Labour Migration, Remittance, and its Impacts on the Economic Growth of Nepal

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\textbf{ABSTRACT}

Nepal is one of the least developed, landlocked country in the world, which economy is heavily dependent on imports of basic materials and foreign markets for its forest and agricultural products. Economic growth rates are increasing after the promulgation of the constitution from the Constitutional Assembly in 2015, the ending of the political transition in Nepal, it opens the door to spend the nation’s energy on economic development. International labour migration, remittance has been regarded as one of the important factors to influence the economy where the country received remittances of foreign migrants, which contributes 28.6\% (in 2018; the world Bank) of total GDP in the nation. This study applied empirical and descriptive analysis to know the effect of labour migration, remittance on the economic growth of Nepal, employing balanced panel data from 1994 to 2018.

The descriptive data concluded that the real GDP, remittance has been increasing as compared to foreign labour migration over the period but the share of skilled labour is very low and remains about constant over the study period and the contribution of labour migration on real GDP has been low. The empirical regression analysis confirms a positive effect of remittances on economic growth in Nepal that are the similar result showing in India, however, the opposite results, remittances have a negative impact on economic growth, showing in other south Asian countries (e.g., Bangladesh, Pakistan and Sri Lanka).

\textbf{Keywords: ECONOMIC GROWTH; LABOUR MIGRATION; REMITTANCE; TRADE; REAL GDP; EMPIRICAL ANALYSIS}

1. Introduction

1.1 Labour migration

Labour migration is a movement of persons from one state to another, one country to another, for employment. Labours are usually moved to different places due to the natural rate of unemployment, rapid technological change, economic growth, and wages. The migration of the labour force from one country to
another is a global issue that became widespread in the last twentieth century (Olimova et al., 2003). Labour migration issues are supposed to raise complex and sensitive political, human rights, economic and social concerns, as well as an array of legal and regulatory challenges (Bauböck, 2006). Labor migration is one of the important factors to influence the national economy which has a significant impact on national output. Approximately 3.5% of the world's population (over 272 million) are estimated to be living outside their countries of birth whereas 63.5% of this population is estimated to move for employment opportunities (ILO, 2018; UN DESA, 2019). The ILO (2015) estimated in the world the migrant workers are about 150.3 million where Asia–Pacific hosts 17.2% of migrant workers worldwide (25.8 million persons). The Arab States comprises the highest proportion of migrant workers to all workers (35.6%) and hosts 11.7% of migrant workers worldwide, most of them from Asia. From 1990 to 2013, the number of international migrants increased in the world by 77 million, within Asia, the number of migrants increased by 21 million (IFRC, 2015).

Labour migration is supposed to one of the major components of the GDP of Nepal since the 1990s. A large number of migrants have a positive impact to reduce the problem of unemployment and poverty in the nation. For the Nepalese history of labour migration, Nepalese people started foreign employment by traveling to Lahore in the early 19th century joining the Sikh ruler Ranjit Singh. Intranational migration started from the Sugauli Treaty of 1814 A.D. Government of Nepal introduced Foreign Employment Act in 2042 B.S. (1985 A.D), establishing the manpower for sending Nepalese labour abroad for employment, however, the outflow of the Nepalese workers from the country in considerable number started after 1990. The rate of foreign employment has been increasing dramatically after 1996 and the consequent shrinking of economic opportunities back home compelled Nepalese youth to look for alternatives elsewhere.

The ending of political transition in Nepal after the Constitutional Assembly in 2015 and that open the door for spending the nation's energy on economic development, the labor migration will be the hot issue for the country for years to come. Lack of employment opportunities in the Nepalese labor market, low payment, price hike, Nepalese culture that does not respect every job, increased expectations of youths due to the development in communication and technology, and high affection of youths towards foreign employment have contributed to the exodus of Nepalese youths to foreign employment (Economic Survey 2015/16). The data and trend of classified labor migration have been quite more hurting to the Nepalese economy. The trend of Nepal's labor migration shows increasing in order from 1993 to 2019. In 1993/94, the total number of migrant labours was just 3,605, a decade later, in 2003/2004 is 106,660 and in 2013/14, it peaked at 519,638 and 236,211 in 2018/19 (Nepal labour migration report, 2020) respectively. According to the report, the migrated Labour forces of Nepal are predominantly male, with more than 80% of the total labour migrant population in 2018/19 between the ages of 18 and 35 (MoF, 2018-19).

Foreign employment now a day has become the most important sector for the sustaining of the country's economy. On average daily1500 Nepalese youths leave the country for employment overseas (MoF, 2016-
Annually, about 300,000 to 350,000 new Nepalese labors enter the market. Out of these new entrants, 30 to 40 thousand find jobs within the country; about 100,000 go abroad and the rest remain in the country without a job (Bhanubhakta, 2014). Although officially, Nepal has opened 110 countries for Nepalese workers till 2019, there are half a million unskilled and semi-skilled Nepalese labors working in the Arabian Gulf (MoF, 2018-19). Although they have now started going in large numbers to other regions as well, the Gulf region has more Nepalese workers than anywhere else in the world. Despite this link, Nepal's relations with Gulf countries have been an oft-neglected aspect of Nepal's international relations exercise (Pandey, 2005).

The overall labour migration scenario from Nepal since 2017 to 2019 (Figure 1) showing heavily concentrated in the GCC and Malaysia whereas, in 2017/18, the top 5 countries (Malaysia, Qatar, UAE, Saudi Arabia, and Kuwait) comprised of over 92% of the total migrant workers and this share was 88% in 2018/19 (Qatar, UAE, Saudi Arabia, Kuwait, and Malaysia). A large population of labour migrated in a few destination countries points to the significance of these destination countries for Nepali migrant workers, the lack of diversity in the destination countries and the vulnerability of the Nepali migrant population to macroeconomic shocks in the GCC or Malaysia (DOF).

![Figure 1](https://example.com/f1.png)  

**Figure 1.** Labour migration in major destination country from 2017 to 2019 (adapted from MOF-2020)

Foreign employment is not only the benefits of the national economy but also affects the heavy burden of migration costs both in terms of social-economic and psychological costs which associate with hassles, abuses, and exploitation. On the other hand, foreign employment trapped into the nexus of migration and human trafficking, whereas human trafficking and smuggling crime networks are quite effective in comparison to the legal regime of the countries using the opportunities of migration. It is also directly affected the cases of social disorders and family breakdowns, an increase in excessive economic and social dependencies, increasing willingness among the youths to enter into foreign job markets beyond the
knowledge-based and skill-based capacity. In the developing countries, most of the labour receiving markets desire to use unskilled workers due to luring to cutting down the labour costs to be competitive in the markets of goods and services. Few studies state the remittance behaviour of the highly skilled migrant workers than that of semi-skilled and unskilled.

1.2 Remittance

In general, remittance is the money or foreign currency obtained from abroad after paying physical or mental labour. The increasing number of international migrations that increases the volume of remittances in the last many years in Nepal. Nepalese economy started to receive remittance formally since Nepal's brave soldiers admitted to Britain Army whereas the Gorkha soldiers have played an important role in the country’s economy. Similarly, for the security sectors, about one lakh fifteen thousand ex-servicemen and other Indian Government pensioners residing in Nepal (Pathak, 2007). Different way considers for cash flow from annual pensions, remittances to families or monies taken home in a lump sum by discharged veterans or by service personnel on leave have represented a major source of the country's foreign exchange. The recent trend shows the remittance inflows to Nepal rose by just 5.7 percent to Rs. 342.2 billion in the first half of 2016/17, compared to its growth of 17.3 percent in the same period of the previous year.

The study of role and impact of remittance upon the national economy, especially in underdeveloped economies, is the emergent phenomenon though the essence of foreign saving was discussed in the classical era as well. The macroeconomic effect of labour migration enjoys a strong theoretical tradition dating back to the time of Adam Smith, David Ricardo and the Labor Theory of Value and Comparative Advantage (Pant, 2006). In most developing countries, remittances played an important role in economic growth and development. When the recipient economy undergoes an economic recession following the crisis, natural calamity, or political conflict, remittances be likely to be constant and increase (Yang, 2008). Labour migration has played a momentous role in poverty reduction in Nepal from 42 % to 21.6 % in past decades (MoF, 2015/16). The migrant remittances of Nepal have significantly increased in the recent past, from 2.54 billion USD in 2010/11 to 8.79 billion USD in 2018/19 (DoFe, 2018/2019).

Many studies focused on trade and worker remittances on economic growth (Le, 2008; Abdulbagi, 2016), or the relationship between trade and economic growth (Jenish,2013) or the relationship between remittance and economic growth (Shera & Meyer, 2013; Uprety, 2017) that concludes that remittances and trade promote economic growth, however, there is a huge debate about the contribution of trade and worker remittance in economic growth. Many empirical studies showing that worker remittances have a significant and positive relationship with growth (Azam, 2013; Mwangi & Mwenda, 2015). However, some studies raising questions on a positive contribution to economic growth, development, and income promotion (Uprety, 2017; Detta & Sarkar, 2014; Pant, 2008). In the case of trade openness, it is concluded that trade openness has a positive
implication on economic growth (Frankel & Romer, 1999; Metadeen & Seetanah, 2011; Wacziarg, 2001) although, some study concludes that the support of trade to growth is not free from the debate (Balasubrmanyam, Salisu & Sapsford, 1996; Yanikkaya, 2003).

From the last two decades, remittances have grown to almost three times the size of official aid. Nepal occupies the fifth-highest remittance recipient country position after Tonga, Kyrgyz Republic, Tajikistan, and Haiti, in terms of equivalence to GDP. Remittance considers as the main source of foreign exchange earnings in Nepal whereas the volume of remittance was 68.5 % of the total foreign currency accumulation in fiscal year 2017/18 (MOF). Remittance received in a country now represents approximately one-third of GDP, almost tripling as a percentage of GDP from 12.2% in 2003.

![Figure 2. Remittance received by the destination country (in Billion USD), Source: Nepal Rastra Bank](image)

Figure 2, showing a country-wise disaggregated analysis of the remittances received between 2014/15 and 2017/18 which indicates the remittance received from GCC countries and Malaysia accounts for more than half of the total remittance inflows. The trend shows that about 14% of the total remittance inflows were received from Saudi Arabia, about 12 % each from Qatar and Malaysia, and about 11% from the UAE (2017/18). Besides the low skilled labour, the profile of migrant workers to the USA is different and comprises predominantly of students, permanent residents, and highly skilled professionals, that transfer the highest remittance, 20% of the remittance inflows (Nepal Rastra Bank, 2018).

1.3 Economic growth

Gross domestic product (GDP) is sating the value of a nation's finished domestic goods and services during a specific time whereas the gross national product (GNP) is the value of all finished goods and services owned by a country's residents over a while. Both the terms GDP and GNP, are commonly used measures of a country's economy and represented the total market value of all goods and services produced over a defined period. Differently, GDP limits its interpretation of the economy to the geographical borders of the country and GNP extends it to include the net overseas economic activities performed by its nationals.
The five years economic growth trend in Figure 3 shows that the average growth rate of Nepal in maximum in 2017 and a minimum in 2016. In South Asia, the growth rate is higher in India, and the Afghanistan rate is lower whereas, Bangladesh's economic growth is quite constant. Bhutan and Sri Lanka's economic decline in 2018 whereas, Pakistan and Maldives economy showing an increase in the same year 2018. Chinese economic growth rate is constant at more than 6 %, however, in 2018 it is decreased by 0.2% from the previous year.

International Monetary Fund (IMF) has projected that the Nepalese economy will decline by 6.3% in 2019 whereas the Indian economy will grow by 7.3% as compared to the rise in 7.1% in 2018. The Chinese economy is projected to slow down to 0.3% in 2019 as against the growth of 6.6 % in 2018. Hence, the economic growth rate of all South Asian countries except Nepal, Sri Lanka, Afghanistan and India, and is projected to decrease along with China in 2019 (Economic survey of Nepal 2018/19, MOF).

![Economic Growth Rate of South Asian Countries and China (In percent)](image)

**Figure 3.** General trend of the economic growth rate of south Asian countries includes China. Source: International Monetary Fund, 2019, World Economic Outlook (WEO)

In the years 2017-19, remarkable progress with the signing or renewal of bilateral labour agreements with Jordan, Japan, Malaysia, Mauritius and the UAE that include strong worker-centric provisions including employer pays principle, equal pay for equal work and no-cost access to justice, among others (MoF, 2020). In December 2018, with the adoption of the Global Compact for Safe, Orderly and Regular Migration (GCM), the inclusion of migration-related indicators in the Sustainable Development Goals, Nepal has approached to global platforms and a common language to elevate the discussion on worker protection issues from the vantage of a sending country. Labor migration for work has been increased especially after the origination of armed conflict in Nepal. Some study shows meaningful use of remittance in micro-level (household level) of the economy. The presence of remittance has increased informal lending practices also. Private banks and financial institutions are mushrooming with the flow of remittance in Nepal.

For the national economy, foreign employment has not been placed as an integral component, they are not
considered as a national priority or any substantial mainstreaming efforts. The major problems are that there is an absence of clarity in the systems of foreign employment practiced so far whether it is state-regulated or state-managed, state-monopoly, or privatized. Therefore, there is no efficient, appropriate, adequate, and effective policy and institution for fostering safe migration and promoting foreign employment in the interest of national development (Pathak, 2013).

Worker’s remittances can play an important role to small capital for investment, start new business, and learn skill for an individual but at national level that would be helpful to formulate capital which would help to promote growth (Giuliano & Arranz, 2009). The volume of worker remittance in the last two decades have grown rapidly in Nepal, and remittance remained as the major source of foreign currency earning for country (WB, 2018). Similarly, the trend of trade has been increased continuously and very speedy increase after liberalization where a government liberal policy increased both import and export and finally this helped to adopt new technology, get product at low price, increase consumer welfare and help to benefited from spillover effect of trade liberalization.

However, many developing countries carried on abundant literature on remittance, trade and economic growth, there is few empirical works on this subject in Nepal, some regional and cross-sectional countries focused on the related study (Sohn & Lee 2006; Azam, 2013) which are not sufficient, there have not been many quantitative studies that focused on the impact of remittance on economic growth. Labour migration has become one of the emerging and burning issues in the Nepalese economy which can play a significant role in making overall development of the nation if inward remittance is used to enhance the domestic level and domestic consumption level of the nation. Therefore, the study on labor migration, remittance and its relation with national income will be helpful to give some important sight to a policymaker, researcher, academician, students, and other stakeholders.

1.4 Empirical review

Many studies, surveys, and researches were done to assess the impact of labor migration upon economic growth and determinants of labor migration of Nepal. Manufacturing trade is also supposed to another major variable which contributes economic growth, which is taken as the key factor for development. Adam Smith first demonstrated the positive impact of international trade on economic growth (Alfonso, 2001). This discovery has also received support from many international (WTO) and regional (SIN, EU, SAARC, etc.) and initiated bilateral initiatives. In order to promote trade and achieve higher growth, they believe that more trade will help to get more revenue.

Most of the researches has shown a different outcome. This means that different studies or papers have different findings of labor migration, remittance, trade, and its impact on economic. On the basis of the review of the literature, a conceptual framework will have been proposed and on the basis of the same, the
proceeding will have been made.

Various studies only have been done to focused a pattern and rate of labour migration however, few studies have done to understand the impact on the economy. This study tried to analyze the growing unemployment problem in various countries, the craze of people going abroad in search of employment and the impact of inward remittances entering the country of origin. Various studies, surveys, and researches have been made to assess the impact of labor migration upon economic growth and determinants of labor migration in Nepal. Most of the researches have not shown a unique outcome. This means that different studies or papers have different findings of labor migration and its impact known of them describing labour mobility and its impact on the economy of Nepal. On the basis of the review of the literature, a conceptual framework will have been developed and on the basis of the same, the proceeding will have been made. Many countries contain labor abundant and other labor importers, greater cooperation to smooth labor movements can be beneficial for all (Hoekman & Sekkat, 2009). The labour markets of the least developed countries are described by changes in the production structure, which cause labour to move from the state sector to the private sector and from old subsidized enterprises to the new developing ones. The increase in movements takes place in both sectors; economic sectors and labour market statuses (i.e., unemployment and employment).

2. **International scenario**

Globalization and migration are quite new experiences in the world that are growing rapidly for the past few decades and changing the entire earth (Papastergiadis, 2018). Generally, the migration system consists of various types of movements of people such as; for employment, for family reunifications, for study, or it can be due to conflict or natural disaster in the home country (forced migration) (Acharya & Leon-Gonzalez, 2013). International labor migration has been an issue of great interest as workers' remittance has appeared as a major source of external financing for many developing countries in recent years (The World Bank, 2016).

Altonji and Card (1991) studied wage and unemployment changes via SMSAs from 1970 to 1980, analyzing the change in average age and education in each metropolitan area and focusing on less-skilled indigenous groups, which was expected to be the most negative. Affected by immigration: white men dropping out of high school, and black and white women and black men with high school education or less. The results indicated that immigrants had an unexpected impact on unemployment during Census Week. They also had a negative effect on the fraction of the working population in the previous year and the weekly income in the previous year. Laldonde and Tope (1991) studied changes in the immigration population levels of the United States and cities (SMSA), and used personal census data on men in the 1970s and 1980s, and allowed different waves of immigration to have different effects. The use of individual-level data is problematic due to control for many of the characteristics that might cause people to move to grow areas. It also allows city-specific effects to be controlled for, even in an indifference cross-section.

The problem, however, remains that the effects of immigration can be exacerbated when goods or people settle in and make them impractical for cross-section analysis. Goldin (1994) showed that wages are among
the most negative by studying with a significant cross-sectional dimension. The Instrument variables technique should remove the positive bias of migrants moving to the field of rising wages, as well as zero prejudice due to factor price equality across the country. This may explain why Altnji and the card come in a more negative figure than most documents that do not use instrument variables.

The International Monetary Fund (2005) implements a comprehensive measurement of remittances by summarizing workers’ remittances, employee compensation, and immigration transfers. The average coefficient of Faii general category (OLS) regression is the ratio of total remittance to GDP and the total remittance coefficient when using the initial remittance GDP.

Feni (2007) calculated a set of 68 countries' cross-sectional growth regression, where the dependent variable is the annual per capital GDP growth rate in between 1980 and 2004. These growth investments do not include investment variables, because remittances can be used to promote investment to some extent, so their coefficients may reflect some of the effects of remittances. Barauh (2006) examined whether remittances were overused, import dependent or unproductive investments in housing and land. The main result concluded that remittance inflows are the source for foreign exchange receipts which can be used to finance the balance of trade deficit or the current account deficit and the productive investment and social development.

On the topic of the “negative impact of remittances upon developing economies”, Trital (2008) raised four important issues. He identified the negative impacts of labor migration through remittance as Remittance in developing economies sometimes maybe 'Ghost Town' phenomenon which signifies a high chance of collapse of the small local economy which highly depends upon remittance earning; It may be 'Easy Money' that negatively affects economic development; It may widen the inequality through 'Remittance Haves and Have Not'; and the relationship between remittance and economic growth is unclear. This study concluded that a high domestic investment reduces the level of unemployment of the nations. In the case of domestic investment has been decreased in the nation foreign migration helps to reduce the problem of unemployment. From which in the long run the domestic investment will be enhanced and employment opportunity rises in the nation.

The continued high rate of unemployment is one of the major causes of labour migration. McCormick, 1997, analyzed the relationship between regional unemployment and labour mobility in the UK that shows regional unemployment rate differences are largely determined in the manual labour market and show only slight evidence of cyclically corrected convergence.

Rõõm (2000), using the duration model, analyzes the unemployment and labor transfer between labor market conditions from the Estonian labor force survey. The results show that the unemployment rate and labor mobility are inversely proportional to the overall.

Many rural-to-urban migrants rationally, although involuntarily, join the ranks of the urban unemployed since there are fewer high-paying formal sector jobs than rural laborers who migrate in response to their creation
(Todaro, 1969, 1997).

However, based on their own savings or family or similar support, immigrants can go on to invest in the search for higher-paying jobs in the long run of urban unemployment, especially when employment in the free-entry informal sector is available in a competitively determined market. Thus, there are two labor market equilibrium conditions.

In the south Asia, Cooray (2012), shows a positive and significant relationship between remittances and economic growth in by using panel data over the period 1970–2008. A four countries of South Asia, Azam, (2015) examined the role of remittances in development economic growth which also found the positive impact of remittances on economic growth in all countries. Using long-term chain data over a period of 1975-2009, Javed and Raza (2016) conducted operations for South Asian countries, and remittances have had a long-term positive and significant impact on the economic growth of Bangladesh, India, Sri Lanka, and Nepal. Showed up, while it is important but negative in Pakistan. Sutradhar (2020) investigates the impact of workers’ remittances on economic growth of four South Asian emerging countries to using balanced panel data from 1977 to 2016, and concludes that a negative effect of remittances on economic growth in Bangladesh, Pakistan and Sri Lanka however, remittances have a positive impact on economic growth in India.

2.1 In Nepal

Seddon, et al. (2001) jointly conducted a study entitled “Foreign Labor Migration and the Remittance Economy of Nepal” with the aim of evaluating Nepal’s dependence on exporting labor. They have explored the migration history of Nepal dating back to the beginning of the 19th century when people started migrating towards India to join the army force and relates it to the current context of migration towards the Gulf States. Bhattarai (2005) conducted research on “Migration of Nepalese Youth for Foreign Employment: Problems and Prospects” with the aim of evaluating the Nepalese government policies and programs related to the regulation and management of foreign employment profession in Nepal with the major objectives as (i) to identify the major issues and challenges in foreign employment (ii) to identify the problems faced by migrant workers (both male and female) both in the home country and the country of destination (iii) to prioritize the needs of international migrant labors (iv) to evaluate the existing government policies and programs and suggest appropriate amendments in the existing policies.

Maharjan (2005) focused to study on the foreign employment and its scope. According to the him, inward remittances play a pivotal role in the national economy of any country which in the case of Nepal has been badly battered due to the ongoing conflict. Industry, trade, tourism and other sectors of the economy are all in the doldrums. Under such circumstances, the rate of unemployment is high in the country. So, the number of people seeking employment abroad has risen. Dahal (2007) emphasizes that remittance transfers are an important source of income for developing economies as well as millions of households, especially poor women and their children. He argued that unlike the flow of aid or private investment, remittances go directly
to the poor and it is up to the poor to decide how to spend the money. According to him, most importantly, remittance services also increase their access and relevance to poor customers through financial institutions.

Lamichhane (2018) studied on "Labor Migration and Remittance Economy of Nepal" using a different parameter that analyses the recent mechanism and structure of labor migration, which were linked with remittance income and use, and how it influencing the economy of the country. After all, using different economic variables with the help of simulation results from the model suggests that remittance can exert a weakly favorable impact on long term economic growth. Remittance has played a momentous role in poverty reduction in Nepal from 42 % to 21.6 % in past decades (MoF, 2015/16). The overseas migration and remittance have been instrumental in poverty alleviation as well as in improving the living standards of the people (Seddon et al 1999). Remittance has been seen remarkable on the GDP and GNP in both real and nominal term in Nepal (Shrivastav and Chaudhary, 2007) but, in another hand, the economist argued that most of the remittances have been used for consumption purpose

Migration for foreign employment has become a major source of income for Nepali households that the number of migrants leaving Nepal for work is increasing every year. Nepal Labour Migration Report (2020), in the last fiscal year 2018/19, 272,616 migrant workers renewed their labour approvals. For the Nepal Labour Force Survey 2017/18, an analysis of the profile of recent returnee migrant workers in Nepal shows that 42.8 % are employed, 13.4 percent are unemployed and 43.8% out of the labour force.

2.2 Remittance - growth relation

In a nation’s economy, migration is taken as one of the largest industries in the world (Czaika & Hass, 2014). People are moving a different direction for searching for better job opportunities that generate a large volume of production and income in the world. From the last decade, many developing countries, remittances represent a significant part of international capital flows, foreign direct investment, aid and exceeding export revenues, (IMF, 2005). Internationally, remittances have become a very popular issue for their volume and their potential to reduce poverty and stimulate economic growth in developing countries, which has reached $613 billion. In south Asia, remittances increased by 5.8 % in 2017 after a slowdown of –6.1 % in 2016 (WB, 2018). The European Parliament Policy Department (2014) showed that remittances are a more sustainable source of foreign currency for developing countries than other capital inflows like a foreign direct investment, public debt, official development assistance. Mayer & shera (2017), indicates a progressive impact on growth that impact to increases at high levels of remittances which finally, relation to GDP. Goschin (2014) also described as the positive relationship between remittance and growth is for both absolute and relative GDP. Fayissa and Nsiah (2010) doing a study in 36 African countries, a similar result that showing remittance positively impacts economic growth by providing an alternative way to finance investment and helping to overcome liquidity constraints. Remittances and capital inflows are one of the important sources of private capital inflows, which have a qualitative impact on various macroeconomic indicators, such as poverty alleviation, investment growth, mobilization of savings, capital accumulation, and other sectors that
contribute to economic growth (Akter, 2016). IMF (2005), shows that long-run remittances have a positive contribution to economic growth per capita which is helpful to promote growth in less financially developed countries. The remittances form labor is an important source of external financing in many developing countries that also important part of the economic political and social development (Topxhiu & Xhelili, 2016).

Based on the household’s survey of Egypt rural area, Adams (1998), found a positive relation of foreign remittances and poverty level. A study conducted in Ghana, Adams (2006) shows that domestic and international remittances help reduce the depth and severity of poverty. Chami et al (2009), analysed data from 70 different nations, that including 16 developed economies countries as well as 54 developing countries, found that remittances inflows have a large substantial impact on smoothing macroeconomic fluctuations in remittances receiving countries, and further emphasizing that it might be used as tools for stabilizing.

The empirical study by Azam (2013), that examines the relationship of worker remittances with economic growth in four developing countries in South Asia and shows the positive and significant relationship between labors’ remittance and economic growth. Mwangi & Mwenda (2015), the study on economic growth in Kenya to applying causality relation between remittance and economic growth that found significantly supported by international remittances. Remittances are also related to increased investment in education, entrepreneurship, and the health of their recipients and finally affect the economic growth of the country.

However, on the opposite view, many studies concluded that remittance harms the economic growth of receiving counties, whereas the remittance may bring growth, development, and Balance of Payment crisis which is used for consumption or unproductive activities (Datta & Sarkar, 2014). A negative impact showing on society when remittance recycling has had a negative impact on society, when remittance recipients rely on hard work and easy money to reduce their participation in the labor market, agricultural output decreases, consumption increases, and investment does not change, which means that remittances have an adverse effect on economic growth. Uprety (2017) doing research in Nepal and did not found the association between remittances and investment but found that there is a positive relation with consumption. A negative effect of remittances showing on a developing country when people receive remittance the receiver will become economically inactive in the sense of production that reduce the work efficiency and productivity which is the major facts to reduce the workforce (Chami, Fullenkamp & Jahjah, 2003; Zogjani & Pantina, 2014). Karagozk (2009) analysed found a negative impact of remittance on economic growth in Turkey. Jawaid and Raza (2012) applied the long-run and short run relationship of remittances and economic growth in China and Korea, the results shows the positive relation in Korea and negative in China.

Some country benefits in the short run and some in the long run, therefore, the long-run implication of remittance on economic growth are still in debate. The long-run causal link between remittances and output in Egypt, Sharaf (2014) study the period of 1977-2012 and concluded that remittances and GDP are cointegrated
with a statistically significant positive causality is being taken from remittances to output, while output is no longer found to be a factor in Egyptian remittances.

If the policymaker uses remittance efficiently that will promote growth, Pant (2008) indicated that workable policy or programs need to be introduced by the government to encourage the utilization of remittance for the productive sector to promote long-run economic growth. Giuliano & Arranze (2009) suggest that countries with less financial development will get benefit from remittance then the country which is financially developed.

2.3 Trade-growth relation

Many studied examined the relationship between trade openness and growth by applying different methods and concluded that openness benefits economic growth (Frankel & Romer, 1999). The different empirical analyses concluded that trade openness has a positive and significant impact on economic growth (Wacziarg, 2001). Sohn & Lee (2006), show strong evidence of a positive effect on growth to ‘Trade structure’ variable. Trade liberalization has a positive impact on long-run economic growth, but not all countries receive the same benefits (Mangir, Kabkarli and Ayhan, 2017). Only when the country adopts a good policy of opening to the outside world can it obtain long-term economic benefits from open trade (Dristowski, Dristkey and Admopoulos, 2004; Anderson and Babula, 2008). Long-run relationships do not need to be restricted, and many countries will benefit from trade liberalism in the short and long run (Chandrasekar, Sampath, and Chiteti, 2018). For high economic growth, the implementation of trade opening policies is not enough. Emerging economies will benefit more from the elimination of trade barriers if they open up new markets (Wesbort and Baker, 2002).

The trade openness country will help to transfer technology and knowledge, rich countries benefit more than poor countries because poor countries cannot adopt advanced technology and transfer knowledge (Dowrick & Golley, 2004). In international trade, the quality and variety of product are most important while, counties exporting higher quality with a variety of product in international trade grows more rapidly (Burdon, Mouel & Visil, 2013). Geraldo & Canas (2016) applied the bilateral relationship between economic growth and trade liberalization as the causal relationship between economic growth and opening up, and thus discovered the long-term balance between financial growth, trade and economic growth.

The issue of trade liberalization and its relation to economic growth is a quite debatable matter (Rodriguez & Rodrik, 2000). In some cases, open trade has not showing relation with economic growth, and this relationship is uncertain (Vimvakidis, 2002). Kahya (2011) found that imports were one of the key determinants of economic growth, while exports did not have a significant impact on the economy. For the small economy country, which is often highly open to trade, argued that the positive and negative effects of openness may offset each other (Easterly and Kraay, 2000) whereas the and developing countries have no ability to use the benefit (Yanikkaya, 2003). Least developed countries, like Nepal, will have high volatility that can be reduced by export diversification (Haddad, Lim & Saborawski, 2010).
3. Methodology

In order to analyze the impact of remittance on real GDP in Nepal, exponential regression model (log-linear model) and R-squared test has been used. The time series data are made stationary by converting real data into log data. And the restricted regression analysis has been done by controlling all other variables which might likely to significantly impact to real GDP in Nepal. To check the causal relation between remittance and economic growth, the pair wise Granger causality test has been done. Since, the variables RGDP not stationary at level, the causality have been checked in the first difference of RGDP. This study has chosen the Schwarz criterion for the causality between the RGE and RGDP. The total labour migration has used as the independent variable. Tools of data analysis have been used for the time series properties and nature of the data.

This study uses the secondary data sets published by the government and non-governmental institutions have been used. Basically, the data is collected from the publication of the Nepal Rastra Bank, ministry of finance, central bureau of statistics, Ministry of Labour, Employment and Social Security (Nepal), foreign employment department etc. Data set from fiscal year 1994/95 to 2018/19 has been taken for the study.

3.1 Models’ specification

This study uses a log-log econometric model to test cointegration and causality from remittances to economic growth. This study assumed that there could be unidirectional causality from remittances to economic growth, and it is also possible that there is no dependency of GDP in remittance (Baker et al. 2015). To test the significant influence of remittance in economic growth, the analysis yields a general model as;

\[ \ln Y_t = \beta_0 + \beta_1 \ln Rem_t + \beta_2 \sum \ln X_{it} + u_t \] ............................... (1)

Where, ‘\( \ln \)’ = natural log, ‘\( Y \)’ = GDP, \( \beta_{1s} \) are coefficients, ‘Rem’ = remittance, ‘\( X_{is} \)’ are complementary series for growth (here only trade is represented by term) and \( u_t \) represent error term.

In order to find the impact of remittance, trade on economic growth in Nepal following simple exponential regression model has been used, the equation for this study becomes

\[ \ln RGDP_t = \beta_0 + \beta_1 \ln Rem_t + \beta_2 \ln Trade_t + u_t \] ............................... (2)

Where, Rem = remittance; RGDP = Real Gross Domestic Product; ln= Natural Log; \( \beta_1 \) and \( \beta_2 \) are parameters; and \( u_t \)= error term.

To determine the long run association the series were tested for cointegration, where the cointegration test result determined the presence of correction term in the model. After that, if the series are cointegrated of the same order, the error-correction model (ECM) is applied to find the relationship. The Engle-Granger causality test is applied, residual series generated from following equation is tested for presence of
cointegration in the model;

\[ u_i = \ln Y_t - (\beta_0 + \beta_1 \ln \text{Rem}_t + \beta_2 \ln \text{Trade}_t) \] ................. (3)

In the calculation, if there is no cointegration among series, the multiple regression method with variables in first difference is applied to test relationship as the standard model (Toda and Phillips, 1993). Additionally, residual tests were performed for the accuracy of prediction of the model.

3.2 Unit Root Test

Since empirical analysis based on time series data, the underlying time series should be stationary. It is necessary to test the stationary, that is prerequisite for both causality and cointegration (Gyanwaly, 2012). There are several methods to test of stationary, such as, graphical analysis, the correlogram test, and unit root test. However, the study uses unit root test as it is quite popular. when a non-stationary series becomes stationary after differentiating ‘n’ times, the series is said to be integrated of order ‘n’ which is the first step in finding causation between variables in time series econometrics and for the causality, series should be free from time trend (Stock and Watson, 1989), and as majority of macroeconomic series are non-stationary (Nelson & Plosser, 1982). If a series are found integrated of the same order, the next step is to examine for the presence of cointegration i.e. the long run association between variables. To verify this preliminary condition, series of GDP, remittance and trade, this study were tested for a unit root by using augmented Dickey–Fuller (ADF) test (Dickey & Fuller, 1979).

3.3 Time Series Cointegration Test

All the series data of this study; RGDP, remittance and trade are said to be cointegrated when all series are found to be integrated in the same order. For determine cointegration test, Engle-Granger method of cointegration (Engle & Granger, 1991) based on autoregressive representation is applied, where this computed test statistic is compared with Engle-Granger five percent critical value.

3.4 Error Correction Mechanism (ECM)

Dickey (1976) observed that the least squares estimator of the VAR model in the Granger causality analysis is biased in the presence of unit root and this bias can be expected to reduce the accuracy of forecasts (Awe, 2012). A vector error correction (VEC) model is a controlled Vector Autoregressive (VAR) calculated for use with nonstationary series that are terms as a cointegrated, where the cointegration term is known as the error correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments (Songul, 2011; Rusdiana et al., 2020). This study controlled for the endogeneity problem by using unit-roots test using the Augmented Dickey-Fuller tests, Analyse the Long Run and Short Run Relationship between Remittance and Economic Growth in Nepal.

The ECM mechanism is used in this study for examine relationship between GDP and remittances, as cointegration tests, the variables in this analysis are cointegrated of order one, i.e. the long-run causality. To
investigate the existence of the relationship among the variables in the system, the bound tests approach developed by Pesaran et al. (2001) has been employed. The bound test is based on F-statistic and follows a non-standard distribution, to find out the relationship between remittance and economic growth in Nepal. Since, there exists other variables too that determine the economic growth of the country. All other variables which are likely to affect to economic growth has been considered as control variable. The Engle-Granger critical value indicates that there exists long run association ship in the model, based on that, equilibrium-correction mechanism (ECM) is used to test the relationship in equation (2).

The ECM can examine long-run causal relationships based on the error-correction term ECT (-1) and can be express as:

\[ \Delta \ln Y_t = \beta_0 + \beta_1 \Delta \ln Rem_t + \beta_2 \Delta \ln Trade_t + \beta_3 Ect_{t-1} + \nu_t \] ........................ (4)

Where, \( \Delta \)-denote the first difference of variables which capture their short-run disturbances over periods \( t = 1, 2, \ldots, T \); \( \nu_t \) is the white noise error term and \( Ect_{t-1} \) is the error correction term (ECT) that is resultant from the long-run cointegration association. The coefficients (and represent the long-run relationship whereas the remaining expressions with summation sign represent the short-run dynamics of the model. Pesaran et al. (2001) provide the two sets of critical values in which lower critical bound assumes that all the variables in the ARDL model are I (0), and the upper critical bound assumes I (1). If the calculated F-statistics is greater than the appropriate upper bound critical values, the null hypothesis is rejected implying co-integration. If such statistics is below the lower bound, the null cannot be rejected, indicating the lack of co-integration. If, however, it lies within the lower and upper bounds, the results are inconclusive. After establishing the evidence of the existence of the cointegration between variables, the lag orders of the variables are chosen by using the appropriate Akaike Information Criteria (AIC).

3.5 Examine Causality between remittance and Economic Growth

Granger causality is a widely used in the field of Time Series Econometrics procedure to study the causal interactions that exists among economic indicators in various countries of the world. Many researchers were successfully applied this test in different time span (e.g., Granger CWJ, 1988; Granger, 2004; Clarke and Mirza, 2006; Arnold et al., 2007; Mohammed et al., 2010; Shojaie and Michailidis, 2010; White et al., 2011; Boubtane et al., 2013).

Generally, the term causality can be described as the relationship between cause and effect which suggests a cause and effect relationship between two sets of variables, such as, Y and X (Pearl, 2012). A statistical hypothesis test, Granger causality test (Ganger, 1969) used to determining whether one time series is useful in forecasting another. Recently, Granger causality modelling has received considerable attention and use in many areas of research, it has become a popular concept in econometrics and many other fields of human endeavour. Granger causality exists with different two variables yt and xt, these variables are changed each other by themselves, and It usually analyses two variables together, testing their interaction (Gelo, 2009).
Granger also proposed that, if a past value of X improves the prediction of Y with statistical significance, then it states that X “Granger Causes” Y (Engle and Granger, 1987).

\[ \text{RGDP}_t = \alpha_t \text{RemG}_{t-i} + \sum_j \text{RGDPG}_{t-j} + u_{1t} \]  

(1)

\[ \text{RemG}_t = \sum_i \text{RemG}_{t-i} + \sum_j \text{RGDPG}_{t-j} + u_{2t} \]  

(2)

Where, \( \text{RemG} \) = Total Remittance Growth; \( \text{RGDPG} \) = Real Total Gross Domestic Product Growth; \( \alpha \), and are parameters, and \( u \) = error term, \( t \) = fiscal year

In the two time series variables \( X_t \) and \( Y_t \), \( X_t \) is said to Granger cause \( Y_t \) if \( Y_t \) showed a better predicted using the histories of both \( X_t \) and \( Y_t \) than it can by using the history of \( Y_t \) alone.

This study will apply RGDP and Rem variables using Pairwise Granger causality analysis. Since, the variables RGDP not stationary at level, unit root tests were performed on all the variables, the causality have been checked in the first difference of RGDP. This study has chosen the Schwarz criterion for the causality between the RGE and RGDP. The study has set following hypothesis.

Null Hypothesis (\( H_0 \)): Real GDP does not Granger Cause Remittance.

Alternative Hypothesis (\( H_1 \)): Real GDP does Granger Cause Remittance.

And next,

Null Hypothesis (\( H_0 \)): Remittance does not Granger Cause Real GDP.

Alternative Hypothesis (\( H_1 \)): Remittance does Granger Cause Real GDP.

According to the value of F-statistics and P-value, we will find the types of causality and which variables are better (accept hypothesis) for Granger cause. Data on these variables collected over a period of 24 years (1994/95 to 2018/19) were subjected to econometric analysis to determine Granger causality by use of Schwarz criterion. Prior to the Granger causality tests, this study tested for stationarity in the variables using the Augmented Dickey-Fuller (ADF) procedure. The variables of this study proved to be integrated of either I (1) or I (2). Johansen co-integration test shows that at 5% level of significance. Before doing Pairwise Granger causality tests, this study conducts unit root tests to determine if the variables are stationary and to detect their order of integration.

### 3.6 Testing the Overall Significance of Regression: F-Test

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

Given the K variables in the models:
\[ Y_i = \beta_1 + \beta_2 X_2 + u_i \] ................................. (1)

Null Hypothesis: All coefficients are simultaneously zero. (i.e., \( \beta_1 = \beta_2 = 0 \))

And F test is computed by: And F test is computed by:

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

If \( F > F_{\alpha} (k-1, n-k) \) reject null hypothesis; otherwise not. Where, \( F_{\alpha} (k-1, n-k) \) critical value of F at \( \alpha \) level of significance. Alternatively, if the p-value of F is sufficiently low, we can reject hypothesis. It means that all coefficients are not simultaneously zero or the multiple regression is significance. **RSS**- Residual Sum of Squares, **ESS**- Explained Sum of Squares.

4. Results

4.1 Descriptive data

4.1.1 Trend and structure of labour migration

Data from different volumes of the economic survey and various publications of Nepal Rastra Bank, MOF, descriptive analysis is carried out to analyze the trend and structure of the labor migration and GDP in Nepal where GDP has been adjusted by the CPI for the analysis. The government of Nepal has been officially recorded of labour migration has started only after fiscal year 1994/95, though the history of Nepalese working abroad started from early 19th Century as Gorkha soldiers recruited in the British army.

![Figure 4](image)

**Figure 4.** Trend of Labour Migration (LM) in different Fiscal year (data source from Economic, Surveys of Various Years, MOF; all data available in Appendix A)

From Figure 4, the rate of labour migration during the study period (1994-2019), it has been normally
increasing and get maximum in 2013/14 after that it is decreased till 2019. The labor migration has both short and long-run effects on the economy. The trend of foreign labour migration showing fiscal year 1996/97 had been significantly very low and till fiscal year 2008/09 it has increased by low rate but the trend shows that after fiscal year 2008/09 its trend has been increased in increasing rare.

For the total labour migration, the Government of Nepal (GoN) officially started to keep record the labour migration data by classifying skilled and unskilled has only after fiscal year 2003/04.

Figure 5. Trend of Labour Migration by Categorizing Skilled and Unskilled (data from Economic Surveys of Various Years, MOF).

The trend of total labour migration and unskilled labour migration is quite parallel to each other whereas the trend of skilled labour migration has been quite a constraint, only very little fluctuation can be seen and it has been low in number as well (Figure 5). The above results illustrate that a very large part of Nepalese labour migration is unskilled labour migration. The average percentage of skilled and unskilled labour migration showing in Figure 6, whereas the unskilled labour migration is dominant (i.e., 94% on average). Only 6% in average of Nepalese labour migration are unskilled (Figure 6).

There are several reasons for being unskilled labour in the Nepalese market, such as lack of employment opportunities in the Nepalese labor market, low payment, price hike, Nepalese culture that does not respect every job, increased expectations of youths due to the development in communication and technology, and high affection of youths towards foreign employment have contributed to the exodus of Nepalese youths to
4.1.2 The trend of Real GDP to Labour Migration

The trend of the ratio of RGDP to LM is presented in Figure 7. It shows that in the fiscal year 1995/96 increased as the highest pick then it decreased sharply till fiscal year 1998/99 and after the FY 1998/99, this ratio is quite constant (i.e., declined by very small). The overall trend indicates that the share of labour migration on Real GDP is declining which signifies that labour migration is increased at a very faster rate than the Real GDP.

The declining trend shows that labour migration is increased at a very faster rate than the Real GDP which indicates that labour migration is not going to improve the macroeconomic situation of the nation. On the other hand, low skilled or unskilled labours are migrated very sharply than skilled labour which also clearly indicates that the earnings from labour migration have not been productively utilizing in the country. Although increasing in labour migration may support to household economic situation but it has not been contributing as desirable for the macroeconomic situation of the nation.
This study emphasizes on taking different actions to improve the capacity of labor is one key issue and next is utilizing they are earning for the productive sector of the economy. From the above overall analysis, it is concluded that the real GDP and foreign labor migration have been increases over the period but the share of skilled labor is very low and remains about constant over the study period and the contribution of labor migration on real GDP has been low.

Table 1 shows the decade wise average trend (i.e., three-decade of the study period ) of labor migration and real GDP from 1994 to 2016. The LM trend shows the number of average labor migration in succeeding decade increased but the overall average of labor migration is less than the last decade of the study period (2010-2016) shows the labor migration increasing at decreasing rate. Whereas, the average value of the RGDP is Rs. 542581 which is higher than the RGDP from the 1990s and 2000s decades, indicates the RGDP is increasing over the study period.

**Table 1: Trend of Labour Migration, and Average RGDP (Average in the 1990s, 2000s and 2010s Decade)**

<table>
<thead>
<tr>
<th>Period / FY</th>
<th>LM</th>
<th>RGDP (Rs. In Millions)</th>
<th>Rem/LM</th>
<th>RGDP/LM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990s Decade</td>
<td>13092.67</td>
<td>382121</td>
<td>NA</td>
<td>83.8404</td>
</tr>
<tr>
<td>(1994-2000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000s Decade</td>
<td>165174.8</td>
<td>514148</td>
<td>1.734491</td>
<td>3.685092</td>
</tr>
<tr>
<td>(2000-2010)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010s Decade</td>
<td>402370.3</td>
<td>729223</td>
<td>0.881924</td>
<td>2.043733</td>
</tr>
<tr>
<td>(2010-2016)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Average</td>
<td>197691.1</td>
<td>542581</td>
<td>1.383434</td>
<td>24.09563</td>
</tr>
</tbody>
</table>

**Source:** Economic Surveys of Various Years, MOF

The ratio between remittance to labor migration, because of the absence of first-decade data series of remittance, the two-decade overall average value is 1.38, showing that the one labor migration has earned 1.38 million remittances. The ration of the second decade of the study period (2000-2010) is 1.73 that means one labor migration has earned 1.73 million remittances. It may indicate there were relatively more skilled labor or high earned labor migrated in the 2000s decade. The recent decade of the study period (2010-2016), ration showing that the one labor migration has earned 0.88 million remittances that may indicate there were relatively more unskilled labor or less earned labor are migrated in this decade.

The decade wise average real GDP from 1994 to 2016 showing in Table 1, which shows the overall average of the RGDP is Rs. 542581 which is higher than the RGDP from the 1990s and 2000s decades. This result indicates that RGDP is increasing over the study period. The ratio of the real GDP to labor migration, in Table 1, shows that in the first decade of the study period (1994-2000) it is high and after that, it remains to decrease in order. The high ratio of RGDP Vs LM indicates that the number of labor migration is increasing very fast but the real GDP is increasing very slowly in the study period.
Thus, it can be concluded that the real GDP and international labour migration has been increases over the period, the share of skilled labour is very low and the contribution of labour migration on real GDP has been low.

4.1.3 Remittance and RGDP trend

The trend of remittance and RGDP is generally increasing over the period except for the year 2001 and 2015 (Figure 8). The decreases in GDP in the year 2001 might be the Maoist insurgency in the country whereas many infrastructures have been destroyed and there was a sharp decrease in the investment from the domestic and international area. Due to the devastating earthquake and unofficial blocked by India, the rate of GDP also decrease in the year 2015. Hence, decreasing the economic activity of the country showing the decreasing in RGDP. The trend of remittance showing in Figure 9 are in increasing in order since 1999. The trend in quite constant in FY 2000 to 2004, after it is going to maximum till 2018.

![Figure 8. Trend of Real remittance (Rem) and GDP (Base 2000/01) Rs. in Million (data from Economic Surveys of Various Years, MOF)](image)

4.1.4 The ratio of Remittance to LM

The ratio of remittance to LM shows average remittance for per unit labour migration. The GoN has officially analyzed the trend of ratio between remittance and LM after the year 2000. The ratio of remittance to LM showing a fluctuating trend over the period (Figure 10). The trend had increased in the year 2001, 2003, 2004, 2006, 2009 and 2010 and had decreased in 2008 and 2018. After decreasing in 2007, it has increased over the period 2008 and 2009 and after 2010 to 2019, it has been in decreasing trend. The decreasing ratio signifies that the relative increases in skilled and semi-skilled labour migration whereas, only low skilled or less earned labour migration has been increasing.

The data trend illustrates that the value of remittance has not been raised as increases in labour migration due to per migrated labour's capacity of earning is decreasing in recent years (MoF). Although, the government of
Nepal taking different actions to improve the capacity of labour like training, consulting, however, results show the opposite as expectation.

![Figure 9. The trend of Ratio of Remittance to Labour Migration (Rs. in millions) in different fiscal year](image)

This issue is a quite hurting issue in the Nepalese economy wherein one hand, there is an increasing share of nations' youth migration and on another hand, their per capita remittance is decreasing. The above results, the failure or ineffective of labor migration-related policy of Nepal, raise a big question in Nepal's policies and actions toward the labour migration. Hence, policymakers or concern stakeholders should take this issue very seriously.

### 4.2 Imperial results

In this study, all three series are tested for unit root by using augmented dickey fuller (ADF) test to check the stationary of datasets in terms of whether they are integrated of the same order (Granger, 1988).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Deterministic</th>
<th>Level (p-value)</th>
<th>First Difference (p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LnRGDP</td>
<td>intercept</td>
<td>0.99</td>
<td>0.0045</td>
</tr>
<tr>
<td></td>
<td>Trend &amp; intercept</td>
<td>0.78</td>
<td>0.0039</td>
</tr>
<tr>
<td>LNRem</td>
<td>intercept</td>
<td>0.68</td>
<td>0.0002</td>
</tr>
<tr>
<td></td>
<td>Trend &amp; intercept</td>
<td>0.78</td>
<td>0.0004</td>
</tr>
<tr>
<td>Lntrade</td>
<td>intercept</td>
<td>0.71</td>
<td>0.0011</td>
</tr>
<tr>
<td></td>
<td>Trend &amp; intercept</td>
<td>0.44</td>
<td>0.0089</td>
</tr>
</tbody>
</table>

The results of the ADF test on stationary of the GDP, trade and remittances as shown in Table 2. To showing the p-valle is less than 0.05 in first level, all the series are stationary in first difference, while the results of the two tests indicate that all three series are non-stationary at levels.
4.2.2 Analyse of the Long Run and Short-Run Relationship

The Engle-Granger Cointegration and Johansen co-integration test has been done for knowing the long run and the short-run relationship between remittance, trade and economic growth in Nepal.

**Table 3: Engle-Granger Cointegration Test**

<table>
<thead>
<tr>
<th></th>
<th>Engle Critical value 5%</th>
<th>t-statistic</th>
<th>R-square</th>
<th>D-W stat</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECT1</td>
<td>-3.74</td>
<td>-1.703</td>
<td>0.12</td>
<td>1.42</td>
<td>1.23</td>
</tr>
</tbody>
</table>

The Engle-Granger cointegration tests should be performed to investigate cointegration for those variables by ADF test statistics. Table 3 shows the result of cointegration test, all the series are stationary in first difference, where the Engle-Granger critical value at five percent level significance is presented according to Davidson and MacKinnon (1993). The result of t-test statistics is greater than absolute value of Engle-Granger five percent critical value (Table 3), which indicate residuals from OLS estimation are stationary, where no unit root in the residual series at level. The result indicates for long run relationship between GDP and other independent variables.

**Table 4: Result of OLS Estimate of ECM (ΔLNGDP- Dependent Variable)**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>ΔLNRem</td>
<td>0.066</td>
<td>0.0005</td>
</tr>
<tr>
<td>ΔLNTrade</td>
<td>0.239</td>
<td>0.000</td>
</tr>
<tr>
<td>ECT (-1)</td>
<td>-0.4418</td>
<td>0.001</td>
</tr>
<tr>
<td>constant</td>
<td>0.043</td>
<td>0.000</td>
</tr>
<tr>
<td>R-square</td>
<td>0.98</td>
<td></td>
</tr>
</tbody>
</table>

4.2.3 Error correction:

Error correction for variables is mostly important for knowing the long-run relationship among variable series and the significance of the speed of adjustment, whereas a significant value between 0 and -1 suggest convergence of deviation from equilibrium in the long-run (Baker, Merkert & Kamruzzaman, 2015).

**Table 5: Johansen Co-integration Test results**

Sample (adjusted): 1996-2018
Included observations: 23 after adjustments
Trend assumption: Linear deterministic trend
Series: D(LN_RGDP) D(LN_Rem) D(LN_Td)
Lags interval (in first differences): 1 to 1

<table>
<thead>
<tr>
<th>Unrestricted Cointegration Rank Test (Trace)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesized Trace 0.05</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Statistic</th>
<th>Critical Value</th>
<th>Prob.**</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0.744632</td>
<td>41.63958</td>
<td>29.79707</td>
<td>0.0014</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.406269</td>
<td>11.60848</td>
<td>15.49471</td>
<td>0.1767</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.006309</td>
<td>0.139229</td>
<td>3.841466</td>
<td>0.7090</td>
</tr>
</tbody>
</table>

Trace test indicates 1 cointegration 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 Calculation from E-Views.*

The result of ECM of Remittances to GDP that showing in table 4, where the coefficient ECT is negative that, indicate that there is a long run relationship between remittance and GDP. The probability and coefficient of the error correction value indicate that previous year disequilibrium is adjusted at the rate 44.18% annually. The coefficient of remittance and trade shows significant effect on GDP of the country.

The results of the Johansen Co-integration test presented in Table 5. The output of test- p-value (0.0014) is less than 0.05 so null hypothesis rejected here, that shows there is on cointegrating equation are congregation is being rejected here. This indicates there is significance long-run association between remittance and trade on Real GDP in Nepal. The p-value (0.176) for at most 1 is more than 0.05 levels of significance so, the results of the p-value imply that the null hypothesis is accepted that suggests there is one cointegrating equation which are association among the variables. Form the above results, it concludes that there is a long-run association between remittance, trade and economic growth in Nepal.

**4.3 Impact of remittance on Real GDP in Nepal**

The exponential regression model (log-linear model) has been used to determine the impact of remittance and trade on real GDP in Nepal. The time-series data are made stationary for converting real data into log data whereas the restricted regression analysis has been done by controlling all other variables which might likely significantly impact real GDP in Nepal.

Table 6 showing prob. value for constant and coefficient is extremely low less then 0, which suggests that the remittance and trade has a significant impact on real GDP in Nepal. Additionally, if the Rem is increased by one unit than the real GDP will be increased by 0.0007 exponential rates, therefore, Rem has a positive impact on real GDP. Equally, the exponential rate is less than one that sign the remittance elasticity for economic growth is less than one which indicates that if remittance changed by one unit, economic growth changed by about 0.0007 million. The value of R squared and adjusted R-squared test shows the overall significance of the model where the value of adjusted R square shows the 98% variation in the LN RGDP can be explained by the Ln Rem and Ln trade.
Table 6: Regression Result

Dependent Variable: LN_RGDP  
Method: Least Squares  
Sample: 1994 - 2018  
Included observations: 25

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LN-Rem</td>
<td>0.065843</td>
<td>0.016674</td>
<td>3.948792</td>
<td>0.0007</td>
</tr>
<tr>
<td>LN-Trade</td>
<td>0.229712</td>
<td>0.035001</td>
<td>6.562914</td>
<td>0.0000</td>
</tr>
<tr>
<td>C</td>
<td>10.09080</td>
<td>0.187551</td>
<td>53.80310</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

R-squared 0.982665  Mean dependent var 13.21279
Adjusted R-squared 0.981089  S.D. dependent var 0.307081
S.E. of regression 0.042229  Akaike info criterion -3.379247
Sum squared resid 0.039233  Schwarz criterion -3.323982
Log likelihood 45.24059  Hannan-Quinn criter. -3.338679
F-statistic 623.5453  Durbin-Watson stat 0.904848
Prob(F-statistic) 0.000000

Source: Author’s Calculation from E-views.

4.4 Causality Test

For checking the causal relation between remittance and economic growth, the pairwise Granger causality test has been done. For testing Granger causality, three variables remittance (Rem), trade (TD) and real GDP are usually analysed together, while testing for their interaction. For the test, all the variables are not stationary at level, so, the causality has been checked in the first difference. The Schwarz criterion for the causality between the remittance, trade and RGDP has been used for analysis.

Before doing a test, this study sets the following hypothesis;

Null Hypothesis (H₀): there is not Granger Cause.
Alternative Hypothesis (H₁): There is Granger Cause.

Table 7: Results of the Pair Wise Granger Causality Test  
(All the series in First Difference)

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Obs.</th>
<th>F-statistics</th>
<th>probability</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(LN_REM) does not Granger Cause D(LN_RGDP)</td>
<td>22</td>
<td>3.0062</td>
<td>0.0762</td>
<td>Accept</td>
</tr>
<tr>
<td>D(LN_RGDP) does not Granger Cause D(LN_REM)</td>
<td>0.82863</td>
<td>0.4535</td>
<td>Accept</td>
<td></td>
</tr>
</tbody>
</table>
From the above table 7, showing the result of the pairwise Granger causality test between Rem, TD, and RGDP in the first difference. The value of F-statistics for RGDP Granger causes Rem is not significant at 5% level of significance as the p-value (0.45) is more than the conventional level of 5% (0.05), which suggests that the null hypothesis is accepted or, in another word, the real GDP does not Granger cause remittance. Similarly, F-statistics for Rem Granger causes RGDP is also not significant at a 5 percent level of significance as the p-value is greater than 5 percent (0.0762), which shows that the null hypothesis is accepted or, in another word, Rem does not Granger cause real GDP. The F-statistics for RGDP Granger causes TD is not significant at a 5% level of significance of the p-value (0.96), which that shows the RGDP null hypothesis is accepted. Therefore, from the above results, it is concluded that Rem, TD, and RGDP do not Granger causes each other which means Rem and TD do not lead RGDP and vice versa.

5. Discussions
5.1 Remittance, Trade and Economic growth

The immigration is important for adding workers to the economy that has a good sign to increase the gross domestic product (GDP) of the host country (International Migration Report, 2018). The oil-rich Gulf countries are a major destination for a vast number of temporary labour migrants from South Asia from the 1970s till now. In the beginning, India and Pakistan were the major origin countries of labour to Gulf countries, however, it expands to attract migrant workers from Sri Lanka, Nepal and Bangladesh are primarily in the informal sector as construction laborers and domestic workers (IOM, 2018).

The migrant from Nepal date back to the period of unification, more than 300 years ago (Piya & Joshi, 2016). At the beginning of the 1970s, India is the most attractive destination for Nepalese workers after it was changed a new destination emerged with the intensification of globalizing dynamics that are attractive in the oil industry started in the Middle East in the 1970s (IOM, 2018).

Remittance played an important role in the Nepalese economy similar to other developing countries, whereas a World Economic Outlook of WB report shows that Nepal lies in the top five highest remittance-receiving countries in terms of GDP (Table 8). As the historical data shows the remittance income growth rate is higher where mostly Nepal worker receives high remittance from Qatar, Saudi Arabia, Malaysia, and other Gulf countries and India.
Table 8: Remittances and FDI as Percent of GDP

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</tr>
</thead>
<tbody>
<tr>
<td>Remittances</td>
<td>0.7</td>
<td>0.5</td>
<td>1.3</td>
<td>19.2</td>
<td>30.4</td>
<td>33.4</td>
<td>32.7</td>
<td>32.0</td>
<td>28.6</td>
</tr>
<tr>
<td>FDI</td>
<td>0.0</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
<td>0.3</td>
<td>0.5</td>
<td>0.9</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Source: WDI, 2018

Table 8 summarized the main representative data (the detailed data is available in Annex), this shows as a percentage of GDP Nepal is receiving very high remittance whereas the FDI is extremely low in comparison to remittances. This data indicates that in Nepal, remittance is the major source of foreign currency financing.

Table 9: Total Trade, Export and Import (all current value series)

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</tr>
</thead>
<tbody>
<tr>
<td>Total Trade (10 million)</td>
<td>317</td>
<td>1048</td>
<td>3061</td>
<td>15833</td>
<td>23401</td>
<td>53593</td>
<td>86000</td>
<td>84372</td>
<td>106316</td>
<td>151567</td>
</tr>
<tr>
<td>Percent Export</td>
<td>37</td>
<td>26</td>
<td>24</td>
<td>31</td>
<td>26</td>
<td>14</td>
<td>10</td>
<td>8</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Percent Import</td>
<td>63</td>
<td>74</td>
<td>76</td>
<td>69</td>
<td>74</td>
<td>86</td>
<td>90</td>
<td>92</td>
<td>93</td>
<td>94</td>
</tr>
</tbody>
</table>

Source: WDI, 2018

The volume of trade is increasing regularly after getting liberal since the mid of 1970s (Khanal, Rajkarnikar, Acharya, & Upreti, 2005). After getting a member of WTO in 2004, Nepal actively participated in international and regional forums and there are many bilateral initiatives to promote trade. Table 9 showing that import and export is increasing regularly after liberalization, where a volume of trade in increasing continuously and at the same time import is swelling alarmingly during the period (GoN/MOF, 2018).

5.2 Labour migration, Remittance and economic growth

The nature and trend of both remittance and economic growth are found increasing in the study period. Similarly, the ratio of RGDP to LM decline shows that labour migration is increased at a very faster rate than the Real GDP of the country.

From the previous studies and data trend, remittances in Nepal, like capital flows can help buffer consumption from long-run fluctuations in income. The output fluctuations can be overcome through capital flows when income fluctuations are perfectly synchronized and financial markets are managed effectively. It suggests relatively larger benefits of remittances for consumption stability in counties that have sizable remittance receipts and high exposure to interruptions in capital flows. Thus, based on microeconomic data, the Nepalese remittances can help stabilize consumption intertemporally by supporting saving, that finds remittances are an important resource to enable households to smooth consumption over time, as they help improve access to financial services and ease liquidity constraints.

In the long-run period, that estimates the relationship between Rem and economic growth statistically more than the 5% significant level, which is significant at the conventional level in the model. This means that Rem has a positive impact on the economic growth of the Nepal economy. The empirical results show that for economic growth in the long-terms of the Nepal economy, Rem is important factor. It found there is a positive
and significant relationship between remittance and economic growth in the long run only. However, the Co-integration test shows that there is no short-run association or relationship between remittance and real economic growth in Nepal.

The results of causality test suggest that there is a significant causality running from remittance, and trade to real GDP. There is a positive causality running from Rem and Trade to RGDP at 5% of a significant level. The pairwise Granger causality test shows that there is a unilateral causal relationship between remittance and real GDP in Nepal.

However, the migrant’s remittance has a positive impact on economic growth in Nepal. To compare this result with the other South Asian countries (Sutradhar, 2020), the impact of workers’ remittances on economic growth showing a negative effect in the Bangladesh, Pakistan and Sri Lanka, that suggest a larger portion of remittances are used for non-productive purposes like consumption. However, it has a positive impact on economic growth showing Nepal and India. The similar results in Egypt, Kenya and Korea, showing a positive impact on economic growth by international remittances. Differently, Turkey and China showing a negative impact of remittance on economic growth.

6. Conclusions

Based on the above literature, descriptive and empirical analysis following conclusions are made;

- The trend and nature of the international labor migration and real GDP are in increasing throughout the study period where the growth of skilled manpower and the creation of employment is not satisfactory. The majorities of labour migrations (about 94% on average) are unskilled whereas only 6% of skilled labour are migrated whereas only increasing in low skilled or less earned labour are migrations during the study period.
- The increasing number of international labour migration has not been raised the value of remittance so, per migrated labor’s capacity of earning is decreasing in recent years.
- The ratio of the real GDP to labour migration is in decreasing order that suggests the labour migration increasing at a very fast rate than the Real GDP of the country. So, this indicates that labour migration is not going to improve the macroeconomic situation of the nation. The unskilled labours are migrated very sharply than skilled labour.
- This study indicates that the migrant labours income has not been productively utilized in the country, which may only support to household economic situation but it has not been contributed as desirable for the macroeconomic situation of the nation.
- Unit root, cointegration, error correction technique, and Johansen Co-integration of the econometric procedure are applied for the examination that suggests there is a long-run association between remittance, trade, and economic growth and the relation between remittance and economic growth is not significant in the short run.
• Unilateral causality between the remittance, trade, and real GDP has been found. Remittance significantly impacts the real GDP growth in Nepal
• This study concluded that there is a positive and significant relationship between the remittance and economic growth in the long run. This result shows that a great portion of remittances is used for productive purposes in Nepal.
• A good policy environment should keep labour migration and utilization of workers’ remittances as a priority factor to stimulate economic activities that help to increase the nation’s economy in a positive way.
• The trend of remittance, and GDP showing a positive impact on the Nepalese economy, a similar result that showing remittance has a positive impact on economic growth in south Asian country (India), African country (Egypt and Kenya) and east Asia country (Korea).

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