The Effect of Thai Baht Volatility on the Employment Rate in Thailand

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Abstract

The purposes of this study are to identify the effects of Thai Baht volatility on the employment rate in Thailand by using the Autoregressive Conditional Heteroskedasticity model to identify the volatility of the exchange rate as an independent variable and to make a comparison between each independent variable, such as the exchange rate between the Thai Baht and the US dollar, Real Effective Exchange Rate, moving average of the exchange rate, Gross Domestic Product, the Thai population, gold price, the number of employees, and total size of the Thai labor forces, the researcher decided to use multiple linear regression as the model for this research to study the relationship on employment rate in Thailand. The research instrument used in collecting the data is secondary data, the sample size is 110 months in a time series collected from January 2011 until February 2020. Based on the investigation, it was concluded that the exchange rate volatility using the autoregressive conditional heteroskedasticity model has little effect on the Thai employment rate, but a movement in Thai Gross Domestic Product (GDP) affected the employment rate in the same direction with a high statistical significance and the number of Thai populations aged 15 to 60 years also affected the employment rate with high statistical significance, but in the opposite direction.

Keywords: 1) Employment rate 2) Currency 3) Exchange rate volatility

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Introduction

Money refers to what people in society assume to use as a medium of exchange. It is the standard for measuring values. It is a form of asset that is liquidity, for most people, they are commonly kept as treasures. It can be used to exchange goods and services or be used as a measure of value. In society, money can be used as a standard for paying debts. Therefore, money stimulates production and supports the movement of goods from the source of production to the consumer (The Economic Times, n.d.).

Money facilitates the exchange of goods and services within society and causes an expansion in trading which affects both domestic and international economic growth (Kansawad, 2012, pp. 78-89). Many countries use the same local currency when exchanging goods and services between different currencies according to each trading partner. Therefore, the standard for exchanging money value for currency was born, leading to the setting of the exchange rate (Bank of Thailand, 2023a). The turning point in the world's major currencies occurred when representatives of 44 partner nations entered into the Bretton Woods Agreement at a meeting in Bretton Woods, New Hampshire, USA in 1944. Together they established a foreign exchange management system that abolishes the currencies depending on gold and tie it to the US dollar instead because at that time the US dollar was supported by gold. At that meeting, it was scheduled to establish the International Monetary Fund (IMF) and the World Bank as well to maintain a stable exchange rate between the currencies of allied countries in the bloc and for the United States, US dollars can be exchanged for gold as needed. With this turning point, many countries switched from accumulating gold as reserves to accumulating US dollars instead. When the demand for more US dollars to occupy, many countries began to buy US government bonds as they assume it as a safe haven until the US dollar eventually became the world's main currency by international acceptance. Many countries began to move back from holding the US dollar to gold reservation and in 1971 during the US President Richard Nixon's decision to disconnect the US dollar from gold, leading to the floating exchange rate to this day (Moneybuffalo, 2022).

The foreign exchange rate is the price of one currency against another. The main characteristic of the exchange rate is two parts which are the local currency and the foreign currency. When Thailand has switched to a managed floating exchange rate system since July 1997, the exchange rate moves according to the world market mechanism. Estimating the exchange rate of Thailand using a macroeconomic model might not be used to predict the exchange rate of Thailand as well as theory because Thailand's exchange rate is under a floating system under management. Under the direction of the baht, Bank of Thailand (BOT) does not set a specific exchange rate or tie the baht to any foreign currency. The central bank intervenes from time to time in order to not affect the stability of the economy. Most of the movement of the baht is in line with the direction of major world currencies such as the US dollar, euro, pound sterling, and

yen, etc., which reflects that Important factors affecting the baht are mainly caused by foreign factors such as the tendency to increase interest rates of foreign central banks, the differences between economic trends including investor views, sentiments, and reliability (Waiquamdee, Disyatatand and Pongsaparn, 2005, pp. 1-16). However, domestic factors such as the number of employments, recovery of the tourism sector, current account surplus, the strength of Thailand's external stability, those are an additional factor that support the confidence in the Thai baht (Bank of Thailand, 2023b).

Studying the exchange rate in Thailand still be really difficult as well as increased exchange rate volatility. Moreover, the value of international transactions is large. Exchange rate movements are caused by a combination of many factors such as inflation, interest rates (affecting capital flows), private sector investment news, and trading demand (Cumsawat, 2021, pp. 1-11). The last factor that affected the exchange rate is trade war, especially the trade war between super powerful countries which is difficult to happen. Trade war might affect Thai economy, especially in import business. Raising tax walls affects foreign companies such as the impact of importing parts and equipment in industries, resulting in being forced to relocate production plant bases, and capital movement (Vaisamruat and Sukhampha, 2020, pp. 233-250). The above reasons clearly lead to the change in employment rates. Many factors have an effect on the exchange rate more or less can be analyzed and solved the solutions from the monetary policy of Bank of Thailand. Nowadays, the Thai economic structure is more complex and linked to the global economy. As a result, the Thai baht tends to be more volatile. In the case of baht's volatility increase may affect the adjustment of the real economy, the BOT might consider overseeing the volatility of the baht depending on the necessity of the situation without forcing the fundamentals economics. In addition to the baht-to-dollar exchange rate of Foundation for Industrial Development Management System Certification Institute Thailand (MASCI), it also considers other factors such as the nominal effective exchange rate (NEER), which reflects the change in the baht's value relative to the currencies of trading partners and major competitors (Bank of Thailand, 2023b).

Thailand has changed foreign currency exchange rate system from a fixed system that tied the baht to the US dollar (Basket Currency) to a floating exchange rate system, resulting in the baht's value fluctuating since 1997. Currencies can appreciate or depreciate according to the actual economic situation or from supply and demand in the global financial market. Therefore, the "value of the baht" is considered one of the great importance factors that affects Thailand's economic system. After the American Subprime Crisis and the European financial crisis, the Thai capital market or stock market has had foreign investors invest a large amount of foreign currency in order to make a profit. As a result, the amount of foreign currency from foreign investment in Thailand has increased, causing the Baht appreciation. Importing goods from foreign countries such as raw materials,

machinery, oil, etc., allows entrepreneurs to earn more benefits from Baht appreciation in terms of reduced production costs and hiring more workers to scale up production line. After the Subprime Crisis, the Federal Reserve System (Fed) made Monetary Policy by reducing interest rate (Fed Funds rate) until the interest rate remained at approximately 0 - 0.25 percent and used the monetary policy (Quantitative Easing: QE) to stimulate economy which cause Baht depreciation. The rapid appreciation of the baht will affect exporters from reduced profits or affect the country's tourism revenue as well. If this happens for a long time, it may cause a loss of the business, unemployment problem, and will affect the growth rate The country's economy (GDP) due to the Thai economy still relies on income from exports and income from tourism as the main factor (Panchai, 2015, pp. 1-6).

Heteroscedasticity is often associated with cross-sectional data, whereas time series are usually studied in the context of homoscedastic processes. In analyses of macroeconomic data, many methematicians found the evidence that for some kinds of data, the disturbance variances in time-series models were less stable than usually assumed. Engle's results suggested that in models of inflation, large and small forecast errors appeared to occur in clusters, suggesting a form of heteroscedasticity in which the variance of the forecast error depends on the size of the previous disturbance. He suggested the autoregressive, conditionally heteroscedastic, or ARCH, model as an alternative to the usual time-series process. More recent studies of financial markets suggest that the phenomenon is quite common. The ARCH model has proven to be useful in studying the volatility of inflation, the term structure of interest rates, the volatility of stock market returns, and the behavior of foreign exchange markets (Greene, 2008, p. 970). Due to the data which we have interested in, along with the time series information researcher decided to calculate the exchange rate volatility by using the Autoregressive Conditional Heteroscedasticity (ARCH) model in time series data as an independent variable in Multiple linear regression to study the effect on the employment rate in Thailand.

Objectives of the Study

1. The exchange rate volatility between The Thai currency (Baht) and the US Dollar over a period of time has resulted in volume of the employment rate.

2. Other factors as variables in equation have resulted in relationship with employment rate over a period of time in the same direction or opposite direction.

Significance of the Study

The result of this study aims to achieve information as an indicator and economic manual for managing a state's economic development plan which affects the labor market and employment. The result will provide not only necessary information that is useful to the business of state scale but also can be useful information which guideline private sector's strategy and action plan.

Literature Review

Macroeconomic Theory

A floating exchange rate system is an exchange rate system in which the price of a country's currency is determined by the foreign exchange market. It depends on the relevant supply and demand of other currencies. Floating exchange rates are not constrained by trade restrictions or government controls. This is different from fixed exchange rates because it is revived on the market mechanism (Corporate Finance Institute, 2023).

Fixed exchange rate system means under an exchange rate system in which the central bank determines the value of that country's currency against one of the major world currencies at a fixed rate or sets the currency of that country compared with many foreign currencies, it is called the money basket system (Majaski, 2020).

Currency appreciation and depreciation of foreign currency are part of variants in the trading power of various countries where the currency is very volatile. Money will appreciate or depreciate depending on how much the flow rate of other currencies is exchanged into that currency. For example, in the case of a large amount of money flowing into Thailand. There is a chance that Thai baht will appreciate significantly. The reasons for the appreciation of the baht are caused by two main factors: 1. Inflation Factors. The higher the inflation rate in the country will make the currency depreciate. The exchange rate of the local currency against a foreign currency which the local currency has a lower inflation rate will have to pay more in exchange for a unit of foreign currency incurred at that moment. And 2. Interest rate factors, naturally, higher returns are more motivating for investors. Thai government bond interest rate is stable at 1.5% per annum, which is higher than other countries in the same region, thus, it attracts investment from foreign investors. For this reason, there is a large amount of foreign currency coming into Thailand (PeerPower, 2019).

Related Studies

Kim (2005, pp. 131-154) studies the patterns of employment responses to exchange rate volatility by using 28 industry data. The study concluded that some common patterns in the signs of employment responses to the exchange rate shocks for Korea. Most of the patterns match the theory. The industries with high openness tend and the industries with high openness and low imported input ratio show a positive sign in the employment response to the exchange rate shocks different from industries with middle or low openness which resent a negative sign in the employment rate shocks. Korean employment responds positively to exchange rate shocks using the panel data analysis. The results are statistically significant, Korean employment more responds to exchange rate shock than US employment because Korea has a higher number of openness tend industries than the US.

Demir (2010, pp. 1127-1140) studied the impacts of exchange rate volatility on employment growth in developing countries during the period of 1983–2005 by using the Cobb-Douglas production function. The study concluded that the exchange rate volatility

has been economically significant for manufacturing firms. by reducing employment growth. From estimation when using point estimate, the results show that for average companies. A one standard deviation increase in real exchange rate volatility will reduce employment growth in the range of 1.4–2.1 percent

Hamilton (2018, pp. 1-18) authored an article "Understanding Exchange Rates and Why They Are Important" which was published in Bulletin. The study concluded that one factor that affects financial flows and trade between Australia and other countries is an exchange. The indirect effects of the exchange rate by depreciation of the Australian dollar will decrease the comparable price of goods and services produced in Australia on the international market. As Australian goods and services become cheaper compared to foreign, demand for Australian goods and services for overseas markets should increase. Cause the volume in terms of quantity of Australian exports is about to increase, escalating demand and employment rate in Australia. Simultaneously, the exchange rate affects the imports of goods and services for Australian people. the depreciation of the Australian dollar influences Australian residents by reducing their consumption of expensive imported goods and services and towards to consumption of domestic products that can cause a decrease in the volume of imports, leading to support aggregate demand and employment rate. Exchange rate movement also has a committed relationship with the demand for non-tradable goods and services in case of cost depreciation, rising export volume will increase national income. In order to respond to the new demand of consumption rate, companies and firms might hire more workers to expand industries' production causing escalating total demand of employment rate tend to increase national income.

Huang, Pang and Tang (2014, pp. 339-352) studied the effects of the exchange rate on employment in Canada. The study concluded that the appreciation of the Canadian dollar (CAD) has a significant influence on employment in an area of manufacturing industries associated with most export-weight exchange rates not import-weight exchange rates. The research also studied the loss of manufacturing employment associated with the rising up of the community market. During the appreciated Canadian dollar, the commodity price has grown by 15.77% from one standard deviation between the years 1994-2010, causing a decrease in employment by 0.8% in the manufacturing field which is only 0.08% of overall employment in Canada. This literature uses GDP as one of independent variables, therefore researcher decided to use GDP as an independent variable as well.

Bakhshi and Ebrahimi (2016, pp. 4-13) studied the effect of the real exchange rate on unemployment by using an Autoregressive Distributed Lag (ARDL) model to calculate exchange rate volatility. The study concluded the relationships between the real exchange rate and employment rate in Iran which consist of 5 variances such as exchange rate, export data, import data, gross domestic product, and unemployment rate. The solution from the calculation supported that the relationship

between the exchange rate and the employment rate is negative.

Yokoyama, Higa and Kawaguchi (2021, pp. 470-510) studied the effect of exchange rate fluctuations on employment in a segmented labor market which is an adjustment of regular workers and non-regular workers by using the Second-Order Autoregressive Model (AR (2)) and heterogeneous dependence on international trade. The analysis of Japanese firm-level panel data presents that the appreciation of the Japanese currency (Yen) causes a decrease in the employment rate of exporting firms. The analysis result suggests a significant difference in adjustment costs between regular and non-regular employment in the partitioned Japanese labor market. For elasticity in this situation, regular employment responded to the permanent exchange rate more than non-regular employment.

Hua (2011, pp. 1-31) studied the economic and social effects of real exchange rates. The study concluded that the real exchange rate appreciation has negative effects on employment. The study conducted in China using panel data for 29 provinces found that an increase in the real exchange rate had detrimental effects on employment.

Ahmad, et al. (2020, pp. 4257-4265) studied the impact of employment rate, exchange rate, and foreign direct investment on worker's remittances and economic growth. The study concluded that the employment rate does share a long-run co-integration with exchange rates and foreign direct investment. This implies that changes in exchange rates can have an impact on the employment rate in Pakistan over an extended period.

Chipeta, Meyer and Muzindutsi (2017, pp. 20-41) studied the effect of exchange rate movements and economic growth on job creation. The study concluded that the relationship between job creation, real exchange rate, and economic growth in South Africa. The authors emphasize the importance of job creation for economic development and social cohesion. They argue that a job-friendly economic environment is crucial for promoting both macro and microeconomic stability. Using quarterly data from 1995 to 2015, the study employs the Vector Autoregressive (VAR) model and multivariate co-integration techniques to analyze the impact of the real exchange rate and economic growth on employment in South Africa. The country is chosen as a case study due to its persistently high and increasing unemployment rate. The findings reveal that employment in South Africa responds positively to economic growth in the long run, while it displays a positive relationship in the short run. However, the effect of economic growth on job creation is not significant enough to stimulate employment sufficiently, as indicated by the variance decomposition results. In contrast, the study shows that changes in the real exchange rate have a significant negative effect on employment dynamics in both the short and long run. Specifically, a depreciation of the South African rand against the U.S. dollar is associated with a decrease in overall employment. The stability of the exchange rate is therefore identified as crucial for economic growth and job creation in South Africa. Based on the findings, the study

provides recommendations for promoting job creation in South Africa and other developing countries. These recommendations are not specified in the summary.

He (2013, pp. 2-25) studied the relationship between the unemployment rate and the real effective exchange rate in various countries from 1994 to 2009. The study concluded that most countries experience a negative relationship between these factors, suggesting that a higher exchange rate can positively impact employment. However, re-exporting countries, such as the Netherlands, Singapore, and Hong Kong, exhibit a less negative relationship than other countries. The author suggests that this difference may be attributed to differences in the elasticity of demand for imports.

Jaffri, et al. (2017, pp. 128-136) studied the impact of the real effective exchange rate on unemployment in Pakistan: an empirical investigation. The study found that the exchange rate, specifically the real effective exchange rate (REER), does have an impact on the unemployment rate in Pakistan. Contrary to expectations, an increase in the REER (appreciation) actually reduces unemployment in the long run. This suggests that a stronger domestic currency can stimulate economic activity and lead to more employment opportunities.

Ngandu (2008, pp. 205-221) studied the relationship between the exchange rate and the employment rate. The study concluded that exchange rates affect employment, particularly significantly in South Africa. Due to the higher volatility of the rand compared to other emerging economies. The paper also highlights that the sector-specific impact of exchange rates is conditioned by industry characteristics, creating winners and losers in the face of currency shocks. Therefore, to fully understand the effects of exchange rates on employment, an economy-wide framework is necessary. The findings from a computable general equilibrium (CGE) model Demonstrate that even in a country with unreliable employment data like South Africa, it is still possible to analyze the relationship between exchange rates and employment.

Geerolf (2020, pp. 1-74) studied a relation between real exchange rate growth and unemployment (The Phillips Curve). The study concluded that there is a negative correlation between unemployment and real exchange rate appreciation in both fixed and flexible exchange rate regimes. This means that when the exchange rate strengthens (appreciates), it tends to be associated with lower levels of unemployment.

Akkay (2021, pp. 491-507) studied the real effective exchange rate and industrial employment (Turkish case) by used the Autoregressive Distributive Lag (ARDL) as basis model. The study concluded that there is a relationship between the exchange rate and employment rate in the Turkish economy. Specifically, the study suggests that an appreciation of the producer price index-based real effective exchange rate is associated with an increase in industrial employment. This means that when the exchange rate rises, it has a positive impact on employment, leading to higher levels of industrial employment.

Methods

Scope of the Study

The researcher wants to study exchange rates volatility that occurred during the period of time from January 2011 to January 2020 monthly. Therefore researcher collected data of exchange rate between US dollar and Thai Bath (USB/THB) including Thai gross domestic product (GDP), nominal effective exchange rate (NEER), real effective exchange rate (REER), gold price ($), labour force, employment and Thai population, which is the complete set group of people with a common characteristic, age 15-year-old to 60-year-old. The target data starting from December 2010 unit February 2020 as scope of study

Methodology

Step 1 Identify variables: Prepare the variables each independent variable and dependent variable in time series, by calculation and harvesting of secondary data.

Employment Rate (EMR) are defined as a measure of labor resources or a number of people available to work are being used in data which are calculated as the ratio between a thousand unit of the numbers of employed persons aged 15 to 60 years old in target sectors divided by labour force. Employed people are those aged 15 or over who worked in gainful employment for at least one hour in the previous week or who had a job but were absent from work during the reference week. So that the working-age population refers to people aged 15 to 60 years old in their area of interest. The labour force (LF) refers to people that are able to work, including the summation number of employed and unemployed, this indicator is seasonally adjusted to be denominator as labour force. Employment rate (EMR) measured in terms of percentage ratio

$$Employment\ Rate\ (\%) = \frac{Employment}{Labour\ Force} x100$$

Where employment as the summation numbers of employed population in 12 categories of working fields which are 1. Mining and quarrying, 2. Production, 3. Electricity, gas, steam, and air conditioning system, 4. Water supply, management and treatment of wastewater, waste, and sewage, 5. Construction, 6. Wholesale and Retail Repair of motor vehicles and motorcycles, 7. Transportation and storage, 8. Hotel activities and food service, 9. Information and Communication, 10. Financial and insurance activities, 11. Real Estate Activities, and 12. Professional, scientific, and technical

Exchange rate (USD) is the information of trade currency between Thai currency (Baht) and United States of America currency (U.S. dollar) which was collected from Bank of Thailand (BOT) as monthly time series data.

Log (LOG) is LN function, returns the natural logarithm of a number. Natural logarithms are based on the constant (e) calculated from exchange rate (USD)

Rad is LN function at t-1, Returns the natural logarithm of a number. Natural logarithms are based on the constant e (2.71828182845904). The variable's symbol is (Rad)

Thai Baht Index: Nominal Effective Exchange Rate (NEER) and Real Effective Exchange Rate (REER) both are a comparison of the Baht against the currencies of Thailand's trading partners and competitors and is weighted

average by their trade ratio which calculated by Bank of Thailand.

$$NEER_t = NEER_0 \prod_{i=1}^{n} \left(\frac{E_{it}}{E_{i0}}\right)^{w_{i,t}}$$

GDP The term of the Royal Thai Council is Primary domestic product refers to the market value of the final goods and services produced in a country over a period of time, regardless of national resources. It was invented by the Russian economist, Simon Kuznets. The gross domestic product can be used as an indicator of the standard of living of the population in that country (Fernando, 2023).

Gold price (XAU) and the differentiation of gold price along time series (DXAU) both refers to the trading of gold in the global market by using gold as the medium of exchange where the trade takes place in the form of a contract instead. The price of gold will be compared from the dollar (USD) per 1 ounce weight.

Population (P15), Thai population starting age from 15 years old to 60 years old served in employment which is secondary data base collected from Thailand Civil Registration consolidated by Bank of Thailand.

Cumulative average use as moving average (MV). Cumulative average, the data arrive in an ordered datum stream and the user would like to get the average of all of the data up until the current data. Cumulative average is one of technical moving average (MV) which the data arrive in an ordered datum stream, and the user would like to get the average of all of the data up until the current data, typically, an equally weighted average of the sequence of n values $x_1, x_2,\ldots,x_n$ up to the current time. The researcher used variable "MV3" or cumulative average (n = 3) as an independent variable to simulate the value changing quarterly of exchange rate between US dollar and Thai Baht.

$$MV3 = \frac{x_t + x_{t-1} + x_{t-2}}{3}$$

When x_t is exchange rate between US dollar and Thai Baht at base month

ARCH stands for Auto-Regressive Condition Heteroscedasticity; is a statistical technique that examines volatility in time series data to predict future volatility. In the field of finance, ARCH modeling is crucial for assessing risk by providing a volatility model that closely resembles real market behavior. It reveals that periods of high volatility are often followed by more periods of high volatility, while periods of low volatility are typically followed by more periods of low volatility (Kenton, 2021).

$$\varepsilon_t = \sigma_t V_t$$

The conditional volatility which is denoted Vt square (V_t^2) that consists of two terms that are the being added up together. Which are the unconditional volatility omega (ω) and Autoregressive Component alpha (α) which is ARCH coefficient, times lagged realized volatility or lagged squared residual epsilon t minus one squared (ε_{t-1}^2). When Alpha (α) is ARCH coefficient

$$V_t^2 = \omega + \alpha\varepsilon_{t-1}^2$$

Where V_t^2 is Conditional variance; ω is Unconditional variance; and α is ARCH Alpha. Researcher want to investigate the relationships between exchange rate volatility of Thai Baht effect on Thai employment rate by set up ARCH of exchange rate of Thai Bath against 1 US dollar as an independent variable for multiple linear regression equation.

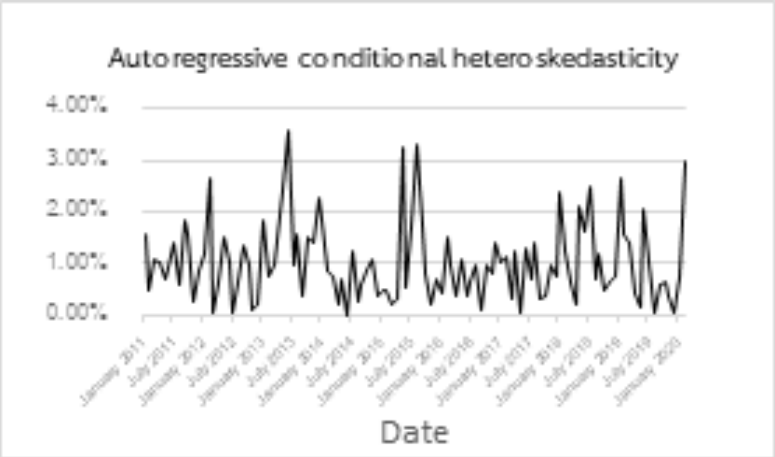

Figure 1 Calculated Exchange Rate Volatility by ARCH Model

Step 2 Import Data: Import the variables into Gretl. Ensure that the data is in a suitable format.

Multiple Linear Regression

$$EMR = \beta_0 + USD\beta_1 + LOG\beta_2 + Rad\beta_3 + MV3\beta_4 + P15\beta_5 + NEER\beta_6 + REER\beta_7 + GDP\beta_8 + XAU\beta_9 + DXAU\beta_{10} + ARCH\beta_{11}$$

Where **EMR** is Employment rate; **USD** is Exchange rate US dollar to Thai Baht; **LOG** is LN function, returns the natural logarithm of exchange rate (USD/THB); **Rad** is LN function at t-1; **MV3** is moving average which is cumulative average n=3 (Bath); **P15** is Thai population age 15 – 60 year old (unit per 1000, k); **NEER** is Nominal Effective Exchange Rate; **REER** is Real Effective Exchange Rate; **XAU** is gold price ($); **DXAU** is return of gold price (%); **ARCH** is the exchange rate volatility which is calculated from the exchange rate between the US dollar and Thai Baht (%).

Step 3 Data analytic: Estimate the model using the Ordinary least squares (OLS) command. This command is a type of linear least squares method for choosing the unknown parameters in a Multiple linear regression model with fixed level-one effects of a linear function of a set of explanatory variables. In this case, the dependent variable would be the employment rate, and the others are independent variables.

Step 4: Gretl provides output tables that show the estimated coefficients, standard errors, p-values, and other relevant statistics. Resulted the ARCH-related parameters, such as the autoregressive coefficients and the estimated conditional variance equation coefficients. The researcher already solved the unit root and correlation problem of variables then exported data as the result.

Results

The result shown that if the exchange rate between the Thai Baht agent US dollar changes by 1 unit, the employment rate changes 0.0214364 unit in the opposite direction with a statistical significance of 95%. If the change in the number of Thai populations aged 15 to 60 years old 1 unit, it will result the change in the employment rate of 0.000141570 unit in the opposite direction, with 99% statistical significance. And if a change in Thai Gross Domestic

Product (GDP) by one unit results the change in the employment rate of 3.83157e-07 in the same direction with 99% statistical significance. The results of the study are consistent with the research of Bakhshi and Ebrahimi (2016, pp. 4-13), Demir (2010, pp. 1127-1140), and Kim (2005, pp. 131-153).

Table 1 Regression Analysis for Employment Rate 1.1

Variables	Employment Rate
Const	0.000110842
	(0.00137835)
USD	−0.0214364 **
	(0.00899389)
Rad	0.119684
	(0.251833)
MV3	−0.00854567
	(0.0177259)
P15	−0.000141570 ***
	(1.08239e-05)
REER	−0.00166310
	(0.00207218)
GDP	3.83157e-07 ***
	(9.89270e-08)
XAU	−1.34104e-05
	(2.75389e-05)
DXAU	−0.0505288
	(0.0574218)
ARCH	−0.0336531
	(0.201378)

Table 2 Regression Analysis for Employment Rate 1.2

R-Squared	**0.317605**
Adjusted R-Squared	0.254936
Durbin-Watson	2.724712
P-value(F)	2.35e-34

This analysis examines the relationships between various economic factors and the employment rate in Thailand. Specifically, the study found 3 variables have an impact on the employment rate.

Exchange Rate and Employment Rate: The statistical significance of 95% suggests a high level of confidence in this relationship. Therefore, it can be concluded that there is an inverse association between the exchange rate and the employment rate in Thailand. The relationship between the Thai baht exchange rate and the employment rate reveals the impact of currency fluctuations on employment trends in Thailand. A change in the exchange rate reflects the relative value of the Thai baht compared to the US dollar. When the Thai baht strengthens against the US dollar (i.e., its value increases), it becomes more expensive for foreign investors to conduct business in Thailand. As a result, businesses may experience a decrease in profitability, leading to potential job cuts and a higher unemployment rate. Conversely, when the Thai baht weakens (i.e., its value decreases), it becomes more affordable for foreign investors, potentially stimulating business activities, job creation, and reducing unemployment.

Population Change and Employment Rate: The analysis also shows a statistically significant relationship between the change in the number of Thai populations aged 15 years and older and the employment rate. When the population changes by 1 unit, the employment rate changes in the opposite direction by approximately 0.000141570 units. The statistical significance of 99% indicates a strong level of confidence in this relationship. Hence, we can conclude that there is an inverse relationship between population changes and the employment rate in Thailand. The number of Thai populations aged 15 years or older serves as a proxy for the labor force, representing the potential workforce available for employment. Changes in this demographic group can have implications for the overall employment rate in the country. An increase in the number of individuals aged 15 and above can result from factors such as population growth, immigration, or changes in the working-age population's participation rate. When the number of working-age individuals increases, it introduces additional labor supply into the economy. If the labor demand does not keep pace with this increase, it can lead to higher competition for jobs, potentially increasing unemployment rates. Conversely, a decrease in the working-age population may alleviate competition for jobs, leading to a lower unemployment rate.

GDP and Employment Rate: The analysis reveals a statistically significant relationship between changes in Thai Gross Domestic Product (GDP) and the employment rate. When the GDP changes by one unit, the employment rate changes in the same direction by approximately 3.83157e-07 units. The statistical significance of 99% provides a high level of confidence in this relationship. Thus, we can conclude that there is a positive association between GDP changes and the employment rate in Thailand. The relationship between Thai GDP and the employment rate reflects the interplay between economic growth and job creation. Gross Domestic Pro-

duct represents the total value of goods and services produced within a country's borders. An increase in Thai GDP indicates economic expansion, often driven by factors such as increased consumer spending, business investment, and exports. This economic growth can lead to higher demand for goods and services, resulting in increased production and the need for additional workers, thus lowering the unemployment rate. Conversely, a decrease in Thai GDP suggests an economic contraction, which can lead to reduced demand, lower production, and potentially job losses.

Conclusion and Discussion

The research results obtained in this thesis have significant implications and potential applications in various domains. For Economic Policy, the research on exchange rates and their impact on employment rates can provide valuable insights for policymakers in formulating effective economic policies. The findings can help guide decisions related to monetary policy, foreign exchange interventions, and trade regulations to promote economic stability and employment growth. For Business and Trade, this research can assist businesses, particularly those engaged in international trade, in understanding the implications of exchange rate volatility on their competitiveness and employment levels. It can aid in strategic decision-making regarding currency hedging, export-import planning, and resource allocation.

This thesis examines the relationship between the volatility of the baht and the employment rate in Thailand. The Thai baht is the national currency. Plays an important role in the country's economy. Exchange rate volatility can be significant for various economic indicators. including employment, the purpose of this study was to analyze the impact of the volatility of the Thai baht on the employment rate in Thailand. and identify factors contributing to this relationship. The research method involves a comprehensive analysis of relevant economic data. Statistical Modeling and review of existing literature. The findings can provide valuable insights for policymakers and stakeholders in understanding the dynamics between exchange rate volatility and employment outcomes in Thailand.

To avoid and manage affectation. For exchange rate management, Regarding the selection of tools to mitigate the volatility of the baht, the Bank of Thailand will assess the suitability according to the situation by engaging in foreign exchange transactions to slow down the volatility of the baht in the short term, Central banks can actively manage exchange rates through interventions in the foreign exchange market. This action will affect the change in international reserves. If the BOT controls the baht to reduce its appreciation volatility, it will buy foreign currencies and sell baht. which will make the reserve increase While taking care of the baht to slow down the weaker volatility will be buying the baht. and the sale of foreign currency This will reduce the reserve. This intervention can help stabilize exchange rates and reduce volatility, providing more predictability for businesses and minimizing disruptive effects on employment. However, in the event that there are

signs of baht speculation, the BOT may use additional tools to monitor the baht as well, such as measures to prevent baht speculation. which may adjust the intensity level to suit the situation in each period.

For fiscal policy, governments can use fiscal policy measures to support industries affected by exchange rate fluctuations. This can include targeted subsidies, tax incentives, or grants to help businesses withstand competitive pressures from imports or take advantage of export opportunities. These measures can help protect jobs in affected sectors.

Monetary policy: Central banks can adjust monetary policy to address the impacts of exchange rates on employment. For instance, if a strong domestic currency is negatively affecting employment in export-oriented industries, the central bank can adopt a more accommodative monetary policy to stimulate economic activity and boost competitiveness. This may involve lowering interest rates or implementing measures to increase liquidity in the economy.

Trade policies: Governments can implement trade policies to support domestic industries and protect employment. This can include imposing tariffs or quotas on certain imports to reduce competition for domestic producers. By creating a more level playing field, these measures can help maintain employment in sectors vulnerable to import competition.

Skill development and training: Governments can invest in education, training, and skill development programs to enhance the competitiveness of the workforce. By equipping workers with the skills required for emerging industries or high-value-added sectors, they can adapt to changing economic conditions and reduce the impact of exchange rate fluctuations on employment.

Diversification and economic resilience: Governments can encourage economic diversification to reduce dependence on a few sectors that may be more vulnerable to exchange rate fluctuations. Promoting a diverse range of industries can help distribute employment opportunities across different sectors and make the economy more resilient to external shocks.

Research Suggestions

Longitudinal Study: Conduct a longitudinal study to observe changes in the employment rate and the relationships with independent variables over an extended period. This can provide insights into the long-term trends and dynamics of the labor market and offer a more comprehensive understanding of the factors influencing employment.

Sector-Specific Analysis: Explore the employment rate and its determinants in specific sectors or industries. Analyzing sector-specific employment patterns can help identify sector-specific challenges and opportunities, allowing for targeted policy interventions to promote employment growth and development in specific sectors.

Impact of Technological Advancements: Investigate the impact of technological advancements, such as automation, artificial intelligence, and digitalization, on the employment rate. Examine how these advancements

affect job creation, job displacement, and the skill requirements of the workforce.

Labor Market Flexibility: Examine the relationship between labor market flexibility and the employment rate. Analyze the effects of labor market regulations, such as employment protection legislation or flexible work arrangements, on employment dynamics and explore potential policy measures to enhance labor market flexibility.

Regional Disparities: Investigate regional disparities in employment rates within the country. Examine the factors contributing to regional variations in employment and explore policies or interventions to address regional inequalities in job opportunities and economic development.

Labor Market Integration: Study the impact of labor market integration, such as the free movement of labor within regional economic blocs, on the employment rate. Analyze the effects of labor mobility on employment patterns, wage dynamics, and economic growth.

Socioeconomic Factors: Consider incorporating socioeconomic factors, such as education levels, income inequality, gender disparities, or social welfare policies, into the analysis. Explore how these factors interact with employment dynamics and examine policy measures to promote inclusive and equitable employment growth.

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