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IMPACT OF INFLATION AND EXCHANGE RATE ON ASEAN INCOME INEQUALITY

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ABSTRACT

The study aims to examine and analyse the inequality of income in ASEAN countries. The income inequality among ASEAN countries was measured by using the Williamson index. The trend of inequality was also described in a graph. Furthermore, the affecting factors of the inequality of income such as economic growth, inflation and exchange rate were analyzed by using panel data regression. The study used the data from 1994 to 2019. The results showed that the average of Williamson index is 0.71, which indicates the high inequality in ASEAN. Meanwhile, the trend of inequality during the last 25 years showed a decline from year to year. The result shows that the income inequality is affected by inflation and exchange rate significantly. Consequently, this highlights the significance of exchange rate and inflation on the reduction of inequality and also the promotion of ASEAN economic integration.

Keywords: income inequality, williamson index; economic growth; inflation; exchange rate

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1. INTRODUCTION

Income inequality becomes the main issue of economic development problems in a country or region. According to the World Inequality Lab (2018), income inequality among countries in the World has been widening. The European Union has the lowest inequality rate with 10% of the upper classes enjoying 37% of the gross national income, while the Middle Eastern has the highest inequality rate with 10% of the upper classes controlling 61% of the gross national income. Income inequality has risen significantly in China, India, Russia and the North American Region since 2018 (World Inequality Lab, 2018).

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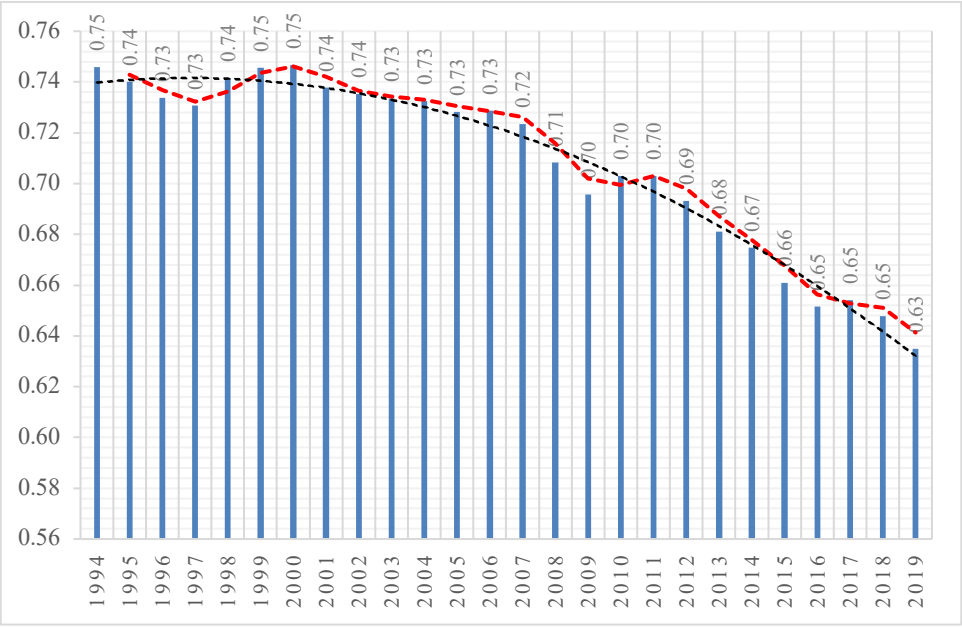
Countries that are members of regional economic cooperation, such as the European Union and North America, also still encounter the increase of income inequality (UNESCA, 2018). A similar thing happened in the Southeast Asia region or the Association of Southeast Asian Nations (ASEAN) where the condition of inequality in the ASEAN is still relatively high. Based on World Bank (2019), 20% of the upper-class population in Indonesia enjoyed 45.2% of national income, as compared to 47.3% in Malaysia, 50.9% in the Philippines, 44.1% in Thailand and 42.5% in Vietnam. On the other hand, 20% of the grassroots population in Indonesia only enjoyed 6.8% of national income, as compared to 5.8% in Malaysia, 5.7% in the Philippines, 7.3% in Thailand and 6.9% in Vietnam (World Bank, 2019). This shows that the integration of the economy, financial system and international trade among countries in the ASEAN region has not been able to provide the same benefits to increase income or reduce inequality.

The results of the calculation on the income inequality index among ASEAN countries during the period 1994 to 2019 had an average value of 0.71 (Graphic 1). This value put the inequality status in ASEAN countries in a high category. The highest inequality index occurred in 2000 with a value of 0.75, while the lowest occurred in 2019 with a value of 0.63. This condition was influenced by the differences of economic size, regional characteristics and population, as well as wider economic roles and functions (Scott & Storper, 2003). The differences of approaches in economic development and policies in achieving prosperity create different results in increasing income.

This condition was exacerbated by the economic crisis in Thailand in 1997 which happened rapidly and spread to other ASEAN countries. The impact of the fall of Thailand Bath had a domino effect on the depreciation of the exchange rate of currency, index of stock price and economic contraction (Sulaeman & Lisna, 2016). Regional closeness, financial integration and trade among ASEAN countries had a tremendous impact on the economic changes of each country. Overall, there was a trend of the income inequality decrease between ASEAN countries as shown by Graph 1.

Graphic 1: Williamson index in ASEAN (1994 – 2019)



By carrying out panel data analysis on the Southeast Asian countries particularly ASEAN member states, this study investigates the income inequality relationship. The Williamson Index and three economic factors, specifically inflation, economic growth, and exchange rate are used as measurements. The remainder of the paper proceeds as follows. Section 2 provides the literature review about inflation, economic growth, exchange rate and inequality. Section 3 discusses the econometrics method as the methodology used in the study. Section 4 presents the analysis results. In the end, conclusion and discussion is presented on Section 5.

1. LITERATURE REVIEW

Income distribution in developing countries is unequal. The difference in the amount of received income causes a different income inequality. Economic development must be followed by an increase in people's real income (Todaro, 2003). While economic growth is not necessarily followed by an increase in per capita income. According to Boediono (1985), the growth of economy means per capita output increase in the long period of time. Therefore, the percentage of output increase must be higher than the percentage of population increase.

There are several theories and empirical findings about income distribution. The theory of inequality in income distribution was started from the rise of the "inverted-U" hypothesis stated by Simon Kuznet in 1955. Kuznet (1955) states that when development initially starts, income distribution will be more unequal, but after reaching a certain development level, the income distribution will be more evenly distributed. Kuncoro (2004) argues that the inequality in the development of interregional can be analyzed using the Williamson inequality index. Research on income inequality using the Williamason index was conducted by Uppal and Handoko (1986) for

the national scale. The obtained results show a decrease in the inequality of income in Indonesia during the analysis period from 1976 to 1980. The determinant factors for the decline were the central government expenditure and assistance to the provinces.

According to Forbes (2000), for a short period of time, a degree of income inequality is good for economic growth. However, when the trend keeps increasing for a long period of time, then it generates instability in the society (Alesina & Rodrik, 1994; Person & Tabellini, 1994; Barro, 2003). The study conducted by Roine et al. (2009) found that, in the 21st century, the growth of economy was one of the causes of inequality, where it provides more benefits to the upper classes than the lower classes. The study of Afandi et al. (2017) which examined the affecting factors of inequality in Indonesia, found that the increase in GDP from the agriculture and service sectors in the national economy proned to reduce inequality, while the industrial sector does not affect inequality.

Previous research tried to explain the affecting factors on income inequality from various perspectives. Bouincha and Karim (2018) reveals that the Kuznets Hypothesis occurred in the developed countries with high Human Development Index. This result was supported by Odedokun and Round (2001). They found that the per capita income level in African countries had a positive coefficient (significant) on the inequality of 20% to the upper class, while the inequality of 40% to the lower and middle class was a negative coefficient. This shows Kuznets theory applies in the early phases of the development in African countries and it has a positive impact on the lower and middle class. A similar result was obtained by Munir and Sultan (2017) who stated that economic development in Pakistan and India would be followed with income inequality. Azam and Raza (2018) confirmed the presence of the financial Kuznets hypothesis in ASEAN-5 countries during the study period. Jauch and Watzka (2016) analyzed the relationship between the development of economy and inequality and the result was very surprising that the effect of GDP per capita or economic growth was not in accordance with the Kuznet Hypothesis.

Kaldor (1957) shows that a trade off between slow low inequality and economic growth is found. According to him, the more rapid the economic growth, the more uneven the income distribution pattern. This is supported by Forbes (2000) that high inequality in a country stimulates economic growth. This shows that a trade off between rapid economic growth and an increasingly unequal income distribution is found. Castello-Climent (2004) and Vo et al. (2019) show different result from Forbes (2000). They found that an unequal distribution of a country's income would cause a declining economic growth.

A study conducted by Idowu and Adeneye (2017) reveals dissimilar result that in developing countries high inequality hinders economic growth whereas in developed countries high inequality gives benefits in economic growth. Lim and Sek (2014) used a panel data analysis approach and found a prominent positive relationship between the development of economy and the high-income countries' inequality, that economic growth reduces income inequality, but not significantly for the countries in which income are in the lower-middle and upper-middle level.

Also, several researches devoted attention to the nexus between FDI and inequality. In the study conducted by Farhan et al. (2014) in ASEAN-5 countries in 1970-2011, it was found that FDI caused inequality in Malaysia, Thailand and the Philippines but not in Indonesia and Singapore. These results showed that FDI activities yielded different advantages for low-skilled and high-

skilled workers. The same results obtained by Cho and Ramirez (2016) on FDI and income inequality in seven ASEAN countries. It shows that the entry of FDI caused income inequality go higher in ASEAN countries in a short period of time. However, in a long period of time the entry of FDI caused the development of technology and the decline of income inequality.

Some other factors that affect income inequality are inflation and exchange rate. Several related studies of the relationship among inflation, exchange rate and inequality conducted by several researchers have different results. The relationship of economic growth and inequality affect one another, in relation to exchange rate and inequality, those also affect one another. Inflation is able to modify the distribution of income by differenty affecting every household (Monnin, 2014). Monnin (2014) in a study of the income inequality and inflation relationship in OECD countries in the period from 1971 to 2010 obtained a U-curve relationship between inequality and inflation. This shows that in the short period of time inflation caused inequality to increase, but in the long period of time inflation caused income inequality to decrease.

Galli and Hoeven (2001) finds an inflation rise can either decrease inequality or increase inequality, depending on the initial inflation rate. A rise of inflation is linked with an increase in inequality for high initial inflation rates and an decrease inequality for low initial inflation rates. Blejer and Guerrero (1990) also figured out that the distribution of income was worsened by underemployment, inflation, and government spending in the Philippines. According to Bulir's (2001) research, countries with hyperinflation would have a worse impact on their income inequality compared to those with low and high inflation. This result was supported by Albanesi's research (2007) that taken from 51 industrialized and developing countries as the sample between 1966 and 1990, inflation and income inequality were positively related.

Nantob (2015) conducted a research in the inflation and the inequality of income relationship. The study results supported the hypothesis that the inflation and income inequality had positive relationships. The research was carried out in 46 underdeveloped nations. The higher the inflation, the higher the inequality. Inflation affected inequality through growth, trade and political stability. Li and Zou (2002) finds that inflation makes the income distribution gets worse; which raises the share of income to the wealthy people but lowers the share of income to the poor and the middle class. In many others, inflation also lowers the economic growth rate. Thalassinos et al. (2012) also states that inflation has a positive influence on the inequality of income in European countries

Azam and Raza (2018) states that the fixed effect model results confirm that a significantly postitive effect is brought by inflation on the inequality of income in the countries of ASEAN. The observational results also explains that inflation bidirectional causal relationship with the inequality of income have simultaneous relationship. Both inflation and inequality of income are greatly affecting each other. Odedokun and Round (2001) investigated a poor relationship but not significant between inflation and inequality in African countries, especially in the lower classes. Meanwhile, in the upper middle class, the relationship between inflation and the inequality of income was significantly positive. The effect of high inflation did not cause income inequality but it caused increasing wealth inequality.

Jauch and Watzka (2016) figure out that significant inflation affected a decrease in income inequality. The stability of macroeconomy can be indicated by inflation and therefore income distribution is more evenly distributed. Bouincha and Karim (2018) states that the inflation

coefficient does not significantly affect inequality with negative-marked coefficients. Ali (2014) studied a research of cointegration analysis on inflation, the inequalty of income and the growth of economy in Pakistan. The result shows that inflation significantly affected economic growth. However, in the granger causality analysis, inflation fails to be the cause of income inequality.

The theory mentioned whether exchange rate rises or lowers income inequality is not giving a clear answer. An exchange rate is defined as the price of a particular currency compared to the price of another. In any economy, it is the most crucial price because it can affect all other prices. Tinner (2015) find floating exchange rate influences the inequality of income through inflation. A crisis of currency results in depreciation and pushes the authorities to sell foreign exchange reserves and raise domestic interest rates. Hence, the crisis of currency is presumably to contribute to the pressures of inflationary due to the increased price of import and rising demand of exports.

Jeanneney and Hua (2001) stated that the effect of exchange rate effect on inequality in per capita income among the cities and villages in 28 provinces in China. This was due to the benefits of rising product prices as the currency depreciation which were enjoyed more by the residents in the city than the residents in the village. Blejer and Guerrero (1990) studied the effect of macroeconomic policies on the income distribution in the Philippines. They revealed that the gain of productivity, the rate of real interest and real exchange have the tendency to lower inequality. Similar thing was found by Calderona and Chong (2001) that the local currency real depreciation helps reduce income inequality. The study of inequality effects on the exchange rates carried out by Min et al. (2015) suggests that an increase income inequality of a country may be linked with the domestic currency devaluation. Garcia (1999) investigates the inequality of income effects on the real exchange rate. There is a possibility that these two variables have either a positive or negative relationship.

UNESCAP (2018) stated the important of institution in shaping inequality in developing countries. Xu and Islam (2019) also stated the importance of improving capacity of institution to handle the inequality among workers in Thailand. In addition, Fournier and Johansson (2016) expressed that social spending such as family benefits and subsidies can decrease inequality. However, there are few studies on the inequality and the economic factors relationship in the ASEAN region in particular. The goal of the study is to fill the literature gap by investigating the relationship among three different economic factors and income inequality specifically in the ASEAN region. Besides, this study can be used as one of the references to achieve the integration of the ASEAN Economic Community in 2025 (ASEAN Economic Blueprint Community 2025, 2015).

3. RESEARCH METHODOLOGY

3.1. Data

This study uses data from ASEAN member states. The data were accessed from the World Bank data portal (data.worldbank.org), from 1994 to 2019. The secondary data used includes: GDP of ASEAN and each country, the total population of ASEAN and each country, economic growth, inflation and the exchange rate of each ASEAN country and various kinds of other secondary data. The Williamson index was used as a dependent variable. For the independent variables, this study uses economic growth, inflation and the exchange rate. The

measurement of the exchange rate is done in national currency per US dollar. These sectors are chosen due to the availability of data and their rare use. In addition, it is also because the activity within the economic growth, inflation and exchange rate may affect the level of income inequality which has many perspectives. According to the data condition, this study performs the analysis of unbalanced panel data. This analysis manages to control individual heterogeneity and produces more reliable estimation from the dataset compared to other econometrics methods, such as cross-section analysis and time series (Gujarati & Porter, 2009).

3.2. Williamson Index

Kuncoro (2004) argues that development inequality among regions can be analyzed using the Williamson inequality index. Williamson Index ranges from 0 to 1, where the higher the value of Williamson index which is close to 1 means the higher the inequality of economic development among countries, oppositely the lower the inequality level of economic development, Williamson index will be closer to zero. The equation of Williamson index is as follows:-

$$cv_w = \frac{\sqrt{\sum_1 (\bar{y}_i - \bar{y})^2} \cdot \frac{fi}{n}}{\bar{y}} \qquad \dots equation\ 1$$

where :

CVw	= Index of income inequality (Williamson Index)
fi	= Total population of region i
n	= Total population of all regions
Yi	= GDP per capita region i
$\bar{Y}$	= average GDP per capita of all regions

3.3. Determinants of Inequality

The paper shows the empirical link among economic growth, income inequality, inflation, and other factors in a sample of ASEAN countries over the period 1994 to 2019. Our measure of income inequality is index Williamson. According to the literature, there are several variables of economy which can explain the income inequalities. We analyzed factors that could influence income inequality, which are: growth, inflation, and exchange rate. We estimated the empirical link among all variables and the inequality of income with a panel data regression. Panel data regression is a regression technique which combine the data of time series with the data of cross section.

The initial step in the regression of panel data estimation was to examine whether unit roots were cotained in the variables at hand. To examine the economic growth, inflation and exchange rate impact on income inequality, we used a broadly similar model to Bouincha and Karim (2018). The basic model can be expressed as follows:

$$Y_{i,t} = f\left(Growth_{i,t} + Inflation_{i,t} + Exchage\ Rate_{i,t}\right) \qquad \dots equation\ 2$$

In the majority of cases, there are three categories of the panel data model which are classified, namely, fixed effect, pooled OLS, and random effect model (Gujarati, 2012). At the same time, the pooled data shows persistent coefficient on both intercepts and slopes. All the data is usually pooled and the ordinary least square model (OLS) are performed. It might affect the measurement of the estimated parameters because the pooled OLS model are not able to manage every unobserved effect as the consequence of the country's heterogeneity is under consideration. In consequence, this study performed random effect model to manage every heterogeneity and show the difference among the countries. At the same time, the random-effect model shows that there is no correlation between the country's error and the explanatory variables. Nevertheless, if there is a correlation between the country's error and the explanatory variables, then the fixed effect model should be used to let every country to have its own intercept.

We performed the Chow test to decide which model to use (Pooled or Fixed effect model). Fixed effect was decided to be used when Chow test result reveals that the value of F-prob of Cross-Section was less than the level of confidence. The Hausman test was conducted to decide whether to use Fixed or Random effect model. Chi Square probability value will then show the decision of using Fixed or Random effect model. Fixed effect model will be used when the value of probability is less than the confident level, while Random will be used when the level of probability is more than the real value.

4. RESULTS

Unit root test results showed that the null hypothesis had a unit root (non-stationare) while the alternative hypothesis had no unit root (stationary). Unit root tests showed that the null hypothesis was rejected if the statistical value was significant at a probability of 5%. If the null hypothesis was rejected then the alternative hypothesis was accepted. In table 1 shows the results of stationary tests at the level, it can be seen that all variabal passed the level test both using the Levin, lin and chu, im, pesaran and shin w-stat, ADF fisher chi-square and PP fisher chi-squre methods. This is shown by the probability value of <0.05. These results indicated that the null hypothesis wass rejected and the alternative hypothesis was accepted meaning all stationary variables was at the level I (0).

Table 1: Unit Root Test

Method	Statistic	Prob.**	Cross-sections	Obs
Levin, Lin & Chu t*	-5.22637	0.0000	4	1034
Im, Pesaran and Shin W-stat	-11.2381	0.0000	4	1034
ADF - Fisher Chi-square	145.963	0.0000	4	1034
PP - Fisher Chi-square	181.997	0.0000	4	1036

Based on the heterokedasticity test using the ARCH method, the Prob. Chi-Square value was 0.411 > 0.05, so it can be concluded that the data is not heteroscedasticity. Based on the Breusch-Godfrey test, it showed that the Prob. Chi-Square value was 0.108 > 0.05 so it could be concluded that Ho was accepted, meaning that there was no autocorrelation. From the multicollinearity test results, the

correlation coefficient among the independent variables stated that there was no multicollinearity in the regression model because the correlation value was <0.80. For this reason, the next step was to choose the panel data regression model. Chow test results showed the probability value of cross section F = 0.0001 < 0.05 so that H0 was rejected, meaning that the model used was the fixed effect that is more appropriate to use than the common effect. Hausman test results showed P Value was 0.0000 less than 0.05, so H1 was acceptted, which means the fixed effect was better to be used than the random effect.

The results of *fixed effect* panel data regression shows the calculation result of the F test with a prob value (F-statistic) of 0.000 which was smaller than the value (alpha) of 0.05 (Table 2). The statistical test results shows that economic growth, inflation, and the exchange rate have a cointegration relationship and simultaneously influence income inequality. These results signify that, economic growth, inflation, exchange rates and income inequality move in the same direction in the long term. This confirm that changes in regional disparities were influenced by macroeconomic policies and situations faced by a region or a country (Li & Xu, 2008).

From the data regression test results in table 2, an estimation model for determining income inequality was obtained. The model shows that inflation and exchange rate had a significant and positive effect on increasing income inequality among ASEAN countries, while the economic growth had a positive and insignificant effect based on the results of t-statistics and probability values with a significant level of 0.05. The result of coefficient of determination test, R^2 value of 0.201 or 20% indicated that the inflation variable, exchange rate and economic growth had a fairly weak relationship on the income inequality.

Table 2: Panel Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.722957	0.005630	128.4210	0.0000
Inflation	0.000726	0.000183	3.960914	0.0001*
Economic Growth	0.000726	0.000513	1.413978	0.1586
Exchange Rate	6.16E-06	1.03E-06	5.967143	0.0000*
Model Summary				
Indonesia	0.032268	**ARCH method**		0.4119
Brunei Darussalam	0.019722	**The Breusch-Godfrey test**		0.1084
Philippines	0.001939	**Multicollinearity test**		< 0,80
Malaysia	0.006473	**Chow test**		0.0001
Singapore	0.003228	**Hausman Test**		0.000
Thailand	0.006473	R^2		0.201026
Myanmar	-0.017636	**F-Test**		5.178881
Cambodia	-0.000746	**Prob > F**		0.000000
Laos	-0.014452			
Vietnam	-0.078369			

Notes: Asterisks (*), (**) and (***) denote significant at the 1, 5 and 10 per cent levels %

As the finding emphasized the significance of the inflation and exchange rate on inequality, there are the empirical elements found in the literature that support this finding. The inflation which had happened from 1994-2019 in all ASEAN countries had a positive contribution to increasing income

inequality. The increase in prices of goods and services reduced public income which had implication for a decrease in purchasing power. During this period, ASEAN countries faced various economic crisis which caused inflation rates hard to control. These results confirmed identical similarities in several developing and developed countries, where inflation brought a negative impact on income inequality (Blejer & Guerrero, 1990; Albanesi, 2007; Nantob, 2015; Thalassinos et al., 2012). According to Galli and Hoeven (2001) and Bulir (2001), very high inflation will cause higher income inequality. Monnin (2014) states that inflation or rising prices will have an impact on household income, so that inflation tends to worsen the inequality.

Inflation contributes to inequality. When there is an increase in inflation, the monetary authority through the Central Bank will make efforts to increase deposit rates. The increase in deposit rates will be responded to through an increase in interest rates of deposit and investment. The behavior of the upper classes will respond by investing bigger capital. Therefore, the upper classes enjoy an increase in interest rates with the benefits of greater investment. While for the lower classes, who have low income, the income they have is used up for basic needs. Li and Zou (2002) find that inflation worsened the distribution of income, increased profit sharing for the rich, and negatively impacted the poor and middle classed in 46 countries in various regions. Meanwhile, according to Odedokun and Round (2001) inflation is not very much affected, especially for upper middle income classes.

The changes in exchange rates which occured during the period 1994-2019 in all ASEAN countries had a positive and significant contribution to inequality. Fluctuations in exchange rates illustrate the impact of globalization as well as economic and financial integration between ASEAN and other countries. We cannot ignore that the fall of currencies in ASEAN such as in the 1998 and 2008 economic crises had a negative impact on the social economy. Most ASEAN countries, especially Indonesia, Malaysia, Thailand and Vietnam in the past 2 decades have relied on the primary sector (agriculture, plantations and fisheries) as the the main component of exports with low economic value, while at the same time importing secondary and tertiary goods. These impacts have negative pressures on the economy. The changes in exchange rates that are significant to inequality show that the globalization impact on the distribution of income differs amongst countries, depending on the structure and institutions in every country (Atif et al., 2012). Tinner (2015) find floating exchange rates have an impact on income inequality through inflation. A currency crisis has resulted in depreciation and forced the authorities to sell foreign exchange reserves and increse domestic interest rates. Therefore, currency crisis is likely to give contribution in inflationary pressures in consequence of the rising import prices and the increasing export demands. Jeanneney and Hua (2001) states that the effect of the exchange rate on inequality per capita income was due to the benefits of rising product prices because currency depreciation was more felt by the city reseidents than the village residents. In table 2, the countries with large economic powers in ASEAN such as Singapore, Malaysia, Thailand, the Philippines and Brunei Darussalam had a positive contribution to the rise of inequality. These countries tended to have more open characteristics of economy. This confirms that the income gap empirically will be even wider when a country liberalizes its economy (Lindert & Williamson, 2003). Meanwhile Vietnam, Cambodia, Laos and Myanmar, which have an economic system that tends to be closed, have a negative contribution to inequality.

5. DISCUSSION AND CONCLUSION

The research finding showed that the average Williamson index was 0.71 with a high inequality category. The trend of inequality during the period 1994-2019 showed a declining trend. This condition was affected by the differences of economic size, regional characteristics and population size, as well as wider economic roles and functions. In the long term inflation, economic growth, exchange rates, and income inequality moved in the same direction. The results of partial tests showed that inflation and exchange rate significantly influence the ASEAN countries' income inequality. The tendency of developing countries to pursue high growth will affect on income inequality. This shows that the early stage of economic development in ASEAN countries which just goes towards a more advanced level of development.

The high Williamson index in ASEAN countries shows that economic inequality or income distribution has not been evenly distributed in the ASEAN region over the past two decades. The technology era with the concept of sharing economy has made the inequality declines from year to year, and is predicted to continue to decline with the increasingly even distribution of economic activities in society through exports, economic growth and digitalization business.

From the results, it was found that the inflation and exchange rate have been more inclusive than the economic growth. In consequence, it is recommended that these factors can be increased and served as the focus of development agenda in the ASEAN member states. Moreover, it is recognized from the results that there are several policy implications. Initially, it is necessary to proceed economic integration in ASEAN to reduce transaction cost among ASEAN member states, specifically create a single currency in ASEAN region because there is a significant rise in inflation and exchange that elevates income inequality (Mundell, 1961). Furthermore, increasing these factors has the beneficial effects not only on minimizing inequality and generating better growth, but also on integration process in ASEAN member states.

Growth, inflation, and exchange rate have positive effects on income inequality in Singapore, Malaysia, Indonesia, Thailand, the Philippines, and Brunei Darussalam because the economic activities are enjoyed by the small number of people and have not given much positive impact on the lower economic class community. Economic openness in these countries also triggers income inequality. While in Vietnam, Cambodia, Laos, and Myanmar which are socialist economies, their economic growth, inflation, and exchange rates have impact on reducing income inequality.

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REFERENCES

Afandi, A., Rantung, V. P., & Marashdeh, H. (2017). Determinant of income inequality in Indonesia. *Economic Journal of Emerging Markets, 9*(2), 159–171. https://doi.org/10.20885/ejem.vol9.iss2.art5

Albanesi, S. (2007). Inflation and inequality. *Journal of Monetary Economics, 54*(4), 1088-1114.

Alesina, A., & Rodrik, D. (1994). Distributive Politics and Economic Growth. *The Quarterly Journal of Economics, 109*(2), 465-490.

Ali, S. (2014). Inflation, Income Inequality and Economic Growth in Pakistan: A Cointegration Analysis. *International Journal of Economic Practices and Theories, 4*(1), 2014–2247. www.ijept.org

ASEAN (2015, Nov). *ASEAN Economic Community Blueprint 2025*. The ASEAN Secretariat. https://asean.org/book/asean-economic-community-blueprint-2025/

Atif, S. M., Srivastav, M., Sauytbekova, M., & Arachchige U. K. (2012). *Globalization and Income Inequality: A Panel Data Analysis of 68 Developing Countries*. ZBW - Leibniz Information Centre for Economics. https://www.econstor.eu/bitstream/10419/65664/3/Atif_Globalization_Inequality.pdf

Azam, M., & Raza, S. A. (2018). Financial sector development and income inequality in ASEAN-5 countries: does financial Kuznets curve exists?. *Global Business and Economics Review, 20*(1), 88. https://doi.org/10.1504/gber.2018.10009031

Barro, R. J. (2003). Determinants of Economic Growth in a Panel of Countries. *Annals of Economics and Finance*, *4*(2), 231-274

Blejer, M. I., & Guerrero, I. (1990). The Impact of Macroeconomic Policies on Income Distribution: An Empirical Study of the Philippines. *The Review of Economics and Statistics, 72*(3), 414-423. https://ideas.repec.org/a/tpr/restat/v72y1990i3p414-23.html

Boediono. (1985). *Teori Pertumbuhan Ekonomi. Seri Sinopsis. Pengantar Ilmu Ekonomi* (No. 4.). BPFE.

Bouincha, M., & Karim, M. (2018). Income Inequality and Economic Growth: An Analysis Using a Panel Data. *International Journal of Economics and Finance*, *10*(5), 242. https://ccsenet.org/journal/index.php/ijef/article/view/74989

Bulir, A. (2001). *Income Inequality: Does Inflation Matter?*. IMF Staff Papers, *48*(1), 1-5. http://www.imf.org/External/Pubs/FT/staffp/2001/01a/pdf/bulir.pdf

Calderona, C., & Chong, A. (2001). External sector and income inequality in interdependent economies using a dynamic panel data approach. *Economics Letters, 71*(2), 225-231. http://www.sciencedirect.com/science/article/pii/S0165-1765(01)00374-3

Castello – Climent, A. (2004). *A Reassessment Of The Relationship Between Inequality And Growth : What Human Capital Inequality Data Say?* (Serie EC). Working Papers. http://www.ivie.es/downloads/docs/wpasec/wpasec-2004-15.pdf

Farhan, M. Z. M., Azman-Saini, W. N. W., & Law, S. H. (2014). FDI and Income Inequality in ASEAN-5 Countries : A Quantile Regression Approach. *Prosiding Persidangan Kebangsaan Ekonomi Malaysia Ke - 9 (PERKEM Ke - 9)*, 601–608. http://www.ukm.my/fep/perkem/pdf/perkem2014/PERKEM_2014_4B4.pdf

Forbes, K. J. (2000). A Reassessment of the Relationship Between Inequality and Growth. *The American Economic Review, 90*(4), 869-887. https://www.researchgate.net/publication/4901500_A_Reassessment_of_the_Relationship_Between_Inequality_and_Growth

Fournier, J. M., & Johansson, A. (2016). *The effect of the size and the mix of public spending on*

growth and inequality (No.1344). OECD Economics Department Working Paper. https://doi.org/10.1787/f99f6b36-en

Galli, R., & Hoeven, R.V.d (2001). *Is inflation bad for income inequality : The importance of the initial rate of inflation*. ILO Working Paper. https://www.ilo.org/employment/Whatwedo/Publications/WCMS_142351/lang--en/index.htm

Garcia, P. (1999). *Income inequality and the real exchange rate* (No. 54). Central Bank of Chile. https://si2.bcentral.cl/public/pdf/documentos-trabajo/pdf/dtbc54.pdf

Gujarati, D. N. (2012). *Basics of Econometric*s (5th ed). Salemba Empat, Jakarta

Gujarati, D. N., & Porter, D. (2009). *Basic Econometrics*. Mcgraw-Hill International Edition

Kuncoro, M. (2004). *Otonomi dan Pembangunan Daerah Reformasi, Perencanaan, Strategi dan Peluang*. Erlangga

Li, H., & Zou, H. (2002). Inflation , Growth , and Income Distribution : A Cross-Country Study. *Annals Of Economics And Finance*, *3*(1), 85–101. http://down.aefweb.net/AefArticles/aef030105.pdf

Cho, H. C., & Ramirez, M, D. (2016). Foreign Direct Investment and Income Inequality in Southeast Asia: a Panel Unit Root and Panel Cointegration Analysis, 1990–2013. *Atlantic Economic Journal, 44*(4), 411–424.

Idowu, K. A., & Adeneye, Y. B. (2017). Inequality and Economic Growth: An Analysis of 8-Panels. *Journal of Economics and Public Finance*, *3*(2), 173. https://doi.org/10.22158/jepf.v3n2p173

Jeanneney, S. G., & Hua, P. (2001). How does real exchange rate influence income inequality between urban and rural areas in China?. *Journal of Development Economics, 64* (2), 529-545

UNESCAP. (2018). *Inequality in asia and the pacific in the era of the 2030 agenda for sustainable development.* The United Nations Economic and Social Commission for Asia and the Pacific. https://www.unescap.org/publications/inequality-asia-and-pacific-era-2030-agenda-sustainable-development

Uppal, J. S., & Handoko. B, S. (1986). Regional Income Disparities in Indonesia. *Economics and Finance in Indonesia, 34*(3), 287-304

Jauch, S. & Watzka, S. (2016). Financial development and income inequality: a panel data approach. *Empirical Economics*, *51*(1), 291–314. https://doi.org/10.1007/s00181-015-1008-x

Kaldor, N. (1957). A model of economic growth. *The Economic Journal, 67*(268), 591-624

Kuznet, S. (1955). Economic Growth and Income Inequality. *American Economic Review*, *45*(1), 1–28. https://www.jstor.org/stable/1811581

Li, S., & Xu, Z. (2008). *The Trend of Regional Income Disparity in the People ' s Republic of China* (No. 85). ADB Institute. http://hdl.handle.net/11540/3673

Lim, C. Y., & Sek, S. K. (2014). Exploring the Two-Way Relationship between Income Inequality and Growth. *Journal of Advanced Management Science*, *2*(1), 33–37. https://doi.org/10.12720/joams.2.1.33-37

Lindert, P. H. & Williamson, J. G (2003). Does Globalization Make the World More Unequal?. In M. D. Bordo, A. M. Taylor, & J. G. Williamson (Eds), *Globalization in Historical Perspective.* National Bureau of Economic Research.

Min, H. G., Shin, S. O., & McDonald, J. A. (2015). Income inequality and the real exchange rate: Linkages and evidence. *Annals of Economics and Finance, 16* (1), 115–141.

Monnin, P. (2014). *Inflation and Income Inequality in Developed Economies* (CEP Working Paper

Series No.1). The Council on Economic Policies (CEP). https://doi.org/10.2139/ssrn.2444710

Mundell, R. A. (1961). A Theory of Optimum Currency Areas. *The American Economic Review*, *51*(4), 657-665.

Munir, K. & Sultan. M. (2017). Macroeconomic determinants of income inequality in India and Pakistan. *Theoretical and Applied Economics,* XXIV(4), 109-120

Nantob, N. (2015). Income Inequality and Inflation in Developing Countries : An Empirical Investigation. *Economics Bulletin*, *35*(4), 2888–2902.

Odedokun, M. O., & Round, J. I. (2001). Determinants of Income Inequality and its Effects on Economic Growth: Evidence from African Countries. *African Development Review*, *16*(2), 287-327. https://doi.org/10.1111/j.1017-6772.2004.00093.x

Person, T., & Tabellini, G. (1994). Is Inequality Harmful for Growth?. *The American Economic Review*, 84(3), 600-621. https://www.jstor.org/stable/2118070

Roine, J., Vlachos, J., & Waldenström, D. (2009). The long-run determinants of inequality: What can we learn from top income data?. *Journal of Public Economics, 93*(7–8), 974–988. https://doi.org/10.1016/j.jpubeco.2009.04.003

Scott, A. J., & Storper, M. (2003). Regions, Globalizatioan, Development. *Regional Studies, 37*(6 & 7), 579–593.

Sulaeman, C. S. R., & Lisna, V. (2016). Analisis EMP Indonesia dan Empat Negara ASEAN pada Masa Krisis. *Jurnal Ekonomi dan Pembangunan Indonesia, 16*(2), 105-122. https://jepi.fe.ui.ac.id/index.php/JEPI/article/view/592

Tinner, F. (2015). *Income Inequality Do Exchange Rate Regimes Matter?.* [Unpublished Bachelor Thesis]. Universityof St.Gallen.

Thalassinos, E., Uğurlu, E., & Muratoğlu, Y. (2012). Income Inequality and Inflation in the EU. *European Research Studies Journal*, *XV* (1), 127 - 140

Todaro, M. P., & Smith, S. C. (2003). *Economic Development* (8nd ed). Erlangga. Jakarta.

Vo, D. H., Nguyen, T. C., Tran, N. P., & Vo, A. T. (2019). What Factors Affect Income Inequality and Economic Growth in Middle-Income Countries?. *Journal of Risk and Financial Management, 12*(1), 40. https://doi.org/10.3390/jrfm12010040

World Bank. (2019, May). *World Bank Open Data*. The Word Bank. https://data.worldbank.org/indicator

World Inequality Lab. (2018). *World Inequality Report 2018*. https://wir2018.wid.world/

Xu, W., & Islam, S. (2019). What Does ASEAN Economic Community Bring to Older Workers? Examining Inequality in Old Age in Thailand's Fast-Ageing Society. *Journal of ASEAN Studies*, *7*(1), 86-97.