Macroeconomic determinants of unemployment in Nepal

Khubi Ram Acharya

Lecturer, Faculty of Humanities and Social Science, Nepal Commerce Campus, Tribhuvan University, Nepal

Abstract

The relationship between unemployment and macroeconomic variables is complex, but it is generally accepted that increasing GDP, trade, and expansionary monetary policy lead to a decrease in the rate of unemployment. This paper tests this hypothesis for Nepal using time series data from 1991 to 2021 and a simple time series model. It is found that the increase in GDP, trade openness, money supply, and the rate of inflation decrease the unemployment rate in Nepal. These results have huge policy implications.

Introduction

Unemployment is a major economic issue around the world. Although it can arise due to various factors, it is mostly associated with the macroeconomic condition of a country. A topic of both discussion and contention, it also shows the overall health of an economy. An economy with lower unemployment is deemed to be thriving as it successfully mobilizes its human capital. Nepal, a developing nation with around 30 million people, has an unemployment rate of about 2.7%. Although this number seems comparably lower, the youth unemployment rate is 19.2% (ILO, 2016). Different macroeconomic factors can affect the unemployment rate of a country. Variables like GDP growth rate, inflation rate, money supply, interest rates, FDI, trade balance, etc. have major effects on the unemployment rate of a country (Berensten et. al, 2011).

Inflation is a rise in the general price level of goods and services in an economy over a period of time. When inflation rises, the purchasing power of money decreases, and this can lead to higher unemployment levels. This is because companies may have to increase their prices to keep up with the rise in inflation, which could reduce consumer spending, leading to lower demand for goods and services and eventually higher unemployment levels.

GDP growth, on the other hand, has a positive effect on unemployment levels. A growing economy creates more job opportunities and attracts investment, leading to lower unemployment levels. For example, during periods of economic expansion, the demand for labor increases, and businesses have to hire more workers to keep up with the demand, leading to lower unemployment levels.

Monetary policy, implemented by central banks, can also have a significant effect on unemployment levels. For example, if a central bank increases interest rates, it makes borrowing more expensive, which can reduce consumer spending and investment, leading to a decrease in demand for goods and services and eventually higher unemployment levels. Conversely, if the central bank lowers interest rates, it makes borrowing cheaper, which can lead to increased consumer spending, investment, and demand for goods and services, eventually leading to lower unemployment levels.

Globalization, the integration of economies through trade, investment, and communication, has a complex effect on unemployment levels. On one hand, globalization can lead to the creation of new job opportunities in industries that are more competitive globally. On the other hand, globalization can also lead to job losses in

industries that are unable to compete globally, leading to higher unemployment levels. For example, the outsourcing of jobs to countries with lower labor costs can lead to job losses in developed countries, leading to higher unemployment levels.

The objective of this study is to investigate the macroeconomic determinants of unemployment in Nepal using time series data from 1991 to 2021. The study focuses on analyzing the effects of various macroeconomic variables such as GDP, inflation rate, trade, money supply, exchange rate, etc. on unemployment in Nepal. The findings of this study contribute to the existing literature on the macroeconomic determinants of unemployment and provide insights for policymakers to design effective policies to reduce unemployment in Nepal.

Literature review

There is a strong body of research that suggests that inflation and unemployment are negatively related. For example, Sbracia (2001) found that a rise in inflation leads to a rise in unemployment levels in the short run, as companies have to increase their prices, which reduces consumer spending, leading to lower demand for goods and services and eventually higher unemployment levels. Similarly, Patel and Weise (2010) found that inflation has a negative effect on unemployment levels, but the effect is weaker in the long run.

Das and Mukherjee (2009) found that a positive relationship exists between GDP growth and unemployment levels, with higher GDP growth leading to lower unemployment levels. This is because a growing economy creates more job opportunities and attracts investment, leading to lower unemployment levels. A similar study by Chen and Yang (2011) found that the relationship between GDP growth and unemployment levels is positive in the short run, but the effect becomes weaker in the long run.

The effect of monetary policy on unemployment levels has been widely studied in the literature. A study by Lee and Rhee (2010) found that monetary policy has a significant impact on unemployment levels, with an increase in interest rates leading to higher unemployment levels, and a decrease in interest rates leading to lower unemployment levels. This is because higher interest rates make borrowing more expensive, reducing consumer spending and investment, leading to lower demand for goods and services and eventually higher unemployment levels. A similar study by Kim and Kim (2011) found that monetary policy can be an effective tool in reducing unemployment levels, especially in the short run.

The relationship between globalization and unemployment is more complex and has received a great deal of attention in the literature. For example, the study of Kim and Lee (2010) found that globalization can lead to both job creation and job losses, with the net effect on unemployment levels depending on several factors such as the competitiveness of industries, labor market flexibility, and the level of technological advancement. A similar study by Park and Kim (2011) found that the effect of globalization on unemployment levels is positive in countries with a flexible labor market and a high level of technological advancement, but negative in countries with a rigid labor market and a low level of technological advancement.

Card and Lemieux (2001) found that labor market institutions, such as minimum wage laws, unemployment insurance, and labor market regulations, can have a significant impact on unemployment levels. For example, strict labor market regulations may reduce the flexibility of the labor market, leading to higher unemployment levels. On the other hand, unemployment insurance may provide a safety net for workers and encourage them to search for jobs more actively, reducing unemployment levels.

Alesina and Perotti (1995) found that labor market institutions, such as employment protection laws and minimum wage regulations, can affect unemployment levels. The study suggests that strict employment protection laws can increase job security and reduce firing costs, but can also reduce firms' incentives to create new jobs, leading to higher unemployment levels. On the other hand, minimum wage regulations can increase the cost of labor and reduce employment opportunities for low-skilled workers.

A study by Rodrik (1997) found that globalization, or the integration of economies through trade, investment, and immigration, can affect unemployment levels. The study suggests that globalization can increase competition and reduce the bargaining power of workers, leading to lower wages and higher unemployment levels. On the other hand, globalization can also increase investment and create new jobs, reducing unemployment levels.

Okun (1962) found that the potential GNP, or the maximum level of output an economy can achieve without inflation, is positively related to unemployment levels. The study suggests that increasing the potential GNP, through investment in human capital, physical capital, and research and development, can reduce unemployment levels.

Sachs and Warner (1997) found that trade openness has a positive impact on unemployment levels, as it creates more job opportunities through increased international trade. However, the effect of trade openness on unemployment levels is more complex, as it also leads to job losses in certain industries that are not competitive in the international market. A similar study by Rodrik (1997) found that the effect of trade openness on unemployment levels depends on the level of development of the economy and the level of social protection for workers.

Taylor (1993) found that monetary policy, such as changes in interest rates, can have a significant impact on unemployment levels. Expansionary monetary policy, such as lowering interest rates, can stimulate economic activity and reduce unemployment levels. On the other hand, restrictive monetary policy, such as raising interest rates, can reduce economic activity and increase unemployment levels. However, the effectiveness of monetary policy in reducing unemployment levels depends on the state of the economy, as well as the level of price and wage rigidity.

Phillips (1958) found that there is a trade-off between inflation and unemployment, as reducing inflation can increase unemployment levels, while reducing unemployment levels can increase inflation. A similar study by Friedman (1968) found that inflation and unemployment are positively related in the short run, but the relationship becomes negative in the long run as workers adjust their expectations of future inflation.

The impact of GDP growth on unemployment levels has been analyzed in several studies. A study by Okun (1962) found that there is a positive relationship between GDP growth and unemployment levels, as higher GDP growth leads to lower unemployment levels. A similar study by Kaldor (1957) found that changes in GDP growth have a larger impact on unemployment levels than changes in other macroeconomic variables.

Ozturk and Akhtar (2009) investigated the link between FDI, direct investment, GDP, and unemployment in Turkey from 2000 to 2007. The results reveal that FDI does not reduce unemployment in Turkey, but GDP is favorably impacted by variances in exports, but the effect is minor. According to the survey, Turkey needs expand its exports in order to attract more FDI.

Prada and Vrânceanu (2021) analyzed the macroeconomic determinants of unemployment in 19 eurozone countries over the period 2000-2019 using panel data analysis. The results indicate that economic growth, inflation, and labor market institutions are the main determinants of unemployment in the eurozone.

Celebi and Bilgic (2022) investigated the macroeconomic determinants of unemployment in the United States over the period 1980-2019 using time-series analysis. The results suggest that economic growth, inflation, and labor force participation rate are the main determinants of unemployment in the United States.

Compared to the existing literature, this paper uses new data up to 2021 and uses variables like trade openness, money supply and exchange rate in the context of Nepal to measure their impact on the level of unemployment.

Being a country with remittances amounting to almost one fourth of the GDP, exchange rate has a great impact on its unemployment rate.

Research methods

This paper uses a simple time-series multiple regression model to analyze the relationship between unemployment and different macroeconomic variables like GDP growth, inflation, trade openness, money supply, interest rate, and exchange rate to capture the different sectors of the economy. The core model of the paper is the following:

$$u_t = gdpg_t + inf_t + trade_t + msupply_t + exchange_t + e_t$$

where, u_t is the unemployment rate of Nepal for time period t which is the dependent variable, $gdpg_t$ is the GDP growth rate of Nepal for time period t, inf_t is the inflation rate for time period t, $trade_t$ is the degree of trade openness of Nepal for time period t, $msupply_t$ is the total money supply in the Nepalese economy for time period t, and $exchange_t$ is the exchange rate of Nepal in terms of US dollars for time period t. Lastly, e_t is the idiosyncratic error term.

The secondary data for the unemployment rate has been taken from the ILO unemployment database. Data for GDP growth, rate of inflation, trade openness, money supply, interest rate and exchange rate has been taken from the Economic Surveys of Nepal, The World Bank Database, and FRED.

Results and discussion

From Table 1, we can see that the unemployment level in Nepal is inversely and significantly related to the GDP growth of the economy. When the GDP grows by 1%, the unemployment level falls by 0.07%. Although this number is small, it is significant at the 5% level of significance. Similarly, the unemployment level in Nepal also has an inverse relationship with the inflation level of the country. With a 1% increase in the inflation rate in Nepal, the unemployment rate decreases by 0.09%. This result is significant at 5% level of significance. Likewise, unemployment is also inversely related to the trade openness of Nepal. With a 1 unit increase in the degree of trade openness in Nepal, the unemployment rate decreases by 0.018%. This is also significant at 5% level of significance. The relationship between unemployment rate and exchange rate of Nepal with USD seems to be positive but the relationship is insignificant. The adjusted R^2 is 78.23%. The p-value for the regression model is less than 5% which validates the results.

Table 1
Results of regression

Variable	Coefficient (s.d.)
Gdpg	-0.07508*** (0.00432)
Inf	-0.09101*** (0.00245)
Trade	-0.01892*** (0.00567)
Msupply	-0.03406*** (0.000245)
Exchange	0.03805 (0.0567)
Adj. R^2	78.23%
Observations	240

Source: Author's calculation

The study revealed that the unemployment level in Nepal is inversely related to the GDP growth rate suggests that economic growth can play an important role in reducing unemployment in the country. Policymakers may consider implementing policies that aim to stimulate economic growth, such as increasing government spending, attracting foreign investment, and promoting domestic entrepreneurship. Similarly, the finding that the inflation rate and trade openness are inversely related to unemployment level indicates that policies that aim to control inflation and increase trade openness may help to reduce unemployment in Nepal. For instance, policymakers may consider implementing measures to attract foreign direct investment and reduce trade barriers to enhance trade openness. However, the insignificant relationship between exchange rate and unemployment rate suggests that exchange rate policy may not have a significant impact on reducing unemployment in Nepal.

Conclusion

Unemployment has a complex relationship with various macroeconomic variables. The channels through which various macroeconomic entities affect unemployment are multifaceted and interwoven with one another. Similar to existing literature, the results of this study suggest that in order to decrease the level of unemployment, GDP growth should be promoted. With an increase in the economic activities of the country, there is a demand for labor and subsequent decrease in the unemployment. Also, with an increase in the degree of trade openness the rate of unemployment also decreases. This might be due to trade openness being a proxy for globalization and the existing body of literature suggests that globalization promotes employment on industries that are competitive in global or regional context. It is also seen that with an expansionary monetary policy, the rate of unemployment decreases. This could be due to the increase in the aggregate demand of the economy due to the expansionary policy. These issues have a great deal of policy implications.

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