, on the other hand, at least 45 percent of the population's subsistence cereal requirement is being fulfilled by the growth in food production made possible by irrigation from farmer-managed systems (Ghimire, 2017).

United States Geological Survey (USGS, 2017) reported the controlled application of water for agriculture purposes through man-made system to supply water requirements satisfied by rainfall. USGS found crop irrigation to be vital for feeding the world's ever-growing population. It pointed out different irrigation systems used worldwide: center pivot, micro-irrigation, flood or furrow, spray or sprinkler, sub-irrigation, and surge flooding.

Nepalese farmers, recognizing the importance of water resources for years, have been building irrigation systems at their own initiatives to increase their agriculture production. This tradition has given birth to the farmer-managed systems across Nepal. These systems have been developed by their own rules, norms, and procedures of the management. In 2002, the irrigation potential of the country was estimated at 2,177,800 hectares, including some 412,000 hectares not cultivated mainly in the Terai area—the potential mainly for surface irrigation. Some 352,050 hectares, however, were potentially irrigable from groundwater in the Terai region (Thakur, 2015).

Paudyal (2010) investigated the relationship between canal irrigation and the growth in agriculture production and found canal-irrigated farmland to give more paddy production than the tube-well irrigated farmland: Thanks to canal irrigation, paddy production increased by 68.75 percent and wheat production by 193.0 percent.

Malla (2008) investigated the impact of the climate change on agriculture and environment, using secondary data. Malla described a rapid rise in temperature and evaporation—due to climate change—as a reason for an increase in rainfall and an increase in water resources in main catchment rivers, including Koshi, Gandki, Karnali, and Mahakali, thereby increasing agriculture production because of the availability of irrigation facilities. The author, however, found no clear link between short- and long-run increases in agriculture production and recommended developing irrigation infrastructure and minimizing the use of agro chemicals to save the long-run increase in agriculture productivity.

Uprety (2005) argued that organizations were designed for the acquisition of water, mobilization of manpower and local resources to the operation and maintenance of the system, equitable water distribution, and minimizing conflict. The nature of water as a transient resource requires co-operative sharing of irrigators to utilize and manage it for irrigation.

Uphoff (1986) advised to address these basic issues: a physical structure of allocating, distributing, and collecting of water; and an interactive and mutually dependent organization, usually managed by a social organization.

Ricardo (1817) divided lands into four grades according to their agriculture productivities: different grades of lands cultivated gradually in a descending order with superior grade of land cultivated at first, then second grade of land, third grade of land thereafter, and finally fourth grade of land with population growth and the resultant increase in the demand for agriculture products.

Looking at the previous review of literature done so far, no studies were found on Phalelung Rural Municipality Panchthar and on this topic; for this reason, this study seems to have filled geographical and variable gaps.

Method

Based on the above objectives, the study methodology has ranged from the demographic characteristics to data processing tools and style of writing.

Study Area and Demographic Characteristics

Two canals have remained in operation in the study area: Tindobhane and Khursane. The study area, in Phalelung rural municipality (Ward No. 2) bordered by Sikkim and West Bengal of India, Panchthar, has included these demographic characteristics—(a) Religion: Hindu, Kirat, Buddhism, and Christian; (b) caste and ethnicity: Limbu, Rai, Chhetri, Brahmin, Tamang, Bhujel, Kami, and Damai;(C) education background: most members illiterate and some literate; (d) language: Nepali, Limbu, Rai, and Tamang; (f) economic status: lower-middle classes of the people; and(g) occupation: main agriculture.

Time Horizon

The cross-sectional data were collected during three months from April 2020 to June 2020.

Research Design

To analyze the data, this study employed a descriptive, inferential, quantitative, and household level design, as well as after-only design with control area (the farm area with no irrigation facility).

Sources of Data

Using field survey, this study collected primary data from the farmland with no irrigation facility (control area) and the farm area with irrigation facility (treatment area).

Population and Sample Size

The sample sizes in this study comprisedn_1 = 50 units (households) for the farmland with irrigation facility and n_0 = 50 units (households) for the farmland with no irrigation facility. The population size consisted of200 households (N = 200).

Sampling Design

The sample data (n_1= n_0 = 50) were collected by using simple random sampling because of the homogenous nature of households in the population.

Methods of Data Collection

This study collected the data by using semistructure questionnaires and personal interview (face-to-face, pen-and-paper interviews).

Tools of Data Analysis

Both descriptive and inferential tools of statistics were used to analyze the data. The descriptive tools included tables, percentage, means, and standard deviation. Inferential tools included an interval estimate for the population mean (95% confidence interval) and *t* test. Kilograms (a ratio or metric scale) were used to measure the paddy produced by 50 households in 2 *ropany* land related to both irrigated and no irrigated area.

This study used the *t*-test for two independent samples because of heteroscedastic variances in the samples [$(\hat{\sigma}_1^2 \neq \hat{\sigma}_0^2) \Rightarrow (\sigma_1^2 \neq \sigma_0^2)$] and because of this study's data meeting these four conditions for the use of this *t* test (see also Cleff, 2019, p.286, for these four conditions): (i) ratio or interval (cardinal or metric) scale of measurement (In this study, the production was measured in metric scale like kilograms.); (ii) random sampling (Because of the homogenous nature of data and respondent households, simple random sampling was used to select the sample of each of the 50 respondents from the population size of 200 households.); (iii) independent samples (This study used two nonoverlapping samples of the paddy production from the irrigated and nonirrigated farmlands.); and (iv) the test variables to be normally distributed or a larger sample size ($n \geq 30$) (This study used the sample size of 50 farmer respondents.).

$$t = \frac{\bar{x} - \bar{x}_0}{\hat{\sigma}_{\bar{x}_1 - \bar{x}_0}} = \frac{\bar{x}_1 - \bar{x}_0}{\sqrt{\frac{\hat{\sigma}_1^2}{n_1} + \frac{\hat{\sigma}_2^2}{n_0}}},$$ whereH_0: $\mu_1 = \mu_0$againstH_1: $\mu_1 > \mu_0$(right tail).

Degree of freedom (*df*) $= \frac{[\left(\frac{\hat{\sigma}_1^2}{n_1}\right)+\left(\frac{\hat{\sigma}_2^2}{n_0}\right)]^2}{\frac{(\frac{\hat{\sigma}_1^2}{n_1})^2}{n_1-1}+\frac{(\frac{\hat{\sigma}_2^2}{n_0})^2}{n_0-1}}$. Moreover, the decision rule: At α = .05 (one tail) and at the above defined *df*, support H_1: $\mu_1 > \mu_0$ if $|t_{computed}| > t_{tabulated}$.

The 95% C.I. for μ_i=[$\bar{x} \pm 1.96 \frac{\hat{\sigma}_X}{\sqrt{n}} . \sqrt{\frac{N-n}{N-1}}$], where $\hat{\sigma}^2{}_{X_i} = \frac{\sum X_i^2 - \frac{(\sum X_i)^2}{n_i}}{n_i-1}$ and

$\hat{\sigma_1}^2 \equiv$ sample variance of the paddy from the farmland with irrigation facility; $\hat{\sigma_0}^2 \equiv$ sample variance of the paddy from the farmland with no irrigation facility; $\overline{X_1} \equiv$ sample mean of paddy in farmland with irrigation facility; $\overline{X_0} \equiv$ sample mean of paddy in the farmland with no irrigation facility; $\mu_{1\equiv}$population-mean paddy production in the farmland (related to 200 households) with irrigation facility; $\mu_{0\equiv}$population-mean paddy production in the farmland(related to 200 households) with no irrigation facility; *N* =200 household farmers = population size; n_1= 50 = sample size (irrigated paddyland); and n_0= 50 = sample size (nonirrigated farmland).

Data Processing Tools and Style of Writing

This study used Excel 10 for processing the primary data and used *American Psychological* (APA, 6th.ed.) for parenthetical citation, narrative citation, and references.

Results

Based on the above objective and methods, this study has analyzed the data here.

Comparing Aggregate Paddy Production from Irrigated and Nonirrigated Farmlands

Table 1 shows paddy production in irrigated and non-irrigated farmland in this study area.

Table 1

Comparison of Aggregate Paddy Production

Farm land (X)				Grand	
Irrigated (X_1)		Nonirrigated (X_0)			
Total production (ΣX_1)	Percent (%)	Total production (ΣX_0)	Percent (%)	Total production	Percent (%)

12,546	60	8,315	40	20,816	100

Note. The production measured in kg per year. Computed from the data from the field survey, 2020.

According to Table 1, the total production of the paddy in this study area was 20,816 kg. Out of the total production (20,816 kg), the production from the irrigated farmland accounted for 60% (12,546) and that from the nonirrigated farmland 40% (8,315kg). The paddy production from the irrigated farmland was found to be more than that from the nonirrigated farmland by 20% (4,263 kg).

Comparing Population Means of Paddy Production from Irrigated and Nonirrigated Farmlands

Table 2 compares annual mean paddy production from irrigated and nonirrigated farmland.

Table 2

Annual Means-Paddy-Production from Irrigated and Nonirrigated farmland ($\bar{X}$) and ($\bar{X}_0$)

Dependent variable	Irrigated farmland	Nonirrigated farmland
	$\bar{X}_1$	$\bar{X}_0$
Annual paddy production	250.92	166.3

Note. Figure in annual–mean paddy production here measured in kg per year. N_1= N_2= population of irrigated and nonirrigated farmland =100*;* n_1 =n_2 =50. Computed from the data from the field survey, 2020.

As shown Table 2, the annual mean-paddy production of the irrigated farmland (250.92 kg) became greater than the annual mean-paddy-production of the nonirrigated farmland (166.3 kg) in the study area. To test whether the arithmetic-mean difference is statistically significant, this study used *t*-test of two independent samples to test the null and alternative hypotheses that $H_0: \mu_1 = \mu_0$ and $H_1: \mu_1 > \mu_0$, as shown in Table 3.

Table 3

The t-Test Results of the Annual Mean-Paddy Production from Irrigated and Nonirrigated Farmlands ($\bar{X}$) and ($\bar{X}_0$)

Computed *t* value	Critical *t* value	*df*	Significant level (α): right tail test	Decisions
8.27	1.67	81.63	.05	Because computed *t* value > critical *t* value, alternative hypothesis ($H_1: \mu_1 > \mu_0$) was retained, meaning that the population-mean production of paddy from the irrigated farm land (μ_1) became greater than that from the nonirrigated farmland (μ_0).

Note. Here population size ($N_1 = N_0 = 100$); sample size($n_1 = n_2 = 50$). $H_1: \mu_1 > \mu_0$.

Computed from the data from the field survey, 2020.

According to Table 3, the calculated *t*(= 8.27) became greater than that of tabulated value of *t* (81.63) =1.67at the specified .05 level; hence, the alternative hypothesis *(H1*) was supported—showing a statistically significant difference in the population-mean paddy

production, as anticipated in the hypothesis, and providing a statistical evidence for the population–annual-mean paddy production from irrigated farmland (μ_1)being greater than that from the nonirrigated farmland (μ_0).

Point and Interval Estimate for Population-Mean Paddy Production from Irrigated and Nonirrigated Farmlands

In Table 4, this study reported point and interval estimates for population-annual–mean paddy production (μ) from the irrigated and nonirrigated farmlands.

Table 4

Point and Interval Estimates for Population-Annual-Mean-Paddy Production of Irrigated and Nonirrigated Farmland

	Irrigated farmland		Nonirrigated farmland	
	Point estimate $\bar{X}_1(\hat{\sigma}_1)$	Interval estimate 95% CI	Point estimate $\bar{X}_0(\hat{\sigma}_0)$	Interval estimate 95% CI
Annual production (in kg)	250.52 (61.52)	[235.68 , 265.36]	166.16 (37.99)	[157.14 , 175.46]

Note. The figure on annual-mean-paddy-production of irrigated and nonirrigated farmland here measured in kg per year. N_1 = population size of irrigated farmland = 200; μ_i = population-mean-paddy production of irrigated and nonirrigated farmlands; n_1=n_0=sample size of both lands;$\bar{X}$ = sample mean,$\hat{\sigma}$ = sample standard deviation; 1= irrigated farmland; 0 =nonirrigated farmland; CI = confidence interval. Computed from the data from the field survey, 2020.

From Table 4, it appears that the population–mean-annul paddy production of irrigated farmland was estimated to be around 251 kg (as a point estimate of population mean), but its interval estimates were projected to be at the range from around 236 to 265 kg. Likewise, the population–mean-annual paddy production of nonirrigated farmland was estimated to be around 166 kg (as point estimate of population mean), but its interval estimates were projected to be at the range from 157to 175 kg. This finding suggests therefore that the irrigated population-mean-annual paddy production (in kg) became greater than nonirrigated population-mean-annual paddy production (in kg).

Problems and Possible Solutions

Based on semistructured questionnaires and face-to-face personal interviews with respondent farmers in this study area, the following problems and possible solutions were found in this study.

Problems Faced by Farmers in the Study Area

The following problems faced by farmers were found in the study area: the lack of the timely use of chemical fertilizers and improved verities of seeds; natural disasters (such as landslides)that cause damage to canal; different types of wildlife (such as monkey, deer, and porcupine) that damage crops; no modern technology and training to farmers to increase agricultural productivity; farmers far from the source of the canal facing the problem of irrigation due to inadequate irrigation management system; farmland with no irrigation facility to depend on monsoon rain alone; farmers frequently harassed by drought ;lack of concessional agriculture credit to the farmers in the study area; the problems of insects destroying crops in the farmlands in the study area; and no proper and timely facilities of pesticides.

Possible Solutions Offered by the Respondents to the above Problems

The government should increase investment in irrigation. Water User Association should equitably manage the water distribution system. The concerned stakeholders should arrange for improved seeds and agro-training to increase the productivity of agriculture. An arrangement should be made for easy access to modern agriculture equipment concessional loan. Finally, the stakeholders should take some steps in preventing wild animals from damaging crops.

Discussion and Conclusion

Discussion

In accordance with the above two objectives and method, this study has made these findings. Because the alternative hypothesis (H_1) was supported, this study found statistically significant difference in population-mean annual paddy production, in the study area, from the irrigated and nonirrigated farmlands at the .05 level, computed t (81.63) = 8.27, critical t =1.67—indicating that population annual-mean-paddy production from the irrigated farmland (μ_1) became larger than that from the nonirrigated farmland (μ_0), as anticipated in the alternative hypothesis.

Regarding the second objective on the farmers' problems and the possible solutions, this study found as main problems the lack of irrigation, faulty irrigation management system, lack of technology, monsoon-based agriculture, and low productivity. According the farmers in the study area, the possible solutions of the problems could be managing irrigation facilities, providing credit, and providing agro-training to farmers.

Because of a small sample size (n_1=n_0 = 50) and its target population (N = 200), however, these findings (a static picture related to cross-sectional data) may not be generalizable

to others study areas. Hence, the use of longitudinal data and more advanced econometric tools would enable future researchers to reach closer to a dynamic picture on the difference in the paddy production from the farmlands with irrigation and with no irrigation.

Conclusion

As for the first objective, the study found computed paired *t* values having greater than their critical *t* values; this finding has lent support to alternative hypothesis(H_1). The support of H_1hasbrought this researcher to the conclusion that paddy production from the irrigated farmland seemed to be more than that from nonirrigated farmland. Here, the irrigation may have played an important role in making the production from the irrigated farmland larger than the production from the nonirrigated farmland.

If the main problems (the second objective)—the lack of irrigation, faulty irrigation management system, lack of technology, monsoon-based agriculture, and low productivity—are addressed by the concerned authorities, then their solutions (as well as the other possible solutions as put forth by the farmers in the study area, such as managing irrigation, providing credit, and providing agro-training to farmers) are very likely to further increase the paddy production in the study area.

This study, as well as its findings, could hold some practical and social significances—a practical significance because the problems and possible solutions put forth by farmers may be useful for policy makers and a social significance because this study's findings could be useful for future researchers to build on the study in this topic.

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Trends and Structures of Direct Taxation and its Share in Gross Domestic Product of Nepal

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Abstract

This study tried to analyze trends and structures of direct tax in Nepal with the adoption of descriptive method. This study, based on secondary data published by the Government of Nepal covering a fiscal year between 1999/00 to 2019/20, also examined the contribution of direct tax in gross domestic product of Nepal. During the study period, direct tax seemed to be fluctuating but increasing overall by 94.44%, while the percentage sharing of all taxes to the gross domestic product was increasing even though it was fluctuating from time to time. Total direct tax was found rising by 16%, on average, over the last 20 years. However, the income tax seemed contributing significantly to both direct tax and gross domestic product during the study period.

Keywords: tax, direct tax, indirect tax, developing countries, gross domestic product

Introduction

Both direct and indirect taxes are vital to collecting adequate revenues to the state for meeting increasing public expenditures of the country—and promoting economic growth, employment, and economic stability. The direct and indirect taxes should go side by side and balance each other. In developing countries, however, direct tax has limited scope, and hence indirect tax plays a more significant role. A well-oriented system of taxation requires a combination of direct and indirect taxes in different proportions (Rahul, 2015).

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A tax is defined as an involuntary fee levied on corporate organizations and individuals and is enforced by a government entity to finance government activities. The imposition of tax—on public debt, printing of currency, sale of assets, and drawing down of cash reserve with the central bank by the government—is one of the ways that government can finance its expenditure. However, tax is a cheaper source of finance for government expenditure compared to the aforementioned alternative sources. Hence, taxation has become a popular source of government expenditure financing (as cited in Ogundana & Adetoyinbo, 2017).

Hakim (2020) examined the effect of both direct and indirect taxes on the economic growth and the collection of tax revenue in 51 developing and developed countries. The findings suggest that direct taxes have a negative and significant effect on economic growth, while indirect taxes show positive but insignificant relationship with economic growth. Additionally, this study found a mixed result regarding the significant contribution of both direct and indirect taxes to the collection of tax revenue in a country. It indicates that indirect taxes, such as consumption tax and taxes on goods and services, seem insignificant and inefficient in maximizing the collection of tax revenue due to the existence of a large informal economy related to the nontaxable sectors, especially in developing countries. In this case, the government might be unable to maximize the collection of tax revenue from indirect taxes compared to direct taxes, such as taxes on personal income, profits, and capital gains (Hakim, 2020).

Objectives

The two objectives of this study are to examine trends and structures of direct taxation and to investigate its share in gross domestic product of Nepal.

Review of Literature

The history of the evolution of direct tax in Nepal is not found to be very old. Except for land revenue, other direct taxes did not seem to be imposed on the people before the advent of political change of 1951 in the country. The nation had virtually remained an authoritarian state before 1951. Both the income and expenditure of the government were used to be a confidential matter. In actual practice, no difference existed between the private purse of the ruling Rana Prime Minister and the Government treasury (Jha, 1981).

Personal income tax, gift tax, and wealth tax would be called as direct taxes since there would be no shifting of tax burden (Srinivasan & Periyasamy,1983). Furthermore, the role of direct taxes in developing economies discourages speculative investment, controls inflation, induces agriculture sector, restricts consumption, reduces inequalities of income, and helps to achieve equality. Direct taxes like taxes on land and capital gains tax are imposed to prevent speculative investment. Direct taxes are also to be used to somewhat reduce inequalities in the distribution of income and wealth. This tax policy is likely to check unproductive investment and release a greater amount of resources available for productivity investment. Direct taxes, especially progressive taxes control inflation. Since the distinction effects of the progressive rates in the nonfunctional personal incomes are low, they would be more important in checking an inflationary pressure associated with the development expenditure. Besides, the personal income taxes can be adopted to have a built-in-flexibility during inflationary period that a higher proportion of the additional income may pass on to the government (As cited in Thapa, 2007).

Basically, tax can be categorized into two broads: direct taxes and indirect taxes. If a person has to directly pay the tax liability to the government, such tax is known as direct tax. A direct tax is really paid by the person on whom it is legally imposed. The liability of direct tax cannot be transferred to others and must be paid by the taxpayer to whom it is legally imposed. The impact of direct tax is limited within the taxpayer who is liable to pay such tax. Income tax, gift tax, interest tax, property tax, death tax, and contract tax are the typical examples of direct tax. The government collects and realizes such taxes directly from the taxpayers. Direct tax is an effective instrument to instill consciousness of the citizens as to how their contribution plays the principal role in the development of the nation as a whole. In Nepal, direct taxes contribute 21% to the tax revenue of the government (Humagain, 2008).

The tax paid by the person who is legally taxed is called direct tax. The effect and burden of this tax falls on the same person. A person, when imposed, is liable to pay taxes; hence, he or she is a real taxpayer. The direct tax is the amount of tax determined by directly assessing a person's income. In addition to taxes such as income tax, gift tax, expenditure tax, property tax, corporate taxes, and taxes paid on the proceeds of property or sales are also considered direct taxes. Because firms or organizations are also legally

like individuals, the tax levied on the firm or organization for various purposes has to be paid directly and falls under the nature of direct tax (Bista, 2011). Bista has also stated that there are some good aspects of the direct tax system; therefore, it has been widely used. Since direct tax is levied according to the ability of the taxpayer, it does not adversely affect the financial ability of the taxpayer. Direct taxes are directly related to the ability to pay. The ability to pay such taxes can be made socially and economically equitable. As the trend of direct tax is progressive, inequality in income and property can be reduced by using direct tax. Since direct tax is less costly, it is considered as a frugal tax system. It definitely contains information about the amount to be paid by the tax payer. By increasing the direct tax rate, the government can get more revenue. As a result of the increase in the income of the people, the direct tax revenue will automatically increase; hence, there is satisfactory flexibility in this tax. Since the tax burden under direct tax is borne by the taxpayers themselves, the taxpayers are especially vigilant about the use of tax money collected by the government. This will motivate the government to spend the tax collected from the people properly.

Mill (2011) defined a direct tax as one which is demanded from the intended person who should pay it (as cited in Adhikari, 2011). Similarly, Dalton (1998) considered the direct tax as one that is really paid by the person on whom it is legally imposed (as cited in Sundharam & Andly,1998). Under the study, the major components of direct tax are income tax, land revenue and registration, and property tax. Income tax, the major component of direct tax, also carries various subcomponents to sum up the income tax, such as income tax from public enterprises, income tax from semipublic enterprises and income tax from private cooperate bodies, tax on remuneration, individual income tax, and tax on interest. Similarly, property tax includes urban house and land tax and vehicle tax (Dangal, 2018). A direct tax is a form of tax imposed directly on tax payers who bear the tax burden. Tax burden cannot be shifted to other persons (Nguyen, 2019).

However, in last three decades, there has been a declining trend in tax revenues on basis of personal income tax, while the share of corporate income tax and social security contributions are rising. On the other hand, the share of indirect taxes is changing significantly in the direction of a higher share of taxes on goods and services, especially

value added tax. The property tax has a stable and constant trend on average of 1.8%, while tax on capital and financial transactions are the least generous in an observed group of tax forms. Viewed from this perspective, it can be noted that labour taxes are higher than capital tax which confirms a more privileged treatment of capital against labour, and it is one of the fundamental characteristics of the neoliberal concept of the economy (Todorović, Milenković & Kalaš, 2019).

Direct taxes are those levied on immediately upon the person who is to bear the burden. Direct tax is a tax paid by the person on whom it is imposed legally. Direct taxes cannot be shifted to other. It is really paid by a person on whom it is levied legally. A direct tax is one imposed upon individual person or property (real and personal property). A direct tax is paid directly by an individual or organization to an imposing entity. A taxpayer, for example, pays direct taxes to the government for different purposes, including real property tax, personal property tax, income tax or taxes on asserts. Direct taxes are based on the ability to pay principle. According to this principle, those having more resources or earning higher income should pay more taxes (Shah, 2019).

Method

To examine the trend and structure of direct tax in Nepal, a descriptive, as well as analytical, method of analysis was used. This study analyzed 20 years of secondary data from the fiscal year 1999/2000 to 2019/20. The required data were taken from Economic Surveys and Advisory Committee Report published by Ministry of Finance, Nepal. A log-lin model of simple regression was used to show the trend of total direct tax.

Result and Discussion

Nowadays, income tax, land revenue and registration, vehicle tax, and other taxes are the major sources of direct tax in Nepal. Tables 1 and 2 show the trends and structures of the direct tax and share of direct tax in gross domestic product. Besides, Figure 1 also demonstrates the trend and structure of the direct tax.

Table 1

Trend and Structure of Direct Tax in Nepal

Fiscal year	GDP	Total direct tax	Income tax	Land revenue and registration	Vehicle tax	Other taxes
1999/00	441,51	895	742	102	40	-
2000/01	459,44	1015	911	61	42	-
2001/02	492,23	1059	890	131	38	-
2002/03	49220	1104	984	61	43	16
2003/04	53680	1217	951	170	70	26
2004/05	58910	1338	1047	180	81	30
2005/06	65410	1453	1094	218	85	56
2006/07	72780	1967	1573	225	100	69
2007/08	81570	2480	1908	294	107	176
2008/09	98830	3642	2725	522	185	210
2009/10	119280	4428	3382	551	242	253
2010/11	137500	5184	4206	357	302	319
2011/12	153600	5733	5286	358	356	384
2012/13	170119	8093	6702	534	437	420
2013/14	194262	9416	7804	664	496	450
2014/15	212465	10886	8976	900	550	460
2015/16	2,253,16	10924	8834	1000	599	491
2016/17	2,674,49	10933	8733	1104	598	498
2017/18	3,044,92	11001	8605	1160	655	581
2018/19	3,458,79	12990	10552	1198	657	583
2019/20	3,767,04	16108	13619	1200	698	59

Note. The figures are measured in crore rupees. Taken from *Economic Survey 2002/03,2010/11, 2012/13, 2017/18, 2019/20 and Revenue Advisory Committee Report 2015*, by Ministry of Finance, Kathmandu, Nepal: Government of Nepal.

Figure 1 was drawn from the columns 1 and 3 of Table 1 to show the structure and trend of total direct tax.

Figure 1

Trend Line of Total Direct Tax

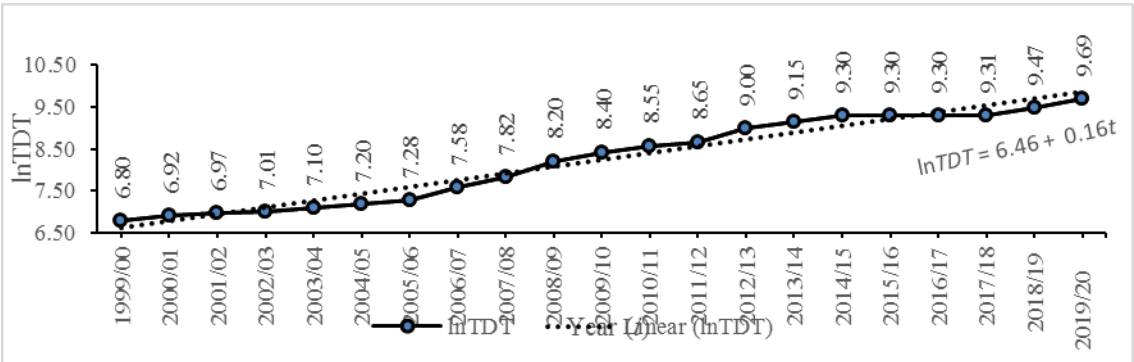

Table 1 shows the trend and structure of income tax, land revenue and registration, vehicle tax, other taxes from1999/2000 to 1919/ 20. Income tax became the highest, followed by land tax and vehicle tax the lowest. Based on a log-lin model of simple regression, Figure 1 displays that total direct tax was found rising by 16%, on average, over the last 20 years. Table 2 shows their percentage share to gross domestic product.

Table 2

Percentage Share of Direct Taxes in GDP of Nepal

Fiscal year	Total direct tax	Income tax	Land revenue and registration	Vehicle tax	Other taxes
1999/00	2.06	1.68	0.23	0.09	-
2000/01	2.21	1.98	0.13	0.09	-
2001/02	2.15	1.80	0.27	0.07	-
2002/03	2.24	2.00	0.12	0.09	0.03
2003/04	2.27	1.77	0.32	0.13	0.05
2004/05	2.27	1.78	0.31	0.14	0.05
2005/06	2.22	1.67	0.33	0.13	0.09
2006/07	2.07	2.16	0.31	0.14	0.09
2007/08	3.04	2.34	0.36	0.13	0.22
2008/09	3.68	2.76	0.53	0.19	0.21
2009/10	3.71	2.84	0.46	0.20	0.21
2010/11	3.77	3.06	0.26	0.22	0.23
2011/12	3.73	3.44	0.23	0.23	0.25
2012/13	4.76	3.94	0.31	0.26	0/25
2013/14	4.84	4.02	0.34	0.26	0.23
2014/15	5.12	4.22	0.42	0.26	0.22
2015/16	4.84	3.92	0.84	0.27	0.22
2016/17	4.08	3.27	0.41	0.22	0.19
2017/18	3.61	2.83	0.38	0.22	0.19
2018/19	3.76	3.05	0.35	0.19	0.17
2019/20	4.27	3.62	0.32	0.19	0.16

Note. Calculation was based on Table 1.

From Tables 1 and 2, it can be seen that the total direct tax was observed increasing over the last 20 years from the fiscal year 1999/00 to 2019/20. This tax was Rs. 895 crores in the first year of the study and reached Rs. 16108 crores in the last year. In the 20 years of the study period, this direct tax increased by only 94.44%. In terms of percentage share, the share of these taxes seemed to be fluctuating from time to time. Similarly, the share of income tax in this tax was the highest, followed by land tax, vehicle tax and other taxes. The increase in income tax in the country means that employment opportunities were seen increasing here, indicating that the country is becoming more and more civilized. With the increase in income tax, it is obvious that the

country is moving towards a sustainable tax system. In rich countries, the proportion of direct taxes appear to be higher than that of indirect taxes, while the proportion is lower in underdeveloped countries like ours. Therefore, in most underdeveloped countries like ours, the share of direct taxes seemed weaker than that of indirect taxes, the fact that was also confirmed by Tables 1 and 2.

Conclusion

From the above analysis, income tax, land tax, and vehicle tax appear to have accounted for the largest share in Nepal's direct taxes from 1999/00 to 2019/20. The trends of these three taxes seem to be increasing; more worrisome, however, the land tax does not seem to be scientific so as to generate more revenues and to widen the tax base. Total direct tax turns out to be rising by 16%, on average, over the last 20 years (see Figure 1). In Nepal, like other underdeveloped countries, the direct tax payments tend to be increasing every year, but they do not seem to be growing as fast as they should. Similarly, the share of direct taxes to gross domestic product appears to be disappointing.

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Access to Energy Revealing through Socio-economic Status Survey of the Local People for Rural Electrification in Nawalparasi

Bhola Dhakal[8]

Abstract

Rural electrification program seems to be crucial to improve living conditions and promote development. The main objective of this study was to identify the socio-economic status of the local people and also measure their perception on willingness to pay for hydroelectricity in two rural municipalities of Nawalparasi East district. The study has followed both qualitative and quantitative methods for socio-economic survey. Household questionnaire survey, Focus Group Discussion and Key Informant Interview techniques have been applied for primary data collection. In addition, secondary data has been compiled through published and unpublished documents from field as well as central level. Agriculture and livestock rising have been found the major sources of income in this area. Therefore, the non-farm source of income is very low. However, remittance from foreign job playing vital role as another source of income for the livelihood of the people. As being economically capable and socially aware with modern facilities and its implication on better and easier life support in future, the local peoples from the study area has been found encouraging. Whole area of the study site has not available electricity facility and their positive willingness to pay for hydroelectricity is the major finding and step forward for the future planning of regular and reliable power supply to uplift their socio-economic condition, reduce poverty and support on rural development activities.

Keywords: agriculture, socio-economic condition, techno-feasibility, hydroelectricity, rural development

Introduction

Nepal's water resources endowments are extraordinary. Its numerous rivers with high gradient and perennial nature are its bounteous gift for hydropower development. It endows approximately 6000 rivers with a total length of 45,000 kilometers. Hydropower potential in Nepal is supposed to be some 83,500 MW as per the studies carried out decades ago and out of these only 43000 MW are found to be economically viable. Till the date we have been able to harness only 1181 MW of hydro-power (621 MW from NEA and 560 from private sector) around

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the country (ADB, 2020). Yet only a fraction of the existing potential has been harnessed and only 86.44percent of the population has access to electricity (NEA, 2020). Hydropower plays vital role in the economic development of the nation. Poverty is a major obstacle for sustainable development of not only developing countries but also the entire world. One of the opportunities to cope with the multidimensional aspects of poverty is access to modern energy such as electricity (Kanagawa & Nakata, 2008).

Energy access is the situation where people can secure the modern energy at affordable prices (Spalding-Fecher, Winkler, & Mwakasonda, 2005). Access to modern energy like electricity will drastically improve the quality of life of those who do not have yet. There has also been increasing attention on poverty reduction through energy access improvement among international organizations in the energy field (World Bank, 2004). The International Energy Agency (IEA) estimates that 1.1 billion people do not have access to electricity, most of them living in rural areas in developing countries (IEA, 2017). Lacking reliable access to electricity is considered a limit on people's opportunities and quality of life. The role of energy as a key driver to sustainable development is now widely recognized by the global community, as evidenced by the fact that the Sustainable Development Goals (SDGs) include access to affordable, reliable, sustainable, and modern energy for all by 2030 as an explicit target.

Access to electricity can improve socio-economic conditions in developing countries through its influence on key components of poverty, namely health, education, income and environment (Kanagawa and Nakata, 2008). Electricity alone may not be able to create all the conditions for economic growth, but it is obviously essential for basic human needs and economic activity (IEA, 2017). Electrification schemes in rural remote areas can be seen as an innovation to replace traditional fuels and consequently people may struggle for it. It is the provision of electric lighting that leads to less eyestrain because of increased and consistent (no flickering) lumen output in the surrounding atmosphere. Eyestrain is commonly associated with the usage of kerosene lanterns (the common form of lighting in rural areas). An electric light can signify a higher and improved social status within the community that is one of the perceived benefits from electricity in rural villages (Matinga and Annegarn, 2013). Increased awareness from access to TV and radio; extended access to education (schools are able to extend opening hours into the evening as a result of electric lighting); and exposure to standards of living associated with different cultures (users may relate electricity consuming activities to urban or 'western' demographics), which may also arouse curiosity. Electricity may provide a sense of **security** through improved lighting and lower risk of fuel shortage. Ownership of development initiatives as a means to sustainable community development, true

participation ensures people take ownership and infrastructure is maintained and repaired locally, based on a sense of local ownership that includes community involvement, user training, and contributions in kind (material or labour). (Yadoo and Cruickshank, 2010).

Rural electrification program seems to be crucial to improve living conditions and promote development; however, there is also a need for evaluation of such programs' impacts to determine whether or not interventions are relevant and cost effective. Lack of access to energy in rural areas and more precisely to electricity is one of the major hurdles to economic development (Khandker, Barnes, & Samad, 2009, cited in Torero, 2015). Electricity use is interconnected through complex casual relations with multiple dimensions of socio-economic development, viz. income generating activities, market production and revenues, household economy, local health and population, education, and habits and social networks (Riva et al., 2018). Access to electricity is considered an essential element in the sustainable development of rural areas and an enabler for countries to achieve their Millennium Development Goals (Nanka-Bruce, 2010).

Rural electrification is a complicated issue because of user affordability, rural inaccessibility and remoteness, low population densities and dispersed households, low project profitability, fiscal deficit, scarcity of energy resources, population growth, lack of professionalism, and over-dependence on subsidies (Lahimer et al., 2012). Rural electrification is seen as a key mechanism to improve living standards; increase income through income generating activities and improve community services such as education and healthcare (Practical Action, 2013). Rural electrification in Nepal is very expensive due to the topographical conditions and at the same time the purchasing power of the consumers very low (NEA, 2020).

Provision of electricity has excellent potential to improve livelihoods and stimulate economic growth in the working areas of influence. Rural electrification schemes are important factors in supporting the goal of the Government's development Plans to decrease poverty incidence in respect of social and resettlement issues. Electromechanical Design Division (EMDD) of Engineering Services, Nepal Electricity Authority (NEA) has conducted a techno-feasibility study for rural electrification in two Rural Municipalities of Nawalparasi (East) District. The socio-economic study of these two Rural Municipalities was a part of techno-feasibility study works.

The main purpose of the study was to finalize provision of rural electrification by extending NEA's existing rural distribution system supplied from the national transmission grid to the two rural municipalities of Nawalparasi (East) district. The specific objectives were to identify the socio-economic status of the local people and also measure their perception on willingness to pay for hydroelectricity.

Conceptual Framework

Energy access in the form of electricity is considered an essential element and potential to improve living standards, livelihoods and stimulate economic growth, increase income through income generating activities and improve community services such as education, healthcare and environmental preservation. Hydropower is an environment friendly source of energy. Being the access to energy would improve health outcomes and reduced mortality through improved indoor air quality from changes in lighting source. Education benefits through higher earnings for children living in electrified households that have higher educational attainment. Income benefits from access to electricity through new opportunities of work, especially in nonfarm activities. It enhances to use savings time from household chore in productive activities and domestic benefits. It also increases productivity of agriculture, home business through higher revenues and lower environmental contamination.

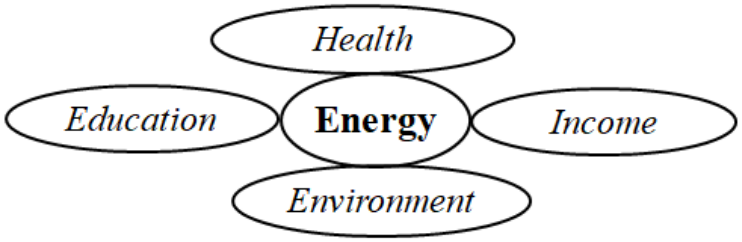

Figure 1: Conceptual framework of study

Approach and Methodology

The study has followed both qualitative and quantitative methods for socio-economic survey based on structure household questionnaires. A field survey has been conducted for the primary data collection. With reasonable sample size, HH survey has been carried out in study area. A Rapid Rural Appraisal (RRA) was envisioned to gather information concerning demography, economic activity, education, and health, commercial use of energy and availability and affordability of energy/fuel service. Figure 1 highlights study approach and methods. This process has been incorporated into each ward based on details consultations with stakeholders and local communities.

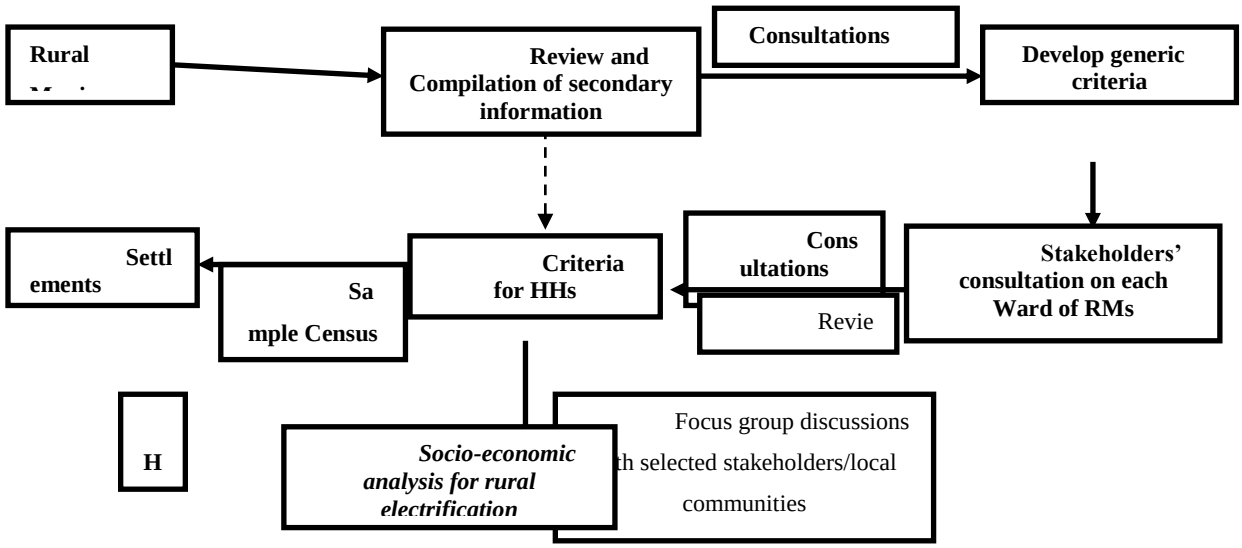

Figure 2: Schematic presentation of study methods

Sampling Design and Procedure

The sample survey has been designed at two levels, settlements and households. The settlement sample has been conducted to predict overall socio-economic status within different social groups, access on existing infrastructure facility, social impacts, ascertain the ability of stakeholders to benefit from the study whereas sampling of HHs has been carried out to understand their socio-economic condition and assess impact on poverty and ability/willingness to pay, identify vulnerable groups such as women headed households and ethnic minorities.

At least three settlements from each ward were selected after the consultation with stakeholders/local communities then household survey has been carried out among the randomly selected HHs in the ratio of 5:3:2(5 on highly vulnerable group, 3 on moderate and 2 on less vulnerable). Table 1 represents actual sample size and determined figure of settlements and HHs for field survey.

Table 1

Coverage Area by Spatial Units

Characteristics	Total	Covered	Percent
No. of wards	12	12	100
No. of settlements	145	36	25
No. of households	6485	325	5

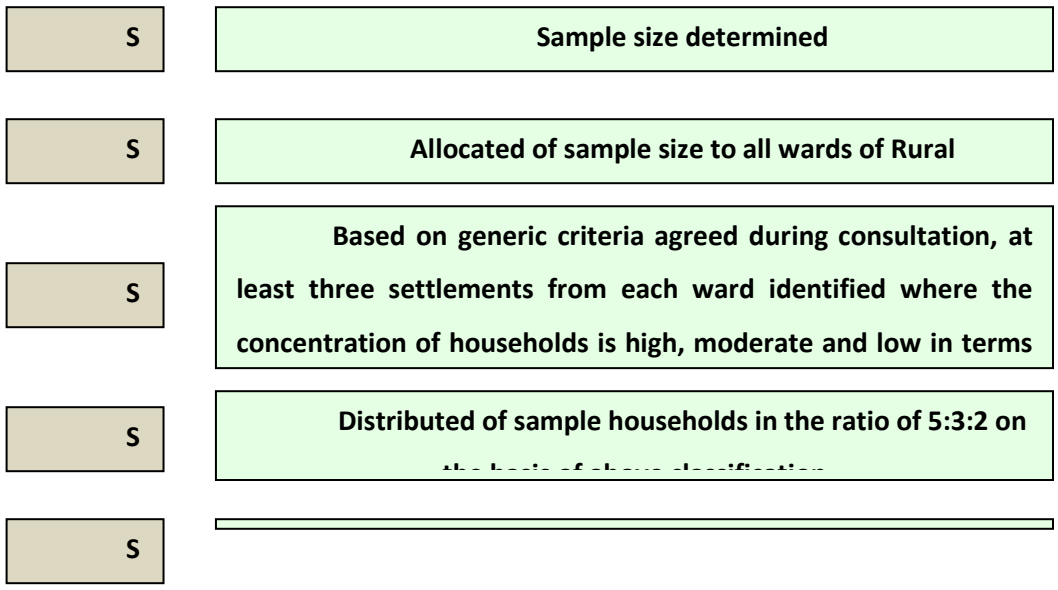

Figure 3: Sampling procedure for selection of households

Geographical Setting of the Study Area

Study area (part of Nawalparasi_East district) is extended from 27°38' to 27°52' North latitude and 84°02' to 84°21' East longitude geographically (Figure 4). Administratively, the study area consists of two Rural Municipalities (Bungdikali and Bulingtar). It has 239.54 sq km of surface area with the population of 34,856. Out of which 15,653 (44.9 percent) are male and 19,203(55.1 percent) are female, and the density of the population is 146 people per sq. km. which is less than comparison to the national figure (180). The literacy rate is 66.7 percent and the average household size is 5.4 (Table 2). The population below 15 years of age is 33.2 percent of the total population. On the basis of ILO criteria, the economically active population in the study area is 58.2 percent of the total population. The remaining 8.6 percent of the total population are above 60 years of age. The altitude ranges from 500 to 1936 meters above sea level. It is characterized by different climatic zones, sub tropical to warm temperate in Churia and Mid-hills. Where

temperature is recorded minimum of 5°ᶜ to maximum 37°ᶜ and annual average precipitation is 2145 mm.

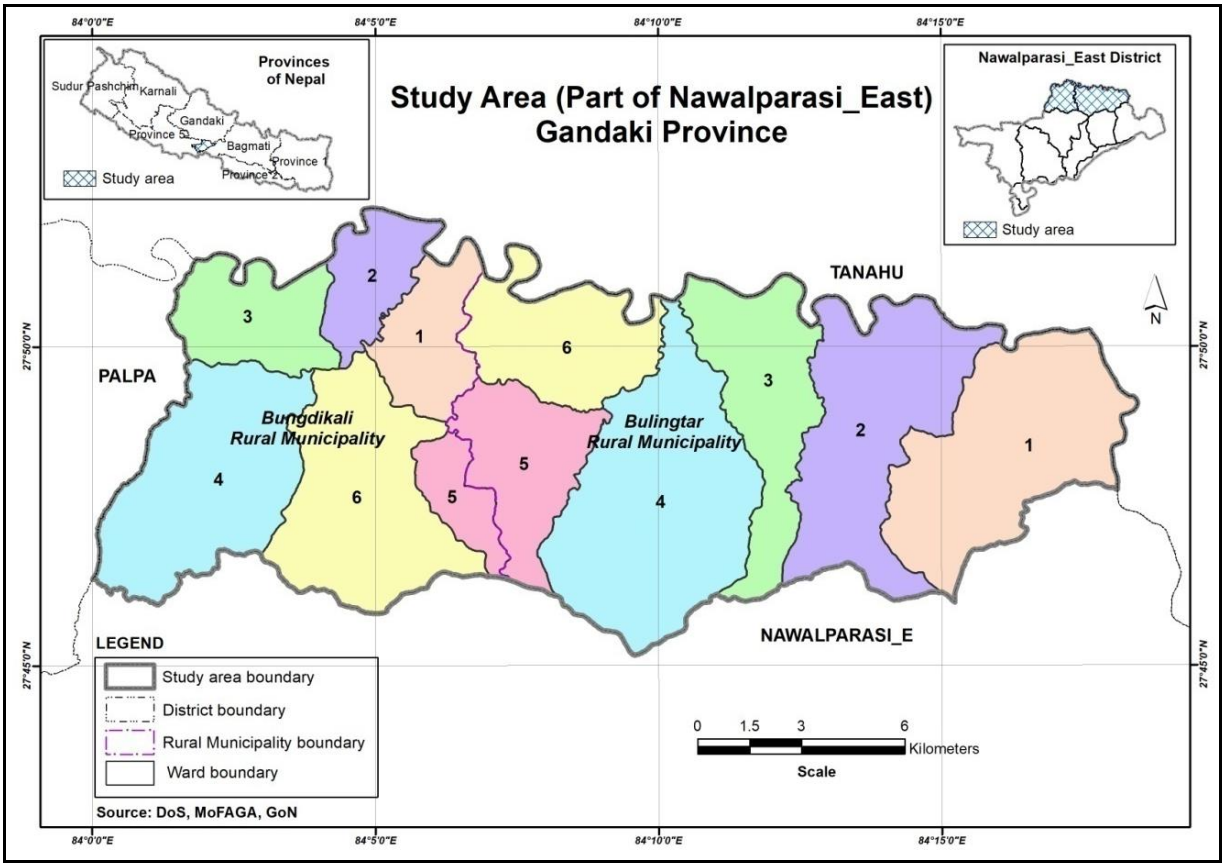

Figure 4: Location map of study area

Table 2

Distribution of Households and Population by Sex

SN	Local Units	HHs	Total Population	Male	Percent	Female	Percent	HH Size
1	Bugdikali RM	2,998	15,734	6,990	44.4	8,744	55.6	5.2
2	Bulingtar RM	3,487	19,122	8,663	45.3	10,459	54.7	5.5
	Total	6,485	34,856	15,653	44.9	19,203	55.1	5.4

Source: Field survey

RM = Rural Municipality

Social Composition of the Study Area

Ethnicity

The study area is a mixture of people of different origins, cultures, languages and ethnicities. The change in ethnic composition has been further accelerated by the arrival of outsiders into the area for various purposes such as business, agriculture and services. The study area is composed of many ethnic groups making up distinct communities according to altitude and climatic condition. Magars, Kami, Brahman (Hill) and Chhetries have settled mostly in the upper hills. In the study area, the majority of the people are of Magar caste (29.1percent) followed by Kami (6.2 percent) and then Hill-Brahmins (5.9 percent).

Religion and Language

In terms of religion, 87 percent population covered by Hinduism, which is dominant and followed by Buddhism (8 percent), Christian (3 percent) and others. Nepali (47.3 percent) is the main language widely spoken by all people for communication. Besides Nepali, the second most spoken language in the study area is Magar (35.0 percent) followed by Newari, Gurungs and others.

Disadvantaged Groups and Ownership of Women Under Property

Energy access improvement directly contributes to freeing up women and girls from time-consuming housework such as laundry, cleaning, etc. by utilization of electricity. In addition, through reduction of time-consuming chores and attainment of energy services, it has indirect contributions for women to have opportunity to attend schools or educational activities as well as take into a part in the labor market or establish small enterprises. As a result, gender equality and empowerment of women are promoted.

The largest disadvantaged groups within the population of the study area as defined by National Census, 2011 are Magar (29.1 percent), Gurung, Thakuri and so on whereas occupational caste groups/dalits groups such as Kami (Blacksmith), Damai (Tailor), and Sarki (Shoemaker) have also dominant role which occupied around 13 percent of total population. In another part, most of the women traditionally receive little or no education, and for traditional reasons do not generally seek employment and are confined to domestic chores. Responsibilities of women are primarily limited to take care of the household activities like cooking, washing, care of the children, sick person, as well as other daily survival needs for family members. In addition, women are actively

involved in agricultural labour. They are engaged in agricultural input and production as well as output management. However, the status of women in Magar, Gurung and Thakuri communities is comparatively better than that of other castes. There are about 7 percent of total households have female ownership under livestock, 6 percent households have female ownership under land and 0.6 percent has under house only.

Education

Educational attainment such as a literacy rate and enrolment in schools is one of the most fundamental elements of economic and social development. High illiterate rates have been the major obstacle of further progress in developing countries, preventing poor population from income-generating activities and attaining empowerment. It is presumed that advancement in the literacy rate is affected by five aspects: economic, educational, geographical, and social/cultural aspects as well as an aspect of electricity.

The national census 2011 reported that the literacy rate in the Nawalparasi (East) district is 71.7 percent for the population of six years of age and over. The male and female literacy rates are 76 percent and 59 percent respectively. However, the literacy rate in the study area is 66.7percent according to the census 2011, which is less than the district average. From the field survey, it reveals that the literacy rate is 60.1percent within study area which is comparatively lower than other areas.

Health and Sanitation

Using modern energy reduces exposure to hazardous pollutants. Avoiding drudgery such as collecting fuel wood improves health condition of, in particular, women and children. Access to electricity enables vaccination and medicine storage by a refrigerator.

Due to poor transportation facilities, lack of proper drainage system, etc., people of the study area facing severe health problems. Despite the existence of sufficient health institutions in the study area, there is lack of health services. The entire population depends upon the facilities available in the adjoining health centres from different location of the district. The health posts and the sub-health posts located at different places provide health care facility for the people of the district. The present sanitation facilities in the study area appear to be satisfactory. There is a pipe water system in most of the houses. Most of the pipe water facilities are provided from small rivers and

springs. Out of the total population, 85 percent use pipe water, 11 percent and 4 percent use dug-well and river water respectively. Open defecation along the river or in the open fields is also common practice (56 percent) in the study area. Only 44 percent of the households in the study area are equipped with toilet facilities.

Transportation and Communication

Transportation facilities are moderate in the study area. More or less, most of the wards have seasonal motor able road facilities. An earthen fair-weather road starts from Daldale, Pragatinagar and Bhedabari area of Nawalparasi (East), which are joining as a feeder road links with East-West highway. However, there are not reliable vehicles movement along the road network.

Communication facilities are better in the study area in comparison with other rural and hilly areas of the country. There are land line telecommunication facilities in the southern parts within study area. In addition, CDMA and other NTC Mobile systems are operating in most parts of study area. The Illaka post office is located in Bulingtar and additional post offices are located in each ward, which are very useful to communicate the local people with their relatives outside the village or abroad resides.

Economic Condition of the Study Area

Land Cover/ Land Use and Average Holding Size

Forest and cultivated land are the predominant form of land cover/land use in the study area. Other types of land cover/land use in the study area consist of open forest like grazing and shrub land, built up area, sandy and barren lands. Agricultural land is generally located along the river basin and its tributaries on relatively fewer steep slopes near the settlements. Forestland is primarily found on steep sloped hillsides.

Around 51 percent of total households within study area have occupied more than 10 ropani land for agricultural production in terms of size. Similarly, 36 percent have occupied 6-10 ropani, 11 percent have occupied 1-5 ropani of land and very few proportion of households (2 percent) have occupied small patches (below 1 ropani) of land for cultivation of crops.

Crop Production and Cropping Pattern

The major crops grown in the study area are maize, millet, wheat, paddy, barley, ghaiya, ginger, pulses, oilseeds, etc. Similarly green vegetables, fruits like orange, banana, pear etc. are also produced in the area. There are some new crops like coffee,

amriso, Junelo and bamboo leaf (tama) are also produced in this area. The cropping pattern varies from site to site depending upon altitude, land quality and availability of irrigation. More fertile and year-round irrigated lands are cultivated three times a year whereas non-irrigated lands are cultivated once a year. The selection of crops is based on the land quality and irrigation facilities available. The cash-crops of the study site constitute of ginger, fruits like orange, banana, pear and vegetables like pidalu, besar etc. The selection of crops to be cultivated in some area appears to be influenced by the dominance of ethnic group and local culture. For example, in the upland area, maize and millet are predominantly grown because the major ethnic groups like Magar, residing in the area have traditionally been using these grains for various purposes. In the absence of irrigation (Bari), the cropping pattern is mostly dominated by three cropping systems comprising of maize, millet and ginger.

Livestock

Livestock and agriculture are integral parts of the agrarian society. Households in the study area raise livestock both for cash income and farming purpose. Livestock raising activities are carried out by most of the households in this area irrespective of their caste, culture, climate or topography. However, the number and type of livestock vary across the village and ethnic groups. They also vary according to the topography and the climate. The major types of livestock raised in the area are goat, sheep, pig, cow, buffaloes and ducks. In addition, some of the households are also involved in poultry farming. Buffalo and cow are raised by most of the ethnic groups mainly for milk, ghee and manure. In addition, Magar community raise buffalo for meat. Similarly, goats and sheep are raised mainly for meat. Also, poultry are kept mainly for meat and eggs.

Income Source and Occupation

The major source of income in Nawalparasi (East) district is agriculture and animal farming. The economically active population of this area is 58 percent, out of which 81 percent are employed in agriculture and animal husbandry, and rest are in business and services. Therefore, the non-farm source of income is very few. However, remittance from foreign job playing vital role as another source of income for the livelihood of the people. The field survey revealed that agriculture is the main source of livelihood for the people. However, in recent years, many young people go to foreign

countries to work as labourers. As far as the study area and Nawalparasi (East) district is concerned, the level and structure of consumption are more or less similar to the rural settings of the country. Most of the expenditure is for the consumption of food items leaving little for education, health, energy and other non-food items.

Daily Wages Status

According to field survey, it is found that most of the area has not similarity in daily wages by sex. 59 percent of total male receive more than Rs. 400 wages whereas 64 percent of female receive less than Rs. 350 wages after serving the work in different sectors. But, there is equal rate for male and female in few wards as they reported during field survey.

Food Sufficiency Status

As being hilly region with moderate slope and rugged topography, life is very difficult in this area. Most of the people depend on agriculture and they have to survive from their own production. However, they have some alternate source of income to support their livelihood in some families within the study area. According to field survey, the local people indicate that 25.5 percent of total households have food deficiency for around 6 months. They can feed themselves only 6 months from their own land production and 40 percent family have food deficiency for around 3 months. So, these families have forced to be involved in other activities for their livelihood. It is found that, the economic condition of 71.5 percent among overall people and 59 percent among DAG people getting better in comparison between past 10 years and now.

Sources of Energy and Consumption

Energy

The study area has no electricity. The major source of energy for cooking is firewood whereas for lighting is kerosene. According to the field study, it reflects that 51 percent households still using kerosene and 39 percent households use solar for lighting. (Some households use kerosene and solar both as a source of energy for lighting). Apart from this, some parts of the Bulingtar RM are electrified through micro-hydro schemes utilizing small local rivers.

Monthly Consumption and Cost for Used Energy

Field survey reveals that the cost of kerosene is ranges from Rs.120 to Rs. 160 for per liter in different location within the study area. Around 46 percent of households consumed more than 3 liters of kerosene per month. Households are paying monthly Rs. 120 for getting energy from micro hydro instead of using one lamp/bulb.

Willingness to Pay for Hydroelectricity

Out of the total households, 66.8 percent of HHs claim to be willing to pay Rs. 1500 for meter connection where as 33.2 percent households are agreed to pay more than Rs. 1500. In another part, most of the households (71.7 percent of the total) are expecting and willing to pay in installment basis of Rs. 500/- for meter connection and about 10.5 percent are agreed to collect more amount of installment, which may exceed Rs. 500 to 1000 and rest 12.3 percent of households are suggested to pay in one time for total cost. Similarly, 50.2 percent of households claim to be willing to pay Rs. 100-150(in average Rs. 125) as a minimum monthly cost and 15.2 percent of households agreed to pay above Rs. 200 as a maximum monthly cost. However, 11.1 percent of households are suggested and agreed to pay based on their utilization unit and government targeted cost whatever it required.

Table 3

Willingness to Pay for Hydroelectricity by Wards

SN	Local bodies	WN	Sampled HHs	For meter connection(NRs.)		Willing to pay in Installment				Monthly Bill				
										Minimum			Maximum	
				< = 1500	> 1500	500	501-1000	> 1000	Not required	< 100	100-150	150-200	> 200	As used
1	Bungdikali RM	1	30	25	5	25	3	1	1	5	20	0	0	5
2		2	23	8	15	14	4	2	3	5	11	0	5	2
3		3	32	21	11	22	4	3	3	3	16	4	6	3
4		4	28	15	13	20	4	0	4	1	18	3	3	3
5		5	26	15	11	16	0	0	10	4	13	2	4	3
6		6	22	21	1	20	0	2	0	2	11	1	7	1
7	Bulingtar RM	1	25	15	10	22	2	1	0	5	9	4	5	2
8		2	30	20	10	19	4	3	4	3	15	6	3	3
9		3	28	22	6	16	6	3	2	4	17	3	3	1
10		4	24	20	4	20	0	0	4	3	10	2	5	4
11		5	27	14	13	18	3	1	5	4	9	6	3	5
12		6	30	19	11	21	4	2	3	2	14	4	6	4
Total			**325**	**217**	**108**	**233**	**34**	**18**	**40**	**41**	**163**	**35**	**50**	**36**
			Percent	**66.8**	**33.2**	**71.7**	**10.5**	**5.5**	**12.3**	**12.6**	**50.2**	**10.8**	**15.4**	**11.1**

Source: Field Survey

Findings and Conclusions

Rural electrification is considered to fulfill the requirement for development intervention through improved health and education. The success of rural electrification schemes may be influenced by social, cultural and economic values and their applicable characteristics. Rural electrification is the process of bringing electrical power to rural and remote areas. Electrification schemes in rural remote areas can be seen as a novelty to replace traditional fuels and consequently people may strive for it. It is important as the benefit from rural-electrification schemes goes beyond power output, and can lead to long-term positive development when designed properly.

Crop production and animal farming are found as the major sources of income in the study area. The economically active population of this area is 58.2 percent, out of which 81 percent are employed in agriculture and rest are in business and services. Therefore, the non-farm source of income is very few. However, remittance from foreign job playing vital role as another source of income for the livelihood of the people. The field survey revealed that agriculture is the main source of livelihood for the people. However, in recent years, many young people go to foreign countries to work as labourers. The literacy rate in the study area is 66.7 percent. The major source of energy for cooking is firewood whereas for lighting is kerosene. The study reflects that 51 percent households still using kerosene, 39 percent households use solar whereas only 9 percent households use electricity for lighting through micro-hydro schemes. Having economically capable and socially aware with modern facilities and its implication on life support for the planning in targeted study area. Most of the study area (91 percent) has not available electricity facility but their positive willingness to pay for hydroelectricity is the major finding and step forward for the future planning of regular and reliable power supply to uplift their livelihood, reduce poverty and support on rural development activities.

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Firm-specific Variables and Net Interest Margin in Nepalese Banks[9]

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Abstract

This paper examines the impact of firm-specific variables on net interest margin in Nepalese commercial banks for the period 2005/06-2018/19. Secondary source data were collected through NRB and data have been analyzed using descriptive and causal comparative research design. In this paper, net interest margin is used as dependent variable and bank-specific variables such as size of assets, deposit ratio, loan ratio, and capital ratio are considered as explanatory variables. The estimated correlation results of the paper reveal that equity capital, bank loans and deposits are positively related with net interest margin of Nepalese commercial banks. Moreover, the regression results of this paper indicate that equity capital, bank lending and deposits have significant impact on net interest margin of banks. Finally, this paper concludes that bank loans and deposit have strong explanatory power to explain net interest margin as profitability in Nepalese commercial banks. Policy makers are suggested to formulate sound bank policies and to adopt effective strategies to increase the size of bank deposits as well as bank lending to maximize the profitability (net interest margin) in Nepalese commercial banks.

Keywords: net interest margin, bank deposits, bank loans, equity capital and size of assets

Introduction

The economic growth of nation depends on development of financial market and financial institutions. The role of financial institutions is to facilitate the flow of funds from unproductive sector to productive sector which helps to accelerate economic development of the nation. For this purpose, banking sector plays major role in generating and rendering required financial resources and services towards business firms. The financial intermediation provided by the banking sector supports economic acceleration by transforming deposits into productive investments (Levine et al., 2000). During the last four decades, advancement in technology and globalized business

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activities has allowed the banking sector to take advantages for the improvement in its performance and profitability both for bank-oriented and market-oriented countries. Athanasoglou et al. (2006) and Ramlall (2009) stated both internal and external determinants have affected the performance and earnings of the banks.

In general, profitability of bank is measured in terms of net interest margin, return on assets, return on equity, return on capital employed etc. Net interest margin is the percentage of net interest on total assets. It is a measure of difference between interest income generated by banks from lending and amount of interest paid out to their deposits in relative to the amount of total assets. It is defined as net interest income divided by total assets of banks. Determinants of banks' net interest margin are usually assorted into internal and external factors. The internal factors are bank-specific variables which are under the control of banks and external factors are macroeconomic variables which affect net interest margin but they are beyond controlling power of banks' management. In this context, this paper focuses to address the issues of why net interest margin of Nepalese banks is low? and what are the firm-fundamental variables which have more impact on net interest margin in Nepalese commercial banks?

Literature shows different theories of bank profitability. Market Power hypothesis argued performance is influenced by industry's market structure. Structure Conduct Performance (SCP) and Relative Market Power (RMP) hypotheses are important approaches of Market Power (MP) theory. SCP approach argues level of bank market concentration raises potential market power of banks which increases their performances. SCP presupposes that higher concentration permits collusion of banks to set higher prices and consequently gain substantial profitability (Mason, 1939; Heggested, 1977; Tregenna, 2009; Baye, 2010). Profits of banks in highly concentrated industries have significantly higher than banks operating with lower concentration banks.

Market power (MP) hypothesis proposes that bank performance is affected by market share. MP hypothesis assumes large banks with differentiated products influence prices and increase bank performance. Berger (1995) revealed MP hypothesis and suggested that firms with large market shares with product differentiation are able to exercise MP and are capable to make more noncompetitive profits. Increase of firms in banking market increases market

competition and focuses on higher concentration which makes higher profits and long-run relationship exists between market structure and performance (Chirwa, 2003).

Efficiency Structure (ES) theory argues higher performances of banks are not reasons of behavior but is the causes of higher and more efficiency leads to larger market shares that banks possess (Demsetz, 1974). This hypothesis assumes market share as a proxy to efficiency and there is no association between market concentration and bank performance while there is significant relationship between bank performance and market share (Smirlock, 1985). There are two hypotheses of ES: X-efficiency hypothesis, and Scale-efficiency hypothesis. X-efficiency hypothesis argues more efficient banks are more profitable due to lower costs and larger share of market (Athanasoglou et al. 2006). Scale-efficiency hypothesis suggests economies of scale are better rather than differences in management or production technology. Bank performance is determined not only by market concentration but by bank efficiency (Grygorenko, 2009).

Short (1979) revealed that assets size affects capital adequacy of banks. Relatively large banks tend to raise less expensive capital which makes more profitability. Berger et al. (1987) suggested little cost saving can be achieved by increasing size of banks and large banks faces scale inefficiencies. Higher assets may not necessarily lead to higher profits because of diseconomies of scale and higher loans of banks contribute towards more profitability (Javaid et al., 2011). Bourke (1989) revealed a positive relation between liquidity and bank profitability whereas Molyneux and Thorton (1992), and Kosmidou et al. (2005) argued that liquidity and profitability are inversely related.

Neely and Wheelock (1997) suggested per capita income exerts strong positive effect on bank earnings. Demirguc-Kunt and Huizinga (1999) found economic growth boost bank profitability for most of countries. Demirguc-Kun, and Huizinga (2000); and Bikker and Hu (2002) observed cyclical movements and bank profits are correlated with business cycle. The association between inflation and bank profitability may be a positive or negative which are depending on whether it is anticipated or unanticipated (Perry, 1992).

Naceur (2003) examined the impact of bank characteristics on net interest margin and return on assets using bank level data for the period 1980-2000. Fixed effect and random effect models were applied to analyze bank fundamentals and net interest margin.

Results of the study suggests higher net interest margin and return on assets tend to be associated with banks that hold a relatively large amount of capital with more overheads. Moreover, findings of study reported that bank loan had a positive and significant impact on net interest margin. Finally, Naceur concluded size of bank had a negative and statistically significant impact on net interest margin which reflects the scale inefficiencies of banks.

In examination of impact of bank characteristics, financial market structure and macro-economic conditions on net interest margin and return on assets in banking industry, Kasmidou et al. (2005) used time series data for the study period of 1998-2001 and applied regression models. Estimated results revealed cost to income ratio had negative and significant effect on net interest margin of banks. Furthermore, results suggested that liquidity had negatively related with net interest margin but positively related with return on average assets. Finally, finding of the study concluded loan loss reserve was positively and significantly related with net interest margin.

Kosmidou et al. (2006) analyzed profitability of banks in terms of net interest margin and return on average assets using 58 operating banks in UK for the period 1998-2001. In this study, Kosmidou et al. applied multivariate analysis framework. The estimated results of study suggested bank size had a significant and positive impact on net interest margin. Moreover, Kosmidou et al. revealed capital strength was the most significant factor positively affects net interest margin of banks. Finally, findings of the study concluded that liquidity had a negative effect on NIM. Sufian and Habibullah (2009) argued size of assets had a positive and significant impact on return on assets and net interest margin of banks but its impact on return on equity was negative.

In examination of impact of assets, loans, equity, deposits, economic growth, inflation and market capitalization on net interest margin of banks, Gul et al. (2011) used data for the period 2005-2009. In this study, authors employed regression models to analyze data and observed size had significant and negative impact on net interest margin. Furthermore, estimated results of the study reported capital had significant and negative impact on net interest margin. Moreover, findings of the study suggested loan had positive and significant impact on net interest margin. Finally, Gul et al. concluded growth rate had negative and significant impact on net interest margin.

San and Heng (2013) examined the impact of bank-specific variables and macroeconomic factors on net interest margin for the study period 2003-2009. The study applied regression models to analyze factors affecting net interest margin of banks and showed that loan loss reserve to gross loan ratio, liquidity, size of assets, gross domestic growth rate and consumer price index of banks had positive relation with net interest margin but only size of assets had significant impact. Moreover, estimated result suggested equity to total assets and cost to income ratio were inversely related with net interest margin but, only cost to income ratio had significant effect on net interest margin of banks.

Jara-Bertin et al. (2014) examined the impact of bank-specific, industrial and macroeconomic determinants on bank performance in Latin America using generalized method of moments (GMM) for the period 1995-2010. Estimated results revealed capital ratio, assts size, specialization degree, service diversification, bank concentration, inflation and economic growth had significant impact on bank profitability. Moreover, findings of the study suggested inverse effect of operational efficiency, liquidity risk and credit risk on bank performance in Latin America.

In examination of macroeconomic and bank-specific factors on net interest margin of commercial banks, Zeb and Bashir (2016) used data of 15 commercial banks for the period 2009-2012. In this study, least square and fixed effect models were applied to analyze factors affecting net interest margin of banks. Estimated result reported capitalization, management quality, liquidity default risk had mixed effect on net interest margin of banks. However, economic growth and inflation had no significant effect on net interest margin. Moreover, results of the study concluded that bank size and bank ownership had significant role in explaining net interest margin of banks in Pakistan.

Barik and Raje (2019) analyzed various factors (bank-specific, macroeconomic and system level variables) affecting net interest margin of Indian banks using bank level data for the period 2011-2017. In this study dynamic panel model of GMM framework was applied. The estimated results of the study showed that size of loan, current and fixed deposits to total deposits, capital to risk weighted assets ratio, operating costs, repo rate and economic growth were significant determinants of net interest margin in Indian banks.

Literature shows that commercial banks have a dominant position in the financial system of Nepal. Total twenty-seven commercial banks are providing various banking services to Nepalese business and non-business sectors. At present dynamism and globalization age, Nepalese banks are facing numerous challenges for their survival, profitability and development. The preponderance of prior theoretical and empirical studies on factors affecting net interest margin of banks carried out in the developed and developing countries but a very few studies have been made in developing countries. There is lacking in-depth studies in under-developing countries like Nepal. Thus, this paper is an attempt to analyze the firm-specific variables affecting net interest margin of Nepalese commercial banks.

The basic objective of this paper is to examine the impact of firm-specific variables on net interest margin of Nepalese banks. Section two covers research methodology. Section three of this paper deals with the results and discussion of the study. Finally, section four of this paper summarizes conclusion and suggestions for future research.

Research Methodology

Research Design

This paper has used descriptive research design to explain the net interest margin of 15 banks consisting 210 observations during the fiscal year 2005/06 through 2018/19 with respect to size, capital, deposits and loans. The causal comparative research design is applied to examine the impact of firm-specific variables such as size of assets, capital ratio, deposit ratio, and loan ratio on net interest margin of Nepalese commercial banks. This paper has used Pearson's correlation analysis to ascertain, understand and analyze the directions and relationship of explanatory variables with net interest margin. Furthermore, this study has employed univariate, and multi-variate regression models to examine the impact of explanatory (firm-specific) variables on net interest margin of Nepalese commercial banks.

Nature and Source of Data

This paper has used secondary sources of data. For the secondary data set, the necessary information was collected from periodical reports and statements of banks

published by Nepal Rastra Bank (NRB) database and financial statements of respective banks covering the period of fourteen years i.e., from the fiscal year 2005/06 to 2018/19.

Population and Sample

In this paper, all the A class commercial banks licensed by NRB till mid-July 2019 are considered as population. Out of total 27 commercial banks by the end of FY 2018/19, fifteen commercial banks have been selected as sample. Fourteen observations from each of sample banks and total two hundred ten observations have been considered to analyze the factors affecting net interest margin of banks.

Analysis Tools

This paper has applied SPSS (version 20) program to process and analyze the collected data. The study has used correlation analysis and regression analysis along with statistical test of significance such as t-test, F-test, Adjusted R^2, Durbin-Watson (DW) test of auto-correlation and Variance Inflationary Factor (VIF) test of multicollinearity. The ordinary least square regression models have been applied to examine the impact of firm-specific factors that influence net interest margin of Nepalese commercial banks.

Variables

Net interest margin: In this paper, net interest margin ratio as bank profitability is considered as independent variable. The net interest margin is percentage of net interest on total assets of banks. It is a measure of the difference between the interest incomes generated from loans or lending and amount of interest paid out to their deposits in relation to total assets. Net interest margin is determined using equation 1.

$$\textit{Net interest margin} = \frac{\textit{Net interest income}}{\textit{Total assets}} \qquad (1)$$

The prior theoretical and empirical studies have observed several factors that affect net interest margin of banks. In this study, assets size, capital ratio, loan ratio, and deposit ratio are used as independent (explanatory) variables to examine their impact on net interest margin of banks.

Assets size*:* Assets size is the sum of total assets. In the most of finance and economics literature, total assets of banks are used as the proxy for bank size. In this study, assets size is used by natural logarithm of total assets as a proxy of bank size. It is applied to capture the fact that larger banks are better placed than smaller banks in harnessing economies of scale in transactions to explain the effect that they will tend to

enjoy a higher level of profits. Consequently, a positive relationship is expected between the size of assets and profitability of the banks. Assts size of bank is computed using equation 2.

Assets size = Natural logarithm of total assets *(2)*

***Capital ratio**:* Capital ratio is the ratio of equity capital to total assets of banks. It is used to measure capital strength. It is expected that higher the ratio, lower the need for external funding and higher the profitability of banks. It shows the ability of a bank to absorb losses and handle risk exposure with shareholders' equity. Capital ratio is expected to have positive relation with performance that well-capitalized banks face lower costs of funding and risks (Berger, 1995; Bourke, 1989). In this paper, capital ratio is the ratio of total shareholders' equity to total assets which is considered as an explanatory variable to measure the net interest margin. Capital ratio is computed using equation 3.

$$Capital\ ratio = \frac{Total\ shareholder's\ equity}{Total\ assets} \quad (3)$$

***Loan ratio**:* Loan ratio is the ratio of total loans to total assets of banks. It is a measure of income source of banks and is expected to affect net interest margin positively unless bank takes on unacceptable level of risk. Other things remain constant, more deposits are transformed into loans which results the higher net interest margin. Miller, and Noulas (1997) suggested that greater the exposure of financial institutions to high-risk loans, higher would be the accumulation of unpaid loans and profitability would be lower. Large size of low-risk loans has produced higher returns. Therefore, large size of low-risk bank loan has positive effect on net interest margin whereas high-risk loan has negative effect on net interest margin of banks. In this paper, loan ratio is determined using equation 4.

$$Loan\ ratio = \frac{Total\ loans}{Total\ assets} \quad (4)$$

***Deposit ratio**:* Total deposit ratio is the ratio of total deposits to total assets of banks. The deposit measures liquidity position of a bank. It is also considered to measure as a liability of bank toward its depositors. Deposits are the principal source of bank funding. The more deposits are transformed into more bank loans at the higher interest margin which helps to increase bank profitability. The deposit is considered as an explanatory variable to measure net interest margin and deposits are expected to have

positive impact on net interest margin. In this paper, deposit ratio is estimated using equation 5.

$$Loan\ ratio = \frac{Total\ deposits}{Total\ assets} \qquad (5)$$

Model Specification

In the finance and economics literature, causal comparative research design and ordinary least square regression models have been commonly applied for explaining net interest margin of banks. In this paper, univariate and multivariate regression models under casual comparative research design are used to examine the impact of firm-specific variables on net interest margin of banks. In this study, assets size, capital ratio, loan ratio, and deposit ratio are considered as explanatory variables of net interest margin of Nepalese commercial banks. The linear regression model which is applied in this paper to analyze the factors affecting net interest margin of banks is presented in equation 6.

$$Y=\beta_0+\beta_1 \ln X_1+\beta_2 X_2 +\beta_3 X_3 + \beta_4 X_4 +e_t \qquad (6)$$

Y is net interest margin of banks, X_1 represents size of assets of banks, X_2 indicates capital ratio of banks, X_3 stands for loan ratio of banks, X_4 *symbolizes* deposit ratio of banks, β_0 represents coefficients of constant or intercept value, $\beta_1, \beta_2, \beta_3, \beta_4$ are coefficients of explanatory variables and e_t is error term.

Results and Discussion

This section of the paper attempts to analyze the data associated with factors affecting net interest margin of banks. This study deals with firm-specific variables and their effect on net interest margin to observe and analyze the relationship among these variables. The correlation analysis is used to analyze the association among variables and regression analysis under causal comparative research design has been applied to examine the effect of various firm-specific factors on net interest margin of Nepalese commercial banks.

Analysis of Relationship among Variables

This paper has used various bank related factors such as assets size, capital ratio, loan ratio, and deposit ratio to analyze net interest margin of banks. In this study, Pearson's correlation coefficient is used as measure of linear association in explaining

direction and magnitude of relationship among different pairs of factors and net interest margin of banks. Table 1 presents correlation coefficient of variables to explain the relationship between net interest margin and its explanatory variables during the study period.

Table 1

Correlation Coefficients of Net Interest Margin and Explanatory Variables

Variables	Y	$\ln X_1$	X_2	X_3	X_4
Y	1	-	-	-	-
$\ln \mathbf{X_1}$	-0.219	1	-	-	-
$\mathbf{X_2}$	0.297*	-0.509**	1	-	-
$\mathbf{X_3}$	0.516**	-0.498**	0.489**	1	-
$\mathbf{X_4}$	0.495**	-0.354	0.463**	0.539**	1

Source: Author's own calculation based on data from NRB2005/06-2018/19

Note: '' indicates that correlations is significant at 5 percent level and '**' indicates that correlation is significant at 1 percent level (2-tailed).*

Table 1 shows the value of Pearson's correlation coefficient between different pairs of firm-specific variables and net interest margin (Y). The result has exhibited in Table 1 indicates that net interest margin is positively related with capital ratio (X_2), loan ration (X_3), and deposit ratio (X_4). The net interest margin is significantly and positively related with loan ratio, and deposit ratio at 1 percent level of significance and capital ratio at 5 percent level of significant. On the other hand, net interest margin is negatively related with assets size of banks ($\ln X_1$), and it is statistically insignificant. This result implies that among given set of explanatory variables, loan and deposit ratios have strong positive association with net interest margin of Nepalese commercial banks.

Impact of Firm-specific Variables on Net Interest Margin

In this paper, regression analysis models have been used to examine impact of firm-specific variables on net interest margin. Table 2 presents regression results of univariate, and multivariate regression models under previous specified equations to analyze the various explanatory variables and their impact on net interest margin of commercial banks in Nepal.

Table 2

Impact of Explanatory Variables on Net Interest Margin

Models	Constant	$\ln X_1$	X_2	X_3	X_4	DW	Adj.R^2	F
1	0.151*	-0.126	-	-	-	1.924	0.114	26.763*
	(3.196)	(-2.537)						
2	0.239**	-	0.215*	-	-	1.905	0.213	56.295**
	(4.796)		(2.349)					
3	0.227**	-	-	0.314**	-	1.893	0.247	68.228**
	(4.143)			(4.752)				
4	0.119*	-	-	-	0.351**	1.907	0.251	69.704**
	(2.891)				(5.928)			
5	0.437	-0.125	0.207*	0.308**	0.390**	1.931	0.476	46.556**
	(3.541)	(-2.148)	(2.841)	(4.193)	(5.147)			

Source: Author's own calculation based on data from NRB 2005/06-2018/19

Model: $Y = \beta_0 + \beta_1 \ln X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e_t$

Note: The figures in the parentheses are t-value and asterisk sign indicate that result is significant level. '' indicates statistical significance at 5 percent level and '**' indicates statistical significance at 1 percent level. Also reported are the F-statistics, Durbin Watson (DW) statistics and Adjusted R^2.*

The first regression model in Table 2 shows the negative relationship between net interest margin (Y) and size of assets ($\ln X_1$) of the commercial banks. The estimated regression result shows that the relationship between size of assets and net interest margin of banks seems weak negative and statistically insignificant. This result supports to the findings of Gul et al. (2011) but contradicts with result of San and Heng (2013). The result of this paper indicates that assets size has no explanatory power to predict net interest margin in Nepalese commercial banks.

Similarly, the second regression model exhibited in Table 2 depicts the relationship between net interest margin and capital ratio of the banks. The regression result shows positive effect of capital ratio on net interest margin of banks. In Nepalese context, regression result indicates that capital ratio has statistically significant impact on net interest margin of banks. The result of the study supports to the findings of prior study of Naceur (2003), but contradict with the findings of Gul et al. (2011), and San and Heng (2013). The result of this paper implies that net interest margin increases with increment in equity capital of commercial banks in Nepal.

Furthermore, regression analysis of the third model shown in Table 2 demonstrates that loan ratio is positively and significantly related with net interest margin at 1 percent level of significance. The result of this paper is in the line of findings of Naceur (2003) and Gul et al. (2011) but contradicts with the findings of Alper and Anbar (2011). The adjusted R^2 of 0.247 which implies that loan has 24.7 percent explaining power of variation of net interest margin by bank loans. Hence, loan has explanatory power to predict net interest margin in Nepalese commercial banks.

In addition, fourth model of Table 2 shows the relationship between deposit ratio and net interest margin. The estimated regression result indicates that deposit ratio has a positive and statistically significant impact on net interest margin at 1 percent level of significance. The result implies that bank deposit has strong explanatory power to explain and predict net interest margin in Nepalese commercial banks. The result of this paper supports to the findings of the prior findings of Gul et al. (2011) and contradicts with the findings of Alper, and Anbar (2011). Therefore, finding of this paper concludes that large deposits of the banks are perceived as strong liquidity position and positively influence to the net interest margin of banks. The adjusted R^2 of 0.251 implies that deposit ratio has 45.1 percent explaining power of net interest margin of Nepalese commercial banks.

Moreover, Table 2 presents multivariate regression models that show the combined impact of all firm-specific explanatory variables on net interest margin of Nepalese commercial banks. The estimated regression results of multiple regression models five with the consideration all the explanatory variables show that capital, loans and deposits have explanatory power of net interest margin. Result of the study concludes that loans and deposits of banks have the strong explanatory power of net interest margin and it is statistically significant at 1 percent level of significance. The coefficient of determinants (Adj. R^2) of multivariate regression model five is 0.476. This result implies that firm-specific variables assets size, equity capital, loans and deposits jointly explain the variation of 47.6 percent to predict and explain net interest margin of commercial banks in Nepal.

Finally, F-values of the models one through five are statistically significant which indicates that all the regression models except model one are statistically significant at 1 percent level but model 1 is significant at 5 percent level. The computed values of DW

for the entire models' specifications of net interest margin fall in between d_U and 4-d_U. Therefore, there is no evidence of serious problem of autocorrelation. With regards to multicollinearity, variance inflation factor (VIF) of explanatory variables across all the model specifications of net interest margin are significantly lower than ten (estimated VIF of all models lies between 1.281 and 1.919). Thus, there is no evidence of multicollinearity problem in the regression models to estimate and explain net interest margin of Nepalese commercial banks.

Conclusion

In the modern competitive and globalized business age, role of banks in economic activities is growing up. The success of banks depends on their performance and profitability. Net interest margin is one of the key measures of bank profitability. Net interest margin of banks are difference between interest income and interest expenses. Net interest margin of banks are affected by firm-specific, and macroeconomic variables. This paper has been attempted to examine the impact of firm-specific variables on net interest margin of Nepalese commercial banks using descriptive-cum causal comparative research design for the period 2005/06-2018/19. The estimated results of this paper have revealed that equity capital, bank loans and bank deposits significantly explain net interest margin of banks and assets size has no significant explaining power. Result of this paper concludes that loans and deposits of banks have strong explaining power of net interest margin as the profitability of Nepalese banks. This result suggests that policy makers should focus to increase bank lending (loans) and deposits to increase net interest margin as profitability in Nepalese commercial banks.

This study has used annual observation of banks to estimate net interest margin of commercial banks. The results may differ if net interest margin is determined based on monthly or quarterly information. Therefore, future studies should be directed to compute net interest margin based on monthly or quarterly observations. This paper has considered only size, capital, deposits and loans as explanatory variables to examine their impact on net interest margin of banks. Hence, further study should be inclusion of credit risk, liquidity, operating expenses, exchange rate, money supply, inflation rate, gross domestic product etc. This paper covers only commercial banks and there is a need of future research to cover other financial institutions such as development banks, finance

companies, micro finance, cooperatives etc. to analyze net interest margin of Nepalese financial institutions.

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Relationship Between Macroeconomic Variables and Stock Market Price of Nepalese Insurance Companies

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Abstract

This study has examined the relationship between selected macroeconomic variables and the stock market of price of Nepalese insurance companies listed on Nepal Stock Exchange [NEPSE] for the period of July 2003 to June 2018. Monthly stock market index of Nepalese insurance companies of Nepal Stock Exchange has been taken as proxy of stock market price of insurance companies and interest rate, gold price, money supply, equity market capitalization, are taken as proxy of macroeconomic variables. This study has used cointegration test to examine the long-run relationship between variables and stock market of price of Nepalese insurance companies. The stationarity of the variables has been examined by applying Augmented Dickey-Fuller [ADF] test and Phillips-Perron [PP] test. When variables are found to be same order of integration then cointegration test is used to determine long-run relationship. This study concluded that there exists long-run equilibrium among the macroeconomic variables and stock market of price of Nepalese insurance companies listed on Nepal Stock Exchange. Similarly, this study has also followed vector error correction model to capture the short-run dynamics.

Keywords: macroeconomic variables, Nepal stock exchange, Nepalese insurance companies

Introduction

The performance of stock market is influenced by so many firm specific attributes such as size of the firm, book to market equity, dividend yield, earning yield, leverage ratio (Bhandari, 1988; Fama and French; 1992, Pradhan, 2003) etc. and so many macroeconomic variables such as inflation, money supply, exchange rate, interest rate, industrial production import payment, export, remittance (Aggarwal, 1981; Naka, Mukherjee and Tufte, 1998; Chen, Roll and Ross, 1986) etc. The relationship between macroeconomic variables and stock return has been extensively studied in developed capital market (e.g.Chen et al., 1986; Fama and French, 1988; Mayasmi, & Koh, 2000;

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Joseph, 2012) over the last few decades. In the context of emerging capital market, Izedonmi and Abdullahi, 2011; Rostamy, Hosseini, Bakhshitakanlou, 2013; Hussin et al., 2013; Geete, 2016 have conducted the study. The studied conducted on developed as well as emerging capital market confirmed that some macroeconomic variables such as interest rate, GDP, industrial production, import payment, money supply, exchange rate, foreign remittance, wholesale price index and inflation rate etc. plays significant role for explaining stock return. Therefore, it is important to explore which macroeconomic variables makes significant impact on stock market performance in the context of Nepal.

The impact of macroeconomic variables in Lahore Stock Exchange has been analyzed by Sohail and Hussain (2009). Sohail and Hussain used consumer price index, industrial production index, real effective exchange rate, money supply and treasury bills rate as proxy of macroeconomic variables. Using the monthly data from December 2002 to June 2008 the study of Sohail and Hussain found a significant negative impact of consumer price index on stock returns, whereas they found a significant positive impact of industrial production index, real effective exchange rate, money supply had on the stock returns in the long-run. Finally, Sohail and Hussain concluded that CPI had greater forecast error for stock index (LSE25).

In another study, Ali (2011) analyzed the effect of macroeconomic variables on Dhaka all share price index. Ali used consumer price index (CPI), GDP, foreign remittance and import payment as proxy of macroeconomic variable. The study of Ali investigated the long-run equilibrium, short-run dynamics adjustment and causal relationship between macroeconomic variables and Dhaka stock index all share price index. Ali concluded that variables are cointegrated and there exist unidirectional causality from CPI and foreign remittance to stock price index and bi-directional causality between import payment and stock price index. Finally, Ali concluded that there exit no causational relation between GDP and stock price index.

Similarly, the effect of macroeconomic factors on the Nigerian sock returns is observed by Izedonmi and Abdullahi (2011). Using the data for the period 2000 to 2004 Izedonmi and Abdullahi analyzed the effect of macroeconomic variables such as inflation, exchange rate and market capitalization on stock return. Izedonmi and Abdullahi found the probability value for market capitalization 0.12, for the exchange

rate 0.16 and for the inflation 0.29. Since, they found probability values of all variables greater than 0.05 therefore, they concluded that macroeconomic factors have no significant influence in the Nigerian Stock Exchange market.

Using the monthly data for the period of November 2003 to November 2007 the impact of macroeconomic variables such as market return, oil price, and exchange rate and interest rate changes on stock returns in Tehran Stock Exchange (TSE) has been analyzed by Rostamy, Hosseini, Bakhshitakanlou (2013). They have used multivariate regression model and autoregressive distributed lag (ARDL) model and concluded that market return, oil price, exchange rate and interest rate changes have significant impact on some industries returns.

Similarly, the effect of macroeconomic variable on stock return on Saudi perspective is evaluated by Samontaray, Nugali, and Sasidhar (2014). They used Saudi index (TASI) as dependent variable and three independent variables; the Oil WTI, Saudi Exports and the PE Ratio. Using the monthly data from 2003 to 2013, they concluded that TASI is positively correlated with the three economic variables considered, Oil WTI, Saudi Exports and Price Earnings ratio. They further confirmed that all these independent variables (Oil WTI, Saudi Exports and the PE Ratio) have significant importance in predicting the TASI and these three variables explain about 93% of variation in TASI.

Furthermore, Venkatraja (2014) investigated the relationship between macroeconomic variables and the Indian stock market performance (BSE Sensex). Venkatraja used index of industrial production, wholesale price index, gold price, foreign institutional investment and real effective exchange rate over the period of April 2010-June 2014. Venkatraja concluded that the coefficients of all the variables except index of industrial production are statistically significant thus, inflation, inflow of foreign institutional investment, exchange rate and gold price has significant impact the Indian stock market performance.

Likewise, the impact of macroeconomic variables on stock markets of emerging markets has been analyzed by the study of Barakat, Elgazzar, and Hanafy (2016). To observed the impact of macroeconomic variables on stock markets Barakat et al. used the data of two emerging markets Egypt and Tunisia from January 1998 to January 2014. They concluded that all the macroeconomic variables used in the study (interest rate,

exchange rate, CPI and money supply) have a relationship with the stock market either a long run or a causal in both Egypt and Tunisia. Thus, Barakat et al. concluded that there is a relationship between stock market and these macroeconomic factors and the macroeconomic factors play a great role in the stock market fluctuations and can be used to explain them. The result of Barakat et al. further concluded that the macroeconomic variables are co-integrated with the stock market in both countries.

Alomari and Azzam (2017) analyzed the effect of micro and macro factors on the performance of insurance companies listed on Amman Stock Exchange, Jordan for the period of 2008 to 2014. Alomari and Azzam has utilized panel data of 24 insurance companies listed on Amman Stock Exchange, Jordan and concluded that that liquidity, leverage and under writing risks have significant negative effect whereas size of the company, market share and GDP have significant positive effect on the profitability of the Jordanian insurance industry. Furthermore, the study of Alomari and Azzam concluded that inflation has no significant effect on the profitability of the insurance industry.

To analyze the impact of macroeconomic variables on the stock market performance of Sri Lanka, Betulaceae (2018) conducted a study. Betulaceae analyzed the impact of inflation, gross domestic product, interest rates and exchange rate on stock market performance of Sri Lankan stock market. The study of Betulaceae concluded that among the all these macroeconomic variables inflation and exchange rates have higher effects on the stock market performance.

Most of the above-mentioned studies concluded that the macroeconomic variables make significant effect on stock market price and the different variables are important in different stock market for predicting stock market price. In the context of Nepal more studies have not been conducted to evaluate the explanatory power of macroeconomic variable for stock market price.

In the context of Nepal, Shrestha and Subedi (2014) has conducted a study to examine the determinants of the stock index (NEPSE) in Nepal. They used the monthly data of annual real GDP, consumer price index, broad money and Treasury bill rate as macroeconomic variables for the period of August 2000 to July 2014. Further they also used and two dummies' variables d1 and d2 to capture the impact of political uncertainty

and NRB's policy changes. Shrestha and Subedi concluded that NEPSE index respond positively to inflation and broad money growth and negatively to Treasury bill rate. Similarly, Sharestha and Subedi found that Nepalese stock market respond significantly to change in political environment and the policy of NRB.

Likewise, Phuyal (2016) has used Johansen's cointegration method to observe the long-term association between macroeconomic variables and stock price in the context of Nepal. Phuyal used monthly data for the period of January 2003 to December 2012. Foreign exchange rate, inflation rate, money supply, interest rate, remittance income was used as proxy of macroeconomic variables and NEPSE index as proxy to calculate market return. The study of Phuyal concluded that CPI, interest rate and remittance income have long-run equilibrium relation with stock market index and their changes are also the cause of changes in stock price. On the other hand, the study of Phuyal concluded that foreign exchange rate and money supply have no relationship with stock market index. The study further concluded that there was a significant negative relation between consumer price index and NEPSE index whereas significant positive relationship between remittance income and NEPSE index.

Finally, Bhattarai (2018) examined the effect of the firm specific variables and macroeconomic variables on share price of Nepalese commercial banks and insurance companies. Bhattarai included seven banks and six insurance companies for the period of 2009/10 to 2014/15. Bhattarai concluded that firm specific variables such as return on equity, return on assets, dividend per share, price earnings ratio, size and macroeconomic variables such as money supply, GDP growth rate, exchange rate and interest rate are the important variables that effect the share price of bank and insurance companies.

This study aims to examine the long-run relationship between macroeconomic variables and stock market index of Nepalese insurance companies. The variables under investigation are gold price (GP), short-term interest rate (interest rate of 91-days treasury bills), broad money supply (M2), market capitalization (MC), and market index of insurance companies (IID) as proxy for the stock market price of insurance Nepalese insurance companies. Other macroeconomic variables such as consumer price index (CPI), GDP, industrial production, oil price etc. have not been included in this study. Furthermore, firm specific variable such as size, equity market capitalization, earning yield, cash flow

yield, and dividend yield etc. which also affects the stock return are not incorporated in this study.

Thus, this paper empirically examines the long-run relationship between macroeconomic variables (gold price, interest rate, broad money supply and market capitalization) and stock market index of insurance companies listed on Nepal Stock Exchange. It is an empirical question whether there exists long-run equilibrium relationship between stock market price and macroeconomic variables or not in the context of Nepal. The rest of the paper is organized as follows: *Section 2* presents the objective of the study. An overview of Nepalese insurance sector has been presented in *Section 3***.** *Section 4* looks briefly methodology used in this study. The empirical results are presented in *Section 5* and the summary and conclusion of the study is presented in *Section 6.*

Objective of the Study

The basic objective of this study is to analyze the relationship between macroeconomic variables and stock market price of Nepalese insurance companies. The other specific objectives are as follows:

- To identify the long-run relationship between macroeconomic variables and stock market index of insurance companies listed on NEPSE using Johansen cointegration test, and
- To capture the short-run dynamics using vector error correction model.

An Overview of Nepalese Insurance Sector

There is no long history of insurance industry in Nepal. The first insurance company of Nepal is "Nepal Insurance and Transport Company Ltd" which was established in 1947. It is converted into Nepal Insurance Co. Ltd since 1991. Since the liberalization of 1999, the government has taken a number of initiations in the area of financial sector reforms including insurance sector and insurance industry became a fastest growing industry of Nepal. As a result of liberalization 22 insurance companies are listed in Nepal Stock Exchange till Mid-July 2018 out of them, one insurance company (Rastriya Beema Sansthan) is both life and non-life insurance company, 7

companies are life insurance company and 14 companies are non-life insurance company. Insurance Board of Nepal is an apex regulatory body of insurance companies in Nepal. It regulates all the activities of all insurance companies of Nepal.

The market capitalization of insurance companies in mid-July 2018 was Nepalese Rupees 223921.77 million out of the total market capitalization of Nepal Stock Exchange (NEPSE) Nepalese Rupees 1435137.67 million which is 15.60 percent of total market capitalization of Nepal Stock Exchange and it is the 2nd largest market capitalization of NEPSE and insurance sector has the highest market price index among the other sector of NEPSE (6199.45 in mid-July, 2018).

Methodology

Research Methods

This study has adopted descriptive analysis, which is generally used to describe the situation and event occurring at present. To describe the nature of macroeconomic variables i. e. gold price (GP), interest rate (IR), broad money supply (M2), market capitalization (MC) and stock market index of Nepalese insurance companies' descriptive analysis has been followed. Furthermore, in this study an attempt has been made to examine the long-run equilibrium between stock market index of Nepalese insurance companies and selected macroeconomic variables. Thus, this study has observed long-run equilibrium relationship among the variables by using Johansen cointegration test. Similarly, this study has also adopted vector error correction model to capture the short-run dynamics.

This study has adopted Augmented Dickey-Fuller (ADF) test and Phillips-Perron (PP) test to check the stationarity of the data and order of integrations. When variables are found to be same order of integration then Johansen cointegration test is used to observe the long-run equilibrium relation among the variables and vector error correction model (VECM) has been used analyze the short-run dynamics of the model.

Nature and Sources of Data

This study is basically based on secondary data. The required data for this study is collected from various sources. The data for stock market index of insurance sector of

Nepalese insurance companies (IID) and market capitalization (MC) is collected from Nepal Stock Exchange. Similarly, the necessary data of macroeconomic variable such as interest rate (IR), broad money supply (M2) is collected from the quarterly economic bulletin published by Nepal Rastra Bank. Finally, the data related to gold price (GP) is collected from the website of Index Mundi. This study has used monthly data from July 2003 to June 2018 which generated 180 observations.

In this study stock market index of insurance sector of Nepalese insurance companies is used as dependent variable and gold price, interest rate of 91-days Treasury bill, broad money supply and market capitalization is used as independent variable. The definition of these dependent and independent variables are as follows:

Ln(IID) = Natural log of stock market index of insurance sector of Nepalese insurance companies,
Ln(GP) = Natural log of gold price in Nepalese rupees Troy ounce,
Ln(IR) = Natural log of interest rate of 91-days Treasury bill,
Ln(M2) = Natural log of broad money supply in millions of Nepalese rupees, and
Ln(MC) = Natural log of market capitalization in millions of Nepalese rupees

Data Analysis Techniques

The collected data has been analyzed using the EViews 10 software. The output of EViews provided descriptive statistics, unit root statistics Johansen cointegration test, and Granger causality test. Augmented Dickey-Fuller test and Phillips-Perron test has been used to test the stationarity of the time series data. Before conducting the Johansen cointegration test the lag length of the variables has been selected using VAR Lag selection criterion. After determining the optimum lag length of the variables Johansen cointegration test is used to observe the long-run equilibrium of macroeconomic variables and stock market index of Nepalese insurance companies. Similarly, vector error correction model (VECM) has been used to analyze the short-run dynamics of the model and the stability of the model is observed through Recursive CUSUM test. Finally, serial correlation of the model is checked through Breusch-Godfry Serial Correlation LM test.

Empirical Results

Descriptive Statistics

As this study has employed descriptive research design, among others, it is used to describe the characteristics of variables during the study period. Table 1 presents the summary statistics of dependent variable index of insurance (IID) and independent variables [gold price (GP), interest rate (IR), broad money supply (M2) and market capitalization (MC)] used for the study. It shows number of observations, measures of central tendency (mean), measure of dispersion (standard deviation), minimum and maximum values, skewness, Kurtosis, and Jarque-Bera statistics of the variables under the study.

Table 1

Descriptive Statistics

Variables	No.	Min.	Max.	Median	Mean	Std. Dev.	Skewness	Kurtosis	J.B.
Log(IID)	180	5.4459	9.1684	6.4795	6.9225	1.2055	0.6254	1.9070	20.6927
Log(GP)	180	10.1808	11.9342	11.5045	11.2728	0.5723	-0.5777	1.8019	20.7782
Log(IR)	180	-4.6052	2.2039	0.8775	0.4884	1.3664	-1.2936	4.4398	65.7460
Log(M2)	180	12.3679	14.8964	13.4949	13.5820	0.7909	0.0449	1.6696	13.3355
Log(MC)	180	10.4606	14.5336	12.8528	12.7415	1.1886	-0.3871	2.1547	9.8541

Note: The table exhibits descriptive statistics (mean, median, standard deviation, minimum, maximum values, skweness, kurtosis and Jarque-Bera) of the variable being studied for the period of July 2003 to June 2018. Log(IID) is the log of index of the monthly index value of insurance companies listed on Nepal Stock Exchange. Log(GP) is the log of gold price, Log(IR) is the log of interest rate of 91-days treasury bill, Log(M2) is the log of broad money supply, log(MC) is the log of equity market capitalization.

It is evident from table 1 that Log(IID), Log(GP), Log(M2), Log(MC) have positive mean and median value. The result indicates that index of the monthly index value of insurance companies [Log(IID)] has mean value of 6.9225, minimum value of 5.449 and maximum value of 9.1684 and standard deviation is 1.2055. Similarly, mean value of gold price [Log(GP)] has mean value of 11.278, minimum value of 10.1808 and maximum value of 11.9342 with standard deviation of 0.5723.

Likewise, the mean, minimum, maximum value and standard deviation of interest rate of 91-days treasury bill [Log(IR)] is 0.4884, -4.6052, 2.2039 and 1.3664 respectively. The mean value of broad money supply [Log(M2)] is 13.5820 with minimum value of 13.3679, maximum value of 14.8964 and standard deviation of 0.7909. Finally, market capitalization [Log(MC)] showed a mean value of 12.7415,

minimum value of 10.4606, maximum value of 14.5336 with standard deviation of 1.1886. The descriptive statistics of Table 1 also depicts that Log(IID), Log(M2) and Log(MC) has positively skewed where as variable Log(GP) and Log(IR) has negatively skewed.

Test for Stationarity

The test of stationarity and unit root is extremely important in time series analysis before proceeding for cointegration test and establishing long-run relationship. To confirm the stationarity of the data this study has applied widely used Augmented Dickey-Fuller test and Philip-Perron test using EViews 10 software. Table 2 shows the result of unit root test of all variables at their level and in 1st order difference. Panel (a) shows the result of Augmented Dickey-Fuller test at level data and at 1st difference data. Similarly, Panel (b) shows the result of Phillips-Perron test at level data and at 1st difference data.

Table 2
Unit Root Test at Level and 1st Difference

Panel (a) Augmented Dickey-Fuller Test				
Variables	Data at level		Data at 1st Difference	
	ADF t-stat	p-value	ADF t-stat	p-value
Log(IID)	-0.3106	0.9196	-10.9435	0.0000
Log(GP)	-1.92441	0.3205	-12.6576	0.0000
Log(IR)	-2.69335	0.0772	-11.2459	0.0000
Log(M2)	-1.66686	0.4464	-12.0835	0.0000
Panel (b) Phillips-Perron Test				
Variables	Data at level		Data at 1st Difference	
	PP t-stat	p-value	PP t-stat	p-value
Log(IID)	-0.27835	0.9243	-10.9382	0.0000
Log(GP)	-1.92069	0.3222	-12.6477	0.0000
Log(IR)	-3.17372	0.0232	-13.7579	0.0000
Log(M2)	-1.69134	0.4339	-12.0199	0.0000

As depicted in Table 2 the p-values of the variable Log (IID), Log (GP), Log (IR), Log(M2) and Log (MC) in both test is more than 5 percent so we failed to reject the null hypothesis of unit root at their level data. Moreover, the P-values of all these variables are less than 5 percent in both Augmented Dickey-Fuller test and Phillips-Perron test thus; they reject the null hypothesis of unit root at their 1st difference. Since, both the test concluded that all the variables are integrated of same order i. e. I(1); thus, this study can use Johansen cointegration technique to explore the long-run relationships among these variables.

Lag Selection

The second step for multivariate cointegration analysis is the selection of appropriate lag length of the variables. This study has used Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz information criterion (SC) and Hannan-Quinn information criterion (HQ) for the selection of appropriate lag length. The result of various lag selection criterion is presented in Table 3. All the criterion suggested the appropriate lag length of 1.

Table 3

VAR Lag Selection Criterion

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-485.2682	NA	0.000206	5.700794	5.792290	5.737916
1	1000.856	2868.566	8.61e-12*	-11.28903*	-10.74004*	-11.06629*
2	1010.611	18.26171	1.03e-11	-11.11176	-10.10529	-10.70341
3	1022.604	21.75569	1.20e-11	-10.96052	-9.496566	-10.36655
4	1047.916	44.44316*	1.20e-11	-10.96414	-9.042709	-10.18457
5	1067.241	32.80726	1.29e-11	-10.89815	-8.519234	-9.932965
6	1076.974	15.95714	1.55e-11	-10.72063	-7.884223	-9.569825
7	1087.596	16.79713	1.85e-11	-10.55344	-7.259549	-9.217022
8	1103.105	23.62448	2.10e-11	-10.44308	-6.691706	-8.921051

Note: indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)

Cointegration Analysis

As evident in table 2 all the variables are integrated of 1st order i.e. I(1), the study thus, applied the Johansen cointegration technique to explore the long-run relationships among these variables. Both Trace Statistics and Maximum Eigen Value have been used to identify the cointegration equations. The result of both Trace statistics and Maximum Eigen Value are presented in table 4. Panel (a) of table 4 shows the result of Trace Statistics and Panel (b) shows the result of Maximum Eigen Value.

The primary results of Johansen cointegration tests showed that there exists one cointegrating equation. This result of cointegration test confirms that the market index of Nepalese insurance companies has long-run equilibrium with the macroeconomic variables [interest rate (IR), gold price (GP), broad money supply (M2), and market capitalization (MC)].

Table 4

Cointegration Test

Panel (a): Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE (S)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.210114	79.75453	69.81889	0.0065
At most 1*	0.106777	37.77026	47.85613	0.3121
At most 2	0.048856	17.67075	29.79707	0.5905
At most 3	0.038814	8.754713	15.49471	0.3886
At most 4	0.009551	1.708189	3.841466	0.1912
Panel(b): Unrestricted Cointegration Rank Test (Maximum Eigen Value)				
Hypothesized No. of CE (S)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Probability
None*	0.210114	41.98427	33.87687	0.0044
At most 1*	0.106777	20.09950	27.58434	0.3343
At most 2	0.048856	8.916040	21.13162	0.8391
At most 3	0.038814	7.046524	14.26460	0.4837
At most 4	0.009551	1.708189	3.841466	0.1912

Note: Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
*denotes the rejection of the hypothesis is at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The long-run effect of macroeconomic variables [interest rate (IR), gold price (GP), broad money supply (M2), and market capitalization (MC)] on market index of insurance sector (IID) has been observed through the normalized co-integrating coefficient of co-integrated equation or the long-run equation of Johansen test. Table 5 shows the coefficient of normalized cointegrating coefficients.

Table 5

Normalized Cointegrating Coefficients

LogIID	LogGP	LogIR	LogM2	LogMC
	2.041981	0.427558	-1.162367	-0.914503
S. E.	0.27961	0.05528	0.31345	0.16889
t-value	7.60296	7.73441	- 3.370831	- 5.41477

The above estimated cointegration relationship of equation shows that macroeconomic variables have significant relationship with the market index of Nepalese insurance companies (IID). This result is consistent with the results provided by Chen et al. (1986), Naka et al. (1998).

Since the normalized cointegrating coefficients are presented in matrix form we should inverse the sign of each coefficient to determine the relationship of dependent and independent variables. Thus, the result of this study implies that there exist negative and significant relationship between gold price (GP) and market index of Nepalese insurance

companies (IID). Similarly, this study also confirms the negative and significant relationship between interest rate (IR) and market index of Nepalese insurance companies (IID). Furthermore, positive and significant relationship between broad money supply (M2) and market index of Nepalese insurance companies (IID) has been observed. This finding of positive relationship between money supply and market index of Nepalese insurance companies is similar to the finding of Naka, Mukherjee and Tufte (1998). Thus, this finding concludes that monetary policy in Nepal has positive impact on stock prices of insurance companies. Finally, market capitalization (MC) has also showed a positive and significant relationship with market index of Nepalese insurance companies (IID).

Vector Error Correction Model (VECM)

In order to capture the short-run dynamics of the model, this study has applied vector error correction model. When given variables are cointegrated, then error correction model (ECM) can be applied to explain the short-run dynamics or adjustments of the cointegrated variables towards their equilibrium values. The results of vector error correction model are reported in Table 6.

Table 6

Vector Error Correction Estimates

Variables	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.060594	0.015851	-3.822681	0.0002
C(2)	0.073141	0.084846	0.862044	0.3899
C(3)	0.113937	0.163349	0.697510	0.4864
C(4)	0.004108	0.009939	0.413347	0.6799
C(5)	0.155615	0.377970	0.411713	0.6811
C(6)	0.064426	0.086262	0.746867	0.4562
C(7)	0.012058	0.008427	1.430819	0.1543
Adjusted R-squared 0.091855		Durbin-Watson stat 1.970153		
F-statistic 3.983813		Prob(F-statistic) 0.000930		

The coefficients of VECM (-1) i. e. C(1) is negative and significant at 1 percent level of significant which showed the speed of adjustment of disequilibrium in the period of study. The results of vector error correction model (VECM) depicted that the adjustments in Log (IID) were due to the error correction term VECT (-1).

The statistically significant and negative sign of Vector Error Correction Term (VECT), indicates the existence of cointegration among the variables under investigation. The VECT coefficient is -0.06059 with P value of 0.0002. This implies that above 6

percent of last month disequilibrium is corrected in current month. In other words, the deviation from the long-run equilibrium is adjusted about 6 percent of the disequilibrium is corrected within a month.

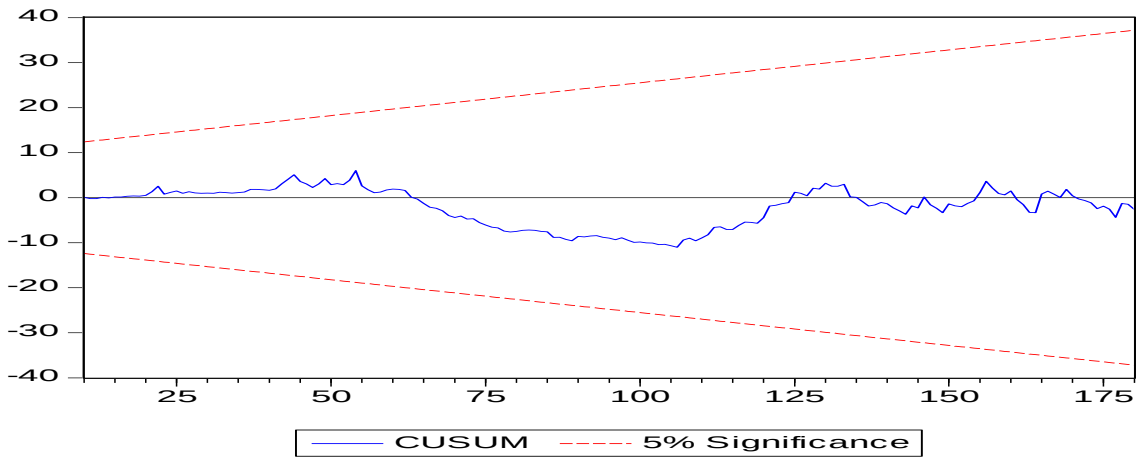
Equation presented as below explains the empirical estimates from the VEC model for market index of Nepalese insurance companies.

$$D(LogIID) = 0.012058 + 0.073141\ D(LogIID(-1)) + 0.113937\ D(LogGP(-1)) + 0.004108\ D(LogIR(-1)) + 0.155615\ D(LogM2(-1)) + 0.064426\ D(LogMC(-1)) - 0.060594\ Vecm(-1)$$

Stability Test of the Model

It is important to investigate whether the estimated relationship is stable or not during the study period. To test the stability of the model Recursive CUSUM test at 5 percent level of significance was used. If the plots of CUSUM statistics study with in the critical bounds at 5% level of significance all co-efficient in the given regression are stable.

Figure 1
Plot of Recursive Residual (CUSUM)



In figure 1 straight lines represent critical bounds at 5% significance level. Figure 1 depicts that the CUSUM plots lie within the bound (straight line). Thus, it has provided the evidence that all the parameters include in the model were stable over the study period.

Serial Correlation Test

This study has applied Breusch-Godfrey Serial Correlation LM Test to examine the problem of serial correlation in the model. The result of Breusch-Godfrey Serial Correlation LM Test is presented in table 7. The result of table 7 confirms that there was no evidence of serial correlation in the model.

Table 7

Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.562895	Prob. F(2,169)	0.5706
Obs*R-squared	1.177898	Prob. Chi-Square(2)	0.5549

Summary and Conclusion

This study has examined the long-run relationship between macroeconomic variables and the stock market of price of Nepalese insurance companies listed on Nepal Stock Exchange. This study has used Johansen cointegration technique to explore the long-run relationships among these variables. Monthly Stock market index of Nepalese insurance companies of Nepal Stock Exchange (NEPSE) has been taken as proxy of stock market price of insurance companies and interest rate, gold price, money supply, equity market capitalization are taken as proxy of macroeconomic variables. This study is based on the monthly data for the period of July 2003 to June 2018.

Stationarity of data has been examined through unit root test. For this purpose, the study has used Augmented Dickey-Fuller test and Philip-Perron test. Data were found to be non-stationary at their level and become stationary at their 1^{st} difference. Since all the variables were found to be stationary at 1^{st} difference Johansen cointegration technique was applied to examine the long-run relationship.

The Johansen cointegration showed one cointegrating equations. It is, therefore be concluded that the stock market of price of Nepalese insurance companies has long-run equilibrium with the macroeconomic variables (gold price, interest rate, broad money supply and market capitalization). The first normalized equation showed the negative and significant coefficient of gold price, interest rate and positive and significant of broad money supply and market capitalization.

Similarly, vector error correction model (ECM) has been used to capture the short-run dynamics of the model. The coefficient of vecm(-1) found to be negative and significant. Thus, this study concluded that the adjustments in stock market price of

insurance companies were due to the error correction term Vecm (-1).

Finally, to test the stability of the model Recursive CUSM test, and to test serial correlation Breusch-Godfry Serial Correlation LM test was used. Recursive CUSM test concluded that the model is stable for the study period and Breusch-Godfry Serial Correlation LM test showed that there is no evidence of serial correlation.

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Migration, Remittance and Poverty in Nepal

Tika Ram Gautam[12]

Abstract

This paper aims to explore whether poverty rate vary by remittance receiving status (yes/no) households and to explain the association between remittance status (yes/no) and poverty status (poor/non-poor) of households across the provinces of Nepal. Based on third round of Nepal Living Standard Survey (NLSS) data the proportion of remittance receiving households and poverty rate is described. The association between remittance status and poverty status of households' is explained using chi-square test of independence. From Nepal about 56 percent households are receiving remittance. Based on the results this paper argues that the poverty rate widely varies; lowest in Bagmati (20.6%) to highest in Sudurpaschim (45.6%) province, across provinces. Similarly, the poverty rate also varies across remittance receiving households (21.5%) to remittance not receiving households (29.4%). The poverty rate is low in remittance receiving households compared to households not receiving remittance. However, the poverty rate in remittance receiving households across also varies across provinces ranging from 12.9 percent in province-1 to 45.1 percent in Sudurpaschim province. There is significant association [χ^2-value=230074.923 is significant ($p=0.000<\alpha=0.01$) at 0.01 level of significance] between the status of households based on remittance and poverty. The households receiving remittance are less likely ($\beta=-1.283$) to be poor compared to the household receiving no remittance.

Migration

In the past, emigration was considered as a response of the people to the existing socio-economic and political conditions of a country. Many people who were unable to fulfill their needs with the environment around them and find it convenient to emigrate rather than fight for a change. It was observed that generally most unemployed young

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males have a tendency to emigrate and thus even as short-term emigration may relieve the unemployment problem to some extent (Gautam, 2005). However, these days migration has become global phenomena for all categories of peoples; rich and poor; male and female; educated and uneducated, and so on. It is therefore important for all countries of the world today.

In the last three decades, Nepal has experienced a dramatic growth in internal and international migration, especially from rural areas to urban centers and foreign countries such as America, Germany, Britian, Canada, Japan, Quatar, Arab, United Arab Emirates (UAE) and other countries including India (Gautam, 2008). The number of emigrants is increasing even in the countries like Australia and United Kingdom. Some emigrants, who are able to earn sufficient cash money, are leaving their place of origin (home) and are moving to new places purchasing land and houses after the temporary emigration. Other emigrants are temporarily migrating to urban centers in the name of consuming modern facilities including their children's better education (Gautam, 2008). This is how migration has become national and international phenomenon. It is playing role from individual, household to national level on the one hand and at global level on the other.

As cited by Lu and Treiman (2011, p. 1119) migration has become an integral feature of national economies and family life in many parts of the world. More than 170 million people in developing nations live outside their home countries, sending back more than $80 billion in the early 2000s (United Nations, 2002). Lu and Treiman (2011, p. 1119) further cited those global remittances reached as much as $330 billion in 2008 (Ratha, 2009 Internal migration and remittances occur at even higher rates (International Organization for Migration, 2005). The consequence of migration is not limited to remittance it is further extended to individual, household and family life.

Lu and Treiman (2011, p. 1119) further write, "as a consequence, an increasing number of children are affected by the migration process. While some move with their families, most are left behind because of the financial costs and uncertainty associated with migration". Having one or both parents away for work has thus become a common experience of childhood in many parts of the world. Conservative estimates suggest that 15 to 30 percent of children in Africa, Asia and Latin America live in households with at

least one migrant parent (Bryant, 2005). In the context of Nepal too, there is one migrant household when we choose two households.

Historically people are found moving from one part of the world to another. After the formation of modern state, the mobility of people from one place to another within a country or from one country to another is called migration. Migration is therefore continuous process of movement of people from the place of their origin to place of destination. This kind of mobility of people can be found in the history of all countries in the world and it is increasing nowadays. Mukherjee (2017) elaborately mentions about the current trend of migration from India. The migration pattern from Nepal also follows the similar pattern as in India. Mukherjee (2017) writes, "Millions of people are seeking work, a new home or simply a safe place to live within and outside their countries of birth. Essentially, international migration is taking place at a faster pace in the era of globalization especially from the Third World countries to the First World countries". However, migration takes place within and outside country. The mobility of people outside the country is known as emigration. People migrate from one country to another for various purposes. According to Mukherjee (2017) this is happening at all levels. The levels Mukherjee (2017) mentions are as follows:

> First, white-collar skilled professionals are migrating in search of better opportunities both in education and jobs. Second, informal labourers are migrating to serve as nannies, domestic help, taxi drivers, small restaurant owners, etc. For example, several women from Sri Lanka and Kerala migrate to the Gulf to work as nannies, nurses. Migration of the semi-skilled and unskilled has been mostly to the Arab world which comprises regions of the UAE, Saudi Arabia, Oman, Kuwait, Qatar and Bahrain. (pp. 91-92)

As in India Nepali people are also migrating in Gulf and other countries of the world including USA, UK, Canada and Australia. In addition, most of the Nepali migrants are in India working as unskilled labour. Migrants working in different parts of the world send cash or kind to their home. Nepal Living Standard Survey (NLSS, 2010/11) defines remittance as a transfer in cash or kind sent or received by the household over the last 12 months preceding the interview. All incomes transferred from

a single source (individual/household) are counted as one remittance. The proportions of households that receive remittance are 56 percent in Nepal (NLSS, 2010/11).

Migration and Remittance

Today people are frequently migrating from one place to another; either within country or between countries they send and also bring various things with them. The things migrants send when they stay at place of destination and also bring back many things with them while returning back to their place or origin. Since migration is global trend sending and receiving remittance has also become global phenomenon. Duany (2010) mentions the global trend of remittance as:

> During the 1990s, remittances-money sent by migrants to their countries of origin-became the second largest source of foreign exchange for many countries in Latin America and the Caribbean, including Mexico, Guatemala, the Dominican Republic (DR), and even Cuba. In2 008, the Inter-American Development Bank (2009) estimated that Latin American and Caribbean immigrants in various countries of the world sent $69.2 billion to their nations of origin. Most adult Hispanic immigrants regularly send "migradollars" (as they have been dubbed in Mexico) to family members back home (Bendixen and Associates 2001; DeSipio 2002; Orozco et al. 2005). Although the U.S. recession and the global economic crisis since 2008 have slowed the growth of remittances, they continue to play a key role in Latin America and the Caribbean. In smaller economies such as Haiti, Jamaica, Guyana, Honduras, El Salvador, and Nicaragua, remittances rival revenues from agriculture, manufacturing, and tourism (World Bank 2006). (pp. 205-206)

In many countries of the world including Nepal which have large scale migration rate and receive remittance has become an important source of income at household and national level. While talking about remittance most of the studies focus on cash and kind as an economic contribution. It is because people who migrate from their place of origin usually send cash or kind to their home. Thus, remittance is defined and understood as cash or kind the migrant household receives from the migrant. However, migrants do not only send cash and kind back to their place of origin but also send and bring many other

things. While returning back to their home migrants bring different kind of social and cultural capability and capital with them. They bring back new knowledge, skill and culture with them which can also be considered as remittance. Therefore, it is important to discuss the forms of remittances before moving on to the remittance received by the migrants' households. Mukherjee (2017) discusses these all forms of remittances in detail which helps us to better understand economic as well as social remittance. "Migrants remit in order to maintain their relationship with the homeland (Piotrowski, 2006). When migrants visit their homes in villages, they carry with them information about employment opportunities; hence, remittance has served to retain and reinforce status and networks in their homeland (Lipton, 1980). Apart from remitting money, certain social and cultural practices are constantly being exchanged and bringing back Arab culture is a common phenomenon now in Barkas (Mukherjee, 2017, p. 96). This indicates that remittance is not total sum of money or articles sent by the migrants but also social and cultural practices shared or brought back to the migrants' place of origin.

The concept of social remittance is important in order to understand the exchange that is taking place between Nepal and the foreign countries including India and Gulf. Since this paper focuses on economic remittance let me discuss social remittance very briefly and move to economic remittance. In order to clarify the concept of social remittance it would be good to quote what Mukherjee (2017) writes about economic, social and cultural remittance in specific.

> Migrant remittances help in supplementing the domestic incomes of millions of poor families across the world. While the economic conception of remittances continues to dominate research, the term 'remittance' has been expanded to embrace the non-economic dimension since 1990s. One of the important contributions to the field of sociology is the coining of the term social remittance by Peggy Levitt (1998). Peggy Levitt in her work on The Transnational Villagers (2001) has explored the familial, religious and political connections between workers of Miraflores, a town in the Dominican Republic and Jamaica plain which is a neighbourhood in Boston and examines the ways these ties transform lives in both homeland and host land. Her work is based on an in-depth ethnography in Boston and gives a detailed account of transnational migration

> transforms family and work life and the challenges that the migrants face in terms of race and gender as well as the lives of those who stay behind in the process of migration. She has argued that assimilation and transnational lives are not incompatible in this era of globalization and constant movement of people (wcfia.harvard.edu). (p. 96)

As cited in Mukherjee (2017, p. 96), Peggy Levitt has defined social remittance as ideas, attitudes, behaviour, identity and social capital that flow from host land to homeland and vice versa. Similarly, most of the interviews in Barkas showed changing attitudes and outlook in several ways. To give an example, Mohammad Bajaber (respondent) mentioned that he attended his child's parent-teacher meeting in school in Doha unlike his father. These are the new attitudes/manners that they learn and also want people around them to follow. Bajaber pointed out that his attitude changed due to Gulf migration, as he has been exposed to the outside world. Thus, social remittance contributes in transforming the attitude/manner, belief, life style, and so on among the members of migrants' household, neighbourhood and community.

As cited in Mukherjee (2017), according to Levitt (1998, p. 36), there are three types of social remittances, that is, normative structures, systems of practice and social capital. Normative structure includes norms of behaviour, notions about family responsibilities, principles of neighborliness, community participation and aspirations for upward social mobility. Gender, class, race and identity play an important role in defining the normative structure of social remittances. Systems of practice are the actions created by the normative structures. This includes how individuals delegate household tasks and their participation in political and civic groups. They also include organizational practices, such as recruiting and socializing with new members, goal setting and strategizing, establishing leadership roles and forming interagency ties. Drawing from Levitt's (1998) idea about normative structures, it is possible to highlight the instances of how exchanges are happening, such as writing letters, by the Polish immigrants to their non-immigrant family members at home (Thomas & Znackieki, 1927) or how the return migrants to the West Indies are taking back ideologies that they develop from the Black Power movement in the United States (Patterson, 1988). In other words, when one goes back to the homeland, he/she brings certain types of new skills and aptitudes, attitudinal

and ideological changes and it has effects between the migrant and his/her family and the community he/she lives in. Second, the systems of practice which are guided by the normative structures in both cultures are also transmitted (Mukherjee, 2017, p. 97). We can thus understand that remittance has multiple effects on individual, household and community level. More importantly, individual's capability and social life is mainly shaped by the overall status of household.

Remittance and Poverty Reduction

Different scholars have mentioned that remittance has multiple effects in multiple ways. Most of the literatures on remittance focus on its role in reducing poverty. Acharya and Leon-Gonzalez (2012) found that remittance has conditional impacts on both poverty and inequality, which largely depends on the 'incidence' and maturity of the migration process and, more importantly, on how lower quintiles of the society participate in this process. The national-level simulations indicate that remittance decreases the head count poverty by 2.3% and 3.3% in the first round of the survey, and between 4.6% and 7.6% in the second round. It reduces even further the depth (at least 3.4% and at most 10.5%) and severity (at least 4.3% and at most 12.5%) of poverty. Although overall remittance increases inequality, this is less so in the second round of the survey. Another important point Acharya and Leon-Gonzalez (2012) report is that remittance payment from India, which is on average much lower than from other countries, decreases inequality and has the largest impact on poverty reduction. This is due to the larger participation of the poor in the Nepal-India migration process. However, there is multiple use of remittance which can create multiple effects including poverty reduction at a time.

Dorantes and Georges (2010) analyze the multiple use of remittance particularly focusing on schooling. As mentioned by Dorantes and Georges (2010):

> Remittances-the earning that migrant workers send back to their home communities, either sporadically or on a regular basis-have gained the attention of scholars and others seeking to understand migration and its ramifications. While there are a number of reasons to be interested in these money flows, our interest lies in the possibility that remittances can serve to improve living standards for families who remain in the origin communities. Researchers have found, for

example, that some households use remittances to establish or expand small businesses (e.g., Woodruff & Zenteno, 2007; Amuedo-Dorantes Pozo, 2006). In the longer term, these investments may improve income-generating opportunities for families remaining in the home community. In that vein, Duryea, Lpez-Crdova, and Olmedo (2005) found that remittances are often used to improve housing infrastructure, by adding plumbing and refrigeration, for example. Improvements in the physical environment in which families live are thought to contribute to reductions in infant mortality rates. Others have found that remittances are used directly to cover medical expenses, presumably leading to healthier populations (e.g., Amuedo-Dorantes and Pozo 2008). (pp. 224-225)

Remittance thus contributes in multiple aspects of household and family. The overall transformation induced through remittance is an important contribution of migration taking place today. It is therefore essential to explore in what way the remittance receiving at household is contributing in the livelihood of people including the poverty status in the context of Nepal.

This paper moves ahead of the analysis of Lokshin, Bontch-Osmolovski, and Glinskaya (2007) which focuses only on the direct impact of migration and remittances on households with a migrant. Migration and remittances improve the welfare of households in the sending communities by stimulating local economic development. Migrants channel remittances into productive investment at home. Even when some households spend most of the remittances on current consumption, the resulting demand for goods and services can be met by other working adults in the community, thus generating strong positive externalities. Therefore, exploration on the distribution of poverty and the variation in distribution is important to understand the poverty status at household level across provinces.

Objectives, Data Set and Methods

Among many literatures on migration and remittance, Acharya and Leon-Gonzalez (2012) found that the impact of remittance on poverty and income distribution in developing countries has been extensively investigated since 1980s (see Adams, 1991; Stark, et al. 1986, 1988) with mixed findings. In general, it is agreed that migration and

remittance reduce poverty. However, the magnitude of poverty reduction varies among origin communities, remittance sources, and whether remittance is treated as 'potential substitute' or 'exogenous transfer'. Using household data from 11 Latin American countries, Acosta, Fajnzylber, and Lopez (2007) found that the impact was modest and varied across countries. Therefore, one can think of and assume that the poverty rate across provinces and remittance receiving and not receiving households vary.

The primary objective of this paper is to explore the relationship between remittance received at household and its poverty status at province level in the context of Nepal. It also examines the rate of poverty across the provinces and explains whether there is association between remittance received and the poverty status of households in Nepal.

In order to explore the status of households in terms of receiving remittance and the distribution of poverty rate third round of Nepal Living Standard Survey (2010/11) data set is used. Based on the raw data set the overall and province level poverty rate and remittance receiving at household level is explored.

Simple descriptive statistics is used to present the poverty and remittance receiving status of households across provinces. In order to describe the relationship between remittance and poverty Chi-square test of independence is used as the non-parametric test. Based on the test of significance the relationship between remittance receiving status (yes/no) households and their poverty status (poor/non-poor) is explained.

Migration and Remittance in Nepal

Lu and Treiman (2011, p. 1120) noted, "The most influential migration theory that links migration and people left behind is the New Economics of Labor Migration (Stark and Bloom 1985). This theory focuses on migration as a household strategy aimed at diversifying income sources, and sees remittances as one of the most visible outcomes of labor migration. This has motivated research into the consequences of migration for people left behind". While some suggest that remittances are largely allocated for daily consumption, a crucial question is whether the impact of remittances extends to longer-term individual socio-economic benefits, such as human capital enhancement (Lu and

Treiman, 2011, p. 1120). Obviously, remittance contributes at various aspects of individual's life at various levels including household's basic features. Household which receives remittance performs different characteristics compared to household which does not receive remittance. Therefore, migration and household receiving remittance is taking a wider shape in all the countries of the world including Nepal. The number of households receiving remittance is therefore increasing every year. About a decade ago the proportion of households receiving remittance in Nepal was about 56 percent. This percentage has been further increased at present. Table 1 shows the status of households receiving remittance across provinces of Nepal.

Table 1.

Households Receiving Remittance across Provinces of Nepal

Province	**Remittance Receiving Households (N=5988)**	
	No (%)	**Yes (%)**
Province-1	44.9	55.1
Province-2	39.9	60.1
Bagmati Province	56.4	43.6
Gandaki Province	35.0	65.0
Lumbini Province	35.5	64.5
Karnali Province	59.7	40.3
Sudurpaschim Province	40.0	60.0
Total	44.2	55.8

Source: Computed from NLSS data set 2010/11

The migration pattern and households receiving remittance in Nepal widely varies across provinces of Nepal. Households receiving remittance is the highest (65%) in Gandaki Province followed by Lumbini province (64.5%). The proportion of households receiving remittance is the lowest in Karnali province (40.3%) followed by Bagmati province (43.6%). From many literatures it is argued that remittance contributes in many ways at household level. The contribution ranges from reducing poverty to improving overall living standard of people living in a household. Orozco and Burgess (2011) highlight on the fact how remittance contributes at household and family level. Most

Haitian migrants send money to address the basic needs of their families, mostly sending to their spouses or children. For some families in Haiti that have no other income, remittances are a lifeline that prevents them from further deprivation of basic goods and services. Consistent with poverty levels in Haiti, 55% of remittance recipient households have no other source of income, and 27% of remittance recipient households earn less than US$500 a year (Orozco and Burgess, 2011). In most of the cases, remittance is found contributing in different ways. Nevertheless, in some cases we can observe similar features among households with or without remittance. For example, the poverty rate between remittance receiving households (45.3%) and not receiving households (46.1%) is similar. It indicates that there could be some other factors that lead to the overall poverty status or prosperity of any household. However, based on previous literatures from about various parts of the world and the results obtained in this study we can assume that there are multiple roles of remittance in the context of Nepal as well. Among many, reducing poverty at household level is an important effect.

Remittance Receiving Households and Poverty Status across Provinces of Nepal

In many studies on migration and remittance, we can find the arguments on how remittance contributes in creating various positive effects including reducing poverty at individual and household's level. Emphasizing on this fact, Orozco and Burgess (2011) write, "Remittances have many positive social effects, including helping families save money, promoting greater gender equality when women can improve their situation through remittance expenditure, and giving families better opportunities when they have extra money to invest in health, education, housing, and small business, which in turn has an effect in reducing poverty". However, the effects depend on how much and how frequent remittance a household receives. It also depends on what Orozco and Burgess (2011) write, "Migrants' commitment to send money home increases depending on the length of time they have lived abroad" (p. 234). Nonetheless of the size and frequency of remittance any household receives it influences in various aspects of individual and household dimensions. The effect may vary from micro level to micro level aspects and processes.

Andersson (2011) discusses about how remittance plays an important role in shaping livelihood at household level. Explanations for in-kind remittances are sought in the micro-level interaction between the formal market realm, informalized exchange systems and the household. Remittances are not connected to lower commercialization levels, suggesting that the explanation for remittances should be sought in the production and consumption patterns of the households. Remittances function as an important redistributive mechanism for food across space. The role of smallholder food production for urban livelihoods as well as the subsistence responsibilities of rural households are underestimated if agrarian household level linkages from rural to urban areas are not recognized in national production and consumption surveys and among policy makers (Andersson, 2011, p. 3). This indicates that remittance has its multiple effects at micro and macro level institutions and processes.

Poverty as micro level indicator of household can be discussed at various levels. The distribution of poverty status of households across provinces of Nepal in terms of remittance receiving, not receiving and overall is shown in table 2. We can understand a number of important things from this distribution.

Table 2

Poverty Rate by Remittance Status Across the Provinces in Nepal (N=5988)

Province	**Rem. No (%)**	**Rem. Yes (%)**	**Total (%)**
Province-1	21.0	12.9	16.7
Province-2	33.3	22.6	26.7
Bagmati Province	25.0	13.8	20.6
Gandaki Province	28.0	16.8	20.9
Lumbini Province	29.5	22.8	25.3
Karnali Province	41.1	34.4	38.6
Sudurpaschim Province	46.1	45.3	45.6
Nepal	29.4	21.5	25.2

Source: Computed from NLSS data set 2010/11

The overall poverty rate of Nepal is 25.2 percent. This poverty rate is unequally distributed across the provinces of Nepal. The poverty rate is highest (45.6%) in Sudurpaschim province and lowest (16.7%) in province-1. The poverty status ranges

from 20.6 percent in Bagmati province to 25.3 percent in Lumbini province standing in between in overall distribution.

The poverty rate is higher (29.4%) among the households not receiving remittance compared to households receiving remittance (21.5%). However, the poverty status of households varies in both categories of households. Among households receiving remittance poverty rate ranges from 12.9 percent in province-1 to 45.3 percent in Sudurpaschim province, whereas the poverty status of households which are not receiving remittance ranges from 21.0 percent in province-1 to 46.1 percent in Sudurpaschim. In both cases, poverty rate is higher among households which are not receiving remittance. Important point to be noted is that the province which has lower poverty rate in overall has the lower poverty rate in both types of households; receiving remittance and not receiving remittance.

Relationship between Remittance Status and Poverty Status of Households in Nepal

Olney (2015) mentions that the existing studies tend to focus on the impact that remittances have on developing countries that receive these funds. Typically remittances are found to enhance the economic performance of the receiving country, including increasing household welfare, reducing poverty, increasing education, and insuring against income shocks (Fajnzylber & Lopez, 2008; Chami et al. 2008; Yang 2008; Rapoport & Docquier, 2006). Other authors examine the characteristics of those that choose to remit and their motivation for doing so (Lucas and Stark 1985, Funkhouser 1995, de la Briere et al. 2002; Osili 2007; Dustmann & Mestres, 2010; Yang, 2011). However, relatively little is known about how the outflow of remittances affects the economic performance of the remittance-sending country. To the best of my knowledge, this is the first paper to specifically examine the implications of remittances on any aspect of the sending country's economy (Olney, 2015). Since, remittance has multiple roles in any country's economy it has to be examined in relation to a particular dimension or aspect. In the context of Nepal too, the relationship between migration, remittance and poverty is not yet well analyzed. Table 3 shows the relationship between receiving remittance and poverty status.

Table 3

Relationship between Remittance Status and Poverty Status of Households (N=5988)

Remittance Status	Poverty Status	
	Non-poor (%)	Poor (%)
No/Not receiving remittance	70.6	29.4
Yes/Receiving remittance	78.5	21.5
Nepal	74.8	25.2
χ^2-value=230074.923, df=1, p=0.000, α=0.01		

Source: Computed from NLSS data set 2010/11

There is wider inequality in the poverty rate between remittance receiving and not receiving households. The poverty rate among remittance not receiving households (29.4%) is higher by 26.8 % in comparison to remittance receiving households (21.5%). Similarly, in comparison to national average (25/2%) the poverty rate among remittance not receiving households is higher by 16.6%, whereas the poverty rate among households receiving is lower by 14 percent. Thus, poverty rate is found lower among households receiving remittance. It indicates that there is some kind of association between receiving remittance and being poor.

In order to explore the association between remittance and poverty status of any household Chi-square test of independence was done. Since χ^2-value=230074.923 is significant ($p=0.000<\alpha=0.01$) at 0.01 level of significance it is enough evidence in the data to conclude that there is association between remittance status and poverty status of household. Therefore, the poverty status of household differs by remittance receiving status. The poverty rate is lower in remittance receiving households. It indicates that receiving remittance in any household must have some effects on the poverty status of households.

Table 4

Odds Ratio Predicting the Effect of Receiving Remittance on Poverty Status of Household

Variables	Model	
	Poor (=1)	Std. Err.
Remittance receiving (No=0)	-1.283**	.067
Intercept	-.398**	.046
-2 Log likelihood	5703.216	
Cox & Snell R Square	0.006	

Predicted/percentage correct	81.5

*Note: *** =p<0.001; **=p<0.01; *=p< 0.1*

The result of binary logistic regression further suggests that the remittance receiving status of household shapes the poverty status. The coefficient of determination (r^2=0.006 with 81.5 percentage correct of predicted) shows that the receiving remittance (in household) determines 0.6 percent of the change in the poverty status of household. The regression coefficient (β= -1.283) tells us that households receiving remittance are less likely to be poor (reducing poverty) compared to households receiving no remittance. This indicates that migration through which remittance is receiving at household have some effects on reducing poverty. Therefore, migration contributing in receiving remittance is play an important role in shaping poverty status of household in Nepal.

Conclusion

Migration from different parts of Nepal is rapidly increasing over the period of last 30 years. Increasing trend can be observed in both internal and international migration. Together with increase in migration there is increasing rate of receiving remittance and its role in reducing poverty. The migrant households receiving remittance has lower poverty rate compared to households not receiving remittance. It is due to role of remittance because migration and remittances have a strong impact on the living conditions of households with a migrant (Lokshin, Bontch-Osmolovski, & Glinskaya, 2007). Also, the poverty rate for households with a migrant working abroad would also be substantially higher had their members not migrated (Lokshin, Bontch-Osmolovski, and Glinskaya, 2007). However, the poverty rate among households with a member who migrates within Nepal would be twice as high as current levels if the migrant had stayed home may vary as explained by Lokshin, Bontch-Osmolovski, & Glinskaya (2007).

The poverty rate widely varies; lowest in Bagmati (20.6%) to highest in Sudurpaschim (45.6%) province, across provinces with variation across remittance receiving households (21.5%) to remittance not receiving households (29.4%). The poverty rate is low in remittance receiving households compared to households not receiving remittance. However, the poverty rate in remittance receiving households also varies across provinces ranging from 12.9 percent in province-1 to 45.1 percent in

Sudurpaschim province. There is significant association [χ^2-value=230074.923 is significant ($p=0.000<\alpha=0.01$) at 0.01 level of significance] between the status of households based on remittance and poverty. It is enough evidence to conclude that there is association between remittance status and poverty status of household. It is because there is an important role of remittance in shaping poverty status. The result of binary logistic regression shows that the households receiving remittance are less likely ($\beta=-1.283$) to be poor compared to the household receiving no remittance. Thus, poverty status of household is shaped by the remittance receiving status of households in Nepal.

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Annex: 1

Districts included in provinces

Province - 1: Taplejung, Panchthar, Ilam, Jhapa, Morang, Sunsari, Dhankuta, Tehrathum, Sankhuwashabha, Bhojpur, Solukhumbu, Okhaldhunga, Khotang, and Udayapur.

Province - 2: Saptari, Siraha, Dhanusha, Mahottari, Sarlahi, Rautahat, Bara, and Parsa.

Bagmati province: Sindhuli, Ramechhap, Dolakha, Sindhupalchowk, Kabhre, Lalitpur, Bhaktapur, Kathmandu, Rasuwa, Dhading, Makwanpur, and Chitwan.

Gandaki province: Gorkha, Lamjung, Tanahun, Syanja, Kaski, Manang, Mustang, Myagdi, Parbat, Baglung, and Nawalparasi.

Lumbini province: Gulmi, Palpa, Rupandehi, Kapilvastu, Arghakhanchi, Pyuthan, Rolpa, Rukum, Dang, Banke, and Bardiya.

Karnali province: Salyan, Surkhet, Dailekh, Jajarkot, Dolpa, Jumla, Kalikot, Mugu, and Humla.

Sudurpaschim province: Bajura, Bajhang, Achham, Doti, Kailali, Kanchanpur, Dadeldhura, Baitadi, and Darchula.

Small and Medium Scale Enterprises: Their Role in Economic Growth of Nepal

Mukti KC[13]

Abstract

Small and medium scale enterprises (SMEs) have historically played an important role in contributing to economic growth and development. Naturally, all businesses start as small businesses or even start out of small businesses initiated by individuals. It is imperative to give high priority to Nepalese labor, skill and raw material based domestic investments to promote national level industries for achieving economic growth in the course of SMEs. This study has used Johansen Cointegration, Vector Error Estimates (VAR) and Granger Causality test to investigate relative changes in the position of the Nepalese SMEs and investment to the real GDP since 1989 and 2018 based on secondary data regarding regression analysis. It has examined the dynamic relationship among the total SMEs and investment with real GDP of Nepal and found to be significant and positive relationship in between investment and real GDP of Nepal while insignificant and inverse relationship in between total SMEs and real GDP of Nepal. It implies that real GDP was seemed to be mostly influenced by investment rather than number of SMEs. However, it was and still is contributing significant role in economic growth in Nepal.

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Keywords: small and medium scale enterprises, economic growth, investment, regression, cointegration

Introduction

According to the study of Katua, economic growth in developed countries such as Japan, Korea, Taiwan and many others, was significantly generated by SME activities. The percentage contribution of SMEs to Gross Domestic Product (GDP)/total value-added ranges from 60.0 percent in China, 57.0 percent in Germany, 55.3 percent in Japan and 50.0 percent in Korea, compared to 47.3 percent attained by Malaysia. Accordingly, SMEs have also played a very important role in the economic development of China. At present, there are more than 10 million of SMEs comprising 99 per cent of the total number of enterprises in China. SMEs contribute 60 per cent of industrial output volume and 40 per cent of the total taxes and profits realized by enterprises in China. The contribution of SMEs in output in Japan is 65 per cent, Germany 48 per cent while in USA its 45 per cent. SMEs in the US generate more than half of the nation's gross domestic product (GDP) (Katua, 2014).

There have been the many empirical researches that examine the influence of SMEs on the economic growth in the global context. But in Nepalese context there have been a few empirical researches that examine the influence of SMEs on the growth and employment based on descriptive analysis. Development of Industry sector especially SMEs are very much necessary to reorient the economy towards the path of prosperity. It is imperative to give high priority to Nepalese labor, skill and raw material based domestic investments to promote national level industries for achieving national economic growth in the course of SMEs as per the spirit of the Constitution of Nepal. So, public, private, and cooperative sectors need to be mobilized through SMEs to achieve industrial growth. That's why this study investigates the roles of the SMEs in economic growth broadly.

Review of Literature

Industrial development started in Nepal with the establishment of Industrial Council in 1936 A.D. and The Gharelu Illam Prachar Adda was established in 1940. Raghupatti Jute Mills was established in 1946, which is regarded as the first modern industry in Nepal. Similarly, the process of planned industrialization started with the

launching of the First Five Year Plan in 1956 A.D. gradually, a number of medium and large-scale industries such as cigarette, sugar, cotton, cement, bricks, and paper industries were established in the public sector (Khatri, 2019).

Sampath & Gunawardana (2015) response to the winds of change world over regarding Sri Lanka, as a result of rapid advance in science and technology. It has strengthened the SMEs to make use of themselves as engines of their economy in the sphere of production as a whole economy as well as increase of production and competition in the market. This situation is improved as a result of consumer demand. It creates opportunities to maximize production to satisfy customer needs and SMEs do not consider the factors that affect environment during manufacturing process, selling and distribution and consumption stages.

Katua (2014) claimed that SME sector has widely been accepted as the engine of economic growth and poverty eradication in the world. However, the meaning of an SME has remained different across countries and to different sectors in the same country. A small industry can be set up with small capital and can produce goods for domestic consumption by using labor intensive technology. SMEs play a significant role in the development and growth of various economies. SMEs are vital for world prosperity. Collectively SMEs are the largest employers and greatest creators of wealth. Through job and wealth creation SMEs help alleviate poverty. SMEs therefore hold the key to achievement of national economic objectives of employment generation and poverty reduction at low investment cost as well as the development of entrepreneurial capabilities including indigenous technology. The labor intensity of the SMEs sector is much higher than that of the large enterprises therefore SMEs have a great potential in contributing to the achievement of growth and employment.

Chowdhury & et al. (2013) analyzed the potential of SMEs in the economy of Bangladesh. Data were collected from 100 SME units by using simple random technique. A structural questionnaire was developed to get the responses from different SME units in the country. SMEs have special significance for poverty reduction programmes and potential contribution to the overall industrial and economic growth in Bangladesh.

Zaied (2012) predicted e-commerce has been a new driver of economic growth for developing countries. Where, SME sector plays a significant role in its contribution to

the national economy in terms of the wealth created and the number of people employed. SMEs in Egypt represent the greatest share of the productive units of the economy and the current national policy directions address ways and means of developing the capacities of SMEs. Ramanathan & et al. (ed.) (2011), SMEs sector is recognized for its contribution to employment, innovation and economic dynamism, and is considered as an engine of growth and an essential part of a healthy economy. Recognizing the distinctly positive impact of small enterprises on the economy, the governments of many industrially advanced countries have taken several policy initiatives for the growth and expansion of SMEs, and for improving their technological capability and market competitiveness. Indigenous SMEs in developing countries are facing intensifying competition in their local markets due to globalization, increasing liberalization and the entry of multinationals through foreign investment.

Ghimire (2011) observed the status of micro enterprises, cottage and small-scale industries in Nepal and analyzed their contribution in the economy. This study finds out Least Developed Countries like Nepal where, MSEs is contributing to the economy through employment generation, creation of added value, GDP, export activities etc. It is based on empirical evidence drawn from the publication of government policies, report of department of cottage and small industries, Economic Survey, data available from Federation of Handicraft Association of Nepal and various relevant articles.

Kongolo (2010) examines SMEs have historically played an important role in contributing to economic development of many countries around the world. Naturally all businesses start as small businesses or even start out of small businesses initiated by individuals. This study shows that SMEs represent vast portion of businesses in developing countries including South Africa. In South Africa, SMEs account for about 91% of the formal business entities, contributing to about 51 to 57% in GDP, providing almost 60% of employment and enhance as well as support economic development in South Africa.

As a study of Vengrauskas et al. (2007), define the influence of SMEs to the national economy of Lithuania. According to this study the experience of the EU member states and other developed countries disclosed that the small and medium-sizes business development promotes competitiveness and consequently, the growth of the

economy. As their study SMEs determines all the changes of the supply-demand in the market, is quick to adjust itself to them, to create new workplaces in the areas where certain products and services are in greatest demand in the specific period of time.

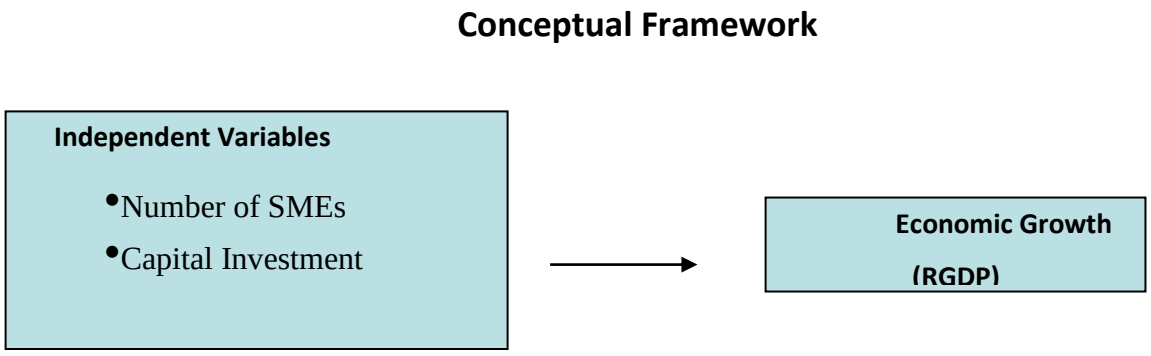
As a study of Chen (2006), explores development history of Chinese SMEs over the past two decades and Chinese SMEs have three development phases, along with the development of China's reform. The first phase was from 1978 to 1992, characterized by the expansion of SMEs in number and scale. This resulted from the government's encouragement of and support for the development of township, collective and self-employed enterprises. The quick expansions of SMEs have made great contribution to economic development and improvement of the living standard of people. Similarly, the second phase was from 1992 to 2002. During this period, the reform of state-owned SMEs and the development of non-public sectors had given more emphasis. To speed up reforms of state-owned SMEs Chinese government implemented various measures, such as restructuring, merger and acquisition, joint partnership, leasing, contracting, sell-off and to reduce the state's ownership in SMEs. At the same time private-owned SMEs have the benefited of rapid development along with the establishment of the socialist market economy. This phase was an imperative historical period for the development of Chinese SMEs. Accordingly, the third phase began with 2002, whereas, China further developed the SMEs, which symbolized that the developments of SMEs have led in a new era and these sectors contribute significantly for economic growth.

According to the study of OECD (2004), Small and medium-sized enterprises (SMEs) are a very heterogeneous group. SMEs are found in a wide array of business activities, ranging from the single artisan producing agricultural implements for the village market, the coffee shop at the corner, the internet café in a small town to a small sophisticated engineering or software firm selling in overseas markets and a medium-sized automotive parts manufacturer selling to multinational automakers in the domestic and foreign markets. The owners may or may not be poor; the firms operate in very different markets (urban, rural, local, national, regional and international); embody different levels of skills, capital and sophistication for growth orientation and may be in the formal or the informal economy.

Research Methodology

Conceptual Framework

The theoretical approach to studying the relationship between the SMEs and economic growth provided by the development theory and followed by the World Bank model which is used to describe the relationship of SMEs and economic development. This is expressed as



It is widely accepted that increase in SMEs of in an economy leads to increase economic growth (the World Bank, 2011). So, GDP growth is a function of number of SMEs and capital investment. It means that economic growth has found a positive relationship with number of SMEs and capital investment.

Therefore, this relationship can be explained as the following model:

LNRGDP = f (LNTSMEs, LNTINV)

In equation form this can be written as:

$LNRGDP = \beta_0 + \beta_1 LNTSMEs + \beta_2 LNTINV + \varepsilon$

Where, variables LNRGDP, LNTSMEs and LNTINV denote the log values of real economic growth i.e., RGDP, number of SMEs and capital investment respectively. The expected signs of the coefficients of the variables are:

$\beta_1 > 0$ and $\beta_2 > 0$.

Data and Literature for the Study

A secondary method of data collection is employed for the study and compromise of yearly observations of macroeconomic variables. Data on macroeconomic variables for sample period is obtained by annual data for 1989 to 2018 AD from Ministry of Industry, Commerce and Supplies as well as Ministry of Finance and Central Bureau of Statistics (CBS). Literature for the study is obtained from Journal of Finance, American Economic Review, Economic Surveys, The Financial Review, IMF working papers, The

Economic Journal of Nepal, Economic Journal of Development, Economic Review: Occasional Paper (Nepal Rastra Bank), FNCCI, NPC, Ministry of Industry, Finance, other journal articles and working papers from Google scholar.

Methods and Tools for the Data Analysis

This study attempts to examine the relationship among the SMEs and the economic growth. Hence an ex post facto research design is utilized. The data collected is categorized; tabulated, processed and analyzed using different methods. Descriptive statistics such as Frequency, Mean, Standard Deviation, Maximum, Minimum, Skewness, and Kurtosis were used to provide summary information about the distribution, variability and central tendency of a variable regarding Johansen Cointegration, Vector Error Correction Model (VECM) and Granger Causality test with regression analysis. The study is employed graphs to obtain the relationship between macroeconomic variables (RGDP) and the SMEs beyond the study period.

Model Specification

In the light of above discussion, this study investigates SMEs, investment and their relationship with economic growth in Nepal. As other researchers have made in this field for other countries, this study selects the state variables that are of economic interest and that has been widely used in SMEs literature. Hence, study runs regression of the form:

GDP = f (SME)

I.e. $RGDP = a + b_1 X_1 + b_2 X_2 + e$ …….(1)

Where, RGDP = Real GDP Growth of Nepal.

b_1 and $_{b2,}$ are coefficients

X_1 = Number of SMEs (Total SMEs)

X_2 = Investment on SMEs

e = Error

In this model, a real GDP (at 2001/02 prices) is used as the measure of real economic activity. GDP is constructed and published annually by Central Bureau of Statistics (CBS) and is available from 1964/65. Here, it is collected from Economic Survey, Ministry of Finance. Similarly, the SMEs used the compilation data of small and medium scale enterprises (i.e., total number of SMEs). It is based on data bank of department of industry and industrial statistics of department of industry, Ministry of

Industry, Commerce and Supplies, planning, monitoring and industrial statistics section, Tripureshwar, Kathmandu.

Accordingly, capital investment is used as the measure of the investment fund for SMEs because it is required for operation and is available in annual series. It is also available in industrial statistics of department of industry. All variables are transformed into natural log as mentioned in Conceptual Framework to stabilize the variance of the series over time by using OLS regressions to estimate with standard errors.

Empirical Outcomes of the Study

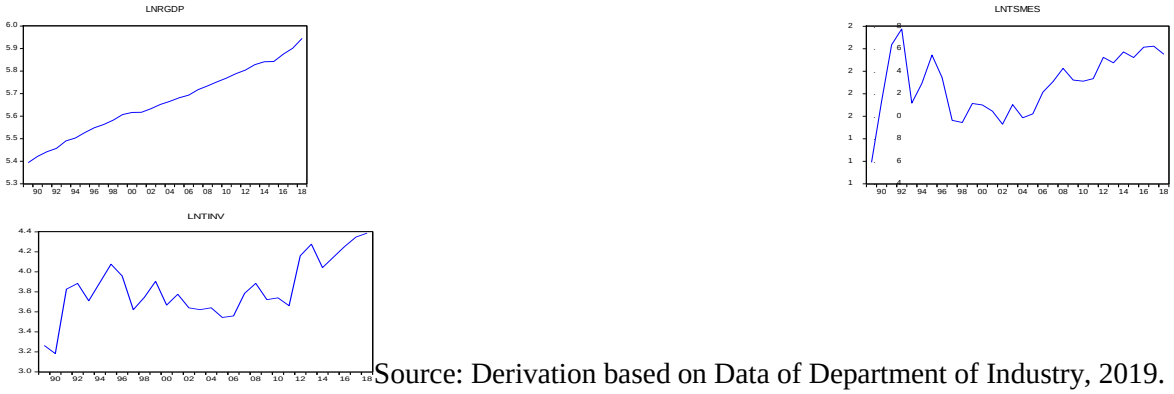
This study examines the dynamic relationship between the real GDP along with total number of SMEs and capital investment for the SMEs over the period of 1989 to 2018.

Correlogram Test of Concerned Variables

A visual plot of the data is usually the first step in the analysis of any time series. So, on the basis of EViews software diagrams of concerned variables are derived. The impressions of these graphs seem to be "trending" upward and downward, albeit with fluctuations.

Figure 1

Visual Plot of Level Data

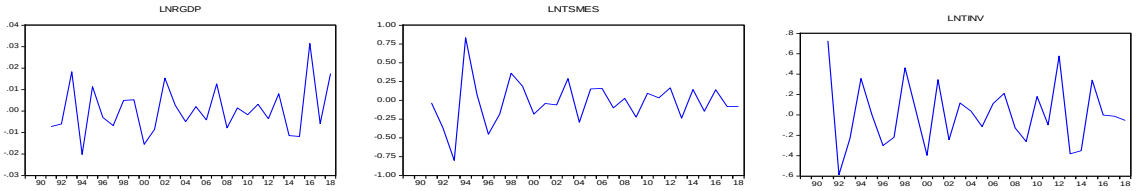


Source: Derivation based on Data of Department of Industry, 2019.

The log values of concerned variables economic growth (i.e., RGDP), total investment in SMEs, and total number of SMEs are termed as LNRGDP, LNTINV and LNTSMES. The derived Path of all-time series variables (Figure 1) have been increasing. It is showing an upward trend, suggesting that the mean of these variables is changing. So, this implies that these series/ variables are not stationary.

Figure 2

Visual Plot of Second Difference of Concerned Variables



Source: Derivation based on Data of Department of Industry, 2019.

One of the tests of stationarity is based on the autocorrelation function (ACF). The ACF at lag k plotted as above, which is known as the population Correlogram. Figure 2 of the ΔLNRGDP (dlRGDP) and other time series over the period of study have been fluctuating and that is not showing a trend, suggesting that the mean of these variables is not changing. So, it suggests that these series are stationary.

Summary Statistics

The summary report of Mean, Median, Standard Deviation, Maximum, Minimum, Skewness, Kurtosis, Jarque-Bera, Probability and Sum of Square of Deviation explains synopsis about the distribution, variability and central tendency of a variable.

Table 1

Summary Statistics

Variables	LNRGDP	LNTSMES	LNTINV
Mean	0.000243	-0.021824	0.004333
Median	-0.000395	-0.037800	-0.006880
Maximum	0.030496	0.833688	0.726705
Minimum	-0.023260	-0.799190	-0.587310
Std. Dev.	0.011314	0.294980	0.314984
Skewness	0.359606	0.166554	0.404090
Kurtosis	3.624077	5.059956	2.653950
Jarque-Bera	1.057862	5.080110	0.901723
Probability	0.589234	0.078862	0.637079
Sum	0.006812	-0.611082	0.121337
Sum Sq. Dev.	0.003456	2.349355	2.678810

Source: Author's Construction by using EViews 9 software.

According to the above Table 1 the mean and median of LNRGDP and LNTINV are almost different. The standard deviations indicate that LNTINV is highly volatile while LNRGDP is less volatile. The largest and lowest values are 0.833688 and -0.023260. The variable shows positive Skewness of all variables indicating the higher probability of

very large positive economic growth. Similarly, the kurtosis shows that it is platykurtic (fat or short tailed) with lower-than-normal kurtosis (that is K>3), which means that there is a higher probability than usual for extreme values (very good or very bad growths) to occur. The combination of these presents the normal distribution of the variable as indicated by the JB test of normality.

Correlation Matrix

The correlation matrix of Table 2 shows that there is strong correlation between the ΔLNRGDP and other variables.

Table 2

Correlation Matrix

Variables	LNRGDP	LNTSMES	LNTINV
LNRGDP	1.000000	0.193934	0.150892
LNTSMES	0.193934	1.000000	0.502423
LNTINV	0.150892	0.502423	1.000000

Note: This table displays the correlation of concerned variables for the sample period 1989 to 2018. The concerned variables ΔLNRGDP, ΔLNTSMES and ΔLNTINV denote second difference of log values of real gross domestic product of Nepal, total SMEs and total investment.

Cointegration

A linear combination of log of Real Gross Domestic Product (LNRGDP) of Nepal, total number of SMEs (LNTSMES) and total investment on SMEs (LNTINV) can be stationary despite being individually non-stationary. Cointegration of two (or more) time series suggests that there is a long-run equilibrium relationship between them (Gujrati, 2003). So, it was employed to examine the dynamic relationship between real economic growth (LNRGDP) and other variables.

Augmented Dickey-Fuller Test

According to ADF results of second difference, absolute calculated value of 'T' is more than absolute value of T at 1%, 5% and 10% in both cases with drift as well as with drift and trend. So, the null Hypothesis is rejected at 1%, 5% and 10%. It implies that there is no Unit Root problem (i.e. they are stationary). Similarly, p-values of second difference are also significant in both cases of intercept as well as trend and intercept. Similarly, for intercept only and both intercept and trend, the ADF test performed on the second differences of the variables, suggests that all variables are integrated of order, I (2). In other

hand, ADF results of level data shows a Unit Root Problems and first difference has mixed results.

Table 3

Augmented Dickey-Fuller Test

For Level Data Variables	Intercept (Tc)		Intercept + Trend (Tct)	
	T-Statistics	P-Values*	T-Statistics	P-Values*
LNRGDP	0.346842	0.9768	-1.637804	0.7525
LNTSMES	-1.554493	0.4902	-3.269218	0.0914
LNTINV	-2.110843	0.2420	-2.627448	0.2718
For First Difference				
LNRGDP	-4.109396	0.0036	-3.978786	0.0216
LNTSMES	-1.812591	0.3660	-2.162687	0.4884
LNTINV	-6.819941	0.0000	-3.011839	0.1488
For Second Difference				
LNRGDP	-8.099297	0.0000	-8.258104	0.0000
LNTSMES	-12.77081	0.0000	-4.431923	0.0092
LNTINV	-5.271750	0.0003	-5.370593	0.0012

*MacKinnon (1996) one-sided p-values.

Test critical values: For 1% level (-3.699871), 5% level (-2.976263) and 10% level (-2.627420).

Source: Author's ADF test for the sample period 1989 to 2018 & Significant at the 1- percent level.

Vector Autoregression (VAR)

Vector Autoregressive (VAR) model allows the feedback or reverse causality among the dependent and independent variables using their own past values. In the general VAR model, no exogenous variables require as it assumes all the variables endogenous.

Table 4

Vector Autoregression Estimates

Standard Errors in ( ) & T-Statistics in [ ]			
	LNRGDP	LNTSMES	LNTINV
LNRGDP(-1)	-0.612477	-5.476631	-6.331014
	(0.16474)	(5.26085)	(4.21154)
	[-3.71778]	[-1.04102]	[-1.50325]
LNRGDP(-2)	-0.743644	1.164819	0.113545
	(0.18638)	(5.95183)	(4.76471)
	[-3.98992]	[0.19571]	[0.02383]
LNTSMES(-1)	-0.005672	-0.375908	0.314547
	(0.00741)	(0.23671)	(0.18950)
	[-0.76514]	[-1.58803]	[1.65988]
LNTSMES(-2)	0.003767	-0.353443	0.000326
	(0.00689)	(0.22008)	(0.17618)
	[0.54657]	[-1.60600]	[0.00185]
LNTINV(-1)	-0.000605	0.140607	-0.712743
	(0.00821)	(0.26218)	(0.20989)
	[-0.07364]	[0.53630]	[-3.39585]
LNTINV(-2)	0.010658	-0.311687	-0.667669
	(0.00714)	(0.22787)	(0.18242)
	[1.49352]	[-1.36781]	[-3.66001]
C	-0.000130	-0.014112	-0.003402
	(0.00159)	(0.05073)	(0.04061)
	[-0.08172]	[-0.27819]	[-0.08379]
R-squared	0.631044	0.439519	0.557178
Adj. R-squared	0.514531	0.262525	0.417340
Sum sq. resids	0.001224	1.248089	0.799865
S.E. equation	0.008026	0.256298	0.205178
F-statistic	5.416098	2.483242	3.984440
Log likelihood	92.63714	2.581881	8.365915
Akaike AIC	-6.587472	0.339855	-0.105070
Schwarz SC	-6.248754	0.678574	0.233648
Mean dependent	0.000346	-0.008165	-0.000695
S.D. dependent	0.011519	0.298450	0.268797
Determinant resid covariance (dof adj.)	8.66E-08	Log likelihood	112.9579
Determinant resid covariance	3.38E-08	Schwarz criterion	-6.057533
Akaike information criterion	-7.073688		

Source: Author's Construction by using EViews 9 software.

*Significant at the 1-percent level

According to above mentioned Table 4 VAR estimates do not present the p-values for testing the corresponding parameters (in Eviews). So, on the basis of T-Statistics, the study is determined whether or not a lagged variable has a significant adjusted effect on the corresponding dependent variable. Both first- and second-year lag change in LNRGDP is significant. Similarly, first- and second-year lag change in LNTSMES and LNTINV are insignificant and positively affects to the real GDP in a first lagged while

inversely affects to the real GDP in a second lagged. It means universally SMEs and their output have significant impact on economic growth due to easy access of resource utilization even in their own localities.

Residual Autocorrelation Test

Residual LM test has been presented on the above VAR estimation to examine if there is any serial correlation in residuals. Generally, existence of serial correlation violates the OLS assumption. Here, Table 5 presents the VAR residual serial correlation LM tests. The LM –statistics cannot reject the null hypothesis of no serial correlation up to lag lengths of six. Hence, the model satisfies the OLS assumptions.

Table 5

VAR Residual Serial Correlation LM Tests

Null Hypothesis: no serial correlation at lag order 6		
Lags	LM-Stat	Prob
1	28.12309	0.0009
2	24.60512	0.0034
3	14.48589	0.1061
4	8.131855	0.5209
5	11.10182	0.2688
6	4.765191	0.8543

Probs from chi-square with 9 df.

Source: Author's Construction by using EViews 9 software.

Johansen Test for Cointegration

Engle and Granger (1987) determined that a linear combination of two (or more) non-stationary time series may be stationary and suggests that there is a long-run equilibrium relationship between them if they are co-integrated. Therefore, linear combination of real GDP, total SMEs and total investment time series can be stationary despite being individually non-stationary. So, it was employed to examine the dynamic relationship between these three variables. For this study, the Johansen (1991) Cointegration test is used by using EViews 9 software since it has been shown to have good finite model.

Table 6

Johansen Test for Cointegration

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.901082	118.1472	29.79707	0.0000
At most 1 *	0.706615	57.99708	15.49471	0.0000
At most 2 *	0.633731	26.11408	3.841466	0.0000

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.901082	60.15012	21.13162	0.0000
At most 1 *	0.706615	31.88300	14.26460	0.0000
At most 2 *	0.633731	26.11408	3.841466	0.0000

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Author's Construction by using EViews 9 software.

Above mentioned Table 6 shows that the critical values of both trace and maximum Eigenvalue tests reject the null hypothesis of no cointegrating relation at 5% level of significance. MacKinnon p-values of both tests are significant. Similarly, both trace and maximum Eigenvalue tests indicate 3 cointegrating equations at 5% level. Therefore, the long-run equilibrium relationship between RGDP, total SMEs and total investment time series can be established despite being individually non-stationary. However, according to ADF test, they all are stationary at second difference (at Table 3).

Granger Causality Tests

Granger causality is a way to investigate causality between two variables in a time series. It is closely related to the idea of cause and effect, although it is not exactly the same. A variable X is causal to variable Y if X is the cause of Y or Y is the cause of X.

Table 7

Pair Wise Granger Causality Tests

Null Hypothesis:	F-Statistic	Prob.
LNTSMES does not Granger Cause LNRGDP	0.63831	0.4322
LNRGDP does not Granger Cause LNTSMES	0.20902	0.6516
LNTINV does not Granger Cause LNRGDP	1.38061	0.2515
LNRGDP does not Granger Cause LNTINV	0.06179	0.8058
LNTINV does not Granger Cause LNTSMES	0.16641	0.6869
LNTSMES does not Granger Cause LNTINV	0.57254	0.4566

Source: Author's Construction by using EViews 9 software.

Above mentioned Table 7 shows that the main results obtained from the Pair wise Granger-causality analysis where six pairs of variables are considered as economic indicators. According to results there is no causality existing between RGDP, Total Investment and Total SMEs.

The Model

A linear combination of real GDP of Nepal, Total Investment and Total SMEs of Nepal, that generates in study period time series can be stationary (in the face of being individually stationary mentioned in above ADF test). For this purpose, EG test is used to test for cointegration. Cointegration of two (or more) time series suggests that there is a long-run equilibrium relationship between them. So, it was employed to examine the dynamic relationship between these variables. The following steps were followed in this regard:

$$LNRGDP = 4.296531 - 0.062779LNTSMES + 0.396239LNTINV + 0.130005$$

P-values $(0.0000)^{*}$ (0.6435) $(0.0041)^{*}$

*Significant at the 1-percent level and

Table 8

Regression Statistics

R-squared	0.403184	Mean dependent var	5.671345
Adjusted R-squared	0.358976	S.D. dependent var	0.162377
S.E. of regression	0.130005	Akaike info criterion	-1.147842
Sum squared resid	0.456338	Schwarz criterion	-1.007722
Log likelihood	20.21762	Hannan-Quinn criter.	-1.103016
F-statistic	9.120052	Durbin-Watson stat	0.338914
Prob(F-statistic)	0.000942		

Source: Author's Construction by using EViSews 9 software.

Here, overall model is significant as Prob. (F-Statistic) is equal to 0.000942. However, 40.32 % of total variation is explained by the model. Similarly, Standard Error of Estimate Regression (SEE) i.e., 0.130005 is lower than Standard Deviation of dependent variable i.e., 0.162377, implies that less errors in above computed coefficients. Thus, the estimates of the model are reliable and should be taken with confidence.

The above estimated cointegration relationship of OLS equation shows that total investment has significant and direct relationship with the real GDP while total SMEs has insignificant and inverse relationship with real GDP. So, this finding implies that industrial policy of Nepal has positive impact on real GDP and the positive relationship causes increase in total investment increases real GDP and thereby increases economic growth of Nepal. On the contrary, industrial policy of Nepal has no effective impact on real GDP through number of SMEs causes increase in SMEs decreases real GDP. It means increase in SMEs causes inflation (Generally, they are not based on domestic raw materials) and effect real income.

Discussion

On the basis of regression analysis of 30 year's observations, there is significant and direct relationship in between total investment on SMEs and real GDP of Nepal. The value of the coefficient (β_2) total investment is 0.4, which shows that, a change in the total investment leads to change in real GDP by 0.4. Similarly, there is insignificant and inverse relationship in between total SMEs and real GDP of Nepal. The value of the coefficient (β_1) total SMEs is 0.063, which shows that, a change in the total SMEs leads to change in real GDP by 0.063.

The results of t-statistics and p-value are also significant, which shows that results of coefficient is to be accept with 99 % degree of confidence. R-square (R^2) = 0.40, there is strong correlation exists between dependent variable (Real GDP) and its explanatory variables (Total Investment and Total Number of SMEs). The value of R^2 indicates that 40% variation in dependent variable has been explained by variation in independent variables.

Accordingly, the LM –test implies that no serial correlation up to lag lengths of six and VAR estimates implies that LNTSMES and LNTINV are insignificant and

positively affects to the real GDP. However, the Johansen cointegration test both trace and maximum Eigenvalue indicate 3 cointegrating equations at 5% level. Therefore, the long-run equilibrium relationship exists between RGDP, total SMEs and total investment. Accordingly, the results there are no causality existing between RGDP, Total Investment and Total SMEs.

This study is based on only the relationship between real GDP and total investment as well as number of SMEs, and does not include other control variables. So, there is space for further study by including other control variables.

The outcome of the study benefits both the investors and the regulators of SMEs. For the investors, the study helps in predicting the SMEs and their contribution on economic growth from key economic analysis. On the other hand, the regulators of the SMEs (for instance Department of Industry, Ministry of Industry and Finance along with Nepal Rastra Bank) are able to assess the implication of different key elements for the development of the SMEs and thereby able to formulate correct policy relating to the SMEs. Furthermore, general investors became aware of economic fundamentals impact on the SMEs and thereby help in reducing the external activity and non-rational behavior on the SMEs.

Conclusion

This study examines the relationship among the total SMEs and the total investment real domestic activity (real gross domestic product) for the Nepalese economy. The existence of such a relationship is however be consistent with the model/process are being used by the World Bank. SMEs in Nepal play a significant role in an economic prosperity of the country because of it stimulate private ownership and entrepreneurial skills along with broad based sources of growth and employment. At the same time, it is also acting as incubators for developing domestic enterprises into large corporations. However, SMEs contribution to the Nepalese economy is still relatively small. In recognition of this, the Nepal government put priority to develop SMEs sectors.

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Perceived Effect of Merger on Employee Satisfaction on Nepalese Commercial Banks

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Abstract

The objective of this paper is to examine the perceived effect of merger on employee satisfaction of Nepalese commercial banks. Descriptive and casual comparative research design are used to estimate the relationship of employee satisfaction (dependent variable) with independent variables (pay remuneration, belonging, chain of command, training and development, employee performance, job security). Data are collected from 350 respondents of Kathmandu valley through structured questionnaires and descriptive and inferential statistics are used to analyse the data. The beta coefficients of pay remuneration, belonging, chain of command, training and development, employee performance and job security are positive and significant. According to respondents, increased size of the banks is the most important fact and improve employees' satisfaction is the least important fact to merge of Nepalese banks. Similarly, most of the respondents' states "change management of banks" is the major challenge of merged banks and "increased profitability of bank" is the least important challenge. It is observed that employees of banks ranked highest for belonging as the most important factor affecting their satisfaction of merged banks and it is also found that conceptualization of effect of merger and acquisition in Nepal is in the progressive stage and few institutions have been merged and are taking initiations on the broad aspects of employee satisfaction during merger as practices in developed countries.

*Keywords***:** employee satisfaction, pay remuneration, belonging, chain of command, training and development, employee performance, job security

Introduction

Employee satisfaction, a most important component to retain qualified employees in organization, has been one of the researchable issues for practitioners and researchers

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for last many decades. Prior research has linked employee satisfaction with different predictors. Among them, effect of merger and acquisition that is essential to beat the competition in modern business age is one of the important predictors. Merger has become more popular through past decades, however, because of several factors, they are not always successful. Among them a reason might be that employees leave the organization and are not satisfied with the organization; therefore, human resources issue is important in merger and acquisition activity throughout the world (Schuler & Jackson, 2001; Sanda & Adjei-Benin, 2011). According to Tak Ng *et al.* (2019) employees that have left after being acquired are more likely to report experiencing of non-merged banks and that this influences their decision to leave. Further, in the merger context male employees, front line employees and officer level employees have different leaving decisions path from their female, back-office, and non-officer level counterparts respectively. No such differences are found in the non-merger context.

The human capital theory, reveals that the mergers and acquisitions lead to improvement in the firm performance and plant productivity and also appear to enhance the careers of workers because they provide a mechanism for improving the sorting and matching or workers and managers to firms and industries that best suits their skills (Adembesa, 2014). However, Veen (2013) argued that due to merger and acquisition employees' skills are not matched with their work because a reason may be that supervisors are occupied dealing with the merger and acquisition, leaving to neglect their employees. Similarly, Roudy (2010) stated that organizations waiting to improve the organizational commitment of their employees should pay greater attention of understanding and developing a narrative of the merger and acquisition. Employees' satisfaction could be enhanced by instituting effective two-way communication system and using participatory approaches in job redesign processes (Sanda & Adjei-Benin, 2011).

According to Joshi and Goyal (2012) merger and acquisition is an inevitable part of banks, as it is a law of nature that small entity is supposedly merged into larger entity and many factors such as uncertainty, insecurity, fears concerning job loss, job changes, compensation, changes in power, status, prestige, workload, working hours, technological problem at work, inadequate salary, communication cause stress among employees.

Kiviuti (2013) found pay and remuneration, sense of ownership, performance of the employee and chain of command are the major indicators that affect employee satisfaction on merger and acquisition. Similarly, Kareem (2014) revealed merger and acquisition have negative impact on employee development in banking industry in contrast, the bank employees were satisfied as a result of merger and acquisition process and increase in job satisfaction level of employees increases the financial performance of commercial banks (Aliyu, 2013; Bhandari, 2014; Adhikari, 2014; Suluja *et al*. 2012; Khatri 2013). Likewise, Gautam, (2016) suggested bank and financial institutions should think involving their employees in the merger and acquisition process and positively address human resources issues during merger and acquisition process.

The Nepalese financial sector is presently facing huge problem and is in critical juncture. Therefore, Nepal Rastra Bank, central bank of Nepal, has directed the banking institutions to go in the process of merger and acquisitions to cope with this problem. Employee satisfaction is major issue on merger and acquisition. Therefore, the research on perceived effect of merger on employee satisfaction is of greater importance. Moreover, research has been done concerning this issue in western context; however, there are very few research has been done in the context of Nepal. Hence, this paper attempts to examine linkage between perceived effect of merger and employee satisfaction of Nepalese commercial banks. The remainder part of this study is organized as follows. The section two is concerned with hypotheses. Similarly, section threedeals research methodology; section four is concerned with results and discussions and finally section five concludes the paper.

Research Hypotheses

This paper has set the following alternatives hypotheses:

H_1: There is a positive and significant relationship between merger and pay remuneration.

H_2: There is a positive and significant relationship between merger and belonging.

H_3: There is a positive and significant relationship between merger and chain of command.

H_4: There is a positive and significant relationship between merger and training and development.

H_5: There is a positive and significant relationship between merger and employee's performance.

H_6: There is a positive and significant relationship between merger and job security.

Methods

This paper has used descriptive research design to deal with the fundamental issues associated with employees due to merger of banks and has also used casual comparative research design to examine the relationship between merge and employee satisfaction. Data are collected through structured questionnaire and the questionnaire is divided into three sections where first section is related to basic information of the respondents; second section is concerned with ranking questions and third section is related with five-point Likert type questions about the quality variables that affect employee's satisfaction which scale ranges from 1 (Strongly agree) to 5 (Strongly disagree). Multiple regression model is used in this paper that is presented as:

$$PE = \alpha + \beta_1 PR + \beta_2 B + \beta_3 JS + \beta_4 CC + \beta_5 EP + \beta_6 TD + \varepsilon$$

Where, PE= Perceived effect on employees satisfaction, PR= Pay remuneration, B = Belonging, JS = Job security, CC= Chain of command, EP= Employee performance, TD= Training and development, α= Intercept, ε= error term, β_1, β_2, β_3, β_4,β_5 and $\beta_6$are the beta coefficients of the explanatory variables to be estimated.

Data Analysis and Discussions

Responses Related to Ranking Questions

While asking respondents (employees of merged banks) about the reasons to merge the banks, it is found that the most important fact to merge (out of six reasons) is "increased size of the banks" with mean score of 2.94 followed by "forced by Nepal Rastra Bank" with mean score of 3.08. Similarly, the third important reason is "improve service and products of banks" having mean score 3.22 and "improve management" has been ranked fourth fact with mean sore of 3.59. Additionally, "increase profitability of the bank" is in fifth position with

mean score of 3.92 and “improve employees’ satisfaction” is in last position with mean score of 4.41.

Major Challenges of Merged Banks

Regarding the question about major challenges of merged banks most of the respondents’ states “change management of banks” with mean score of 2.47is the most important reason (out of five reasons) followed by “employee retention and selection” with mean score of 2.89 and “competitive and strong bank” is in third rank with mean score of 3.45. Similarly, “increased growth rate” and “increased profitability of bank” are in fourth and fifth ranks with mean score of 3.71 and 4.27 respectively.

Major Problems of Merger in Nepal

For question about important problems for merger in Nepalese banks, “fear of job loss” is the most important fact with mean score of 2.19 followed by “work related stress” with mean score 2.92. The third important problem for merger is “work load increase” with mean value of 3.22. Similarly, “communication with co-workers” has been ranked fourth with mean score of 3.63 and “pay remuneration worsens” in fifth rank with mean score of 3.92.

Major factors that employees should look forward when banks merge

The issues regarding the factors that employee look forward when bank merge was asked to rank to the respondents. For this, “focus on training” is the most important reason with mean score of 2.53. Similarly, “increase in salary and remuneration” is the second important reason with mean score of 2.91 and respondents have ranked third for “improve working conditions” with mean score of 3.11. Likewise, mean score for “promotion opportunities” and “prepare employee for customer shift” are 3.45 and 3.73 respectively and are ranked as fourth and fifth factors.

Major Importance of Merger

Regarding the issue of importance of merged banks respondents have ranked first for “gain higher competitiveness” with mean score of 2.62 and second rank for “to improve profitability” with mean value of 2.83. With mean sore of 3.02 “more opportunity for growth” is in third important factor. Similarly, “enter new market” and

"achieve administrative management" are in fourth and fifth rank having mean score of 3.33 and 3.67 respectively.

Descriptive Statistics

The mean value of pay remuneration of employees ranges minimum value of 2.75 to maximum value of 3.10 and weighted average is 2.98 that indicates effect of merger on employees' satisfaction has been executed properly and more focus is to increase the level of satisfaction through enhancing the pay remuneration of employees. Similarly, the mean value of belongings ranges from minimum value of 2.22 to maximum value of 2.72 and weighted average is 2.55 that reveals effect of merger on employees' satisfaction has appropriately executed and is focus to increase employee satisfaction level through enhancing the belonging or ownership of employees. Likewise, the mean value of job security of employees of merged banks ranges from minimum value of 2.20 to maximum value of 3.25 and weighted average is 2.85 which states effect of merger on employee's satisfaction has properly executed is more focused on increasing employee satisfaction level through enhancing the job security of employees.

Similarly, the mean value of chain of command ranges from minimum value of 2.41 to maximum value of 2.85 and weighted average is 2.71 which shows that effect of merger on employees' satisfaction of merged banks has been executed properly and is focused to increase the level of satisfaction through enhancing the chain of command. Additionally, the mean value of employees' performance of merged banks ranges from minimum value of 2.62 to maximum value of 3.18 and weighted average is 2.84 that means effect of merger on employees' satisfaction of banks has been executed properly and is more focused on increasing employee satisfaction level through enhancing the employee performance of employees. Furthermore, the mean value of training and development ranges from minimum value of 2.76 to maximum value of 3.43 and weighted average is 3.01 that exhibits effect of merger on employees' satisfaction of banks has been executed properly and focuses to increase employee's satisfaction level through enhancing training and development of employees. Moreover, the mean value of employees' satisfaction ranges from minimum value of 2.68 to maximum value of 2.92

and the weighted average is 2.81 that indicates effect of merger on employees' satisfaction of banks has been executed properly.

Correlation Analysis

Table 1

Pearson's Correlation Matrix

	Mean	Std. Deviation	PR	B	JS	CC	EP	TD	
PR	2.98	0.89	1						
B	2.55	0.81	0.458	1					
JS	2.85	0.59	0.471	0.651	1				
CC	2.71	0.62	0.342	0.681	0.639	1			
EP	2.84	0.79	0.608	0.630	0.591	0.502	1		
TD	3.01	0.89	0.549	0.481	0.601	0.387	0.668	1	
ES	2.81	0.76	0.668	0.642	0.671	0.522	0.659	0.709	

Note. This table shows correlation coefficient between perceived effect of merger on employees and different dimensions (pay remuneration, belongings or ownership, job security, chain of command employee performance and training and development) of perceived effect of merger on the employees

The results show employees satisfaction of merged banks is positively correlated with all independent variables that means higher the pay remuneration in merged banks, higher would be employees satisfaction; more the employees are dedicated to the organization, higher would be employees satisfaction; higher the job security, higher would be employees satisfaction; higher level of training, higher would be employees satisfaction; strong the chain of command, higher would be employees satisfaction; and higher the level of satisfaction higher would be employees performance.

Regression Analysis

Table 2

Regression Result

Model	Constant	PR	B	JS	CC	EP	TD	Adj R^2	S .E. E.	F
1	1.169***	0.57***						0.397	0.56405	80.302
	(6.04)	(8.87)								
2	1.311***		0.60***					0.376	0.57988	68.71
	(6.76)		(8.312)							
3	0.542**			0.82***				0.461	0.56116	82.777
	(2.12)			(9.123)						
4	1.143***				0.61***			0.304	0.64917	37.42
	(3.91)				(0.015)					
5	1.114***					0.623***		0.386	0.56811	76.435
	(5.43)					(8.805)				
6	1.072***						0.594***	0.498	0.53417	100.415
	(5.88)						(12.34)			
7	0.652***	0.40***	0.40***					0.64	0.48905	69.374
	(3.44)	(6.518)	(5.803)							
8	0.155	0.34***	0.23***	0.399***				0.704	0.45718	59.314
	(0.71)	(.5711)	(3.102)	(4.117)						
9	0.131	0.34***	0.22***	0.39***	.022			0.588	0.45917	44.358
	(0.59)	(5.703)	(2.611)	(3.603)	(0.167)					
10	0.111	0.29***	0.19**	0.36***	0.009	0.154		0.712	0.45312	34.243
	(0.48)	(4.502)	(1.997)	(3.196)	(0.92)	(1.725)				
11	0.68	0.25***	0.20***	0.23**	0.044	0.015	0.268***	0.703	0.42514	37.124
	(0.303)	(3.875)	(2.312)	(2.117)	(0.391)	(0.172)	(3.911)			

i) * * *denotes that the results are significant at 1% level of significance.

ii) * * denotes that the results are significant at 5% level of significance.

The beta coefficients of all independent variables are positive and significant which reveals that higher the pay remuneration, higher would be the employee satisfaction of merged banks; higher the belonging, higher would be the employee

satisfaction; higher the job security, higher would be the employee satisfaction; higher the chain of command, higher would be the employee satisfaction; higher the employee performance, higher would be the employee satisfaction; higher the training and development, higher would be the employee satisfaction level of merged banks.

Conclusion

It is found that employees of merged banks ranked highest for belongings as the most important factor affecting their satisfaction of merged banks. It is concluded that the pay remuneration, belonging, job security, employee performance, chain of command, training and development have positive and significant relationship with employee satisfaction in the merged banks. This study also reveals that in recent years, the conceptualization of effect of merger and acquisition in Nepal is in increasing stage and few institutions have been merged and are taking initiations on the broad aspects of employee satisfaction during merger as practices in developed countries.

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National Microfinance Policy of Nepal: Perspectives on Women Empowerment

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Abstract

This paper attempts to analyze the National Microfinance Policy of Nepal from women empowerment perspectives. It is the fact that there are no policies prepared exclusively focusing on women empowerment. However, this paper analyzes the National Microfinance Policy 2008 A.D. by exploring its implications and effects. The Policy is discussed as a part of microfinance development in favor of women entrepreneurship. Moreover, the problems and the issues have been generalized as the present issues are delaying the development of the microfinance sector to develop the nation. Furthermore, the need of microfinance policy is elaborated in the existing situation of policy preparation and updating them from government and other stakeholders' sectors. Finally, vision and long-term goal have intended the level of people in microfinance after this policy was applied.

Keywords: microfinance, women, empowerment, development, poverty

Introduction

Nepali women are born into a patriarchal society. In all cases women's rights are subordinate to those of men. Women are a voiceless section of society who depend on men for their welfare and bearing the continued weight of cultural and social discrimination and violence against them. If a woman does not feel safe within a society, then she cannot be empowered within it. The threat of violence towards women is a pervasive and unmanaged threat in the Nepalese society.

Empowerment is reflected in a person's capacity set. The capacity of a person depends on a variety of factors, including personal characteristics and social arrangements. Empowerment is defined and measured in various dimensions, impact on decision-making on self-confidence. Empowerment is related to the process of internal change and to the capacity and right to make decisions. It consists of change, choice and power.

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The focus on women's empowerment in the context of microfinance brings to light the significance of gender relations in policy development circles more prominently than ever before. The social problems of women are due to gender stereotypes and roles that put women under enormous pressure. These gender roles have their roots in Nepal. As women can hardly participate in politics, their needs are often ignored. Another view of women's empowerment argues that it needs to occur in multiple dimensions: economic, socio-cultural, interpersonal, legal, political and psychological. These dimensions cover a broad range of factors, and thus women may be empowered within one of these sub-domains. For instance, the socio-cultural dimension covers a range of empowerment sub-domains, such as marriage system norms regarding women's physical mobility, non-familial social support systems and networks available to women.

Microfinance for the poor and women has received extensive recognition as a strategy for poverty reduction, and for women's economic empowerment. Gender equality turns out to be good for everybody. Microfinance is emerging as a powerful instrument for poverty alleviation in the economy. Therefore, it is an important tool for economic development in developing countries, and it is especially impactful for women empowerment. Microfinance is a kind of financial services targeting individuals and small businesses who lack access to conventional banking and related services. Microfinance services are designed to reach excluded customers, usually poorer population segments, possibly socially marginalized and to help them become self-sufficient. Microfinance plays an important role in fighting the multi-dimensional aspects of poverty. It is an innovation for developing countries. Microfinance provides self-employment opportunities for poor people who are unemployed, entrepreneurs and farmers who are not bankable because of the lack of collateral, very low level of income. It has successfully empowered the poor people to start their own business generating income and often beginning to build up wealth. It has the capacity to enhance the socio-economic development of the vulnerable and marginalized people, especially women in the community.

Microfinance is a simple but an effective credit tool that enables the poorest to pull themselves out of poverty. It involves advancing small loans to the working poor. These loans are usually less than $200 and made by local organizations called

microfinance institutions (MFIs). Microfinance helps the working poor to establish or expand small businesses that generate additional income for the family consumption. This extra income allows a poor family to buy food, access to healthcare, educate their children, put aside savings and lay the foundation for a better future. It is one of the best alternatives to generate self-employment. It provides services to the communities who have no collateral to offer against the loans they take but have indigenous skills and strong desire to undertake economic activities for self-employment and income generation (Shrestha, 2009).

Microfinance is a development tool that grants or provides financial services and products such as very small loans, savings, micro leasing, micro-insurance and money transfer to assist the very or exceptionally poor in expanding or establishing their businesses. Its activities help to mobilize rural savings and have simple and straightforward procedures that originate from local cultures and population easily understand (Germinis, 1991).

The lack of financial power is a contributing factor to the most of the societal problems. These problems derive from poverty and it is clear that with poverty one is bound to suffer so many significances ranging from lack of good health care system, education and nutrition. They target the poor who are in risk but the repayment rate turns to be positive as related with the regular commercial banks (Sharma, 1998).

In the present context, Muhammad Yunus is the founder of Grameen Bank microfinance. Yunus was awarded the Nobel Peace Prize for his efforts to reduce poverty in Bangladesh. Sengupta& Aubuchon (2008) stated that by allowing small loans to the extremely poor, the Grameen Bank offers these recipients, the chance to become businesspersons or owners and earn sufficiently high income to break themselves free from the cycle of poverty. Sengupta and Aubuchon further write on microfinance revolution as Yunus's pioneering efforts have brought renewed attention to the field of microfinance as a tool to eliminate poverty; and, since 1976 when he first lent $27 to 42 stool makers; the Grameen Bank has gr own to include more than 5.5 million members with greater than $5.2 billion in dispersed loans. As microfinance institutions continue to grow and expand, in both the developing and developed world, social activists and financial investors identical have begun to take notice. In this article, we seek to explain

the rise in microfinance since its inception in the early 1980s and the various mechanisms that make microfinance an effective tool in reducing poverty. We also address the current problems facing microfinance and areas for future growth.

Pitt, Khandker and Cartwright (2003) discovered that women's involvement in microfinance led to a greater role in household decision-making; gaining more access to financial and pecuniary resources; having improved social networks; having more freedom of movement; and increasing their bargaining power in the household. For instance, in a study of the Grameen Bank in Bangladesh, Khandker (2003) estimated that microfinance underwrites household ingestion at the rate of 18% for lending to females and 11% in the case of male borrowing. Women have been observed to spend more of their revenue on their ménages: women were more likely than men to spend their proceeds on household and family needs.

In the Philippines, Ashraf, Karlan and Yin (2009) used randomized controlled trials in a study that examined whether access to individually held commitment savings empowered women. The study found that access to goal setting and savings resulted in a significant increase in empowerment for women. It is noteworthy that employing microfinance for ensuring gender equity has not been largely successful mainly because microfinance rarely challenges the socially embedded and seemingly inflexible structures that maintain gender inequity.

In Nepal, microfinance practices have been used in different terms. Nowadays, the term microfinance is broadly used and generally relates to financing the poorest sectors. Microfinance programs are established and promoted in Nepal with diversified methods and modalities. Some of the successful operated models as follows: Grameen banking model, deprived sector lending model, rural self-reliance fund (rsrf) model, small farmer cooperative model, financial non-government organization (FINGOs) model, saving and credit cooperative (SACCOs) model, project-based microcredit model, wholesale lending model (NRB, 2013).

However, it does not mean that the national policy does not help to advance women’s empowerment. There are provisions that are relevant for women’s empowerment and they need to be recognized and discussed. Like other developing countries, Nepal has “The National Microfinance Policy” to promote and mobilize

microfinance but this policy does not directly address the critical issues of women's empowerment through microfinance. This paper analyzes the National Microfinance Policy in order to assess its potential for women's empowerment. It does this to show directions for more explicit and substantively providing guidelines by future updates of the policy.

Method

The study is based on the textual analysis. Being non-technical, this study is basically descriptive and analytical in nature and provisions formulated in microfinance policy perspectives on women empowerment. Various articles, books and microfinance policy related other information have also been accessed for developing this article. Secondary data is used, drawn primarily from Nepal Rastra Bank (NRB), microfinance promotion and supervision department. Thus, the library method is used in this study.

Finding and Discussions

Poverty constitutes the main challenge and problem of Nepal's economic development. According to *Nepal Living Standard Survey* (2003/04), the percentage of absolute poverty ratio is 30.8 percent. Therefore, poverty is a major problem of the country and its ratio should be reduced. Long-term policy is needed for the reduction of destitute. As a huge section of the country's population is in a state of destitution, the need has been clearly felt for helping through microfinance the efforts to achieve the national objective of gradually reducing the country's destitution by promoting capital formation and generating self-confidence among the people belonging to destitution class.

For the economic development, it has been deemed essential to make arrangements at the national level for coordination, facilitation, promotion, standard determination, regulation and monitoring operations in order to bring about a harmony between the growing demand for financial resources at the local level and the supply of micro-financial services through various institutional arrangements and to institutionally extend the microfinance sector and raise the access of the destitute class to it.

Fulfillment of demand for financial services in the rural areas, the financial services remain inadequate in the present difficult situation, the extension of the micro-financial services constitutes the only reliable and universally accessible means to arrange for

institutional credit in the rural areas and raise the access of the destitute class to that credit and the existing organizational structures and legal provisions do not appear to be adequate. Therefore, the government of Nepal has formulated the national microfinance policy in 2008.

Need for and Justification of the National Microfinance Policy

In Nepal, institutional financial services have not yet been able to reach the local level and the destitute families on an extensive scale and in a coordinated manner. According to the latest rural credit survey report, 1992, only 20 percent of the total credit demand is being met from the institutional sector. According to the study conducted by the Asian Development Bank, the annual shortfall in meeting the demand for the supply of rural credit in Nepal amounts to Rs 13 billion. This has shown that compared to the demand, the supply system in the rural areas has not yet been good. The total removal of the priority sector program from commercial banks has begun to have a direct impact on the system of supplying credit to the rural areas. As a result of the state of internal conflict prevailing in the country, the services to be provided by credit suppliers, especially the commercial banks, are being diverted from the rural areas and getting confined to the (district) headquarters. As a result, the gulf between the demand and the supply of financial services in those areas is further widening. However, as it has been proved that various credit programs operated by targeting at the marginal and destitute class, such as the priority sector and destitute class credit programs and the financial services of some governmental and private sector micro-financial institutions that have adopted the rural banking system, can help raise the socio-economic standards of the destitute class, it is beyond doubt that the various micro-financial institutions and other stakeholder-institutions working for the alleviation of poverty in Nepal can be operated more effectively if such programs are operated in the future in a more integrated and coordinated manner.

In the context of the declaration made by the United Nations Organization to observe the year 2005 as "Institutional Microfinance Year", the formulation of a national microfinance policy in Nepal appears to be a timely step. Microfinance has appeared to be an important and effective means to fulfill the objective of alleviating poverty, which constitutes the main agenda of the country's economic development. Accordingly, it is also the need of the hour to create an atmosphere favorable for the development of microfinance as an auxiliary means to alleviate poverty, rather than as a form of commercial banking.

The very idea of providing capital and financial security in an easy manner to the socially and economically backward and destitute families of the remote geographic areas and such enlightened entrepreneurs and skilled persons who are eager to do something even with a small capital, and giving continuity to this process, has in itself become important. The situation at present is such that we are not being able to properly mobilize the savings of the community organizations spontaneously formed at the local level and to give an institutional form to the process of formation of economic capital. Besides, we have not been able to implement the microfinance program in a flexible manner by taking into account the national diversities and geographical and social conditions. In view of this, this policy has been formulated in such a manner as to prove helpful in creating opportunities for properly developing the entrepreneurial capacity of the destitute families and thus making them part of the mainstream of national development, and bringing the micro-finance services within the purview of a single law by making things easy for and coordinating and systematizing the work of both the suppliers and the receivers of the services.

The National Microfinance Policy 2008 A.D has emphasized the importance in sustainable economic development of Nepalese society through the microfinance model which is reviewed as follows:

Definition of Microfinance

The term "microfinance" means the financial business of providing institutional financial services to the destitute and low-income families desirous of operating self-employment enterprises. The financial business of this type covers micro-credit, micro-insurance and small remittance payment systems. The term includes financial services of supplying small credits, providing unsecured financial services in a quick and efficient manner against collective guarantees and repaying installments in a simple manner aiming at increasing access to financial services by extensively covering the destitute class and areas which currently remain deprived of micro-financial services.

Scope of Operations

The national policy relating to microfinance will help to provide flexibility to activities relating to micro-savings, micro-credit, micro-insurance and money transfers

according to the circumstances, locations and times and in such a manner as to cover the geographical and socio-economic diversities of the Kingdom of Nepal. This policy will also help to provide a legal basis to both the suppliers and the receivers of services to work together on the basis of mutual understanding and coordination.

Vision

The strengthened, simple and accessible microfinance system for sustainable and poverty reduction of the nation is the vision of the policy.

Objectives

The National Microfinance Policy 2008, has fixed the following goals with the main objective of helping on a sustainable basis in the task of alleviating poverty through micro-financial services.

(i) To help in the formulation of necessary laws and rules relating to microfinance.

(ii) To extensively operate small-scale income and employment generation programs with a view to increasing the access of destitute and economically weak families and women to such micro-financial services as savings, credit, insurance and money transfers.

(iii) To make the micro-credit supply system easily accessible through micro-financial institutions.

(iv) To bring within the folds of appropriate laws and regulations such organizations as have been spontaneously formed at the local level, as well as cooperatives and non-governmental organizations, and help them to develop the capacity needed to be established in a sustainable and self-efficient manner.

(v) To help in the development of capacity of such spontaneously formed regulations in order to ensure that they provide micro-financial services in a coordinated and sustainable manner.

(vi) To develop an appropriate institutional machinery for the management of microfinance, and also establish second tier institutions.

Institutional Structure

A separate agency shall be formulated to regulate and supervise in a timely manner for the institutional development of microfinance provider organizations.

Economic Part

Shall encourage the establishment and program of microfinance service provider institutions in the private sector.

Legal Provision

Necessary act rules will be formulated for the implementation on the basis of the National Microfinance Policy 2008.

Monitoring and Evaluation

Nepal Rastra Bank will be monitored and evaluated the National Microfinance Policy 2008 implementation.

The National Microfinance Policy

The history of microfinance in Nepal is over three decades old. However, there was not any stated policy of the government on microfinance prior to the declaration of the microfinance policy. The demand for microfinance services by the poor and the destitute is ever increasing in the country. In light of the great achievements made by the countries such as Bangladesh, India, the Philippines, Indonesia, Pakistan and other developing countries in the reduction of poverty through massive flow of financial services down to the poorest segment of the rural and the semi urban communities, the government of Nepal, on the advice of the Nepal Rastra Bank promulgated "The National Microfinance Policy 2008" in order to do away with the problems related to organizational and legal issues with a view to smoothly providing microfinance services in the rural areas. The Microfinance Policy 2008 was introduced as a new mechanism to boost up the microfinance industry. It aims to improve the smooth flow of funds to the poorest segment of the rural populace by creating a national fund for microfinance. It also has envisaged establishing a regulatory and supervisory body for regulating and supervising the Microfinance Institutions (MFIs) in the country as such that they discharge their services effectively and efficiently.

To increase the access of community institutions and institutions involved in microfinance transaction and expand micro finance service, following types of policy

shall be implemented by creating healthy and competitive environment and encouraging private sectors as well in this endeavor:

(i) Simplifying the flow of microfinance service targeting poor communities according to the economic and social diversity of geographical and rural and urban sectors.

(ii) Developing clear standards for identification of beneficiary poor people of microfinance services and strengthening the mechanism of providing microfinance service with or without collateral (collective guarantee).

(iii) Providing necessary help for the social mobilization and empowerment, institutional development and restructuring and encouraging financial institutions that provide wholesale credit established or established from the private and public sector in this work.

(iv) Affiliating various poverty alleviation related programs and projects with this policy and operating it in a coordinated approach.

(v) Helping to develop the targeted group's professionalism by coordinating with reputed agencies to develop professionalism.

(vi) Formulating provision of establishing relationships with microfinance service provider institutions with the provision of getting accreditation to local level existing community institutions, saving and credit group institutions involved in microfinance transactions easily.

(vii) Increasing the access of microfinance to poor communities and motivate such communities on saving mobilization.

(viii) Formulating a separate agency in the direct supervision of Nepal Rastra Bank to timely regulate, supervise, monitor and evaluate by making service providers self-disciplined managing necessary institutional and legal provision to provide microfinance service in a sustainable and simplified manner.

(ix) Establishing the National Microfinance Development Fund to make resources available for easy supply of microfinance service in long-term manner. Also mobilize resources and tools through this National Microfinance Development Fund that obtain from various national and international agencies.

(x) Carrying out the survey with regards to information concerning existing cooperative and microfinance institutions number, service delivery and access.

(xi) Managing the provision of training regarding microfinance for the capacity increment of the people working in the microfinance sector.

(xii) Shall be carrying out loose policy in deposit collection on the basis of service provided by microfinance institutions and their share capital.

(xiii) Shall be taken to be a flexible policy with regards to corporate tax that has been applied to the institutional income tax of microfinance institutions and interest obtained from deposit kept in such institutions by poor communities.

Strengths of the National Microfinance Policy

The Policy has clearly mentioned the necessary uplifting action points to make the marginalized and deprived people from the community able to manage their financial status being involved in the microfinance sector. It has described the different policies and strategies to make the policy effective in each local community as a result each community member is incorporated in this microfinance sector. However, the strengths of the policy have been analyzed as follows:

(i) It has identified the need of policy in this sector.

(ii) The vision of the Policy is to mobilize the marginalized community through microfinance management and financial upliftment which is Nepal Government's development policy. So, it has been adjoined with the national development policy.

(iii) The objectives of the Policy are clear and they have elaborated the overall microfinance sector.

(iv) The policies have been dragged from the health, education, agriculture, animal raising, industry development, inclusion of all marginalized community people as well.

(v) The Policy has been prepared from a wider sector and they are appropriate to incorporate the entire target group recognized by Nepal Government.

Areas to be Improved for the National Microfinance Policy

The Policy has been clearly formed to make the marginalized people friendly. However, there are some areas that the Policy should incorporate in the course of policy review and update. The points are as follows:

(i) The National Microfinance Policy 2008 has not given any due respect to address woman regarding their empowerment in financial activities. So, the Policy should focus on woman empowerment since they play a very crucial role in economic development of their family and the nation.

(ii) For empowering women in the Nepalese context, a separate policy related to the microfinance should be formulated so it directly addresses financial issues connected to women for overall economic development.

(iii) Since the Policy has not incorporated any provisions of woman empowerment, the Policy tends to be incomplete in it as the Nepalese women play a very important role in microfinance activities in the society.

(iv) the national microfinance policy 2008 has been prepared as an overall policy. it would be better if the policies are prepared according to the different sector models like policies for Grameen banking model, small farmers cooperatives model, saving and credit cooperatives (SACCOs) model, wholesale lending model, separately.

(v) The Policy would be better if the Policy is updated and revised incorporating all Strengths, weaknesses, opportunities and threats (SWOT) factors of the microfinance sector.

(vi) Although policies have been formulated to make the marginalized people benefited, it would be very much fruitful if these policies and strategies are

tested at the community level and finalized according to the community level people's needs.

(vii) If the review of public needs were incorporated, the Policy could be community people centered.

(viii) The necessary amendments should have been planned in the Policy.

Conclusion

Microfinance leads to social and economic changes to the deprived community and their improved livelihoods with the increase in income. Microfinance can play an effective role in poverty reduction and women empowerment. In lack of policies and guidelines in the microfinance sector, "The National Microfinance Policy 2008" has become the milestone to systematize this sector for sustainable management and it has been working as the fundamental authoritative document in this sector. The Policy should be amended to meet changing needs and desires of people in society which guides and shows the ways to the microfinance runners and community people to be benefitted from this sector. However, there are certain things that should be updated and revised in the forthcoming versions by which the Policy will be the backbone of microfinance management.

The Policy itself is the only one document prepared to manage the microfinance sector in Nepal. The policy reviewers, people involved in the revision and updates should think of the different other supporting policies for other branch sectors as well. Either the separate policy should be prepared to manage women-led microfinance or there should be different sub-clauses within the Policy about the management of all these sectors as well.

There are some areas of the National Microfinance Policy 2008 that should be incorporated in the course of policy review and update for the women empowerment perspective. This policy has been prepared as an overall policy of microfinance. It would be better if the policies are prepared according to the different sectors like policies for saving and credit cooperatives model, small farmers cooperatives model, deprived sector lending model, project-based microcredit model and self-help group model separately. Although policies have been formulated to make the marginalized people benefited, it

would be very much fruitful if these policies are tested at the community level and finalized according to the community level people's need.

Lacking this Policy is how we can focus on increasing women participation in economic activities through the microfinance. This Policy has not space on women empowerment. Therefore, microfinance policy should be focused on women's economic empowerment. Nepal Government authorities and policy makers should highlight women's involvement in microfinance activities. The necessary amendments should have been planned in the Policy.

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Foreign Trade and Economic Growth of Nepal: An ARDL Approach

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Abstract

Nepal is a developing country having high degree of trade openness. Trade volume is highly increased and imports always dominated exports. Therefore, the key objective is to find out contribution of foreign trade to the economic growth of Nepal. Level data are not stationary so first difference data are used for regression analysis. Thus, ARDL technique is used for the estimation. The study shows total trade and foreign direct investment has significant determinant of Gross Domestic product that is economic growth in Nepal both in short run and long run. The Study shows foreign trade plays the significant role for the economic growth of Nepal. One percent raise in foreign trade (total trade) brings 0.62 percent raise in gross domestic production.

Keywords: economic growth, foreign trade, foreign direct investment & ARDL model

Introduction

Foreign trade refers to the exchange of goods and services between one country and region to another. Foreign trade allows greater competition and much more competitive pricing in the market. The competition brings more affordable products for the consumers. Foreign trade enables a country to enjoy the specialization according to comparative costs. So, foreign trade has a huge impact on the level of the country well beings. Moreover, foreign trade widens the market and raising productivity.

In the past several studies have been conducted to examine the relationship between foreign trades to the economic growth. The overall findings show the three is the positive relationship between foreign trade and economic growth. For example, Bhandari (2005) found exports growth leads to economic growth. Muhammad and Akanegbu (2015) establish relationship exist between international trade and economic growth. Sharma and Ghimire (2009) found that, openness of trade is a positive force to increase

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real GDP in Nepal and opening of trade has a positive effect on real GDP. In addition, a high GDP growth over the long run expands economic opportunities and improves allocate efficiency reduces distortion in relative prices, exchange rate and correct market failure. Moreover, researcher has concluded that opening to the trade leads to long-term economic growth and development in Nepal. Moreover, study conducted by Busse and Königer (2012) found that volume of exports and imports as a share of total GDP does not adequately capture the impact of trade on GDP per capita growth, trade have a positive and significant impact on growth and the expansion of trade. Similarly, Regmi (2004) founds rapidly expanding world trade turned out to be the single most important factor behind the acceleration of export growth of Nepal.

On the other hand, study conducted by Nurudeen et al. (2012) found that, trade openness has a negative effect on growth. Also, Dic (2004) found that China's rapid and sustained economic growth in the reform era has tended to be negatively correlated with its export growth and positively correlated with its import growth. In addition, Singh (2014) found that though import has a negative influence on economic growth. The volume of trade reflected by economic openness has a positive impact on the economic growth of India. Furthermore Basyal (2008) founds that marginal efficiency of the capital should be raised substantially, Prudent policies, competitive environment, infrastructural development, good governance, organizational and managerial improvements would be off paramount importance to guide into a durable double digit economic growth which Nepal also much aspires to meet the current economic challenges.

Fitzova and Zidek (2015) found that, relationships between economic growth and trade in both the Czech Republic and the Slovak Republic identified in the practical part that long-term steady state can be reached in the long run. Researcher further found that economic growth, and growing income is an incentive for growing volume of trade. Moreover, international trade has both positive and negative effects. Likewise, economic transformation of both Czech and Slovak was a crucial factor of the economic growth. In the same fashion Uddin and Khanam (2016) founds that import is negatively related with Bangladesh GDP growth. Moreover, researcher has given the recommendation to the policymakers to take the careful decision about the international trade decision when it comes to the GDP growth. Moreover, Sandri, Alshyab and Chazo (2016) derive trade in

services is positively stimulating economic performance, whereas the effect of trade in goods is more critical. Moreover, the need to strengthen and facilitate export in services, so to increase their size the economy. By the same token Boakey and Gyamfi (2017) establish that export; foreign direct investment, gross capital formation, remittance money per capita and external debt per capita have a positive relationship with economic growth. However, the current account balance and inflation rates have a negative impact of economic growth.

In a summary of literature most of the studies focus on impact of trade to the economic growth. Studies have been done all over the continent. Therefore, the purpose of the study is to assess the relationship between foreign trades on the economic growth of Nepal using Auto regressive distributive lag model.

Methodology and Data

The variables of interest in this study are: gross domestic product [GDP], foreign direct investment, volume of import and export trade, exchange rate and government expenditure. The econometrics model is derived from a production function in which the level of a country's productivity depends on Foreign Direct Investment, total value of trade, exchange rate and government expenditure. The mathematical model was based on the methodology adopted by Omoju and Adesanya (2012) for Nigeria. The technique of analysis is the ordinary least square [OLS] regression method. The dependent variable in this model is economic growth which is proxies by Gross Domestic Product. The explanatory variables include foreign trade which is measured by the sum of total import and export (Total Trade), foreign direct investment, exchange rates and government expenditure.

The model is:

$$LNGDP_t = \beta_0 + \beta_1 LNFDI_t + \beta_2 LNEX_t + \beta_3 LNTTt + \beta_4 LNGE_t + e_t \quad (1)$$

Where, β_0 is the constant of the model $\beta_1, \beta_2, \beta_3$ and β_4 are the coefficients of the explanatory variables, and e_t is the stochastic error term that captures the effect of other

variables not included in the model. The signs of these variables are based on a priori expectation. That is, the direction of the relationship between the respective independent variables and the explained variable is according to their relationship in standard econometric theory. This study uses the ordinary least square technique. This technique emphasizes the regression and correlation analysis which helps to derive estimates of the parameters as well as determine the nature, direction and degree of the relationship between the explanatory and dependent variables. Specifically, the mode of the technique is the single equation regression model. The ordinary least square method produces the best linear unbiased estimates.

Autoregressive Distributive Lag Model

The autoregressive distributive lag (ARDL) is used to examine the short run and long run relationship between the total trades on Economic growth. In order to apply the co-integration, the first step is to determine the order of integration of each variable under study. This is because of the fact that ARDL techniques cannot be used if the order of integration of the variables is two or more. The unit root test has been employed for this purpose both at the level and difference of the variables. The lag length used for the test is determined using a model selection procedure based on the Schwarz Information Criterion. The important features of this test is that it is free from unit root pre-testing and can be applied regardless of whether variables are I (0) or I(1).In addition, it does not matter whether the explanatory variables are exogenous. An ARDL representation of equation (1) can be written as:

$$\Delta LNGDP_t = \beta_0 + \beta_1 LNGDP_{t-1} + +\beta_2 LNFDI_{t-1} + \beta_3 LNEX_{t-1} + \beta_4 LNTT_{t-1}$$

$$+\beta_5 LNGE_{t-1} + \sum_{i=1}^{p} \alpha_{1i}\, \Delta LNGDP_{t-1} + \sum_{i=1}^{q_1} \alpha_{2i}\, \Delta LNFDI_{t-1} +$$

$$\sum_{i=0}^{q_2} \alpha_{3i}\, \Delta LNGX_{t-1}\ \sum_{i=0}^{q_3} \alpha_{4i}\, \Delta LNTT_{t-1} + \sum_{i=0}^{q_4} \alpha_{5i}\, \Delta LNGE_{t-1} + e_t$$

… (2)

$$\Delta LNFDI_t = \beta_{02} + \beta_{12} LNGDP_{a-1} + \beta_{22} LNFDI_{t-1} + \beta_{32} LNEX_{t-1}$$

$$+\beta_{42} LNTT_{t-1} + \beta_{52} LNGE_{t-1} + \sum_{i=1}^{p} \alpha_{1i} \Delta LNFDI_{t-1} + \sum_{i=1}^{q_1} \alpha_{2i} \Delta LNGDP_{t-1}$$

$$+ \sum_{i=0}^{q_2} \alpha_{3i} \Delta LNEX_{t-1} + \sum_{i=0}^{q_3} \alpha_{4i} \Delta LNTT_{t-1} + \sum_{i=0}^{q_4} \alpha_{5i} \Delta LNGE_{t-1} + e_{2t} \ldots \quad (3)$$

$$\Delta LNEX_t = \beta_{03} + \beta_{13} LNGDP_{t-1} + \beta_{23} LNFDI_{t-1} + \beta_{33} LNEX_{t-1} + \hat{a}_{43} LNTT_{t-1} +$$

$$\beta_{53} LNGE_{t-1} + \sum_{i=1}^{p} \alpha_{1i} \Delta LNEX_{t-1} + \sum_{=1}^{q_1} \alpha_{2i} \Delta LNGDP_{t-1} + \sum_{i=1}^{q_2} \alpha_{3i} \Delta LNFDI_{t-1} +$$

$$\sum_{i=1}^{q_3} \alpha_{4i} \Delta LNTT_{t-1} + \sum_{i=1}^{q_4} \alpha_{5i} \Delta LNGE_{t-1} + e_{3t}$$

… (4)

$$\Delta LNTT_t = \beta_{04} + \beta_{14} LNGDP_{t-1} + \beta_{24} LNFDI_{t-1} + \beta_{34} LNEX_{t-1} + \beta_{44} LNTT_{t-1} +$$

$$\beta_{45} LNGE_{t-1} + \sum_{i=1}^{p} \alpha_{1i} \Delta LNTT_{t-1} + \sum_{i=1}^{q_1} \alpha_{2i} \Delta LNGDP_{t-1} + \sum_{i=1}^{q_2} \alpha_{3i} \Delta LNFDI_{t-1} +$$

$$\sum_{i=1}^{q_3} \alpha_{4i} \Delta LNEX_{t-1} + S \sum_{i=1}^{q_4} \alpha_{5i} \Delta LNGE_{t-1} + e_{4t}$$

… (5)

$$\Delta LNGE_t = \beta_{05} + \beta_{15} LNGDP_{t-1} + \beta_{25} LNFDI_{t-1} + \beta_{35} LNEX_{t-1} + \beta_{45} LNTT_{t-1} +$$

$$\beta_{55} LNGE_{t-1} + \sum_{i=1}^{p} \alpha_{1i} \Delta LNGE_{t-1} + \sum_{i=1}^{q_1} \alpha_{2i} \Delta LNGDP_{t-1} + \sum_{i=1}^{q_2} \alpha_{3i} \Delta LNFDI_{t-1} +$$

$$\sum_{i=1}^{q_3} \alpha_{4i} \Delta LNEX_{t-1} + \sum_{i=0}^{q_4} \alpha_{5i} \Delta LNTT_{t-1} + e_{5t}$$

… (6)

Where, Δ is the first difference operator, LNGDP, LNFDI, LNGE, LNTT and LNEXare the variables are selected in the study.$\beta_0$is the Flow component and $e_t$is the white noise residual. The coefficient $(\beta_{1-} \beta_5)$ represent long run relationship whereas the remaining expressions with summation sign $(\alpha_{1-} \alpha_4)$ represents short run dynamics of the model. In order to investigate the existence of the long-run relationship among the variables in the system, the bound test approach has been employed. Under this, the null hypothesis of no co-integration $\alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = 0$ is tested against the alternative of co-integration $\alpha_1 \neq \alpha_2 \neq \alpha_3 \neq \alpha_4 \neq \alpha_5 \neq 0$. If the calculated F-statistics is greater than appropriate upper bound critical values, the null hypothesis rejection implying co-integration. If such statistics is below the lower bound, the null cannot be rejected, indicating the lack of co-integration.

If we find evidence of a long-run relationship, we then estimate the error correction model (ECM), which indicates the speed of adjustment back to long-run equilibrium after a short-run disturbance. The standard ECM involves estimating the following equation (3)

$$\Delta \mathrm{LNGDP}_t = \beta_0 + \sum_{i=1}^{p} \alpha_{1i} \Delta \mathrm{LNGDP}_{t-1} + \sum_{i=1}^{q_1} \alpha_{2i} \Delta \mathrm{LNFDI}_{t-1} + \sum_{i=0}^{q_2} \alpha_{3i} \Delta \mathrm{LNGX}_{t-1} + \sum_{i=0}^{q_3} \alpha_{4i} \Delta \mathrm{LNTT}_{t-1} + \sum_{i=0}^{q_4} \alpha_{5i} \Delta \mathrm{LNGE}_{t-1} + \lambda \mathrm{EC}_{t-1} + \varepsilon_t \ldots \quad (7)$$

To establish the goodness of fit of the ARDL model, diagnostic and stability tests were conducted. The diagnostic test examines the serial correlation, functional form, normality, and heteroscedasticity associated with the model. The structural stability test was conducted by employing the cumulative residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMSQ).

Error Correction Representation of Autoregressive Distributive Lag Model

Co-integration among variables can be examined within the framework of error correction model (ECM) with co-integrated variables. Short run dynamics are captured by the individual Co-efficient of the lagged term; the error correction model (ECM) contains the information of long run causality. Significance of lagged explanatory variable depicts short run causality while a negative and statistically significant ECM is assumed to signify long run causality. The short-run co-integration (causality) is determined from the following ARDL model, for case where LNGDP is the explained variable

$$\Delta LNGDP_t = \beta_{01} + \beta_{11} LNGDP_{t-1} + +\beta_{21} LNFDI_{t-1} + \hat{a}_{31} LNEX_{t-1} + \hat{a}_{41} LNTT_{t-1} + \hat{a}_{51} LNGE_{t-1} + \sum_{i=1}^{p} \acute{a}_{1i} \Delta LNGDP_{t-1} + \sum_{i=1}^{q_1} \acute{a}_{2i} \Delta LNFDI_{t-1} + \sum_{i=0}^{q_2} \acute{a}_{3i} \Delta LNGX_{t-1} + \sum_{i=0}^{q_3} \acute{a}_{4i} \Delta LNTT_{t-1} + \sum_{i=0}^{q_4} \acute{a}_{5i} \Delta LNGE_{t-1} + \varepsilon_{1t} \ldots \quad (8)$$

$$\Delta LNTT_t = \hat{a}_{04} + \hat{a}_{14} LNGDP_{t-1} + \hat{a}_{24} LNFDI_{t-1} + \hat{a}_{34} LNEX_{t-1} + \hat{a}_{44} LNTT_{t-1} + \hat{a}_{45} LNGE_{t-1} + \sum_{i=1}^{p} \acute{a}_{1i} \Delta LNTT_{t-1} + \sum_{i=1}^{q_1} \acute{a}_{2i} \Delta LNGDP_{t-1} + \sum_{i=1}^{q_2} \acute{a}_{3i} \Delta LNFDI_{t-1} + \sum_{i=1}^{q_3} \acute{a}_{4i} \Delta LNEX_{t-1} + \sum_{i=1}^{q_4} \acute{a}_{5i} \Delta LNGE_{t-1} + e_{4t}$$

… (9)

$$\Delta LNGE_t = \hat{a}_{05} + \hat{a}_{15} LNGDP_{t-1} + \hat{a}_{25} LNFDI_{t-1} + \hat{a}_{35} LNEX_{t-1} + \hat{a}_{45} LNTT_{t-1} + \hat{a}_{55} LNGE_{t-1} + \sum_{i=1}^{p} \acute{a}_{1i} \Delta LNGE_{t-1} + \sum_{i=1}^{q_1} \acute{a}_{2i} \Delta LNGDP_{t-1} + \sum_{i=1}^{q_2} \acute{a}_{3i} \Delta LNFDI_{t-1} + \sum_{i=1}^{q_3} \acute{a}_{4i} \Delta LNEX_{t-1} + \sum_{i=0}^{q_4} \acute{a}_{5i} \Delta LNTT_{t-1} + e_{5t}$$

… ` (10)

Testing for Long and Short-Run Coefficients

Casual relations among variable can be explained within the framework of ECM, with co-integrated variables. While the short run dynamics are captured by the individual coefficients of the lagged terms, the error correction term (ECT) contains the information of long run causality. Significance of lagged explanatory variable depicts short run causality while a negative and statistically significant ECT is assumed to signify long run causality. The short run causality is determined from the following ARDL model.

$$\Delta LNFDI_t = \hat{a}_0 + \sum_{i=1}^{p} \acute{a}_{1i} \Delta LNFDI_{t-1} + \sum_{i=1}^{q_1} \alpha_{2i} \Delta LNGDP_{t-1} + \sum_{i=0}^{q_2} \alpha_{3i} \Delta LNEX_{t-1} + \sum_{i=0}^{q_3} \alpha_{4i} \Delta LNTT_{t-1} + \sum_{i=0}^{q_4} \alpha_{5i} \Delta LNGE_{t-1} + \lambda EC_{t-1} + e_t \ldots \quad (11)$$

$$\Delta LNEX_t = \beta_0 + \sum_{i=1}^{p} \alpha_{1i} \Delta LNEX_{t-1} + \sum_{i=1}^{q_1} \alpha_{2i} \Delta LNGDP_{t-1} + \sum_{i=1}^{q_2} \acute{a}_{3i} \Delta LNFDI_{t-1} + \sum_{i=1}^{q_3} \acute{a}_{4i} \Delta LNTT_{t-1} + \sum_{i=1}^{q_4} \acute{a}_{5i} \Delta LNGE_{t-1} + \ddot{e} EC_{t-1} + e_t \ldots \quad (12)$$

Where Δ is the difference operator, ECM representing the error-correction term derived from the long run co-integration relation from the above specified ARDL model (11,12) in each equation λ should exhibit a negative and significant sign for causality to exist in the long run. The model that was used for testing the long run relationship and coefficient is further tested with the diagnostic tests of Serial Autocorrelation, Hetroskedasticity and any model misspecifications. Once error correction models were

estimated, its task to applying the cumulative sum of residuals (CUSUM) and the CUSUM of square (CUSUMSQ) tests to assess the parametric consistency. The graphical representation of the recursive coefficients is used to judge the stability of the coefficients.

Empirical Analysis

This chapter discusses the data analysis and interpretation of the study. When data were collected from the various published sources, such as, Nepal Rastra Bank [NRB], Ministry of finance (MOF) and Ministry of industries (MOI), the data were fed in E-views for analysis and interpretation. The data used in this study consist of annual time series of GDP (Nominal prices) total trade, foreign direct investment, and exchange rate and government expenditure from the period Nepal 1990 to 2017. The GDP, total trade and exchange rate data were obtained from the NRB. Gross domestic product and total trade were in (Rs. Million) and exchange rate were in US$. Similarly, foreign direct investment and government expenditure were obtained from (Rs. Million) Economic Survey (MOF) of Nepal.

Contribution of the Foreign Trade and Economic Growth of Nepal

Contribution of foreign trade to the economic growth is presented with the help of econometric model. In the following section complete regression model is presented and analysis is given below.

Unit Root Results

Individual time series data must be stationary before running regression analysis. Otherwise, the regression results will be spurious. Therefore, it is better to determine the order of integration of the variables under the study. The unit root test is used for this purpose at level and first difference. The unit root results showed that all variables are suffered unit root at level. The test statistics clearly indicates that level form series are spurious from unit root. Thus, first difference data are employed to unit root testing. The results show that the level forms of data at first difference are completely unit root free and all series are integrated of orders one. Thus, level forms of data at first difference are

employed to empirical analysis, particularly empirical models. The unit root results are reported below Table 1

Table 1

ADF Unit Root Results

Variables	Level		Variables	First Difference	
	Intercept	Intercept &Trend		Intercept	Intercept &Trend
LNGDP	0.82(0.79)	2.04 (0.54)	D(LNGDP)	4.34(0.00)	4.11(0.01)
LNEX	2.97(0.50)	2.93(0.17)	D(LNEX)	6.03(0.00)	5.84(0.00)
LNFDI	1.49(0.52)	4.08(0.01)	D(LNFDI)	7.09(0.00)	6.96(0.00)
LNGE	1.87(0.33)	2.46(0.34)	D(LNGE)	8.00(0.00)	7.89(0.00)
LNTT	0.27(0.91)	2.76(0.22)	D(LNTT)	4.32(0.00)	4.12(0.01)

Note: Researcher own Calculations

ARDL Bounds Test for Co- integration

The unit root results reported in table 1 shows that all the series all the variables are stationary at first difference. Thus, researcher applies bounds testing approach to co-integration to test long run relationship between the variables. The appropriate lag order of variables should be determined before proceeding to the ARDL bounds to co-integration.

Table 2

VAR Lag Order Selection Criteria

Endogenous variables:	Lag	LogL	LR	FPE	AIC	SC	HQ
	0	35.29582	NA	0.005216	2.423666	2.179891	
							2.356053
LNGDP	1	56.23991	31.83501*	0.001062*	4.019193*	3.726662*	3.938057*
	2	56.40946	0.244157	0.001142	3.952757	3.611472	3.858099

Endogenous variables:	Lag	LogL	LR	FPE	AIC	SC	HQ
	0	29.41151	NA	0.008351	1.952921	1.709146	
							1.885308
LNFDI	1	41.51428	18.39620*	0.003450	2.841142	2.548612*	2.760007
	2	43.08288	2.258784	0.003316*	2.886630*	2.545345	2.791972*

Endogeno	Lag	LogL	LR	FPE	AIC	SC	HQ
us	0	29.41151	NA	0.008351	1.952921	1.709146	1.885308
variables:	1	41.51428	18.39620*	0.003450	2.841142	2.548612*	2.760007
LNEX							
	2	43.08288	2.258784	0.003316*	2.886630*	2.545345	2.791972*
Endogeno	Lag	LogL	LR	FPE	AIC	SC	HQ
us	0	36.57779	NA*	0.004707*	2.526223*	2.282448*	2.458611*
variables:	1	37.11411	0.815206	0.004905	2.489129	2.196599	2.407994
LNTT							
	2	37.16421	0.072147	0.005323	2.413137	2.071852	2.318479
Endogeno	Lag	LogL	LR	FPE	AIC	SC	HQ
us	0	29.48384	NA*	0.928946	2.758707	3.002483	2.826320
variables:	1	27.80600	2.550317	0.883514*	2.704480	2.997010*	2.785616*
LNGE							
	2	26.78129	1.475585	0.886912	2.702503*	3.043788	2.797161

Note: researcher own calculations

On the basis of the variables lag values varies. The results reported in the table no 2 implies that LNGDP has one lag and LNFDI has two lags. Similarly, LNEX has two lags and LNTT has no lag and finally LNGE has two lags. The appropriateness of lag order avoids the spuriousness of ARDL bounds testing approach to co integration results.

Table 3

ARDL Results for Bound Test of Co-integration

Model Number	Dependent variable	F-statistics	I(0)	I(1)	Co-integration	What next?
2	LNGDP	1.080268	2.86	4.01	NO, Co-integration	ARDL
3	LNFDI	5.065278	2.86	4.01	YES, Co-integration	ECM
4	LNEX	4.261755	2.86	4.01	YES, Co-integration	ECM
5	LNTT	2.195436	2.86	4.01	NO,	ARD

		5	6	1	Co-integration	L	
6	LNGE	1.70989	2.8	4.0	NO,	ARD	
		2	6	1	Co-integration	L	

Note. Researcher own Calculation

If the computed F-statistic exceeds the upper critical bounds value, then the H0 is rejected. If the F-statistic falls into the bounds, then the test becomes inconclusive. Lastly, if the F-statistic is below the lower critical bounds value, it implies no co-integration. The above table 3 is the result of the Bound test of co-integration when the F-statistics is below the lower bound value there is no co-integration among the variables. Similarly, when the F-statistics is greater than the upper bound value there is co-integration among the variables. In the analysis researcher found LNGDP, LNTT and LNGE that is in the model 2, 5 and 6 have no co-integration. However, variables LNFDI and LNEX, in the model 3 and 4 have long run relationship among the variables. It is because F-Statistics is lower than the upper bound value in LNGDP, LNTT and LNGE which helps to accept the null hypothesis of no long relationship. However, in the LNFDI and LNEX, the computed value of F-Statistics is greater than the upper bound value of F-Static which helps us to reject the null hypothesis of long run relationship. Therefore, researcher concludes that there is long run relationship among LNFDI and LNEX variables.

Long –Run Co-Efficient Estimation of ARDL Model

Due to the existence of co-integration relationship of the models 3 and 4 researcher estimate long- run relationship. In order to apply the co-integration, the first step is to determine the order of integration of each variable under study. This is because of the fact that ARDL techniques cannot be used if the order of integration of the variables is two or more. The unit root test has been employed for this purpose both at the level and difference of the variables. The lag length used for the test is determined using a model selection procedure based on the Schwarz Information Criterion.

Table 4

Error Correction Representation of ARDL Model Dependent variable: LNFDI

Regressor	Coefficient	t-statistics	p-value

C	0.246144	0.374271	0.7147
D(LNFDI(-1))	-0.247309	-0.778326	0.4515
D(LNFDI(-2))	-0.276068	-1.057419	0.3111
D(LNGDP(-1))	-5.578907	-0.843282	0.4156
D(LNGDP(-2))	5.792277	0.964055	0.3540
D(LNEX(-1))	0.421410	0.160817	0.8749
D(LNEX(-2))	-3.628813	-1.177229	0.2619
D(LNTT(-1))	4.026711	1.605606	0.1343
D(LNTT(-2))	-2.643254	-1.009809	0.3325
D(LNGE(-1))	0.144271	0.626973	0.5424
D(LNGE(-2))	0.046278	0.230980	0.8212
ECM (-1)	-0.453558	-1.197359	0.2543

Note. Researcher own calculation

LNFDI(-1), D(LNFDI(-1)), D(LNGDP(-1)), D(LNGDP(-2)), D(LNEX(-1)),D(LNTT(-1)), D(LNTT(-2)), D(LNGE(-1)), D(LNGE(-2)) are the short run co-efficient. The result of ARDL bound test of co-integration showed that there is evidence of co-integrating relationship of foreign direct investment and the selected other variables like gross domestic product, government expenditure, total trade, exchange rate. The lagged ECM term included in the foreign direct investment is negative but not statistically significant. ECM (-1) is the speed of adjustment. It is 45.35%. In other word the speed of adjustment toward long-run equilibrium is 45.35percentages. Breusch-Godfrey Serial Correlation signifies these is no serial correlation between the LNFDI and regresses.

Table 5

Error Correction Representation of ARDL model, Dependent variable: LNEX

Regressor	Coefficient	t-statistics	p-value
C	0.009870	0.154984	0.8794
D(LNEX(-1))	0.176735	0.696517	0.4994
D(LNEX(-2))	-0.267614	-0.896577	0.3876
D(LNGDP(-1))	-1.029133	-1.606487	0.1341
D(LNGDP(-2))	0.765561	1.315872	0.2128
D(LNFDI(-1))	0.009063	0.294545	0.7734
D(LNFDI(-2))	-0.011155	-0.441234	0.6669
D(LNTT(-1))	0.258379	1.063963	0.3083
D(LNTT(-2))	0.126933	0.500790	0.6256
D(LNGE(-1))	-0.001399	-0.062789	0.9510
D(LNGE(-2))	0.017923	0.923814	0.3738

ECM(-1)	0.019085	0.520314	0.6123

Note. researcher own calculation

LNEX(-1), D(LNEX(-1)), D(LNGDP(-1)), D(LNGDP(-2)), D(LNFDI(-1)), D(LNTT(-1)), D(LNGE(-1)) are the short run co-efficient. The result of ARDL bound test of co-integration showed that there is evidence of co-integrating relationship of exchange rate and the selected other variables like gross domestic product, foreign direct investment, government expenditure, total trade. The lagged ECM term included in the foreign direct investment is positive and also not statistically significant. This conform lack of evidence of long run causality between exchange rate and gross domestic product, foreign direct investment, government expenditure and total trade. Breusch-Godfrey Serial Correlation signifies these is no serial correlation between the LNFDI and regresses.

Table 6

Error correction Representation of the Selected ARDL (1, 0, 0, 0, 2) Model, Dependent variable LNGDP

Regressor	Coefficient	Standard Error	t-Ratio	p-value
D(LNFDI)	0.003861	0.011762	0.328276	0.7467
D(LNEX)	-0.085738	0.085607	-1.001532	0.3306
D(LNTT)	0.296070	0.080598	3.673412	0.0019
D(LNGE)	-0.000834	0.008011	-0.104067	0.9183
D(LNGE(-1))	0.010685	0.008576	1.245917	0.2297
CointEq(-1)	-0.270142	0.078437	-3.444070	0.0031

Table 6 contains the results of error correction representation of the selected ARDL model. Coefficient of the variables with D sign shows the short run elasticity. Results represent that in the short run LNTT is the most significant factor (with the largest coefficient and largest t-ratio of gross domestic production. The 0.29 value of coefficient of D (LNTT) reveals that one percent increase in LNTT brings about 0.29 percentage increase in Gross Domestic product. Similarly, the coefficient of DLNFDI) is 0.003 indicates that one percent change in FDI results to change in 0.003 percent increase in gross domestic product. However, Exchange rate and government expenditure has the negative effect on Gross domestic product in short run. The coefficient of FDI and GE is 0.085738 and 0.000834 respectively. The coefficient of error correction term (-0.270) is significant at one percent level. Highly significant negative sign of the error correction term reinforces the existence of long run relationship among the variables. Moreover, the speed of adjustment from previous year's disequilibrium in Gross domestic product added to current year's equilibrium is 27 %.

Table 7

Long –Run Coefficients of ARDL (1, 0, 0, 0, 2) Model, Dependent variable LNGDP

Regressor	Coefficient	Standard Error	t-Ratio	p-value
Constant	2.128705	0.569263	3.739405	0.0016
LNFDI	0.014294	0.043871	0.325808	0.7485
LNEX	-0.317382	0.342734	-0.926031	0.3674
LNTT	1.095981	0.107343	10.210126	0.0000
LNGE	-0.070458	0.034692	-2.030971	0.0582

Note. Researcher own calculation

Table 7 reveals that total trade is the most significant factor of economic growth in Nepal. The effect of LNTT on LNGDP is significant at one percent level of significance. The coefficient (0.014) of LNFDI shows that one percent increase in LNFDI leads to 0.014 percent increase in gross domestic product in the long run. The coefficient exchange rate is (-0.317) shows that 1 % increase in LNEX leads to 0.317% decrease in gross domestic production the long run at five percent level of significant. Similarly, government expenditure however does not affect economic growth significantly even with unexpected negative sign. In other word the co-efficient (-0.070) of LNGE shows that one percent increase in LNGE leads to decrease 0.070 % in gross domestic product. The result presented in this paper signifies the importance of total trade and foreign direct investment on gross domestic product.

Stability test

In the final stage of ARDL model the stability of the long-run coefficients is examined by plotting in graphical representation of CUSUM and CUSUM square are shown in figure 1, 2 for foreign direct investment model four in long run OLS model. Similarly, ARDL model the stability of the long-run coefficients is examined by plotting in graphical representation of CUSUM and CUSUM square are shown in figure 3 ,4 for exchange rate model five in the long run OLS model. The graphical presentation of CUSUM and CUSUM of Squares test is presented below.

Figure 1

Plot of Cumulative sum of Recursive Residuals (LNFDI)

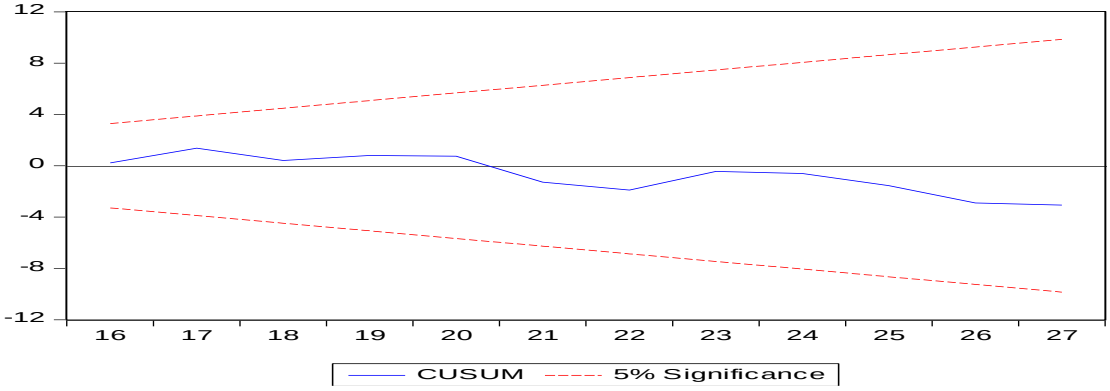

Figure 1 shows the plot of CUSUM statistics for LNFDI within the critical lines at the 5% significance level. The plot of CUSUM lie within the critical limit implying the

stability of the model 4 as well as stability of foreign direct investment on economic growth. Thus, foreign direct investment on the economic growth is stable.

Figure 2

Plot of Cumulative Sum of Squares Recursive Residuals (LNFDI)

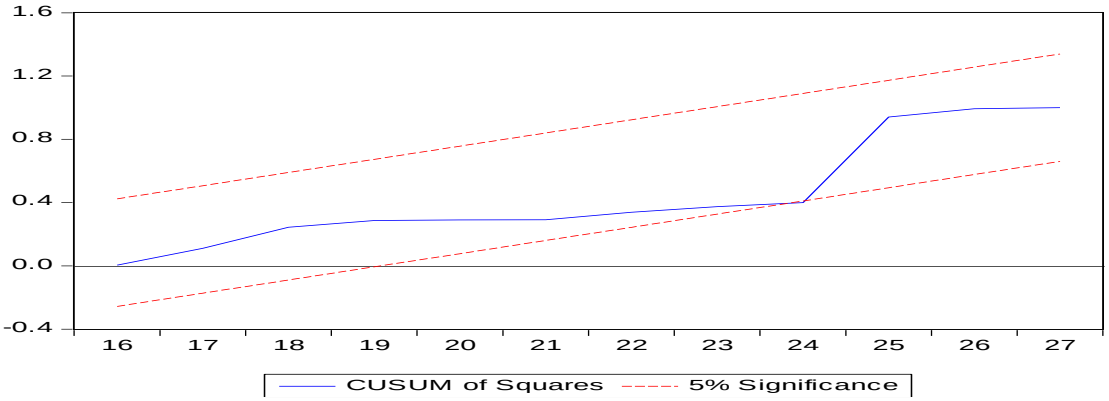

Figure 2 shows the plot of CUSUMSQ statistics for LNFDI within the critical lines at 5% significant level. The plot of CUSUMESQ lie within the critical limit implying the stability of the model 4 as well as stability of the foreign direct investment on economic growth. Thus, foreign direct investment on the economic growth is stable.

Figure 3

Plot of Cumulative Sum of Recursive Residuals (LNEX)

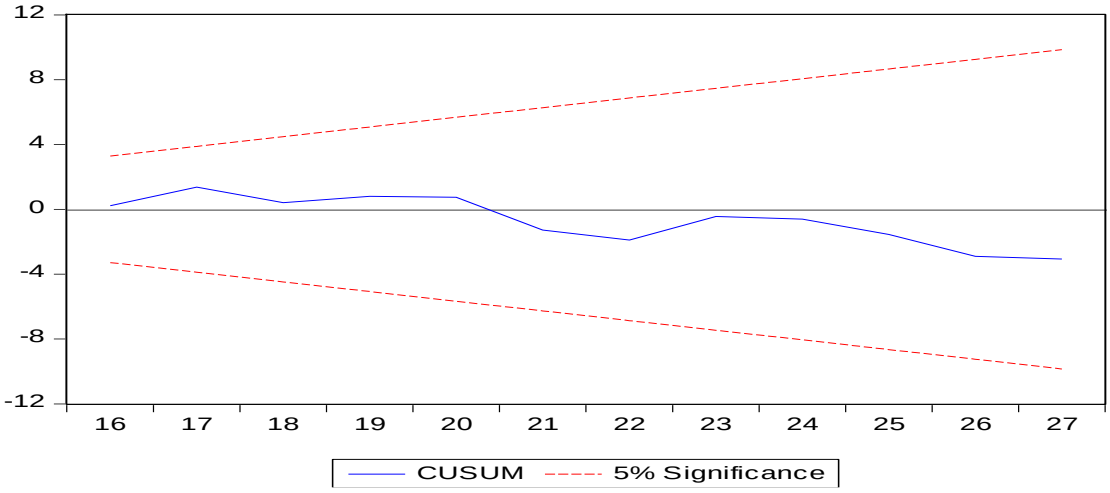

Figure 3 shows the plot of CUSUM statistics for LNEX within the critical lines at the 5% significance level. The plot of CUSUM lie within the critical limit implying the stability of the model 5 as well as stability of exchange rate on economic growth. Thus, exchange rate on the economic growth is stable.

Figure 4

Plot of Cumulative Sum of Squares Recursive Residuals (LNEX)

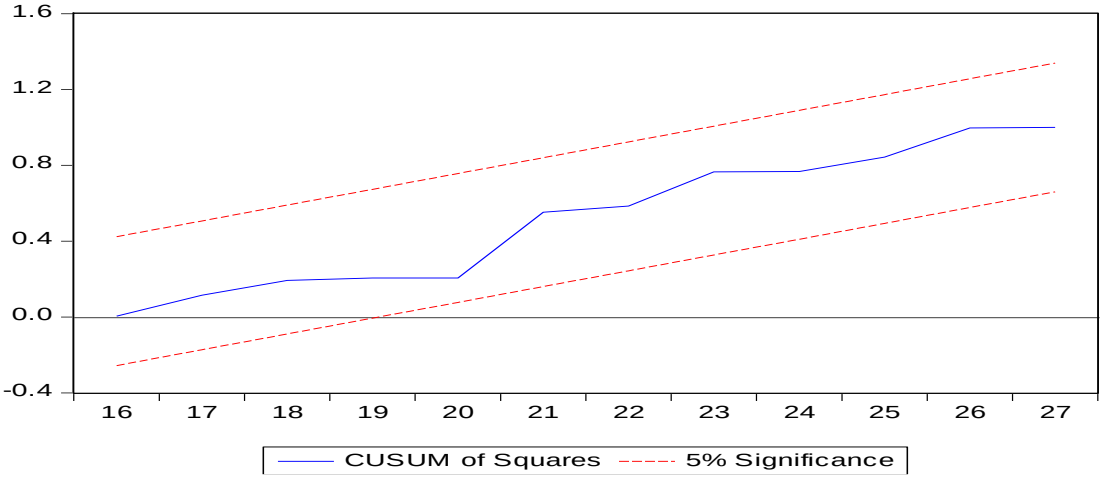

Figure 4 shows the plot of CUSUMSQ statistics for LNEX within the critical lines at the 5% significance level. The plot of CUSUMSQ lie within the critical limit implying the stability of the model 5 as well as stability of the government expenditure on economic growth. Thus, exchange rate on the economic growth is stable. Since, both the plots remain within critical bounds at 5 % level of significance, researcher concludes that the model is structurally stable.

Regression Analysis

In order to examine the effects of foreign direct investment, total trade, government expenditure, exchange rate gross and domestic product, it is necessary torun OLS regression model with dependent variable gross domestic product (LNGDP) and independent variables, total trade (LNTT) and foreign direct investment (LNFDI), exchange rate (LNEX), government expenditure (LNGE). The regression result of the model is presented below.

Table 8

Regression Results LNGDP as Dependent Variable

Constant and Coefficients Coefficients		Standard Error of t-statistics Coefficients		P-value
Constant	1.954682	0.280029	6.980293	0.0000
LNEX	-0.444357	0.170531	2.605723	0.0161
LNFDI	-0.026324	0.031476	0.836317	0.4120
LNGE	-0.008769	0.017900	0.489857	0.6291
LNTT	1.102360	0.069446	15.87365	0.0000
R^2 = 0.99	DW =1.04N = 27			
Adjusted R^2 = 0.99	F=68.58 Probability of F statistics =0.0000			

Note: Researcher Own Calculations

The independent variables LNGDP, LNEX, LNFDI and LNTT as well as constant terms are statistically significant at 5 level of significant. LNFDI is significant at 10 percent level and LNGE is statistically insignificant. The value F-test is very high and its p value is zero indicates that model has good fit. The value of adjusted R squared is 0.99 shows that 99 percent dependent variable is explained by independent variables.

The coefficient of LNEXis-0.444 and depicts that one percent increase in exchange rate causes decrease in GDP by 0.444 percent. The coefficient is negative and significant meaning that change exchange rate with US dollar has adverse effect on GDP. However, general devaluation has positive impact on domestic economy when export and import elasticity greater than one. During the study period Nepalese currency is devaluated with USA dollar. It has adverse effect on GDP it is because the imports and exports elasticity of Nepalese trade is less than one. The coefficient of LNFDI is -0.026 and depicts that one percentage increase FDI causes decrease GDP by one percent. The coefficient is negative indicates that foreign direct investment doesn't boost up GDP of Nepal. The coefficient of LNTT is 1.10 and depicts that one percent increase in total trade of Nepalese economy causes increase in GDP by 1.10 percent. Coefficient is

positive and significant statically. This confirms that increase in trade boost up GDP in Nepal.

The coefficient of LNGE is 0.008 and depicts that one percent increase in government expenditure causes increase in GDP by 0.008 percent. The coefficient is negative. The coefficient of LNGDP is 1.95 has significant role current GDP. This variable is used to remove the serial autocorrelation among the error's terms. The value of DW test is 2.34 which is near to 2 indicates that there is no autocorrelation among the error terms.

Conclusion

This study aimed to investigate the role of foreign trade in economic growth of Nepal for the period 1990/91 to 2016/17. Researcher considers four variables Foreign Direct investment, Exchange Rate, Total Trade and Government expenditure as the determinants of Economic growth of Nepal. Researcher used ARDL Approach to co-integration and error correction representation of the ARDL model. According to the result of this study, total trade and foreign direct investment is the most significant determinant of Gross Domestic product that is economic growth in Nepal both in short run and long run. However, exchange rate and government expenditure play the negative role in the economic development of Nepal. Foreign trade has become crucial for economic development of every country. The variables trade, foreign investment, foreign aid has significant positive role in Nepalese economy. However, exchange rate has adverse effects. The finding of the study suggests foreign trade plays the significant role for the economic growth of Nepal. One percent raise in foreign trade (total trade) brings 0.62 percent raise in gross domestic production. Thus, government should focus on growth enhancing policies.

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Contribution of Remittance in Poverty Alleviation

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Abstract

Many Nepalese people used to go to foreign country to earn money. They send money to family member as remittance. Nowadays remittance become has one of the major sources of lively hood. Foreign Employment has become a major issue in the current economic and political discussion of Nepal. Another most important issue is the poverty alleviation from foreign employment remittance. The objective of this article is to describe the situation of poverty and analyze the contribution of remittance in poverty alleviation of Nepal. This study has been based on secondary data published by the Nepal government and covering a period between fiscal year 2011/12 to 2019/2020. The methodology to meet the objectives of this study is analytical and descriptive research design and writing style is also based on Publication Manual of American Psychological Association (7th ed.) This study shows the following findings During the study period, remittance was in increasing order and poverty is in decreasing order from FY 2011/12 to 2019/20

Keywords: poverty reduction, remittance, gross domestic product, foreign, employment

Introduction

Poverty is main problem of Nepal, unemployment creates poverty. The main objectives of economic development is to reduce the poverty. To reduce poverty there should be employment opportunity. Nepal is developing country. Its per capita income is low then other developing country in the world. It has low industrial development. 60.4 % people depend on agriculture to get employment opportunity (MOF,2020). But productivity is low. Percentage of population growth rate is 1.35 (CBS, 2011). So, people are searching job opportunity in foreign sector. They get job and send money as remittance. Remittance means transferring of money from one place to another it means

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Remittance is the amount transferred by workers from aboard to support their families, back at home. Present day Nepalese economy is characterized by 'Remittance Economy'. Remittances is a mechanism for economic growth and development. Household level argues that household income and consumption go up and reduce poverty in response to increase in international remittance flows.

It is the amount of money sent by people to their home country from foreign employment remittance. It is the money sent home by migrant people or workers. Movement of people outwards and inwards between one location and another either inside or outside countries is migration. Before going abroad and earning money, people's and their family's economic status was not well they were poor. Because of which condition they did not able to invest as much as they wanted. After going abroad, they earned money and they invest their earnings as their choice in productive sector. In Nepal labour migration is current issues and discussion part the migration trend has grown rapidly day by day. The condition and living of people, who go abroad as employer and return to Nepal, has been rapidly changed, reduced poverty due to remittance. If the environment is not suitable for the people to invest remittance as their need the living standard also can't go up. So, people they should have suitable environment to invest. To increase income saving should increase. The level of saving determined by income and expenditure ratio of people in different sector eg: health, education, food, and cloths etc. The life style also has been changed. Many people used to invest remittance money in the field of agriculture, animal husbandry, education and land as business (Dangal, 2018).

Significance of the Study

This study is conducted with contribution of remittance to reduce the poverty. The role of remittance in poverty alleviation of Nepalese people is increasing rapidly. It has been found that remittance income is the backbone for economic development of country The prime focus of the study is to find out the Contribution of Remittance in poverty alleviation in Nepal, So the study helps to control reduce poverty. The study will be benefitable to remittance payers, researchers, administrators, teacher, students, employee, employer and foreign experts.

Objectives

The main objectives of this study are to find out the situation of poverty and remittance and to analyze the contribution of remittance in poverty alleviation

Methodology

Methodology of this study was descriptive as well as analytical based on secondary data published by Nepal government, ministry of finance economic survey, National planning commission and unpublished thesis/research article, books, and magazines. The data were analyzed by using simple average, percentage, table.

Literature Review

The word Poverty has been defined in various ways; poverty is defined as the inability to attain their basic need. In Nepal labour migration is current issues and discussion part the migration trend has grown rapidly grown day by day. The condition and living standard of people, who go abroad as employer and return to Nepal, life style has been rapidly changed and reduced poverty also due to remittance. Poverty means the state of not having enough money to take care or to fulfill basic needs such as food, clothing, and housing or a deficiency or lack of something (Dangal, 2021). It is the problem of economic development of developing country like Nepal. The present and past development plan of Nepal have made poverty alleviation as an important objective. Poverty is an income below some minimum level of living to fulfill their basic needs.it is clear that poverty is the main and Current problem of the developing countries therefor poverty alleviation has become major objectives of economic development.

The Tenth Five Year Plan (2003—2008) adopted by His Majesty's Government of Nepal has identified poverty alleviation as its overall objective. Hence, poverty reduction strategy and policy has been regarded as the main basis of tenth plan.

Poverty is the deprivation occurring among the people or individual without basic amenities of life. In poverty people don’t have sufficient means to fulfill their wants. It is the life without freedom of choice and action. There is lack of adequate food, shelter, education and health and income to support the basic minimum needs. It can also be defined as economic, social and psychological deprivation occurring among the people or countries lacking sufficient ownership, control or access to the resources to maintain the minimum standard of living (World Bank, 1990). The amount of saving mainly depends

upon total income, and amount of total expenditure to consumption should be less than income. After receiving remittance by households, saving increased and life style changed.

Poverty in Nepalese Context

Nepal is agricultural country number of people involve in agricultural sector is declining. no sufficient industrial development. umber of poverty is high number of populations is increased day by day but its part is used an unproductive sector such as house building, land purchasing etc. Nepal is a mountainous Himalayan country, having population density of 181persons/square kilometer of area 147,181 km square. Nepal is a multi-ethnic and multi-lingual society. It is predominantly rural with only 14 percent of population living in urban areas and it is one of the least urbanized countries in the world (Aryal, 2002). People are unable to fulfill their basic needs because of poverty. The concentration of poverty is high in rural areas where the main economic base is agriculture. There is significant contribution of non-agriculture sector in the growth rate of GDP, but its impact is limited to urban areas but it has not affected the rural areas where majority of poor live (Rai, 2016). The amount of saving mainly depends upon total income, and amount of total expenditure to consumption should be less than income for saving.

Foreign employment in Nepalese Context

Nepalese are engaged in labour and many work at a place distance from home for employment outside the country has a long history it has been started before nineteenth century when the first Nepalese travelled to Lahore to join the army. The history of remittance in Nepalese economy has begun during 1814 to 1816 after the British-India and Nepal war. But The volumes of remittance increased only after 1995, when the civil conflict destroyed in the local labour markets and people started looking for Company of employment. Nepalese youths used to try to entry in the British national army. Thus, labour migration and remittance comprise a crucial component of Nepalese economy and society as a whole. The migration tendency has grown rapidly. Artistries Araniko invited by Kuble Khan for the constructing temples and Stupa in China than after Nepalese people established their business and work with the neighboring countries like Tibet, China and India.

These histories shows that the Nepalese were working in neighboring countries and sent the earned amount to their motherland. In Lichhavi period. In Lichhavi period, Nepalese arts promoted (Kansakar, 1993). Now Nepalese people have gone specially to gulf countries and Malaysia, South Korea India etc. Nepalese people are going abroad in construction, hospitality, tourism and security sector. Amount of remittance is invested in productive sector. Due to lack of employment opportunities large number of youth people have migrated in foreign. From remittance 25.4 % contribution is in GNP in the fiscal year 2018/19 (MOF, 2020). It helps to reduce poverty and living standard of people is also going up. So, Nepalese economy is remittance-based economy (Adhikari, 2077).

Remittance being as a back bone to the Nepalese economy. Recently it being main source of living and life sustain. It should be proper utilize it is remittance-based economy. Received remittance should be used in income generating sector or productive sector.

utilizing the remittance in entrepreneurship and business is also the better and helpful for reducing poverty.

Labour Migration of Nepalese people started since 1816 after the pace and friendship Anglo after the end of Anglo Nepal war 1815 with the establishment of first Gorkha regiment by the British east India company (Regmi,1971). Nepalese people used to go to India, Bhutan, and other country also. Large number of people and their family member also started to search better opportunities to join foreign institution as a worker to receive and for their livelihood (Regmi,1971).

Remittance donates household income from foreign economics arising mainly from the temporary or permanent movement of people to those economies. Remittance includes cash and no cash items that flow through formal channels, such as via electronic wire or through informal channels such as money or good carried across border (IMF, 2009).

Demographic deficit and consequent demand for migration labor in developed and destination countries, growing disparity is in wealth income human security, human rights and demographic trend across countries are all exerting upward pressure on migration. Every year millions of young men and women enter the force in developing where job are not created fast

enough to absorb them. Now new technology also allows more people to acquire the information they need to access the global labor market (World Bank, 2010).

All the households who were success to receive remittance and they are getting benefit from remittance their access to health, education and economy has increased. It also helps to increasing saving. If The remittance is not using properly in productive sector by house hold, and the households who properly invest in productive sector there is different family status. It helps in family and rural development.

All households were feeling very positive towards remittance income. Remittance income has become an effective approach in reducing the poverty. The living standard of the people is changing day by day. People are also getting proper health facilities and their educational status is also gradually increasing nowadays. The income of the family has been raised up and the living standard of the people also. So, remittance helps to reduce rural poverty and helps in rural development. All the households who were success to receive remittance and they are getting benefit from remittance their access to health, education and economy has increased. It also helps to increasing saving.

If The remittance is not using properly in productive sector by house hold, and the households who properly invest in productive sector there is different family status. It helps in family and rural development. All households were feeling very positive towards remittance income. Remittance income has become an effective approach in reducing the poverty. The living standard of the people is changing day by day. People are also getting proper health facilities and their educational status is also gradually increasing nowadays. The income of the family has been raised up and the living standard of the people also. So, remittance helps to reduce rural poverty and helps in rural development (Paudel, 2016). Paudel found nowadays in Nepal the foreign migration trend has been increasing day by day for an employment

opportunity and to earn money. And trend of growth of remittance also increases at increasing rate, directly it gives the positive contribution to nation's GNP.

After receiving remittance in Nepal from foreign migrant workers Life style has been changed. People are aware also, To Enroll at school colleges and universities number also increases. Per capita income also increased after receiving remittance. Households economic condition has improved. People are using remittance in productive sector. Starting to save their income The main reason for migration was to earn money. In the same way the reason behind for foreign migration is family debt and also the reason for foreign employment is unemployment

Analysis

Many reasons create migration it may be either for searching job opportunities or facilities. The reason might be economic, social or political. They may be related to the skills, knowledge and various other reasons. Now a days people are facing more than one reasons.

Causes of poverty in Nepal

Through the year people cannot engage to earn due to absolute poverty. Unemployment and underemployment, high population growth rate, low economic growth rate low industrial development, socio cultural factor, underutilization of available resources, lack of socio-economic infrastructure, are causes of poverty. So, people are choosing foreign country for employment and they send remittance. Situation of poverty and remittance is shown in table below

Table 1

Situation of Poverty and Remittance

Fiscal Year	Remittance RS in Billion	Remittance as percent of GDP	Percentage of Poverty
2011/2012	359.6	23.5	24.4
2012/2013	434.6	25.6	23.8
2013/2014	543.3	27.7	
2014/2015	617.3	29.0	-
2015/2016	665.1	25.5	21.6
2016/2017	695.5	22.6	-
2017/2018	755.1	21.8	-
2018/2019	879.3	25.4	18.7
2019/2020	875.0	22.4	-
Total,	5824.8	-	-

Note. Economic Survey 2077/78

The Table 1 is related to the Rs. columns are measured in billion rupees. Taken from Economic Survey 2011/12 to 2020/2021 by Ministry of finance, Kathmandu, Nepal Government of Nepal and periodic plan of Nepal by national planning commission Government of Nepal.

Table 1 reflects the income received as remittance as percent of GNP and poverty. Total remittance is Rs.5824.8 billion from fiscal year 2011/12 to 2020/2021, in fiscal year 2011/2012 remittance as percent of GNP is 23.5 and amount is Rs395.6 Billion at that time poverty is 24.4 , in fiscal year 2012/13 remittance amount is increasing from 359.6 to 434.6 and As percent of GNP is also increase to 25.6 among them in fiscal year 2013/14 remittance amount is 543.3 it is also increasing then fiscal year 2012 /13 remittance as percent of GNP is also increasing in fiscal year 2013/14 to 27.7% . Where Poverty rate is 23.8% in fiscal year 2012/13, it is declining than fiscal year 2011/12. Among them in table in fiscal year 2015/2016 the amount of remittance is Rs. 665.1 billion and contribution in GNP is 25.5% it is increasing also, at that time poverty is 21.6%. It shows that in table in fiscal year 2017/2018 remittance value is Rs.755.1 billion contribution in GNP is 21.8%. In fiscal year 2018/ 2019 remittance value is Rs. 879.3 billion and contribution in GNP is 25.4% poverty rate is 18.7. In 2019/20 remittance is Rs.875.0 billion contribution in GNP is 22.4 %.

Conclusion

It shows that the amount of remittance is increasing from fiscal year 2011/12 to 2019/20 from Rs 359.6 to 875.0 billion. And the poverty ratio is decreasing from 24.4 to 18.7%. poverty is declining from people using their income receive by remittance in productive sector to generate income so the living standard increases. It shows remittance highly contributed to alleviate poverty. Because due to increase in remittance poverty ratio is declining.it means income level is going up.

Remittance has played a vital role in poverty reduction. Various reports and document published in recent times have attributed the dramatic fall in absolute poverty to the inflow of remittance in Nepal. The percentage of GNP receiving as remittance by people in Nepal during the year 2011/2012 was 23.5%. This is sharp rise from the year 2011/12, now it in 2019/20 is 22.4%. The poverty in year 2011/12 was 24.4% in 2019/20

poverty rate is 18.7%, it is decline in absolute poverty in the nine years between 2011/12 and 2019/20. Therefore, foreign employment is a major economic phenomenon in Nepal and itis directly related to the economic growth.

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Examining Digital Finance Service as an Instrument for Financial Inclusion in Nepal

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Abstract

Financial inclusion is one of way to raise income and make inclusive economic development in all segments of the society. One of the good ways to expand financial inclusion is to adopt technological path which has potential to broaden the existing inclusion status. Nepal is gradually building infrastructure on Information and communication technology and formulating technology-oriented policies thereby creating digital base, creating new set of opportunities for development and financial Inclusion as well. The paper analyses relevant data on digital technology, financial access and financial products and services from secondary sources. Using multiple regression, this study found significant and positive relation between mobile and internet access on number of deposit accounts used as proxy for financial inclusion. The finding of this study is in favour of to promote mobile and internet usage by more and more population to improve financial inclusion.

Keywords: digitalization, financial services, financial inclusion, multiple regression

Introduction

Financial inclusion is described as the access and use financial services with the goal of delivering relevant and beneficial financial services and products to weaker section and low-income segments of the population. It is being adopted as development instrument across the globe for individuals, businesses and government in all categories of economy. Demirguc-Kunt et. al (2017) Financial inclusion means the adult population of the society have an access to relevant financial services as per their convenience and affordability. It aims to bring people from the deprived section to formal financial system allowing them to manage investment and financial risk.

Financial access is known to tackle the poverty and boost financial gains upgrading the economic status of the nations. Hence the policy makers, governments and multilateral

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institutions like WB, IMF have been emphasizing financial inclusion-based policies to achieve inclusive and sustainable growth. Pant (2016)Financial Inclusion can be used as vehicle for arriving inclusive economic growth in Nepal. Policies related to Bank and financial literacy, financial access, digital financial services, technological infrastructure, bank account uses can improve financial inclusion, which can also be an effective tool for Nepal to attain sustainable development goals and make Nepal middle income country by 2030.

According to global index database 2017, only 45% adult Nepalese have bank accounts, which indicates the big eligible population is excluded from financial services which is also the case for many developing nations. Siddiket al. (2014) Approximately, fifty percent of the global population have no access to formal financial services. Hence, developing nations needs to make financial services accessible, affordable, secured and convenient along with appropriate financial literacy.

Digital technology can be considered a milestone for improving financial access due to its potential of remote connectivity and convenience. Ozili (2018) Digital financial inclusion is said to happen when excluded and underserved people operate bank accounts via digital channel. Given the mobile phone and internet access to the excluded population, digital finance has positive effect on access to formal financial services. Digital Financial Technology aims to reduce the time and cost for using financial services over the existing products by using digital platforms. The Government, digital finance service providers and users all have several benefits from digital financial inclusion, like stimulating government aggregate expenditure, reducing cost of intermediation, improving access and reaching low-income category as such it benefits the economy as a whole. Cuesta et al. (2015) Banks by opting digitalization in their services can stay ahead in the competitive sphere and address changing customers' preferences.

Nepal government has been working on digital strategy and infrastructures like fiber broadband and 5G to digitally connect the nation which reciprocates different economic segments. Giri (2018) Nepalese Government has conceptualize Digital Nepal Framework 2019, to emphasize eight domains, agriculture, health, education, energy, tourism, digital foundation, tourism, finance and urban infrastructure along with eighty

initiatives to use digitalization as a tool for economic growth and e-governance. The framework and its plans will lead Nepal to become a digital nation.

According to world development report 2016, more household own mobile phone than electricity or water in developing economy. The Global Findex Database 2017 portrays, 79 percent of adult population in developing economy own mobile phone. The data taken in this study shows that mobile subscription has increased by 28 % and internet by 79 % in the study period from 2016 to 2021. These facts give good platform for digital finance to promote financial inclusion and access for developing countries including Nepal. Akhter and Khalily (2017) Financial products as well as institution has been transformed by Smartphone and internet. Its main advantage is access for excluded poor, micro and small entrepreneurs thereby improving economic growth and decreasing poverty. The mobile financial services have made a massive growth in South Asia making the financial services accessible in mountains and other geographically challenging area. Kemal (2019) Mobile Banking is based on digital technology which paves a way for anywhere anytime financial services. Reach of this technology creates an opportunity to improve financial inclusion.

Digital finance provides alternative delivery channel to access and improve the financial services. Lenka and Barik (2018) It is a problem of poor population of many countries to be excluded from financial services. The increase in mobile phone together with the internet has created space for modern financial services such as e-banking, money transfer, and payment processing. These new channels have potential to provide basic financial services to the general people. Durai and Stella (2019) Digital finance is delivery of financial services through mobile phone, internet, cards which are linked with digital payment system. Convenient, low cost, timely, and suitable digital finance brings financial change in day-to-day life of people and it has positive effect in promoting financial inclusion.

Growing number of mobile penetrations and internet access facilitating increasing use of digital solution in every sphere of daily life by adult Nepalese people is embracing Nepal in digital track. The increase in number of mobile banking user from 1.75 to 12.68 million i.e., more than seven times in past 6 years demonstrates the scope of digital solution adoption in Nepal. Like many of the developing countries have been doing,

Nepal can use digital infrastructure not just for broadening financial services but strengthening financial system as a whole. Hence, it is important to take this change as an opportunity as many of the developed and developing countries have set benchmarks by utilizing digital technology.

On the ground of above information, this study examines the potential of digitalization vehicles mobile and internet on promoting financial inclusion in Nepal. With this introductory context, the second section presents literature review and section three provides methodology adopted in this study. This is followed by discussion and data analysis in Section four. The final section concludes with brief policy inferences.\

Literature Review

The literature has been reviewed to provide an overview of application of mobile, internet and fintech to promote digital financial inclusion. It also highlights the socio-economic benefits of digital financial inclusion.

Ozili (2018) focused on digital finance and its application as important factor for financial inclusion and financial stability. Fintech providers by digitizing financial services has been creating positive environment for financial inclusion in all for forms countries regardless of their economic status. The most differentiating factor of digital finance over traditional banking institutions has been convenience and affordability that low- and variable-income category people obtain from digital services.

Vasiljeva and Lukanova (2016) focused on banks investment and uses of digital and information technology. Analysis of big data, studying information about customer and their transaction, making business procedures online will enable banks to improve service efficiency and customer delight.

Gomber et al. (2018) Technology and process innovation in the financial services is continuous process leading the formation of new business models and customer friendly experience. Major findings of the study are (i) It is appropriate for the larger existing firms to outsource financial technology than to build in-house to compete with fresh start-ups.ii) Fintech sector will probably mature like an ordinary industry with the noteworthy adjustment and evolution over the period of time.

Pant (2016) focused on several policies and programs Nepal have formulated to achieve desired level of financial inclusion which is yet to be visible especially in the

villages, poor and economically dependent section of the society. Financial literacy, using bank accounts and technology based financial services, remodeling business plans, emphasis on the role of micro finance institutions, formulation and implementation of appropriate policies by government and Nepal Rastra Bank (NRB) is likely to promote financial inclusion in Nepal.

Shrestha (2020) The Findex data (for 2017) shows that majority of Nepali population is unbanked, adults' population having bank accounts comprises 45%. Thus, financial inclusion measured as access to and use of financial services, holds important economic meaning in emerging and developing countries where large section of people does not have financial access. Both the demand and supply side factors are responsible for financial inclusion.

Lenka and Barik (2018) The increased use of mobile and internet in SAARC countries has increased financial access thereby increasing financial inclusion. Moreover, the improvement in education and income has positive impact in financial inclusion however the rural population and unemployment are adversely related with the financial inclusion.

D'Souza (2018) Mobile banking enable users to route all the day to day transactions via bank account creating base for saving and credit especially for low-income category. Lowering Transaction cost, digital literacy and training, knowing the financial need and situation prospective user, ensuring authorize use of data facilitates mobile banking in financial ecosystem.

Gabor and Brooks (2017) The discussion paper studies the digital financial inclusion as a facilitator for economic development which could be undertaken by the state organizations, philanthropic investment and Fin-tech companies. The paper conveys that the digital revolution gives the nations innovative methods to increase financial at national as well as global level and also turns the poor household into financial asset generators.

Akhter and Khalily (2017) The working paper suggest that role of Banking and Financial Institutions in terms of financial service access can be expanded if the mobile banking is added in the service portfolio. The institutions participating in the mobile

financial services should invariably be regulated considering the security and operational issue.

Kandpal and Mehrotra (2019) The participation of unbanked rural population in the financial main stream have increased due to the regulatory efforts of government. Mobile lead financial service solutions are being introduced by the startups as well as regular banks to improve financial access and make payments more efficient. The government programs to digitalize economy will make more digital financial innovations and introduce more fresh players.

Fanta et al. (2016). The paper examined the elements of mobile money service subscription and its connection with financial inclusion. It recommends for expansion of mobile phone penetration and telecommunication infrastructure. The mobile based services should be extended to remote people and make the service user friendly. Further technology based financial education and launching of innovative mobile based financial services will be important for access to saving, credit and insurance.

The literature review shows that there are various socio-economic benefits financial inclusion delivers to the individual, society and country as a whole. Study of financial inclusion through digital finance is not new. Many empirical and descriptive studies have been carried out in developed countries as well as in our neighboring countries regarding the association of digital technology especially mobile banking and fintech on financial inclusion. Most of these studies shows that mobile, internet and related financial technology has lowered transaction cost, improved saving and credit and enhanced financial access for unbanked and underbanked population. However, the study on nature of relationship between digitalization propellers like internet access and mobile penetration on financial inclusion in Nepal is found negligible compared to other countries.

Research Gap

Financial inclusion is an important key for sustainable economic development and growth by the delivery of appropriate financial products and services to the excluded population. Nepal aspires to become middle- income country by 2030, for this financial inclusion and access is required to tackle poverty and raise peoples' income. Consistence in this technological and digitalization era Nepalis having more and more internet access,

mobile phone penetration and digital platforms in past ten years. With the aid of technology and digitalization, financial services have been made accessible to the underbanked and unbanked population in the developed as well as developing countries. The few recent Nepalese studies on financial inclusion have been made to prescribe the appropriate policy to the authorities where the digital financial services have occupied reasonable space in their recommendations. On this context this study attempts to show the relationship between digital financial services and financial inclusion in Nepal.

Objectives of this Study

To examine the current status of financial inclusion in Nepal.

To examine association between digitalization and Financial Inclusion in Nepal.

Research Methodology

This section of the study is focused to determine whether digitalization promotes financial inclusion by the analysis of relevant secondary data. The present study takes number of deposit account as a dependent variable as an indicator of financial inclusion and independent variables are internet access and mobile subscriptions in Nepal. The data was collected from secondary sources from Report of NRB (Nepal Rastra Bank), Ministry of Finance, Nepal Telecommunication Authority Government of Nepal, Research Articles, Research Journals. Based on availability the data was collected from mid-July 2016 to mid- January 2021 on quarterly basis. Multiple regression analysis has been used as a main statistical tool to establish an empirical relationship between digital proxies (internet access and Mobile Subscription) and Financial Inclusion in Nepal. This is presented by the equation below.

$$Y= b_0+ b_1X_1 + b_2X_2 + U$$

Where, Y=Number of deposit accounts

X_1=Number of Mobile Subscriptions

X_2=Number of Internet access

Financial Inclusion in Nepal

Pant (2016) stated that central bank and Government of Nepal has been encouraging financial inclusion in Nepal as a catalyst in economic growth and development. Nepal Rastra Bank introduced five- year strategic action plan (2012-2016) to enhance financial inclusion as strategic priority. Since then, many policies have been

prescribed to improve financial inclusion. Similarly, monetary policy, Banks and Financial Institution Act, have been emphasizing financial inclusion in Nepal. Shrestha (2020) Efforts to expand financial inclusion was made by Government of Nepal (GON) and NRB by establishing credit cooperatives, deprived sector credits, group guarantee schemes, expanding branches of banks, establishing Rural Self Reliance Fund and Rural Development Banks. Recent focus has been on digitalization of financial services and financial literacy.

Table 1 demonstrates uses of digital medium in financial transaction as well as financial access situation, the data is furnished by Global Findex, World Bank. Account holding population above fifteen years has grown significantly from 25 to 45 percentage in the year 2011 to 2017. The borrowing to expand farm or business has increased considerably from 8 in 2014 to 14 percentage in 2017. Similarly, 2 percentage of people began to use internet services to pay bills or to buy online since 2017 which was negligible prior to the year. Debit card ownership showed consistent growth. The use of mobile or internet sharply came to 7% in 2017. This table portrays that there is plenty of space for enhancing access and usage of digital financial services.

Table 1

Nepalese Database Relating to Digital Financial Access

Indicators	Year	Data
Account Holding (%age 15+)	2011	25
	2014	34
	2017	45
Borrowed to start, operate, or expand a farm or business (% age 15+)	2011	-
	2014	8
	2017	14
Used the internet to pay bills in the past year (% age 15+)	2011	-
	2014	-
	2017	1%
Used the internet to pay bills or to buy something online in the past year (% age 15+)	2011	-
	2014	0
	2017	2%
Used the internetto buy something online in the past year (% age 15+)	2011	-
	2014	0
	2017	2%
Debit card ownership (% age 15+)	2011	4
	2014	7
	2017	9
Made digital payments in the past year (% age 15+)	2011	0
	2014	6
	2017	9%

Received digital payments in the past year (% age 15+)	2011	0
	2014	7
	2017	11%
Used a mobile phone or the internet to access a financial institution account in the past year (% with a financial institution account, age 15+)	2011	-
	2014	-
	2017	7

Source. Global Findex Database 2017

Table 2 and figure 1 shows the data from NRB regarding number of accounts opened from mid-July 2016 to mid-January 2021 and digital products subscribed in the corresponding period. The number of accounts has been increasing by remarkably good number each year, it has almost doubled since 2016 compared with 2021. The mobile banking subscribes has increased more sharply than number of accounts each year, the subscribers has almost increased by more than six times since 2016 compared with 2021. Similarly, internet banking customers have also been doubled in 2021 compared with 2016 data. The debit card holders have also consistently increased with increase in number of accounts. As per below data there has been excellent growth in the mobile banking subscribers compared with other digital products.

Table 2

Number of Digital Products Subscribed in Accounts

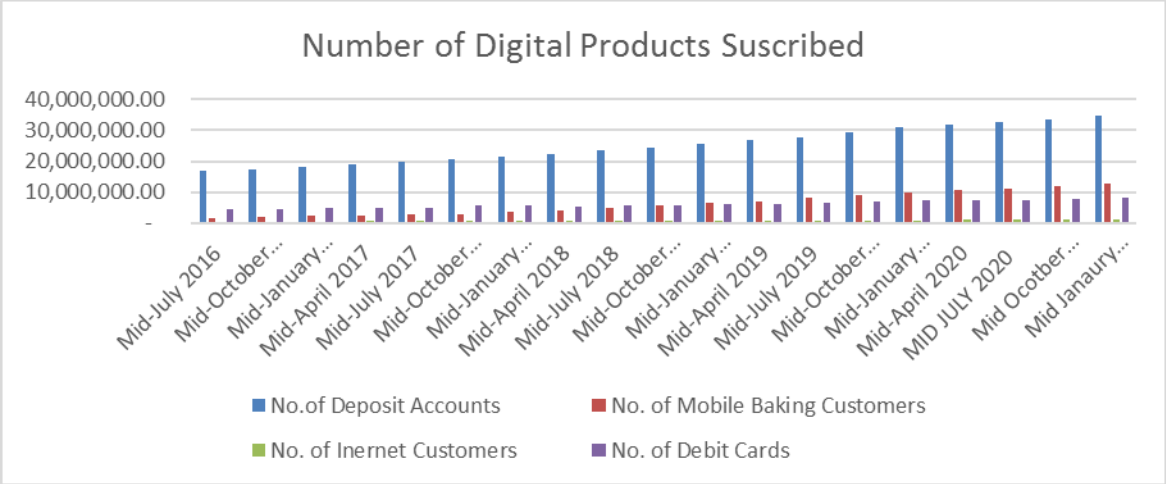
Time	No. of Deposit Account	Mobile Banking customers	Internet Banking Customer	No. of Debit Cards
Mid-July 2016	16,836,017.00	1,754,566.00	515,465.00	4,657,125.00
Mid-October 2016	17,519,287.00	1,924,946.00	534,372.00	4,671,227.00
Mid-January 2017	18,206,724.00	2,236,074.00	564,128.00	4,848,053.00
Mid-April 2017	18,843,605.00	2,426,681.00	734,924.00	5,108,213.00
Mid-July 2017	19,754,036.00	2,669,732.00	783,751.00	4,980,958.00
Mid-October 2017	20,507,612.00	2,986,669.00	667,967.00	5,583,900.00
Mid-January 2018	21,498,903.00	3,530,227.00	842,431.00	5,769,218.00
Mid-April 2018	22,500,069.00	3,999,803.00	784,286.00	5,207,598.00
Mid-July 2018	23,544,859.00	5,086,069.00	834,302.00	5,544,253.00
Mid-October 2018	24,351,485.00	5,827,289.00	791,740.00	5,854,167.00
Mid-January 2019	25,658,387.00	6,394,916.00	856,695.00	5,962,838.00
Mid-April 2019	26,910,480.00	6,998,924.00	892,859.00	6,281,427.00
Mid-July 2019	27,866,505.00	8,347,187.00	917,344.00	6,708,521.00
Mid-October 2019	29,269,631.00	9,099,732.00	928,709.00	6,919,602.00
Mid-January 2020	31,112,194.00	9,806,237.00	969,055.00	7,215,646.00

Mid-April 2020	31,885,779.00	10,670,072.00	992,724.00	7,243,153.00
Mid July 2020	32,454,204.00	11,306,797.00	1,031,227.00	7,329,202.00
Mid October 2020	33,531,787.00	11,912,813.00	1,061,340.00	7,669,827.00
Mid-January 2021	34,671,949.00	12,689,445.00	1,090,332.00	8,049,059.00

Source. Nepal Rastra Bank, Banks and Financial Institution Regulation Department

Figure 1

Digital banking products suscribed in accounts



Data Analysis

There are number of financial inclusion indicators, however population having bank account is frequently used as most suitable indicator of financial inclusion. Demirguc-Kunt et. al (2018) primary step towards financial inclusion is having bank accounts. People need to have adequate knowledge about account uses to take its full advantage. Demirguc-Kuntet. al (2017) saving accounts are the basic products beside micro-credit and insurance which lays the foundation for making digital payments, that has economic benefits to individuals and government. Figure 2 shows our dependent variable, i.e. total number of accounts opened in Nepal at A,B and C class financial institutions from Mid-July 2016 to Mid-January2021 on quarterly basis. The number has been continuously growing in the study period and the figure has almost doubled in 2021 compared to 2016.

Figure 2

Quarterly data of bank deposit accounts (Dependent Variables)

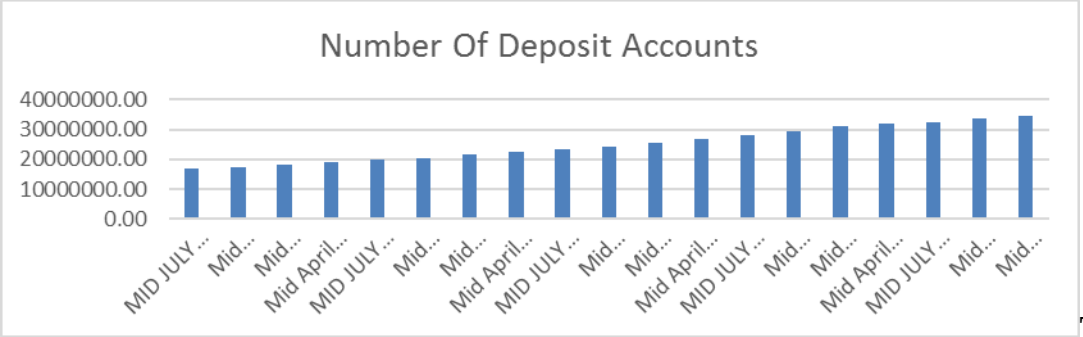


Table 3

Variables used in Study

Year	No. of Deposit Accounts	No. of Mobile Subscribed	Population having internet access
Mid-July 2016	16,836,017.00	29,762,155.00	13,784,618.00
Mid-October 2016	17,519,287.00	30,890,400.00	14,307,574.00
Mid-January 2017	18,206,724.00	32,120,305.00	14,579,889.00
Mid-April 2017	18,843,605.00	33,207,816.00	15,449,996.00
Mid-July 2017	19,754,036.00	34,172,058.00	16,186,759.00
Mid-October 2017	20,507,612.00	35,243,941.00	16,661,485.00
Mid-January 2018	21,498,903.00	36,096,396.00	16,906,869.00
Mid-April 2018	22,500,069.00	37,364,998.00	13,858,058.00
Mid-July 2018	23,544,859.00	38,339,539.00	13,378,001.00
Mid-October 2018	24,351,485.00	39,002,388.00	15,963,445.00
Mid-January 2019	25,658,387.00	39,163,433.00	16,612,211.00
Mid-April 2019	26,910,480.00	39,640,443.00	18,248,461.00
Mid-July 2019	27,866,505.00	40,596,259.00	19,441,710.00
Mid-October 2019	29,269,631.00	41,486,544.00	20,781,975.00
Mid-January 2020	31,112,194.00	42,270,309.00	21,298,011.00
Mid-April 2020	31,885,779.00	37,890,035.00	21,914,068.00
MID July 2020	32,454,204.00	37,073,662.00	22,237,567.00
Mid October 2020	33,531,787.00	37,291,897.00	23,275,728.00
Mid-January 2021	34,671,949.00	38,212,800.00	24,735,650.00

Source. Quarterly data of bank deposit accounts

Table 3 shows the dependent and independent variables used in this study.

Figure 3

Independent variables (No. of mobile subscribed and internet access

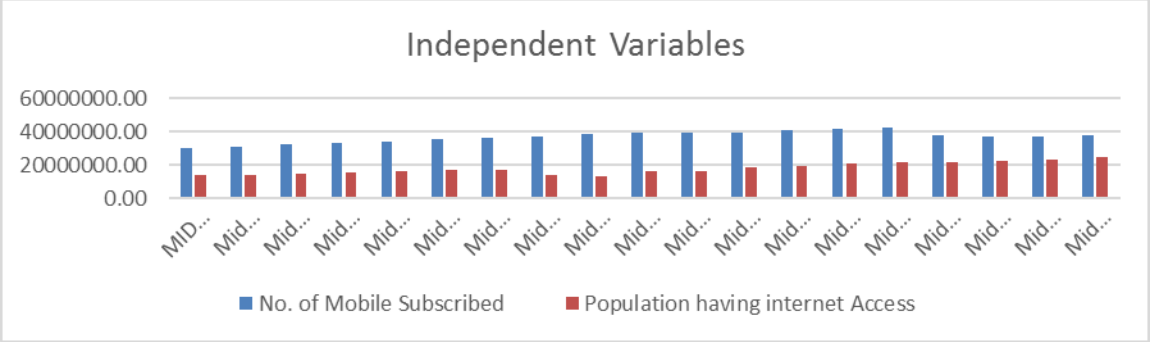


Table 4

Summary of Regression Analysis

R	R Square	Adjusted R Square	Standard Error of the Estimate
.964	.929	.920	1649150.484

Table 4 demonstrates the summery of the multiple regression analysis carried out using SPSS software version 23. The analysis shows the value of R (Multiple correlation coefficient) being .964, which demonstrates good level of prediction of number of accounts (Dependent Variables) by the application of independent variables used in the study. Similarly, the value of R square is .929, which indicates that 92.90% of the variability in dependent is explained by independent variables. Further the value of adjusted R square is .920 indicating better fit for the model.

Table 5

ANOVA Table

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	568904644424396.100	2	284452322212198.060	104.590	.000
	Residual	43515157113040.805	16	2719697319565.050		
	Total	612419801537436.900	18			

a. Dependent Variable: No.of Deposit Accounts

b. Predictors: (Constant), Population having internet Access, No. of Mobile

The Table 5 shows that the independent variables significantly predict the dependent variable, since p < .0001; the regression model is a good fit of the data.

Table 6

Regression Coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.	VIF
	B	Std. Error	Beta			
Constants	-17441031.0	4125477.520		-4.228	.001	
No. Mobile Subscribed	.571	.133	.342	4.304	.001	1.423
Population having Internet access	1.204	.130	.734	9.231	.000	1.423

The estimation of the model is presented in Table 6 as:

$Y= -17441031.0 +.571X_1+1.204X_2 + u$

Table 6 provides us the coefficients as a result of regression analysis to predict dependent variable from independent variables. The unstandardized coefficient in the table indicates how much the number of accounts (dependent variable) varies with each independent variable in the study when each of the respective independent variables are held constant with each other. Multiple regression analysis revels that unstandardized beta value of number of mobiles Subscribed and internet access is .571 and 1.20 respectively i.e., statistically for every increase of mobile subscription and internet access the number of accounts increases by .571 and 1.20 respectively. The *P* value of mobile subscription and internet subscription is <0.005, which indicates that there is a statistically significant impact on number of accounts. Further as a normal rule the VIF values of more than 5 are not acceptable in data which is considered as a sign of multicollinearity. This model is free from multicollinearity as all the VIF values are less than 5 for the independent variables considered in study.

Conclusion

This study examines digital finance as an instrument for financial inclusion in Nepal. In developing countries like Nepal, the growing number of mobile and internet penetration together are creating opportunity to expand financial inclusion due to their remote and convenient access. Demirguc-Kunt et al. (2018). In the developing world mobile network and internet have created opportunity to deliver financial services by a new channel. Even text-based mobile phone has facilitated to open and operate mobile based accounts. Given the sufficient telecommunication infrastructure mobile phones and internet plays vital role in financial inclusion. Akhter and Khalily (2017) Smartphone, cellphone and internet services have brought constructive change in the usage and accessibility of financial services. This new channel can easily reach to excluded population and helpful in expanding service in remote locations.

This study examined whether the digital finance promotes number of accounts (proxy for financial inclusion in the study) in Nepal using secondary data from Mid-July 2016 to Mid-January 2021 taken on quarterly basis. Using multiple linear regression, the present study found positive and significant impact of mobile subscription and internet access on number of accounts in Nepal.

Digital finance economically benefits the financially excluded individuals and business along with economy as a whole. Hence, the government, banks and financial institutions, fintech's and related authorities should make maximum use of digital finance and infotech as propellers for expanding financial services. To sustain the digital finance, we need to emphasis on financial education for people and businesses about its uses and benefits and establish the secured payment system.

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