

Trade Openness Effect on Income Inequality: Empirical Evidence from Indonesia

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Abstract

This research analyzed the effect of international trade openness to income inequality in Indonesia using Vector Error Correction Model (VECM). The data used is the secondary data, which are the export-import value, gross domestic product (GDP), GDP per capita, open unemployment rate, and Gini index. The results of this study indicate that in the short term the trade openness has negative impact significantly on the income inequality. However, in the long-run, it does not show any significant effect in decreasing the income inequality rate. The impulse response function (IRF) concluded that income inequality gives a positive response, except on the third year. Based on the forecast error variance decomposition (FEDV), the trade openness does not provide any significant contribution in effecting the income inequality in Indonesia, but economic growth does. Nevertheless, in long-term, the economic growth makes the income inequality getting worse than in the short-term.

Keywords: trade openness, income inequality, vector error correction model

Abstrak

Penelitian ini menganalisis pengaruh keterbukaan perdagangan internasional terhadap ketimpangan pendapatan di Indonesia menggunakan model Vector Error Correction Model (VECM). Data yang digunakan adalah data sekunder, yaitu nilai ekspor impor, Pendapatan Domestik Bruto (PDB), pendapatan per kapita, tingkat pengangguran terbuka, dan indeks gini. Hasil penelitian ini menunjukkan bahwa dalam jangka pendek keterbukaan perdagangan berpengaruh negatif signifikan terhadap ketimpangan pendapatan. Tetapi, dalam jangka panjang keterbukaan perdagangan internasional tidak berpengaruh signifikan dalam menurunkan ketimpangan pendapatan. Analisis Impulse Response Function (IRF) memberikan simpulan bahwa ketimpangan pendapatan memberikan respons yang positif, kecuali pada tahun ketiga. Berdasarkan hasil analisis Forecast Error Variance Decomposition (FEDV), keterbukaan perdagangan tidak berkontribusi besar dalam memengaruhi ketimpangan pendapatan di Indonesia. Variabel yang kontribusi terbesar dalam memengaruhi ketimpangan pendapatan adalah pertumbuhan ekonomi, akan tetapi pertumbuhan ekonomi semakin memperburuk ketimpangan pendapatan dalam jangka panjang.

Kata Kunci: keterbukaan perdagangan, ketimpangan pendapatan, vector error correction model

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Introduction

International trade is just like the two sides of a coin. Trade has become one of the most critical variables in improving the economic growth in the world by promoting the competitiveness and efficiency enhancement. Nevertheless, the high rate of trade among countries, partially activated by the technology enhancement, is the thing that often causes the income inequality (Norris et al., 2015). Technology can reduce the transportation and communication cost, and automation is increasing. Trade openness gives way for economic growth for developed and developing countries. However, it also increases the income inequality rate. This fact caused by the imbalance of technology mastery and other aspects of growing process.

The central question is, does this inequality has become very crucial to paid attention? Income inequality on the higher and continuous level will create a significant social cost. It will weaken the choices of education, healthcare, and occupation. It will also cause other social problems such as corruption, nepotism, criminal, and many others (Stiglitz, 2012). There are studies about global trade role in economic growth and income inequality. Theoretically, the relation among three variables can discuss from three growth theories viewpoint. *First*, neo-classical growth theory predicted convergence occurrence (equality raises) due to the capital mobility increasing through international trade. Kuznets (1955) made a hypothesis of the relation between economic growth and income equality in a U-turn curve. Wang et al., (2008) researched in China, found that economic globalization made up the income equality. The uneven development caused it in some regions in China. Suci (2015) examined the influence of globalization on economic growth in ASEAN. The result showed that globalization level in a whole found it had a positive effect to economic growth and negative impact on income equality. Globalization makes people in a country to consume goods and services from another country, invest in another country, work and earn abroad so that it could uplift the welfare (Mukherjee and Kriekhaus, 2012). Another empirical research conducted by Bukhari and Munir (2016), Amjad (2015), Salimi et al. (2014), Faustino and Vali (2011), Heshmati and Lee (2010), Borraz and Lopez 2007) found that global trade decreased income inequality.

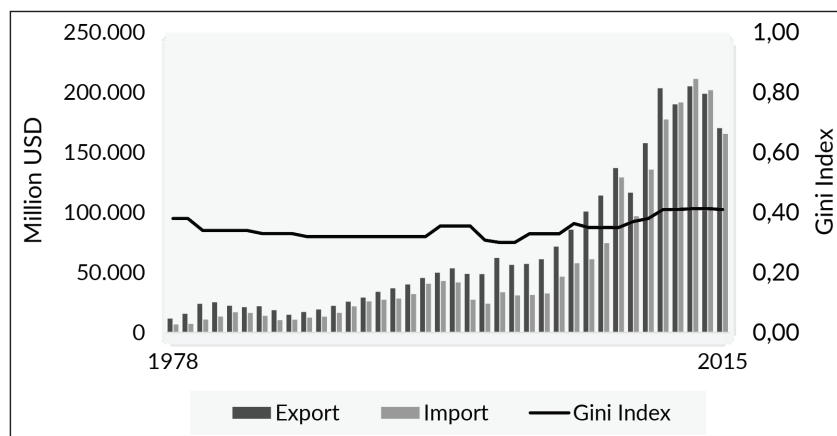
The *second*, endogenous growth theory predicted the lack of convergence or divergence (increasing income inequality) due to the technology invasion increasing in the developed country, and there is no macro-economy fundamental structure to exploit the benefit of globalization in developing countries (Klein, 1997). Globalization could worsen income inequality because the production process was divided and some were transferred overseas (Feenstra and Hanson, 1999). Furthermore, the threat effect related to the factory relocation could weaken the labor bargaining power (Burke and Epstein, 2001). Neo-liberalism economic policy that pushed globalization had contributed to raise the income inequality (Cornia and Kiiski, 2001). Pessimistically, globalization considered a thing that affected the increase of income inequality (Mahesh, 2016; Zakarian and Fida, 2016; Wong, 2016; Asteriou et al., 2014; Ogunyomi et al., 2013).

Third, dependency growth theory predicted divergence occurrence (income inequality escalation) due to the benefit difference of economic integration and trading and locked

production structure in under developing the country. This point of view mark globalization caused income inequality among countries is higher than the income in a country. Arif et al., (2012) used data from 68 developing countries in 1990–2010 found that globalization would increase the income inequality. Kratou and Goaid (2016) found that globalization gave benefit for the poor people in developed country but not in developing country. Globalization could have a very different implication to income inequality depends on the globalization dimension which involved in that country. The domestic effect due to the globalization depends on the strategy and the policy of the country. Stiglitz (2007) stated that the country played a significant role in managing the globalization so it would bring benefit for every people. The most unfortunate country is the one with the less human resources, complex bureaucracy, and non-democratic (Williamson, 2002; O'Rourke, 2001; and Aghion and Williamson, 1998). As same as the researched conducted by Maichal (2016) which obligated the government presented to manage the trading sector so it could create an inclusive growth, to reduce the income inequality.

Krugman and Obstfeld (2004) stated that the owner who has plenty of production factors in a country would get benefit from the trade, but the one with fewer production factors gained loss due to the international trade. Trade openness would uplift the income inequality if a country has plenty of capital, and it would decrease the income inequality if it has an abundance of labor (Asteriou et al., 2014). Based on those three theories viewpoints, it can be seen that there are various views about the globalization economy effect to income inequality. In this era, globalization is unavoidable by the countries in the world. As part of the global citizen, Indonesia has ratified some free trade agreement. Many of them cause discourse among economists in domestic income inequality. Figure 1 shows the growth of export-import value, and income inequality in Indonesia since 1978 to 2015.

Figure 1. Export, Import and Gini Index



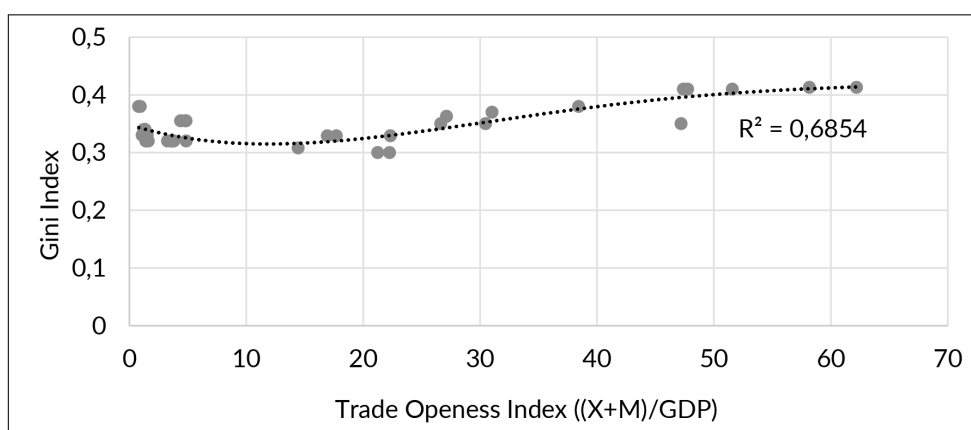
Source: BPS-Statistics Indonesia & Ministry of Trade, 2016 (data processed)

During thirty-eight years, the export-import value of Indonesia had a significant uplift. Indonesia's trade balance was always in positive position except in 2012 to 2014 which had a deficit. One of the factors that cause a deficit was the increasing of the demand for oil and gas

import and the sagged of non-oil and gas export performance (Ginting, 2014). Furthermore, it also driven by the higher demand for motorized vehicles and smartphone. Meanwhile, income inequality in Indonesia did not have a significant change. By the end of the new order era there, was a decreasing of it. However, after the Reformation, it tended to increase.

Further, Figure 2 shows early detection correlation between globalization economic which is proxied with trade openness index (sum of total exports and imports as a ratio of GDP) and income inequality (Gini index) in Indonesia. From the Figure 2, there is a trend shows that when Indonesia had welcomed the international trade, the income inequality showed a tendency to increase. However, it can't be recklessly concluded related to it. Both relations can be temporary, so it requires more in-depth study and academically accountable. Based on the previous background, the researcher is interested in conducting a deeper research about the trade openness and its impact on income inequality in Indonesia. By knowing its effect, it will give relevant information to the government so it can use as empirical literature and consideration in deciding the economic direction in Indonesia.

Figure 2. Correlation Between Trade Openness Index and Gini Index



Source: BPS-Statistics Indonesia & Ministry of Trade, 2016 (data processed)

Method

The data used was secondary data as time series data from 1978 to 2015. It collected from BPS-Statistics Indonesia and Ministry of Trade. The literature study obtained from the international and national journal, books, and other scientific literature. The data used is traded openness index was proxied by the sum of total exports and imports as a ratio of GDP. Income inequality data was proxied by the Gini index data. Other supporting data was economic growth data which proxied by the real GDP base year 2010. Other than that, the researcher also used the GDP per capita data which was proxied by the ratio of GDP to the total population. Last, the open unemployment rate which was proxied by unemployed labor force to the total labor force in the economy.

The method used to analyze the data in this research was the Vector Error Correction Model (VECM) Method. VECM is a restricted VAR model that is used for a non-stationary variable but has co-integrated potencies. After the test on the model conducted, it is suggested

to input the co-integrated equation into the model used. On time series data mostly has stationary on the first difference or I (I). Later, VECM uses that co-integrated restriction information into its specification. Therefore, VECM often said as VAR design for the non-stationary series that has a co-integrated correlation. Furthermore, in VECM, there is the speed of adjustment from short term to long term. The analysis tool provided by VAR/VECM had done through four kinds of usage, like forecasting, Impulse Response Function (IRF), Forecast Error Variance Decomposition (FEDV), and Granger Causality Test (Firdaus, 2011). The specification of VECM model, in general, is stated as:

$$\Delta \mathbf{y}_t = \boldsymbol{\mu}_{0x} + \boldsymbol{\mu}_{1x} \mathbf{t} + \boldsymbol{\Pi}_x \mathbf{y}_{t-1} + \sum_{i=1}^{k-1} \boldsymbol{\Gamma}_{ix} \Delta \mathbf{y}_{t-i} + \mathbf{e}_t \quad (1)$$

where \mathbf{y}_t is vector contains analysed variable in the research, $\boldsymbol{\mu}_{0x}$ is intercept vector, $\boldsymbol{\mu}_{1x}$ is regression coefficient vector, \mathbf{t} is time trend, $\boldsymbol{\Pi}_x$ is, where $\boldsymbol{\Pi}$ has long term co-integrated equation, \mathbf{y}_{t-1} is variable in-level, $\boldsymbol{\Gamma}_{ix}$ is regression coefficient matrix, k is VECM order from VAR, and \mathbf{e}_t is error term.

On this research, there will be a significant relation between trade openness and income inequality in Indonesia in both short term and long term, so the model is stated as:

$$\text{GINI}_t = \sum_{i=1}^{k-1} \boldsymbol{\Gamma}_{ix} \text{TOI}_{t-i} + \sum_{i=1}^{k-1} \boldsymbol{\Gamma}_{ix} \text{LnGDP}_{t-i} + \sum_{i=1}^{k-1} \boldsymbol{\Gamma}_{ix} \text{LnGDP_C}_{t-i} + \sum_{i=1}^{k-1} \boldsymbol{\Gamma}_{ix} \text{UNEMP}_{t-i} + \mathbf{e}_t \quad (2)$$

Where GINI represent income inequality, TOI is trade openness index, LNGDP is GDP (in natural logarithm), LNGDP_C is GDP per capita (in natural logarithm), and UNEMP is open unemployment rate.

Result and Discussion

Before elaborating the VAR estimation firstly examined the result of data stationarity test, optimal lag determination, stability test, and co-integrated test (Juanda and Junaidi, 2012). The data stationarity test used ADF test (Augmented Dicky Fuller) by using five percent level. If the value of t-ADF higher than MacKinnon critical value, it could be concluded that the data used is stationary (does not contain unit root). The unit root test conducted on the stage level to the first difference. The result of the data stationary can be seen in Table 1.

Table 1. The unit root test results based on the ADF

Variable	Level		1 st Difference	
	t-statistic	Probability	t-statistic	Probability
GINI	-0.996417	0.7445	-5.564300	0.0000*
TOI	2.755122	1.0000	-7.348424	0.0000*
LNGDP	-0.796560	0.8084	-4.446293	0.0011*
LNGDP_C	-0.223822	0.9265	-8.408646	0.0000*
UNEMP	-1.297267	0.6206	-5.394050	0.0001*

Note: *Indicates significance at 5% level

Next, the optimum lag test to shape a good VAR model conducted by determining the amount of the optimum lag in the model. Lag in an equation VAR system is a thing that matter because the endogenous variable from the endogenous variable in the equation system would use as the exogenous variable (Enders, 2015). The establishment of the optimum lag based on the Akaike Information Criterion (AIC), Final Prediction Error (FPE), Hannan-Quinn Information Criterion (HQ), and Schwarz Information Criterion (SC). Based on Table 2 it can be seen that the smallest point for LR, FPE, AIC, and HQ criteria based on lag 4, meanwhile the smallest value for SC criteria is on lag 1. In this research lag 4 would be used because four criteria recommend the use of that lag.

Table 2. Optimal lag test results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-110.1823	NA	0.000603	6.775431	6.999896	6.851980
1	70.52932	297.6427	6.46e-08	-2.384077	-1.037289*	-1.924784
2	93.48978	31.06416	8.07e-08	-2.264105	0.205008	-1.422067
3	127.3389	35.84022	6.35e-08	-2.784640	0.806796	-1.559857
4	180.8904	40.95113*	2.23e-08*	-4.464138*	0.249622	-2.856611*

Note: *Optimal Lag

The VAR stability test was used to gain a valid result on IRF and FEVD. The VAR is stable if the root has modulus value (absolute value) less than one. From the VAR stability test result on lag 4, obtained the modulus value less than one, which was from 0.539220 to 0.994165. It showed that VAR system that used in this research was stable. Therefore, the IRF test and FEVD could generate a valid output.

The co-integrated test was conducted to determine whether the variable that stationary on the first difference co-integrated or not (Engle and Granger, 1987). The co-integrated test on this research used Johansen Co-integration Test method by comparing the trace statistic with the critical value 5%. If the trace statistic is higher than the significant value, then there is a co-integrated in the equation system. Based on Table 3, it can be seen that the model used in this research has a co-integrated equation. It showed that among variable that tested, there was linear combination relation that stationer (co-integrated) in the long term. Furthermore, this research can use VECM model because all the stationary data on first difference and there is co-integrated between variable.

VECM created two main estimation output; they are on the measure the short-term relationship between the variable and to measure error-correction or the speed of variables in moving to the long-term equilibrium. Therefore, VECM estimation is conducted to figure out the correlation between short-term balancing and long-term among variables (Besimi et al., 2006). From the VECM estimation result, will be obtained the relation of short term and long term among income inequality (GINI), trade openness index (TOI), economic growth (LNGDP), GDP per capita (LNGDP_C) and the open unemployment rate (UNEMP).

Table 3. Johanssen's co-integration test results

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value (0.05)	Prob.**
None *	0.994460	350.2315	69.81889	0.0001
At most 1 *	0.937289	178.7707	47.85613	0.0000
At most 2 *	0.800364	87.38664	29.79707	0.0000
At most 3 *	0.439927	34.21500	15.49471	0.0000
At most 4 *	0.366902	15.08527	3.841466	0.0001

Note:

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 4 shows the relation variable on short term and long term. On table 4, it can be seen that in the short time there are four significant influential variables to income inequality. The first variable is the income inequality itself on the first lag which has a negative effect on income inequality. It means an increase of one unit on the previous year would lower the income equality itself on the present period by 0.72 points. The second variable is the trade openness on the second and third lag that has a negative impact to income inequality. It means an increase of one percent on trade openness index on the two previous years will decrease the income inequality on the ongoing year by 0.002 points. The same event happens on the third lag; if there is an increasing one percent of trade openness index on the four previous years, it will decrease income inequality on the ongoing year by 0.001 points.

Table 4. Short term and long term VECM estimation results

Long Term		
Variable	Coefficient	t-statistic
GINI(-1)	1	
TOI(-1)	-0.000384	[-0.87212]
LNGDP(-1)	0.737547	*[26.5387]
LNGDP_C(-1)	-0.203856	*[-16.0871]
UNEMP(-1)	0.018914	*[15.2752]
Short Term		
Variable	Coefficient	t-statistic
CointEq1	0.208109	*[3.17719]
D(GINI(-1))	-0.726986	*[-2.63336]
D(TOI(-2))	-0.002458	*[-2.80994]
D(TOI(-3))	-0.001780	*[-2.10537]
D(LNGDP(-1))	0.291417	*[2.70823]
D(LNGDP(-4))	-0.314023	*[-2.91980]
D(UNEMP(-3))	-0.012239	*[-3.02180]

Note: -)* Indicates significance at 5% level.

The third variable is the economic growth on the first and fourth lag. On the first lag, there is a positive effect significant to income inequality, which means a one percent increase on the previous year will increase income inequality on the ongoing period by 0.29 point. On the fourth lag, there is an adverse effect to income inequality, which means a one percent increase on the four previous years will decrease the income inequality on the ongoing period by 0.31 point. The fourth variable is the open unemployment rate on the third lag which has an adverse effect on the income inequality. It means a one percent increase in the open unemployment rate on the three previous years will decrease the income inequality on the ongoing year by 0.01 point.

From Table 4 there is an empirical proof of adjustment mechanism from short term to long term which showed by the significant co-integrated coefficient and has the positive value. It means the error is corrected by 0.20% to be long-term equilibrium. The long-term VECM estimation result shows that the significant variable affecting the income inequality (GINI) in Indonesia is the trade openness index (TOI), economic growth (LNGDP), GDP per capita (LNGDP_C), and the open unemployment rate (UNEMP). The long term relation above can be written in the linier equation as follow:

$$\text{GINI} = -0.000384 * \text{TOI} + 0.737547 * \text{LNGDP} - 0.203856 * \text{LNGDP_C} + 0.018914 * \text{UNEMP}$$

On the VECM test, the trade openness variable has negative effect non-significant to the income inequality by the coefficient value -0.000384. It interprets that every one percent is increasing in trade openness index, it will decrease income equality in Indonesia by 0.000384 points. It indicates that in the long term with the wide open international trade, it will have the negative effect on income equality but not significant. While in the long term there is no significant effect. Furthermore, it takes efforts so the people with low income can get the benefit from international trade. It can be put to a realization if the trade policy can empower and protect the small economic agents so that they can compete in the world trade. Therefore, the government role in managing the international trade is important to manifest the income equality (Stiglitz, 2007). Tjakrawerdaja et al., (2017) stated that country has a strategic role in controlling the economy for mutual prosperity.

The GDP variable has the positive effect on income inequality in Indonesia. The GDP coefficient is 0.737547 shows that every one percent GDP increasing, income inequality will increase by 0.73 points. It indicates that the macroeconomic growth so far is not perceived evenly by the society. Agusalim (2016) found the same result in the research which analyzed the decentralization effect in the distribution of national income to lower the income inequality. It found that after the Reformation era occurred, every one percent increase in economic growth, it will increase income inequality by 0.14%. Todaro and Smith (2003) stated that the rapid economic growth not by itself fixed the profit distribution for the whole society. The rapid economic growth had an adverse effect on the poor people because they will be outcast by the modern growth of structural change. Baudrillard (2011) also sharply criticized the growth ideology. He stated that it only produced two things, which are prosperity and poverty. Prosper for the beneficial side and poverty for the marginal, so it created wider income inequality.

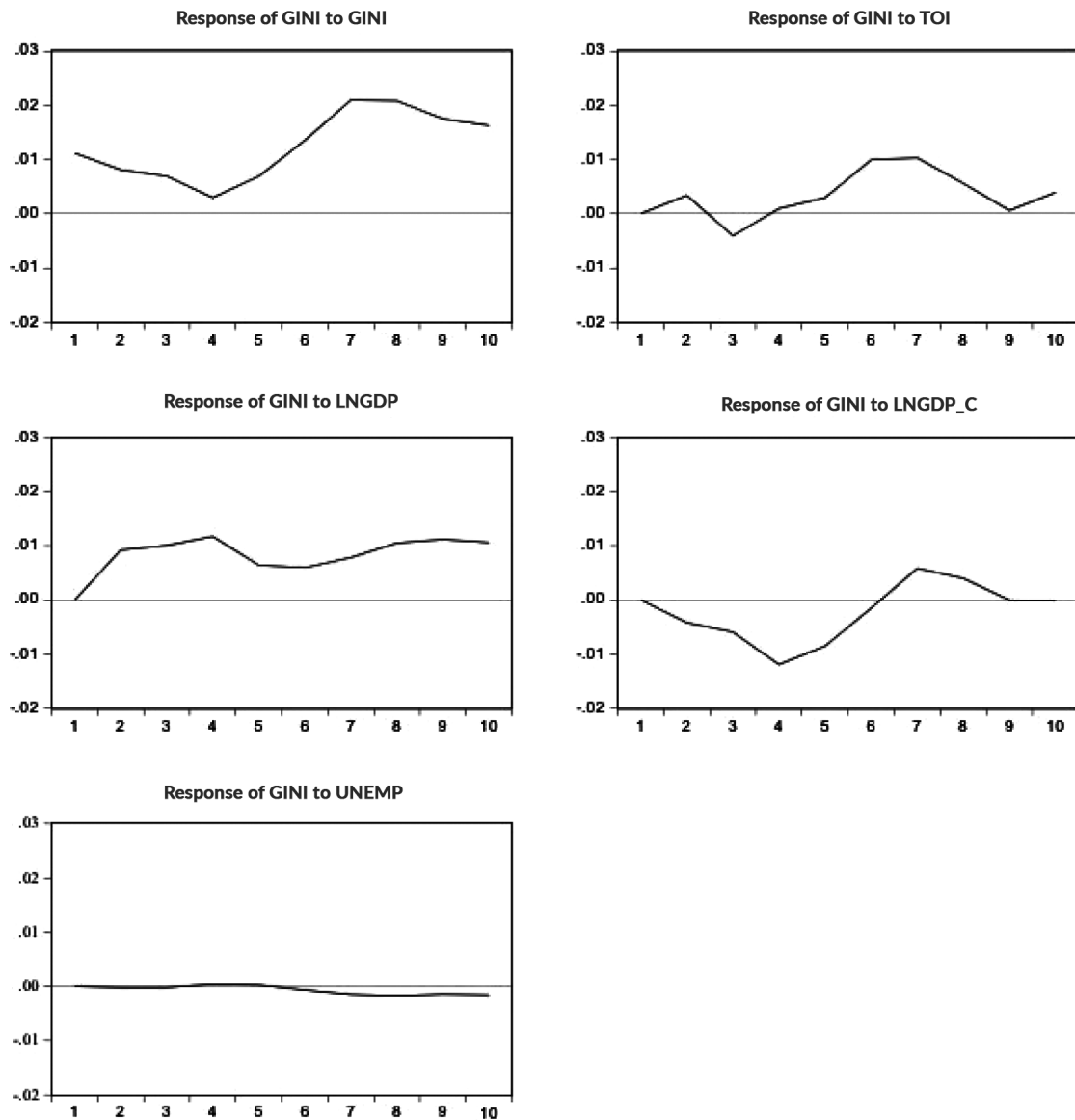
GDP per capita is estimated to have an adverse effect on income inequality significantly in the long term. The coefficient of GDP per capita is by -0.203856 which means if the GDP per capita increase by one percent, income inequality will decrease by 0.20 point. It shows the different pattern with Kuznets hypothesis. It is in the short term relation between GDP per capita and income inequality. Kuznets (1995) stated that in the short term, the increasing of GDP per capita would follow by the raising of income inequality, but this result showed that there is no short-term effect between those two variables. However, in long-term, the research is in line with the hypothesis by Kuznets.

The open unemployment rate in the long term has a positive effect on income inequality by 0.018914. It means the one percent increase of open unemployment rate will increase the income inequality by 0.01 point. It is same as the result of the researchers demonstrated by Cysne and Turchik (2012), and Saunders (2002) which proved that unemployment contributed to the income inequality. It also caused a series of the social effect that weakens the unemployment themselves, their families, and the society where they live. In Indonesia, with plenty of natural resources, unemployment and income inequality are still becoming the classic issues to be talked about in academy and politic area. Further, the government needs to design an effective policy to create the job opportunity to lower the income inequality.

This analysis is used to see the response of a variable when there is a shock on another variable, and to see the effect of the shock duration of endogenous of a variable that caused by another endogenous variable shock in one deviation standard unit (Amisano and Giannini, 1997). In this research, the term used in analyzing the poverty level response projected in the next ten years. Figure 3 shows the IRF simulation result to measure the poverty rate dynamic response to poverty rate, trade openness index, economic growth, GDP per capita, and open unemployment rate.

Based on Figure 3, it can conclude that in whole, income inequality will give a positive response on there is one deviation change in income inequality variable. For example, on the first year, income inequality itself will positively respond the shock by 0.01%. Later, it will be weakened until the fourth year, and back to increase by the next year. Income inequality always gives a positive response because of the shock created by itself. During ten years, income inequality will provide the highest response on the seventh year, by 0.02%. The one deviation in trade openness index shock has an effect on the income inequality except on the third year. During ten years, income inequality will give the highest response in the seventh year by 0.01%. On the other side, income inequality will provide the lowest response on the third year, by -0.004%.

Figure 3. The impulse response of income inequality results



The response of Income inequality caused by the economic growth shock is seen fluctuating but still has a positive trend. In the fourth year, income inequality gives the most reliable response by 0.11%. Meanwhile, income inequality will provide the lowest response on the third year by 0.005%. It will be different if GDP per capita causes the shock. On the first six years, every one deviation GDP per capita shock, the income inequality will respond negatively, with the lowest response on the fourth year by -0.01%. On the seventh and eighth year, income inequality response by one deviation GDP per capita will get positive response. The highest response occurs on the seventh year by 0.005%. On the ninth and tenth year, income inequality does not give a meaningful response by the GDP per capita shock. The open unemployment rate shock would be responded fluctuating by income inequality, but it is a weak response. Every shock on open unemployment rate will be responded negative by income inequality, except on the fourth and fifth year. IRF result shows that the shock on

trade openness index, economic growth, GDP per capita, and the open unemployment rate will whether cause income inequality to decrease or increase. Trade openness index and GDP per capita shock will cause the decreasing of income inequality in the long term. Economic growth and open unemployment rate shock will cause the increase of income inequality in the long term.

Forecasting Error of Variance Decomposition (FEVD) analysis on this research is to explain how big the percentage contribution of each variable shock of trade openness index, economic growth, GDP per capita, and the unemployment rate in effecting the income inequality in Indonesia. The period that is used to explain the FEVD is ten years. The result of FEVD shows that in the first year, income inequality fluctuation is caused by income inequality shock itself by 100%. On the second year of the tenth year, it can be seen that other variables start to affect income inequality. On the second year, it still dominates by 62.59%, while the variables that begin to affect income inequality are economic growth by 27.56%, GDP per capita by 5.78%, trade openness index by 3.74%, and open unemployment by 0.01%. On the fourth and fifth year, income inequality has dominated by economic growth in affecting income inequality. However, since the sixth year, it still becomes the most dominant in affecting itself. Other variables that have significant contribution in affecting income inequality are economic growth, GDP per capita, and trade openness index. The unemployment rate has a small contribution in affecting income inequality. Trade openness index, in the second year, contributed on affecting income inequality in Indonesia but not more significant than the economic growth and GDP per capita. The most prominent effect is on the seventh year by 12.59%.

Based on the empirical fact of various scientific articles appear on this research, it takes a commitment and strategy for the whole economic agents and other stakeholders to create a fair trade system. Referring to Tjakrawerdaja et al., (2017) an appropriate trade system can only occur if there is an equal partnership among the economic agents. If the competitive principle runs the trading, it can be assured that there will be winner and loser. It will cause inequality wider both among countries and among society in a country. The equal partnership in trading should be run by the soul and spirit (cooperation) as the reference in the trading playbook. All the economy agents should implement the harmony; dynamic, and fair work relation and industrial relation. This concept according to Tjakrawerdaja et al. (2017) is part of the Economy System of Pancasila, which the primary purpose is to create prosperity for the entire people and national economic independence.

Conclusion

ased on the research about the impact of trade openness to income inequality in Indonesia, it can conclude that in the short term, international trade openness has a significant negative effect on income inequality. However, for a long time, it does not. The IRF analysis concluded that income inequality gives a positive response, except on the third year. Based on the FEVD analysis result, trade openness does not provide a significant contribution in affecting income inequality in Indonesia. The variable that gives substantial contribution is the economic growth. However, economic growth makes income inequality worse in the

long term. Income inequality can decrease by creating an inclusive economic growth so the entire society can gain the result of it. Other than that, the fair trade should implement where the equal partnership occurs among economic agents that based on the soul and spirit (cooperation) as the reference in trading rules.

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