# Economic growth and political regimes: Dynamic panel estimation on the growth experiences of political regimes

**Carlo Anton G. Arguelles**
De La Salle University
Manila, Philippines
carlo_arguelles@dlsu.edu.ph

**ABSTRACT**

*Economic theory suggests that political regimes are one of the fundamental causes of economic growth, (Acemoglu, 2007). But, the relationship between growth and institutions is seemingly non-linear. The literature found that there are problems of endogeneity between regimes and economic growth. Empirical studies have adapted advanced methods such as interaction terms and dynamic panel estimators for unbiased and consistent results. The purpose of this research is to use these advanced methods to better our understanding on the growth experiences of different political institutions. This paper analyses different political structures through the use of the theoretical framework of Ehrlich and Liu (1999), a dataset by Assiotis and Sylwester (2013) and dynamic panel estimators of Arellano & Bond (1991) and Arellano and Bover (1995) that eliminate endogeneity. The variables of income inequality and corruption are key determinants in examining the economic success of political regimes. This study hypothesizes that political institutions affect the economic impact and magnitude of income inequality and corruption. The results show that income inequality has a robust negative relationship with economic growth in any regime. Corruption, on the other hand, has varying effect on the economy. Democracies and autocracies have distinctive reactions towards these issues thus creating different economic environments. Furthermore, the data suggests that autocracies tend to have extreme values of growth unlike democracies that generally have stable growth rates*.

**JEL Classifications:** O40, O43, O50
**Keywords:** economic growth, income inequality, corruption, dynamic panel estimation, interaction terms

## INTRODUCTION

Government and economies around the world have one common goal of economic growth but there are obstacles such as income inequality, corruption, and poverty. In 2013, the Philippines boasted a GDP growth of 7.8 percent, which made it the fastest growing country in Asia (NSCB, 2013). The growth of the Philippines came from the success of the manufacturing, construction sectors, and the increases in government and consumer spending (Santos, 2013). The ADB (2009) reported that over the past 40 years the Philippines had low to moderate growth because of weak employment generation, high inflation rates, increasing

population growth and other factors. Among these problems were two influential variables: income inequality and corruption. Based on a study by Stratbase Research Institute, the Philippines had the highest income inequality out of all the ASEAN countries (Ho, 2011). The Philippines also remains to be one of the most corrupt countries in the world (Salaverria, 2012). Organizations such as the World Bank and the UN stress that income inequality and corruption are negative factors for growth that have to be eliminated. Research on the economic impacts of corruption and income inequality could help explain the growth differentials within and between countries.

Corruption and income inequality is common across all countries but there are institutions that control these quite well. Based from the dataset, countries such as Canada, Sweden, Finland, Denmark and others are seen to have strong policies against corruption and below average income inequality. A common trait among these countries is the political regime of democracy. The statistics show that these countries have strong tendencies towards democratic policies. In contrast to this, there are autocratic regimes in the dataset with above average income inequality and weak policies against corruption. The data may be telling us that there are trends when it comes to political institutions.

The problem that this study tackles is the disparity in growth of countries that is seemingly caused by corruption, income inequality and political institutions. From this problem, the research question formulated is: “do different political regimes affect the economic impact and magnitude of income inequality and corruption?” The study answers this by using a panel dataset that contains 119 countries, that ranges from 1984-2007 and the use of interaction terms and dynamic panel regression. The objective of this paper is to analyse the relationships of income inequality, corruption, political institutions and their interactions towards growth experiences. The significance of this research is that it may show which political institution generally is optimal for economic growth. Furthermore, the results can help create regime specific policies to handle economic issues regarding corruption and inequality.

## REVIEW OF RELATED LITERATURE

Todaro and Smith (2012) defined economic growth as “the steady process of by which the productive capacity of the economy is increased over time to bring about rising levels of national output and income”. As time passed, many theories of growth have been developed. There are 3 prominent growth theories: Classical Growth Theory, Neoclassical Growth Theory and Endogenous Growth Theory. First, The Classical Growth Theory by Smith, Ricardo and Malthus proposes that economic output is determined by capital, labor, land and technological state (Higgins, n.d.). Second, the Neoclassical Growth Theory or the Solow Swan Model shows that that there are diminishing returns of capital and labor and that capital accumulation or savings is an important factor in economic growth (Blanchard, 2003). This model also includes how technological progress helps capital become more productive for the economy, which leads to a higher steady state of economic growth. Finally, Endogenous growth theory states that there are factors determined endogenously such as technological progress, human capital and etc. that dictate economic growth (Romer, 1986 and Lucas, 1988).

The theories focused on essential variables for economic growth such as capital, labor and technological progress. It is empirically proven that these variables raise economic growth but there are countries that cannot invest in these. Acemoglu (2007) theorizes that these variables are proximate causes of growth rather than fundamental causes of growth. The fundamental causes of growth are luck, geography, institutions and culture. North & Thomas (1973) claims that the variables in the earlier growth theories are not causes of growth but instead they are growth. These fundamental causes will be explained in the theoretical framework. The fundamental cause of growth, institutions, seems to be the most significant out of all the other causes, (Acemoglu, 2007) because of its feasibility to be studied and impact on growth.

There are many empirical studies on how an institution affects growth. These empirical studies use variables that measure characteristics of the institutions. Wacziarg & Tavares (2001) showed that democratic institutions affected growth through different channels such as human capital, physical capital, income inequality, openness, etc. The overall effects show that democracy is moderately negative. In addition to this, a study by Barro (1996) states that political freedom has a weak non-linear effect on growth. He shows that increasing political rights has diminishing marginal returns to economic growth. However, Acemoglu, Johnson & Robinson (2004) say that institutions are endogenous determined by the economy. The endogeneity of institutions can lead to inaccurate estimations and conclusions about the effect of institutions on economic growth.

Acemouglu (2007) points out the case of Korea as a “natural experiment” to test out the institutions hypothesis. In 1948, the political situation in Korea led to a division of the state into two: The Democratic People’s Republic of Korea (Communist) and the Republic of Korea (Democracy). Data coming from Maddison (2001) shows that in 2000 GDP per capita of South Korea was $16,100 while the GDP per capita of North Korea was only $1000. This “natural experiment” shows how institutions could make a difference in the economic outcomes of countries. The examination of the case between South Korea and North Korea implies that democratic and non-democratic regimes can have different growth trajectories

Przeworski and Limongi (1993) found out that there is a difference between institutions (property rights, etc.) and regimes. Their results show that political regimes do not have a significant effect on economic growth. There are other factors of the institutions such as law, policies and regulations that have a greater influence on economic growth rather than political regimes. The authors present a table with the results of 18 statistical studies that show different conclusions on the effect of political regimes and economic growth. The findings were as follows: 8 findings stated that democracy promotes growth, 8 studies support that economies with autocracies grow faster and 5 papers that concluded that the political regime does not make a difference in economic growth. The variation in the studies is attributed to the problems estimation such as simultaneity, endogeneity and selection bias.

A study by Assiotis and Sylwester (2013) examines if the effects of corruption differ across different forms of government. They address the issues of heterogeneity of corruption and democracy of each country by using panel with

dummy variables that represent time and space invariant variables. Their results found that strong democracies tend to have higher income than other countries. Their findings also suggest that decreasing corruption in autocracies would have a greater positive effect on economic growth rather than decreasing corruption in democracies. They found that increasing the control of corruption in strong democracies could decrease growth because corruption can bypass inefficient regulations.

When institutions are studied there are a lot of things to consider. Acemoglu (2007) proposes that the rules of the institutions can be broken which means that there is room for corruption. Aidt (2003) defines corruption as "an act in which the power of public office is used for personal gain in a manner that contravenes the rules of the game". An example of this is opening a jewelry store in Russia is next to impossible because of the stringent regulations (Mirnov, 2005). These regulations can be bypassed by offering bribes. Aidt (2003) calls this "efficient corruption". The study of Leff (1964) and Huntington (1968) suggest that corruption can help institutions with glaring inefficiencies have better economic growth. However findings suggest "despite the potential positive effects of corruption there will be negative effects in the medium run and the long run" (Akai, Horiuchi & Sakata, 2005).

The studies mentioned do not consider the institutional differences between the countries so this means that their results on corruption on the countries may not be accurate. The paper of Heckleman & Powell (2008) examines that different levels of economic freedom affect the economic benefit of corruption, which would affect economic growth. Their study found out in countries where economic freedom is limited corruption is growth enhancing. Another study by Aidt et al (2007) found out that corruption in high quality political institutions has a significant and negative effect on growth, while corruption in low quality political institutions has no significant impact on growth.

Another factor that is present in every institution is economic inequality. The relationship of income inequality and economic growth has been subjected to many theoretical and empirical studies. The most prominent relationship between income inequality and economic growth is the Kuznets Curve. The Kuznets Curve is an inverted U shaped curve with GDP per capita on the horizontal axis and income inequality on the vertical axis. This shows that the relationship between GDP per capita and income inequality is quadratic.

There are also empirical studies that show how income inequality affects economic growth. The relationship between income inequality and rates of growth and investment is not as strong as it is thought to be (Barro, 1999). His results imply that the Kuznets Curve may not be enough to explain the income differences within countries. The regressions show that "growth tends to fall with greater inequality when per capita GDP is below around $2000 (1985 U.S. dollars) and to rise with inequality when per capita GDP is above $2000".

There is also an empirical study that accounts for the differences in political regimes and institutions and examines how income inequality affects these countries. Clarke (1993) finds that income inequality has a negatively robust effect on economic growth on democracies and autocracies. However, Barro (1990) states that income inequality is significant but has a small effect on growth.

The results also show that income inequality seems to have a greater effect on economic growth in democracies rather than autocracies.

There are studies that examine income inequality and corruption and how they affect economic growth. A research by Li, Xi and Zou (2000) examined how corruption affects income distribution and economic growth. The results that countries with very high and very low corruption have low inequality rates, corruption also takes a large part in income inequality in developing and industrial countries and that corruption slows down economic growth. However, another study by Alonso, Davoodi and Gupta (1998) shows that countries with high levels of corruption would increase income inequality and poverty by reducing economic growth.

## THEORETICAL FRAMEWORK

This study uses modern growth theory by Acemoglu (2007) as a theoretical basis. Table 1 shows the fundamental causes of growth.

**Table 1.** Fundamental Causes of Growth

| Hypothesis | Finding |
|---|---|
| Luck | The Luck Hypothesis states that countries with very similar characteristics can still vastly differ in economic growth and development because of the presence of multiple equilibria. |
| Geography | The Geography Hypothesis refers to the environmental endowment a country has and how it affects economic growth and development. |
| Culture | The Culture Hypothesis says that different beliefs, values and preferences can affect the economic decisions of an individual. |
| Institutions | The Institutions Hypothesis states that laws and policies can affect economic incentives thus affecting the investment climate for technology, physical capital and human capital. |

Source: (Acemoglu, 2007)

The main focus of this paper is the institution hypothesis. North (1990) defines institutions as the “rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction”. The implication of this is that institutions structure the incentives of social, political and economic actions that affect growth outcomes. There are three critical points from this definition. The first point is that institutions are man-made; this means that it can be changed to obtain different economic outcomes. The second point is that the regulations set by the institutions can be broken by acts related to corruption. The third point is that constraints set by institutions such as property rights; laws and regulations can affect how individuals act which could affect economic growth. These are points of analysis that are important to consider in the results of the study.

The institution hypothesis along with the definition of North (1990) conceptualizes a “good institution” as an institution that encourages investment,

technological progress, and efficient allocation of resources (Acemoglu, 2007). Institutions that do not encourage these variables have a higher probability of having lower economic growth.

The panel setting of the data captures the other factors of geography and culture. Lastly, luck is a difficult variable to model. However, it can be simulated by the error term that is found in the econometric model. The main driver of the model is political institutions but the other causes of growth cannot be ignored.

**A model on corruption and growth**

A model by Ehrlich and Liu (1999) applies the institution hypothesis. This model shows how endogenous corruption and growth reach equilibrium in different political regimes. The model examines the equilibrium of balanced growth. Balanced growth contains two types of investments: human capital and political capital. Human capital is investment that promotes economic growth whereas political capital is the source of social loss because of corruption. There are two cases, one involves homogenous agents and the other involves heterogeneous agents.

The homogenous model involves economic agents, government size and intervention, investments variables (human and political capital) and etc. The model describes how economic agents that are workers and bureaucrats have the ability to invest in human capital, political capital or both. The model also assumes that these economic agents maximize utility. However, these economic agents can't directly choose an allocation because it goes through many things such as government intervention and etc. Once the economic agents are able to invest in their optimal amounts of human and political capital there is a possible of three results. These three steady states are poverty trap development, stagnant and developing equilibrium and persistent growth equilibrium. Government intervention can also determine what steady state an economy would end up in. The model shows that government intervention can also help the economy but after a certain level increasing government intervention can cause a decrease in the steady state of an economy.

The heterogeneous model uses the same variables but splits the economic agent into two: worker and bureaucrat. There are also two cases to consider the competitive and monopolistic case. The competitive case represents democracies because it shows bureaucrats compete for power. The monopolistic case is similar to autocratic regimes because it shows the bureaucrats in a centralized system. The difference of these models is in the level of government intervention and the size of the government. The main implication of this model is that monopolistic systems have the ability to have equal or higher growth (but not necessarily total output) as the competitive system. This happens as long as the monopolistic system is efficiently managed. This model also has the same conclusion as the homogenous model when it says that government intervention at high levels could retard growth by negatively affecting accumulation of human capital. This is generally the case for autocracies because of the "iron hand" of the leaders. However, the ability of the autocratic leader to maintain policies for long-term growth is very important for the economy.

## EMPIRICAL METHODOLOGY

### Model Specification

The base model that this paper is from Ehrlich & Lui (1999). The empirical model (equation 1) uses variables such as log of GDP per capita government intervention (LRGDPDC), dummy variables for regimes (COMM), government intervention (G) time (T), fixed effects (α) and interaction terms.

$$LRGDPC = \alpha + a_1 T + \left(a_2 T\ x\ IG\right) + \left(a_3 T\ x\ COMM\right) + a_4 LIG + a_5 COMM \quad (1)$$

From this model, Assiotis & Sylwester (2013) created their own specification to examine the effects of democracy, corruption and income inequality on growth, Equation 2. They replaced G with the variable DEM and they also added corruption to the empirical model. The basis for adding the variable CO is in the theoretical model of Ehrlich and Lui (1990) wherein they involve corruption with regimes. Their model initially uses the variables $\alpha_i$ and $\eta_t$ to represent the time and space fixed effects. Y represents the growth rate of GDP per capita which is the dependent variable. The model also contains an interaction term between the control of corruption and the extent of democracy. The vector, X, signifies control variables that the authors used later on in their estimations. ε is the idiosyncratic error term.

$$Y_{i,t} = \alpha_i + \eta_t + \delta\left(CO\right)_{i,t} + \zeta\left(DEM\right)_{I,t} + \theta\left(CO\ X\ DEM\right)_{i,t} + X'_{i,t\text{-}1}\Gamma + \varepsilon_{i,t} \quad where\ i=1,2...I \quad t=1,2...T \quad (2)$$

The contribution of this paper to the literature is adding the variable of income inequality and interaction terms that involve it with the current variables of DEM and CO. Equation 3 is the main econometric model for this study. GINI represents a standardized measure of income inequality. Dynamic panel data estimators are used to estimate this model instead of fixed effects. These estimators are difference GMM and system GMM

$$Y_{i,t} = Y_{i,t} = \rho + \delta\left(CO\right)_{i,t} + \zeta\left(DEM\right)_{I,t} + \gamma\left(GINI\right)_{I,t} + \theta\left(CO\ X\ DEM\right)_{i,t} + \beta\left(GINI\ X\ DEM\right)_{i,t}$$
$$+ \sigma\left(GINI\ X\ CO\right)_{i,t} + \upsilon\left(GINI\ X\ CO\ X\ DEM\right)_{i,t} + X'_{i,t} + \varepsilon_{i,t}$$

$$where\ i = 1,2...I \quad t = 1,2...T \quad (3)$$

### The Data

This study used the panel dataset of Assiotis and Sylwester (2013). Their panel dataset ranges from 1984-2007 and it contains 119 countries.

**Table 2.** Description of the Dataset

| Variable | Name in the Model | Description | Unit of Measurement | Source | Apriori Expectation | Theoretical Explanation |
|---|---|---|---|---|---|---|
| **Growth rate of GDP per Capita** | Y | Dependent Variable | % | Penn World Tables (Version 6.3) | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Gastil Index** | DEM | Opinions of experts about political rights and individual liberties present in a country. | Ranges from 0-6 where 6 represents the highest form of democracy | Freedom House | _ | Democracies tend to have lower growth rates because of tragedy of commons |
| **Control of Corruption Index** | CO | Opinions of experts on the likelihood that government officials would demand bribes. | Ranges from 0-6 where 6 represents low levels of corruption | Political Risk Services Inc. | + | Controlling corruption is shown to have beneficial distribution effects |
| **Income Inequality** | GINI | Estimate of Gini index of inequality in equalized household disposable income | Ranges from 0-100 where 100 represents highest level on income inequality | Standardized World Income Inequality Database | _ | Income inequality reduces economic participation |
| **Interaction Term 1** | (DEM x CO) | | Numerical | Generated by Stata | + | Democracies with strong corruption control would have better growth rates |
| **Interaction Term 2** | (GINI X DEM) | | Numerical | Generated by Stata | + | Democracies tend to reduce income inequality through welfare policies |
| **Interaction Term 3** | (CO X GINI) | | Numerical | Generated by Stata | + | Countries with high income inequality would benefit from reduction of corruption |
| **Interaction Term 4** | (CO X GINI X DEM) | | Numerical | Generated by Stata | _ | Income inequality will harm any type of government |
| **Population growth, government purchases, and investment** | X' | Control Variables | | Penn World Tables (Version 6.3), World Bank, WGI | POPGROW- GOV + INV + | Popgrow reudces GDP per capita (Y/N) GOV and INV are positive due to IS Curve |

Source: Assiotis and Sylwester (2013)

## Estimation Method

This paper used difference GMM and system GMM. These estimations are based from the notion of panel instrumental variable regression from

Anderson & Hsiao (1981) does not exploit all the available information thus a GMM context is needed (Baum, 2013). Arellano & Bond (1991) follow the concept of Anderson & Hsiao (1981) that instrumental variables can be found internally by creating lags of the endogenous variables and the dependent variable but they also add GMM to correct the dynamic panel bias. It is also important to note that instrumental variables also take care of other econometric problems such as measurement error and simultaneity (Wooldridge, 2013).

**Difference GMM**

The first estimation procedure to discuss is the difference GMM. This method takes the first difference of the model to remove individual effects and time-invariant variables (Hurlin, 2010). After this, difference GMM makes estimators that are based on moment conditions which are made from the further lagged values of the dependent variable (order 2 and beyond) and the first differenced errors (Drukker, 2008). These lags and differences will be used as instruments in a GMM context or system of equations that has one equation per time period (Roodman, 2009). There are more orthogonal conditions (GMM type moment conditions) that improve efficiency of the difference GMM (Baus, 2013).

To further analyse the difference GMM method, this paper uses the equations of Baltagi (2009) to show the process. First, assume that there is a dynamic panel regression represented by equation 4. The error term here is assumed to be i.i.d with a mean of zero and a constant variance. The individual effect and the error term, $v_{i,t}$ are assumed to be independent among themselves and each other. The individual effect in the error term of $u_{i,t}$ needs to eliminated for proper estimations. Taking the first difference of the equation as shown in equation 5 does this.

$$y_{i,t} = \partial y_{i,t\text{-}1} + u_{i,t} \; where \;\; u_{i,t} = \mu_i + v_{i,t} \tag{4}$$

Equation 5 serves as the general equation for difference GMM. Baltagi (2009) shows the case where T=3 and how many instruments can be used.

$$y_{i,t} - y_{i,t\text{-}1} = \partial(y_{i,t\text{-}1} - y_{i,t\text{-}2}) + (u_{i,t} - u_{i,t\text{-}1}) \tag{5}$$

Using the general formula of difference GMM (equation 5), the econometric equations of this paper can be derived. There are two equations that are derived. Equation 6 contains the focus and control variables but the interaction terms will not be included. Based from its structure, equation 6 contains 92 instruments. The variables of Y, CO, DEM and GINI will contribute 22 instruments. The exogenous variables and the constant each contribute 1 instrument. This makes the total instruments 92 (88+4).

$$(Y_{i,24} - Y_{i,23}) = \partial(Y_{i,23} - Y_{i,22}) + \delta(CO_{i,24} - CO_{i,23}) + \zeta(DEM_{i,24} - DEM_{i,23}) + \gamma\left(GINI_{i,24} - GINI_{i,23}\right) + (X'_{i,24} - X'_{i,23}) + (\varepsilon_{i,24} - \varepsilon_{i,23}) \tag{6}$$

The second equation that is derived contains all the variables used in this study. The interaction terms are considered exogenous variable. The interaction terms contribute one instrument each. This makes the instrument count for equation 7, 96.

$$(Y_{i,24} - Y_{i,23}) = \hat{\alpha}(Y_{i,23} - Y_{i,22}) + \delta(CO_{i,24} - CO_{i,23}) + \zeta(DEM_{i,24} - DEM_{i,23}) + \gamma\left(GINI_{i,24} - GINI_{i,23}\right) + \theta\left(DEMCO_{i,24} - DEMCO_{i,23}\right) + \beta\left(GINIDEM_{i,24} - GINIDEM_{i,23}\right) + \sigma\left(GINICO_{i,24} - GINICO_{i,23}\right)_{i,t} + \upsilon\left(GINIDEMCO_{i,24} - GINIDEMCO_{i,23}\right)_{i,t} + (X'_{i,24} - X'_{i,23}) + (\varepsilon_{i,24} - \varepsilon_{i,23}) \quad (7)$$

However, the disadvantage of this is that number of instruments is dependent on the number of time periods that are available. "The number of instruments produced will be quadratic in T, the length of time series available" (Baus, 2013). A dataset with many time periods will have the problem of too many instruments that could lead to misleading results, (Roodman, 2009). Limiting the number of lags used in the equation can ensure robustness of results.

**System GMM**

The main weakness of the difference GMM is that the first differenced estimators of the variables can serve as weak instruments (Arellano & Bover, 1995; Blundell & Bond, 1998). System GMM was proposed as a remedy to this problem. Drukker (2008) says that the system GMM "uses additional moment conditions in which lagged differences of the dependent variable are orthogonal to levels of the disturbances". These additional moments come from the assumption that the panel level effects are not related to the first difference of the dependent variable. Roodman (2009) states that orthogonal deviations are used as instruments to fill in unbalanced panels to ensure more precise estimates.

Equation 8 shows the additional condition of the system GMM that increases the number of valid instruments. Based from this condition, it is clear that we only have to add (T-2) instruments in system GMM. This is an extra restriction to ensure efficient results. However, the model specification of the system GMM is similar to difference GMM except that there are more instruments included.

$$E(u_{i,t}, \Delta y_{i,t-1}) = 0 \quad (8)$$

The variable count increases in the system GMM. When we run equation 6 in a system GMM setting, there will be 88 added instruments. These 88 instruments come from the variables of growth, gini, dem and co. This equates to 180 instruments that is in a system GMM setting. The same procedure applies to equation 7 where there will be 184 instruments that will be used in a system GMM setting.

**Diagnostic Tests**

After estimation, there are diagnostic tests to be performed. The first diagnostic that should be done is then Hansen-Sargan test. It is likely that estimated models are over identified due to the generation of instruments. This test verifies the validity of the over identification of the model (Roodman, 2009). The null hypothesis of the test is that the over identification of the instruments are valid. Rejection of the hypothesis raises suspicion on the validity of the model specification. Baltagi (2009) shows the formula of the Sargan test for over identifying restrictions (Equation 9).

$$m = \Delta\hat{v}'W\left[\sum_{i=1}^{N} W_i'(\Delta\hat{v}_i)(\Delta\hat{v}_i)'W_i\right]^{-1}v \qquad \text{where } (\Delta\hat{v}'W) : \chi^2_{p\text{-}K\text{-}1} \quad (9)$$

This equation represents W as the instrument matrix which is a diagonal matrix that contains all the instruments in its diagonals, and $\hat{v}$ as the residuals from the difference GMM estimation. The variable p refers to the number of columns in the instrument matrix, W. A favourable test results is an insignificant test result. Rejection of the null hypothesis would mean that the model specification is invalid thus we cannot use the difference GMM estimator.

However, Roodman (2009) says that the Hansen-Sargan test should be questioned on because of its weakness such as sensitivity to heteroscedasticity across the panels, sensitivity to increasing moment conditions and the nature of the GMM that would cause this test to fail. Whenever the Hansen-Sargen test is significant robusting of the standard errors is needed.

After robusting the standard errors, there has to be a test for serial correlation in first differenced errors (Drukker, 2008). The independence of the level error and the second differenced error ensures that the GMM estimator would be consistent. Arellano & Bond (1991) show this test as represent by equation 10. This test is based on the residuals of the first difference equation.

$$m = \frac{\hat{v}'_{-2}\hat{v}_{*}}{\hat{v}''^{1/2}} \qquad (10)$$

**RESULTS**

Table 4 shows the moments of the focus variables of this study. The descriptive stats of DEM show that the countries in this dataset tend to have more democratic regimes rather than authoritarian regimes but there is an above average presence of extreme cases of regimes. The data of CO show that countries have moderate policies on corruption. This dataset also shows that the countries tend to have equal income distributions, but there is a large variation in the distribution to consider. The variable of growth shows that countries generally experience a positive growth rate per year but the standard deviation shows that the growth experiences are volatile throughout the dataset.

**Table 4.** Moments of the Data

| Variable | Observations | Mean | Standard Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|
| DEM | 2827 | 3.385037 | 2.000852 | -.1724484 | 1.677996 |
| CO | 2801 | 3.099711 | 1.398082 | .3189257 | 2.60256 |
| GINI | 2119 | 39.98861 | 10.28706 | .1224008 | 2.274226 |
| GROWTH | 2831 | 1.663465 | 6.639813 | .1424894 | 28.58783 |

**Final Regression**

The table below shows the four final regressions for this study. The first equation is difference GMM without interaction terms. The second equation is difference GMM with interaction terms. The third equation is system GMM without interaction terms. The fourth equation is system GMM with interaction terms. These estimations also use the minimum required number of instruments to ensure the robustness of the results. These instruments were taken from growth, GINI, DEM and CO. The first order lag of growth was created by Stata and

included it as one of the regressors because of its dynamic nature. The first order lags of GINI, DEM and CO were created because these variables are suspected to be endogenous because of simultaneity and measurement errors.

**Table 5.** Final Regression Results and Interpretation

| VARIABLES | (difference) growth | (difference) growth | (system) growth | (system) growth |
|---|---|---|---|---|
| L.growth | 0.0622 | 0.0538 | 0.0968 | 0.0933 |
| | (0.0688) | (0.0694) | (0.0638) | (0.0642) |
| dem | -0.270 | -19.20* | -0.0147 | -8.883* |
| | (0.764) | (11.00) | (0.386) | (4.648) |
| gini | -0.526** | -2.671** | -0.0963** | -0.897** |
| | (0.224) | (1.178) | (0.0488) | (0.434) |
| co | -0.925* | -32.96* | -0.863*** | -8.693 |
| | (0.510) | (19.05) | (0.261) | (6.831) |
| gov | 0.152 | 0.126 | 0.147 | 0.158 |
| | (0.302) | (0.308) | (0.133) | (0.141) |
| inv | 0.176 | 0.171 | 0.107* | 0.128** |
| | (0.116) | (0.118) | (0.0606) | (0.0646) |
| popgrow | -0.128 | -0.237 | 0.341 | -0.00294 |
| | (0.411) | (0.492) | (0.290) | (0.298) |
| demco | | 5.746 | | 1.735 |
| | | (3.729) | | (1.364) |
| ginidem | | 0.446* | | 0.206** |
| | | (0.244) | | (0.105) |
| ginico | | 0.744* | | 0.186 |
| | | (0.426) | | (0.148) |
| ginidemco | | -0.133 | | -0.0408 |
| | | (0.0841) | | (0.0308) |
| Constant | 21.20* | 113.8** | 3.496 | 38.13** |
| | (11.89) | (53.56) | (3.482) | (18.52) |
| Observations | 1,942 | 1,942 | 2,052 | 2,052 |
| Number of countries | 108 | 108 | 108 | 108 |
| Number of instruments | 92 | 96 | 180 | 184 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
*** p<0.01, ** p<0.05, * p<0.1

All of these results are specified to have robust standard errors because the Hansen-Sagan test is significant for all. This means that there is heteroscedasticity across observations or the model specification may be wrong. There is indeed group-wise heteroscedasticity in the dataset when tested using the command xttest3. Thus, the weakness of the Hansen-Sargan Test is present and the null hypothesis will always be rejected. However, the literature supports the model specification thus we eliminate the conclusion of wrong model

specification. Robusting standard errors will correct the heteroscedasticity. After robusting, there has to be a test for serial autocorrelation of the first and second differenced error. The test for serial autocorrelation for all models show that there is serial autocorrelation present in the first differenced error but there is no autocorrelation in the second differenced error. This is to ensure the consistency of GMM instruments (Baltagi, 2009).

**Interpretation of Focus Variables**

The first variable to examine is GINI. The results show that GINI has a negative and statistically robust effect throughout all the models. This implies that inclusive growth is a goal that every country should aim for because income inequality is a universal problem. Countries with high-income inequality experience a separation between sectors of society. This separation consists of differences in standard of living, education quality, political polarization and etc. These differences in society can create a dysfunctional environment for economic growth. Policymakers should address this problem to avoid consequences such as increased poverty rate, crime rates, lower life expectancy, weakening of their regime and other negative effects.

The second variable to analyze is CO. The results show that CO is statistically significant on the 90% level in both difference GMM models and significant on the 95 percent level in the first system GMM model. It seems that there is a consistently negative relationship between CO and economic growth. This is a strange result because a country with a system that minimizes corruption reduces resource loss thus is better for economic growth. This implies that there may be consequences on economic growth for countries with a high CO rating. According to Aidt (2003), the Coase Theorem supports that bribes can improve economic outcomes between the economic agents from the private and public sector. In the absence of bribery, politicians could be using government resources in less inefficient manners, which do not maximize social outcome, (Shleifer & Vishny, 1994). This there is a trade-off between economic growth and stringent policies.

Lastly, the variable DEM is shown to be significant at the 90% level in difference GMM and system GMM with interaction terms. The results show that DEM has a consistent negative effect on economic growth. This negative effect may come from the structure of a democracy, which enhances the opportunity for "tragedy of commons". Hardin (1968) defines "tragedy of commons" as a situation where individuals aim for private benefit without considering the consequences on society. This is emulated in the theoretical framework of Ehrlich & Liu (1999). They show that democracies have economic agents that maximize private benefit with no regard to social benefit. Whereas, the autocracies controlled by an "efficient" central planner aims for the optimal social profit to maintain the regime. Theoretically, an efficient autocracy can attain the same economic growth rate as a democracy, (Ehrlich and Liu, 1999). However, this relationship is not robust because it is not significant at the 95 percent level.

**Interpretation of the Interaction Terms**

The interaction term GINIDEM is significant in the difference GMM in a 90% level and in the system GMM in a 95% level. GINIDEM has a positive relationship with economic growth. This result shows that countries with high rates of income inequality can benefit from having strong democracies. Democracies focus more on distribution of wealth rather than autocracies. Politicians in democracies have a higher incentive to reduce income inequality to maintain their political standing. This is different for autocracies because the incentive is smaller due to a secure political position. Democratic politicians aim to create policies that would attract those in the lower strata of society such as scholarship programs, conditional cash transfers and universal health care to maintain political power.

The interaction term of GINICO is significant at the 90% level in the difference GMM estimation. Furthermore, the interaction term GINICO shows that strong corruption policies can increase growth by reducing corruption in countries with high-income inequality. Corruption is a source of income inequality due to the misallocation of resources. Reducing the amount of corruption in a country by increasing the intensity of anti-corruption policies can increase economic growth. This shows that despite the possible direct negative relationship between growth and control of corruption, there is a benefit in increasing the stringency of policies in countries with higher level of inequality.

There are also insignificant interaction terms to be analysed. The first insignificant interaction term is DEMCO. This shows that strong democracies with strong anti-corruption policies would result into positive economic growth but it is statistically insignificant. There may be some countries that have well-built democracies and anti-corruption policies that increase growth thus the positive sign of DEMCO. But, the insignificance means that this relationship does not necessarily hold for all countries. This is where the luck hypothesis applies (Acemoglu, 2007). The luck hypothesis states "countries with very similar characteristics can still vastly differ in economic growth and development because of the presence of multiple equilibria." This implies that countries with similar political regimes and configurations do not necessarily the experience the same positive effect presented by DEMCO.

The last insignificant interaction term is GINIDEMCO. The estimations show that this variable has a negative effect on growth. The results imply that the negative effect of income inequality may be stronger in institutions that are more democratic and have stronger anti-corruption policies. A reason for this is that income inequality creates political distortions that harm the economy. The political instability may cause the policies to be ineffective as stated by interaction term of GINIDEM and GINICO. The interaction term shows that democracies experience greater negative effects to growth due to political distortions rather than autocracies. However, the statistical insignificance implies that this relationship does not hold for all economies or that there may be no relationship at all. The insignificance of the interaction term suggests there is no "optimal" political regime. This means that regardless of political inclination high economic growth can be achieved.

**Difference GMM and System GMM**

The selection between the difference GMM and the system GMM is important for analysis. Research on the dynamic panel estimation method suggests that system GMM is the superior model. Arellano & Bover (1995) researched that system GMM is a better estimation process because of the additional moment conditions that correct the weakness of difference GMM. But, analysis of the difference GMM may give additional insight on economic disparity within and between countries.

The difference GMM equation shows that statistically significant focus variables are GINI, DEM, CO, GINIDEM and GINICO. This estimation also shows that the insignificant variables are DEMCO and GINIDEMCO. The message of this equation is that income inequality, democracy and control of corruption have inverse relationships with growth. The interactions terms show that countries with high income inequality can benefit from strong democracies and stringent anti-corruption policies. The results also imply that countries with strong democracies and anticorruption policies do not necessarily attain high economic growth. There also seems to be no optimal political regime to handle both income inequality and corruption. An interesting result is that the lag of growth is insignificant which shows that your growth rate in the current period may not always follow the trend of the previous period because of external and internal factors.

The system GMM results show the statistically significant focus variables are GINI, DEM and GINIDEM. This estimation also presents that the focus variables of CO, DEMCO, GINICO and GINIDEMCO are statistically insignificant. The system GMM has similar results to the difference GMM in terms of the economic effects of income inequality and democracies. The interaction term presents that countries with high income inequality can benefit from democracies and that there seems to be no optimal political regime to handle corruption and income inequality. This shows that the control of corruption may not have a consistent effect because of heterogeneity across countries. The estimation also shows that the lag of economic growth is also insignificant. The two models are consistent with each other except for the insignificance of control of corruption and DEMCO.

**Country Specific Cases**

This section analyzes country specific cases of growth experiences. Growth data that are found in the 1-10 percentiles and 90-99 percentiles are considered extreme growth experiences. The other data points are general growth experiences. Segregation of these two helps analyze country specific cases. The table shows extreme growth experiences and descriptive statistics.

**Table 6.** Extreme Growth Distributions and Descriptive Statistics

| Percentile | Growth Rates | Average DEM | Average CO | Average GINI |
|---|---|---|---|---|
| **0%-10%** | -64.36023% - -4.359348% | 2.20 | 2.54 | 45.03 |
| **90%-100%** | 7.12708% - 88.74834% | 2.85 | 2.75 | 41.44 |

These are called extreme growth experiences because it is very rare to see these cases happen. As the percentiles suggest these growths are at the extreme points of the growth distribution. It seems that extreme growth experiences happen in countries that lean towards authoritarian regimes. The data shows that these countries have lenient approaches to dealing with corruption. Another common characteristic between the countries is income inequality is above average.

These extreme growth rates affect estimations of the difference and system GMM. A possible explanation for the negative relationship of DEM to economic growth is because extreme growth rates may have skewed the regression. Further analysis is done in this section.

When the data was filtered for extreme growth experiences, there were countries that had very high and low growth rates. Examples of these countries are the Philippines, South Korea, Iraq, Liberia, Singapore, China and many more. Majority of the countries in this category are developing countries. This implies that developing countries are prone to extreme growth rates and have weaker democracies (or lean towards autocratic regimes).

The next step is to filter the data using both conditions to account for countries with extreme growth rates on both sides of the distribution. Table 7 presents the descriptive statistics for all countries that experienced extreme growth rates from 1984-2007.

**Table 7.** Extreme Growth Experiences and Descriptive Statistics

| Average DEM | Average CO | Average GINI |
|---|---|---|
| **2.52** | 2.65 | 42.91 |

Table 7 affirms that countries that experience extreme growth rates lean towards more authoritarian regimes and have lenient policies towards corruption. This also shows these countries also have income inequality that is above average. It can be concluded that developing countries are more likely to have unstable conditions, weaker democracies and above average income inequality. However, they have potential to reach higher growth rates because there is a higher economic opportunity in these countries.

**Table 8.** General Growth Experience and Descriptive Statistics

| Percentile | Growth Rates | Average DEM | Average CO | Average GINI |
|---|---|---|---|---|
| **11%-89%** | -4.3110828% - 7.12254% | 3.60 | 3.2 | 39.45 |

This table shows that countries with average growth rates are more likely to be democratic rather than autocratic. These countries also have stricter policies on corruption as compared to the countries with extreme growth rates. The countries here also have lower income inequality. The data implies that democratic countries are more prone to stable growth rates. Examples of countries that have general growth experiences are Canada, Denmark, France, India, Japan, Netherlands, United States and etc. The dataset shows that

developed countries are more likely to have democracies and stable growth rates. This is because these countries have properly exploited the economic opportunity in their situation. Economic stability is more of a priority for developed countries rather than developing countries.

## CONCLUSIONS

The main question of this study is "do different political regimes affect the economic impact and magnitude of income inequality and corruption?" Based from the empirical results, political regimes do not change how income inequality and corruption affect economic growth. Income inequality is negatively related to economic growth across regimes. Corruption, on the other hand, can have positive and negative effects on economic growth in all regimes. It can positively affect economic growth by promoting efficiency in economic processes. Conversely, corruption can negatively affect economic growth by creating inefficient allocations of resources. This study finds that the role of a political regime is that it determines the reaction of the economy to corruption and income inequality. These reactions have varying economic outcomes. Thus, political regimes do not affect the natural effects of corruption and income inequality.

There are different reactions by these institutions. First, income inequality is handled differently in democracies rather than autocracies. There is pressure for democracies to reduce income inequality because political longevity of the politicians depends on the satisfaction of the people. Autocracies, on the other hand, do not experience the same type of pressure because of secure government positions. Second, the mechanism of corruption is different between these regimes. Autocracies can theoretically maximize the benefits of corruption while minimizing the costs of corruption through systemic corruption (Ehrlich and Liu, 1999). Autocracies can extract the highest possible benefit without inducing significant harm on the regime. Democracies experience the tragedy of commons in the practice of corruption (Assiotis and Sylwester, 2013). This is when economic agents maximize profits without regard to social costs. The different responses of these political institutions are what create growth disparities within and between countries.

The analysis of extreme and general growth experiences supports the findings of the difference and system GMM. Democracies tend to have steadier and smaller growth rates rather than autocracies that can have extreme growth rates. The steady growth rates are attributed to the ability of the democracies to uphold peace and stability within the country. Also, countries with steady growth rates are generally classified as developed thus opportunity of economic growth is lower. Autocracies, on the other hand, are prone to many conflicts and cases of corruption, which affect growth and income distribution. Most autocracies are developing countries, which means there is opportunity for extreme growth rates such as development of niche markets, development of economic sectors and etc. Lastly, the reaction of democracies to economic and political issues is likely to be moderate thus ensuring stable effects. The reactions of autocracies to the same issues could be drastic that result to extreme changes in economic environment.

## RECOMMENDATIONS

The first policy recommendation is that policymakers from both types of governments should aim for inclusive growth and reduction of income inequality. The estimations show that there is a consistent negative relationship between economic growth and income inequality throughout all regimes. Improving the income inequality would reap benefits for both autocracies and democracies. There would not only be economic benefits but political benefits as well. The main political benefit is that the political longevity in both systems will improve because the people will trust the system more. This avoids potential political distortions that would harm the regime. This means that both types of governments have the incentive to reduce income inequality to increase economic growth and protect the current regime. Improving educational systems, allowing for the inflow of foreign investment to help MSMEs, welfare programs such as conditional cash transfer and others can reduce income inequality.

The second policy recommendation is that lawmakers should focus on more severe forms of corruption rather than petty corruption. Petty corruption defined by Transparency International (2014) is "everyday abuse of entrusted power by low- and mid-level public officials in their interactions with ordinary citizens." Whereas political corruption defined by the same organization is "manipulation of policies, institutions and rules of procedure in the allocation of resources and financing by political decision makers, who abuse their position to sustain their power, status and wealth." Focusing on the elimination of petty corruption may lead to more inefficient economic processes. Instead, the elimination of political or grand forms of corruption is feasible and it can create opportunities for higher economic benefits. This policy recommendation pushes for the minimization of corruption rather than the elimination of corruption. This is when foreign and local bodies have to work together to audit government agencies that are suspected of corruption.

The results of the study show that there is no optimal institution that all countries should emulate. There is a mixture of both economics and culture in dealing with economic agents or citizens of your country as shown by Acemoglu (2007). The third policy recommendation is that political regimes and configurations should be fit towards the culture of the people rather than the economy. This means that creating laws not only has economic impacts but culturally effects as well. Culture plays a vital role in economic growth because it characterizes the economic agents, their behaviour and reactions towards policies. The objective of political regimes is to maximize the potential of the economic agents and minimize behaviour that slows down growth. Policymakers and legislative bodies have to be sensitive to the culture of the people. For example, passing a divorce bill in the Philippines will be very difficult since the Catholic Church has a strong bearing on the opinions of the people. Policymakers have to find a way to pass this law without harming religious customs and the like. The burden is on think tanks and organizations to research on the economic and cultural factors that affect the success and impact of the policy. The sensitivity to both factors will help create policies that are suited for the people thus creating a better chance for economic development.

**REFERENCES**

Acemoglu, D. (2007). *Introduction to Modern Growth*. Princeton University Press.

Acemoglu, D., Johnson, S., & Robinson, J. (2004, May). *Institutions as the fundamental cause of long-run growth*. Retrieved March 16, 2014, from National Bureau of Economic Reserach website: http://www.nber.org/papers/w10481.pdf

ADB. (2009, December). *Poverty in the Philippines: Causes, Constraints and Opportunities*. Retrieved from Asian Development Bank website: http://www.adb.org/publications/poverty-philippines-causes-constraints-and-opportunities

Aidt, T. S. (2003). *Economic Analysis of Corruption: A Survey*.

Aidt, T., Dutta, J., & Sena, V. (2007). *Governance regimes, corruption and growth: Theory and evidence*. Retrieved from http://jayasridutta.org/gcte-x.pdf

Akai,Nobuo, Horiuchi, Yusaku, and Sakata, Masayo. (2005) "Short-run and Long-run Effects of Corruption on Economic Growth: Evidence from State-Level Cross-Section Data for the United States," *Governance Working Paper* 555

Alonso, R Davoodi, H., &. Gupta, S., (2000, July). Does Corruption Affect Income Inequality and Poverty. Retrieved from http://www.imf.org/external/pubs/ft/wp/wp9876.pdf

Anderson, T. W., & Hsiao, C. (1991). Estimation of Dynamic Models with Error components. *Journal of the American Statistical Association*, Retrieved from http://www.jstor.org/discover/10.2307/2287517?uid=3738824&uid=2129&uid=2&uid=70&uid=4&sid=21104536002093

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*, Retrieved from http://ideas.repec.org/r/bla/restud/v58y1991i2p277-97.html

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. Journal of Econometrics 68: 29–51.

Assiotis, A., & Slywester, K. (2013, June). *Do the effects of corruption upon growth differ between democracies and autocracies?* Retrieved from http://papers.econ.ucy.ac.cy/RePEc/papers/06-13.pdf

Baltagi, B. (2009). *Econometric Analysis of Panel Data*. Retrieved from http://faculty.ksu.edu.sa/mahmoud/DocLib7/Baltagi%20-%20Econometric%20Analysis%20of%20Panel%20Data.pdf

Barro, R. J. (1996). *Determinants of Economic Growth: A Cross-Country Empirical Study*. Retrieved from National Bureau of Economic Research website: http://www.nber.org/papers/w5698

Barro, R. J. (1996) "Democracy and Growth," *Journal of Economic Growth* 1, 1-27.

Barro, R. J. (1999, June). *Inequality and Growth in a Panel of Countries*. Retrieved from http://scholar.harvard.edu/files/barro/files/inequality_growth_1999.pdf

Blanchard, O. (2003). *Macroeconomics* (3rd ed.). Prentice Hall International, Inc.

Blundell, R., & Bond, S. (1991). Initial conditions and moment restrictions in dynamic panel-data models. *Journal of Econometrics*, Retrieved from

http://www.sciencedirect.com/science/article/pii/S0304407698000098
Clarke, G. (1995). *More evidence on income distribution and growth*. Retrieved from http://ideas.repec.org/a/eee/deveco/v47y1995i2p403-427.html
Drukker, D. M. (2008). *Econometric analysis of dynamic panel-data models using Stata*. Retrieved from http://www.stata.com/meeting/snasug08/drukker_xtdpd.pdf
Ehrlich, I., & Lui, F. T. (1999). Bureaucratic Corruption and Endogenous Economic Growth. *Journal of Political Economy*, *107*(6), Retrieved from http://www.bm.ust.hk/~ced/corrjpet.PDF
Hardin, G. (1968). *The Tragedy of the Commons*. Retrieved from http://www.sciencemag.org/content/162/3859/1243.full
Heckleman, J. C., & Powell, B. (2008, August). *Corruption and the Institutional Environment for Growth*. Retrieved from http://192.138.214.118/RePEc/docs/wpaper/2008-6.pdf
Higgins. (n.d). Classical Theory of Capitalist Development: Growth and Stagnation. Retrieved from http://www.relooney.info/HigginsClassicals.pdf.
Ho, A. (2011, July). *Philippines leads in income inequality in Asean, says study*. Retrieved from Inquirer website: http://business.inquirer.net/8377/philippines-leads-in-income-inequality-in-asean-says-study
Huntington, S P. (1968). *Political Order in Changing Societies.* New Haven: Yale University Press, 1968.
Knack, S., & Keefer, P. (1995, November). *Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Indicators*. Retrieved March 16, 2014, from Munich Personal RePEc Archive website: http://mpra.ub.uni-muenchen.de/23118/
Krugman, P. (2013, August 18). *The New Growth Fizzle*. Retrieved from The New York Times website: http://krugman.blogs.nytimes.com/2013/08/18/the-new-growth-fizzle/?_php=true&_type=blogs&_r=1
Leff, Nathaniel. (1964) "Economic Development through Bureaucratic corruption," *The American Behavioral Scientist* , 8-14.
Li, H., Xu, C., & Zou, H. (2000, July). Corruption, Income Distribution, and Growth .*Economics and Politics*, *12*(2), 155-181. Retrieved from http://siteresources.worldbank.org/DEC/Resources/SSAJ151.pdf
Maddison, Angus (2001) The World Economy: A Millennial Perspective. Development Centre, Paris.
Mirnov, M. (2005, November 14). *Bad Corruption, Good Corruption and Growth*. Retrieved from http://www.mironov.fm/research/corruption.pdf
Murphy, K.M., Shleifer, A. & Vishney, R. (1991). The Allocation of Talent: Implication for Growth. *Quarterly Journal of Economics*, 105, 503-30.
Murphy, K. M., Shleifer, A. & Vishny, R. (1993). Why is Rent-Seeking So Costly to Growth? *American Economic Review*, May, 409-414.
North, D. C. (1990). An Introduction to institutions and constitutional change. In*Institutions, Institutional Change and Economic Performance*. Retrieved from http://books.google.com.ph/books?id=oFnWbTqgNPYC&printsec=Front cover#v=onepage&q&f=false
North, D., & Thomas, R. (1973) *The Rise of the Western World: A New Economic*

*History*. Cambridge University Press, Cambridge.

Przeworski, A., & Limongi, F. (1993). *Political Regimes and Economic Growth*. Retrieved March 16, 2014, from JSTOR website: http://www.jstor.org/discover/10.2307/2138442?uid=3738824&uid=2&uid=4&sid=21103671849287

Roodman, D. (2009) How To Do xtabond2: An Introduction to "Difference" and "System" GMM in Stata*,Center for Global Development Working Paper No. 103.*

Salaverria, L. B. (2012, December 5). *Philippines remains one of most corrupt countries—survey*. Retrieved from Inquirer website: http://globalnation.inquirer.net/58823/philippines-remains-one-of-most-corrupt-countries-survey

Santos, M. (2013, June 4). *Philippines is fastest growing Asian country for first quarter of 2013* . Retrieved from Inquirer website: http://newsinfo.inquirer.net/417531/philippines-is-fastest-growing-asian-country-for-first-quarter-of-2013

Shleifer, A. and Vishny, R. W. (1994). 'Politicians and firms', Quarterly Journal of Economics, vol. 109, pp. 995–1026. Reprinted in Shleifer and Vishny (1998) chapter 9.

Todaro, M. P., & Smith, C. S. (2012). *Economic Development* (11 ed.). Ma, Boston: Pearson Education.

Transparency International. (2014). *FAQs on corruption*. Retrieved from Transparency International website: http://www.transparency.org/whoweare/organisation/faqs_on_corruption/2/

Wacziarg, R., & Tavarez, J. (2001). *How democracy affects growth*. Retrieved from Science Direct website: http://www.sciencedirect.com/science/article/pii/S0014292100000933

Wooldridge, J. M. (2013). *Introductory Econometrics: A Modern Approach* (5th ed.). Cengage Learning.