UNLV UNIVERSITY LIBRARIES

Governance: The Political Science Journal at UNLV

Volume 6 *Governance: The Political Science Journal at UNLV*

Article 4

2019

Corruption and its Effect on Economic Development in Chile, Mexico, and Brazil

Jennifer Lopez
University of Nevada, Las Vegas

Corruption and its Effect on Economic Development in Chile, Mexico, and Brazil

Cover Page Footnote

I would like to thank Dr. Strand for guiding me and giving me feedback throughout the process of writing this article. I would also like to thank Dr. Kopalyan for taking the time to look at the article.

Abstract

In this paper, the effect of the perception of corruption on economic development will be explored. The research question addressed in this paper is: how does the perception of political corruption in Mexico, Brazil, and Chile affect their economic development? Economic development has increased significantly for all three states since 1990s, but for two of them it has been coupled with rampant corruption. The research question will be explored through a review of the current literature, a discussion of the methods, the presentation of the data and results, and finally a discussion about the results. In order to assess whether frequent corruption scandals affect economic development, the perception of corruption data was be collected from Transparency International's Corruption Perception Index on all three countries spanning from 1995 to 2017. To measure its effect on economic development, bivariate correlations between the perception of corruption, GDP per capita, Human Development Index (HDI) scores, and FDI in-flows were run to first test to see if there are relationships between the variables at all. Following this, two linear regressions were run, one with GDP per capita as the dependent variable and the other had HDI. The results showed mixed results, as it found a strong positive relationship between the perception of corruption and HDI yet found a strong negative relationship between the perception of corruption and GDP per capita.

Corruption is the misuse or abuse of authority for personal gain, which do not need to be about monetary gain (Rothstein and Varraich 2017, 12; Lash 2004). Although it can both public or private, political corruption is often thought about through its public examples where it is a collective action problem. It can also be private, however, and an example of private corruption would be the 2008 financial crisis where the private banking sector's actions affected all of the taxpayers (Rothstein and Varraich 2017, 14). Corruption that occurs in the 'gray zone' where the public and private spheres meet, for example lobbying, is sometimes referred to as institutional corruption, where the basic rules of a democracy systematically favor any interest but the public's (Rothstein and Varraich 2017, 14-15).

Political corruption, more specifically, is the focus on corruption within the public sphere, or in the gray area where public and private spheres interact. For some states, it is easy to distinguish private sphere corruption from political corruption, while in others it is indistinguishable due to the close connection between private and public corruption. For example, in Italy, Russia, and Mexico, the relations between organized crime and political corruption are incredibly close (Heywood 1997, 5). The proponents of this definition of political corruption have noted that it is based on the accountability aspect of a democracy - the assumption that citizens have a right to hold their government officials accountable for their actions. While laws may differ from state to state, the view of a decision by an official as corrupt does not rest on whether it is legal or illegal. It takes a more holistic view (Heywood 1997, 7). Other views on political corruption rest on the perception of corruption by the state's citizens. If an action or policy from their government as corruption, then it is. Transparency International builds on that by compiling various reports on the perceptions of corruption from country experts and businesspeople within countries. They define corruption as the 'misuse of public power for

private benefits,' but do not specify whether those who were polled for the original reports see corruption in the same way. Regardless of the debate over the definition of political corruption, the data gathered by Transparency International are seen as important and influential (Heywood 1997, 9).

Overall, the debate over political corruption and its effects on economic development is separated into two different camps. One argues that corruption is detrimental to economic development in the long-run, while the other side of the debate argues that it is beneficial to developing countries' economic development. This paper will analyze whether the effects of political corruption on economic development in three specific countries in Latin America: Chile, Mexico, and Brazil. The paper will delve into the literature and past studies on the effects of corruption on economic development and any specific past studies on the subject in Latin America. By collecting data from 1995 and up until the most recent year available on FDI and GDP per capita, the effects on economic development can be seen when coupled with Transparency International's Corruption Perceptions Index scores. After the compilation of the data, several statistical analyses will be run to see if there are any relationships between the variables. These analyses will be bivariate correlations and linear regressions. Two separate linear regressions will be run in order to test two facets of economic development. The first regression will hold GDP per capita as its dependent variable, in order to measure the effect of the perception of corruption solely on economic measures. The second regression will hold the Human Development Index data as the dependent variable in order to assess the effect of the perception of corruption on other indicators that can measure economic development, such as educational attainment and length of life expectancy (Human Development Index).

Literature Review

Corruption

Corruption may have a long history dating back to the ancient empires in China and Rome, but the 1990s saw a new attitude on corruption by citizens (Lash 2004). By mid-1990s, the idea that political corruption was a phenomenon exclusive to the developing states was shattered through the scandals that erupted in the U.S., the UK, and in almost the rest of the western European states (Heywood 1997, 2). The reduction in acceptance of corruption by citizens helped unseat governments in Brazil, and it helped push the long-ruling PRI party in Mexico out in the 2000 elections (Lash 2004). The growing discontent with corruption in Latin America may partly be attributed to the process of privatization, where citizens saw companies be able to buy large sections of land at incredibly cheap prices that were far below the market price (Lash 2004). The perception of corruption surged as the idea that no state was immune to corruption, and the drive for anti-corruption policies became self-sustaining with the increase in exposure (Heywood 1997, 3). This push in the 1990s lead to the creation of Transparency International in 1993, the denunciation of corruption by several influential IGOs, as the UN, the OECD, OAS and the World Bank (Lash 2004).

Addressing the issue of corruption is not an easy feat, however, as the issue is very complex. Perceptions of corruption and trust in political institutions are interrelated. The existence of one spurs the growth of the other in an endless cycle. Actual corruption hurts the trust in the ability of institutions to address the problem of corruption, but the perception of corruption undermines the institutions and any political actors who propose anti-corruption plans. For example, residents of Mexico City strongly believe that corruption in their political institutions and police force is rampant. In order to effectively attempt corruption must address

the public's perception in order to get them to change their participation within the public-private sphere (Ionescu 2011).

Brazil

Corruption scandals that lead to political turmoil aren't new to Brazil. In 1954, President Getúlio Vargas shot himself after military generals called for his resignation due to the corruption scandals dealing with "sweetheart" deals with the Bank of Brazil that arose shortly before his death. In 1960, President Jânio Quadros won by campaigning with brooms and promises of cleaning out the "rats" from Brazilian government, but he resigned after 8 months. The 1964 military coup that followed was even seen as a way of addressing the rampant corruption in the country. After the restoration of democracy, the first elected president was impeached in 1992 following accusations that he had embezzled millions (Winter 2017). During the Lula government, which spanned from 2003 to 2010, Brazil was rocked by three separate scandals. First, the *mensalão* scandal that involved allegations of the government paying members of the legislative branch monthly payments in order to hold together a coalition. Second, the *sanguessuga* scandal where 1 in 8 members of the Brazilian Congress was accepting kickbacks after ambulances had been reported in a budget proposal at inflated prices. Third, in the state of Rhondônia, several prosecutors, the head of the state court, and every assembly member but one was arrested on charges of siphoning funds from the state treasury. Due to the long history of corruption scandals, Brazil is noted as not being the most corrupt country in the region but as having the least accountability (Taylor 150-151). The latest corruption scandal that has upheaved Brazilian politics has come to be known as "Operation Car Wash." In 2013, police officers found a money-laundering business in the back of a gas station. They arrested the money-launderers and offered plea deals. One of them, Alberto Youseff, confessed that they had

been shifting billions of dollars from Petrobras - the semi-nationalized Brazilian petroleum company - to politicians (Winter 2017).

Brazil is a particular case in Latin America because of its history of corruption and its direct effects on its government, but also because of the unique conditions found in the country. The constitution adopted in 1988 gave prosecutors extraordinary independence and power, and the country enjoys a largely free press and judiciary branch. The rapid economic development created a growing a middle class that is educated who expect good governance. A decade ago, Brazilian voters' main concerns dealt with hunger and unemployment, while today it is corruption. All of those conditions plus incredibly high levels of inequality explain why Transparency International does not rate Brazil as any more corrupt than Mexico or the rest of Latin America. They argue that Brazilian voters are just more likely to turn on their elected officials. In the article by Brian Winter (2017), he argues that Operation Car Wash, the impeachment of President Dilma Rousseff, and the anger from voters aimed at her successor and the 2018 elections highlight the differences between the old political establishment that does not cast out politicians based on their past corruption scandals. The old political establishment in Brazil seems to prefer politicians who may be corrupt, but experienced nonetheless. The old political establishment argues that people are not really upset over corruption, and that the public outrage is simply magnified because of the slowdown of the economy (Winter 2017). Some have theorized that the constant corruption scandals that have plagued almost all of the administrations Brazil has had since the shift to democracy is the last remaining attribute from traditional Brazilian politics. As mentioned, Brazil's institutions are seen as relatively strong by international standards. Despite these strong institutions, one of the factors that pushes corruption seems to be a lack of accountability. The institutions in Brazil are strong and independent, and

therefore able to carry their duties, but often falter in really addressing corruption due to the lack of cooperation and the gaps in and between institutions (Taylor 154).

Mexico

The 2018 election in Mexico found the corruption issue at the center. There was mass outrage after a report that was published in *Animal Politico* showed how the government had embezzled 7.6 billion pesos (equivalent to 406 million dollars), as well as allegations that the government had misused donations given for earthquake relief. The outrage led to the arrests of a line of mostly PRI, the long-dominating party in Mexico, governors (Oxford Analytica Daily Brief Service 2017).

The World Economic Forum Global Competitiveness Report for 2017-2018 year poses corruption as the main issue for doing business in Mexico. Furthermore, it rates Mexico's institutions very low, as they highlight that favoritism is high and public trust is low. The Wilson Center's Mexico Institute also published a report saying that about 27.8 billion pesos that were given to states from the federal government are unaccounted for in the states of Veracruz, Michoacán, Chiapas, Guerrero and the state of Mexico as they all failed to account for or return the federal funds they didn't use for the 2015 fiscal year (Oxford Analytica Daily Brief Service 2017).

In the past two decades, there have been several corruption scandals involving high-profile figures of all major political parties. In March 2004, the leader of the PRD party, the president of the Federal District Legislative Assembly and the Secretary of Finance for Mexico City were all filmed together taking bundles of cash from the Argentinean businessman, Carlos Ahumada (Nieto 2014). That year was followed by leaks of several other videos and was dubbed the "*año de los videoescándalos*," or the Year of Video-scandals (Delios; "2004: Año De Los

Videoescándalos."). The leader of the Green Party was also involved in a scandal involving negotiations of construction licenses in places in Cancun that had been designated as ecological reserves (Nieto 2014).

In a recent attempt to combat corruption, Mexico set up a new system called "The National Anti-Corruption System," but it has faced many roadblocks - of which many have been put in place by the PRI party. For example, magistrates for the Anti-Corruption Courts have not been appointed and many states have not amended their constitutions to allow the system to have the sufficient authority to truly work. Moreover, the PGR, Mexico's attorney general, is supposed to transition into an independent prosecutor, but the head of the PGR's office is still appointed by the president. The system was also supposed to appoint prosecutors, but it failed to do so and is dependent on the PGR office (Oxford Analytica Daily Brief Service 2017).

All in all, the level of corruption seen in Mexico can lead to perceptions of corruption being high. In one survey, 3 out of 10 Mexicans said they had been victims of corruption at least once in 2017. The most common officials who Mexican citizens encountered corruption with were police officers and public officials. In Latin America, Mexico ranks fourth in actual corruption - after Bolivia, Haiti, and Paraguay, however ranks second in perception of corruption after Brazil (LAPOP 2016/17, 92). The report found that the institutions with least trust in Mexico are the national police force and political parties, with the trust in the national police force ranking the second to lowest in the region (LAPOP 2016/17, 63).

Chile

In 2002 and 2003, several corruption scandals in Chile erupted over *sobresueldos* (overpayments) to public servants, bribes, and the misuse of the Public Works Ministry to raise campaign funds led to political turmoil. The ruling coalition *Concertación* had dominated

Chilean politics since the return to democracy in 1989. The total amount of bribes was considered very tame in comparison the scandals throughout the rest of Latin America, but the scandals in the country considered to be the "model student" of the region led to both sides of the aisle agreeing to an anti-corruption legislation package. The package included reforms in order to professionalize civil service and reforms dealing with campaign finance in order to address the scandals that had shaken the hold that *Concertación* had on elected offices from the municipal level to the presidential seat (Brinegar 2009, 131). While the country is seen as the least corrupt in the region internationally, corruption is still a hot-button issue domestically. The issue has been seen as highly partisan, and in one study it was highlighted as the country where corruption is the most partisan and showed how the corruption scandals fueled partisan conflict. For the public, however, corruption is not seen as a major issue (Brinegar 2009, 135-140).

As mentioned, Chile is noted as having very low-levels of corruption, for Transparency International it ranks 22nd out of 182 countries and it even out-ranks the U.S. When Chile is used in corruption studies, it is usually studied to analyze what has made its anti-corruption measures so successful. Chile is not corruption-free, which became evident with the various scandals that erupted that have categorized into three separate corruption scandal waves. All scandals were separated on party lines, as mentioned, and the opposition in every instance used the scandals to push forward anti-corruption rhetoric and legislation (Gephart 2017, 104-108). There is a contesting narrative that argues that while Chile does not suffer from rampant corruption, the democracy in Chile is weakened by factors that are ignored in favor of 'addressing' corruption. These factors include the participatory culture (or lack thereof), media independence, and lack of political will to move forward with issues that are not involved with corruption. It has also been argued that Chile is seen as relatively free of corruption because of

the definition used to define corruption. The political elite in Chile belong to a few close-knit families, which many see as conflicts of interest (Gephart 2017, 118-121). Furthermore, some argue that Chile's rapid economic development can be attributed to its citizens' trust in the public institutions. Chile, as expected, has high levels of trust in virtually all political institutions. However, it can be noted that the trust and respect for those institutions has been slowly decreasing over the years (LAPOP 2014, 83-84). A separate study argued that while high levels of trust in the institutions and low levels of corruption may have been required for the first spurt of development, it may be the case that Chile can sustain both economic growth and fluctuations in trust (Miguez and Dewey 2018).

Economic Development and Corruption

The rise in the perception of corruption may have led to a drive of anti-corruption policies, but economists and political scientists have not reached a consensus as to whether corruption is negative or positive for economic development (Heywood 1997, 3). Researchers on one side of spectrum, like Ahmeti et al (2002), argue that corruption is detrimental to economic development. An important study involving corruption and growth came from Paolo Mauro in 1995, the year the first Corruption Perception Index was published, and established a relationship between Foreign Direct Investment (FDI) and level of corruption. Due to the lack of a CPI indicator, he used the *Business International* indicators to measure levels of corruption for 67 countries. His study showed a positive relationship between higher levels of bureaucracy integrity and efficiency and FDI (Mauro 1995). It is predicted that if a state fights corruption seriously, its citizens may see the income of their citizens increase by three or four times. They argue that corruption overall results in economic slowdown through the reduction of investments both from internal and external factors because of perceived risks. Corruption in the banking

sector may also result in the creation of informal processes that evade the banking sector completely and eventually lead to reductions in the taxes raised for federal revenue. It also affects prices of goods and services as companies use bribes to cut through bureaucratic red tape and the cost of those bribes is carried over to the consumer (Ahmeti et al 2012). While others argue that corruption such as giving bribes may cut through red-tape, the critics of this argument also hold that the government officials within these countries will begin to actively create obstacles for production in order to ensure that they will get bribes to cut through the hurdles. To counter this claim, the opponents of this view hold that bribes are actually good for those societies as this provides a form of social welfare and increases the income of badly-paid bureaucrats and eases the process of going through bureaucracies for businesses (Ades 1997). Corruption overall makes it more expensive to invest in a country than it is in a transparent one. Over time, it produces inequality and poverty by lowering economic development. It negatively affects economic development by affecting FDI, efficiency, human capital, competition and entrepreneurship (Teixeira 2016). Similarly, a study done on the perception of corruption found that higher levels of corruption led to the slowing of growth in GDP per capita. The study focused mostly on countries in the Middle East, but it included the data from 126 countries (Deyshappriya 2015).

Corruption can have a direct impact on economic development by affecting investment and GDP per capita growth overall, but it can also have an indirect effect on development through social welfare policies. Conditional Cash Transfer Programs are programs that rose after WWII in European countries as a way to try to eradicate poverty by providing assistance to families who had no professional activities. These programs have since been implemented throughout Latin America. Notably, in Mexico, the *Plan Oportunidades* program began in 1997

and it gives cash transfers to families in order to get them to enroll their children in school and to visit health facilities. In Chile, the program *Chile Solidario* started in 2002 and grants priority access to other social protection programs as well as money allowances and help from social workers. In Brazil, the program *Bolsa Familia* is the country's largest social program. After studies looked at the Gini index, the 21% of the 2.7-point decrease in Brazil and Mexico was attributed to the creation of CCT programs. Brazil and Mexico both occupy the top spots for the most participants in these types of programs in all of Latin America (Miranda, Silva and Freire 2016). All in all, economic development has been shown to come in other forms other than raw economic gain, which is seen through rises in GDP per capita. This leads to the addition of other factors into the analysis of the effect of the perception of corruption on economic development.

The framework set by previous studies done on what the effects of corruption on economic development is coupled with a deeper understanding of the varying levels of corruption seen in Latin America lead to a clear and general hypothesis. Based on the study done by Teixeira and another by Deyshappriya, the results from the study are expected to show a positive relationship between high scores from Transparency International and economic development (2016; 2015). To make testing this hypothesis much more manageable, the hypothesis can be separated into two distinct but more specific hypotheses. The first is that higher Corruption Perception Index scores from Transparency International will have a positive relationship with GDP per capita. That is, the "cleaner" (or less corrupt) a country is, the higher the GDP per capita will be. The second hypothesis derived from an overview of the literature is that higher Corruption Perception Index (CPI) scores will be have a positive relationship with the Human Development Index scores. This hypothesis is aiming to test the level of economic development in relation to other factors that can demonstrate economic development in citizens'

lives, instead of raw economic data. The HDI scores give countries scores based on the educational attainment and life expectancies of the citizens of those countries (United Nations Development Programme) If CPI does have the expected relationship with economic development, then in this study, a rise in CPI scores should lead to a rise to HDI scores.

Methodology

The methodology for this study is an empirical quantitative method. Using descriptive statistics and two other forms of statistical analysis, the impact of the change in the perception of corruption on economic development will be tested.

For this study, in order to assess the impact in changes on economic development, two dependent variables were tested. One was GDP per capita and the other was the Human Development Index indicator, as that includes other forms of development. Foreign Direct Investment was also considered, and this was included in both millions and as percentage of GDP. Bivariate correlations, with Pearson's R, were run for each of the variables and then a linear regression will be run for each dependent variable.

The main disadvantages of using the statistical method are oversimplification of the data and context (Moses and Knutsen 2012, 260-262). For example, oversimplification of the data and context in this study refers to how they can simplify the quality of citizens' lives or the corruption they experience into a single score. However, most of the disadvantages associated with the methodology used in this study are more related to the quality and validity of the data utilized. The following section will delve into a discussion of the disadvantages specifically concerning the Corruption Perceptions Index (CPI) indicator.

Data

While the CPI indicator from Transparency International is used widely and highlighting the issue of corruption by ranking countries every year, the application of the indicator for a variety of topics can be problematic due to the nature of the indicator (Gilman 2018). The measure of corruption is often criticized for its representation of perception. The report does not conduct its own research, and instead it comprises thirteen reports together to draw a single score for a country (The Guardian). The indicator is created through a series of sub-indicators, most of which are economically oriented and the data for those are derived from other reports. Furthermore, only 3 of the indicators within a report have to be evaluated for a score to be assigned to a country, but other countries may have more than 3 (Gilman 2018). The use of perception data has come to be seen as more flawed and subjective, and it has been found to have little to no correlation with more objective measures of corruption such as victimization data. It is, however, the most widely available and used measure for corruption. While it may be dangerous to do comparisons of different countries based on perception of corruption, due to the different standards for corruption citizens can have, it is still an important measure (Leon, Arana and Leon 2013).

The CPI indicator from Transparency International draws on data gathered through *The Economist's* Intelligence Unit, Freedom House reports, and several other country risk reports. This is often criticized as an "elite bias" as the reports are only from country experts and businesspeople. The NGO, however, has defended their sources and stated that they find them to be the most accurate representation of levels of corruption that can be comparable across countries. The NGO has drawn up a new measure that considers victimization data, but it is only available from 2003, and its publishing is inconsistent (The Guardian). The NGO currently

categorizes countries and assigns them a Corruption Perception score from 1 to 100, with 100 being the "cleanest" or to be perceived the least corrupt. In the past, the NGO would assign the countries scores from 1 to 10, which 10 being the cleanest score. In order for the data to be used, the most recent scores that were in the new scale were adjusted by converting it to the old range used by Transparency International. All of the three countries scores starting in 2012 were adjusted by:

(Corruption Perceptions Score)/10 = Adjusted Corruption Perceptions Score

The old range of scores were used by the NGO from 1995 until 2011, which made switch the latest scores to the old range the logical choice. The NGO justified this change by stating that they were now adjusting the country's raw score that was derived from the sets of reports gathered to draw up a CPI score and would then convert it to this new 1-100 scale. From 2012 on, the NGO used the data of one year only for each CPI score when it had previously included the data of two business years in its formula to create the CPI score. This presents another disadvantage of using the Corruption Perception Indicator from Transparency International. The lack of consistency in their methodology presents a challenge, as either methodology may be seen as a more accurate way of representing the perceived level of corruption within a country ("2012 Corruption Perceptions Index -- In Detail."). Despite this, however, the scores can still be used for this study as the range of the scores can be looked at the same way. The NGO did this by keeping the meaning of the scores the same, as they kept 1 being the least clean and 100 being most clean.

For economic indicators, GDP per capita and FDI in-flows were used. GDP per capita was used in order to make comparisons between the countries as accurate as possible, as Brazil and Mexico's overall GDPs the two largest of the regions by far yet they both have lower GDP

per capita's than Chile. All data for GDP per capita and FDI in-flows came from The World Bank Open Data (2019). Another development indicator used was the Human Development Index, which gives scores to countries on indicators like education, income, and life expectancy of their citizens. FDI in-flows were also included as a way to measure the reaction to the perception of corruption. If companies were to really take changes in the perception of corruption into consideration as serious risks to doing business in these countries, then decreases in FDI in-flows would be seen over time. The following table shows the descriptive statistics of the data of the dependent and independent variables:

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
HDI	69	.65	.84	.7419	.04827
GDP per Capita	69	2819.65	15941.40	8142.1093	3468.54797
FDI inflows (% of GDP)	69	.63	11.65	4.2379	2.47540
FDI (In Millions)	69	2550.00	101158.00	26680.0000	23646.1953
CPI Adjusted	69	2.66	7.94	4.7254	1.73661
Valid N (listwise)	69				

Figure 1: A table showing the descriptive statistics with data gathered from The World Bank Open Data, United Nations Development Programme's Human Development Index and Transparency International.

The table shows that the data was inputted correctly, as there are no numbers that don't fit into the range of the variables included or extra data added for each country.

As mentioned, two types of statistical analysis were used for this study. The first was to run bivariate correlations between each of the variables. The second was to run separate linear regression for HDI and GDP per Capita as dependent variables accordingly, and the results of those analyses are shown in the next section.

Results

The results of the bivariate correlation are in a table below:

Correlations

		HDI	GDP per Capita	FDI inflows (% of GDP)	FDI (In Millions)	CPI Adjusted
HDI	Pearson Correlation	1	.754**	.633**	-.009	.683**
	Sig. (2-tailed)		.000	.000	.941	.000
	N	69	69	69	69	69
GDP per Capita	Pearson Correlation	.754**	1	.358**	.404**	.254*
	Sig. (2-tailed)	.000		.003	.001	.035
	N	69	69	69	69	69
FDI inflows (% of GDP)	Pearson Correlation	.633**	.358**	1	-.116	.781**
	Sig. (2-tailed)	.000	.003		.342	.000
	N	69	69	69	69	69
FDI (In Millions)	Pearson Correlation	-.009	.404**	-.116	1	-.362**
	Sig. (2-tailed)	.941	.001	.342		.002
	N	69	69	69	69	69
CPI Adjusted	Pearson Correlation	.683**	.254*	.781**	-.362**	1
	Sig. (2-tailed)	.000	.035	.000	.002	
	N	69	69	69	69	69

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Figure 2: Table displaying the results of Pearson's R bivariate correlations. Source for data: The World Bank, UNDP's Human Development Index, and Transparency International.

The correlation matrix shows that for the Corruption Perception Indicator, all four of the other variables were found to be statistically significantly correlated with each other for at least the $p>0.01$ level. Of the variables included, HDI, FDI in-flows (as percent of the GDP), and FDI in-flows (in millions) were found to be correlated to CPI and were statistically significant at the $p>0.05$ level.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.131	3	.044	103.664	.000[b]
	Residual	.027	65	.000		
	Total	.158	68			

a. Dependent Variable: HDI

b. Predictors: (Constant), CPI Adjusted, GDP per Capita, FDI inflows (% of GDP)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.603	.009		68.045	.000
	GDP per Capita	8.636E-6	.000	.621	11.225	.000
	FDI inflows (% of GDP)	3.672E-5	.002	.002	.022	.983
	CPI Adjusted	.015	.002	.524	6.332	.000

a. Dependent Variable: HDI

Figure 3: Tables showing the results of a linear regression, using HDI as the dependent variable. Source for data: The World Bank, UNDP's Human Development Index, and Transparency International.

In the tables above, the results of a linear regression can be seen. In that linear regression, HDI is being used as the dependent variable and GDP per capita and CPI adjusted were found to be statistically significant.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	575846291	3	191948764	51.503	.000[b]
	Residual	242249809	65	3726920.13		
	Total	818096100	68			

a. Dependent Variable: GDP per Capita

b. Predictors: (Constant), CPI Adjusted, HDI , FDI inflows (% of GDP)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-43875.061	4526.340		-9.693	.000
	FDI inflows (% of GDP)	192.270	155.285	.137	1.238	.220
	HDI	76384.305	6804.920	1.063	11.225	.000
	CPI Adjusted	-1156.256	234.537	-.579	-4.930	.000

a. Dependent Variable: GDP per Capita

Figure 4: A table showing the results of a linear regression. Source for data: The World Bank, UNDP's Human Development Index, and Transparency International.

In figure 4, the results of a linear regression with GDP per capita as the dependent variable are shown. In the results it can be seen that HDI and CPI adjusted are found to be statistically significant, however, the CPI adjusted coefficient is negative.

Discussion

The Brazilian numbers are significant because a significant dip in the CPI indicator following the 2014 Operation Car Wash scandal did not occur, despite it being the largest corruption scandal in Brazil's history. The scandal drove the corruption issue within Brazil to be point and center in the 2018 election, and affected not only Brazilian politics, but politics within other Latin American countries that had politicians implicated in the scandal.

Overall, the results for the bivariate correlations confirmed the hypothesis. The correlations showed a connection between CPI and GDP per capita, CPI and HDI, and even CPI

and the two measures for FDI in-flows. CPI and GDP per capita were correlated at a $p>.05$ significance level, while CPI and HDI were correlated at a $p>.01$ significance level. This means that while "cleaner," or the countries to perceived not to be very corrupt, enjoyed increases in their GDP per capita the CPI had even more of a relationship with HDI. The HDI was correlated with CPI at a higher statistical significance level. FDI in-flow correlations were more mixed, as the FDI inflow when measured as a percent of the GDP showed a strong, positive correlation with CPI. However, when FDI was measured in millions it had a slightly less strong, negative correlation with CPI. This could possibly be due to the fact that Chile had their FDI in-flows be a larger part of their GDP, even though both Mexico and Brazil had higher raw FDI numbers. Chile, as mentioned, has strong institutions and a high "clean" score from Transparency International and when combined with the high FDI in-flows percent of their GDP it might lead to the strong positive correlation between CPI and FDI in-flows as a percent of GDP. When measuring FDI in millions, however, Brazil and Mexico take the lead and with their significantly lower CPI scores that could have led to the strong negative relationship between CPI and FDI in-flows when measured in millions.

One of the linear regressions had HDI as the dependent variable, and in that linear regression the results are as expected. They confirm parts of the hypotheses as the results show that strong positive relationships between HDI and GDP per capita and CPI. This is expected, as GDP per capita is included within the Human Development Index as one of the indicators. What confirmed the second hypothesis in this linear regression was the strong positive relationship between HDI and CPI. According to the results from the linear regression, as the CPI score increases (or corruption decreases) the HDI score also increases. That means that the cleaner a country is, the citizens within that country are also likely to have attained higher education levels

and longer life expectancies. Within this linear regression, FDI in-flows (as measured in percent of GDP) were not statistically significant and therefore did not have an effect on HDI.

For the other linear regression that was run, GDP per capita was set as the dependent variable. In this regression, the expected result of HDI having a strong positive relationship with GDP per capita was also seen. However, this regression was different in that it found a strong negative relationship between GDP per capita and CPI. This shows that GDP per capita and CPI have an inverse relationship, which means that as CPI increases GDP per capita decreases. While HDI had a positive relationship with CPI, it seems that the opposite is true when economic growth is taken on its own. While at first this may seem counterintuitive, the results of this linear regression make sense when the data is displayed on a graph. The graph below showcases what the regression found:

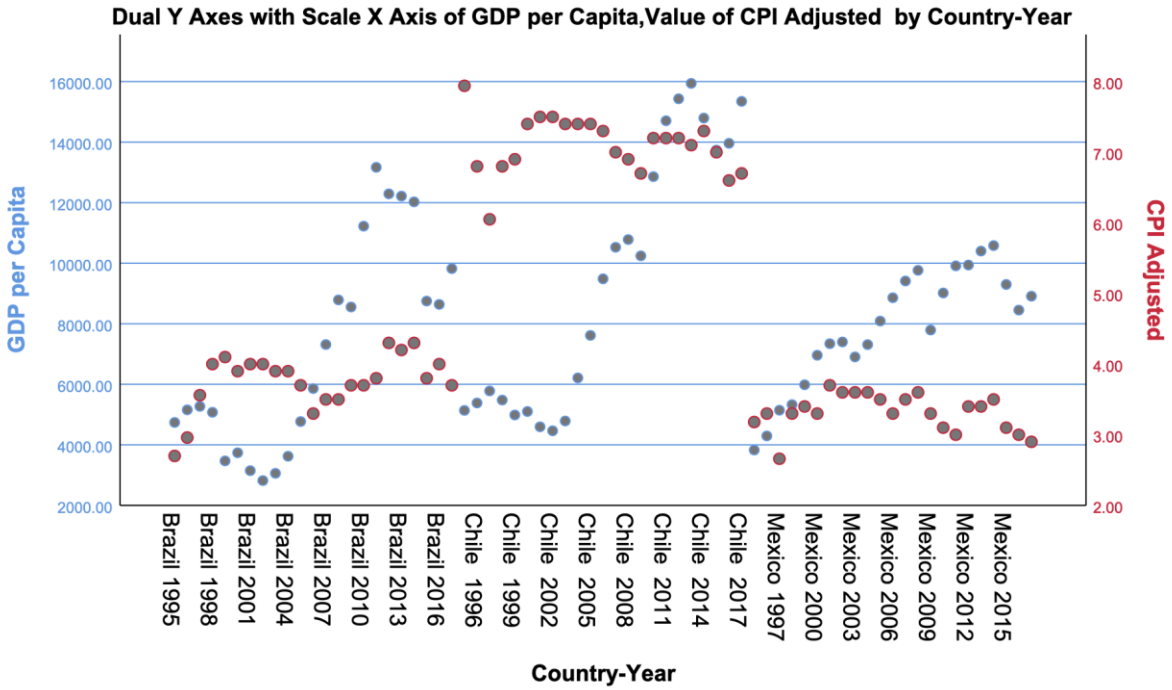

Figure 5: A scatter plot showing a condensed version of the data, with all three countries included in one graph. The first part shows Brazil's CPI and GDP per capita over time, the middle part of the graph shows Chile's and the

right side of the graph shows Mexico's. Data was gathered from the World Bank Open Data and Transparency International.

Figure 5 shows the results of the linear regression, with the inverse relationship between CPI and GDP per capita. This can be seen for all three countries. For Brazil, its CPI increases in 1998 and yet GDP per capita steadily decreases until 2004 when it begins to grow. As it grows, CPI dips before increasing once more. For Chile, the CPI score was relatively high from the beginning of the time period included in this study, while GDP per capita is relatively low. However, the data shows that Chile's GDP per capita undergoes rapid growth over a period of ten years while the CPI score stays consistent. Mexico is the more unusual case of all three, as CPI stays consistent yet GDP per capita continues to increase in general. All three cases could be showing other factors, like recessions, that could affect the trend of GDP per capita levels.

Conclusion

The results from the analyses done for this study confirm only one of the two hypotheses set for this study. It confirms the hypothesis set for the effect of the perception of corruption on the Human Development Index. As stated, this could mean that the low perceptions of corruption are usually tied with other signs of development, like higher levels of education attainment and longer life expectancies, which HDI is specifically used to measure. The first hypothesis, which was that higher Corruption Perception Index scores would lead to higher GDP per capita numbers, was not confirmed. What was seen in the results from the linear regression actually demonstrated the opposite of what the hypothesis set, as it showed an inverse relationship between the two. According to the results from that specific linear regression, GDP per capita is strongly and negatively associated with the Corruption Perception Indicator. As mentioned above, this can be seen with all three cases and it can be seen even more clearly with Brazil's case as the changes are more dramatic and easier to see on the scatter plot.

For further research, the use of other governance indicators would be beneficial. For example, using strength of institutions as this might have an effect in countries like Brazil, who have highly visible and extensive corruption scandals but have strong institutions. In addition to that indicator, another change for further research would be to include a different indicator on corruption. As stated in the discussion over the data used for this study, one of the main disadvantages was the indicator used for perception of corruption. The elite bias embedded in the data questions the validity of the measure. Perhaps a better corruption indicator to include would be one that reflects more of the public opinion, as it might be a better indicator to use in order to see the changes that are happening on the ground level. It could also be interesting to compare the public's perception with the elites, or victimization data.

In addition to adding a new perception of corruption indicator, further research could also focus on other factors that may have an effect on the economies of these three countries. While running the linear regressions, dummy variables for each country were made. For the purposes of this study, these linear regressions were not included as they really just provided more questions than answers. However, within these linear regressions, the addition of the dummy variable for Mexico completely switched the results and the dummy variable for Mexico itself was the only coefficient that was statistically significant. The results from this added on to the results seen from the linear regression that posed GDP per capita as the dependent variable. That analysis was not completed and, therefore, not included but it added to the idea that there is more to the Mexico case. That within itself can be seen just by looking at the scatter plot, as the GDP per capita is seen to be having a sharp incline while the CPI score is steadily getting lower. This could indicate that there are perhaps other factors to include that could explain what is happening in the Mexico case when it comes to GDP per capita. For future research, other factors that could

be affecting these economies should be included. Factors like the state of financial institutions within the country, the extent of implementation of various neoliberal reforms, and the strength of rule of law within a country could be included in order to assess their impact on the growth of GDP per capita and HDI scores. Other studies have been done to see what made Chile different from Mexico during the period of rapid economic growth following the Latin American Debt Crisis and Chile's return to democracy have already pointed to such factors (Kehoe and Ruhl 2010). While those studies focused on Mexico's stagnation and compared it to Chile's continued rapid economic growth during the early to mid-2000's, it may be that one of those factors has allowed Mexico to mitigate its corruption issue and the effects on its economy. Overall, the results of this study have shown that the topic of corruption needs to be researched to a greater extent and that the conventional ideas and theories associated with it need to be developed further.

Bibliography

Ades, Alberto and Rafael Di Tella. “The New Economics of Corruption.” *Political Corruption. Chapter 5.* 80-99.

Ahmeti, Skender and Feste Gjonbalaj, Ejona Blyta, and Laura Lumezi. 2012. "Corruption and Economic Development." *ILIRIA International Review* 2, no. 1. 91-102.

Brinegar, Adam. 2009. “Evalutating Citizen Attitudes about Corruption in Chile.” In *Corruption & democracy in Latin America,* Eds. Charles H. Blake, & Stephen D. Morris. (Pitt Latin American series).

“Cultura Política de la Democracia en Chile y en las Américas: ¿Tiempo de Reformas?” *LAPOP,* Vanderbilt University. https://www.vanderbilt.edu/lapop/chile/AB2014_Chile_Country_Report_V3_Rev_W_060217.pdf

Dellios, Hugh. 2018. “New Videos Fuel Scandal in Mexico.” chicagotribune.com. https://www.chicagotribune.com/news/ct-xpm-2005-11-12-0511120082-story.html (May 8, 2019).

Deyshappriya, N. 2015. Do corruption and peace affect economic growth? Evidences from the cross-country analysis. *Journal of Social and Economic Development,17*(2), 135-147.

Gephart, Malte. 2017. *Fighting Corruption in Paraguay and Chile: Exploring the Local Embedding of the International Anti-Corruption Discourse from a Post-Development Perspective*. Ed. Entwicklungstheorie Und Entwicklungspolitik ; Bd. 18.

Gilman, S. 2018. To Understand and to Misunderstand How Corruption is Measured: Academic Research and the Corruption Perception Index. *Public Integrity,* 1-15.

Heywood, Paul. 1997. “Political Corruption: Problems and Perspectives.” *Political Corruption.* 1-19.

Ionescu, L. 2011. “Mexico’s Pervasive Culture of Corruption”. *Economics, Management and Financial Markets,6*(2), 182-187.

“Is Transparency International's Measure of Corruption Still Valid?” 2013. *The Guardian*. https://www.theguardian.com/global-development/poverty-matters/2013/dec/03/transparency-international-measure-corruption-valid (May 2, 2019).

Kehoe, Timothy J, and Kim J Ruhl. 2010. “Why Have Economic Reforms in Mexico Not Generated Growth?” *Journal of Economic Literature* 48(4): 1005–27.

Lash, Nicholas A. 2004. “Corruption and Economic Development.” *The Journal of Economic Asymmetries* 1(1): 85–109.

Leon, Carmelo J., Arana, Jorge E., & Leon, Javier. 2013. Correcting for Scale Perception Bias in Measuring Corruption: An Application to Chile and Spain.(Report). *Social Indicators Research,114*(3), 977.

Mauro, Paolo. 1995. “Corruption and Growth.” *The Quarterly Journal of Economics* 110(3): 681–712.

"MEXICO: Corruption to Dominate 2018 Election Campaigns." *Oxford Analytica Daily Brief Service*, 2017, 1.

Míguez, D., & Dewey, M. 2018. The Conditions of Socioeconomic Development Exploring the Legitimacy of Social Norms, Trust, and Corruption in Chile and Argentina. *IDEAS Working Paper Series from RePEc,*IDEAS Working Paper Series from RePEc, 2018.

Miranda, Rodrigo Fontanelle, Cesar Silva and Fatima de Souza Freire. 2016. “Corruption in Public Management in Brazil: a Hidden Regional Perspective.” In *Corruption, Economic*

Growth and Globalization, Eds. Aurora A.C. Teixeira, Carlos Pimenta, Antonio Maia, José António Moreira.

Moses, Jonathon W. and Torbjørn L. Knutsen. 2012. *Ways of Knowing: Competing Methodologies in Social and Political Research.* 256-262.

Nieto, Nubia. 2014. Corruption in Mexico: A Historical Legacy. *Social Science Diliman,10*(1), 101-116.

Rothstein, Bo and Aiysha Varraich. 2017. "Making Sense of Corruption."

Teixeira, Aurora A.C., Carlos Pimenta, Antonio Maia, José António Moreira, and ProQuest. 2016. *Corruption, Economic Growth and Globalization*. Routledge Studies in the Modern World Economy; 147.

"The Political Culture of Democracy in Mexico and in the Americas, 2016/17: A Comparative Study of Democracy and Governance." *LAPOP,* Vanderbilt University. https://www.vanderbilt.edu/lapop/mexico/AB2016-17_Mexico_Country_Report_English_V1_05.15.18_W_10.25.18.pdf

Taylor, Matthew M. 2009. "Corruption, Accountability Reforms and Democracy in Brazil." In *Corruption & democracy in Latin America*, Eds. Charles H. Blake, & Stephen D. Morris. (Pitt Latin American series).

Transparency International. 1995. "1995 TI Corruption Index." https://www.transparency.org/files/content/tool/1995_CPI_EN.pdf

Transparency International. 1996. "1996 TI Corruption Index" https://www.transparency.org/files/content/tool/1996_CPI_EN.pdf

Transparency International. 1997. “Transparency International publishes 1997 Corruption Perception Index” https://www.transparency.org/files/content/tool/1997_CPI_EN.pdf

Transparency International. 1998. “Corruption Perceptions Index 1998.” https://www.transparency.org/research/cpi/cpi_1998/0

Transparency International. 1999. “Corruption Perceptions Index 1999.” https://www.transparency.org/research/cpi/cpi_1999/0

Transparency International. 2000. “Corruption Perceptions Index 2000.” https://www.transparency.org/research/cpi/cpi_2000/0

Transparency International. 2001. “Corruption Perceptions Index 2001.” https://www.transparency.org/research/cpi/cpi_2001/0

Transparency International. 2002. “Corruption Perceptions Index 2002.” https://www.transparency.org/research/cpi/cpi_2002/0

Transparency International. 2003. “Corruption Perceptions Index 2003.” https://www.transparency.org/research/cpi/cpi_2003/0

Transparency International. 2004. “Corruption Perceptions Index 2004.” https://www.transparency.org/research/cpi/cpi_2004/0

Transparency International. 2005. “Corruption Perceptions Index 2005.” https://www.transparency.org/research/cpi/cpi_2005/0

Transparency International. 2006. “Corruption Perceptions Index 2006.” https://www.transparency.org/research/cpi/cpi_2006/0

Transparency International. 2007. “Corruption Perceptions Index 2007.” https://www.transparency.org/research/cpi/cpi_2007/0

Transparency International. 2008. “Corruption Perceptions Index 2008.” https://www.transparency.org/research/cpi/cpi_2008/0

Transparency International. 2009. “Corruption Perceptions Index 2009.”https://www.transparency.org/research/cpi/cpi_2009/0

Transparency International. 2010. “Corruption Perceptions Index 2010: Results.” https://www.transparency.org/cpi2010/results

Transparency International. 2011. “Corruption Perceptions Index 2011: Results.” https://www.transparency.org/cpi2011/results

Transparency International. 2012. “Corruption Perceptions Index 2012: Results.” https://www.transparency.org/cpi2012/results

Transparency International. 2012. “2012 Corruption Perceptions Index -- In Detail.” *Transparency International*. https://www.transparency.org/cpi2012/in_detail#myAnchor7 (May 7, 2019).

Transparency International. 2013. “Corruption Perceptions Index 2013: Americas.” https://www.transparency.org/files/content/pressrelease/CPI2013_Americas_EN.pdf

Transparency International. 2014. “Corruption Perceptions Index 2014: Results. “ https://www.transparency.org/cpi2014/results

Transparency International. 2015. “Corruption Perceptions Index 2015.” https://www.transparency.org/cpi2015

Transparency International. 2016. “Corruption Perceptions Index 2016.” https://www.transparency.org/news/feature/corruption_perceptions_index_2016#table

Transparency International. 2017. “Corruption Perceptions Index 2017.” https://www.transparency.org/news/feature/corruption_perceptions_index_2017#table

United Nations Development Programme. 2017. “Human Development Reports: Human Development Index (HDI) 1990-2017.” http://hdr.undp.org/en/indicators/137506

Winter, Brian. 2017. "Brazil’s Never-Ending Corruption Crisis: Why Radical Transparency Is the Only Fix." *Foreign Affairs* 96(3): 87-94.

The World Bank. 2019. “World Development Indicators: GDP per capita.” https://databank.worldbank.org/data/indicator/NY.GDP.PCAP.CD/1ff4a498/Popular-Indicators

The World Bank. 2019. “World Development Indicators: FDI in-Flows (% of GDP).” https://databank.worldbank.org/data/reports.aspx?source=2&series=BM.KLT.DINV.WD.GD.ZS&country=

“2004: Año De Los Videoescándalos.” *La Jornada*. https://www.jornada.com.mx/2007/05/09/index.php?section=capital&article=042n1cap (May 8, 2019).