THE EFFECT OF GLOBALIZATION ON INCOME INEQUALITY IN ASEAN-5

B. Yasmin*
Department of Economics, Faculty of Economics and Management,
Universiti Putra Malaysia, Serdang, Malaysia
nor_yasmin@upm.edu.my

M. Siti Nur Ain & A.W. Noraida
School of Graduate Studies, Universiti Putra Malaysia, Serdang, Malaysia
sitinurainmohd@ymail.com, aidawahob@gmail.com

ABSTRACT

The purpose of this paper is to examine the relationship between globalization and income inequality as well as economic growth for ASEAN-5 over the period 1980 to 2012. The analysis utilizes the KOF index of globalization as well as its three different dimensions as proxy for globalization. We employ the fixed effect method to a panel of five Asian countries. The result suggests that globalization is related to inequality. Economic and social globalizations are positive and significantly related to income inequality which implies that the two dimensions are the driving force for the widening of income gap. On the other hand, political globalization does not have any significant impact on income inequality in these countries. Thus, the policy formulated to reduce inequality and enhance growth should be targeted to economic and social globalization.

Field of Research: Globalization, income inequality, ASEAN-5

1. Introduction

Over the decades, many countries around the world have opened their economies to international market and experienced the process of globalization. Globalization, which is characterized as the free movement of goods and services, labor and capital, as well as information and technology across borders, is a process of greater economic integration enhanced through numerous delivery mechanisms such as trade liberalization and internal labor migration as well as capital flows. According to the World Bank, international trade development may reduce poverty, inequality and social polarization of income distribution by increasing the country’s economic growth (World Bank, 2001). However, income inequality tends to rise when there is an increase in income. This hypothesis suggests that the process of globalization will force a positive impact on growth and lead to a negative effect on the polarization and the distribution of income in the first step (Balan et al, 2015).

In addition to the above matter, income inequality across countries has attracted the interest of economists and policymakers. This is mainly because, despite being globalized, many developed and...
developing countries experience a hike in inequality, which show that the rising income are not
shared equally across the population. According to Asteriou et al (2014), the rise of income
inequality is due to changes in labor supply and labor demand which are related to globalization. The
process of globalization benefits a country; however, it comes with a cost to income inequality.
There is evidence that shows globalization indeed promotes growth (see Dreher (2006); Rao and
Vadlamannati, (2011)), but there is also empirical evidence that shows globalization is related to
increased inequality in most developed and developing countries (see Dollar and Kraay, (2004); Beck
et al,(2007)).

This study aims to empirically analyze the relationship between income inequality and globalization
in Asian countries. To answer our research question, we estimate an econometric model using panel
data techniques for ASEAN-5 countries over the period 1980-2012. For robustness, we also test the
relationship between income inequality and different dimensions of globalization as introduced and
developed by Dreher (2006).

This study differs from existing literature as it utilizes the KOF Index of Globalization where it allows
the analysis of a composite and separate index of globalization (economic, social and political
globalization) on Asian countries. Existing studies on globalization and income inequality use
traditional measure of globalization such as Foreign Direct Investment (FDI), openness or capital
account index. Furthermore, the studies focus more on financial or economic dimension of
globalization and ignore the social and political dimensions. Empirical studies focus more on
developed countries (for example: Dreher and Gaston (2008) and Bergh and Nilsson (2010)) and to
our knowledge no studies have focus on Asian countries.

The result suggests that globalization is positively related to income inequality; which imply that
when the country is globalized, the income gap will be wider. Economic and social globalizations are
positive and significantly related to income inequality. This shows that the two dimensions are the
driving force for the widening of income gap. On the other hand, political globalization does not
have any significant impact on income inequality in these countries.

The rest of the paper is organized as follows. Section 2 briefly reviews the related literature on
globalization and income inequality. Section 3 presents the data set and explains the empirical
model and methodology. Section 4 discusses the results and policy issues. Finally, Section 5
concludes.

2. Literature Review

There is an extensive literature on the impact of globalization and income inequality. However, these
studies had utilized the traditional measures for globalization. Milanovic (2002) for example, conduct
a cross-country economic analysis on globalization and income inequality using trade openness
index. His study suggests that openness widens income gap but the effect differs across country
depending on the initial level of income. Kraay (2006) also uses trade openness and find that it is
positively related to income inequality. Goldberg-Koujianou and Pavcnik (2007) review existing
literature that use various measures of trade openness and conclude that trade openness does not
have significant effect on inequality. Meschi and Vivarelli (2009) on the other hand, argue that trade
with high income countries would exacerbate the distribution of income in the developing countries
through import and export. However, within country income inequality is not affected by globalization. Jalil (2012) examines the relationship in a Kuznets curve framework in China and find that income inequality increases when openness increases and the results are in line with the Kuznets hypothesis.

Other studies use Foreign Direct Investment (FDI) as proxy for globalization. Basu and Guariglia (2007) analyze the interactions between FDI, inequality and growth on a panel of 119 developing countries. The study concludes that FDI increases inequality and growth and is consistent with the stylized fact outlined in the paper. In a study on OECD countries, Faustino and Vali (2011) find that openness narrows the income gap while FDI does not exert significant effect on income distribution. Wu and Hsu (2012) examined the relationship in a cross section of 54 countries over the period 1980–2005. They suggested that FDI has little effect on income inequality and international trade can be harmful to income distribution. Asteriou et al. (2014) studied the relationship using both trade openness and FDI in a group of European countries. The results suggest that openness exert and equalizing effect which is in line with Wu and Hsu (2012) and FDI lead to the increases in income inequality in the sample countries.

Apart from trade openness and FDI, existing literature use different measures of trade and financial liberalization to represent globalization. For example, Castilho et al. (2012) and Mah (2013) use trade liberalization to examine the relationship. In contrast, Bumann and Lensink (2016) use capital account liberalization and suggest that it will improve income distribution in a country if the level of financial depth exceeds 25 percent. The impact of globalization is not simply measured by looking at the country’s achievements. An index is needed to measure the extent in which a country is globalized. As the use of traditional measures of globalization such as trade openness, FDI and other financial liberalization variables lead to mixed conclusions; researchers introduced indices that capture various dimensions of globalization to capture and explain the relationship further.

Heshmati (2004) uses Kearney Index of globalization and analyze the relationship using the four sub-components. The sub-components behave differently, where personal contacts and technology transfers tend to reduce inequality, while economic integration increases it. In addition, Heshmati (2004) do not find any significant effect of political engagement on income inequality. Neutel and Heshmati (2006) use the same Kearney globalization index for a cross sectional analysis of 65 developing countries to study the effect of globalization on poverty and income inequality. The conclusions state that globalization is good to alleviate poverty and lead to fair distribution of income.

Dreher (2006) then introduce KOF index of globalization which is a composite measure of three different dimensions, namely economic globalization (KOF1), political (KOF2) and social globalization (KOF3). Utilizing the index, Gaston and Rajaguru (2007) prove that general definition of globalization (composite index) has increased income disparity. Using the KOF Index and income and wage inequality data, Dreher and Gaston (2008) find evidence that overall globalization have increased both industrial wage and household income inequality in OECD countries for the period of 1970 to 2000. Tayebi and Ohadi (2009) study the relationship by differentiating the level of income of the countries and find that globalized countries tend to have fairer distribution of income. Similarly, Bergh and Nilsson (2010) examined the correlation between the KOF index of globalization, the economic freedom index of the Fraser Institute and net income inequality for 79 countries for the period...
1970-2005. They show that increase in globalization lead to increase in income inequality in both developed and developing countries. However, when examine separately, economic globalization suggests an increase in income inequality in developed countries but no significant effect in less developed countries. In contrast, social globalization exerts similar effect on both developed and developing countries; rise in social globalization is correlated with the widening of income gap. Political globalization on the other hand, has no significant effect on inequality. The indices are also utilized by Yanar and Şahbaz (2013) to study the relationship for a cross section of 102 developing countries for 2010. The study concludes that the different dimensions of globalization reduce poverty and inequality in the sample countries.

The aforementioned studies are the evidence that show the effect of globalization on income inequality is ambiguous. The difference in conclusions may be due to the different way of measuring globalization or income inequality. Existing studies focus only on one dimension of globalization; namely economic or financial globalization. Only recently, the literatures focus on the other dimension as explained by Dreher (2006). In addition, many studies focus on developed countries or countries with high income inequality. The studies that investigate the relationship in developing Asian are scarce and limited. Thus, this study will fill in the gap by examining the relationship in ASEAN-5 countries utilizing the KOF index.

3. Data and Empirical Methodology

The data for this study is mainly derived from the World Development Indicator, World Bank with the exception of the main variables of interest, globalization and income inequality. The income inequality data is extracted from the Standardized World Income Inequality Database (SWIID), while the globalization data is taken from the KOF database. The empirical model will be estimated using the two most common panel data estimation methods which are random effect and fixed effect. We will then conduct Hausman Test to choose between the two methodologies.

This study adopts an empirical model similar to Bergh and Nilsson (2010) among others to analyze the relationship between globalization and income inequality. Thus, the panel model is specified as follows:

\[
INQ_{it} = \alpha_i + \beta_1 Global_{it} + \beta_2 X_{it} + \delta_i + \rho_t + \epsilon_{it}
\]  

The dependent variable \(INQ_{it}\) is income inequality and \(Global_{it}\) is the globalization index. \(\delta_i\) is the country fixed effect, \(\rho_t\) is the year fixed effect and \(\epsilon_{it}\) is the error term. \(i\) represents the countries of interest (Malaysia, Indonesia, Thailand, Philippine, Singapore) and \(t\) is the sample period which is from 1980 to 2012. We include a number of control variables \((X_{it})\) to study for the possible influences of factors other than globalization on income inequality. The selection of control variables are based on existing studies on globalization and income inequality.

The first control variable is GDP per capita which is the indicator of economic performance and commonly used as a broad measure of average living standards (OECD, 2009). We expect a negative relationship between GDP per capita and inequality. We add age dependency ratio which is the ratio of dependents of people younger than 15 or older than 64 to the working-age population. Following Bergh and Nilsson (2010), age dependency would measure the size of the mature age group in
relation to the number of adults in the population. Based on Dreher and Gaston (2006), age dependency variable can explicitly capture demographic aging influences such as pension entitlements. The expected sign for age dependency ratio is positive.

According to Dreher and Gaston (2006), population growth is likely attributed to the growth in a country’s labor endowment. On the other hand, Tsai (2007) stated that population growth had the harmful impacts of uncontrollable fertility against limited resources, such as attenuated health and educational expenditure, inadequate housing and water sanitation, especially in the developing countries. Thus population growth is included in the equation to prove the above claim. The expected sign for population growth is negative. To account for the provision of public goods, the degree of intervention in the marketplace and the possible use of redistributive expenditures, government expenditure is also included in the specification. The expected sign is either positive or negative.

4. Result and Discussion

4.1 Main Result

The empirical results are provided in Table 1 and 2. Table 1 below presents the results from random and fixed effect estimations. If we examine the variables closely, we can see that the main variable of interest, which is represented by the composite KOF index, is positive and significant for both models. This implies that globalization indeed widen the income gap between the population in ASEAN-5 countries. This initial investigation is in line with Gaston and Rajaguru (2007), Dreher et al (2008) and Bergh and Nilsson (2010) among others.

The control variables, on the other hand display mixed conclusions. GDP per capita is negative and significant for both models, which imply that higher growth will lead to the reduction of income inequality. The finding meets our priori expectation. Age dependency ratio and population growth are both negative and insignificant. Thus, these two variables do not have any significant impact in determining the distribution of income in the sample countries. The size of the government is positively correlated when estimated using random effect, but it changes sign when we use fixed effect. The Hausman test is significant which signify the use of fixed effect model, thus, we will use the fixed effect results and the remaining analysis will be based on fixed effect estimation only.
Table 1: Globalization and Income Inequality: Composite Index: Random Effect vs. Fixed Effect

<table>
<thead>
<tr>
<th>Variables</th>
<th>1 Random Effect</th>
<th>2 Fixed Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Globalization</td>
<td>0.16 (0.07)**</td>
<td>0.35 (0.16)**</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>-0.13 (0.03)***</td>
<td>-0.008 (0.04)**</td>
</tr>
<tr>
<td>Age Dependency Ratio</td>
<td>0.22 (0.09)**</td>
<td>0.09 (0.16)</td>
</tr>
<tr>
<td>Size of government</td>
<td>0.01 (0.005)*</td>
<td>-0.02 (0.007)***</td>
</tr>
<tr>
<td>Population growth</td>
<td>-0.01 (0.02)</td>
<td>-0.001 (0.009)</td>
</tr>
<tr>
<td>Constant</td>
<td>4.88 (0.53)***</td>
<td>3.05 (0.99)***</td>
</tr>
</tbody>
</table>

Notes: *** significant at 1% level, ** significant at 5% level, * significant at 10% level. Robust standard error in bracket.

4.2 Robustness Test

Next, we continue our analysis by re-estimating the model specified in (1) using the three different dimensions of globalization. This is done as a robustness test and to test the significance of different dimensions. The results of the analysis are presented in Table 2. As mentioned earlier, we will only present the results from the fixed effect estimation.

When we examine the index separately, the results are similar. Economic and social globalizations are positive and significantly related to income inequality. On the other hand, political globalization is insignificant although it has expected sign. The findings suggest that, the increase in income inequality in ASEAN-5 is driven by economic and social globalization. This result supports the finding by Dreher et al (2008) which found that economic globalization increases wage inequality in a sample of 57 countries.
### Table 2: Globalization and Income Inequality: Separate Index: Fixed Effect

<table>
<thead>
<tr>
<th>Variables</th>
<th>Fixed Effect</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>(3)</td>
</tr>
<tr>
<td>Economic Globalization</td>
<td>0.39</td>
<td>0.30</td>
<td>0.09</td>
</tr>
<tr>
<td></td>
<td>(0.13)***</td>
<td>(0.09)***</td>
<td>(0.06)</td>
</tr>
<tr>
<td>Social Globalization</td>
<td>-0.06</td>
<td>-0.24</td>
<td>-0.03</td>
</tr>
<tr>
<td></td>
<td>(0.03)*</td>
<td>(0.03)***</td>
<td>(0.05)</td>
</tr>
<tr>
<td>Political Globalization</td>
<td>0.15</td>
<td>0.26</td>
<td>0.38</td>
</tr>
<tr>
<td></td>
<td>(0.12)</td>
<td>(0.15)*</td>
<td>(0.09)***</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>-0.03</td>
<td>-0.01</td>
<td>-0.02</td>
</tr>
<tr>
<td></td>
<td>(0.008)***</td>
<td>(0.009)</td>
<td>(0.009)</td>
</tr>
<tr>
<td>Age Dependency Ratio</td>
<td>0.006</td>
<td>0.003</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.009)</td>
<td>(0.009)</td>
</tr>
<tr>
<td>Size of government</td>
<td>2.35</td>
<td>2.40</td>
<td>3.79</td>
</tr>
<tr>
<td></td>
<td>(0.82)***</td>
<td>(0.88)***</td>
<td>(0.62)***</td>
</tr>
<tr>
<td>Number of Countries</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Observations</td>
<td>165</td>
<td>165</td>
<td>165</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.46</td>
<td>0.50</td>
<td>0.42</td>
</tr>
</tbody>
</table>

Notes: *** significant at 1% level, ** significant at 5% level, * significant at 10% level
Robust standard error in bracket

This finding also verify Bergh and Nilsson (2010) findings, where they find that increase in social globalization is associated with increase in income inequality either in developed or developing countries. In addition, we also agree with Tayebi and Ohadi (2009) whom find that both economic and social globalizations are positively related to income inequality. The insignificance of political globalization in this relationship is also supported by Dreher and Gaston (2006) and Bergh and Nilsson (2010) whom conclude that political globalization has no distributional as well as negligible effect on income inequality.

For the control variables, GDP per capita and government spending are negatively correlated with income inequality. This implies that, increase in government spending and GDP per capita tend to reduce the income distribution gap. Age dependency and population growth on the other hand, do not exert significant effect on reducing income inequality in the sample countries.

### 5. Conclusion

This paper analyzes the relationship between globalization (measured by the KOF index of
globalization) and income inequality (measured by the Gini coefficient) for ASEAN-5 countries over the period 1980-2012. Two different analyses are performed, where we substitute the composite index of globalization in the first analysis by the separate dimension (economic, social and political globalization) indices in the second analysis. We utilize panel data techniques, which confirmed the use of fixed effect method. Overall, the results suggest that, globalization is positively correlated with income inequality.

In addition, this paper also suggests that the increase in income inequality in ASEAN-5 is driven by economic and social globalizations. Political globalization, however, does not have significant effect in the relationship. Therefore, any policy issues raised to reduce inequality in ASEAN-5 should be focused on the two aforementioned dimensions. We also find that GDP per capita and size of government are significant in reducing income inequality.

Acknowledgement

This research is supported by the Fundamental Research Grant Scheme 2015, (FRGS/2015/5524722) provided by Ministry of Education.

References


Tayebi, S. K., & Ohadi, S. (2009). Relationship between Globalization and Inequality in Different Economic Blocks. Department of Economics, University of Isfahan, Iran

