

Impact of Trade Openness on Unemployment: East, South and Southeast Asian Countries (2006 – 2016)



Aria Rashidi

American University of Central Asia

ABSTRACT: Recent statistics have shown how trade has grown quickly over the last decades in East, South, and Southeast Asian countries. East and Southeast Asian countries have been among the most dynamic participants in international trade. It strongly implies estimating how trade openness effects unemployment in East, South, and Southeast Asian economies. This paper empirically investigates the impacts of measures of trade openness on the unemployment rate in an unbalanced panel context for the period 2006-2016. The analysis focuses on the 16 east, south, and Southeast Asian countries, which are highly ranked in terms of their trade openness: Philippines, Singapore, Vietnam, Thailand, Malaysia, Indonesia, Timor-laste, China, Hong Kong, Korea, Japan, India, Pakistan, Sri Lanka, Bangladesh, and Maldives. The results illustrate the negative relationship between trade openness and the unemployment rate. It has been found that trade openness reduces the unemployment rate significantly.

KEYWORDS: Trade openness, Unemployment, Panel data estimation.

INTRODUCTION

The history of international trade across nations has been long and contentious, and many economists have studied the effects of the increase in trade, foreign direct investment, and immigration on unemployment. The interface between trade and labor has been investigated in the context of classical trade models, as well as within recent models of firm heterogeneity, and the impact of trade on final goods and input of the good is considered in many research studies. Due to different economic factors, there are different predictions and results on the effect of international trade on labor markets. For instance, eastern and southeastern Asia have become the world's most dynamic regions for trade purposes. Therefore, maintaining this growth rate requires market integration (ADB, 2013).

Unemployment is one of the general concerns in the economy. Thus, researchers identified a number of factors, which can influence unemployment, such as market structures, technological changes, and financial regulations. Most of the economists argued for trade liberalization and observed that international trade is a way to boost economic activity and reduce the unemployment rate. However, theoretical and empirical research studies have shown that the impact of trade openness on unemployment differs across countries and depends on different factors. Some economists believe that trade openness may cause additional unemployment since import-competing sectors get foreign competition and, as a result, job creation instead of job loss in the sector. However, proponents argue that trade openness creates more job opportunities.

Despite economic crises and changes in the principals of international trade, trade still has a significant impact on the economic growth of economies. Therefore, international trade has become more liberalized in recent years. Following the economic crises of 1997-1998, East-Asian countries opened their economies to more economic integration initiatives. The crises revealed the importance of economic cooperation and prompted the economies to become interdependent and institutionalized. Furthermore, East Asia's¹ economic boost from a poor, underdeveloped country to a global factory over a 50-year period is regarded as an economic miracle (World Bank 1993; Stiglitz 1996). Since countries differ in terms of production efficiency, trade allows nations to benefit from their comparative advantage (Ricardian). Moreover, trade considers different factor endowments. For instance, trade between developed and developing economies reflects different factor endowments.

East Asian economies have extensively liberalized foreign trade and direct investment (FDI) regimes within the frameworks of the General Agreement on Tariffs and Trade (GATT)/World Trade Organization (WTO), and the Asia-Pacific Economic Cooperation (APEC). Therefore, FDI and trade have had a substantial influence on the economic growth of Southeast

¹ East Asia is defined as the Association of Southeast Asian Nations (ASEAN)

Impact of Trade Openness on Unemployment: East, South and Southeast Asian Countries (2006 – 2016)

Asia. The increase in the free movement of goods across international economies has been the most remarkable aspect of the increase in the integration of economies. Thus, trade- labor interaction has been growing rapidly in Asia. While they have undergone structural changes at the same time, As a result, it led to poverty reduction and a new form of employment, from traditional to modern. However, the global financial crisis, which began in 2008, has raised unemployment across the world. It has had an influence on the unemployment level of South East Asian economies as well. Unemployment and trade trends in East, South, and Southeast Asia have been illustrated in figures 1 and 2 for (2006-2016). Moreover, among the largest economies in the region of the Association of Southeast Asian Nations (ASEAN), the Philippines has the highest unemployment rate.

The aim of this study is to investigate empirically the relationship between trade openness and the unemployment rate in the East, Southeast, and some of the South Asian countries, which are highly ranked in terms of trade openness. The paper will analyze whether international trade has any negative effect on the unemployment rate and will examine how the other demographic and macroeconomic variables may affect the unemployment rate. For instance, South East Asia, with a population of more than 640 million people, has an average annual growth rate of 5%, while at the same time, they are boosting global trade. The study of this topic will make a significant contribution in finding the interaction between trade openness and unemployment in East and Southeast Asian countries, where no study has been done so far in this regard considering Southeast and East Asian countries. Then, it will analyze the findings for the research question; what is the impact of trade openness on unemployment in East, South, and Southeast Asian countries?

The analysis in this paper is based on cross-country panel data for 16 East, South, and South-East Asian countries, which ranked highly in terms of their trade from 2006 to 2016. In addition, the hypothesis of this study suggests that trade openness reduces the unemployment rate by using the GMM Approach. In general, it is a plausible method for empirically identifying the general equilibrium evidence of how international trade is related to the level of aggregate unemployment.

Theoretical background of the effect of trade openness on unemployment:

Trade has played a significant role in international markets. After the approval of liberalization policies, trade patterns have been changing in the global markets. Despite the economic and financial crises, trade has been growing so fast. Therefore, it stimulated various theoretical and empirical investigations. Likewise, classical economists Adam Smith and David Ricardo strongly preferred free trade between nations. They believed that liberalized trade would lead to economic affluence. Recent studies, on the other hand, show that trade openness has different effects on the unemployment rate.

The theoretical background of unemployment and traditional foreign trade goes back to David Ricardo's comparative advantage and factor endowment theories. According to Ricardo's theory, foreign trade leads to lower unemployment. For instance, he stated that in a small country, there are two industries and the production factor is only labor; foreign trade leads to a rise in the relative domestic price of the product produced in the exporter industry, and it will increase the marginal product of labor. However, the marginal product of labor would decrease in the importing country.

In the Heckscher-Ohline theory, it is presumed that there are two goods and two factors, capital and labor. Before foreign trade, the price of the labor-intensive product would be lower in a labor-abundant country compared to the other country. In addition, the price of the capital-intensive good in the capital-abundant country will be lower relative to the price of the good in the other country. Since foreign trade will cause an increase in demand for labor in labor-rich countries, wages will increase and unemployment rates will decrease. However, the demand for capital will increase in return for the labor in the capital abundant country. This will decrease the average wage, and thus there will be a rise in unemployment. To conclude, after reducing the trade barriers, the import and export sectors contract. However, the export sector expands. *Ceteris paribus*, employment will decrease in the import sector while it will increase in the export sector.

It can be concluded that trade openness, driven by Ricardo's comparative advantage theory, through the reduction in tariffs, will reduce unemployment in the country. However, according to the Heckscher-Ohlin theory, trade will reduce the unemployment rate only if the country is labor-abundant.

LITERATURE REVIEW

The effect of trade openness on the labor market is complex and differs across countries. It has been studied in the vast economic literature over a longstanding period. Following the labor market and international market literature, there are no limited methods and models to identify the impact of trade openness on labor policies to reduce the unemployment rate. As mentioned above, theoretical changes, empirical analysis, and methodologies have been changed as well through the decades. The following literature shows both positive and negative effects of trade openness on unemployment across countries.

According to the idea that trade openness leads to an increase in unemployment, Felbermayr, Prat, and Schmpeter (2011a) estimated a model which shows that there is a significant impact of trade openness on the unemployment rate in the long

Impact of Trade Openness on Unemployment: East, South and Southeast Asian Countries (2006 – 2016)

run. Where, as trade openness increases, there is a decreasing effect on the unemployment rate. They used panel data from 20 OECD countries and cross-sectional data on a larger set of countries. Furthermore, they integrated two models: Melitz's (2003) trade model and Pissarides' (2000) model of equilibrium unemployment. Melitz's model shows how trade openness affects the productivity distribution of firms. They found that the purging effect of trade lowers search unemployment for reasonable parameter values.

Similarly, another empirical research paper about the labor market indicates the significant impact of trade openness and liberalization on unemployment. Gozgor (2013) examines the impact of four different measures of trade openness on the unemployment rate by using an unbalanced panel estimation of the G7 economies. Furthermore, LSDVC estimation is used in order to eliminate autocorrelation, heteroscedasticity, and bias arising due to the small number of cross-sectional and unbalanced panel datasets. As Felbermayr et al. (2011), the results show a negative relationship between trade openness and the unemployment rate, considering all four different measures of trade openness (nominal openness, real openness, the economic globalization index, and the KOF globalization index), and this is significantly decreasing the unemployment rate in G7 countries. In the article by Hasan et al, (2012), they study the impact of trade openness on the unemployment rate at the industry level and the relationship between openness and unemployment at the state level. Additionally, they take different effects of trade on unemployment into consideration while focusing on the level of market flexibility and different types of labor. The state-level results showed that urban development decreased with trade liberalization in the state. However, the share of employment was larger in net export industries. While the industry level results indicate that in the presence of trade barriers, the chances of labor unemployment were lower in the case of net export industries.

Following the literature, which claims a negative relationship between trade openness and unemployment, Dutt, Mitra, and Ranjan (2009) investigated the impact of trade openness on unemployment by testing a model of trade and search induced unemployment. In this study, they considered the Heckscher- Ohlin model and the Ricardian comparative advantage framework. They used cross-country data on trade policy and unemployment, including several control variables and instrumental variables for endogeneity problems. The results provide strong evidence from the Ricardian model that trade openness and the unemployment rate are negatively related.

Similarly, Davidson and Matusz (1988, 1999) presented frictional unemployment by using models of comparative advantages, and the relationship between trade openness and unemployment will be determined by a comparison of capital-labor endowments across countries. They have also shown that in some cases, there is a Stolper-Samuelson theorem that shows the relationship between trade and the distribution of income for certain factors, and the model addresses some issues that traditional models cannot, such as the impact of trade on the welfare of the unemployed and the impact of trading on unemployment.

In contrast with the above literature, Helpman and Itskhoki (2010) investigated whether a reduction in trade barriers could increase unemployment. Therefore, with the reduction in trade barriers, the profitability of firms will increase. Unemployment increased when workers shifted towards the sector producing exportable goods if the exporting sector had a greater tendency to cause labor market frictions.

Similarly, Kim (2010), as a result, illustrates a positive effect of trade openness on the unemployment rate. The paper investigates whether imports from low-income economies will have any distinctive effects on the aggregate unemployment rate as compared to imports from high-income economies. The analysis is based on cross-country panel data for twenty OECD countries from the 1960s to the 2000s. It examines two hypotheses; that trade has a direct effect on the aggregate unemployment rate and that trade in interaction with labor market institutions has an effect on aggregate unemployment. He empirically studied the effect of trade on the unemployment rate and the effect of trade on unemployment in the absence of labor market institutions. Results showed that an increase in trade increased aggregate unemployment; as it is correlated with labor market institutions, while trade openness reduced the level of aggregate unemployment.

Greenaway, Hine, and Wright (1999) studied a panel of 167 manufacturing industries, corresponding approximately to a four-digit ISIC level of aggregation, from 1979 to 1991. They found that increases in trade volumes, both in terms of imports and exports, caused reductions in the level of derived labor demand. It fits with the fact that more openness helps the firm use its workers more efficiently.

Makioka (2011) argues that the impact of trade liberalization on unemployment was caused by an inter-sectoral reallocation of labor. In order to study the effect of trade openness on unemployment, he used a model that has two sectors and two countries. The results demonstrate that trade liberalization has a generally ambiguous effect on the rate of unemployment because, in this study, the model takes into account both labor movements and the change in the sectoral unemployment rate, which will result in an ambiguous effect. Therefore, this study indicates that the net effect of trade openness on unemployment depends on the labor market characteristics of a country.

Impact of Trade Openness on Unemployment: East, South and Southeast Asian Countries (2006 – 2016)

Halit (2013) examines the effects of trade openness on labor market measures. He studies the effects of openness and unemployment in agriculture, industry, and services on the cross-country level. Furthermore, cross-country regressions are estimated for a panel of about one hundred developed and developing countries for the sample period 1980 to 1999, and panel estimates are preferred to fixed effect and first-differenced GMM estimates, because the latter techniques eliminate time-persistent cross-section information. The results show that trade openness has not been successful in creating jobs in developing countries, considering higher trade volumes and lower trade barriers. Thus, it indicates that trade openness is not a solution to unemployment problems in developing countries. While the estimates demonstrate that trade openness has an adverse effect on industrial and agricultural employment in developed nations.

Davis and Harrigan (2007) investigated how labor markets adjust to trade liberalization. Their model focused on within-industry reallocation and developed a model of intra-industry exchange in which the combination of the labor market and job rents raises a concern that trade lowers wages. In short, they have developed the Shapiro-Stiglitz model with heterogeneity in firm monitoring and iceberg costs of effort.

Moreover, Hasan, Mitra, and Ranjan (2010) studied two extreme cases: (a) perfect labor mobility and (b) no inter-sectoral labor mobility, where the result depends on the flexibility of the labor market. They analyzed the relationship between trade protection and unemployment by using two empirical strategies. Whereas the first strategy analyzes the relationship between trade liberalization and poverty, the second strategy exploits discrepancies in the range of protection across industries and over time to define whether those industries, which experienced greater reductions in the barrier, faced greater unemployment among their labor force. The state unemployment results show that there is no evidence of the effect of trade protection on unemployment while the protection is positive but not significant. Moreover, by taking into account the overall effect of protection on unemployment, it could be found that in flexible labor markets, unemployment is significantly and positively correlated with protection.

In addressing the different effects of openness on unemployment in different types of jobs, it can be said that there are some studies that focus not just on the relationship between trade openness and unemployment but also on the impact of trade on unemployment considering different types of jobs. Wang and Zhao (2015) examined how trade affects labor and firms. Trade leads to an intensification of productivity both among exporting firms and non-exporting firms. Due to the changes in the extensive and intensive margins, trade openness leads to forcing firms that are the least efficient out of the market. Which means that jobs in the few quality firms will be destroyed. Therefore, trade liberalization leads to an increase in high-quality firms (good jobs) and a decrease in lower quality firms (bad jobs).

DATA AND METHODOLOGY

In this section, empirical estimation is provided. The hypothesis tested in this study is that the increase in trade openness reduces unemployment in East and Southeast Asian countries. In order to analyze it, the following methodology and explanation of variables in the model are used. As analyzed above, the theoretical and empirical studies suggest that either a positive or a negative relationship between trade openness and unemployment depends on the economy and geography of the nations. In this research, the result suggests an increase in trade openness reduces the unemployment rate.

This paper examines the impact of trade openness on the unemployment rate in an unbalanced panel data context in East, South, and Southeast Asian countries for the period from 2006 to 2016. Following the literature, total labor force population unemployment rate, population growth rate, measure of trade openness, KOF index for checking the robustness of trade openness results, national debt, government expenditure growth, inflation rate, GDP growth rate, and foreign direct investment are used in the model. The World Bank data indicator, the International Labor Organization (ILO), and the IMF provide consistent unemployment rates and other explanatory variables. It observes the impact of trade openness on unemployment in 16 East and Southeast Asian countries, and the data is obtained from World Bank indicators for the period from 2006 to 2016. The data from the 16-to 64-year-old population's unemployment rate is used.

The KOF index and trade openness measures are included in the model; the KOF index is used as an alternative measure of globalization. Trade openness is defined as exports plus imports relative to GDP in USD. Alcalá and Ciccone (2004) defined the term "real trade openness" because international trade enhances productivity. Where Harrod—Balassa-Samuelson (HBS) obscured the fact that productivity advantages are higher in the tradable goods sector than in the non-tradable goods sector, the larger productivity advantage in tradable goods raises the relative price of non-tradable goods. "real trade openness" has been used in many pieces of literature, such as Felbermayr, and Prat (2011b). Furthermore, I used the KOF index since it has been used as a measure of trade openness in recent empirical literature such as Samimi et al. (2012), Dreher, Gaston, and Martens (2008), Keohane and Nye (2000), and Gozgor, G. (2013). The information comes from a database at the Swiss Federal Institute of Technology in Zurich for the years 2006 to 2016.

Impact of Trade Openness on Unemployment: East, South and Southeast Asian Countries (2006 – 2016)

Following the empirical papers from the literature, it can be said that labor market studies have focused on macroeconomic conditions such as GDP per capita and GDP growth rate. Okun's law introduced the direct relationship between the GDP growth rate and unemployment. Furthermore, from literature such as Blanchard, Nickell, Nunziata Wolfers (2000), Ochel (2005), Blanchard (2006), Felbermayr, Prat, Schmerer (2011b), Bassanini and Duval (2006, 2009). It can be inferred that they have focused on determinants of the unemployment rate from different groups, such as the inflation rate (based on consumer prices, % annual change), the productivity growth rate (output per hour in manufacturing, % annual change), and the real interest rate (%) as well. In addition, demographic indicators such as population in logarithmic form have been used in Felbermayr, Prat, and Schmerer (2011b) papers. Population addresses the country's market size; therefore, there are different kinds of literature that show the impact of trade openness on unemployment. For example, neoclassical beliefs hold that an increase in population will increase unemployment; however, new trade theories hold that an increase in population and trade liberalization will result in a lower unemployment rate.

Apart from macroeconomic and demographic variables, there is another group of variables that have been recently used in unemployment and trade openness studies. In recent studies, labor market institutions and product market regulation variables are used in determining the impact of trade openness on unemployment. These sorts of variables may include labor market policies, minimum wages, regulation of product markets, and the size of the formal and informal markets. These sorts of variables cover minimum wages, the average rate of wage taxes, the average replacement rate of unemployment insurance, regulation of product markets, the size of the informal economy, and so on. However, some empirical studies such as Felbermayr, Prat, and Schmerer (2011b), which used dynamic panel data estimation in order to observe the significance of LMI, wage distortion index, and PMR, have found that they are not significant in determining the unemployment rate across OECD countries. Therefore, I have not included those sorts of insignificant variables in the panel regression. Therefore, there is no concern for omitted variable bias. Table 1. Illustrates the summary of the descriptive statistics and shows the unemployment rate with the highest mean among other variables. Moreover, standard deviation, which is a measure of dispersion, measures the average distance between a single observation and the mean. According to table 1, FDI and national debt have the highest standard deviation among the variables. Furthermore, the autocorrelation matrix in Table.2 shows that there is no concern regarding the autocorrelation of variables.

Table1. Summary of descriptive statistics

Variable	observation	Mean	Std. Dev.	Min	Max
Unemployment rate	176	6.520148	4.1897	.65	23.618
Inflation rate	176	4.994026	4.3543	-1.352837	23.11632
FDI	176	5.666183	9.450839	-.0529075	58.51875
trade openness	176	1.1664	1.122171	.1414911	4.426249
Population Growth	176	1.267545	.8329073	-.1852265	5.321517
GDP Growth	176	5.205811	5.374572	-26.04815	41.68116
Debt	176	55.2517	47.70134	0	236.3
Government Expenditure	176	5.823084	6.966229	-16.50425	48.32392
Sec Educ growth	176	1.928378	5.066902	-5.334518	46.75875

Model; in this paper, for the empirical model, macroeconomic and demographic variables are included in the regression.

$$U_{i,t} = \rho U_{i,t-1} + \beta_1 INF_{i,t} + \beta_2 FDI_{i,t} + \beta_3 OPEN_{i,t} + \beta_4 POPGR_{i,t} + \beta_5 GDPGROW_{i,t} + \beta_6 Debt_{i,t} + \beta_7 GovExpen_{i,t} + \beta_8 Sec Edu Grow_{i,t} + U_i + v_{it}$$

In this empirical equation:

- $U_{i,t}$ is the unemployment rate in the country i at time t ,
- $GROW_{i,t}$ is the GDP growth rate in the country i at time t ,
- $INF_{i,t}$ is the inflation rate in the country i at time t ,
- $Debt_{i,t}$ is the National debt in country i at time t ,
- $FDI_{i,t}$ is the foreign direct investment in country i at time t ,
- $POPGR_{i,t}$ is the population growth rate form in country i at time t ,
- $Govexp_{i,t}$ is the government expenditure growth rate in country i at time t
- $OPEN_{i,t}$ represents the measures of trade openness $(X+M)/GDP$ in country i at time t
- $Sec Edu Grow_{i,t}$ is the secondary education enrollment growth rate in the country i at time t

Impact of Trade Openness on Unemployment: East, South and Southeast Asian Countries (2006 – 2016)

- $V_{i,t}$ is the error term
- Country fixed effect is represented by U_i

In this equation, all the variables are included from unemployment and trade literature; the inflation rate is added according to the theory of Philip's curve since it has a negative relationship with the unemployment rate in the short run. However, in the long run, they might be uncorrelated and its effect will be insignificant. Similarly, population growth and GDP growth are included in most of the unemployment literature, such as Gozgor, G. (2014), and Felbermayr, G., & Prat J., & Schmpeter H. J. (2011). Population growth's effect is suggested to be negatively on the unemployment rate in most of the studies. However, it might differ across countries when rapid population growth goes in parallel with the growth of employment opportunities. Moreover, Okun's law has illustrated the GDP growth rate's relationship. Furthermore, FDI has been considered as a part of the globalization puzzle in most of the studies, and it has shown a significant effect on the unemployment rate. All variables are divided as strictly exogenous, predetermined, and endogenous variables. Exogenous variables include population growth, debt, and trade, while endogenous variables include FDI, GDP growth, secondary education enrollment growth, inflation rate, and trade.

Following the literature, there are different robust estimations relevant to my methodology for estimating dynamic panel data, such as Arellano and Bond (1991) and Blundell and Bond (1998) and least square dummy variable estimation, Kiviet (1995,1999), and Judson and Owen (1999). LSDV estimation finds a lower variance estimate in contrast with the GMM estimator and IV. However, Bruno (2005a, 2005b) used LSDVC panel estimation. As far as, this method avoids the biases of small cross-sectional literature, such as Gozgor (2014) used in his paper as well. In which case, it addresses the heteroskedasticity and autocorrelation concerns as well.

The Anderson-Hsiao approach is another approach for using dynamic panel estimation. It takes the first difference of the regression in order to eliminate the fixed effects, and the deeper lags of independent variables are used as instruments for differenced lags of the independent variable that is endogenous. Where the first difference transformation removes both the constant term and the individual effect. However, there is still a correlation between the differenced lagged independent variable and the disturbance process, which contains $\epsilon_{i,t-1}$. Instruments can be constructed for independent variables either in lagged or differenced form. Thus, the lags of the independent variable will be highly correlated with the lags of the dependent variable, but uncorrelated with the error.

Arellano-Bond (1991) estimation addresses the first-differenced model through the GMM estimator by taking a larger number of internal instruments into account. Following Arellano and Bond, in 1998, Blundell and Bond proposed "system GMM estimators", which are first-differenced instruments for the equation. However, Bruno (2005b) stated that the GMM estimator might be biased and inefficient for estimating a small number of cross-sectional units in panel data because the assumption for GMM estimators holds for a large number of cross-sections. According to Arellano and Bond (1991), in the GMM approach, all the variables are differenced, and they are instrumented with the differenced endogenous variables according to their lags. In contrast, the Arellano Bond estimator argues that the Anderson-Hsiao approach fails to consider all of the potential orthogonality conditions. Arellano bond estimation holds the assumption that instruments are based on lagged values of the instrumented variables, and estimators allow the presence of the external variables.

The following equation gives the definition of this approach:

$$y_{it} = X_{it}\beta_1 + W_{it}\beta_2 + v_{it}$$

$$v_{it} = u_i + e_{it}$$

Where X is exogenous variables and W_{it} includes predetermined and endogenous variables. Where all the variables may be correlated with u_i . In this paper, Arellano and Bond's estimation of the GMM approach is preferred. Since it is designed for a small period of time and large individual units. It explains the GMM problem by saying that the model is a set of equations, one for each time period, and that the variables in each equation are different.

FINDINGS

The empirical relationship between dependent and independent variables is shown by regression analysis. Some of the coefficients are highly significant as p-values are less than 0.01 level of significance. The findings in Table 2 illustrate that the population growth rate and government expenditure growth have a highly significant positive impact on the unemployment rate. A one-percentage-point increase in population growth raises the unemployment rate by 0.5 percentage points. According to the literature, generally rapid population growth exceeds the growth of employment opportunities, and, as a result, there is a positive effect of population growth on unemployment.

Government expenditure growth has a significant positive impact, with a 0.048 coefficient on the unemployment rate. A 1% increase in government spending raises the unemployment rate by 0.048 percentage point. Some theories claim that an increase

Impact of Trade Openness on Unemployment: East, South and Southeast Asian Countries (2006 – 2016)

in government expenditure will lead to a reduction in the unemployment rate. However, in practice, it might differ. Since government expenditure is determined by international geopolitical factors rather than macroeconomic conditions, therefore, it shows a positive effect on the unemployment rate in the cases of East, South, and Southeast Asian countries.

The GDP growth rate has a negative impact on the unemployment rate with a 0.0092 coefficient. However, it is not statistically significant. Moreover, the relationship between the inflation rate and the unemployment rate is negative with a 0.0041 coefficient. The Philip curve shows the negative relationship between the unemployment rate and inflation rate in the short run as well. Similarly, a 1% increase in foreign direct investment (inflow as a percentage of GDP) reduces the unemployment rate by 0.039 percentage points. Furthermore, the result shows that national debt has a negative relationship with the unemployment rate. However, it is not statistically significant with a coefficient of 0.005. On the other hand, the secondary education enrollment growth rate has a negative estimated coefficient of 0.0078. However, it is not statistically significant.

Empirical results in Table.3 indicate that the impact of trade openness is negative and statistically significant. It satisfies the suggested result of the hypothesis that trade openness leads to the reduction of the unemployment rate. One percent increase in trade openness decreases the unemployment rate by 1.21 percentage point. The Sargan test results in table.4 fail to reject the null hypothesis of over-identification in the panel estimates, indicating that we can rely on these results. The Arellano-Bond test for zero autocorrelation in first-differenced errors in table.5 shows that we reject no autocorrelation of order 1 and cannot reject no autocorrelation of order 2. There is evidence that the Arellano-Bond model assumptions are satisfied. If it was not the case, reconsideration of the instruments was required. Moreover, the results from the mean VIF values in table 7 show that there is no problem of multicollinearity among explanatory variables. If the mean VIF value is more than 10, the explanatory variables may need to be looked at again.

Furthermore, the cross-sectional dependence test in the unemployment rates is tested by using the cross-section independence (CD) test of Pesaran (2004). Results from the CD test of Pesaran (2004) are reported in table 6, and the null hypothesis of no cross-sectional dependence is clearly rejected for unemployment rates among 16 economies. Thus, unemployment rates are cross-sectionally dependent. Additionally, some literature, such as Gozgor, uses the KOF index of globalization as a measure of trade openness. Therefore, it is used to re-estimate the panel data regressions in Table 8. It shows statistical significance under 10%, with a negative effect on the unemployment rate.

CONCLUSION

The impact of trade openness on unemployment has been investigated in this paper. Youth unemployment rates have raised concern in Asian and Pacific countries. While the free trade agreement (FTA) has been steadily expanding in the region, In addition, Hong Kong and Singapore are ranked among the most open economies in the world. As free trade in goods can lead to significant gains in resource allocation in trading countries, it is important to analyze the effect of trade openness on unemployment. According to the fundamental theory of trade, the theory of comparative advantage, countries trade to gain from their differences in factor endowments. In addition, they will specialize in producing those goods and services that suit their natural resources and human capital endowments. As a result, it will maximize global welfare. However, trade restrictions will reduce efficiency and welfare. Moreover, foreign direct investment is another channel for reducing the unemployment rate and boosting growth. Overall, the effect of trade openness differs across countries. Therefore, some empirical evidence suggests that trade openness has a positive impact on the unemployment rate. However, some others suggest that trade openness leads to a reduction in the unemployment rate. Most of the literature argues, that trade openness has a negative relationship with the unemployment rate and is statistically significant. Therefore, in this paper, the impact of trade openness on the unemployment rate has been examined through the use of the Arellano-Bond estimation of the GMM approach with panel data of 16 countries from 2006-2016. The endogeneity problem has been solved by instrumenting endogenous and pre-determined variables with Arellano-Bond estimation. GDP Growth, inflation rate, national debt, FDI, secondary education growth, and government expenditure are instrumented as endogenous variables, debt as a predetermined variable, and population growth is instrumented as an exogenous variable.

The result shows an increase in trade openness reduces the unemployment rate significantly. However, it shows a positive and significant relationship between government expenditure and the unemployment rate. It can be presumed that government expenditure's effect might differ in practice across countries, as it covers different aspects of expenditure and refers to political issues of nations. Trade openness policy is one of the social welfare policies that aims to maximize global welfare is trade openness. It should be considered whether an increase in trade openness would affect the unemployment rate negatively or positively across countries. Thus, it is important to examine its effect on the unemployment rate by considering other numerous economic factors such as foreign direct investment inflow, demographic factors, and other macroeconomic factors. The policy implication is that unemployment reduction will not occur in these considered countries as a spontaneous consequence of GDP growth. Therefore,

Impact of Trade Openness on Unemployment: East, South and Southeast Asian Countries (2006 – 2016)

priority should be given to trade openness policies and FDI. Based on the results and the analysis, it is recommended that governments reduce trade barriers and open the economy to create more job opportunities in order to maximize the welfare of the nation. Because foreign direct investment has a significant impact on decreasing unemployment, it means that as it enters the country, it creates more job opportunities, and governments will maximize productivity. Furthermore, a positive effect of government expenditure on unemployment indicates that the government is spending more on other political aspects rather than investing and spending on job creation projects. Therefore, they should invest and spend more on job creation opportunities rather than other political aspects in order to avoid raising the unemployment rate.

REFERENCES

- 1) Arellano, M. & S. Bond, (1991). *Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations*. Review of Economic Studies, 58, 277-297.
- 2) Anjum, N., and Perviz, Z. (2016). *Effect of trade openness on unemployment in case of Labour and capital Abundant countries*. Bulletin of Business and Economics (BBE), Research Foundation for Humanity (RFH), vol. 5(1), pages 44-58.
- 3) Bank, A. D. (2013). *Asian Development outlook 2013 highlights*. ADB.
- 4) Bruno, G.S.F. (2005a). *Approximating the bias of the LSDV estimator for dynamic unbalanced panel data models*. Economics Letters, 87, 361-366.
- 5) Dutt P., & Mitra D., & Ranjan P, (2009). *International trade and unemployment: Theory and cross-national evidence*. Journal of International Economics, 78, 32-44
- 6) Davis, Donald R. and Harrigan, James, (2007). *Good jobs, bad jobs, and trade liberalization*. Journal of International Economics, vol. 84(1), pages 26-36, May
- 7) Davidson, C., Martin, L., and Matusz, S. (1999). *Trade and search generated unemployment*. Journal of International Economics 48, 271-299.
- 8) Felbermayr G., & Prat J., & Schmerer H. J. (2011). *Trade and unemployment: what do the data say*. European Economic Review, 55, 741-758
- 9) Gozgor, G. (2014). *The impact of trade openness on the unemployment rate in G7 countries*. The Journal of International Trade & Economic Development, an International and Comparative Review, 23(2), 1018-1037
- 10) Hasan, R., & Mitra, D., & Ranjan P., & Ahsan, R. N. (2012). *Trade liberalization and unemployment: Theory and evidence from India*. Journal of Development Economic, 97, 269-280
- 11) Helpman, E. & Itskhoki, O. (2007). *Labor market rigidities, trade and unemployment*. NBER working paper # 13365.
- 12) Halit, Y. (2013). *Is trade liberalization a solution to the unemployment problem?*. Portuguese Economic Journal, 12, 57-85.
- 13) Kim, J. (2010). *The Effects of Trade on Unemployment: Evidence from 20 OECD Countries*. Research Papers in Economics No. 19: Department of Economics, Stockholm University, Stockholm, Sweden
- 14) Makioka, R. (2011). *Trade, Unemployment, and Reallocation with Search Frictions*. Hitotsubashi University, Mimeo
- 15) Pesaran, H. (2007). *A Simple Panel Unit Root Test In The Presence Of Cross-Section Dependence*. Journal Of Applied Econometrics J. Appl. Econ. 22: 265–312 (2007).
- 16) Publication, S. P. (n.d.). STATA LONGITUDINAL -DATA/PANEL -DATA ReFERENCE MANUAL RELEASE 13. College satation, Texas.
- 17) Rober, C., Hine & Wright, P. (1999). *An empirical assessment of the impact of trade on employment in the United Kingdom*. European Journal of Political Economy, 1999, vol. 15, issue 3, 485-500
- 18) Wang, Y., & Zhao, L. (2015). *Saving good jobs from global competition by rewarding quality and efforts*. Journal of international Economics, 96, 426-434
- 19) Organization, W, T. (2008). *World Trade Report 2008-Trade in a Globalizing World*. WTO

Appendix

Table.1 Summary of the descriptive statistics

Variable	observation	Mean	Std. Dev.	Min	Max
Unemployment rate	176	6.520148	4.1897	.65	23.618
Inflation rate	176	4.994026	4.3543	-1.352837	23.11632
FDI	176	5.666183	9.450839	-.0529075	58.51875

Impact of Trade Openness on Unemployment: East, South and Southeast Asian Countries (2006 – 2016)

trade openness	176	1.1664	1.122171	.1414911	4.426249
Population Growth	176	1.267545	.8329073	-.1852265	5.321517
GDP Growth	176	5.205811	5.374572	-26.04815	41.68116
Debt	176	55.2517	47.70134	0	236.3
Government Expenditure	176	5.823084	6.966229	-16.50425	48.32392
Sec Educ growth	176	1.928378	5.066902	-5.334518	46.75875

variables	unemployment rate	inflation rate	FDI	Pop Growth	gdpgrowth	debt	govexpen	seceducgrowth	trade
unemployment rate	1.0000								
inflation rate	0.0491	1.0000							
FDI	-0.1582	-0.1530	1.0000						
PopGrowth	0.3650	0.1989	0.0291	1.0000					
GDP Growth	0.0996	0.1596	-0.0139	0.1293	1.0000				
Debt	-0.2789	-0.2271	-0.1965	-0.2611	-0.1400	1.0000			
Government Exp	0.2062	0.0751	-0.1005	0.1300	0.3137	-0.1554	1.0000		
Sec educ growth	0.0263	-0.0315	-0.0617	0.0395	-0.0743	-0.1285	0.1720	1.0000	
Trade	-0.1626	-0.2308	0.7476	0.0837	-0.0405	-0.1978	-0.1475	-0.0895	1.0000

Table 3. Dynamic Regression (Arellano-Bond)

VARIABLES	(1) Arellano-Bond first-step result (GMM-Approach)
Lagged.unemployment rate	0.5939*** (0.0606)
debt	-0.0005 (0.0105)
Inflation rate	-0.0042 (0.0222)
GDP growth	-0.0093 (0.0183)
Gov Expen	0.0472*** (0.0144)
Sec Educ growth rate	-0.0078 (0.0147)
trade	-1.2085** (0.5867)
FDI	-0.0397* (0.0236)
PopGrowth	0.5402*** (0.1990)
Constant	1.7499** (0.8575)
Observations	176
Number of Id	16

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4.

Sargan test of over identifying restrictions	
H0: over identifying restrictions are valid	
chi2(113)	112.5079
Prob > chi2	0.4954

Table 5. Test for Auto-correlation

Arellano-Bond test for zero autocorrelation in first-differenced errors		
order	z	Prob > z
1	-2,7877	0.0053
2	0.89026	0.3733
H0: no autocorrelation		

Table 6. Result of CD test of Pesaran (2004)

Variable	CD-test	p-value	average joint	mean ρ	mean abs(ρ)
Unemployment rate	5.853	0	11	0.16	0.44

*Under the null hypothesis of cross-section independence, $CD \sim N(0,1)$

*P-values close to zero indicate data are correlated across panel groups

Table 7. Test for checking the degree of collinearity

Variable	VIF	1/VIF
logtrade	2.47	0.404142
FDI	2.29	0.435987
debt	1.25	0.799306
Inflation rate	1.21	0.826816
Gov Expen	1.20	0.829939
GDP growth	1.17	0.858292
Pop Growth	1.13	0.887153
Sec Growth rate	1.08	0.922965
Mean VIF	1.48	

Table 8. Results of the panel data estimation with KOF Index

VARIABLES	(1) Arellano-Bond first-step result (GMM-Approach)
L. unemployment rate	0.5640*** (0.0625)
Debt	0.0056

Impact of Trade Openness on Unemployment: East, South and Southeast Asian Countries (2006 – 2016)

	(0.0113)
Inflation rate	-0.0122
	(0.0225)
Gdp growth	-0.0096
	(0.0183)
Gov Expen	0.0462***
	(0.0151)
Sec Educ Growth rate	-0.0018
	(0.0143)
KOF index	-0.0682*
	(0.0522)
FDI	-0.0408*
	(0.0236)
Population Growth	0.5449***
	(0.2045)
Constant	6.3699*
	(3.3213)
Observations	176
Number of Id	16

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Figures:

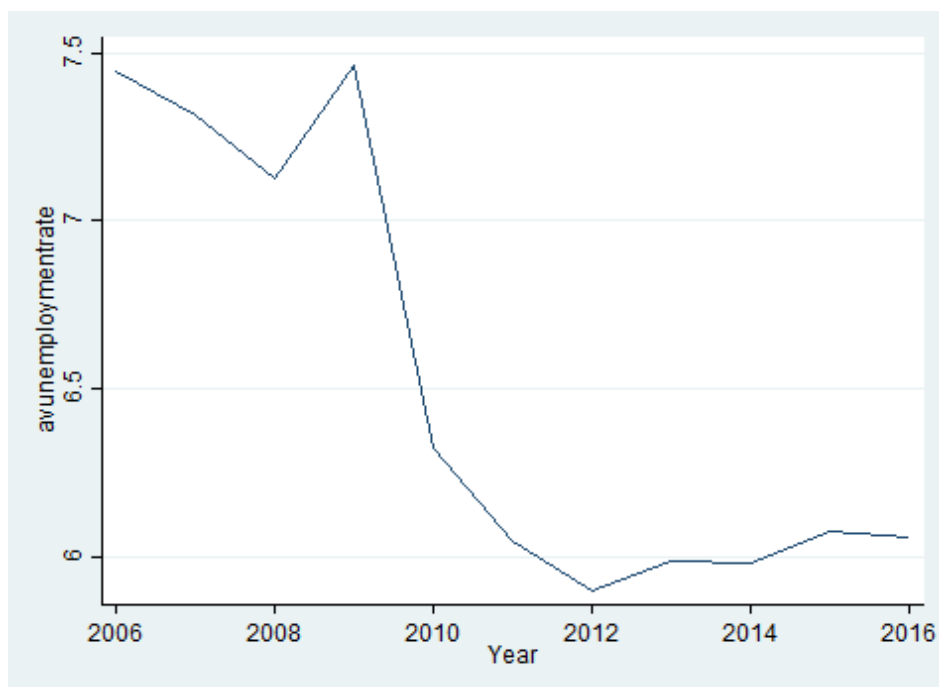


Figure.1.Unemployment rate Trend

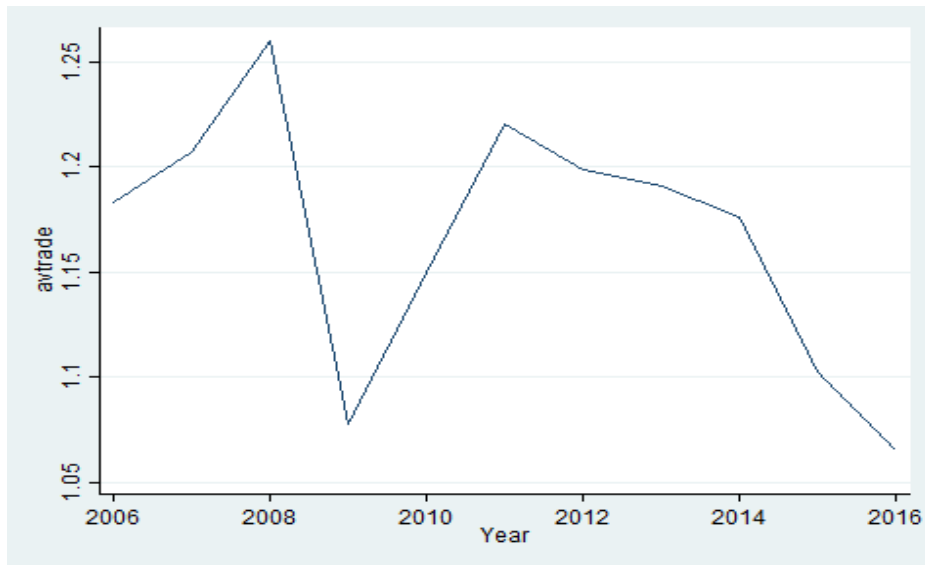


Figure.2. Trade Trend

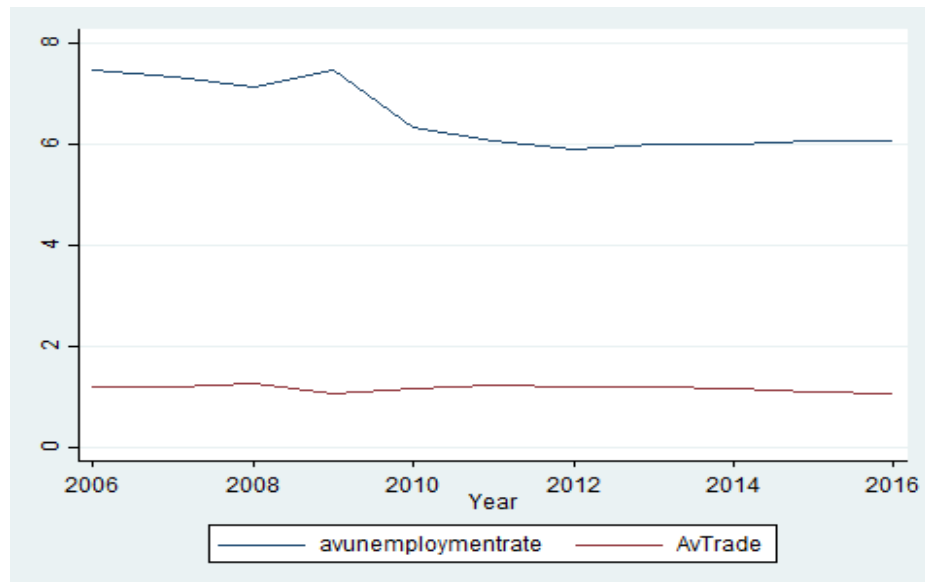


Figure.3. Unemployment rate and Average Trade

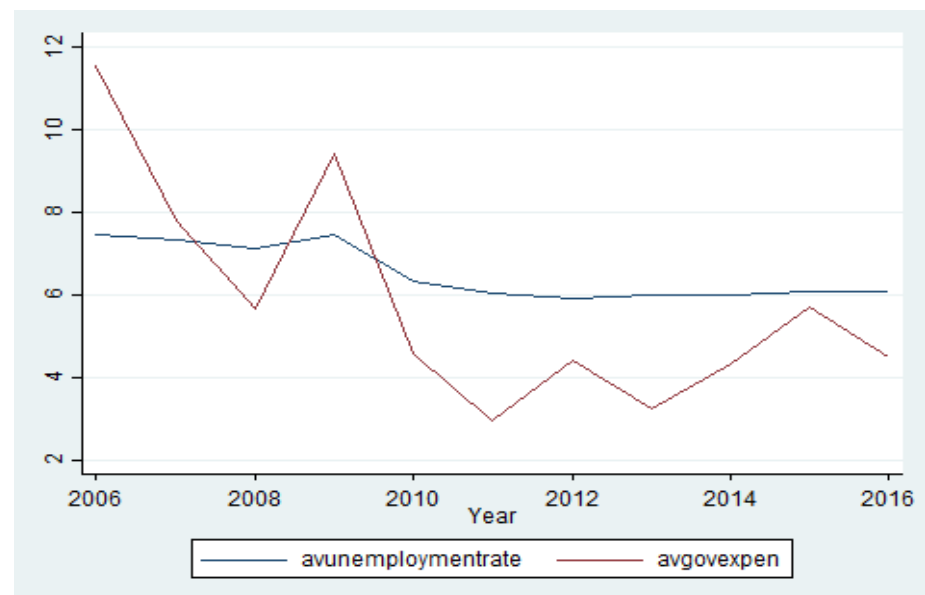


Figure 4. Unemployment rate and Government expenditure

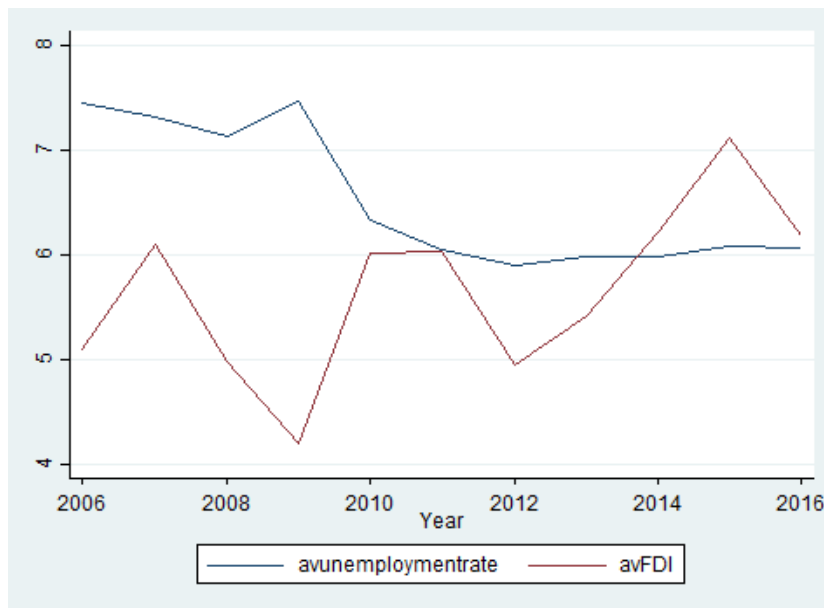


Figure 5. Unemployment rate and FDI

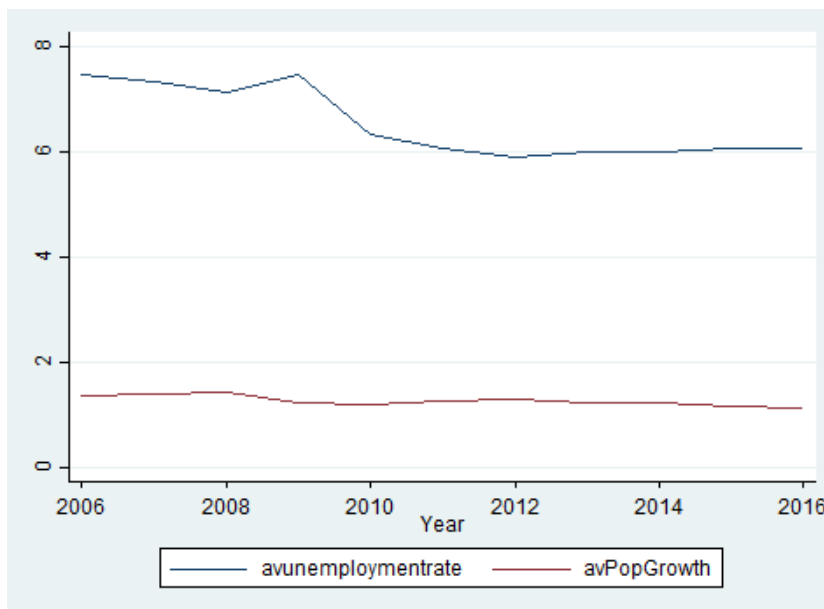


Figure.6. Unemployment rate and Population growth rate



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.