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Trade and Inequality in Developing Asian Countries

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I. Introduction

In recent decades, world trade activity has substantially increased. In 1980 total world trade made up 38% of total world GDP, and by 2010 it had increased to 58% (World Bank, 2018). Following this growth, it is important to see what implications it has on the inequality within, and ultimately, the welfare of a nation. Dalton (1920) argued that the interest of economists do not lie solely on inequality, but on welfare as derived from inequality, where Kakwani (1997) holds that an increase in inequality correlates with a decrease in national welfare. This thesis will focus on the effect trade has on inequality within developing economies, specifically those under “Emerging and Developing Asia”¹. It will present a section of literature review of previous research as well as an empirical analysis, to answer the research question:

Does trade significantly decrease income inequality in Asian developing countries?

Moreover, sub-questions were constructed following the main question to assess the impact of trade when broken down into trade with developed and developing countries:

Does trade with developed countries significantly decrease income inequality in Asian developing countries?

Does trade with fellow developing countries significantly decrease income inequality in Asian developing countries?

Data spanning 31 years (1980 – 2010) and encompassing 6 developing Asian countries (Indonesia, Malaysia, India, Philippines, Sri Lanka, Fiji) will be used to provide relevant insight on how trade is associated with inequality in a more modern economic setting. A phenomenon no longer unfamiliar, from the 1970s most OECD countries underwent a rise in inequality (Reenen, 2011). It would be interesting to study if the same occurrence applies to developing Asian economies, and more importantly whether trade plays a role throughout the process.

¹ Emerging and Developing Asia, as classified by the IMF World Economic Outlook (WEO) groups and aggregates information, available at <https://www.imf.org/external/pubs/ft/weo/2018/02/weodata/groups.htm#da>

II. Literature Review

The link between trade and inequality has for long been a topic of interest in the field of International Economics. Conventional economic theories such as the Heckscher-Ohlin framework and the Specific Factors Model are known to uphold the benefits of liberalized trade for an economy as a whole. Dixit and Norman (1980), as cited in Donaldson (2015), stated that as an economy shifts from autarky to free trade, individuals within that economy become slightly better off. However, even so, Burtless (1995) notes that economists still disagree on the extent to which trade creates losses, and how these losses are distributed among producers. From this researchers have set off to discuss what impacts liberalized trade have on income inequality within a country. Considering the broad nature of the topic, this has allowed for a diverse set of researches to prevail, that although they study a common relationship, differ in many aspects. This section will begin by highlighting research on developed economies, as well as developed and developing economies, then proceed with research that focus solely on developing economies, both within-country and cross-country studies. It will then briefly touch upon trade between developed and developing economies (North-South trade), before noting what contributions this thesis puts forth to the existing set of literature.

Reenen (2011) began by assessing patterns of wage and skill distribution among labor in the United States and the United Kingdom, documenting a rise in wage inequality in the US and UK since the 1970s. The literature then identified a number of factors behind this pattern of wage inequality, including trade. Concerning trade in particular, it was stressed that trade ultimately affects inequality via labor wages. Jaumotte, Lall and Papageorgiou (2013) also note a similar point, stating that trade affects inequality through worker income, distinguishing it from the mechanism by which financial liberalization affects trade, which is by means of the income of capital owners. Their paper used a sample of both developed and developing countries and yielded results that show trade and financial liberalization to have opposing impacts on inequality. Trade was shown to lower inequality, whereas financial liberalization increases it.

Focusing on developed economies, Mahler et al. (1999) conducted several methods of analyses that estimate the relationship between trade and investment on one the one hand, and inequality on the other, using various measures of trade, investment and inequality. They found through all methods that both trade and investment do not exhibit a significant relationship with

inequality, and even after the authors incorporated variables that aim to better define the relationship, results still show there to be overall insignificance².

A marked addition to the set of literature is by Milanovic (2005), which assessed the link between trade and relative income within poor (developing) and rich (developed) countries, then compared results among the two. Estimating the effect trade and Foreign Direct Investment has on relative income, it was revealed that with trade, in poorer countries the lower-income deciles experienced greater adverse impact than those in richer countries. Groups with the lowest income in poorer countries seem to suffer from more trade, at least when measured by relative income.

Another strand of literature studies this impact strictly in developing countries. A portion of these research assess the effects with focus on a single country. Beyer, Rojas and Vergara (1999) studied the development of inequality in Chile through time, noting that following trade liberalization, there was an inclination for the wage gap to increase. Using a model to estimate the effect of trade on skill premium (a variable indicating the wage gap between skilled and unskilled labor), results point out that skill premium grows with increased trade. Different results were found for workers in Brazil, where Helpman et al. (2017) concluded trade to initially worsen inequality, before improving it. The authors utilized an extension of the heterogeneous-firm model established in Helpman et al. (2010), where results show that due to its heterogeneity, not all firms are capable of reaping the benefits of increased trade.

Kis-Katos and Sparrow (2015) investigated the impact freedom of trade has on poverty and the labor market in Indonesia. The authors used tariff reduction measures and split this into tariffs for outputs and tariffs for intermediate inputs, analysing the effects of each on poverty, whereby the two constituents exhibit opposing effects; lower output tariffs correspond with higher poverty levels, meanwhile lower input tariffs with lower poverty levels.

Topalova (2010) took on a different approach to analyse the impact trade has on poverty in India. In 1991 India had undergone trade liberalization, providing a natural experiment to be used as a basis for a Difference-in-Difference estimation. The paper looked at whether with freer trade specific regions in India would experience more benefits or suffer more adverse impacts, and gathered that following the 1991 trade liberalization, there was a smaller decline in poverty levels

² Few measures of trade and inequality did change to reveal a significant link, but these come to show that trade and investment lead to lower inequality in developed countries

for groups in rural India that experienced relatively freer trade (freer trade was portrayed by a lower level of tariffs).

Concurrently, other analyses have also been conducted focusing on a group of developing economies instead of a single country. Harrison, McLaren and McMillan (2011) provided a highlight of past studies within this line, featuring empirical evidence contradicting predictions of the economic theory prominently used in this setting, the Heckscher-Ohlin framework. The inconsistencies made way for new theories that aim to explain the rise of income inequality experienced by developing countries. The model by Matusz (1985), as cited in Harrison, McLaren and McMillan (2011) assumes implicit contracting and firms to undergo arbitrary productivity shocks, where the model allows for trade to lead to increased wage inequality. This would bear more congruence to recent empirical evidence, especially those of developing countries³, whereby trade led to an increase in inequality, instead of the predicted decrease.

Meschi and Vivarelli (2009) studied for 65 developing economies throughout 1980 - 1999, how trade affects inequality. The authors made use of trade volume to portray trade and Estimated Household Income Inequality (EHII) index⁴ in representing within-country income inequality and found an insignificant association between trade and within-country income inequality. Following these results another estimation was conducted but with disaggregated trade flows, to further illustrate differences between the effects of trading with fellow developing countries on one hand, and trading with developed countries on the other. Following this, results were significant, and indicated that an increase in trade with industrialized countries exacerbates income inequality, meanwhile trade with fellow developing countries exert the opposite effect.

Even with a significant relationship proven between trade and inequality, there may still be divergence in the direction of the effects in developing countries. Wood (1997) documented the distinctly contrasting effects of trade on skilled-low-skilled wage distribution between two groups of developing countries, East Asia and Latin America. The findings for East Asia showed that with trade, the wage gap shrunk⁵. This was regarded to be in line with the theory of free trade leading to an increase in demand for relatively low-skilled labor (Wood, 1997). Meanwhile Wood (1997)

³ Developing countries include: Mexico, Colombia, Argentina, Brazil, Chile, India and China (Harrison & Hanson 1999, Goldberg & Pavcnik 2007, Topalova 2007, as cited in Harrison, McLaren and McMillan (2011))

⁴ Available from the University of Texas Inequality Project (UTIP) database

⁵ Shown by Korea, Taiwan and Singapore, in specified periods

also showed that results for Latin American countries gave the opposite outcome. This contradiction was ultimately attributed to either differences between countries in East Asia and Latin America, or differences between the time periods for each respective country group⁶. The literature identified differences between East Asia and Latin America on a number of factors such as the growth rate of skilled workers (which is higher in East Asian countries), the supply of natural resources (for which Latin America is more highly endowed), and the types of trade-related regulations in place, where East Asian countries exhibit an encouragement of exports whereas Latin America mainly decreased protection of imports. Differences between time periods are mostly due to changes in economic conditions over time, such as the emergence of low-income exporting countries and skill-biased technological development, which increased demand for skilled labor (Wood, 1997).

From a theoretical standpoint, Marjit, Beladi and Chakrabarti (2004) noted how studies regarding the impact of trade on developing countries are lacking. The authors introduced a model and ensuing theoretical review to explain how with trade, a fall in low-skilled labor wage may occur in developing countries. The model involves multiple sectors as well as a tradable intermediate good and can account for the wage gap to either widen or narrow with trade.

Another approach in studying the impact of trade on income inequality is by further categorizing trade into trade with fellow developing countries (South-south trade) and developed countries (North-south trade). This thesis would also attempt a method as such, analysing the effects of trade with fellow developing countries, and trade with developed countries. As earlier discussed, Meschi and Vivarelli (2009) only found significant results after making use of broken down trade flows in their estimation. Regarding North-South trade flow in particular, Chusseau, Dumont and Hellier (2008) provided a discussion of the role of North-South Trade and Skill-Biased Technological Change in affecting wage inequality, beginning with older theories that recognized the dominance of Skill-Biased Technological Change, to newer findings that acknowledged how the two factors interact instead. They emphasized the changing nature of the literature, which initially focused on identifying whether the cause of inequality was one or the other, and has evolved to studying the mechanism in which they both influence inequality.

⁶ 1960s - 1970s for East Asia, and 1980s-1990s for Latin America

There exists an extensive collection of literature on trade and income inequality owing to varying perspectives, methodologies and measurements of both trade and inequality. The contributions of this thesis would firstly be the use of a relatively long time period, covering 31 years, which includes more recent data (ranging from 1980 - 2010). This thesis also includes as subjects a group of developing Asian countries that is uncommon in previous literature. To the best of my knowledge, although a number of studies have included more modern Asian economies, there are less who examine the same impact for a single group of countries consisting of India, Fiji, Indonesia, Malaysia, Philippines and Sri Lanka. These countries were chosen as they possess similar characteristics in terms of their economic and social conditions such as their rate of population growth, GDP per capita growth, the rate of school enrollment⁷ and also on the basis of data availability.

In addition, by breaking trade flows into subcomponents based on its country of destination and origin to distinguish between trade with fellow developing countries and trade with developed countries, this thesis may also be able to compare and determine whether different partners in trade alter the impact of trade on inequality within the set of developing countries specified. Although ample theoretical and empirical research has been done to study trade between developed and developing economies, that between fellow developing economies (south-south trade) is not as extensive.

III. Theoretical Framework

A key principle in assessing the link between trade and inequality is the Heckscher-Ohlin framework, which states that a country exports goods which uses more of its abundant factor of production (Krugman, Obstfeld and Melitz, 2018). Pertaining to the sample of six developing countries this thesis focuses on, a closer look at trade data with developed and developing economies reveal that there are differences between the products traded in North-South trade and South-South trade (See Tables 9-14 in Appendix).

To analyse North-South trade, using merchandise trade data from 2009 it is shown for almost all countries in the sample (except Sri Lanka, which imports largely Manufactured Goods

⁷ Based on 2018 data, from the World Bank World Development Indicators

from developed economies), that the largest proportion of imports from developed economies are from the Machinery and Transport Equipments sector (see Table 10 in Appendix). Meanwhile it is difficult to conclude anything from the data on exports to developed economies (Table 9 in Appendix) the largest proportion of exports from the sample countries towards developed economies point to different sectors for different countries. For each country in the sample, it can be seen that the largest proportion of their export and import differ, except for Malaysia and the Philippines. For the two aforementioned countries, both their imports and exports are dominant in Machinery and Transport Equipment.

Meanwhile, for South-South trade, trade among developing countries (trade flows from the set of sample countries to other developing economies and vice versa) show that in three of six countries (Fiji, India and Indonesia), Mineral Fuels, Lubricants and Related Materials is the sector with the largest proportion of trade. In Malaysia and the Philippines it is Machinery and Transport Equipment, and in Sri Lanka it is Manufactured Goods (Table 14 in Appendix). This is similar to the findings by Greenaway and Milner (1990) that Fuels, Minerals and Metals are dominant in South-South trade. For South-South trade in particular, China seems to play a major role in trade with the sample countries in this thesis. Table 15 in the Appendix shows the percentage of trade with China that each sample country has, compared to total trade with all countries in the world. Moreover, for all 6 countries, the largest developing trading partner happens to be China (although only Malaysia and India have China as their largest trading partner, when discussing both developed and developing trading partners).

Wood (1998) pointed out that the Heckscher-Ohlin model is commonly used to assess the impact of trade between developed and developing countries on income inequality between skilled and unskilled workers. The framework also brings rise to the relation between an increase in the demand for exported goods to changes in factor prices, also known as the Stolper-Samuelson theorem, the predictions of which discuss directly the impact trade has on labor and land prices (Burtless, 1995), and unfold in different ways between developed and developing economies.

The subjects further studied in this thesis are developing economies⁸. Following the framework, due to an abundance of unskilled workers in developing countries, trade will then

⁸ Emerging and Developing Asia, as classified by the IMF World Economic Outlook (WEO) groups and aggregates information, available at <https://www.imf.org/external/pubs/ft/weo/2018/02/weodata/groups.htm#da>

increase wages of unskilled labor but decrease that of skilled labor, causing income inequality to fall (Wood, 1997). Although theory specifies the effect of trade to be on wage inequality between skilled and unskilled labor, this thesis will use the Gini Index and study the effect trade has on inequality in general, in developing countries. Jaumotte, Lall and Papageorgiou (2013) conducted research on a similar note, stating that based on the Heckscher-Ohlin theorem, as a developing country becomes more open to trade, wages of low-skilled labor will rise and that of high-skilled labor will fall, promoting lower income inequality, as portrayed by the authors using Gini Coefficients. Several previous works have also done this (Edwards, 1997, Carter, 2006) or used the Theil Index (Cohen, 2002, Silva and Leichenko, 2004), both of which measures inequality in general.

Explaining trade flows with different countries, North-South trade also commonly uses theory derived from the Heckscher-Ohlin and Stolper-Samuelson framework (Chusseau, Dumont and Hellier, 2008). On the other hand, there is relatively less research focusing on the impact of South-South trade, or that between developing countries. In the existing literature, there has been a shift in the underlying theory used to explain South-South trade, from the conventional Heckscher-Ohlin theorem. Greenaway and Milner (1990) note that seeing as in south-south trade there is an likeness between both parties involved in trade, this renders the Heckscher-Ohlin-Samuelson framework less significant in explaining the South-South trade pattern and instead paves the way for intra-industry trade (trade between products of the same industry) as a rationale. Havrylyshyn and Civan (1985) also made the same point, stating that when pertaining to trade between developing countries, a bigger portion would consist of intra-industry trade, further showing empirical evidence supporting their assertion.

Further elaborating how intra-industry trade affects inequality, previous literature have come up with different views. Manasse and Turrini (2001) mentioned a welfare-enhancing, although little, effect of intra-industry trade on income inequality, for all parties involved in trade. Providing a more direct prediction, Dinopoulos et al. (2011) constructed a model to assess the effect of intra-industry trade on inequality and tested it in Mexico. The results were found to be congruent to what the model predicted, that intra-industry trade lowers the skill premium, thereby lowering inequality. As such, based on the aforementioned findings, south-south trade is expected to be linked with lower income inequality.

This thesis will analyse the impact of trade on inequality as discussed by both the Heckscher-Ohlin framework and Stolper-Samuelson theorem, where it is predicted that for developing countries, a rise in trade would be associated with a lowering of income inequality. The same prediction follows for trade between developing countries and developed countries (North-South trade), however for trade between fellow developing countries, owing to an likeness in both trading partners' factor endowments, there is debate on whether the Heckscher-Ohlin as well as the Stolper-Samuelson theorem and their predictions will hold in the same way as expected of North-South trade flows.

In the first section the main and subsidiary research questions were introduced to underline the aim of this thesis. From those the main hypothesis was constructed:

H1: Trade significantly decreases income inequality in Asian developing countries

Following the main research question, a set of sub-questions were asked that address the impact of trade flows with different trading partners on inequality in developing countries in Asia. In answering these, two additional hypotheses were formulated. The second hypothesis pertains to trade solely with developed countries (North-South trade), and the third pertains to trade with fellow developing countries (South-South trade). They are as follows:

H2: Trade with developed countries significantly decreases income inequality in Asian developing countries

H3: Trade with fellow developing countries significantly decreases income inequality in Asian developing countries

IV. Data and Methodology

A. Data

1. Trade

To portray trade this thesis will use two different measures, representing both aggregate trade, and trade split by trading partners respectively. The former uses percentage of trade to GDP as a measure, as done by Milanovic (2005) and Beyer, Rojas and Vergara (1999), where trade is the total value of a country's exports and imports. The World Bank World Development Indicators database provides the necessary data for this. Meanwhile data for the latter is provided by the Direction of Trade Statistics (DOTS) database provided by the International Monetary Fund (IMF). Likewise, it also uses percentage of trade to GDP as a measure, and further categorizes trade into trade volume with developing countries, and with developed countries. The categorization of countries into Developed and Developing follow the IMF's World Economic Outlook classification, which does not abide to a precise guideline but instead adapt progressively through time (IMF, 2018). (See Tables 7 and 8 in the Appendix for descriptive statistics and countries by category).

2. Inequality

Past studies have used an array of indicators for inequality, from Gini Coefficients (Edwards, 1997; Carter, 2006; Reenen, 2011) to other measures such as the wage differential between skilled and unskilled labor (Marjit, Beladi and Chakrabarti, 2004) or the income spread of a specific working age group⁹ (Mahler et al., 1999). This thesis will use Gini Index data (in percentage, ranging from 0 - 100) from the University of Texas Inequality Project (UTIP)¹⁰, specifically the Estimated Household Income Inequality (EHII) index, constructed from UTIP-UNIDO data, the World Bank Deininger & Squire dataset along with other variables¹¹. This index is used as the EHII uses consistent UTIP-UNIDO inputs from UNIDO and Eurostat, which yield results that are more comparable relative to the Deininger & Squire dataset (Galbraith and Kum, 2004).

⁹ Mahler et al. (1999) restricted data on income for a portion of the population aged 25 - 54

¹⁰ By Galbraith and Associates

¹¹ The data can be obtained from <http://utip.lbj.utexas.edu/data.html>

3. Control Variables

Control variables are also incorporated in this analysis, namely: *growth, inflation, financial depth, GDP per capita* and *percentage of population in urban areas*, drawn from a number of previous literature which show how each variable may affect inequality, respectively. Data for all the following variables are acquired from the World Bank World Development Indicators Database. Economic *Growth* is included to account for a country's macroeconomic state, and Annual GDP growth, measured in percentages, will be used to represent this variable. In relation to inequality, growth is predicted to be positively correlated with inequality (Edwards, 1997). *Inflation* will also be incorporated into the model, measured in percentages as well. Studying data from developed and developing countries over 24 years, evidence found by Albanesi (2007) points out that inequality increases with inflation. *Financial Depth*, proxied by the ratio of M2 to GDP (in percentage) is included as well. With the assumption that increased financial depth means greater access to finances, this can lead to betterment in living aspects such as education, which may lower inequality (Milanovic, 2005). *GDP per Capita*, measured in current USD, will be incorporated to signify level of economic expansion (Meschi and Vivarelli, 2009). Finally *Percentage of Population in Urban Areas*, as utilized by Carter (2006), will be included to portray the level of urbanisation, whereby urban areas are noted to be more unequal than its less urban counterparts (Silva and Leichenko, 2004).

B. Methodology

This thesis will use an OLS regression incorporating country and time fixed effects to empirically assess the effect of trade on inequality within developing countries in Asia earlier identified. With a sample of 6 countries over 31 years, this thesis utilizes a panel dataset for analysis, with a total of 186 observations. It follows the base specification below:

$$Inequality_{it} = \alpha + \beta Trade_{it} + \sum_k \beta_k X_{ikt} + Y_i + V_i + e_{it} \quad (1)$$

Where $i = 1, \dots, 7$ and $t = 1980, \dots, 2010$.

Inequality = A country's Gini Index¹² (a proxy for inequality)

Trade = Measure of the ratio of trade to GDP

¹² As provided in the Estimated Household Income Inequality (EHII) dataset

| | |
|-----------|----------------------------------|
| X_{ikt} | = Set of control variables |
| Y_t | = Set of time dummy variables |
| V_i | = Set of country dummy variables |
| e_{it} | = The error term |

Country fixed effects aim to control for the variables specific to countries in the sample that do not vary over time, and time fixed effects to control for shocks experienced by the economies of all sample countries (Silva and Leichenko, 2004). A set of controls is included to account for variables that potentially vary in the short-run, as conducted by Meschi and Vivarelli (2009). Controlling for these variables aim to account for possible omitted variable bias.

To further analyse the impact of trade flows between the set of sample countries with different economies on inequality, two modified specifications are used. Both utilize the same sample of 6 countries over 31 years. The modified specifications are as follows:

$$Inequality_{it} = \alpha + \beta_2 TradeDeveloped_{it} + \sum_k \beta_k X_{ikt} + Y_t + V_i + e_{it} \quad (2)$$

$$Inequality_{it} = \alpha + \beta_3 TradeDeveloping_{it} + \sum_k \beta_k X_{ikt} + Y_t + V_i + e_{it} \quad (3)$$

Where *TradeDeveloping* represents trade between the set of sample countries and fellow developing countries, measured in percentage of trade over GDP, and *TradeDeveloped* represents trade with developed countries, also measured in percentage of trade over GDP. The distinction between developing and developed countries follow classification by the DOTS Country and Area Codes. All countries in the DOTS database are classified as either an *Advanced Economy* (written as ‘Developed Countries’ in this thesis) or *Emerging and Developing Economy* (written as ‘Developing Countries’). (For full list of countries under each category, see Table 8 in Appendix).

Considering the estimation method used, this thesis acknowledges the endogeneity problems associated with it. Use of fixed effects can help resolve this, in that time-invariant variables are accounted for. However, Bergh and Nilsson (2010), also using an empirical specification that incorporates country and time fixed effects, warns of endogeneity problems that may still arise should there be reverse causality. A similar issue regarding endogeneity was also

raised by Jaumotte, Lall and Papageorgiou (2013) and Milanovic (2005). As well, this thesis does not exclude the possibility that inequality can affect trade, as it is found by Dalgin, Mitra and Trindade (2004) that changes in inequality significantly impact trade. The mechanism by which this occurs is not direct, Bergh and Nilsson (2010) pointed out that following movements in inequality, there may be policy adjustments or changes that in turn alter trade patterns. However, to account for this possibility, in the sensitivity analysis section this thesis will regress *Inequality* on lagged values of *Trade*. This method is not faultless and does not directly solve the problem of reverse causality, nonetheless, as compared to the base model regression, it is less likely that the regression using lagged values of trade would suffer from reverse causality, since it is less plausible for inequality in the current time period to affect trade in the preceding time periods.

V. Results

A. Trends in Measures of Trade and Inequality over Time



Figure 1 - 6. Trends in Trade and Inequality over Time, for 6 developing Asian Economies ;

Trade as a percentage of GDP and Gini Index in percentages (0 - 100) ;

Source: World Bank World Development Indicators Database, 2010

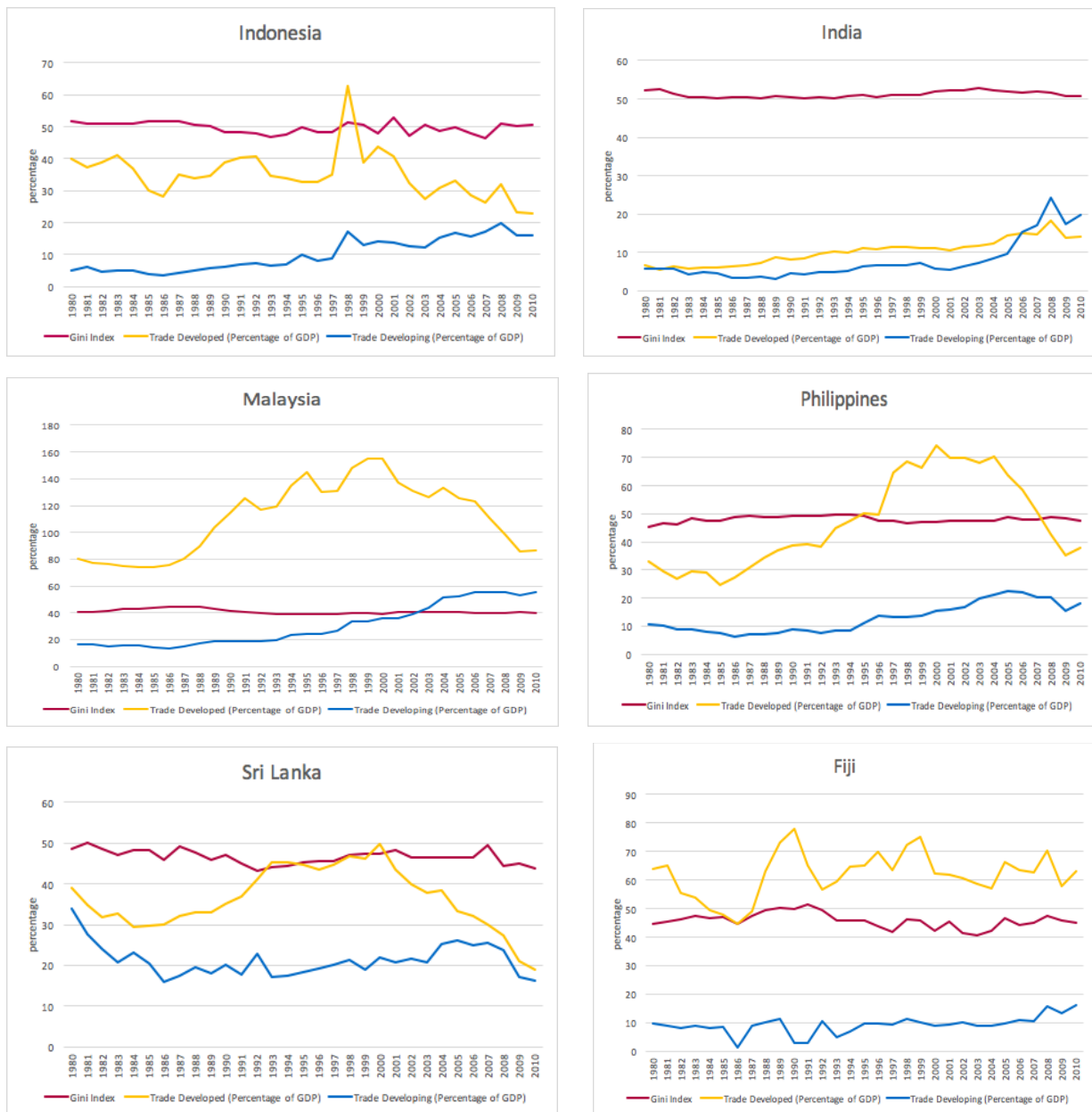


Figure 7 - 12. Trends in Disaggregated Trade (into trade with developing and trade with developed economies) and Inequality over Time, for 6 developing Asian Economies ; Trade Measures are as a percentage of GDP and Gini Index in percentages (0 - 100) ; Source: World Bank World Development Indicators Database, 2010

Figures 1 until 6 depict the development of variables *Trade* and *Inequality* through 1980 - 2010. The trends of *Trade* vary for each country; for India there seems to be an overall rising trend of trade, Malaysia and the Philippines saw an increase in trade, although it ultimately declined in the early 2000s for both (2005 for Malaysia and 2004 for the Philippines), meanwhile Sri Lanka, Fiji and Indonesia exhibited more variable movements throughout the specified time period. For all 6 countries the Gini Index, representing within country inequality, remained relatively constant through time. The largest fluctuations are in Sri Lanka and Indonesia, although these are still very small when compared to movements in *Trade*. For every country in the sample, the variable *Trade* is consistently seen to be more volatile than *Inequality*, and this observation may help in explaining possible outcomes of the model regression.

When trade is disaggregated, we can see that for every country (and mostly for India), trade with developed countries is higher than trade with developing countries. It is also clear that the same phenomenon holds as in aggregated trade, where *Inequality*, portrayed by the Gini Index, is still more stable than both trade with developed and trade with developing countries.

It is important to note these figures solely depict how the trends of both variables appear when shown simultaneously. To further explore whether or not *Trade* significantly affects *Inequality* within Asian developing economies, this thesis will move on to the regression results.

B. Base Model Results

Results of the base model estimate the effect of trade volume on inequality for the sample countries, and are reported in Table 1. The base model specifies four variants of the model, where the results are reported in each column. Column (1) depicts results for an Ordinary Least Squares (OLS) specification without added control variables and without fixed effects. Meanwhile column (2) depicts results from an OLS regression but with the addition of control variables and column (3) shows the outcome using country and time fixed effects. Although the analytical focus of this thesis rests mainly on results of a fixed effects estimation, the results of other variants are shown to show a more complete picture that includes other possible analyses. However, this thesis will emphasize more on interpreting and discussing results in column (3).

| | (1) | (2) | (3) |
|------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|
| <i>Trade</i> | -0.063*** (0.005) | -0.058*** (0.008) | -0.002 (0.017) |
| <i>Growth</i> | | -0.034 (0.036) | 0.010 (0.053) |
| <i>GDP per Capita</i> | | -0.001 (0.000) | -0.0005 (0.0003) |
| <i>Inflation</i> | | 0.008 (0.046) | 0.0002 (0.0212) |
| <i>Financial Depth</i> | | -0.003 (0.018) | 0.046 (0.032) |
| <i>Percentage of Population in Urban Areas</i> | | 0.056 (0.029) | -0.008 (0.035) |
| Model Variant | No control variables, no fixed effects | With control variables, no country fixed effects and no time fixed effects | With control variables, using country fixed effects and time fixed effects |

Table 1. Impact of Trade on Inequality ; * indicates significance under 10% level ; ** indicates significance under 5% level ; *** indicates significance under 1% level ; Clustered standard errors in parentheses ; Country fixed effects and time fixed effects included in (3)

In column (1) and (2) for the OLS Regression it is shown that the variable *Trade* is significant toward *Inequality*. The inclusion of control variables increased the coefficient of *Trade* by a small amount, but it is revealed that the all control variables are insignificant towards *Inequality*. However, when interpreting such results an important note is the results of an OLS regression (column (1) and (2)) are subject to omitted variable bias, even with the inclusion of several control variables.

In contrast, including both country and time fixed effects, in column (3) *Trade* is found to be insignificant towards *Inequality*, with a coefficient of -0.002. The findings that *Trade* is insignificant is in line with that of Meschi and Vivarelli (2009), which did not find any significant impacts of trade on inequality for the developing countries under study. Other previous works such as Edwards (1997) and Dollar and Kraay (2002) also reported insignificant results for developing countries, and Mahler et al. (1999) found the same results for developed countries. All control variables are also shown to not be significant towards *Inequality*. With the presence of endogeneity and omitted variable bias, it becomes difficult to infer anything for certain. Nevertheless, worth noting is that in all instances (1) (2) and (3), the coefficients of *Trade* point towards a negative

relationship between trade and income inequality. Again, however, following this information one must be careful in drawing any definite conclusions.

C. Extended Model Results

For the two specifications of the extended model, results are shown in Tables 2 and 3. Table 2 presents estimation results of the impact of trade with developed countries on inequality, meanwhile Table 3 presents outcomes regarding the impact of trade with fellow developing countries on inequality. Four variants of the Extended Model were also used, each variant following that of the Base Model.

| | (1) | (2) | (3) |
|------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|
| <i>TradeDeveloped</i> | -0.088*** (0.007) | -0.079*** (0.013) | -0.005 (0.022) |
| <i>Growth</i> | | 0.019 (0.017) | 0.011 (0.051) |
| <i>GDP per Capita</i> | | -0.001** (0.000) | -0.0005* (0.0002) |
| <i>Inflation</i> | | 0.020 (0.045) | 0.0004 (0.0220) |
| <i>Financial Depth</i> | | 0.005 (0.017) | 0.046 (0.031) |
| <i>Percentage of Population in Urban Areas</i> | | 0.075* (0.036) | -0.010 (0.034) |
| Model Variant | No control variables, no country fixed effects and no time fixed effects | With control variables, no country fixed effects and no time fixed effects | With control variables, using country fixed effects and time fixed effects |

Table 2. *Impact of TradeDeveloped on Inequality ; * indicates significance under 10% level ; ** indicates significance under 5% level ; ***indicates significance under 1% level ; Clustered standard errors in parentheses ; Country fixed effects and time fixed effects included in (3)*

| | (1) | (2) | (3) |
|------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <i>TradeDeveloping</i> | -0.202*** (0.040) | -0.046 (0.065) | 0.051 (0.032) |
| <i>Growth</i> | | 0.026 (0.092) | 0.005 (0.053) |
| <i>GDP per Capita</i> | | -0.001** (0.000) | -0.001** (0.000) |
| <i>Inflation</i> | | 0.025 (0.051) | -0.004 (0.021) |
| <i>Financial Depth</i> | | -0.023 (0.041) | 0.037 (0.030) |
| <i>Percentage of Population in Urban Areas</i> | | 0.002 (0.065) | -0.037 (0.050) |
| Model Variant | No control variables, no country fixed effects and no time fixed effects | With control variables, no country fixed effects and no time fixed effects | With control variables, using country fixed effects and time fixed effects |

Table 3. Impact of TradeDeveloping on Inequality ; * indicates significance under 10% level ; ** indicates significance under 5% level ; ***indicates significance under 1% level ; Clustered standard errors in parentheses ; Country fixed effects and time fixed effects included in (3)

The results in column (3) for both Tables 2 and 3 point out that when disaggregated, trade flows are also insignificant towards *Inequality*. The coefficients are -0.005 for *TradeDeveloped* and 0.051 for *TradeDeveloping*. Unlike that of the base model, these results run contrary to that of Meschi and Vivarelli (2009), which found significant results from disaggregated trade flows. This can be attributed to the differences in the subject countries under study and the period of years utilized by this thesis, and those by Meschi and Vivarelli (2009). This thesis uses 6 developing Asian countries as sample, meanwhile Meschi and Vivarelli (2009) studied 65 developing countries throughout the world. Moreover, this thesis used the time frame 1980 - 2010, whereas Meschi and Vivarelli (2009) had chosen a shorter time period, from 1980 - 1999. These factors may help explain why this thesis yielded different results from Meschi and Vivarelli (2009). From the findings of this thesis, it can be inferred that there is no significant impact of trade with different trading partners, on inequality. For the estimation of *TradeDeveloped* on *Inequality*, *GDP Per Capita* is significant under 10% with a coefficient of -0.0005. Meanwhile for the estimation of *TradeDeveloping* on *Inequality*, *GDP Per Capita* is significant under 5% with a coefficient -0.001.

D. Discussion

The results presented in the previous subsections make way for several interpretations, although it is important to note that the findings here should not be taken at face value and instead be interpreted with care. Mahler et al. (1999) warns against overinterpretation of results bearing insignificant relationships, and thus presents the inference that trade volume does not seem to be a significant determinant of inequality in developing countries. This may hold true also for this thesis, both the base and extended model results, as there exist other factors that are documented to have had a significant impact on inequality instead, be it in developing or developed economies. The presence of these factors, without the model properly taking them into account, would then result in possible omitted variable bias.

In a New York Times article, Krugman (1997) acknowledges critics attributing the rise of inequality to globalisation and openness, and asserts that it may instead be due to political reasons. This case is true especially for developing economies, such as Latin America and the Caribbean, where Huber et al. (2006) point out that political factors are a crucial component to influencing inequality. Analysing effects of an interaction between openness and political orientation on inequality in developing countries, Ha (2012) also points out political orientation is significant in determining how openness affects inequality. Nielsen and Alderson (1997), studying counties within the United States, brought into the picture other determinants of inequality such as economic development, education and racial dualism, which represents the income gap between people of different racial backgrounds, all of which pose a significant impact towards inequality.

Moreover, these determinants also affect each developing country differently. Alvaredo and Gasparini (2015) support this notion, stating that different countries vary in their determinants and the degree to which each factor cause certain impacts. Thus the existence and prevalence of these other factors, as well as the fact that they vary cross-country, may indeed contribute to the finding that trade has an insignificant impact towards inequality in developing countries in Asia.

In addition, to help explain the regression results, one could refer back to Figures 1 to 6 of this thesis. The figures depict Trends in Trade and Inequality over Time, and it can be seen that Trends in the Gini Index are stable over time, without much fluctuation. This observation is supported by Li, Squire and Zou (1998) which point out that inequality within countries is consistent, for 49 countries over 47 years. For the 6 countries in the sample of this thesis, *Inequality*

also remains stable through 1980 - 2010, with a standard deviation of 3.687 (See Table 7 in Appendix for Descriptive Statistics). In addition, when displayed without any trends in trade, *Inequality* maintains its stable trend throughout 1980 - 2010 (See Figures 13 - 18 in Appendix). Meanwhile the trend of *Trade* through time is more volatile, with sizable variations in the data. The standard deviation for all measures of trade used in this thesis; *Trade*, *TradeDeveloped* and *TradeDeveloping* are at 12.219, 34.222 and 10.952 respectively, all of which are larger than the standard deviation for *Inequality*. This signifies that the dependent variable *Inequality* has a smaller variation in data compared to its explanatory variables *Trade*, *TradeDeveloped* and *TradeDeveloping*. Discussing determinants of inequality, Li, Squire and Zou (1998) also note that the determinants tend to be consistent within countries, which trade is not. Taking these observations into account may lend support in explaining the insignificant effect of trade on inequality, as found in the results of this thesis.

E. Sensitivity Analysis

As part of the sensitivity analysis, this thesis will conduct an estimation that regresses *Inequality* on lagged values of *Trade*. As earlier mentioned, the probability for a regression as such to suffer from reverse causality would be smaller. *Inequality* is regressed on *Trade* lagged at 1, 5 and 10 years. Regressions for the sensitivity analysis will also include both country and time fixed effects.

| | (1) | (2) | (3) |
|------------------------------|---------------------|---------------------|---------------------|
| Lagged value of <i>Trade</i> | -0.099 (0.015) | -0.019* (0.009) | -0.10 (0.010) |
| Growth | 0.002 (0.051) | -0.007 (0.076) | 0.022 (0.074) |
| GDP Per Capita | -0.0004 (0.0003) | -0.0003 (0.0002) | -0.0002 (0.0003) |
| Inflation | -0.004 (0.019) | 0.007 (0.021) | 0.033 (0.025) |
| Financial Depth | 0.045 (0.033) | 0.043 (0.033) | 0.027 (0.044) |

| | | | |
|-----------------------------------------|------------------------|-------------------------|--------------------------|
| Percentage of Population in Urban Areas | -0.004 (0.034) | -0.004 (0.038) | 0.070 (0.100) |
| Model Variant | Trade lagged by 1 year | Trade lagged by 5 years | Trade lagged by 10 years |

Table 4. Impact of lagged values of Trade on Inequality ; * indicates significance under 10% level ; ** indicates significance under 5% level ; ***indicates significance under 1% level ; Clustered standard errors in parentheses ; Country fixed effects and time fixed effects included

The same method is performed on the extended models, regressing *Inequality* on lagged values of *TradeDeveloped* and *TradeDeveloping*, including both country and time fixed effects.

| | (1) | (2) | (3) |
|-----------------------------------------|---------------------------------|----------------------------------|-----------------------------------|
| Lagged value of <i>TradeDeveloped</i> | -0.013 (0.021) | -0.025* (0.012) | 0.008 (0.013) |
| Growth | -0.0002 (0.0492) | -0.005 (0.077) | 0.024 (0.071) |
| GDP Per Capita | -0.001 (0.0002) | -0.0003 (0.0003) | -0.0005 (0.0004) |
| Inflation | -0.004 (0.020) | 0.011 (0.020) | 0.035 (0.024) |
| Financial Depth | 0.045 (0.032) | 0.041 (0.033) | 0.023 (0.043) |
| Percentage of Population in Urban Areas | -0.012 (0.032) | -0.020 (0.046) | 0.065 (0.119) |
| Model Variant | TradeDeveloped lagged by 1 year | TradeDeveloped lagged by 5 years | TradeDeveloped lagged by 10 years |

Table 5. Impact of lagged values of *TradeDeveloped* on Inequality ; * indicates significance under 10% level ; ** indicates significance under 5% level ; ***indicates significance under 1% level ; Clustered standard errors in parentheses ; Country fixed effects and time fixed effects included

| | (1) | (2) | (3) |
|-----------------------------------------|----------------------------------|-----------------------------------|------------------------------------|
| Lagged value of <i>TradeDeveloping</i> | 0.029 (0.021) | 0.037 (0.057) | 0.069 (0.109) |
| Growth | -0.013 (0.050) | -0.007 (0.068) | 0.013 (0.065) |
| GDP Per Capita | -0.001*** (0.000) | -0.001*** (0.000) | -0.001 (0.000) |
| Inflation | -0.006 (0.018) | 0.015 (0.017) | 0.034 (0.025) |
| Financial Depth | 0.039 (0.031) | 0.034 (0.034) | 0.023 (0.045) |
| Percentage of Population in Urban Areas | -0.025 (0.047) | -0.026 (0.083) | 0.030 (0.011) |
| Model Variant | TradeDeveloping lagged by 1 year | TradeDeveloping lagged by 5 years | TradeDeveloping lagged by 10 years |

Table 6. Impact of lagged values of *TradeDeveloping* on *Inequality* ; * indicates significance under 10% level ; ** indicates significance under 5% level ; ***indicates significance under 1% level ; Clustered standard errors in parentheses ; Country fixed effects and time fixed effects included

When regressing *Inequality* on lagged values of trade, the results remain insignificant when the measures of trade are lagged by 1 year. The results are also insignificant when they are lagged by 10 years. However, when lagged by 5 years, the regression shows significant results for *Trade*, and *TradeDeveloped*, with a negative coefficient sign, alike with the Base and Extended Model. Meanwhile *TradeDeveloping* still has an insignificant effect on *Inequality* when lagged by 5 years. The emergence of a significant results after lagging measures of trade by 5 years may be because the effect of trade takes time to generate a visible impact on income inequality.

VI. Conclusion

The findings of this thesis reveal that for developing countries in Asia throughout 1980 - 2010, trade does not have a significant effect towards inequality. These findings are not congruent to the theoretical predictions of the Heckscher-Ohlin framework, that an increase in trade would lead to lower inequality in developing economies. Nevertheless, the results that this thesis puts

forth seem congruent with several works within this field, such as that of Edwards (1997), Mahler et al. (1999), Dollar and Kraay (2002) and Meschi and Vivarelli (2009).

An extension to the base specification analysed the effect that trade has on inequality, particularly when decomposed into trade with developed countries and trade with fellow developing countries. For the set of sample countries this thesis focuses on, there is evidence that show differences in the types of goods traded in North-South and South-South trade. However, the results for this analysis also show that both do not have a significant effect on inequality. A key point to remember is, as put by Mahler et al. (1999), that we should avoid the overinterpretation of results that depict insignificance, for instance, these findings do not propose that governments should simply disregard trade-related factors when discussing inequality.

In the context of this thesis, the same principle holds. Insofar, there exist several rooms for improvement in the type of research this thesis conducts. Especially concerning the subjects under study, further research may include more countries, so as to create a better representation of Developing Asian Economies as a whole. Concerning the methodology, use of a fixed effects estimation on cross-country data glosses on how trade relates to inequality overall, nevertheless, it still may be interesting for future research to analyse the impact trade has on inequality in one particular country. Research of this nature have been previously conducted by Beyer, Rojas and Vergara (1999), Topalova (2010) and Helpman et al. (2017), among others. It has also been done on Indonesia, a developing Asian nation, by Kis-Katos and Sparrow (2015). The results for these different countries vary and therefore, there remains an opportunity to conduct this type of research on other developing Asian economies and contribute to extending the existing collection of literature.

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Appendix

Table 7. Descriptive Statistics

| Variable | Mean | Median | Min | Max | Std. Deviation |
|-------------------------|----------|----------|---------|----------|----------------|
| <i>Inequality</i> | 47.056 | 47.527 | 38.853 | 52.958 | 3.687 |
| <i>Trade</i> | 83.653 | 73.609 | 48.485 | 220.407 | 12.219 |
| <i>TradeDeveloped</i> | 50.211 | 40.384 | 5.301 | 154.961 | 34.222 |
| <i>TradeDeveloping</i> | 15.128 | 13.356 | 1.322 | 55.65 | 10.952 |
| <i>Growth</i> | 4.496 | 5.189 | -13.127 | 10.003 | 3.671 |
| <i>GDP per Capita</i> | 1605.403 | 1035.161 | 267.408 | 9071.357 | 1541.487 |
| <i>Inflation</i> | 7.992 | 6.507 | 0.290 | 58.451 | 6.844 |
| <i>Financial Depth</i> | 56.014 | 44.787 | 17.101 | 140.762 | 30.615 |
| <i>Urban Population</i> | 37.798 | 40.193 | 18.226 | 70.912 | 13.723 |

Table 8. DOTS Country and Area Codes

| Advanced Economies | | | | | |
|-----------------------------------|------------|-----------------|------------------------|--------------------|----------------|
| Austria | Greece | Netherlands | China, P.R.: Hong Kong | Japan | Sweden |
| Belgium | Ireland | Portugal | China, P.R.: Macao | Korea, Republic of | Switzerland |
| Cyprus | Italy | Slovak Republic | Czech Republic | New Zealand | United Kingdom |
| Estonia | Latvia | Slovenia | Denmark | Norway | United States |
| Finland | Lithuania | Spain | Iceland | San Marino | Vatican |
| France | Luxembourg | Australia | Israel | Singapore | |
| Germany | Malta | Canada | | | |
| Emerging and Developing Economies | | | | | |
| American Samoa | Tuvalu | Djibouti | Congo, Republic of | Uganda | Nicaragua |
| Bangladesh | Vanuatu | Egypt | Côte d'Ivoire | Zambia | Panama |
| Bhutan | Vietnam | Iran, I.R. of | Equatorial Guinea | Zimbabwe | Paraguay |

| | | | | | |
|--------------------------------------|------------------------|----------------------|---------------------|---------------------|----------------------|
| Brunei Darussalam | Albania | Iraq | Eritrea | Anguilla | Peru |
| Cambodia | Bosnia and Herzegovina | Jordan | Ethiopia | Antigua and Barbuda | Sint Maarten |
| China, P.R.: Mainland | Bulgaria | Kuwait | Gabon | Argentina | St. Kitts and Nevis |
| Fiji | Croatia | Lebanon | Gambia, The | Aruba | St. Lucia |
| French Territories: French Polynesia | Faroe Islands | Libya | Ghana | Bahamas, The | St. Vincent & Grens. |
| French Territories: New Caledonia | Gibraltar | Mauritania | Guinea | Barbados | Suriname |
| Guam | Hungary | Morocco | Guinea-Bissau | Belize | Trinidad and Tobago |
| India | Kosovo | Oman | Kenya | Bermuda | Uruguay |
| Indonesia | Macedonia, FYR | Pakistan | Lesotho | Bolivia | |
| Kiribati | Montenegro | Qatar | Liberia | Brazil | |
| Lao People | Poland | Saudi Arabia | Madagascar | Chile | |
| Lao People's Dem. Rep | Romania | Somalia | Malawi | Colombia | |
| Malaysia | Serbia, Republic of | Sudan | Mali | Costa Rica | |
| Maldives | Turkey | Syrian Arab Republic | Mauritius | Curaçao | |
| Marshall Islands, Republic of | Armenia | Tunisia | Mozambique | Dominica | |
| Micronesia, Federated States of | Azerbaijan, Rep. of | United Arab Emirates | Namibia | Dominican Republic | |
| Mongolia | Belarus | West Bank and Gaza | Niger | Ecuador | |
| Myanmar | Georgia | Yemen, Republic of | Nigeria | El Salvador | |
| Nauru | Kazakhstan | Angola | Reunion | Falkland Islands | |
| Nepal | Kyrgyz Republic | Benin | Rwanda | Greenland | |
| Palau | Moldova | Botswana | São Tomé & Príncipe | Grenada | |
| Papua New Guinea | Russian Federation | Burkina Faso | Senegal | Guatemala | |
| Philippines | Tajikistan | Burundi | Seychelles | Guyana | |
| Samoa | Turkmenistan | Cabo Verde | Sierra Leone | Haiti | |
| Solomon Islands | Ukraine | Cameroon | South Africa | Honduras | |

| | | | | | |
|-------------|----------------------|----------------------|----------------------|----------------------|--|
| Sri Lanka | Uzbekistan | Central African Rep. | South Sudan, Rep. of | Jamaica | |
| Thailand | Afghanistan, I.R. of | Chad | Swaziland | Mexico | |
| Timor-Leste | Algeria | Comoros | Tanzania | Montserrat | |
| Tonga | Bahrain, Kingdom of | Congo, Dem. Rep. of | Togo | Netherlands Antilles | |

(Source: International Monetary Fund, 2019)

Table 9. Share of Exports to Developed Economies in 2009, by Sector

| Country | Fiji | India | Indonesia | Malaysia | Philippines | Sri Lanka |
|-------------------------------------------------|-----------------------|-------------------------------------|-------------------------------------------------|-----------------------------------|-----------------------------------|-------------------------------------|
| Food and live animals | 56% | 5% | 8% | 2% | 6% | 10% |
| Miscellaneous manufactured articles | 13% | 26% | 20% | 13% | 13% | 69% |
| Beverages and tobacco | 12% | 1% | 0% | 0% | 0% | 1% |
| Commodities and transactions, n.e.s. | 8% | 1% | 1% | 1% | 0% | 0% |
| Crude materials, inedible, except fuels | 5% | 3% | 12% | 2% | 2% | 3% |
| Manufactured goods | 2% | 24% | 13% | 7% | 7% | 12% |
| Chemicals and related products, n.e.s. | 1% | 12% | 3% | 3% | 2% | 1% |
| Machinery and transport equipment | 1% | 17% | 13% | 52% | 67% | 3% |
| Animal and vegetable oils, fats and waxes | 1% | 0% | 5% | 5% | 3% | 0% |
| Mineral fuels, lubricants and related materials | 0% | 12% | 25% | 15% | 0% | 0% |
| Sector with the largest share | Food and Live animals | Miscellaneous Manufactured Articles | Mineral Fuels, Lubricants and Related Materials | Machinery and Transport Equipment | Machinery and Transport Equipment | Miscellaneous Manufactured Articles |

(Source: UNCTAD, 2009)

Table 10. Share of Imports from Developed Economies in 2009, by Sector

| Country | Fiji | India | Indonesia | Malaysia | Philippines | Sri Lanka |
|-------------------------------------------------|------|-------|-----------|----------|-------------|-----------|
| Food and live animals | 23% | 2% | 11% | 5% | 12% | 24% |
| Miscellaneous manufactured articles | 10% | 6% | 4% | 7% | 4% | 4% |
| Beverages and tobacco | 2% | 0% | 0% | 1% | 0% | 1% |
| Commodities and transactions, n.e.s. | 1% | 18% | 8% | 2% | 0% | 0% |
| Crude materials, inedible, except fuels | 1% | 5% | 8% | 3% | 2% | 2% |
| Manufactured goods | 19% | 18% | 13% | 12% | 7% | 33% |
| Chemicals and related products, n.e.s. | 10% | 12% | 12% | 10% | 11% | 9% |
| Machinery and transport equipment | 32% | 32% | 42% | 59% | 60% | 27% |
| Animal and vegetable oils, fats and waxes | 1% | 0% | 0% | 0% | 0% | 0% |
| Mineral fuels, lubricants and related materials | 3% | 7% | 1% | 1% | 3% | 0% |

| | | | | | | |
|-------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|--------------------|
| Sector with the largest share | Machinery and Transport Equipment | Machinery and Transport Equipment | Machinery and Transport Equipment | Machinery and Transport Equipment | Machinery and Transport Equipment | Manufactured Goods |
|-------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|--------------------|

(Source: UNCTAD, 2009)

Table 11. Total Trade with Developed Economies in 2009, by Sector

| Country | Fiji | India | Indonesia | Malaysia | Philippines | Sri Lanka |
|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-----------------------------------|-----------------------------------|--------------------|
| Food and live animals | 19% | 5% | 5% | 5% | 7% | 20% |
| Mineral fuels, lubricants and related materials | 44% | 31% | 28% | 14% | 17% | 20% |
| Manufactured goods | 10% | 18% | 15% | 11% | 8% | 27% |
| Chemicals and related products, n.e.s. | 6% | 10% | 9% | 8% | 7% | 10% |
| Crude materials, inedible, except fuels | 2% | 6% | 6% | 3% | 3% | 3% |
| Machinery and transport equipment | 10% | 17% | 24% | 45% | 52% | 12% |
| Miscellaneous manufactured articles | 6% | 7% | 4% | 6% | 3% | 6% |
| Beverages and tobacco | 1% | 0% | 1% | 1% | 1% | 0% |
| Commodities and transactions, n.e.s. | 0% | 4% | 2% | 1% | 1% | 0% |
| Animal and vegetable oils, fats and waxes | 1% | 2% | 7% | 6% | 0% | 1% |
| Largest share | Mineral Fuels, Lubricants and Related Materials | Mineral Fuels, Lubricants and Related Materials | Mineral Fuels, Lubricants and Related Materials | Machinery and Transport Equipment | Machinery and Transport Equipment | Manufactured Goods |

(Source: UNCTAD, 2009)

Table 12. Share of Exports to Developing Economies in 2009, by Sector

| Country | Fiji | India | Indonesia | Malaysia | Philippines | Sri Lanka |
|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|--------------------|
| Food and live animals | 14% | 2% | 5% | 7% | 9% | 11% |
| Mineral fuels, lubricants and related materials | 48% | 41% | 25% | 13% | 24% | 26% |
| Manufactured goods | 11% | 13% | 15% | 12% | 8% | 30% |
| Chemicals and related products, n.e.s. | 6% | 10% | 11% | 8% | 9% | 12% |
| Crude materials, inedible, except fuels | 1% | 4% | 3% | 4% | 4% | 1% |
| Machinery and transport equipment | 12% | 19% | 34% | 46% | 40% | 13% |
| Miscellaneous manufactured articles | 7% | 3% | 5% | 5% | 3% | 5% |
| Beverages and tobacco | 0% | 0% | 1% | 0% | 1% | 0% |
| Commodities and transactions, n.e.s. | 0% | 6% | 2% | 2% | 1% | 0% |
| Animal and vegetable oils, fats and waxes | 1% | 3% | 0% | 2% | 0% | 1% |
| Sector with the largest share | Mineral Fuels, Lubricants and Related Materials | Mineral Fuels, Lubricants and Related Materials | Machinery and Transport Equipment | Machinery and Transport Equipment | Machinery and Transport Equipment | Manufactured Goods |

(Source: UNCTAD, 2009)

Table 13. Share of Imports from Developing Economies in 2009, by Sector

| Country | Fiji | India | Indonesia | Malaysia | Philippines | Sri Lanka |
|-------------------------------------------------|-----------------------|--------------------|-------------------------------------------------|-----------------------------------|-----------------------------------|-----------------------|
| Food and live animals | 35% | 8% | 5% | 3% | 5% | 53% |
| Mineral fuels, lubricants and related materials | 31% | 15% | 31% | 15% | 4% | 0% |
| Manufactured goods | 10% | 27% | 16% | 10% | 8% | 16% |
| Chemicals and related products, n.e.s. | 6% | 10% | 6% | 8% | 3% | 2% |
| Crude materials, inedible, except fuels | 6% | 8% | 9% | 3% | 2% | 9% |
| Machinery and transport equipment | 5% | 15% | 14% | 44% | 72% | 8% |
| Miscellaneous manufactured articles | 3% | 15% | 3% | 7% | 4% | 12% |
| Beverages and tobacco | 3% | 0% | 1% | 1% | 1% | 0% |
| Commodities and transactions, n.e.s. | 1% | 2% | 1% | 1% | 1% | 0% |
| Animal and vegetable oils, fats and waxes | 0% | 0% | 14% | 9% | 0% | 0% |
| Sector with the largest share | Food and Live animals | Manufactured Goods | Mineral Fuels, Lubricants and Related Materials | Machinery and Transport Equipment | Machinery and Transport Equipment | Food and Live animals |

(Source: UNCTAD, 2009)

Table 14. Total Trade with Developing Economies in 2009, by Sector

| Country | Fiji | India | Indonesia | Malaysia | Philippines | Sri Lanka |
|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-----------------------------------|-----------------------------------|--------------------|
| Food and live animals | 19% | 5% | 5% | 5% | 7% | 20% |
| Mineral fuels, lubricants and related materials | 44% | 31% | 28% | 14% | 17% | 20% |
| Manufactured goods | 10% | 18% | 15% | 11% | 8% | 27% |
| Chemicals and related products, n.e.s. | 6% | 10% | 9% | 8% | 7% | 10% |
| Crude materials, inedible, except fuels | 2% | 6% | 6% | 3% | 3% | 3% |
| Machinery and transport equipment | 10% | 17% | 24% | 45% | 52% | 12% |
| Miscellaneous manufactured articles | 6% | 7% | 4% | 6% | 3% | 6% |
| Beverages and tobacco | 1% | 0% | 1% | 1% | 1% | 0% |
| Commodities and transactions, n.e.s. | 0% | 4% | 2% | 1% | 1% | 0% |
| Animal and vegetable oils, fats and waxes | 1% | 2% | 7% | 6% | 0% | 1% |
| Sector with the largest share | Mineral Fuels, Lubricants and Related Materials | Mineral Fuels, Lubricants and Related Materials | Mineral Fuels, Lubricants and Related Materials | Machinery and Transport Equipment | Machinery and Transport Equipment | Manufactured Goods |

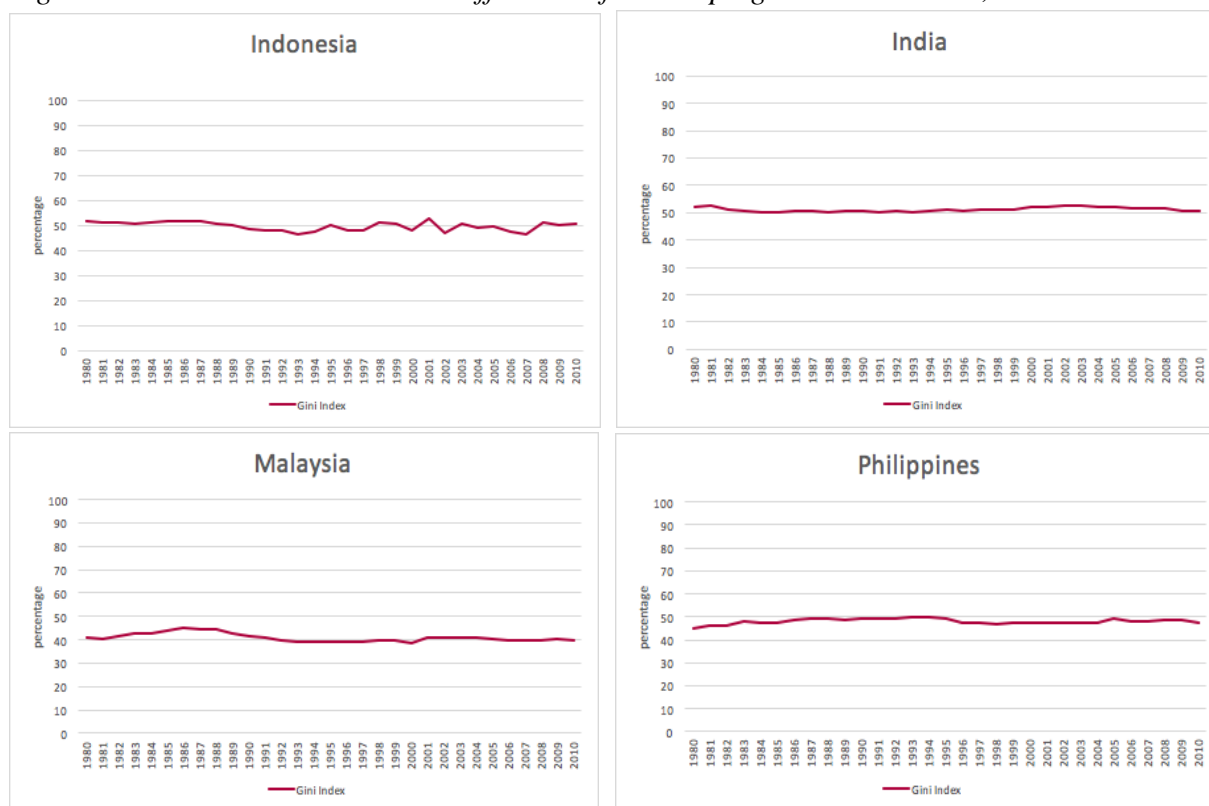
(Source: UNCTAD, 2009)

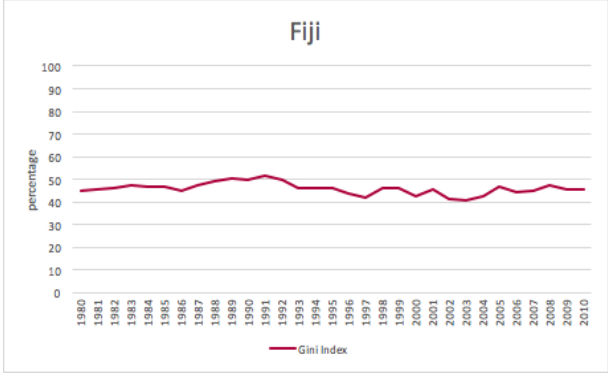
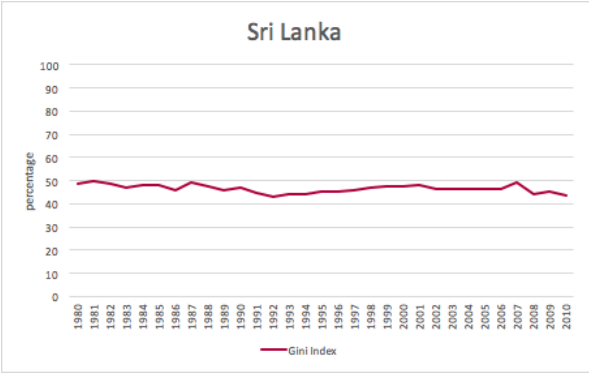
Table 15. Percentage Trade with China and Largest Trading Partners

| | Total Trade with China | Total Trade (World) | % Trade with China | Largest Trading Partner | Largest Developing Trading Partner |
|--------------------|------------------------|---------------------|--------------------|-------------------------|------------------------------------|
| Indonesia | 36,116,828 | 293,442,383 | 12.3 | Japan | China |
| Malaysia | 45,737,035 | 363,376,964 | 12.6 | China | China |
| India | 58,689,107 | 570,437,883 | 10.3 | China | China |
| Philippines | 10,678,762 | 109,965,319 | 9.7 | Japan | China |
| Fiji | 116,983 | 2,649,820 | 4.4 | Singapore | China |
| Sri Lanka | 1,300,895 | 19,475,199 | 6.7 | India | India |

(Source: International Trade Centre, 2010)

Figures 13 - 18. Trends in GINI Coefficients of Developing Asian Countries, 1980 - 2010





Source: World Bank World Development Indicators Database, 2010