CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Knowledge of these relationships between economic growth, unemployment, and forecasting models is important to policymakers and researchers. Gross Domestic Product or GDP is the most basic measure of economic growth while the rate of unemployment serves to indicate the state of the labour market. The relationship between these two indicators is normally described by Okun's Law which posits a negative association. This literature review discusses these ideas within the framework of Malaysia while including the effects of youth unemployment and using time series models such as ARIMA and Prophet for precise forecasting.

2.2 GDP (Gross Domestic Product) and Economic Growth

Gross Domestic Product (GDP) is one of the most important indicators to express the performance of a country's economy, as it shows the total amount of all final goods and services produced within a given time. Due to its ability to reflect an economy's size and the level of advancement it has made, GDP is deemed as an important measure of economic growth and development. Economic growth can be described as a process that entails the continuous rise in the gross national income, output or any other characteristic of an economy. Only well-developed countries can compete on the global level, increase the quality of life, decrease the number of poor people, provide work places, and guarantee political stability.

2.3 Unemployment and Its Impact on Economic Growth

Unemployment refers to the state of people who possess the required skills and are willing to work but are unable to secure employment. It greatly affects economic growth because high unemployment rates often slow down the economic growth of a country and increase social vices. The employment rate, also an important measure of economic progress, is usually

associated with economic growth. In general, increased unemployment means that the economy grows at a slow pace, since a large number of people are out of work and not contributing to the nation's economic output. This relationship between unemployment and economic growth is normally tested using Okun's Law hypothesis that there is an inverse relationship between unemployment and economic growth.

2.4 Okun's Law

Okun's law introduced by Arthur Okun shows the correlation between unemployment and economic growth as measured by the GDP growth. It implies that if the unemployment rate rises by 1%, GDP in the same country will be reduced to about 2%. By means of this law, an inverse relationship between unemployment and economic growth has been established to show how fluctuations in unemployment impact the growth of GDP. A number of empirical investigations have posited results supporting the validity of Okun's Law across various nations while others have suggested the existence of deviations depending on certain economic characteristics.

2.5 Youth Unemployment and Economic Implications

This is a problem of high unemployment rates among youths especially the youths within the age of 15 to 24 years. The situation where unemployment rates are high among youths can have adverse effects on the economic and social development of a country. For example, the long-term consequence of youth joblessness includes income and employment scarring, which means that young people who have never worked are likely to have lower earnings in the future and be subject to employment instability, besides experiencing high levels of anxiety and depression. In Malaysia, the structural transformation in the labour market, including the transition from agriculture and low technology industries to higher productivity industries, has affected opportunities for youths. Furthermore, cases of economic crises, discrimination by employers or a mismatch of skills also contribute to high levels of youth unemployment. Measures that are taken to ensure that young people secure employment opportunities will also have the impact of enhancing the economic impact through increasing consumer demand and also decreasing social ills that are brought about by unemployment.

2.6 Time Series Models: ARIMA and Prophet for Forecasting Unemployment

In this case, time series models such as ARIMA and Prophet are crucial in the prediction of unemployment rates. ARIMA model is commonly applied due to its ability to address different types of the time series data. It works on the basis of identifying the autocorrelation in data and then fitting a model for predicting the future values from past trends. For instance, Didiharyono and Syukri (2020) applied the ARIMA model to present the prediction of unemployment rate in South Sulawesi and proved that the model is reliable in economic prediction.

On the other hand, Prophet, a model created by Facebook, is used in forecasting time series data that has a strong seasonal pattern and also contains gaps. This is especially easy to use and can manage cases of outliers and samples with missing data quite well. Prophet is useful due to the fast and efficient output for forecast, which makes it useful for variables such as unemployment rate. Selvarani et al. (2023) used the Prophet model in the forecast of the unemployment rate in India using time series data and noted the accuracy and efficiency of the Prophet model in the data.

2.7 Comparative Performance of ARIMA, SARIMA, and GARCH

A research by Kuang Yong Ng et al. (2023) performed a comparison of ARIMA, Seasonal ARIMA (SARIMA), and Generalized Autoregressive Conditional Heteroscedasticity (GARCH) models for unemployment rate forecasting in ASEAN-5 during the COVID-19 outbreak. The research reveals that ARIMA and SARIMA models have a better prediction power as compared to GARCH. According to RMSE, MAE, TIC, and SMAPE criterion, it was found that the performance of the models like ARIMA and SARIMA was better.

2.8 Empirical Evidence in Malaysia

A number of research papers have focused on unemployment and its relationship with the economic growth and other macroeconomic factors in Malaysia. Danlami et al. (2021) examined the presence of Okun's Law in the Malaysian context by analysing the connection between unemployment and GDP. Here, their results pointed towards a negative long run relationship between unemployment and GDP, meaning that policies that sought to address unemployment could spur growth for the economy. Also, their

study unveiled the positive effect of FDI on economic growth as one of the contending arguments.

Impin and Kok, in their study conducted in 2021, aimed to examine how unemployment, inflation, and interest rates influenced the Malaysian GDP between 2010 and 2018. According to their analyses, they did not find the co-integration between the unemployment rate and economic growth but they found that the economic growth has one time causality with the unemployment rate. This finding suggests that, albeit unemployment does not determine long-term economic growth, the converse is true in some sense, that is, economic growth determines unemployment.

Understanding about the relationship between GDP, unemployment and Okun's coefficient can be considered as an essential step in the formation of relevant economic policies. Although Okun's Law gives us a direction on how to dissect the correlation between unemployment and economic growth, it is found out from empirical evidence that such a correlation might not always hold the same constant in different geographical regions and time zones. Other types of time series models such as the ARIMA and the Prophet can prove useful in predicting unemployment rates and can assist policymakers.

Conclusion

It is essential to grasp the connection between GDP, unemployment, and Okun's gap to build proper economic strategies. Even though this theory of Okun's Law is a good starting point for understanding the connections between unemployment and growth, recent experience indicates that such a relationship can be unstable and different in different time periods. Autoregressive integrated moving average and Prophet models are handy in the assessment of unemployment rate factors and can be useful for policy decisions.