Institutional Quality, Income Inequality, and Economic Growth In Latin American Countries

Courtney Pomer[a]

Abstract:

This paper investigates the possibility of the institutional quality of a country having an effect on income inequality and economic growth in Latin American Countries. The study incorporates the gini variable and growth rates of GDP in each country to examine the influence of corruption on the various countries throughout Latin America. Looking at previous research it has been found that corruption is positively correlated with income inequality and negatively correlated with economic growth. The variable for corruption in this study however measures the control of corruption in each country, so we will be looking at the institutional quality and its effects. It would be expected that control of corruption would have a negative relationship with income inequality and a positive relationship with economic growth.

JEL Classification: K42, O11, O54

Keywords: Institutional Control, Corruption, Economic Growth, Income Inequality, Latin America

[a] Department of Economics, Bryant University, 1150 Douglas Pike, Smithfield, RI02917. Phone: (508) 846-1420. Email: cpomer@bryant.edu.

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1.0 INTRODUCTION

According to the Transparency International's latest Corruption Perception Index, two-thirds of the Latin America region fall in the bottom half of the list, meaning they are among the world's most corrupt nations. Although, recently the many countries in the region have been trying to fight corruption and put a stop to it but corruption remains deep-rooted and shows no signs of improving anytime soon. According to Bhansali (2010) the lack of high-quality public services in this region and the rebuilding of citizen trust are two key problems that are in the way of the anti-corruption policies.

Corruption can have opposing effects on countries. This study aims to enhance the understanding of the effects institutional quality, mainly looking at the control of corruption, has on economic growth and income inequality in Latin American countries. According to Gymiah-Brempong (2001) corruption distorts incentives and market signals which leads to the misallocation of resources and therefore slows down economic growth. From a policy perspective, this analysis is important because if corruption has a large impact on the economic growth than it could reveal that more countries should be pursuing anti-corruption policies or taking a more active role in fighting corruption. The relevance of this study is that many Latin American countries have been struck with political and economic disorder due to corruptive political leaders and corrupt businesses involving drugs.

The World Bank has reported that putting an end to corruption is an important hurdle that must be overcome for sustainable economic growth. Some of the anti-corruption tools the World Bank has offered are comprehensive diagnosis and empirical studies, civic groups engagement promotion, and coalitions building and training. Right now it is believed that corruption is the cause of the structural weaknesses in many of the countries in the Latin American Region. The

World Bank has also suggested that the anti-corruption strategies should revolve around five key elements. The elements are (1) increasing political accountability, (2) strengthening civil society participation, (3) creating a competitive private sector, (4) developing institutional restraints on power, and (5) improving public sector management.

The poor income distribution in these Latin American Countries can also be caused by the corruption or the poor institutional quality in the countries. In 2003 the World Bank Vice President for Latin America and the Caribbean has stated that this region was one with the greatest inequality in respect to incomes. This paper will try and help and enhance the research and knowledge on how the institutional quality, mainly focusing on how well corruption is controlled, and income inequality in countries in the Latin America Region are related.

This paper was guided by three research objective that differ from other studies: First, it expands on previous research on Latin American Countries and will focus on 18 countries from the year 2002 to the year 2010; Second, it incorporates information used to examine the influence of countries control over corruption on both economic growth and income inequality; Last, it analyzes how this certain geographical area has some of the largest corrupt nations and how the different countries throughout the region may be impacted differently. This paper will allow us to expand our knowledge on the effects of corruption using panel data model.

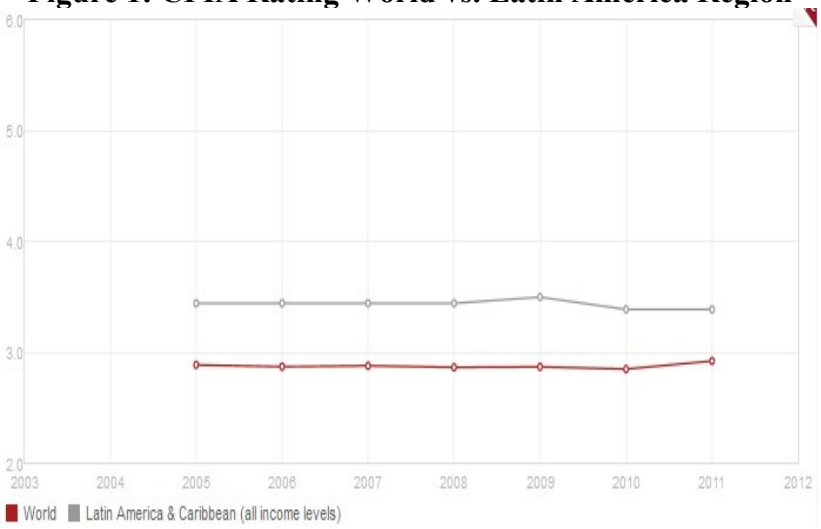
The rest of the paper is organized as follows: Section 2 shows trends on the given topic. Section 3 gives a brief literature review. Section 4 outlines the empirical model, data and estimation methodology. Finally, section 5 presents and discusses the empirical results. This is followed by a conclusion in section 6.

2.0 TREND

We will begin by looking at how Latin America compares to the rest of the world when it comes to corruption. Then we will see how the different countries with in the region compare to one another. We will also compare the Latin America region to seven other regions of the world. And finally we will look at Latin America's GDP Growth from 2003 to 2011.

Figure 1 shows that CPIA transparency, accountability, and corruption in the public sector rating in the Latin American Region compared to the rest of the world. The rating is based on a scale from 1 to 6, 1 being lowest and 6 being the highest. From 2005 to 2010 the worlds rank remained constant at 2.9 but then increased slightly in 2011. The Latin America region was ranked 3.4 from 2005 to 2008 but then increased in 2009 to 3.5 and then decreased again to 3.4 in 2010 and 2011.

Figure 1: CPIA Rating World vs. Latin America Region

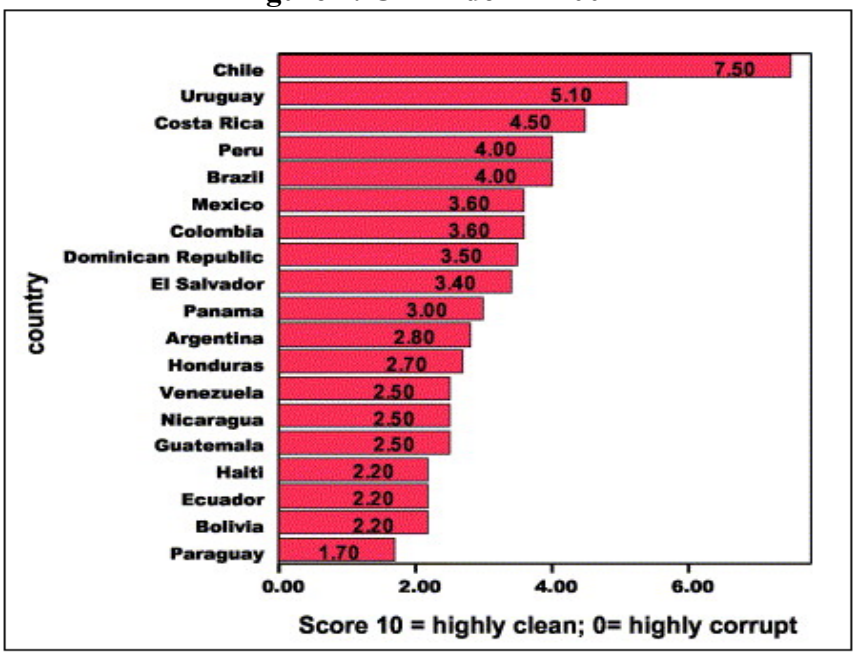


Source: World Bank Database

Figure 2 shows the Transparency international corruption-perception index for Latin America in the year 2002. Chile is the least corrupt Latin American country and Paraguay being the most corrupt out of the 19 countries shown. Out of the 19 countries only two have a ranking

above 5 and Uruguay is just over the midpoint with a 5.10 ranking. This reveals that most Latin American countries are more corrupt than "clean" as the graph depicts.

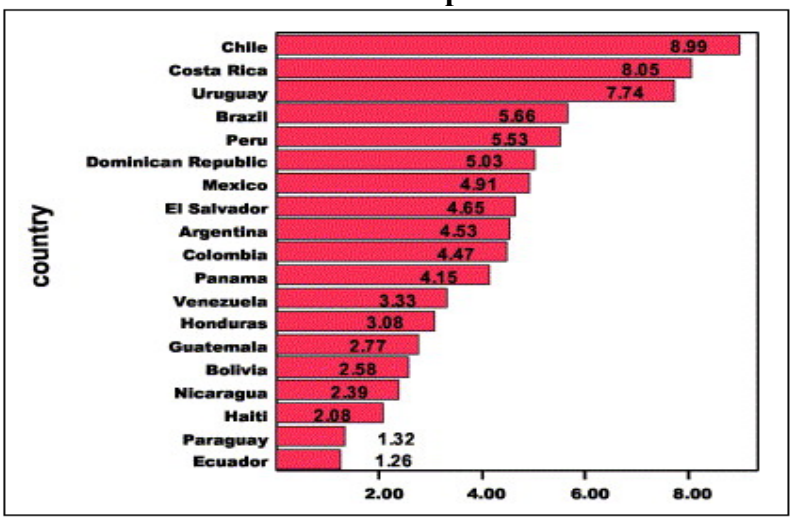
Figure 2: CPI Index in 2002



Source: *World Development* by: Mitchell A. Seligson

Figure 3 reveals the control of corruption for the 19 Latin American countries listed in the chart. It is based on a ranking from 0 to 10. 10 is having the best control and 0 having no control. Chile has the highest ranking of 8.99 and Ecuador the lowest at 1.26.

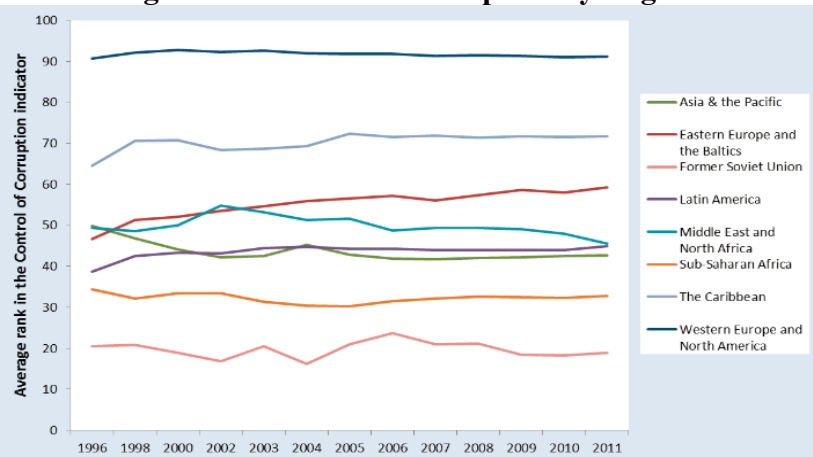
Figure 3: World Bank Institute Corruption-Control Index 2001/2002



Source: *World Development* by: Mitchell A. Seligson

Figure 4 Portrays how the Latin America region is one of the lowest ranked regions in corruption control. Western Europe and North America have the highest rank for corruption control and Former Soviet Union has the lowest rank.

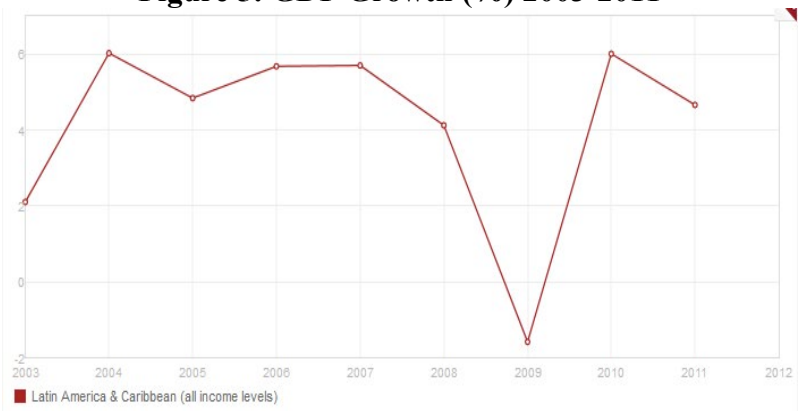
Figure 4: Control of Corruption by Region



Source: World Bank- Against Corruption Articles

Figure 5 shows as a whole the Latin American growth by GDP, as an annual percentage. In 2007 GDP growth decreased to a low of -1.6% in 2009 due to the global financial crisis. It then increased to 6% in 2010 and then began to decrease again.

Figure 5: GDP Growth (%) 2003-2011



Source: World Bank Database

As we can see Latin America is one of the more corrupt regions in the world. And in the last few years their GDP growth has fluctuated. The following literature review will shed some

light on how corruption, or how reputable the institutional quality is in the region, can have an effect on the income inequality in Latin America as well as how it affects the economic growth in those countries.

3.0 LITERATURE REVIEW

The literature reveals that corruption does have an effect on both economic growth and income distribution. Corruption is defined as illegally enriching public agents or officials who obtain larger benefits, or bear a lower share of public costs. (Davoodi et al., 2001; Li et al., 2000) Gyimah-Brempong (2001) stated that corruption slows economic growth because it distorts incentives and market signals leading to misallocation of resources. Davoodi et al. (2001) also reveals that corruption disrupts the government's role in asset allocation. Others believe that corruption occurs because the government has a monopoly over resources that are needed by private citizens. (Husted, 1999)

Li et al. (2000) explains that, based on empirical literature, corruption and growth have a negative relationship, meaning corruption causes slow growth. According to Mauro (1995), bureaucracies can delay the distribution of permits and licenses, which therefore slows down advances in technology. Corruption decreases private investment, thus decreasing economic growth. (Gyimah-Brempong, 2001; Mauro, 1995) According to Seligson (2002), among countries in which bribery or corruption was high and unpredictable, the rate of investment was half of what it was in low-corruption countries. Gyimah-Brempong (2001) found, when looking at African countries, a one unit increase in the corruption index decreases the growth rate of GDP by between 0.75 and 0.9 percentage points, and of per capita income by between 0.39 and 0.41 percentage points. It was also found that corruption decreases the inflow of foreign direct

investment into the country. (Gyimah-Brempong, 2001) Li et al. (2000) also found that corruption and growth are negatively related, but that the relationship was not very significant.

Corruption also leads to income inequality. Davoodi et al. (2001) argues that the impact of corruption on income inequality and poverty is significant and found that a worsening in the corruption index of a country by one standard deviation increases in the Gini variable by 11 points, which is significant. Gyimah-Brempong (2001) states corruption affects the Gini variable through government consumption. According to Li et al. (2000) inequality is low when levels of corruption are high or low, but inequality is high when corruption is in-between, therefore the relationship between the two is an inverted U-shape. Gyimah-Brempong's (2001) research on Africa argues that the poor bear the brunt of economic effects of corruption. But the benefits of corruption are most likely to go to the more connected, higher-income individuals in the society. (Davoodi et al., 2001) Davoodi (2001) also argues that because corruption increases inequality, the negative implications from that is harmful to both growth and equity. Corruption also causes public services to be focused toward those who pay bribes, which is mostly high-income individuals, and denying those services to those who do not accept bribes. This therefore, results in unequal and inferior services to many. (Seligson, 2002)

The factors that are said to increase corruption are low levels of law enforcement, lack of understanding of the rules, of clearness and accountability in public actions, too much monopoly given to public officials, and the large size of the public sector. (Gyimah-Brempong, 2001) In Latin America corruption has distinctive effects; it has a greater effect on inequality compared to other continents. (Li et al., 2000) Li et al. (2000) states that Latin American countries when government spending is higher in Latin American countries, corruption is also more harmful for growth.

4.0 DATA AND EMPIRICAL METHODOLOGY

4.1 DATA

The study uses annual data from 2002 to 2012 for eighteen Latin American Countries. Data was obtained from The World Bank and The Worldwide Governance Indicators. The eighteen Latin American countries are Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Peru, Uruguay, and Venezuela, RB. Summary statistics for the data are provided in Table 1.

Table 1 Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Primary Education	162	5.833333	0.50155	4	6
Secondary Education	162	5.783951	0.531249	5	7
Exports	160	5.008059	7.882109	-15.96882	30.43911
GDP growth	162	4.286642	3.979828	-10.89448	18.28661
Government consumption	160	4.166737	4.501902	-12.5592	18.0551
Gini	121	52.34653	4.309991	44.49	61.33
FDI net inflow	162	4.80E+09	9.00E+09	-3.05E+09	5.33E+10
Per Capita Income	160	2.711967	4.497306	-16.3296	15.25617
Control of Corruption	162	44.07963	21.83207	2.4	91.7
Government effectiveness	162	45.21975	18.76832	10.7	87.8
Political Stability	162	36.51296	19.88709	1	82.2
Rule of Law	162	36.55247	20.94176	1.4	89.5

4.2 EMIPRICAL MODEL

Following Gyimah-Brempong (2001) this study adapted and modified the two models used in the paper. For the model on economic growth we have added FDI_NETINFLOW, CTRL_CORR, GOV_EFFEC, and POL_STAB. The model will have a total of 10 variables.

The Model could be written as follows:

$$GDP_{Growth} = \beta_0 + \beta_1 Primary_{EDUC} + \beta_2 INCOME + \beta_3 PCINCOME + \beta_4 GOV_{CONS} + \beta_5 FDI_{NETINFLOW} + \beta_6 Exports + \beta_7 CTRL_{CORR} + \beta_8 GOV_{EFFEC} + \beta_9 Pol_{Stab} + \mu$$

GDP_{Growth} is the annual percentage of GDP growth each year. GDP_{Growth} is the dependent variable in the model. The rest of the variables are the independent variables. $Primary_{EDUC}$ is the years of education to measure human capital. The variable $INCOME$ is the adjusted net national income growth for each year, $PCINCOME$ is per capita income, and GOV_{CONS} is government consumption. $FDI_{NETINFLOW}$ is the Foreign Direct Investments that come into Latin America as a percentage of GDP. $Exports$ is the amount of exports of goods and services. The variables $CTRL_{CORR}$, GOV_{EFFEC}, and Pol_{Stab} , all represent the governments control of corruption. These data sets were obtained by The Worldwide Governance Indicators and each country for each year was given a ranking between 0 and 100, 0 corresponding to the lowest rank or the lowest amount of control. The lower the number the less control the government has on corruption. $CTRL_{CORR}$ represents the actual control the government has on corruption, where as GOV_{EFFEC} is how effective the government is in general which would include corruption, and Pol_{Stab} is political stability. Because politics is often overcome with corruption political stability is also a good measure on how institutional quality can effect economic growth in these particular countries.

The second model also follows Gyimah-Brempong (2001). Not only did we use the variables in the model followed by Gyimah-Brempong (2001) but we added FDI_NETINFLOW and CTRL_CORR, GOV_EFFEC, and POL_STAB to this model as well.

The model could be written as follows:

$$GINI = \beta_0 + \beta_1 GDP_{GROWTH} + \beta_2 PRIMARY_{EDUC} + \beta_3 SECONDARY_{EDUC} + \beta_4 PCINCOME + \beta_5 GOVCONS + \beta_6 FDI_{NETINFLOW} + \beta_7 CTRL_{CORR} + \beta_8 GOV_{EFFEC} + \beta_9 POL_{STAB} + \mu$$

$GINI$ is the gini coefficient which measures income inequality. It is the dependent variable in the model. GDP_{Growth} is the annual percentage of GDP growth each year. $PRIMARY_{EDUC}$ and $SECONDARY_{EDUC}$ both represent years of education where secondary education is more advanced years of schooling. $PCINCOME$ is the per capita income. And as stated in the previous model GOV_{CONS} is government consumption and $FDI_{NETINFLOW}$ is the Foreign Direct Investments that come into the Latin America as a percentage of GDP. The variables $CTRL_{CORR}$, GOV_{EFFEC}, Pol_{Stab} , all represent the governments control of corruption and institutional quality, as was stated in the previous model.

5.0 EMPIRICAL RESULTS

The empirical results for the first model are presented in Table 2. The empirical estimation shows the positive relationship between control of corruption and economic growth in Latin American countries. Meaning, that if these countries can increase their control over corruption than they will have higher economic growth, which we measured using annual GDP growth. Looking at the model we can see that an increase of control of corruption by 1 unit

would cause GDP growth to increase by .01 units, ceteris paribus. It was interesting to see however that government effectiveness and political stability had a negative relationship to GDP growth. This could be because political systems do tend to be corrupt and therefore lead to a decrease in economic growth.

Table 2: Regression Results for Economic Growth

VARIABLE	GDP GROWTH
CONSTANT	1.429158 (1.513472)
PRIMARY_EDUC	0.090055 (0.251956)
INCOME	0.091846*** (0.027325)
PCINCOME	0.673979*** (0.037333)
GOVCONS	0.037879 (0.025507)
FDI_NETINFLOW	-1.53E-11 (1.48E-11)
EXPORTS	0.083122*** (0.0000)
CTRL_CORR	0.012155 (0.011216)
GOV_EFFEC	-0016163 (0.013228)
POL_STAB	-0.0042898 (0.007459)
R^2	0.911434
F-statistic	0.906120
Prob(F-statistic)	0.00

These results show that corruption does affect the economic growth of these 18 countries. Although we used the control of corruption and how effective the government and political systems are we can presume that if the results show better control of corruption leads to higher economic growth then we can also say that less control of corruption, or higher corruption in these areas actually leads to lower economic growth.

The $R^{2,}$ which measures the goodness of fit, for this model was 0.91, which indicates a good model. However, only 3 variables turned out to be statistically significant. Those variables were *EXPORTS, PCINCOME,* and *INCOME*. All three were significant at the 1% level.

Appendix B reveals the expected signs of the variables. It was predicted that FDI inflows would have a positive relationship to GDP growth however there was actually a negative relationship. According to a paper by Li and Liu (2004), there is a strong negative interaction effect of FDI with the technology gap on economic growth in developing countries which could explain why we got a negative relationship in this model. Also, government effectiveness and political stability were predicted to have a positive relationship with economic growth however it turned out to be a negative relationship. Government consumption was also predicted to have a negative relationship to economic growth but it turned out to be positive this could be because the consumption by the government could have been on goods and services that improve the well-being of the country, such as advances in technology that could lead to an increase in economic growth.

The empirical results for the second model are presented in Table 3. The empirical estimation shows the negative relationship between control of corruption and income inequality. This reveals that if the government increases there control over corruption income inequality in Latin American countries will decrease. Looking at the model we can see that a 1 unit increase in the control of corruption will actually lead to a 0.105 unit decrease in income inequality, holding other factors constant.

Table 3: Regression Results for Income Inequality

VARIABLE	GINI
CONSTANT	92.12194 (8.017268)
GDP_GROWTH	0.627844*** (0.226187)
PRIMARY_EDUC	-5.675814*** (0.854676)
SECONDARY_EDUC	-0.838853 (0.725523)
PCINCOME	-0.617383*** (0.204160)
GOVCONS	-0.039712 (0.069309)
FDI_NETINFLOW	-1.83E-10*** (4.86E-11)
CTRL_CORR	-0.105653*** (0.032706)
GOV_EFFEC	0.100981** (0.038947)
POL_STAB	-0.054074** (0.022185)
R^2	0.511395
F-statistic	12.90860
Prob(F-statistic)	0.00

These results reveal that corruption does negatively impact income inequality. If the control of corruption was to increase then the gini coefficient would decrease, which means lower income inequality. Because many political systems are corrupt or contribute to the corruption of countries it is not surprising to see that political stability and income inequality (represented by the gini coefficient) have a negative relationship. The more stable the political system then the less income inequality in the country.

The R^2 for this model is 0.51, meaning that 51% percent of the variations in the variable gini are explained. Of the nine independent variables 7 are statistically significant.

GDP_GROWTH, FDI_NETINFLOW, PCINCOME, CTRL_CORR, and *PRIMARY_EDUC* are all significant at the 1% level. *GOV_EFFEC* and *POL_STAB* are significant at the 5% level.

GDP growth and government effectiveness were expected to have negative relationships with income inequality however they had positive relationships. The positive relationship between GDP growth and income inequality could be that although there is growth in the economy, the effects of the growth could still be affecting only certain classes of people, making the income gap between the rich and the poor larger. FDI inflows, per capita income, primary and secondary education, and government consumption were all predicted to have positive relationships with income inequality but actually turned out to be negatively related. The FDI inflow's negative relationship with income inequality could be interpreted such that the openness of trade and globalization has actually increased income inequality in this region rather than decrease the income inequality.

6.0 CONCLUSION AND POLICY IMPLICATIONS

In summary, the more control over corruption the higher economic growth and the less income inequality in a country. The results in this paper reveal that countries in the Latin American area can increase growth by implementing more policies that decrease corruption. According to the data collected, Latin America is made up of a majority of countries with high rates of corruption and little control over it. With the effective implementation of Anticorruption policies this paper reveals that not only will economic growth increase but the income inequality in these areas will also decrease. If the government takes a leading role in controlling for corruption as well as create a competitive economy then the economic growth in this region should increase. Also, if the countries restrain the power of certain officials and people income inequality should decrease.

There were limitations while researching this particular topic. First, many Latin American countries could not be used in this paper because there was not enough data. Also, we could only go as far back as 2002. This was because for the 18 countries that were chosen, not all data points were available for each variable before the year 2002. Also, this research was only done over the span of 4 months. With more time we could have gone more in-depth on the topic.

Future Research could increase the time span of the data as well as increase the number of countries. Instead of looking at 2002 to 2010, future research could go farther back as well as up to the most present year. Also, they could include all Latin American Countries not just the 18 that this paper included. Including different variables or other measures of corruption could also be useful in future research.

Appendix A: Variable Description and Data Source

Acronym	Description	Data Source
GDP_GROWTH	GDP growth	The World Bank
FDI_NETINFLOW	Foreign direct investment: net inflows	The World Bank
EXPORTS	Exports of goods and services	The World Bank
CTRL_CORR	Control of Corruption	Worldwide Governance Indicators
GOV_EFFEC	Government effectiveness	Worldwide Governance Indicators
POL_STAB	Political Stability	Worldwide Governance Indicators
INCOME	Adjusted net income	The World Bank
GOVCONS	Government consumption	The World Bank
GINI	Gini coefficient	The World Bank
PCINCOME	Per capita income	The World Bank
PRIMARY_EDUC	Primary education in years	The World Bank
SECONDARY_EDUC	Secondary education in years	The World Bank

Appendix B: Variable and Expected Signs

Acronym	Variable Description	What it Captures	Expected Sign
GDP_GROWTH	Annual percentage of GDP growth	The economic growth from year to year	
PRIMARY_EDUC	Primary education in years	Amount of Human Capita	+
INCOME	Adjusted net national income annual % growth	Income of country as a whole	+
PCINCOME	Per capita income annual % growth	Income per person	+
GOVCONS	Government consumption annual % growth	How much the government is spending	-
FDI_NETINFLOW	FDI that come into the country as a percentage of GDP	Foreign direct investments coming into the country	+
EXPORTS	Amount exports of goods and services	One side of trade	+
CTRL_CORR	Ranking from 0 to 100, 0 being the lowest	Lower the ranking the less control over corruption	+
GOV_EFFEC	Ranking from 0 to 100, 0 being the lowest	Lower the ranking the less government effectiveness	+
POL_STAB	Ranking from 0 to 100, 0 being the lowest	Lower the ranking the less political stability	+
Acronym	**Variable Description**	**What it Captures**	**Expected Sign**
GINI	GINI index for income inequality	range from 0 to 100: 0 represents perfect equality and 100 represents perfect inequality	
GDP_GROWTH	Annual percentage of GDP growth	The economic growth from year to year	-
PRIMARY_EDUC	Primary education in years	How well the population is educated	+
SECONDARY_EDUC	Secondary education in years	How well the population is educated	+
PCINCOME	Per capita income annual % growth	Income per person	+
GOVCONS	Government consumption annual % growth	How much the government is spending	+
FDI_NETINFLOW	FDI that come into the country as a percentage of GDP	Foreign direct investments coming into the country	+
CTRL_CORR	Ranking from 0 to 100, 0 being the lowest	Lower the ranking the less control over corruption	-

GOV_EFFEC	Ranking from 0 to 100, 0 being the lowest	Lower the ranking the less government effectiveness	-
POL_STAB	Ranking from 0 to 100, 0 being the lowest	Lower the ranking the less political stability	-

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