

Trade and Poverty in the Developing World

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Abstract

Globalization brings progress to a nation as well as rapid economic growth. It also helps increase gross domestic product and, most importantly, makes part of the population more prosperous by increasing living standards and allowing the country to be self-sustainable. In this study, data from 84 countries were collected from the World Trade Organization; using Ordinary Least Squares, this data was analyzed to help determine the effects trade has on absolute and relative poverty as well as inequality. Findings showed that trade does help reduce absolute poverty but at a very slow and diminishing rate. In addition, trade creates a small but statistically insignificant reduction in inequality. The results also showed that greater population growth results in more poverty.

Introduction

Economic growth brings progress to a nation, and trade has been essential for most nations since ancient times. In recent decades, the world has experienced rapid economic growth, mostly because of international trade. Trade is important for a country's gross domestic product (GDP), and it has an even greater impact on its population's well-being. Growth and its impact on poverty varies across borders, often because of uneven income distribution among a country's population. So, in the end, can trade be considered beneficial for everyone? And, if so, at what cost?

Literature Review

According to Eddy Lee and Marco Vivarelli, "optimists stress the link between increasing trade and economic growth and, from this premise, conclude that trade is good for growth and that growth is good for the poor (in terms of both job creation and poverty alleviation). . . . pessimists, by contrast, show that globalization is quite uneven in its impact and gives rise to negative counter-effects on previously protected sectors, entailing also the marginalization of entire regions of the world and possible increases in income inequality within countries" (2006, 167–68). Poverty only leads to more

poverty, and as poverty grows such aspects as quality of life, health care, education, water, food, shelter, and income, among others, are worsened. In addition, having no access to financial help and limited access to economic opportunities drowns those in need even deeper into poverty.

Poverty is considered a social problem, and it may result from a government's political and social instability. All of these factors have affected and continue to affect various countries, especially in Latin America. Renato G. Flores said that "anyone would be amazed by the serious macroeconomic disequilibria in the domestic and external accounts, the massive institutional changes that profoundly impact the channels linking trade and poverty reduction" (2008, 73). To help offset this, the government should provide economic assistance to the poor so they do not fall behind, especially during the hard times a country may be experiencing.

Good economic governance and trade reform is important for a country's economic growth, and good management of this growth is the key to reducing poverty levels. Even though globalization is helping to reduce poverty, "trade reforms may, for instance, have an impact on absolute poverty, but by favoring other classes as well, relative poverty may remain unaltered or even worsen" (Flores 2008, 68). Pierre-Richard Agenor describes various channels through which trade openness and financial integration may have an adverse effect on poverty; he suggested that "at low levels, globalization appears to hurt the poor; but beyond a certain threshold, it seems to reduce poverty possibly because it brings with it renewed impetus for reform. Thus, globalization may hurt the poor not because it went too far, but rather because it did not go far enough" (2002, 21). Considering this, I can say that the way government approaches globalization has a great impact in helping reduce poverty while growing globally at the same time.

Trade growth is the result of trade liberalization, technological development, and reduction of trade barriers, something that many countries have taken full advantage of while others have not. The World Bank (2002) suggests that the countries that have opened themselves the most to trade by reducing 34% of their import tariffs in the last two decades have, on average, grown the fastest compared to those that saw no growth over the same period by only reducing tariffs by 11%. Lee and Vivarelli also pointed out that "most developing countries have experienced a significant reduction in the proportion of its population living below the poverty line, particularly fast globalizing countries like China, India, and Vietnam. Conversely, many slow globalizers in sub-Saharan Africa have displayed the opposite trend" (2006, 175). In their study on Latin America, Enrique Ganuza, Samuel Morley, Valeria Pinero, Sherman Robinson, and Rob Vos suggest that "almost everywhere, liberalization increased output, reduced poverty, and had positive effects on employment or wages" (2005, 385). On the other hand, Agenor believes that "trade liberalization has led in some countries to reduced demand for unskilled labor and lower real wages in the short run; combined with a low degree of inter-sectoral labor mobility, job losses and income declines have often translated into higher poverty rates" (2002, 24). However, this is in the short run as he indicated previously.

The type of trade specialization a nation has is important in determining the effect of globalization on poverty. A study done by Paolo Figini and Enrico Santarelli (2006) found that "high poverty was associated with specialization in agricultural exports,

while lower poverty was significantly linked with export specialization in oil and other minerals and linked with manufacturing exports; thus, confirming recent results by UNCTAD (2002)” (2006, 140). Managing trade is an important factor that determines poverty.

Another factor that indirectly affects poverty is a country’s geography. In various countries transportation infrastructure is insufficient. Infrastructure is a key factor that limits the access for the region’s development and growth, which could lead to improving the quality of life and help to reduce poverty levels. Flores mentioned that “the evil combination of a diversified and often inhospitable geography with a decadent or non-existent infrastructure makes distance a key determinant of development, even in a small country like Ecuador, where three clearly distinct zones segment the territory” (2008, 72). A place such as Latin America, where road transportation is a major problem, shows how essential good infrastructure is for trade to have a positive impact.

Model

The purpose of this research paper is to determine the effects of trade on poverty in the less-developed countries. I used an OLS regression model. Poverty was the dependent variable, and trade was one of the independent variables. To control for other factors that may affect poverty, I also used debt, GDP per capita, health expenditure, education expenditure, inflation, population growth, and unemployment as explanatory variables. To allow for nonlinearities, that is, a possibly curving relationship between these variables and poverty, I added Trade squared and GDP per capita squared to my model. To identify any geographic effects, I included dummy variables for Africa, Latin America, landlocked countries, and those countries with World Trade Organization (WTO) membership.

Data and Variables

To examine the relationship between trade and poverty in developing nations, I focused mainly on poverty levels in Third World countries and examined whether trade had a positive or negative impact on society as a whole. The dependent variables measured countries’ average poverty levels from 1989 to 2008. I used both absolute and relative poverty measures: the GINI coefficient, the poverty gap at \$1.25 a day and \$2.00 a day, the income share held by the highest 10% and 20%, and the income share held by the lowest 10% and 20%.

Initially, I collected data on 227 countries worldwide from the World Bank. High-income countries and countries that did not have all the necessary data were eliminated, narrowing my sample to 84 countries. Most of those 84 countries did not have data for all 20 years; hence, I chose to use average values for the 20-year period. The following are the independent variables used:

Average GDP levels per capita (GDPCap) is the measure of a country’s total economic production, equally divided among a country’s population. Low GDP levels and high population levels are associated with poverty. High GDP levels and high population levels, as is the case with China, do not help reduce poverty because average GDP levels per capita are low compared to the rest of the world.

Health Expenditure per capita (HLTHcap) is per capita government spending on health care and health care expenditure as a percent of GDP. Limited access to health

care leads to a decrease in the well-being of an individual, making him or her more vulnerable to sickness. Illness makes it harder to work, which may lead to an increase in poverty. I would expect the lack of health care to reduce the chances a child will fully develop his or her capabilities, which would in turn lead to poverty because he or she will lack essential skills needed for a job.

Education (EDspnd) is a government's spending on education divided by the total number of students by level, as a percentage of GDP per capita. Education is important for any individual, but in poor countries, education is not a priority. Often child labor increases because of lack of education. Insufficient education leaves children without the basics to go through life and succeed.

Inflation (InflCPI) as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services. Inflation is a persistent increase in the level of consumer prices or a decline in the purchasing power of the consumer. Poor people spend greater percentages of their incomes on food than others. Inflation affects poor people the most because a greater percentage of their incomes is spent on basic needs, leaving little money or, in most cases, nothing left to be saved. Inflation raises prices, which reduces the power of consumption of this group, submerging them into deeper levels of poverty. This impact will cause poverty levels to rise.

Population growth (POPgrth) is expressed as a percentage of the total population of a nation, including all residents regardless of their legal status or citizenship. High growth levels may affect poverty if the nation does not have enough resources and employment opportunities to sustain the growth.

Average unemployment levels (Unempl) refer to a percentage of the labor force that is involuntarily without a job but is available for and actively seeking work. High unemployment rates should cause poverty levels to rise.

Trade (Trade) is the sum of imports and exports of goods and services measured as a percentage of GDP. It is thought that trade plays an important role in economic growth; therefore, high levels of trade should help reduce poverty and help a nation's economy. Trade is the key variable in this study.

Results

Poverty Gap at \$1.25 a Day

Table 1 presents results when the dependent variable is the poverty gap at \$1.25 a day. The standard errors have been corrected for heteroskedasticity. The model has an adjusted R^2 of 75.34. In other words, this model explains about 75% of the poverty gap at \$1.25 a day. The results show that *POPgrth* has the highest impact, with a positive coefficient, meaning that if a country experiences as little as 1% of population growth, there will be an increase of 4.22% in poverty. According to the CIA's *World Factbook*, the world population estimate is 6.8 billion as of July 2009, and the estimated annual percent increase in the world population is 1.167% (2009). Population growth in low-income countries is higher and so is poverty.

The coefficient of *GDPcap* is -0.019377, which means that initially every time there is an increase of 1% in GDP per capita there will be a decrease of 0.019% of the population living under the \$1.25 poverty line. With a positive coefficient, *GDPcap*² indicates that GDP per capita has a diminishing impact; as GDP per capita increases, the poverty gap at \$1.25 a day declines at a decreasing rate.

The key variable's coefficient, *Trade*, is -0.28012, which means that every time there is a 1% increase in trade as a percent of GDP, there will be a 0.28% decrease of people living on less than \$1.25 per day. The positive *Trade*² coefficient of 0.0014587 points to the same result *GDP**Cap*² shows: trade has a diminishing impact on poverty. As previously thought, trade does not have much impact on reducing poverty. Trade declines in effectiveness after a certain level of results is achieved; after that poverty is barely affected.

For the dummy variables, I found that landlocked countries have approximately 12% more of the population living below the \$1.25 poverty line, controlling for everything else. Countries with WTO membership tend to have an additional 7% of the population living below the \$1.25 poverty line. African countries have 14% more of the population below the \$1.25 poverty line, all else equal. The coefficient for Latin American countries is not statistically significant; poverty in Latin America is no different from poverty rates in the rest of the world. I can conclude from this that landlocked countries in Africa with WTO membership have approximately 33% more of the population living below the \$1.25 poverty line compared to the rest of the world. Landlocked African countries that do not have WTO membership have approximately 26% more of the population living below the \$1.25 poverty line. It is evident that taking part in world trade does affect poverty levels.

In another note, *EDspnd* has a higher impact on poverty at the \$1.25 gap than any of the other variables except for population growth. I can observe that if a country were to increase education spending per capita even by 1% of its GDP, then 2.74% of the population will move above the \$1.25 poverty line. This is important because the more education an individual receives, the more likely he or she will find a better job and succeed because knowledge is power.

HLTHcap has a positive coefficient of 0.06845: if a country increases health expenditure by 1% of its GDP, 0.068% of the population will move below the \$1.25 poverty line. This is important because it shows that health care per capita does not help to reduce poverty but is associated with higher poverty levels. A reason for this could be that with better health care, there is population growth due to lower infant mortality rates or simply because now the population can live longer. Another reason could be that investing in more health care takes money from other more important causes, such as education. Health care reduces GDP per capita and increases population growth, and both have an impact on poverty.

Poverty Gap at \$2.00 a Day

I examined the impact of trade on several other poverty measures; I kept all the independent and dummy variables used in the previous table. Results using a poverty gap at \$2.00 a day are in table 2.

In the new analysis, I found that the results for the poverty gap at \$2.00 a day were about the same as those for the poverty gap at \$1.25 a day, but there were a few that experienced slight changes. For instance, the *POPgrth* coefficient increased from 4.22 in table 1 to 5.7275 in table 2. At the \$2.00 a day poverty gap, there is an increase in poverty of 5.73% for every 1% in population growth, a difference of approximately 1.5% from the results in table 1. WTO membership had a decrease in its coefficient, falling from 6.8622 to 3.377, a 3.4852 difference, which means that at the \$2.00 a day

poverty gap WTO members only have 3.38% more poverty than those who do not have WTO membership. Africa also had a decrease in its coefficient, falling from 14.049 to 10.751, a 3.298 difference. This means that countries in Africa have only 10.75% more of the population below the \$2.00 a day poverty line than countries that are not in Africa. Latin America, on the other hand, had a significant decrease in its coefficient; it went from -0.97431 to -4. This means that at the \$2.00 a day poverty line, countries in Latin America have 4.03% less poverty than the rest of the world.

Measures of Relative Poverty

In order to further understand the effects of trade and who is benefiting from trade, I also ran regressions on several relative poverty measures while keeping the same explanatory variables used in table 1. Results of these regressions are in table 3; measures of relative poverty used were the GINI coefficient, Income Top 10% and 20%, and Income Low 10% and 20%.

From analyzing the data, I observed that for all five specifications only the coefficients for Africa and Latin America were significant. In all but the GINI coefficient equation, *POPgrth* is also significant. I can expect income for the top 10% and 20% to increase by 1.17% and 1.14%, respectively, for every 1% increase in population growth, while the income for the bottom 10% and 20% falls by 0.14% and 0.34%, respectively. For the GINI coefficient analysis, one additional variable that is significant is *GDPcap*. Here income inequality increased at a diminishing rate, primarily by increasing income of the top 10% and 20% that is approximately 10 times more than the bottom 10% and 20%.

In all the regressions, Africa and Latin America have much more inequality than the rest of the world, especially Latin America. Countries in Africa have nearly 5% more income going to top 10% and 20%, and Latin America has more than 10% additional income going to top 10% and 20% than the rest of the world. The bottom 10% and 20% in Africa has 0.03745% to 0.8744% less income and Latin America has 1.7389% to 3.5859% less income than the rest of the world.

For the most part, none of the other variables had a statistically significant impact on income inequality. In particular, trade creates a small but not statistically significant reduction in inequality, regardless of how it is measured.

Conclusion

The purpose of this project was to determine how trade and other factors affect absolute and relative poverty in developing countries. Absolute poverty is measured as the percent of the population living below the \$1.25 and \$2.00 a day poverty gap. In my research, a significant result was that population growth is one of the biggest causes of poverty. I found that when population growth increases by as little as 1%, poverty at the \$1.25 a day gap increases as much as 5.72% and poverty at the \$2.00 a day gap increases by 7.17%. The *World Factbook* estimates an annual percent increase in the world population of 1.17% (CIA, 2009). This is an important result because there is a much bigger population growth in Third World countries than in others. Population growth needs to slow down, not only because it results in higher poverty levels but because with more population, there is also an increase in demands for food, water, and other resources.

In the relative poverty measures results, I found that inequality is more significant in Latin American countries than the rest of the world; Africa follows. Here, population growth suggests more inequality because a 1% increase causes income to the top 10% and 20% to increase approximately 1%, while it decreases income of the bottom 10% and 20% by approximately 0.14% and 0.34%, respectively. On the GINI coefficient analysis, I saw that GDP per capita creates more inequality by increasing income to the top 10% and 20% approximately 10 times more than the bottom 10% and 20%.

Besides population growth, there are other factors that increased poverty in my sample. Trade is a major part of a country's GDP, and GDP itself is important to a country. Even though trade helps to reduce poverty by helping increase overall GDP, it reduces poverty at a slow and diminishing rate in the long run. As previously thought, trade does not have much impact. What it does, however, is help to increase GDP. However, with population growing at the same time, there is really no effect, although without trade helping to increase overall GDP, population growth would be even worse for poverty rates. Also, trade does not reduce inequality in developing nations. Trade creates a small but not statistically significant reduction in inequality. Poverty rates and inequality are not the same because poverty can decrease without changing levels of inequality. Therefore, trade reduces absolute poverty but has no statistically significant impact on relative poverty. This agrees with Flores' (2008) idea that trade reforms do have an impact on absolute poverty but by favoring others, relative poverty remains the same.

One important measure that can help reduce absolute poverty levels is education expenditure. My findings reveal that if education spending per capita increases as little as 1%, approximately 3% of the population will move above the \$1.25 poverty gap. This is important because it shows that the more education an individual can get the more likely he or she will find a better job and succeed. In addition, it is best if developing nations implement the right public policies and put more money into their education systems because a more literate population is better able to attract industrial development, helping everyone.

Good economic governance and trade reform are important for a country's economic growth, and good management of this growth is key to reducing poverty levels. Even though trade is helping to reduce absolute poverty at a slow diminishing rate, in the end trade is only helping those who are rich get richer and those who are poor stay poor. Considering this, I can say that the way government approaches globalization has significant impact in helping reduce poverty while growing globally at the same time. As a nation opens its economy to globalization some people will be hurt in the process, and this will cause poverty to increase. However, appropriate government management in implementing new public policies will help offset this negative effect, and a nation will thrive in the process.

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Appendix

Table 1. Poverty gap at \$1.25 a day

	Estimated Coefficient	t-ratio
<i>POPgrth</i>	4.22	9.767
<i>GDPcap</i>	-0.019377	-17.66
<i>GDPcapsq</i>	0.000001717	16.51
<i>Trade</i>	-0.28012	-8.35
<i>Tradesq</i>	0.0014587	8.416
<i>LndLck</i>	11.676	7.512
<i>WTO</i>	6.8622	10.11
<i>Africa</i>	14.049	7.551
<i>LatAm</i>	-0.97431	-1.011
<i>Unempl</i>	-0.24246	-3.424
<i>InflCPI</i>	-0.013737	-7.109
<i>EDspnd</i>	-2.7431	-8.177
<i>HLTHcap</i>	0.068453	15.47
<i>CONSTANT</i>	42.355	16.21
<i>R</i> ²	0.792	
<i>R</i> ² Adjusted	0.7534	

Table 2. Poverty gap at \$2.00 a day

	Estimated Coefficient	t-ratio
<i>POPgrth</i>	5.7275	7.566
<i>GDPcap</i>	-0.025854	-13.17
<i>GDPcapsq</i>	0.0000027183	11.05
<i>trade</i>	-0.30777	-4.127
<i>tradesq</i>	0.0016712	4.401
<i>LndLck</i>	11.548	3.999
<i>WTO</i>	3.377	1.873
<i>Africa</i>	10.751	3.809
<i>LatAm</i>	-4.0319	-2.452
<i>Unempl</i>	-0.17091	-1.387
<i>InflCPI</i>	-0.018665	-3.952
<i>EDspnd</i>	-3.2438	-5.325
<i>HLTHcap</i>	0.044804	6.521
<i>CONSTANT</i>	72.518	14.11
<i>R</i> ²	0.8118	
<i>R</i> ² Adjusted	0.7769	

Table 3. Measures of relative poverty

	GINI		INCOME TOP 10		INCOME TOP 20		INCOME LOW 10		INCOME LOW 20	
	Estimated Coefficient	t-ratio								
<i>POPgrth</i>	1.0512	1.511	1.1715	2.096	1.1487	1.889	-0.14029	-1.841	-0.34131	-2.001
<i>GDPpcap</i>	0.0035842	1.828	0.00249660	1.59	2.14E-03	1.264	0.00019945	1.108	0.00035474	0.8573
<i>GDPpcapsq</i>	-0.00000046632	-1.911	-0.00000037825	-1.961	-3.37E-07	-1.629	0.0000000021233	0.1093	0.00000000511	0.1136
<i>trade</i>	-0.045584	-0.6559	-0.054153	-0.9669	-4.75E-02	-0.8033	0.0055649	1.017	0.0076873	0.5888
<i>tradesq</i>	0.00025134	0.724	0.00028041	1.006	2.49E-04	0.8548	-0.000023249	-0.938	-0.000027461	-0.458
<i>LndLck</i>	1.7869	1.193	1.6422	1.353	1.5035	1.167	-0.24975	-1.901	-0.48987	-1.616
<i>WTO</i>	-0.74621	-0.4544	-0.75531	-0.5695	-0.2886	-0.2013	-0.28615	-1.39	-0.5805	-1.313
<i>Africa</i>	6.3704	3.57	4.8742	3.367	4.8829	3.149	-0.37452	-1.865	-0.8744	-1.997
<i>LatAm</i>	14.159	7.045	10.527	6.548	11.166	6.643	-1.7389	-10.02	-3.5859	-9.228
<i>Unempl</i>	0.073377	0.6991	0.03936	0.4693	5.49E-02	0.6099	-0.016276	-1.744	-0.036919	-1.727
<i>InflCPI</i>	-0.0045811	-0.7649	-0.0033417	-0.7002	-3.28E-03	-0.6367	0.000071726	0.1697	-0.000035643	-0.03482
<i>EDspnd</i>	0.30433	0.638	0.18545	0.4825	0.27753	0.6756	-0.01497	-0.3647	-0.044964	-0.4727
<i>HLTHcap</i>	-0.012491	-1.119	-0.0056307	-0.6242	-4.00E-03	-0.4003	-0.0024622	-2.109	-0.0044928	-1.682
<i>CONSTANT</i>	33.942	8.469	27.746	5.594	41.911	12.21	3.3927	10.03	8.2917	10.51
<i>R²</i>	0.5566		0.5243		0.5294		0.6418		0.6077	
<i>R² Adjusted</i>	0.4742		0.4359		0.4419		0.5753		0.5348	