TRADING FOR SUSTAINABLE DEVELOPMENT GOALS: TRADE POLICY, INEQUALITY AND POVERTY IN EMERGING ECONOMIES

Check for updates

Zhaohua Li[1]
Mohammad Monirul Islam[2+]
Farha Fatema[3]

[1]School of Economics, Huazhong University of Science and Technology, P.R China
[2,3]PhD Scholar, School of Economics, Huazhong University of Science and Technology, P.R China

(+ Corresponding author)

ABSTRACT

The objective of the study is to identify the impact of trade policy on two significant goals of sustainable development namely poverty and income inequality in the emerging economies. Using trade openness and trade facilitation as a measure of trade policy the study examines their impact on Gini coefficient and average income of the poorest quintile as a proxy to income inequality and poverty headcount ratio and poverty gap at $1.90 per day (2011 PPP) as indicators of extreme poverty. It applies dynamic panel data model with panel datasets over the period of 1986-2013 for trade openness and 2005-2013 for trade facilitation on the emerging economies based on the availability of data. The findings of the study suggest that trade openness and trade facilitation as measures of trade policy significantly reduce the extreme poverty as measured by poverty headcount ratio and poverty gap at $1.90 a day and increase the average per capita income of the lowest 20% population of the emerging economics whereas the two measures of trade policy increase the income inequality in these economies.

1. INTRODUCTION

The date of 25th September of 2015 has added a new hope in the world's history for making a better world by launching the Sustainable Development Goals (SDGs) as major components of 2030 agenda adopted at the United Nations General Assembly. Aiming to overcome the inadequacies of Millennium Development Goals (MDGs) the goals of SD are to be achieved over the next decade and a half. SDGs provide the world nations a global framework for advancing sustainable development in the three dimensions namely economic, social, and environmental (Esquivel and Sweetman, 2016). International trade plays a great role in the case of achieving the SDGs as trade is are related to many of the targets of SDGs (Tipping and Wolfe, 2015).

Poverty and inequality are the two top priorities of SDGs because more than 700 million people are still living in the extreme poverty and are struggling to fulfill their basic human needs (UNDP, 2016). The inequality within and between countries also shows an extreme scenario. About 70% of the people living in extreme poverty are in Southern Asian and Sub-Saharan Africa. The developed countries are also experiencing this inequality and poverty. In the world's richest countries 30 million children are growing as poor right now. That is why lifting people out of poverty is the major concern of international communities.

825

International trade can act as an engine of rapid economic growth in many countries and thus valuable tool for sustainable development goals of ending poverty; hunger and inequality. The outcome of 3rd international conference on financing for development titled Adis Ababa Action Agenda states that (UN, 2015) 'With appropriate supporting policies, infrastructure, and an educated workforce, trade can also help to promote productive employment and decent work, women's empowerment and food security, as well as a reduction in inequality, and contribute to achieving the sustainable development goals' (Paragraph 79).

The international community also targets to turn significantly increase world trade consistent with SDGs and integrate sustainable development into trade policy. Trade is highly related to each of the three dimensions of sustainable development and trade has to be a part of coherent policy framework of sustainable development (Tipping and Wolfe, 2015). Many countries which experienced significant growth in their trade to GDP ratio also achieved significant improvement in social dimensions like health and education over the period of 1990-2010. However, in reality, the positive and negative impact of trade growth on the achievement of sustainable development is highly context specific. Increasing trade can spur economic growth of a country, but higher economic growth does not always ensure reduction of poverty and inequality. The UNDP (2013) found that despite significant increase in trade to GDP ratio a significant portion of countries experienced a negative change in their HDI score. Appropriate policies should be implemented to ensure positive impact of trade growth on sustainable development especially on poverty and income inequality.

The purpose of trade is to get mutual benefit in exchange of goods and services. This gain can reduce the scarcity of human needs of the people living in the society and at the same time can increase the income of poor people along with the rich people. Thus as trade increases in a country which brings the economic growth a strong emphasis is put on the reduction of poverty and inequality together to achieve social goals (Tridico, 2010). As a result, it is generally assumed that trade can reduce poverty and income inequality of people in a country if trade policies are implemented properly. However, nowadays the World Bank is giving top most priority to alleviate poverty and inequality with the proper application of trade policies due to different scenarios. For example, in one estimation of World Bank (2000) from 1985-1998, the poverty measured with a cut-off line of $1 per day has increased by 7.52% from 1116 million to 1200 million people, and around 2.8 billion global population fall in poverty trap if the poverty is measured with cut-off line $2.

So in this study the poverty and inequality are considered as two dependent variables to identify the exact correlation between trade policy, poverty, and inequality in emerging economies. That is the study will identify whether trade openness and trade facilitation as two significant measures of trade policy can reduce the poverty and inequality in emerging economies.

Emerging economies can be the especial focus of research interest of trade policy's impact on poverty and inequality for some reasons. Firstly, since the beginning of current century emerging economies have played an increasingly significant role in the global arena. Figure 1 shows the increasing importance of emerging and developing economies in the world GDP and their contribution to global GDP suppresses the advanced economies and Europe zone.
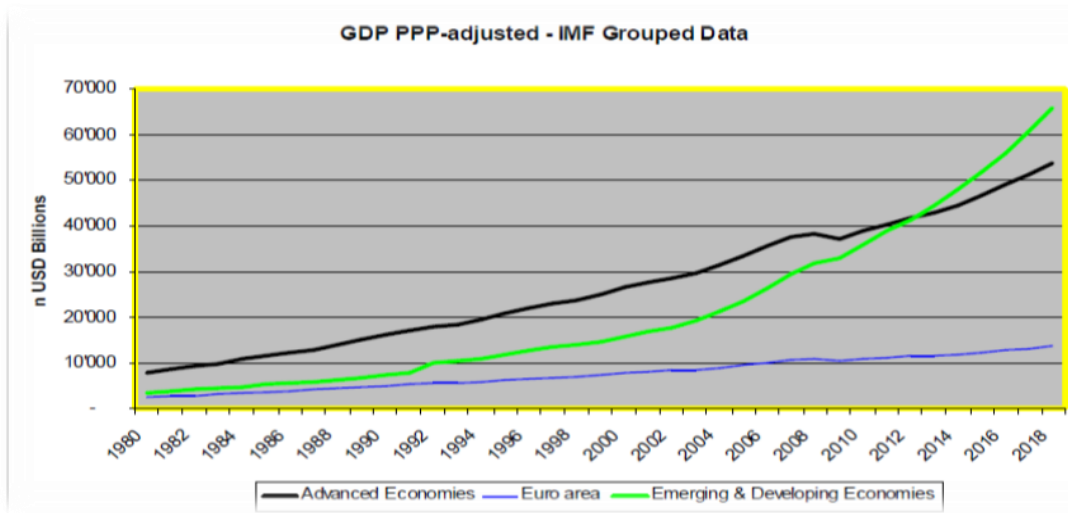
Figure-1. Importance of Developing Nations has risen significantly
Source: IMF Macro Database, Eurozone data estimates before 1992- complied by Ch Takushi MA UZH

Secondly, emerging economies are characterized by high economic growth, significant economic scale and population and high level of economic openness. At the beginning of 2010, emerging economies represent 80% of the total population of the world and around 50% of its GDP and constitute more than 50% of the territory of the world mostly from Asia; Africa; and Latin America (Asia, 2009). These characteristics of the emerging economies turned them into a hub in world economic development. Finally emerging economies' share in every aspect of the global economy like export, import, GDP, Investment, FDI etc is increasing drastically in the current century and in many cases, it suppresses the developed economies as shown in figure 2.
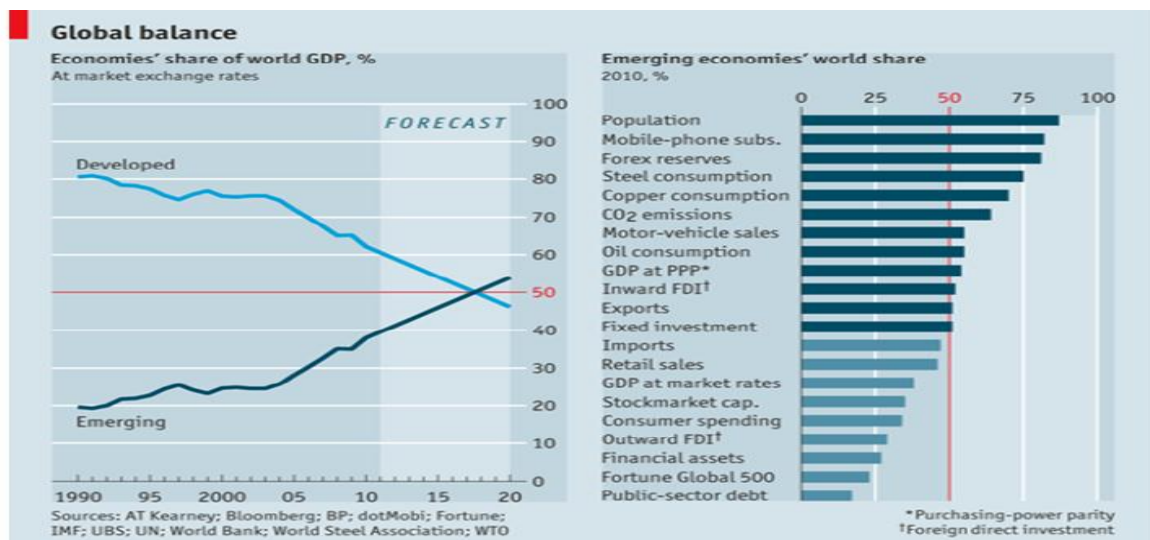

Figure-2. Significant changes of global scale
Sources: AT Kearney; Bloomberg; BP; dotMobi; Fortune; IMF; UBS; UN; World Bank; World Street Association; WTO

Moreover, Sachs (2005) made a list of largest economies of the world where 15 out of 22 economies are emerging economies, and China took the first place followed by the US; India; Japan; Britain; Mexico; and Russia. Because of the increasing significance of the emerging economies in the present global arena and their diversifying role in the world economy, identifying the impact of trade openness and trade facilitation on these economies will be a new and prominent research area specifically for achieving SDGs through enhanced trade growth.

The remainder part of the paper is designed as follows. Section 2 reviews extensive literature; Section 3 presents data description and measures of trade policy, income inequality, and poverty along with different controls

variables used in this study; followed by econometric methodology and estimation procedure in section 4. Section 5 reports the empirical findings, and finally, section 6 draws the conclusion and offers policy implications.

2. REVIEW OF LITERATURE

Trade plays an influential role in the economic development of a country. It is assumed that trade can spur the economic growth which is associated with economic development as well as reducing income inequality and poverty in a country. However, practically the direct impact of trade on income inequality and poverty cannot be found in all cases. The relationship between trade and inequality/poverty is a matter of contentious controversy in the economic literature.

2.1. Trade Openness and Inequality

Several literatures have highlighted the impact of trade openness on inequality in a country. For example, different trade policies like trade openness and trade agreement have different impact on income inequality and poverty within country (Oxfam, 2002; Goldberg and Pavcnik, 2004; Ferreira *et al.*, 2007; Goldberg and Pavcnik, 2007; Topalova, 2007). Some studies, for example, Lundberg and Squire (2003); Milanovic (2005) and Ravallion (2001) concluded that increasing trade openness tends to increase inequality in developing countries but this policy increase income in higher income countries. Khondker and Raihan (2004) also concluded the same consequence which is welfare losses resulting in increasing poverty and income inequality. Some studies like Meschi and Vivarelli (2009); Xu (2003); Revenga (1997); Milner and Wright (1998) and Levinsohn (1999) studied trade and income inequality in developing countries and identified that increasing trade can increase the income distribution in developing countries which leads the increased income inequality.

Other studies e.g. Epifani (2003); Yeaple (2005); Bustos (2007); and Melitz (2003) proved the same result that increasing trade openness allows to bring technical assistance and product design to improve product quality from developed countries to developing countries which increase the demand of skilled labor which in turn increases income inequality. However, some empirical studies claimed that trade liberalization can cause in decreasing income inequality. These include Bourguignon and Morrisson (1990); Calderón and Chong (2001); Demir *et al.* (2012). On the other hand, other studies (Barro, 2000; Cornia and Kiiski, 2001; Ravallion, 2001; Lundberg and Squire, 2003; Easterly, 2006) found a negative association between trade openness and income inequality. However, some studies did not find any significant relationship between trade and income inequality (Edwards, 1997; Li *et al.*, 1998; Vivarelli, 2004).

Castilho *et al.* (2012) studied trade liberalization, poverty and inequality issues in Brazilian states and they came to a conclusion that trade liberalization increases the poverty and inequality in urban areas while it may reduce the inequality in the countryside. Perera *et al.* (2014) identified the little bit different result that income inequality and poverty both fall in urban, rural, and estate sectors in Sri Lanka due to trade openness. Also, many researchers conducted their studies on different countries like Wei and Wu (2002) on China; Topalova (2007) on India; Nicita (2004) on Mexico. Winters (2004) and Barro (2000) showed the positive impact of trade liberalization on poverty and income inequality in developing countries. However few studies found the regional inequality because of trade openness (Zhang and Zhang, 2003; Butt and Bandara, 2008).

Also, it can be found none of the studies focused on the direct impact of trade openness on inequality from emerging countries perspective.

2.2. Trade Openness and Poverty

The impact of trade openness on poverty can be seen from two perspectives- static and dynamic as distinguished by Bhagwati and Srinivasan (2002). Many writers studied the static approach and found diversifying results. For example, Krueger (1981) argued that trade policy should be based on creating the favor for poor people

and if countries have a comparative advantage in production by unskilled labor, then poor people can gain from trade. On the other hand, other studies argued that trade openness may have great impact on the developing countries who have skilled labour and are in abundance with natural resources rather than advantages in unskilled labor (Harrison and Hanson, 1999; Behrman et al., 2000; Acemoglu, 2003; Winters et al., 2004).

Again many writers explained the impact of trade openness on poverty alleviation from a dynamic perspective. Considering the measurement of trade liberalization trade openness has a positive impact on growth (Berg and Schmidt, 1994; Sachs et al., 1995; Edwards, 1997; Frankel and Romer, 1999; Dollar and Kraay, 2001; Lee et al., 2004; Kali et al., 2007; Kim, 2011; Jouini, 2015; Sakyi et al., 2015). On the other hand, two studies conducted by Harrison (1996); Irwin and Terviö (2002) found a significant negative correlation between trade and growth by considering trade policy measure instead, but Vamvakidis (2002) identified opposite result in this case. Moreover different researchers conducted their study based on trade liberalization and poverty relationship and found good impact of trade openness if it is implemented properly (Dollar, 1992; Edwards, 1998; Goldberg and Pavcnik, 2004; Hertel and Reimer, 2005; Harrison, 2006; Goldberg and Pavcnik, 2007). Similar studies showed the same result of decreasing poverty effects of trade openness in Argentina (Porto, 2006).

In examining the direct effect of trade openness on poverty Krueger (1981) evidenced that although developing countries manufactured export is labor intensive; there is a negative association between trade and poverty. Several studies found no impact trade openness on poverty reduction in developing countries context (Dollar and Kraay, 2001; Dollar and Kraay, 2002; Dollar and Kraay, 2004; Beck et al., 2007; Kpodar and Singh, 2011). On the other hand, Jeanneney and Kpodar (2011) studied the developing countries and Sub-Saharan African countries and finally concluded that there is a negative relationship between trade liberalization and the income of poor people which create the poverty and poverty gap. Moreover, Freund and Bolaky (2008) examined that trade policy leads to increased poverty whereas several other studies, for example, Fan (1991) and Lin (1992) revealed the opposite result using endogenous threshold regression model happening in China after its economy has been experiencing some degree of globalization.

Naranpanawa et al. (2011) made a case study on Sri-Lanka using computable general equilibrium which shows trade openness and poverty relationship and found that trade openness increases the poverty in Sri-Lanka which creates the gap between rich and poor. Also, Le Goff and Singh (2014) studied trade-poverty relationship in African countries and concluded that trade openness reduces poverty in countries if there are deep financial sectors, strong education system, and growing institutional framework. Ravallion (2006) conducted a study from "macro" and "micro" perspectives on trade openness and poverty debate and concluded that trade openness has a different impact on both gainers and losers among the poor people.

From the above studies, no work could be found which showed the direct impact of trade openness on poverty from emerging countries perspective.

2.3. Trade Facilitation, Inequality, and Poverty

In the case of trade facilitation, poverty/inequality relationship a comprehensive body of research is concerned with identifying the impact of trade facilitation on trade flows. For example, many studies focused on the direct impact of trade facilitation on international trade flows and found positive impact (Co-operation, 1999; Hertel et al., 2001; Clark et al., 2004; Wilson et al., 2005; Dollar et al., 2006; Francois and Manchin, 2006; Hertel and Keeney, 2006; Iwanow and Kirkpatrick, 2007; Duval and Utoktham, 2009) some studies identified positive effect of international trade on employment (Kraay and Dollar, 2001; Ravallion, 2004; Hoekman and Winters, 2005; Dennis, 2006; ESCAP, 2009; Zaki, 2011). However, none of them focused on the direct impact of trade facilitation on poverty and income inequality.

As the first attempt Nguyen Viet (2015) studied the impact of trade facilitation on poverty and inequality in low and middle-income countries and concluded that trade facilitation reduces poverty and inequality in these countries.

Thus far no study could be found which identified direct impact of both trade openness and trade facilitation on poverty and inequality from emerging economies perspective at a time. So this study can be employed to full fill this obvious gap.

Due to the continued importance of emerging economies in the world economy, two key intensively debated issues in the emerging economies are: whether trade openness and trade facilitation would be beneficial for the poor and if so whether they will reduce inequality and poverty and how much. To find the answer of this debate is crucial especially for achieving SDGs as trade is indeed a significant tool for sustainable development goals more specifically to boost income, tackle poverty, reduce inequality and deliver a long lasting impact. To identify the relationship between trade policy and inequality/poverty this study focuses on emerging economies' experience, and it provides a significant research interest for different reasons. Firstly identifying the impact of trade policy in the growth-development process of emerging economies will emerge as new and important research interest as its views trade inequality/poverty nexus from a different perspective.

Besides the study provides further evidence and policy recommendations on trade-inequality-poverty nexus from emerging economies' perspective and at the same time makes a significant contribution to the discussion on the relationship between trade policy and income inequality/poverty levels of the emerging economies. Last but not least important contribution of the empirical findings of the study is in policy implication. This study can open a new research window for policy makers and researchers by supporting them to understand whether and in what context trade can influence poverty/ inequality as there is no common consensus on this debated relationship between trade policy and inequality/poverty.

3. DATA DESCRIPTION

3.1. The Sample

The sample of this study consists of only the emerging economies as per the list of BBVA Research whereas other studies Dollar and Kraay (2002); Beck *et al.* (2007); Nguyen Viet (2015); Meschi and Vivarelli (2009) analyzed developed and developing countries or both. There are logics behind focusing on solely on emerging economies. Firstly, the emerging economies play a major role in the world trade as they contribute almost 50% of the world trading activities. So identifying the impact of trade policy on the income inequality and poverty in these economies provides a crucial policy decision for achieving SDGs through appropriate trade policy. Secondly, as the study focuses on a specific group of countries it possibly reduces heterogeneity of the sample. Finally, the impact of trade on the developed countries is not highly significant like the emerging economies as their economic systems are highly diversified and mature. So the impact of trade policy on inequality/poverty can be reliably identified only in case of developing countries, and emerging economies can be the best option to serve this purpose.

The data sample consists of 45 emerging economies as proposed by BVBA Research for the period of 1986-2013. However, data on inequality and poverty in different emerging economies are not highly developed and not available for long time series. That is why out of 45 emerging countries the inequality and poverty data are available for 29 countries. As per BVBA, all emerging countries were divided into three groups, i.e., EAGLE, NEST and other emerging countries (Appendix A). The data were averaged over seven 4-year periods rather than annually because according to Khadraoui and Smida (2012) data averaged over a period resolves the problem of missing data and it is suitable for the dynamic growth model. It also smooths out short-term fluctuations in growth rates. Moreover, the difference GMM approach used in analyzing the data in this study requires fewer time periods and large groups. Although the empirical literature (Seven and Coskun, 2016) observes the use of two, three, four,

or five-year averages the study uses the four-year average to maximize the number of periods as well as to solve missing data problems.

3.2. Measures of Trade Policy

The study uses trade openness and trade facilitation as a proxy to trade policy. Some studies use trade openness (share of export and import to GDP) to identify the impact of trade on inequality and poverty for example, (Meschi and Vivarelli, 2009; Le Goff and Singh, 2014).

The concept of trade facilitation is broad, and there are a number of ways to measure trade facilitation (Detail list and their description was given in Appendix B) i.e. a number of documents required for export and import (Nguyen Viet, 2015) time required for export or import (Martinez-Zarzoso and Márquez-Ramos, 2008; Persson, 2013; Nguyen Viet, 2015). Some aggregate indexes are also popular to measure trade facilitation such as logistic performance index (Lee and Kim, 2012) port efficiency, and environmental efficiency index (Wilson *et al.*, 2003; Wilson *et al.*, 2005). This study uses time (days) required for import and import as measured of trade facilitation because of availability of the data, especially in World Bank data.

3.3. Measures of Inequality and Poverty

The study takes the measures of income inequality and poverty as typically applied the literature. Gini index is the most popular measures of income inequality and applied to a member of studies (Le Goff and Singh, 2014; Nguyen Viet, 2015; Seven and Coskun, 2016). Gini index is expressed and percentage and ranges from 0 (perfect equality) to 1 (perfect inequality). The higher Gini coefficient value implies higher income inequality with the country or community. The second measure of income inequality is the average per capita income of lowest 20% population. This measure is taken based on the income inequality goal of sustainable development which aims at achieving income growth of the bottom 40% of the population at a higher rate than the national average. The average per capita income of lowest 20% population is calculated by multiplying the income share of lowest 20% population with an average per capita GDP and then divide by 0.2 (Seven and Coskun, 2016). This measure was used as dependent variable in different studies (Dollar and Kraay, 2002; Jeanneney and Kpodar, 2011; Seven and Coskun, 2016).

Poverty gap at \$1.90 per day and poverty headcount ratio at \$1.90 per day (2011 PPP) are taken as extreme poverty indicators taking into consideration of SDG. The poverty alleviation goal of SD states to eradicate extreme poverty for all people everywhere. The current world development indicator considers \$1.90 per day (2011 PPP) as absolute poverty threshold. In all measures of inequality and poverty, the study takes averaged data over four periods for 1986-2013 in the case of trade openness.

3.4. Other Control Variables

The study uses various control variables to strengthen the linkage between trade policy and income inequality/ poverty. These variables also act as potential determinants of poverty and inequality and widely used in the literature (Christiaensen *et al.*, 2003; Le Goff and Singh, 2014; Seven and Coskun, 2016). The study controls lagged value of dependent variable to test persistency of inequality / poverty measures as dependent variable (Beck *et al.*, 2007) secondary school enrolment rate to measure human capital level (Le Goff and Singh, 2014; Seven and Coskun, 2016) inflation rate which is regarded as significant determinant of poverty and inequality (Ravallion and Datt, 1999; Easterly and Fischer, 2001; Dollar and Kraay, 2002; Le Goff and Singh, 2014; Seven and Coskun, 2016) share of government final consumption expenditure to GD as proxy to macroeconomic stability measure (Beck *et al.*, 2000; Seven and Coskun, 2016) growth rate of real per capita GDP to test economic growth's impact on poverty and inequality (Dollar and Kraay, 2002; Beck *et al.*, 2007; Seven and Coskun, 2016). The detail description of the variables and their data sources are presented in the Appendix C.

4. ECONOMETRIC METHODOLOGY AND ESTIMATION PROCEDURE

The study applies dynamic panel data approach as it solves endogeneity problem and unobserved country specific effects in panel data. To identify the relationship between trade policy and income inequality and poverty the following basic regression is run as proposed by a number of growth literature (Beck and Levine, 2004; Rioja and Valev, 2004; Beck *et al.*, 2007; Le Goff and Singh, 2014; Rioja and Valev, 2014; Seven and Coskun, 2016).

$$y_{i,t} - y_{i,t-1} = (\alpha-1)\, y_{i,t-1} + \beta_1\, TP_{i,t} + \gamma\, X_{i,t} + \eta_i + \varepsilon_{it} \ldots\ldots\ldots(1)$$

Where, y represents the log of Gini Coefficient/log of the average income of lowest 20% population/poverty headcount ratio/poverty gap. $y_{i,t}$-$y_{i,t-1}$ indicate the growth rate of the above four dependent variables. $y_{i,t-1}$ is the lagged value of dependent variables to test the persistency of inequality/poverty measures. $TP_{i,t}$ represents the trade policy measures (trade openness or trade facilitation) at period t and $X_{i,t}$ represents the set of control variables used in this study i.e. inflation rate; per Capita GDP growth; the share of government consumption to GDP; secondary school enrollment.

Finally, η_i specifies unobserved country-specific effects and $\varepsilon_{i,t}$ denotes the error term.

The study applies the difference GMM approach which is introduced by Arellano and Bover (1995). This approach covers endogeneity problem, eliminate heteroscedasticity and thus provides consistent and efficient estimates. The GMM estimator is efficient for many observed individuals but few observations over time and at the same time it can be applied to time series, panel, and cross-sectional data. However in the GMM estimator to avoid over-identification of instruments the number of instruments should be less than equal to the number of observed individuals (groups). As the number of countries (groups) in this study is low because of unavailability of data the study uses difference GMM rather than system GMM fully developed by Blundell and Bond (1998) to avoid over-identification of instruments.Hansen test of overidentifying restrictions has been applied to test the overall validity of the instruments as consistency of GMM estimator highly depends on the validity of the instruments. Here null hypothesis is that all the tools as a group are exogenous and the higher p-value is better for the model. Serial correlation has been tested using the Arellano-Bond test for autocorrelation. The test examines the null hypothesis that the error term of the differenced equation is not serially correlated at the first order (AR1) and second order (AR2). AR (2) is most important since it detects autocorrelation in levels and here higher p-value is better.

5. EMPIRICAL RESULTS

The purpose of this study is to identify the impact of trade policy on poverty and inequality of the emerging countries. Trade openness and trade facilitation policies are used as proxies to trade policy of the economies. Trade openness refers to the share of import and export of goods and services to the total GDP. There are some measures of trade facilitations as listed in the appendix B. This study uses number of days required to export and import as a measure of trade facilitation which reflects the efficiency of overall trade procedures of exporting and importing countries. As a proxy to inequality, the study takes Gini coefficient and average income of lowest 20% of the population. The poverty head count ratio (HCR) at \$1.90 per day (2011 PPP/Currently used in WDI) is the first indicator of poverty which indicates the percentage of population living in extreme poverty and poverty gap at \$1.90 as second indicator that identifies the average shortfall of the total population from the extreme poverty line. The study also takes a number of control variables to have a robust linkage between trade policies and inequality and poverty. In all runs, trade policy measures (trade openness/trade facilitation measures) and inflation are considered as endogenous variables (Easterly and Fischer, 2001; Dollar and Kraay, 2002; Seven and Coskun, 2016). In all regression the dependent (explained) variable is the growth of inequality or poverty measures defined as the change in (1) log of Gini coefficient, (2) log of average income of lowest 20% population, (3) poverty headcount ration at \$1.99ba day and (4) poverty gap at \$1.90 a day. The summary statistics of the major variables used in identifying the impact of both trade openness and trade facilitation on inequality and poverty are given in the Appendix D.

5.1. Trade Openness and Income Inequality and Poverty

5.1.1. Trade Openness and Income Inequality

The results of the regression model on trade openness as a proxy to trade policy and growth of Gini Coefficient and average income of losses quintile as income inequality indicators are presented in table 1.

Table-1. Trade Openness and Income Inequality

Dependent Variable: Growth of Gini Coefficient		Dependent Variable: Growth of Average Income of Poorest Quintile (Lowest 20% Population)	
Log of lagged Gini	-.910751 (.1018859)*	Log of lagged Income	-.2753418 (.1265009)**
Trade Openness	.0253849 (.0552671)	Trade Openness	1.493073 (.5000546)*
Inflation rate	.0001078 (.0000883)	Inflation rate	.0007578 (.0003199)**
GDP growth	-.000482 (.0010089)	GDP growth	.0385442 (.0085669)*
Govt. Consumption	.1789036 (.073413)**	Govt. Consumption	.7177151 (.5621922)
Secondary enrolment	-.0290413 (.0329705)	Secondary enrolment	.2170874 (.1885103)
Number of Groups	29	Number of Groups	29
Number of Instruments	18	Number of Instruments	18
Hansen test p-value	0.466	Hansen test p-value	0.118
AR(2)	0.175	AR(2)	0.098

Note: The table presents the results for the estimated coefficients and their robust standard errors in parenthesis. All variables are averaged over a four-year period from 1986 to 2013. Definitions of variables are the same as in in the Appendix C. The Hansen p-value test of over-identification test, AR (2) test of the error terms, number of groups and instruments are also reported. *, **, and *** denote statistically significant coefficient at the 1%, 5% and 10% levels, respectively.

The results show a positive but statistically insignificant linkage between the variable of interest trade openness (TO) and the growth of Gini Coefficient whereas a highly significant positive relationship between trade openness and average income of poorest quintile at 1% significance level which implies that the higher degree of trade openness results in higher income inequality expressed in Gini Coefficient in the emerging economies and at the same time the growth of average income of lowest 20% population significantly rises due to increased level of trade openness. So it can be inferred from the regression result that trade increases income inequality in the emerging economies a little, but it substantially increases the average per capita income of the lowest 20% population of the economies.

The one period lagged value of Gini and average income of poorest quintile show negative coefficient in the regression results which indicates that countries with high Gini or average earnings in previous period will experience a faster reduction in Gini or average income in the current period. The inflation rate has a positive impact in either of the cases but significant on an average income of poorest 20% people which infers that both income inequality and average income of the poorest people rises because of higher inflation. The case for government final consumption share to GDP is different. It raises income inequality significantly but has little positive effect on the income of the poorest people.

Growth of per capita GDP reveals the negative but insignificant impact on Gini whereas the positive and significant impact on the average income of the poorest which implies that GDP growth reduces income inequality a little and notably upswings the average income of poorest quintile. In either of the cases, secondary school enrolment rate has an insignificant impact.

5.1.2. Trade Openness and Poverty

Table 2 sets out the results of regression model between trade openness and two poverty measures namely poverty gap and poverty headcount ratio (HCR) at $1.90 per day.

<div align="center">Table-2. Trade Openness and Poverty</div>

Dependent Variable: Growth of Poverty Headcount Ratio at $1.90 per day (2011 PPP)		Dependent Variable: Growth of Poverty Gap at $1.90 per day (2011 PPP)	
Log of lagged Headcount	-.7264953 (.1311247)*	Log of lagged Poverty Gap	-.8372263 (.1173156)*
Trade Openness	-41.19394 (17.17423)**	Trade Openness	-14.27247 (6.721203)**
Inflation rate	-.0218453 (.0106771)**	Inflation rate	-.0059808 (.0041188)
GDP growth	-.1137034 (.2039266)	GDP growth	-.0277006 (.07312)
Govt. Consumption	-11.14044 (19.34249)	Govt. Consumption	1.112781 (8.214231)
Secondary enrolment	-15.15883 (5.532751)**	Secondary enrolment	-5.94151 (2.099574)*
Number of Groups	29	Number of Groups	29
Number of Instruments	18	Number of Instruments	18
Hansen test p-value	0.400	Hansen test p-value	0.628
AR(2)	0.165	AR(2)	0.237

Note: The table presents the results for the estimated coefficients and their robust standard errors in parenthesis. All variables are averaged over a four-year period from 1986 to 2013. Definitions of variables are the same as in in the Appendix C. The Hansen p-value test of over-identification test, AR(2) test of the error terms, number of groups and instruments are also reported. *, **, and *** denote statistically significant coefficient at the 1%, 5% and 10% levels, respectively.

The results suggest that trade openness has statistically insignificant negative linkage with both the extreme poverty indicators at 5% level which infers that higher degree of trade openness considerably reduces the percentage of population living under extreme poverty line at $1.90 a day as well as poverty gap indicating the average shortfall of total population from extreme poverty line.

Besides, secondary school enrolment rate have a statistically significant negative impact on both poverty gap and poverty HCR that means a high level of human capital accumulation significantly reduces extreme poverty ratio and poverty gap. The one period lagged values of both poverty indicators show the significant negative impact on the regression results indicating previous period's high value of the indicators results in a faster reduction in the recent period. All other explanatory variables have an insignificant impact on the extreme poverty except inflation rate which shows significant negative linkage with poverty headcount ratio.

5.2. Trade Facilitation and Poverty/Inequality
5.2.1. Time to Export and Inequality/Poverty

Table 3 reports the results of regression model on time required to export as a proxy to trade facilitation and Gini coefficient and average per capita income of the poorest quintile as inequality indicators. As per the results, time required to export shows significant positive association with Gini and negative impact on the average income of poorest 20% population at 10% and 5% level respectively. It suggests that trade facilitation through improving the overall efficiency of trade procedures by means of decreasing lead time to export reduces income inequality but increases the average income of the lowest 20% population in the emerging economies.

Table-3. Trade Facilitation (Time to Export) and Income Inequality

Dependent Variable: Growth of Gini Coefficient		Dependent Variable: Growth of Average Income of Poorest Quintile (Lowest 20% Population)	
Log of lagged Gini	. -1.216416 (.1280806)*	Log of lagged Income	-.540752 (.1192661)*
Time to Export	.164561 (.0862449)***	Time to Export	-1.063148 (.3929405)**
Inflation rate	.0004445 (.001122)	Inflation rate	.0052763 (.0024586)**
GDP growth	-.000285 (.0005125)	GDP growth	.0044692 (.00217)**
Govt. Consumption	-.0542382 (.1454404)	Govt. Consumption	-.5251906 (.1898106)**
Secondary enrolment	.0772258 (.0879296)	Secondary enrolment	.5276284 (.3413787)
Number of Groups	24	Number of Groups	24
Number of Instruments	24	Number of Instruments	24
Hansen test p-value	0.482	Hansen test p-value	0.414
AR(2)	0.821	AR(2)	0.366

Note: The table presents the results for the estimated coefficients and their robust standard errors in parenthesis. The dataset covers for the period 2005 to 2013. Definitions of variables are the same as in in the Appendix C. The Hansen p-value test of over-identification test, AR(2) test of the error terms , number of groups and instruments are also reported. *, **, and *** denote statistically significant coefficient at the 1%, 5% and 10% levels, respectively.

The effects of inflation on both Gini and income of poorest people are positive but shows significant impact on the later one. Higher growth of per capita GDP raises the income of lowest 20% population considerably at 5% level, but it increases inequality very little. Government final consumption shows the highly significant negative impact on the income of poorest quintile but the insignificant negative effect on Gini coefficient. Secondary school enrolment rate shows the low insignificant positive impact on both of the indicators.

Table 4 sets out the regression results of time required to export and two indicators of extreme poverty namely poverty gap and poverty HCR at $1.90 a day. The trade facilitation indicator has a statistically significant relationship with the two extreme poverty indicators which connotes that trade facilitation through simplifying the export procedures results in declining of extreme poverty ratio and poverty gap in emerging economies. The impact of other control variables on poverty slightly changes because of the time period of the data sets. The trade openness data covers the period of 1986-2013 and averages over seven 4-year periods whereas trade facilitation data includes periods of 2005-2013 with yearly data.

Table-4. Trade Facilitation (Time to Export) and Poverty

Dependent Variable: Growth of Poverty Headcount Ratio at $1.90 per day (2011 PPP)		Dependent Variable: Growth of Poverty Gap at $1.90 per day (2011 PPP)	
Log of lagged Headcount	-.7274323 (.1816689)*	Log of lagged Poverty Gap	-1.109865 (.163942)*
Time to Export	12.24841 (5.367013)**	Time to Export	7.357602 (2.570097)*
Inflation rate	.030795 (.0391641)	Inflation rate	.0100207 (.0187709)
GDP growth	.0089147 (.014579)	GDP growth	.0065593 (.009809)
Govt. Consumption	2.272438 (2.39532)	Govt. Consumption	2.404185 (1.13056)**
Secondary enrolment	-20.57193 (12.28352)	Secondary enrolment	-5.660988 (4.291934)
Number of Groups	24	Number of Groups	24
Number of Instruments	24	Number of Instruments	24
Hansen test p-value	0.588	Hansen test p-value	0.603
AR(2)	0.192	AR(2)	0.954

Note: The table presents the results for the estimated coefficients and their robust standard errors in parenthesis. The dataset covers for the period 2005 to 2013. Definitions of variables are the same as in in the Appendix C. The Hansen p-value test of over-identification test, AR(2) test of the error terms, number of groups and instruments are also reported. *, **, and *** denote statistically significant coefficient at the 1%, 5% and 10% levels, respectively.

5.2.2. Time to Import and Inequality/Poverty

The findings of regression model on time to import as a proxy to trade facilitation and Gini and income of poorest quintile as income inequality measures are summarized in Table 5.

Table-5. Trade Facilitation (Time to Import) and Income Inequality

Dependent Variable: Growth of Gini Coefficient		Dependent Variable: Growth of Average Income of Poorest Quintile (Lowest 20% Population)	
Log of lagged Gini	−1.163231 (.1554114)*	Log of lagged Income	−.4114144 (.1106482)*
Time to Import	.1121607 (.0564016)**	Time to Import	−.5021342 (.1964626)**
Inflation rate	.0004667 (.0010625)	Inflation rate	.004718 (.0019131)**
GDP growth	−.0001567 (.0005053)	GDP growth	.0050077 (.0019613)**
Govt. Consumption	−.0488754 (.1438447)	Govt. Consumption	−.5469089 (.1829412)*
Secondary enrolment	.0120026 (.113661)	Secondary enrolment	.8298461 (.2961252)**
Number of Groups	24	Number of Groups	24
Number of Instruments	24	Number of Instruments	24
Hansen test p-value	0.372	Hansen test p-value	0.292
AR(2)	0.594	AR(2)	0.792

Note: The table presents the results for the estimated coefficients and their robust standard errors in parenthesis. The dataset covers for the period 2005 to 2013. Definitions of variables are the same as in in the Appendix C. The Hansen p-value test of over-identification test, AR(2) test of the error terms, number of groups and instruments are also reported. *, **, and *** denote statistically significant coefficient at the 1%, 5% and 10% levels, respectively.

The direction and significance of correlation of time to import with two measures of income inequality namely growth of Gini and average income of poorest quintile are the same as in case of time to export which means that facilitating trade through decreasing the time required for import leads to fall in Gini but it markedly increase the income of the poorest people. The impact of other control variables on the two inequality measures is the same as in the case of time to export as trade facilitation measures.

Table-6. Trade Facilitation (Time to Import) and Poverty

Dependent Variable: Growth of Poverty Headcount Ratio at $1.90 per day (2011 PPP)		Dependent Variable: Growth of Poverty Gap at $1.90 per day (2011 PPP)	
Log of lagged Headcount	−.728641 (.1834656)*	Log of lagged Poverty Gap	−1.091287 (.1503789)*
Time to Import	7.974703 (3.724451)**	Time to Import	5.466578 (1.802545)*
Inflation rate	.0370851 (.0361009)	Inflation rate	.0138984 (.015546)
GDP growth	.0178987 (.0151405)	GDP growth	.0109422 (.0082262)
Govt. Consumption	2.102958 (2.137184)	Govt. Consumption	2.491673 (1.077343)**
Secondary enrolment	−26.16002 (14.10255)***	Secondary enrolment	−8.114491 (4.880127)
Number of Groups	24	Number of Groups	24
Number of Instruments	24	Number of Instruments	24
Hansen test p-value	0.192	Hansen test p-value	0.522
AR(2)	0.087	AR(2)	0.467

Note: The table presents the results for the estimated coefficients and their robust standard errors in parenthesis. The dataset covers for the period 2005 to 2013. Definitions of variables are the same as in in the Appendix C. The Hansen p-value test of over-identification test, AR (2) test of the error terms, number of groups and instruments are also reported. *, **, and *** denote statistically significant coefficient at the 1%, 5% and 10% levels, respectively.

Table 6 reports the regression outcome of time to import as trade facilitation measure and growth of poverty HCR and poverty gap at $1.90 a day as measures of extreme poverty. The regression result finds statistically significant positive relationship between time to import and the two indicators of extreme poverty at 5% and 1% level respectively which implies that trade facilitation through reduction in lead time to import causes shrinking in extreme poverty as measured by poverty gap and poverty HCR at $1.90 a day from the perspective of emerging economies. The impacts of remaining control variables on the poverty indicators do not change notably.

6. CONCLUSION

On the September 25th, 2015 the global leaders adopted a set of goals with a vision to transform the world through ending poverty; protecting the planet and ensuring prosperity to all in an agenda named sustainable development goals (SDGs). Ending poverty and reducing inequality within and among countries are the two top most priorities in SDGs because till now around 700 million people are living in extreme poverty and struggling for basic human needs. Moreover because of income inequality around 30 million children are growing up poor in the world's richest countries. Due to the significance of international trade in all three dimensions of SDGs – economic, social and environmental the SDGs agenda recognizes trade as a crucial tool to achieve the goals especially in eradicating poverty and reducing inequality. Global leaders are considering trade as a major driver of economic growth, poverty eradication, and inequality minimization and that is why trade is regarded as central to achieve SDGs. However, practically the impact of trade on ending poverty and reducing inequality is not automatic and not always common phenomenon. Appropriate trade policies play significant role in determining the trade's impact on poverty and inequality.

This study aims at identifying the impact of trade policy namely trade openness and trade facilitation on poverty and inequality of emerging economies. As the emerging economies constitute around 80% of the world population and 50% of the world GDP they draw the core concentration of the world community for achieving SDGs. Moreover, emerging economies contribute highly in almost every area of global economy like export, import, GDP; FDI, etc. For these reasons identifying the impact of trade openness and trade facilitation on poverty and inequality in emerging economies is a new and crucial research area in sustainable development goal literature.

The results of the study indicate that trade openness as a measure of trade policy significantly reduces the extreme poverty as measured by poverty headcount ratio and poverty gap at $1.90 a day and increases the average per capita income of the lowest 20% population of the emerging economies whereas it increases the income inequality measured by Gini index in these economies but its impact on inequality is not significant. Facilitating trade through reducing the lead time (days) required for export and import which measures the overall efficiency of trade procedures significantly reduces the extreme poverty ratio and poverty gap in the emerging economies as well as raises the average income of the poorest 20% population but also increases the income inequality substantially.

The findings of this study on the relationship between trade policy and income inequality and poverty have significant policy implications. The challenge of reducing income inequality and poverty through increasing trade requires for quick policy response by the global leaders due to the robust impact of trade policy in reducing poverty and inequality. Moreover, internal and external socio-economic and institutional preconditions largely influence the extreme poverty and inequality as well as the extent to which a country or population will benefit from trade. In this context, effective or redistributive economic and social policies, as well as institutional advancement, should be directed towards poverty and inequality reduction.

However, the analysis of this study focuses on specific variables related to trade policy, inequality, and poverty subject to their availability to across time and countries. Other aspects of trade policy and country-specific characteristics can also highly influence poverty and inequality. Hopefully, the impact of other aspects of trade policy as well as country specific effects on poverty and inequality can be a focus of future research in this area.

REFERENCES

Acemoglu, D., 2003. Patterns of skill premia. Review of Economic Studies, 70(2): 199-230. *View at Google Scholar | View at Publisher*

Arellano, M. and O. Bover, 1995. Another look at the instrumental variable estimation of error-components models. Journal of Econometrics, 68(1): 29-51. *View at Google Scholar | View at Publisher*

Asia, T.B.F.F., 2009. The Development of Emerging Economies Annual Report 2009: The Boao Forum for Asia.

Barro, R.J., 2000. Inequality and growth in a panel of countries. Journal of Economic Growth, 5(1): 5-32. *View at Google Scholar*

Beck, T., A. Demirgüç-Kunt and R. Levine, 2007. Finance, inequality and the poor. Journal of Economic Growth, 12(1): 27-49. *View at Google Scholar*

Beck, T. and R. Levine, 2004. Stock markets, banks, and growth: Panel evidence. Journal of Banking & Finance, 28(3): 423-442. *View at Google Scholar | View at Publisher*

Beck, T., R. Levine and N. Loayza, 2000. Finance and the sources of growth. Journal of Financial Economics, 58(1): 261-300. *View at Google Scholar*

Behrman, J., N. Birdsall and M. Szekely, 2000. Economic reform and wage differentials in Latin America.

Berg, H.V.D. and J.R. Schmidt, 1994. Foreign trade and economic growth: Time series evidence from Latin America. Journal of International Trade & Economic Development, 3(3): 249-268. *View at Google Scholar*

Bhagwati, J. and T.N. Srinivasan, 2002. Trade and poverty in the poor countries. American Economic Review, 92(2): 180-183. *View at Google Scholar*

Blundell, R. and S. Bond, 1998. Initial conditions and moment restrictions in dynamic panel data models. Journal of Econometrics, 87(1): 115-143. *View at Google Scholar | View at Publisher*

Bourguignon, F. and C. Morrisson, 1990. Income distribution, development and foreign trade: A cross-sectional analysis. European Economic Review, 34(6): 1113-1132. *View at Google Scholar | View at Publisher*

Bustos, P., 2007. The impact of trade on technology and skill upgrading evidence from Argentina. Working Papers (Universitat Pompeu Fabra. Departamento de Economía y Empresa)(1189), 1.

Butt, M.S. and J.S. Bandara, 2008. Trade liberalisation and regional disparity in Pakistan. Routledge.

Calderón, C. and A. Chong, 2001. External sector and income inequality in interdependent economies using a dynamic panel data approach. Economics Letters, 71(2): 225-231. *View at Google Scholar | View at Publisher*

Castilho, M., M. Menéndez and A. Sztulman, 2012. Trade liberalization, inequality, and poverty in Brazilian states. World Development, 40(4): 821-835. *View at Google Scholar | View at Publisher*

Christiaensen, L., L. Demery and S. Paternostro, 2003. Macro and micro perspectives of growth and poverty in Africa. World Bank Economic Review, 17(3): 317-347. *View at Google Scholar | View at Publisher*

Clark, X., D. Dollar and A. Micco, 2004. Port efficiency, maritime transport costs, and bilateral trade. Journal of Development Economics, 75(2): 417-450. *View at Google Scholar | View at Publisher*

Co-operation, A.P.E., 1999. Assessing APEC trade liberalization and facilitation: 1999 update. Economic Committee. APEC: Singapore.

Cornia, G.A. and S. Kiiski, 2001. Trends in income distribution in the post-world war II period. UNU World Institute for Development Economics Research.

Demir, F., J. Ju and Y. Zhou, 2012. Income inequality and structures of international trade. Asia-Pacific Journal of Accounting & Economics, 19(2): 167-180. *View at Google Scholar | View at Publisher*

Dennis, A., 2006. The impact of regional trade agreements and trade facilitation in the Middle East and North Africa region. World Bank Policy Research Working Paper No. (3837).

Dollar, D., 1992. Outward-oriented developing economies really do grow more rapidly: Evidence from 95 LDCs, 1976-1985. Economic Development and Cultural Change, 40(3): 523-544. *View at Google Scholar | View at Publisher*

Dollar, D., M. Hallward-Driemeier and T. Mengistae, 2006. Investment climate and international integration. World Development, 34(9): 1498-1516. *View at Google Scholar | View at Publisher*

Dollar, D. and A. Kraay, 2001. Trade, growth, and poverty: World bank, development research group, macroeconomics and growth.

Dollar, D. and A. Kraay, 2002. Growth is good for the poor. Journal of Economic Growth, 7(3): 195-225. *View at Google Scholar*

Dollar, D. and A. Kraay, 2004. Trade, growth, and poverty. Economic Journal, 114(493): F22-F49. *View at Google Scholar*

Duval, Y. and C. Utoktham, 2009. Behind the border trade facilitation in Asia-Pacific: cost of trade, credit information, contract enforcement and regulatory coherence. No. 67. ARTNeT Working Paper Series.

Easterly, W., 2006. Globalization, prosperity, and poverty. Ann Harrison, Editor, Globalization and Poverty, forthcoming, University of Chicago Press for NBER.

Easterly, W. and S. Fischer, 2001. Inflation and the poor. Journal of Money, Credit and Banking, 33(2): 160-178. *View at Google Scholar | View at Publisher*

Edwards, S., 1997. Trade policy, growth, and income distribution. American Economic Review, 87(2): 205-210. *View at Google Scholar*

Edwards, S., 1998. Openness, productivity and growth: What do we really know? Economic Journal, 108(447): 383-398. *View at Google Scholar | View at Publisher*

Epifani, P., 2003. Trade liberalization, firm performances and labor market outcomes in the developing world, what can we learn from micro-level data? Rivista Italiana Degli Economisti, 8(3): 455-486. *View at Google Scholar*

ESCAP, 2009. Studies in Trade and Investment No. 66. Impact of trade facilitation on export competitiveness: A regional perspective. Bangkok: Economic and Social Commission for Asia and the Pacific: Economic and Social Commission for Asia and the Pacific.

Esquivel, V. and C. Sweetman, 2016. Gender and the sustainable development goals. Gender & Development, 24(1): 1-8. *View at Google Scholar | View at Publisher*

Fan, S., 1991. Effects of technological change and institutional reform on production growth in Chinese agriculture. American Journal of Agricultural Economics, 73(2): 266-275. *View at Google Scholar | View at Publisher*

Ferreira, F.H., P.G. Leite and M. Wai-Poi, 2007. Trade liberalization, employment flows, and wage inequality in Brazil. World Bank Policy Research Working Paper No. (4108).

Francois, J. and M. Manchin, 2006. Institutional quality, infrastructure, and the propensity to export. Unpublished, January, World Bank, Washington, DC.

Frankel, J.A. and D. Romer, 1999. Does trade cause growth? American Economic Review, 89(3): 379-399. *View at Google Scholar*

Freund, C. and B. Bolaky, 2008. Trade, regulations, and income. Journal of Development Economics, 87(2): 309-321. *View at Google Scholar | View at Publisher*

Goldberg, P.K. and N. Pavcnik, 2004. Trade, inequality, and poverty: What do we know? Evidence from recent trade liberalization episodes in developing countries. National Bureau of Economic Research, Working Paper No. 10593.

Goldberg, P.K. and N. Pavcnik, 2007. Distributional effects of globalization in developing countries. Journal of Economic Literature, 45(1): 39-82. *View at Google Scholar*

Harrison, A., 1996. Openness and growth: A time-series, cross-country analysis for developing countries. Journal of Development Economics, 48(2): 419-447. *View at Google Scholar | View at Publisher*

Harrison, A., 2006. Globalization and poverty. National Bureau of Economic Research Working Paper No. 12347.

Harrison, A. and G. Hanson, 1999. Who gains from trade reform? Some remaining puzzles. Journal of Development Economics, 59(1): 125-154. *View at Google Scholar | View at Publisher*

Hertel, T.W. and R. Keeney, 2006. What isat stake: The relative importance of import barriers, export subsidies, and domestic support. Agricultural Trade Reform and the Doha Development Agenda, 37.

Hertel, T.W. and J.J. Reimer, 2005. Predicting the poverty impacts of trade reform. Journal of International Trade & Economic Development, 14(4): 377-405. *View at Google Scholar | View at Publisher*

Hertel, T.W., T. Walmsley and K. Itakura, 2001. Dynamic effects of the" new age" free trade agreement between Japan and Singapore. Journal of Economic Integration: 446-484. *View at Google Scholar*

Hoekman, B. and L.A. Winters, 2005. Trade and employment: Stylized facts and research findings. World Bank Policy Research Working Paper No. (3676).

Irwin, D.A. and M. Terviö, 2002. Does trade raise income? Evidence from the twentieth century. Journal of International Economics, 58(1): 1-18. *View at Google Scholar*

Iwanow, T. and C. Kirkpatrick, 2007. Trade facilitation, regulatory quality and export performance. Journal of International Development, 19(6): 735-753. *View at Google Scholar | View at Publisher*

Jeanneney, S.G. and K. Kpodar, 2011. Financial development and poverty reduction: Can there be a benefit without a cost? Journal of Development Studies, 47(1): 143-163. *View at Google Scholar | View at Publisher*

Jouini, J., 2015. Linkage between international trade and economic growth in GCC countries: Empirical evidence from PMG estimation approach. Journal of International Trade & Economic Development, 24(3): 341-372. *View at Google Scholar | View at Publisher*

Kali, R., F. Méndez and J. Reyes, 2007. Trade structure and economic growth. Journal of International Trade & Economic Development, 16(2): 245-269. *View at Google Scholar | View at Publisher*

Khadraoui, N. and M. Smida, 2012. Financial development and economic growth: Static and dynamic panel data. An International Journal of Economics and Finance, 4(5): 94-104. *View at Google Scholar | View at Publisher*

Khondker, B.H. and S. Raihan, 2004. Welfare and poverty impacts of policy reforms in Bangladesh: A general equilibrium approach. Paper Presented at the Seventh Annual Global Economic Conference.

Kim, D.H., 2011. Trade, growth and income. Journal of International Trade & Economic Development, 20(5): 677-709. *View at Google Scholar*

Kpodar, K. and R.J. Singh, 2011. Does financial structure matter for poverty? Evidence from developing countries. Evidence from Developing Countries (December 1, 2011). World Bank Policy Research Working Paper Series.

Kraay, A. and D. Dollar, 2001. Growth is good for the poor. Research Working Papers, 1(1): 1-50. *View at Google Scholar*

Krueger, A.O., 1981. Trade and employment in developing countries: Individual studies. University of Chicago Press, 1.

Le Goff, M. and R.J. Singh, 2014. Does trade reduce poverty? A view from Africa. Journal of African Trade, 1(1): 5-14. *View at Google Scholar | View at Publisher*

Lee, H.Y. and C.S. Kim, 2012. The impact of trade facilitation on the extensive and intensive margins of trade: An application for developing countries. Journal of East Asian Economic Integration, 16(1): 67-96. *View at Google Scholar | View at Publisher*

Lee, H.Y., L.A. Ricci and R. Rigobon, 2004. Once again, is openness good for growth? Journal of Development Economics, 75(2): 451-472. *View at Google Scholar | View at Publisher*

Levinsohn, J., 1999. Employment responses to international liberalization in Chile. Journal of international Economics, 47(2): 321-344. *View at Google Scholar | View at Publisher*

Li, H., L. Squire and H.F. Zou, 1998. Explaining international and intertemporal variations in income inequality. Economic Journal, 108(446): 26-43. *View at Google Scholar | View at Publisher*

Lin, J.Y., 1992. Rural reforms and agricultural growth in China. American Economic Review: 34-51. *View at Google Scholar*

Lundberg, M. and L. Squire, 2003. The simultaneous evolution of growth and inequality. Economic Journal, 113(487): 326-344. *View at Google Scholar | View at Publisher*

Martinez-Zarzoso, I. and L. Márquez-Ramos, 2008. The effect of trade facilitation on sectoral trade. BE Journal of Economic Analysis & Policy, 8(1). *View at Google Scholar | View at Publisher*

Melitz, M., 2003. The impact of trade on aggregate industry productivity and intra-industry reallocations. Econometrica, 71(6): 1695-1725. *View at Google Scholar | View at Publisher*

Meschi, E. and M. Vivarelli, 2009. Trade and income inequality in developing countries. World Development, 37(2): 287-302. *View at Google Scholar | View at Publisher*

Milanovic, B., 2005. Can we discern the effect of globalization on income distribution? Evidence from household surveys. World Bank Economic Review, 19(1): 21-44. *View at Google Scholar | View at Publisher*

Milner, C. and P. Wright, 1998. Modelling labour market adjustment to trade liberalisation in an industrialising economy. Economic Journal, 108(447): 509-528. *View at Google Scholar | View at Publisher*

Naranpanawa, A., J.S. Bandara and S. Selvanathan, 2011. Trade and poverty nexus: A case study of Sri Lanka. Journal of Policy Modeling, 33(2): 328-346. *View at Google Scholar | View at Publisher*

Nguyen Viet, C., 2015. The impact of trade facilitation on poverty and inequality: Evidence from low-and middle-income countries. Journal of International Trade & Economic Development, 24(3): 315-340. *View at Google Scholar*

Nicita, A., 2004. Who benefited from trade liberalization in Mexico? Measuring the effects on household welfare. Measuring the Effects on Household Welfare (April 7, 2004). World Bank Policy Research Working Paper No. (3265).

Oxfam, R.R., 2002. Double standards: Trade, globalisation and the fight against poverty. Oxford: Oxfam.

Perera, S., M. Siriwardana and S. Mounter, 2014. Reducing poverty and income inequality in Sri Lanka: Does trade liberalisation help? Journal of the Asia Pacific Economy, 19(4): 629-655. *View at Google Scholar | View at Publisher*

Persson, M., 2013. Trade facilitation and the extensive margin. Journal of International Trade & Economic Development, 22(5): 658-693. *View at Google Scholar | View at Publisher*

Porto, G.G., 2006. Using survey data to assess the distributional effects of trade policy. Journal of International Economics, 70(1): 140-160. *View at Google Scholar | View at Publisher*

Ravallion, M., 2001. Growth, inequality and poverty: Looking beyond averages. World Development, 29(11): 1803-1815. *View at Google Scholar | View at Publisher*

Ravallion, M., 2004. Pro-poor growth: A primer. World Bank Policy Research Working Paper No. (3242).

Ravallion, M., 2006. Looking beyond averages in the trade and poverty debate. World Development, 34(8): 1374-1392. *View at Google Scholar | View at Publisher*

Ravallion, M. and G. Datt, 1999. When is growth pro-poor? Evidence from the diverse experiences of India's states. Evidence from the Diverse Experiences of India's States (December 1999). World Bank Policy Research Working Paper No. (2263).

Revenga, A., 1997. Employment and wage effects of trade liberalization: The case of Mexican manufacturing. Journal of labor Economics, 15(S3): S20-S43. *View at Google Scholar | View at Publisher*

Rioja, F. and N. Valev, 2004. Finance and the sources of growth at various stages of economic development. Economic Inquiry, 42(1): 127-140. *View at Google Scholar | View at Publisher*

Rioja, F. and N. Valev, 2014. Stock markets, banks and the sources of economic growth in low and high income countries. Journal of Economics and Finance, 38(2): 302-320. *View at Google Scholar | View at Publisher*

Sachs, G., 2005. Global Economics Paper No. 134. How solid are the BRICS, 1, 3.

Sachs, J.D., A. Warner, A. Åslund and S. Fischer, 1995. Economic reform and the process of global integration. Brookings Papers on Economic Activity(1): 1-118. *View at Google Scholar | View at Publisher*

Sakyi, D., J. Villaverde and A. Maza, 2015. Trade openness, income levels, and economic growth: The case of developing countries, 1970–2009. Journal of International Trade & Economic Development, 24(6): 860-882. *View at Google Scholar | View at Publisher*

Seven, U. and Y. Coskun, 2016. Does financial development reduce income inequality and poverty? Evidence from emerging countries. Emerging Markets Review, 26: 34-63. *View at Google Scholar | View at Publisher*

Tipping, A. and R. Wolfe, 2015. Trade and sustainable development: Options for follow-up and review of the trade-related elements of the post-2015 agenda and financing for development. International Institute for Sustainable Development and ICTSD.

Topalova, P., 2007. Trade liberalization, poverty and inequality: Evidence from Indian districts globalization and poverty. University of Chicago Press. pp: 291-336.

Tridico, P., 2010. Growth, inequality and poverty in emerging and transition economies. Transition Studies Review, 16(4): 979-1001. *View at Google Scholar*

UN, 2015. Addis Ababa action agenda of the. Third International Conference on Financing for Development.

UNDP, 2013. Human Development Report.

UNDP, 2016. No poverty: Why it matters.

Vamvakidis, A., 2002. How robust is the growth-openness connection? Historical evidence. Journal of Economic Growth, 7(1): 57-80. *View at Google Scholar*

Vivarelli, M., 2004. Globalization, skills and within-country income inequality in developing countries. VUnderstanding Globalization, Employment and Poverty ReductionV. London: Palgrave MacMillan, 211

Wei, S.J. and Y. Wu, 2002. Globalization and inequality without differences in data definition, legal system and other institutions. Mimeo: International Monetary Fund.

Wilson, J.S., C.L. Mann and T. Otsuki, 2003. Trade facilitation and economic development: A new approach to quantifying the impact. World Bank Economic Review, 17(3): 367-389. *View at Google Scholar | View at Publisher*

Wilson, J.S., C.L. Mann and T. Otsuki, 2005. Assessing the benefits of trade facilitation: A global perspective. World Economy, 28(6): 841-871. *View at Google Scholar | View at Publisher*

Winters, L.A., 2004. Trade liberalisation and economic performance: An overview. Economic Journal, 114(493): F4-F21. *View at Google Scholar | View at Publisher*

Winters, L.A., N. McCulloch and A. McKay, 2004. Trade liberalization and poverty: The evidence so far. Journal of Economic Literature, 42(1): 72-115. *View at Google Scholar*

World Bank, 2000. Global economic prospects and the developing countries. Washington D.C.

Xu, B., 2003. Trade liberalization, wage inequality, and endogenously determined nontraded goods. Journal of International Economics, 60(2): 417-431. *View at Google Scholar | View at Publisher*

Yeaple, S.R., 2005. A simple model of firm heterogeneity, international trade, and wages. Journal of International Economics, 65(1): 1-20. *View at Google Scholar | View at Publisher*

Zaki, C., 2011. Assessing the global effect of trade facilitation: Evidence from the MIRAGE model. Paper Presented at the Economic Research Forum Working Paper Series.

Zhang, X. and K.H. Zhang, 2003. How does globalisation affect regional inequality within a developing country? Evidence from China. Journal of Development Studies, 39(4): 47-67. *View at Google Scholar | View at Publisher*

Appendices

Appendix A

List of Emerging Economics

| EAGLEs (emerging and growth-leading economies): Expected Incremental GDP in the next 10 years to be larger than the average of the G7 economies, excluding the US.
• Brazil
• China
• India
• Indonesia
• Mexico
• Russia
• Turkey | NEST: Expected Incremental GDP in the next decade to be lower than the average of the G6 economies (G7 excluding the US) but higher than Italy's.
• Argentina
• Bangladesh
• Chile
• Colombia
• Egypt
• Iran
• Iraq
• Kazakhstan
• Malaysia
• Nigeria
• Pakistan
• Peru
• Philippines
• Poland
• Qatar
• Saudi Arabia
• South Africa
• Thailand
• Vietnam | Other emerging markets:
• Bahrain
• Bulgaria
• Czech Republic
• Estonia
• Hungary
• Jordan
• Kuwait
• Latvia
• Lithuania
• Mauritius
• Oman
• Romania
• Slovakia
• Sri Lanka
• Sudan
• Tunisia
• United Arab Emirates
• Ukraine
• Venezuela |

Note: The list of emerging economies and their classification was given as per BBVA Research list as of March 2014. Source: Wikipedia access date November 22, 2016

Appendix B

Various measures of Trade Facilitation

Trade-facilitation measure	Detailed definition
Documents to export (number)	All documents required per shipment to export goods are recorded. It is assumed that the contract has already been agreed upon and signed by both parties.
Time to export (days)	Time is recorded in calendar days. The time calculation for a procedure starts from the moment it is initiated and runs until it is completed.
Documents to import (number)	All documents required per shipment to import goods are recorded. It is assumed that the contract has already been agreed upon and signed by both parties.
Time to import (days)	Time is recorded in calendar days. The time calculation for a procedure starts from the moment it is initiated and runs until it is completed.
Logistics performance index: overall (1 = low to 5 = high)	Logistics Performance Index overall score reflects perceptions of a country's logistics based on efficiency of customs clearance process, quality of trade- and transport-related infrastructure, ease of arranging competitively priced shipments, quality of logistics services, ability to track and trace consignments and frequency with which shipments reach the consignee within the scheduled time. The index ranges from 1 to 5, with a higher score representing better performance.
Logistics performance index: Frequency with which shipments reach consignee within scheduled or expected time (1 = low to 5 = high)	Logistics professionals' perception of how often the shipments to assessed country reach the consignee within the scheduled or expected delivery time, on a rating ranging from 1 (hardly ever) to 5 (nearly always). Scores are averaged across all respondents.

Appendix C

Description of the data sample and sources

Name	Description	Source
Trade openness	Sum of exports/imports of goods and services as a share of GDP.	WDI 2016
Gini coefficient	Measures deviations from perfect income equality. The study uses the logarithmic difference between the current period's Gini coefficient and the previous period's Gini coefficient as a dependent variable.	PovStats
Headcount ratio	The percentage of the population living below $1.90 a day at 2011 international prices. The study uses logarithmic growth of the headcount ratio as a dependent variable.	PovStats
Average income of the poorest quintile	The average per capita income of the lowest 20% population. Logarithmic growth of the average per capita income of the poorest quintile was used as a dependent variable.	PovStats
Poverty Gap	Average shortfall of total population from extreme poverty line measured at $1.90 a day at 2011 international prices.	PovStats
GDP per capita growth	Logarithmic growth rate of the GDP per capita	WDI 2016
Secondary school Enrollment	Gross enrollment rate is the ratio of total enrollment in secondary school, regardless of age, to the population of the age group.	WDI 2016
Inflation rate	Inflation is measured by consumer prices	WDI 2016
Government consumption	General government final consumption expenditure includes all government current expenditures for purchases of goods and services, as a share of GDP.	WDI 2016

Appendix D

Summary Statistics

Table-1. Trade Openness Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Gini Coefficient	184	38.06138	9.531426	21.72	60.72
Poverty Headcount At $1.90 a day(2011 PPP)	184	9.679979	15.11262	0	70.13
Poverty Gap at $1.90 a day (2011 PPP)	184	2.909873	4.615612	0	24.97
Trade openness	184	66.7781	39.86303	13.13531	212.7082
Average per capita income of poorest quintile (Lowest @20% Population)	184	1634.28	2010.628	100.0007	11938.14
Inflation rate	183	74.7831	386.5141	-.5622835	4734.915
GDP growth	184	3.062466	3.403312	-11.34102	10.85389
Govt. Consumption	184	14.54254	4.713209	4.165919	26.21743
Secondary enrolment	177	76.02616	23.82584	13.54319	107.1938

Note: All variables (except Average per capita income of poorest quintile) are in percentage form and averaged over a four-year period. Definitions of variables are the same as in in the Appendix C. Obs, Std. Dev., Min, and Max denote observation, standard deviation, minimum, and maximum respectively.

Table-2. Trade Facilitation Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Time to export	217	20.19862	14.38587	6	89
Time to Import	217	20.84608	12.37894	5	76
Gini Coefficient	217	37.62483	9.330696	21.5	56.88
Poverty Gap At $1.90 a day(2011 PPP)	217	1.169412	1.422337	0	6.48
Poverty Headcount At $1.90 a day (2011 PPP)	217	3.571328	5.514036	0	27.95
Average per capita income of poorest quintile(Lowest @20% Population)	213	3569.589	3955.154	244.4752	22649.38
Inflation rate	217	5.820242	4.072658	-1.070664	25.23191
Govt. Consumption	217	15.19471	4.107851	5.465202	22.18978
GDP growth	217	3.586644	4.632469	-14.55986	13.60011
Secondary enrolment	201	90.43838	14.82684	26.50006	108.7026

Note: All variables (except Average per capita income of poorest quintile, time to export and time to import) are in percentage form. Definitions of variables are the same as in in the Appendix C. Obs, Std. Dev., Min, and Max denote observation, standard deviation, minimum, and maximum, respectively.