

Effects of Globalization on Income Inequality in High Income Countries

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Abstract

This paper examines the relationship between technology, trade liberalization, and financial globalization in incomes inequality, focusing on high income countries. We find that technological progress has a smaller effect on income inequality than trade liberalization and financial globalization. The GINI index is used to measure the level of income inequality, and the Chinn-Ito index is used to measure the level of openness to capital investment. One of the key findings is that financial globalization has a significant effect on inequality within larger highly developed countries.

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Introduction

Inequality has been on the rise over the past few decades, not only in developing Nations but also in developed countries. The previous theory was that developed nations would reach a level of grow that would cause these inequalities to level off. Many have blamed the rising level of globalization to be the key factor in causing this rise. The flight of low-skilled jobs to countries with much lower wages rates has blamed for this inequality in developed nations. Many protectionist supporters have rallied for more trade barriers to protect low-skill jobs.

To devise correct policy, and create a more shared wealth among the population the true causes of inequality must be calculated. Wide income gaps cause vast differences in social welfare and overall living conditions. It is also thought that inequality can slow economic grow due to the fact that all economic opportunities may not be used to their full potential, by not allowing capital and labor to equalize. Inequality also causes a larger percentage of the population to be open to poverty conditions during economic downturns and recessions. As seen in many countries inequality can cause uprisings among to the impoverished, against policy makers and globalization.

There has been a great deal of research done on this topic and the past. The recent work on investigating technological advancements and income inequality is what drives the basis of my research. The major finding in these papers is that recent technological advances in telecommunications and international trade have the greatest effect on income inequality. The study found that these advancements have driven income disparities across a study focuses on various income nations. This paper is focused on high income countries that are at the forefront

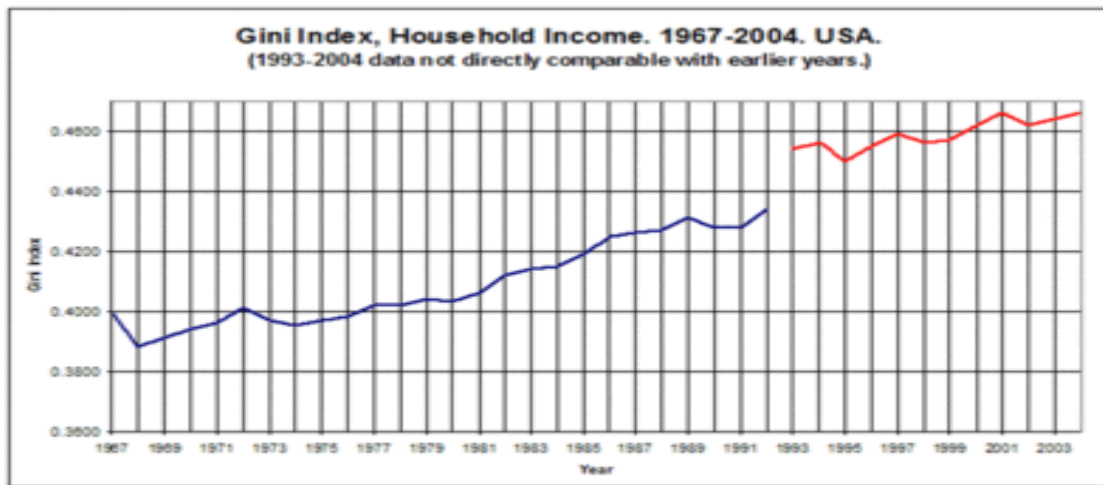
of technology and education. Technological differences between high income and low income countries are great, so it is possible that the exclusion of these countries in the empirical study will make considerable differences in the effects they have on income inequality.

This paper examines not just the effects that trade globalization and the effect it has on inequality but also the roles of financial globalization and technological change have on inequality in OECD countries. This paper discovers that trade liberalization and financial liberalization have contradicting effects on inequality. Trade liberalization has a tendency to decrease inequality while financial liberalization, in the form of FDI tends to increase inequality. It was found that technology changes are the major factor affecting the increases in inequality. Technology seems to be increasing the premium on higher skilled labor. Supporting this observation was the ease of access to education. It is observed that this access to education caused decreasing effect on Inequality. The major contribution of my paper is that it focuses deeply the effects of Income inequality in high income countries instead of using a sample of countries from all income levels. This will in turn be more beneficial when looking at GINI problems in such countries as the united states.

This Paper is organized into 5 sections. The Introduction gives an overview of the importance of this topic as well as what factors effect income inequality and my contribution to the study topic. The second section outlines some of the recent trends the Income disparities have shown in recent years, and some brief data to support some of the current assumptions about the subject. The Literature review section outlines much of the previous research that has been done on the subject of income inequality and GDP per capita. The data and empirical analysis section goes over the model that was created by the research done for this paper and

outlines the variables and limitations within the model. The conclusion section points out the policy implications that the model implies.

Trends:

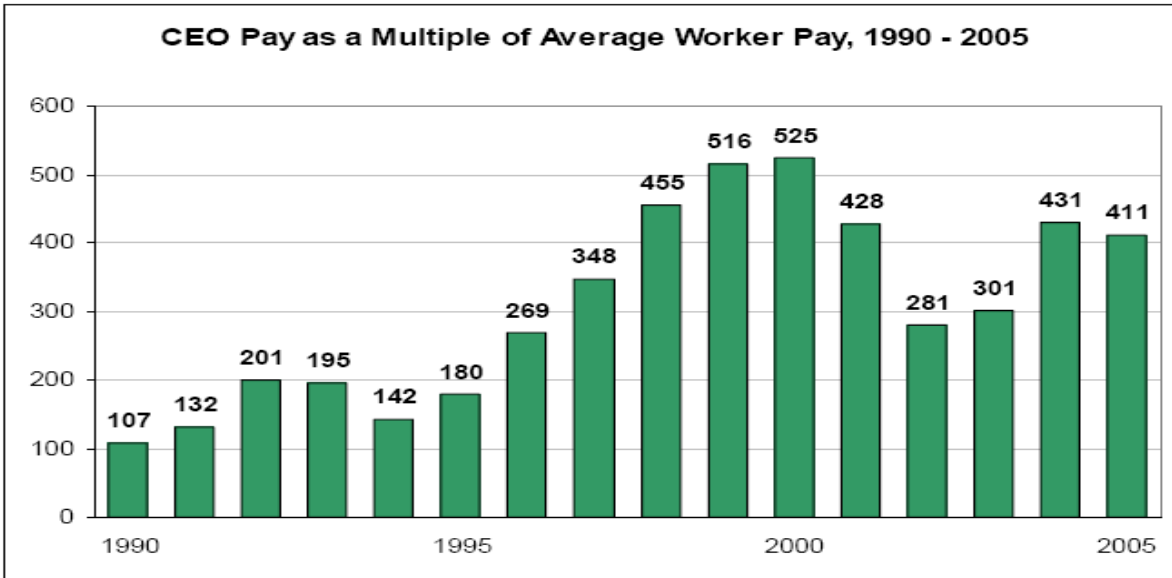


(Source: US Census Bureau. Historical Income Tables. Table H-4 All Races, "Gini Ratios for Households, by Race and Hispanic Origin of Householder: 1967-2004." Online. www.census.gov/hhes/www/income/histinc/h04.html)

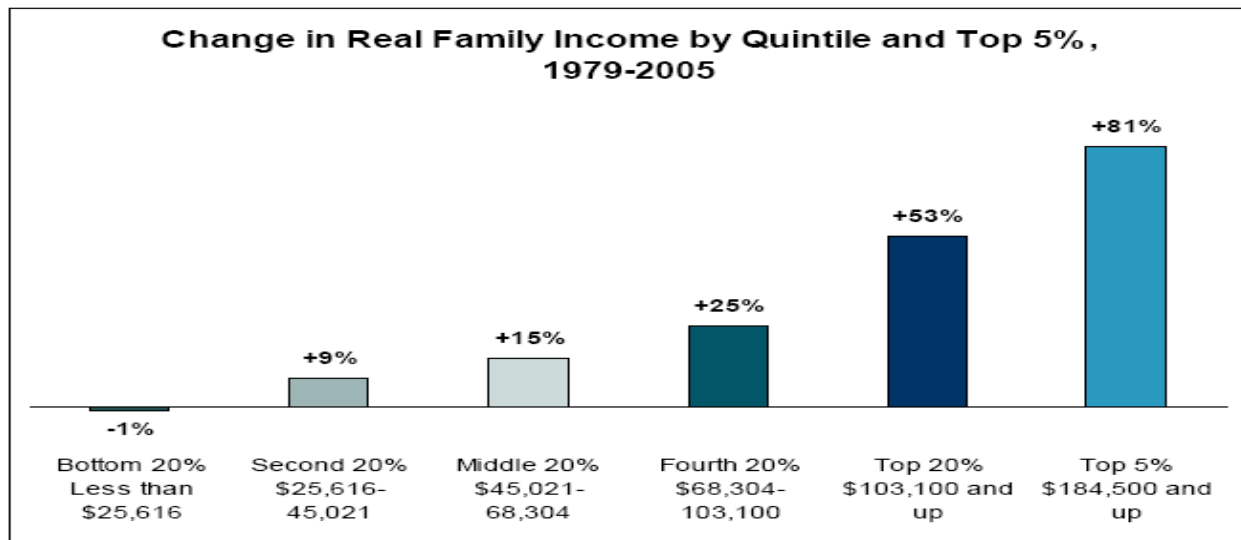
The top one percent of households received 21.8 percent of all pre-tax income in 2005, which is almost double what that same figure was in the 1970's.¹ This number is quickly approaching record high level that was set in 1928 when this figure was a percentage of 23.9%. During this same period the top earning 5 percent of American families saw their real incomes increase by 81 percent; while the bottom earning 5 percent of families saw their real incomes drop by 1%. Many of these drastic changes are blamed on the equally drastic increases in executive compensation. On average an American CEO earned 411 times as much as an everyday

¹ By the Numbers

American worker in 2005, compared to 107 times as much in 1990. Top American Executives also make twice as much domestically as the top executive from France, U.K., and Germany.



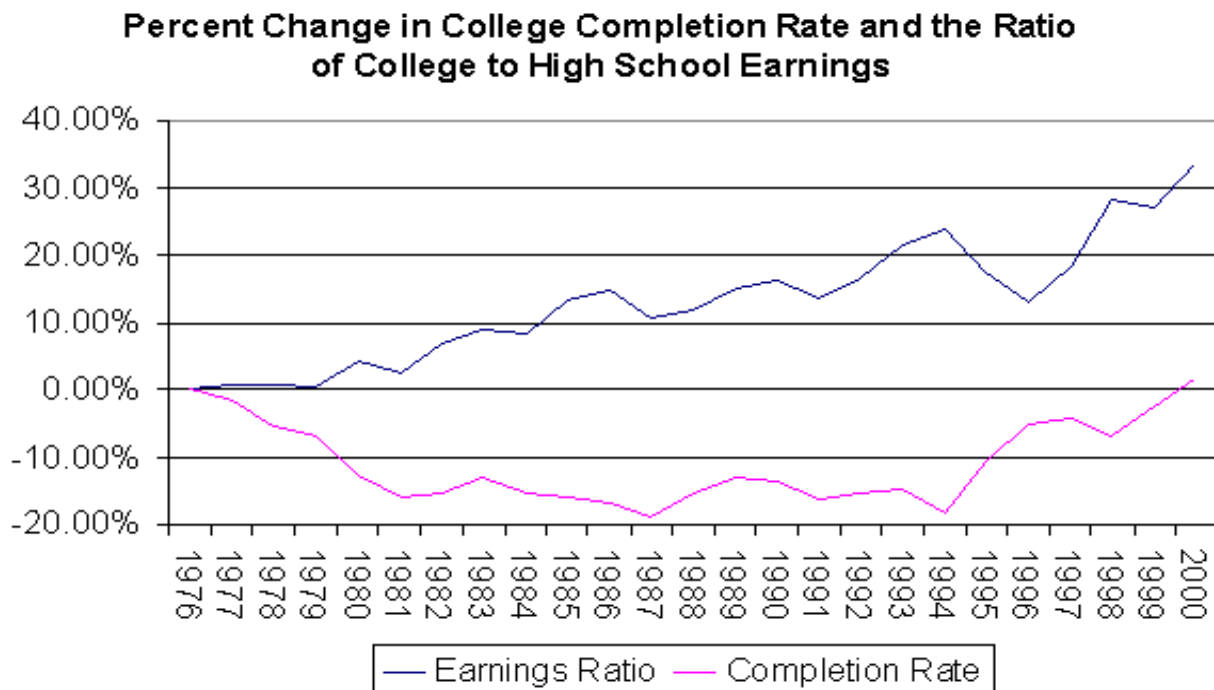
Source: United for a Fair Economy, Executive Excess 2005, based on annual CEO pay studies conducted by *Business Week* (1990-2004) and the *Wall Street Journal* (2005).



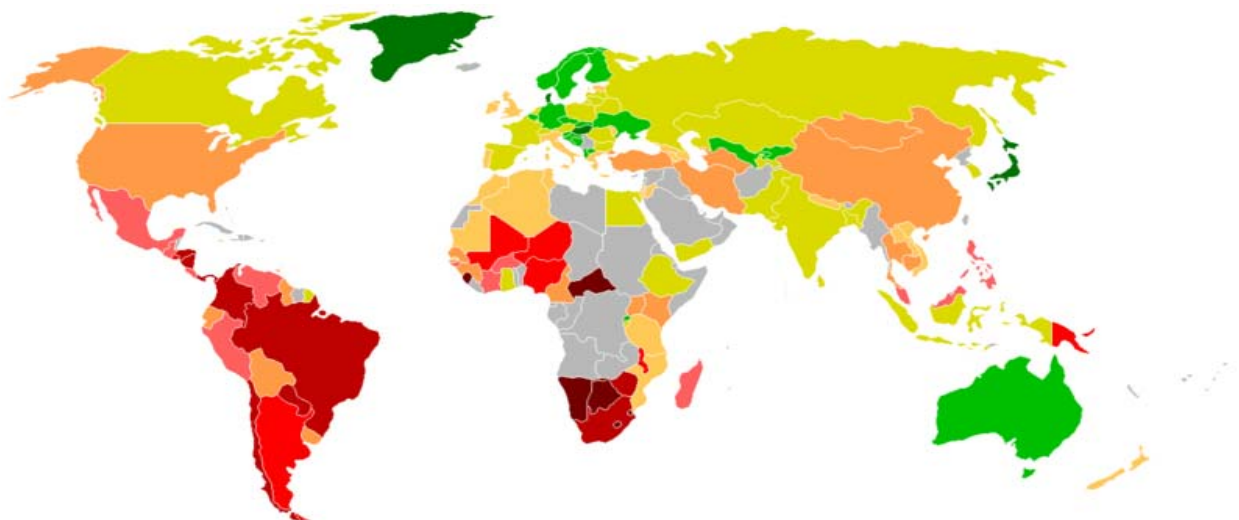
Source: U.S. Census Bureau, Historical Income Tables, [Table F-3](#).

Another relatively accepted explanation for this trend is the increasing returns to education, and the relatively stable level of graduation rates. The data currently available

shows that workers who have a college degree or above have a real median income that has been increasing, but those who do not have a degree have been decreasing significantly over the past years. Data also shows that college graduates real income has been increasing, but the relative number of college graduates has remained the same over the past 30 years. Higher levels of education, in general creates a higher level of income. As a result, people who cannot afford higher education, or have opted out of partaking in higher education generally receive lower wages. Recently the high demand for highly skilled and highly educated workers has increase the equilibrium wage level for people who have higher education levels. It is believed that this phenomenon has pushed high skill wage levels up but left low skill wages relatively unchanged.



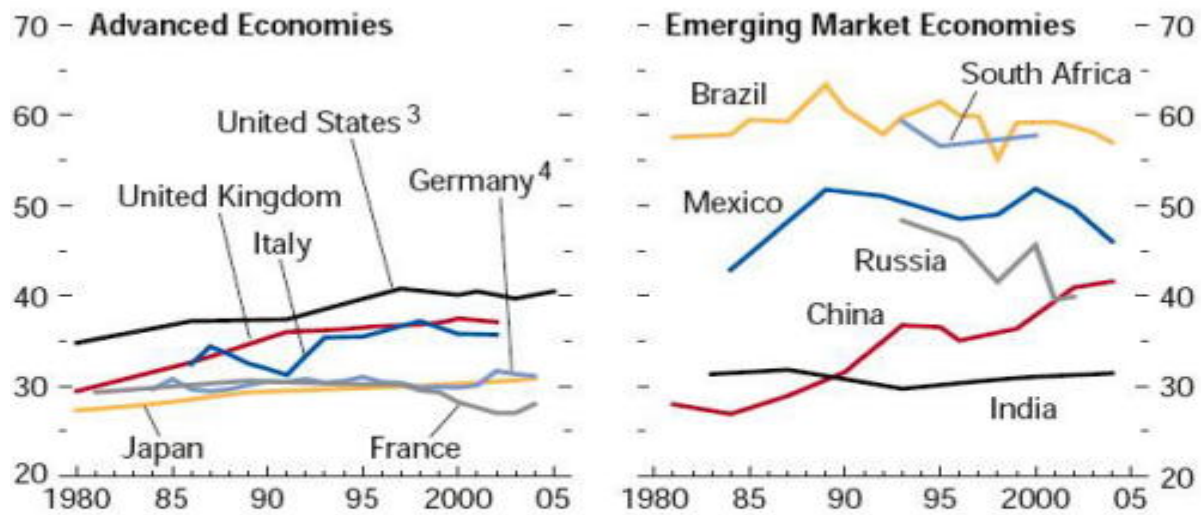
Some economist and the general population blame increase in Globalization and trade liberalization as a major source of income inequality. As we all know there have been significant advances in trade and communication internationally. Some of the contributing advances are technological strides with internet, and satellite communication, as well as trade advances through various free trade agreements. Some studies have shown that trade and foreign direct investment with low income countries has decrease the demand for low skilled labor domestically while sending that demand abroad. Many studies have found that international trade is insignificant when compared to other technological factors such as automation. Robert Lawrence discovered that low skilled jobs have been replaced by machines in wealthy nations, which has driven down the number of low skilled workers that can be affected by competition from low income countries. The graph below shows a color contrast between countries and their GINI index levels. Countries that are redder have higher inequality levels, and countries that are more green have lower income inequalities.



Developing countries have faced the same wage inequalities, as the global level of wage inequality increases. These countries have seen significant increases relative to the rest of the world, but these increases start from a significantly higher starting point. After China opened its protected trade barriers they encountered record level increases in income inequalities. In china there is a huge difference between the wages earned by the urban population and the wages earned by the rural population. India is also experiencing the same level of income disparages. Many critics of open markets and globalization blamed the implementation of aggressive market oriented reforms, for these intense increases in income differentials.

High levels of income differentials cause many problems. It can cause extreme poverty for many low income jobs such as those in agriculture. Extreme poverty is very prevalent in many countries where the rich and incredibly wealthy while the poor suffer. Large income differentials can also cause civil unrest. As seen in many African countries income disparages cause frequent uprisings and political unrest. The stability of many nations is shaken by new rising regimes that continually fight for power within the country. These factors make income inequality a very important aspect to study and keep track of.

Gini Coefficients in Selected Countries



Sources: Choi (2006); Povcal database; WIDER database; and IMF staff calculations.

¹Country coverage and years shown are limited to maintain constant country coverage. See Appendix 4.1.

²Excludes Hong Kong SAR due to data unavailability.

³Trends after 2000 are based on earnings data for full-time, year-round workers.

⁴Trends for pre-1992 are based on data for West Germany.

Lit Review

Though the effect of trade liberalization and Income inequality is a relatively new concept and extensive research is yet to be done, many papers have analyzed the effect on GDP from the liberalization or protection of trade. GDP and Income inequality are affected in similar ways to the same even of factors, so a look at the existing research on this topic is relevant to the discussion of Income inequality. Many of these studies look at single events where trade reforms are drastically changed, and what effects those events have on GDP. Two somewhat recent articles of this type are Nash and Thomas 1991 and Papageorgiou et al 1991. These two papers look at a single year of trade liberalization and observe higher GDP growth after trade liberalization. Both papers conclude that trade liberalization leads to increased levels of GDP growth. The main issue involved with these two studies is that the single liberalization events

involved much more than just trade transformations. A major external factor that was not taken into consideration was the fact that most of these trade liberalizing events also involved a regime change from Communist to a more efficient Capitalist economy.

Researchers have also suggested that trade liberalization in developing economies, such as the economies of many African countries are detrimental to long-term economic growth. "Independent Evaluation Group 2006" suggests that liberalizing trade reforms in the end leads to deindustrialization, and that most developing countries have indeed lightened their trade regimes. This deindustrialization is caused by already established industrial jobs being lost to countries that have set up factories that have established a more efficient production process. These international factories have the benefit of economies of scale and more experience that put the domestic factories out of business since they can offer a cheaper product to the people in that country. This causes the workers of that country to revert back to even lower skilled jobs that pay less and therefore causes significant GINI and HDI disparities. Subsequently the even greater problem is that in many of these countries there are more factors to take into consideration than just trade reform.

The GINI Index is widely accepted as a measure of income disparities between economies. Studies have taken place that found the GINI index is either on the rise or has not trend in any direction at all. Anand and Segal 2008 suggests that there is no significant evidence that supports any trend in the reduction or increase in the GINI for the since 1990. The paper concludes that there are too many methodological and data uncertainties and gaps to conclude any significant results from GINI data. This insufficiency of information mainly relates to countries where the data is much harder to collect and measure accurately. Some countries,

such as those in Africa and India have very large black markets for labor and other goods. This makes raw data inaccurate because much of the transactions that take place in these countries go unnoted. These numbers have to be estimated, and therefore leads to inaccuracies that could make the GINI coefficient somewhat inaccurate.

It is suggested that part of what causes income inequalities is the flight of low skilled jobs to regions where the wage rates for these jobs is significantly lower (Moss and Harrington 2006). When these low skill jobs leave the United States it creates an increased unemployment gap where these subsequently laid off workers used to have employment. According to Moss and Harrington the Gini Index inequality has seen an overall rise over the past three decades. Some economists attribute this rise in inequality to the social policies of Eastern Europe. Inequality in the United States has been particularly pronounced. From 2000 to 2003 the Gini index for the United States has increased from 38.8 to 46.4. In the recent past incomes at the upper end of the spectrum have been increasing as income for the lower end has seen a decline. We have seen this trend since about 1979. One explanation for this trend is the increasing returns to education. The data shows that workers who hold a college degree or higher, real median income had increased, but had decrease for those who do not have college degrees. They attribute this increase in the GINI index to three factors Globalization, technology and cultural norms. They suggest that globalization makes it easier and cheaper for jobs to move to lower wage areas. Technology increases communication capabilities so that data can move to and from these areas with greater ease. The final factor cited in the paper are cultural norms which refer to the obstacles put in place to prevent the flight of jobs to and from a particular country.

Das 2008 uses the theory of convergence to explain his trends in the GINI on the global level. He suggests that the technological influence of the United States of America caused technological and productivity growth in developing nations. This spillover of technology is also aided by subsequently better government institutions. The investment by corporation to create profitable and useful infrastructure to use from business purposes speeds up the advancement of that individual country and suggests that it will eventually cause the economy to grow to a global economic mean growth rate.

The recent rise in global Income inequality is often attributed to 3 different factors(Jaumotte, Lall and Papageorgiou 2008). The three factors are technology trade liberalization and financial globalization. By using a select group of diverse countries the study finds that the factor that creates the largest amount of income inequality is technological advancements. These advancements in technology are closely attributed to foreign direct investment. These advancements increase the premium on skills and tend to substitute away low-skill jobs. Increases in demand for higher skilled jobs and workers are created by technological advancement therefore increasing the inequality of income. Jaumotte finds that this effect from technology is more significant in lesser developed countries, since the use of technology in developed countries is much more widespread and integrated already. Small increases in technology have less of an effect as its influence increases at a decreasing rate. The study also finds that trade globalization is associated with a reduction in inequality that is offset by financial globalization and foreign direct investment.

Empirical Analysis

$\text{Lngini} = 22.3 + 0.0887 \text{ Chinn-Ito} - 0.0546 \text{ lnEX+IM} - 1.50 \text{ lnIndustry} - 0.207 \text{ lnagri} - 3.28 \text{ lnServices} + 0.286 \text{ Lntech} - 0.0568 \%educ$

Predictor	Coef	SE Coef	T	P
Constant	22.316	4.273	5.22	0.000
Chinn-Ito	0.08869	0.03292	2.69	0.013
lnEX+IM	-0.05456	0.05484	-0.99	0.330
lnIndustry	-1.4988	0.3404	-4.40	0.000
lnagri	-0.20708	0.05381	-3.85	0.001
lnServices	-3.2771	0.8000	-4.10	0.000
Lntech	0.2855	0.1667	1.71	0.100
%educ	-0.05683	0.02315	-2.46	0.022

S = 0.140738 R-Sq = 61.4% R-Sq(adj) = 50.2%

Coefficient	Variable	Explanation	source
Dependant Var.	Lngini	Gini index (2007)	CIA World Factbook
.08869	Chinn-Ito	FDI investment openness (avg. 1995-2000)	Chin Ito Index 2007 publish
-0.05456	lnEX+IM	Amount of total international trade (% of GDP, avg. 1995-2000)	World Bank Economic indicators
-1.4988	lnIndustry	employment in industry (% of total, avg. 1995-2000)	World Bank Economic indicators
-0.20708	lnagri	employment in agriculture (% of total, avg. 1995-2000)	World Bank Economic indicators
-3.2771	lnServices	ICT investment (%of GDP, avg. 2000-2005)	World Bank Economic indicators
0.2855	Lntech	ICT investment (%of GDP, avg. 2000-2005)	World Bank Economic indicators
-0.05683	%educ	=% of GDP invested in education (avg. 1998-2000)	World Bank Economic indicators

The countries studied in this report are all countries that were ranked as high income countries by the World Bank. The World Bank ranks 63 countries as high income earners, but only a select 32 countries were used, due to gaps in data particularly the dependant variable GINI index rankings. This is understandable since the GINI index is a relatively new indicator and much of the infrastructure needed to calculate the GINI is not yet readily available. The Chin-Ito data for foreign direct investment openness was taken from the 2007 publishing of financial openness rankings. The data used in this study was an average of data from 1995-2000. If there were discrepancies in the data for those years, the average of the available years from 1995-2000 were used. To account for the amount of trade openness this study uses the total amount of goods and services exported, as a percentage of GDP plus the total amount of goods and services imported, as a percentage of GDP. The reason net exports data is not used in this situation is for the reason that we are looking at total trade not balance of trade. A country that imports and exports significantly more than any other country may have a low net export if both exports and imports values are relatively the same. Agricultural, Industrial, and Services employment data was taken from the World bank Economic indicators database. The values were created by averaging the % of total employment of 1995-2000 for each sector. The impact of technology on Income inequality is represented by ICT investment as a percentage of GDP, and the data was averaged for the years 2000-2005. Human capital advancement in this model is represented by the % of GDP invested in education and is an average of data from 1998-2000. In this model the GINI index is used as the dependant variable in a GLS linear regression equation. The GINI index data is from 2007, as it is has a lagging reaction to the independent variables used in the equation.

The results found in this empirical analysis are somewhat inconsistent with other papers that look at countries from all income groups. It is found that employment in the services sector actually reduces the overall income inequality in a high income country. This makes sense when we look at increasing returns to human capital. As low wage/ low skill workers start to gain the human capital needed to work at the services level the gap between low income earners and high income earners will reduce as low wage earners start to become less and less prevalent, and start to “catch up” with service wage earners. The impact of technological advancement differs from other studies that don’t look at high income countries exclusively. In other studies technological advancement creates a large amount of Income inequality because it gives companies more ability to use telecommunications to send work to lower wage areas in order to cut costs. As high income countries are at the forefront of technological advancement it is understandable that any new advances in communications and technology would have little impact on Wage Inequality. The impact of education on the GINI Index also differs from other papers. Education in developing nations creates huge strides in economic advancement and income levels, but education in High income countries works much in the same way that technology does in the sense that education in these countries are at the forefront of their global peers. Foreign direct investment is proven to have very little effect on a country when it comes to wage inequality.

Conclusion:

This model proves that High income countries have very development needs when compared to lower income and developing nations. The most significant finding is that

increasing employment in the services industry will lower income differentials by the most significant amount. This statement makes a lot of economic sense. As a country looks to increase GDP, and income over time laborers need to become more and more profitable. When laborers start to move from lower paying industrial and agricultural job to higher paying service job there is an immediate increase in income inequality stemming from a select few working the higher wage service jobs. This same situation has been notoriously blamed for creating high levels of inequality, but there is one subsequent movement that most fail to take into consideration. In these developed trade economies and as the rest of the industrial and agricultural sectors start to move to these higher paying service jobs, the income gap is once again closed since more and more people are earning service wages. This is the resulting situation in high income countries when they continue to increase their overall GDP per capita income levels. Laborers should worry less about losing their low skill jobs to other low wage countries, and focus more on advancing their own incomes to higher paying jobs that take the place of the low income jobs that have been exported. This is also supported by the fact that countries that have higher trade level also experience lower income inequality levels since they are more able to export the low wage jobs abroad while at the same time increasing their own average wage level domestically.