The Effect of Corruption and Crime on GDP's growth: The Latin American Case

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Abstract

This paper analyzes the effect of Corruption and Crime in the GDP growth for a sample of 10 countries in Latin America. Some of the countries in the sample are mostly oriented to the left political party characterized by applications of protective economic policies while other countries are oriented to the right political policies with high degree of economic openness. The paper analyses countries like: Argentina, Bolivia, Brazil, Chile, Colombia, Equator, Costa Rica, Mexico, Peru and Venezuela. The countries oriented to protective economic policies with low degree of economic openness are Argentina, Bolivia, Equator, Mexico and Venezuela. In contrast, countries oriented to non-protective economic policies with high degree of economic openness are Brazil, Chile, Colombia, Costa Rica and Peru. The estimated relationship between Corruption, Crime and GDP growth take into account the country's degree of openness.

Keywords: Corruption, Crime, GDP Growth, Panel Data Analysis, Threshold Regression.

Introduction

Corruption is an important issue in Latin America (LA). High degree of Corruption may have negative economic consequences. In the literature, Bigio and Ramirez-Roldan (2006) studied the effect of corruption on GDP Growth for a sample of 80 countries. The authors obtained a negative relationship between the latter variables . The period under consideration for the study starts from 1960-2000. This is a non updated period, therefore the results can vary lately since many different structural economic changes have been through. For example, Globalization is a key that have driven the economy worldwide and consequently the dynamic of the Crime and Corruption may have increased since 2000. In addition, there are some important technological shocks like internet and digital technology that also triggered structural economic changes (see , IMF, 2023).

In other regions like India and Pakistan there are some related studies. In Pakistan, for example Ul Islam and Hussain (2018) found a negative impact of 0.8% of GDP if there is an increase in the indicator relative to corruption. In this case delinquency is under consideration and it is also negatively related to growth.

For the case of India, Pranav Raj & Siva Reddy Kalluru (2023) employed an Autoregressive Distributed Lag (ARDL) approach to empirically examine the extent to which homicides affect economic growth. The case study was conducted in India, and longitudinal annual data span from 1990 to 2019. Authors reveal that crime rate, proxied by homicide rate, along with investment, FDI, exports, Granger cause real per capita GDP in the long run. The later effect is accounted by 0.25% of GDP growth.

Along the latter line and for Italy, Detoto and Otranto (2010) found negative effect of Criminal on the level of total activity which acts like a tax on the entire economy. Since Criminality discourages domestic and foreign direct investments, it reduces firms' competitiveness, and reallocates resources inefficiently creating uncertainty. The authors' sample spans from 1979–2002, and they used state space framework, a time varying parameter approach to measure the impact of criminality on real Gross Domestic Product along time. In addition, the effects of crime fluctuations in the long period is considered with an impulse response analysis

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Maldonado (2010) analyzes the impact of Mining Canon transfers on corruption at the local level in Peru. The latter study is conducted during a period of commodities price booming. The author seeks to examine the relationship between transfers and the probability of bribery in households. He observed that the increase in Mining Canon transfers is associated with a reduction in the probability of bribery in districts with a moderate amount of transfers, but an increase in corruption in the most benefited districts.

Beesley, C., & Hawkins, d D. (2022) examine how corruption affects institutional trust and political participation in Peru. Authors focus on different levels and consequences of corruption, using a nationally representative survey experiment. The study suggests that addressing low-level corruption is crucial to improve public trust. Houston (2007) examines the impact of corruption on the economy. While many argue that corruption always has negative effects, the author raises the possibility that in certain circumstances it can have expansionary effects. This relationship contrast previous authors' findings.

Crime and Corruption are also strongly positively related. Zhang (2013) found that corruption has a significant positive effect on crime, and higher income level, income gap and youth ratio will lead to higher crime rates, while employment has no significant effect. The author indicates that in countries with low crime rates, the anti-corruption activities in these countries will result in sound effects of controlling crimes. Latin America is not immune to the latter situation. Transparency International (2023) has pointed a significative increase in different indicators levels of Crime and Corruption in the region. Latter indexes are very high in countries like Venezuela and Mexico respectively. This reality is analyzed in our Model Estimation of impact on GDP growth . Next section will describe the Crime and Corruption situation in Latin America.

This paper analyses the effect of Corruption in growth for a sample of 10 countries in Latin America. Our estimation controls the set of Countries according to their degree of freedom economic indicator. Therefore, we can highlight the determinants of GPD growth controlling by the latter division. In addition, some control variables are included in the assessment.

Situation of Crime and Corruption in LA

Violence is at the main issue in Latin America region's most stressful problems. Therefore, it must be a relevant key for several discussions about economic growth, productivity, poverty, and inequality reduction. Violence is associated with Crime and it may impact several key macroeconomic indicators.

Crime has individual and social costs: loss of life, security, property, productivity and therefore it drops economic growth (Cafferata, 2021). Over the past few decades, public opinion has consolidated around the belief that violent crime is a major key issue in Latin America and the Caribbean. The region has the 9 percent of the world's population with one third of homicides (Jaitman et al., 2017). During the last decades, Crime has been developed rapidly in the LA region that there are well structured Crime organizations. Table 1, below shows the crime organizations for different countries in the region. Some organizations are related to Robbery, Terrorism (political movements) and narcotraffic.

[Insert table 1 here]

According to the table above, Mexico is the first country with the highest rate of homicides, most of the related to activities here are criminal organizations finance by drug cartels.

Crime is also related to Corruption. Along the this line Zhang (2013) and Croci (2023) pointed the latter relationship for a sample in LA. The authors sets theoretical framework on how effectiveness and corruption affect crime. Corruption in the current state of the criminal justice system in Latin America may have triggered Crime. Therefore, criminal justice system is ineffective since high levels of corruption and, consequently, its capacity of capturing, and rehabilitating criminals is limited.

Authors like Aziani (2020) demonstrates how governance-type organized crime groups (OCGs) operate as an enforcer against volume crimes in the communities. Economic consequences are also relevant for the region since the cost of crime in the region can be set at 4 percent of GDP annually (Jaitman, 2017). The latter cost can be driven by corruption as we have mentioned in the discussion of previous authors. The cost of crime may have been lower if relevant law institutions could have act properly. We can see that Jaitman (2017) finding goes along the last statement since the crime related public spending is twice the average of developed countries. Despite the high rates of public spending related to crime there is not an end to the high rates of crime rates. Corruption is not over yet and this is a circle that never sets a stop. Our paper will consider into account the policies oriented to drop Corruption and therefore Crime. The main hypothesis here is to find relationships between GDP growth and Crime and Corruption.

Next section presents the model estimation of Crime and Corruption on GDP growth for a panel of ten countries in LA. Our Panel is heterogeneous since there is a wide degree of economic openness between countries and therefore, latter relationship may be affected. There is also a relationship between crime and corruption that must be controlled before setting the model.

The Model and Data

[Insert table 2 here]

Data

The table above shows the statistics for ten countries in the Latin American region which spans from 2012-2022, a recent period that considers the booming of commodities in the region, followed by pandemic and recovery after the health economic crisis worldwide (IMF, 2023).

The variables to be used in the model are: Freedom Economic Indicator (Free_Econ), Informal Economic Activity (Informality), Corruption Index (Corruption), Inflation, GDP growth (GDP), Homicides, Government Effectiveness (Government) and Political Stability (Political_Stab).

The data comes from The Global Economy Economic Data for the period mentioned above and the countries under study are: Argentina, Bolivia, Brazil, Chile, Colombia, Equator, Costa Rica, Mexico, Peru and Venezuela. The Freedom Economic Indicator variable will be used to split the sample in countries with more economic openness than others. We have considered this criteria since the latter variable gathers global impacts of liberty and free markets.

The variable Informal Economic Activity (Informality) is the unofficial employment as percent of total employment, Corruption Index is the Perceptions ratio of public sector corruption, i.e. administrative and political corruption. The indicator values are determined by using information from surveys and assessments of corruption, collected by a variety of reputable institutions. Inflation is the percentage of variation of prices across time for every single country. Same for GDP growth which is a macroeconomic variable that considers the growth of the total economic activity.

Freedom Economic Indicator (free_Econ) is the overall index of economic freedom that has ten components grouped into four broad categories: Rule of Law; Limited Government; Regulatory Efficiency and Open Markets. The overall economic freedom is scored on a scale of 0 to 100, where 100 represents the maximum economic freedom and openness.

Homicides considers the number of homicides per 100,000 people. Government Effectiveness (Government) is an index that captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. The variable Political Stability (Political_Stab) measures countries' stability and absence of Violence/Terrorism which captures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. The index is an average of several

other indexes from the Economist Intelligence Unit, the World Economic Forum, and the Political Risk Services, among others.

Next section will describe the model to run the hypothesis about relationship between Crime and Corruption on GDP growth.

The Model

We have to estimate different Panel Data Models in order to find determinants of GDP due to increase in Corruption and Crime's perceptions. The first specification attempts to consider the variables that drives Corruption. According to the literature discussed above, we set corruption as a function of Political Stability and Government Effectiveness. According to the literature review, we may expect the latter variables to affect negatively Corruption since they are a proxy of political policies soundness. The model is the following:

 $Corruption_{it} = \alpha + \beta_{11} Government_{it} + \beta_{12} Political_Stab_{it} + e_{it} . (1)$

The subindex "i" considers the country and "t" represents the time. The equation captures the government policies that combat Corruption. The next step is to find the factors that drive the GDP growth, controlling by economic openness. We could not find Correlation between Corruption and Crime (Homicides). Th latter result can be explained due to the measurement of the variables as indexes and survey.

The next model estimates the determinants of GDP as a function of: Corruption Perception Indexes, Inflation, Freedom Economic Indicator Index, Homicides and Informal Economic Activity. The model is set as follows:

 $GDP \ Growth_{it} = \alpha + \beta_{21} Corruption_{it} + \beta_{22} Inflation_{it} + \beta_{23} Homicides_{it} + \beta_{24} Informality_{it} + \beta_{25} Freedom \ Economic \ Indicator \ + e_{it} \ .(2)$

The latter specification is estimated with both : a Panel and also the Arellano-Bond dynamic panel estimation. In the Panel Estimation, we control by two thresholds of Freedom Economic Indicator. We split the sample in two, in order to capture the effect of close economies with lower Freedom Economic Indicator and open economies with higher Freedom Economic Indicators.

We estimate two Panels: the first with threshold of Freedom Economic Indicator and the second is the Arellano-Bond estimation that captures with is based on GMM and solves for different problems of correlation and heteroskedasticity.

The purpose of the latter estimations is to test the hypothesis of the negative influence of Crime proxied by Homicides and also the effect of Corruption on GDP's growth. We may expect the sign of Homicies, inflation, informality and Corruption to be negative. In section 1 and 2, we have explain how we expect Crime and Homicides to have a negative impact on GDP growth.

For the case of Freedom Economic indicator since it is an indicator of good macroeconomic soundness, we expect this sign to be positive and significant.

Figure 1, below shows the heterogeneity of GDP growth across different countries. We can see that close countries with low freedom economic indicator like : Argentina, Bolivia, Equator, Mexico and Venezuela have lower growth than open economies with higher shares of Freedom Economic Indicators. The latter indicator is also shown in figure 2 below. We will control for the latter variable to find out if the results in equation 2 varies.

[Insert Figure 1 here]

[Insert Figure 2 here]

Results of the Models

[Insert Table 2 here]

The table above shows the results for the equation 1. Considering a sample with high Freedom economic Indicator which is frequent in open economies, makes independent variables significant explaining Corruption with an expected negative sign. Open economies with good internal policies (Political Stability and Efficient Government) solves corruption. While for lower degree of freedom economic indicator, there is not significancy of the independent variables and they do not explain Corruption. Therefore close economies characterized by lower freedom economic indicators and lack of good internal policies to solve for corruption can not provide any explanation to drop for Corruption.

There is not explanation of Corruption on Homicides (Crime). The construction of the variables may have justify this outcome. Next results explain the drivers of GDP's growth.

Tables below show the estimation for the second equation described in previous section. We can see some interesting results when we control for the degree of freedom economic indicator. The variable corruption affects negatively the GDP growth and this result goes along the literature review previously discussed for a different sample and period of time . The variable homicides also affected negatively Growth which is something found by authors like Pranav Raj & Siva Reddy Kalluru (2023).

[Insert Table 3 and 4 here]

Besides Homicides and Corruption, Informal Economy also affects GDP growth. The unique variable that positively affects and significantly GDP growth is the Freedom Economic Indicator which is something that we have expected according to Ovaska and Takashima (2006) and the literature already discussed in the preceding section of the paper. Inflation does not affect growth but the sign was according to what we have expected. Some countries in the sample have hyperinflation and this may affect growth of GDP but others have low ratios of inflation within a framework of inflation targeting.

Controlling by freedom economic indicator permits to highlight some interesting results. For low Freedom Economic Index, we can not find any significant relationship but for high levels of this index there is a strong relationship according to the expected sign. Countries with low economic openness does may have severe and continuous recession then, they may have other economic variables that explain their growth.

Table 4 shows the Arellano-Bond Estimation which is a GMM estimation for panel data models and it includes lagged levels of the dependent variable as regressors. The estimation removes individual effects without loosing sample. The results here does not contrast previous estimation in table 3. In addition, we have also controlled the sample by freedom economic indicator. We can not do the threshold but the sample is split in three: the whole, open oriented countries and close. The results were also similar to the obtained in table 3, taking into account the differentiation by freedom economic indicator.

Conclusions

Basically, this paper analyses the effect of Corruption and Homicides on GDP's growth. For and increase f 1% in GDP growth, Corruption and Homicides push down growth by 0.07 and 0.05 respectively. The latter effect is differentiated if we control by Freedom Economic Indicators.

Corruption can be controlled by proper Government Efficiency and Political Stability. The latter results are adequate for open economies characterized with higher Freedom Economic indicators.

This research can be used for any policy implementation searching for the control of Crime and Corruption due to the negative consequences on GDP growth and consequently social welfare. Having better scores of Freedom Economic Indicators also helps to conduct the latter implementation efficiently.

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