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GLOBAL INCOME INEQUALITY LEVELS: EXPLAINING THE VARIANCE
WORLDWIDE

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ABSTRACT

Income inequality rates vary significantly across the globe. Despite countless studies on the topic, this variation and, in turn, the determinants of income inequality, largely remain unexplained. This study seeks to add to the list of identified determinants of income inequality while simultaneously confirming several of those that have been identified in previous research. In particular, I investigate whether or not the presence of state-owned enterprises (SOEs) in a nation has any effect on income inequality rates as measured by the Gini coefficient. My study also examines the possible effect of government ideological orientation, government system, and GDP per capita on income inequality. The results indicate that SOEs do not have any effect on the Gini coefficient while leftist-oriented governments are revealed to hold greater levels of income inequality than both centrist- and rightist-oriented governments. The regression models also indicate that assembly-elected presidential systems hold greater levels of inequality than strictly presidential systems. Moreover, they reveal a minute negative relationship between GDP per capita.

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Chapter 1

Introduction

Income inequality levels are on the rise within the United States and across the industrialized world. While there are exceptions to these heightened rates, income inequality has been on an upward trend in the most populated nations of the world such as China, India, and the United States. Precisely what is causing these increases is unclear. Until political scientists can state with confidence what factors contribute to enhanced levels of income inequality, governments can neither combat these increases as they arise nor consciously lower already heightened rates (Hasell, 2018). Without control, or at least a stronger understanding, of income gaps in an economy, states will remain helpless in the face of such trends and risk the unknown consequences that could result.

My research question aims squarely at this lack of understanding. I ask what factors explain the wide variation of income inequality levels throughout the world. This is a topic that has already been studied in depth by a wide variety of political scientists and economists. That being said, the fact remains that due to the sheer scope of individual attributes that affect income inequality, the existing literature succinctly illustrates that much more research is necessary to identify all prominent causes of income inequality variance across the globe. The majority of research that I have observed tends to focus on one or two specific variables only to discover that while the factors analyzed in the study may play roles in income inequality, those roles are only small pieces to a significantly larger and more complex puzzle. With that in mind, many of the articles that I have read end with the authors stating that income inequality variance largely

remains unexplained. I perform my research to add to the list of variables that are known to have significant effects on income inequality, confirm the work of previous studies, and discover some of that which remains unexplained. I do this by studying my own individual variables that I surmise to play roles in income inequality and by either supporting or casting doubt on some of the existing theories surrounding income inequality. The overarching goal of my study, which is also the ultimate goal of similar studies, is to gain insight that will allow policymakers and governmental leaders to combat growing income inequality levels.

The central findings regarding causes of income inequality indicate that there are essentially four main catalysts: education (Li, Squire, & Zou, 1998; Gregorio & Lee, 2002; Teulings & Rens, 2008; Rodriguez-Pose & Telios, 2009), corruption (Gupta, Davoodi, & Alonso-Terme, 1998; Gyimah-Brempong, 2002; Aspergis, Dincer, & Payne, 2009), government type (Li et al., 1998; Muller, 1998; Milanovic & Ying, 2001; Reuveny & Li, 2003), and GDP per capita (Gupta et al., 1998; Li et al., 1998; Gregorio & Lee, 2002). There is unanimous acknowledgement by all who have performed research on the subject that there are myriad other components that affect a state's level of income inequality. For the sake of conducting a study that is both succinct and accurate, this thesis will primarily focus on one possible determinant of income inequality. In order to further specify factors that influence inequality levels, this study will focus on the presence of state-owned enterprises (SOEs).

Building off both micro and macroeconomic principles, this thesis investigates the possible relationship between the presence of SOEs and a nation's income inequality levels. My theory draws from the literature of Davies and Brucato (1987) and Kowalski et al. (2013) who discuss the enhanced efficiency, development, and more egalitarian distribution of resources that are typically associated with enterprises owned by a government. I therefore wrote my

hypothesis under the pretense that a higher concentration of SOEs in an economy contributes to lower levels of income inequality. While SOEs are my central independent variable, the relationship between income inequality and variables such as party orientation of a government and type of political system held by a government are also investigated. Additionally, while GDP per capita is generally regarded as an indisputable determinant of income inequality levels, the manner in which it affects those levels is a topic of intense debate. Some scholars maintain that data suggest a U-shaped relationship between GDP per capita and income inequality. That is to say, as GDP per capita rises initially, income inequality levels will also rise, but then proceed to decrease as GDP per capita extends past a certain threshold. Others suggest that as GDP per capita rises, the Gini coefficient will simultaneously rise at a steady rate.

Although my study was unable to verify a statistically significant relationship between SOEs and income inequality levels, the regression results held various other implications of significance. My regressions strongly support the previously stated claim that education attainment has a negative effect on income inequality. However, contrary to one of my secondary hypotheses, my data reflected that leftist-oriented governments can actually expect to see greater levels of income inequality than centrist- and rightist-oriented governments, while centrist governments are expected to hold lower levels of income inequality than both leftist- and rightist-oriented governments. Moreover, the results indicated that assembly-elected presidential systems should possess greater levels of income inequality than strictly presidential systems. Despite the fact that my study was undeniably restricted by lack of available data for SOEs, the statistically significant results regarding my other variables emphasize the utility of my study.

Chapter 2

Literature Review

Due to the fact that there has already been a significant amount of research on the topic of income inequality, my study will primarily build off the work of previous researchers. Through the various research projects, several variables have been identified as determinants of income inequality. First, with regards to previously recognized independent variables, one of the key catalysts of income inequality, as well as the variable that has been studied the most, is education. A number of studies provide strong support for the idea that the degree of income inequality in a country decreases when its citizens are more educated and where there is greater equality among citizens in the education they attain (Gregorio & Lee, 2002; Li et al. 1998; Rodriguez-Pose & Telios, 2009). Relatedly, there is also evidence that countries with a more educated workforce have a higher GDP (Teulings & Rens, 2008).

The second variable found to hold statistical significance is that of corruption. In their causal study solely focused on the relationship between corruption and income inequality, Sanjeev Gupta and his associates (1998) hypothesized that when government officials use their authority for individual gains as they design policy, they tend to distort the resource allocations of the nation in question by giving certain parties a larger or lower share of public benefits. This poor system of allocation would then assure a negative impact on a nation's growth, taxation systems, asset ownership, social programs, education inequalities, human capital formation, and social spending. The negative repercussions initiated by these variables would then cause negative effects on income inequality levels. Through their regressions, the team concluded that

corruption has a significant impact on poverty and income inequality levels as it interferes with a nation's allocation of resources, redistribution of income, and stabilization of the economy (Gupta et al., 1998).

Building off the study of Gupta et al., other empirical analyses have tested this same relationship. Namely, Apergis et al. (2009) observe the causal relationship between corruption and income inequality in the United States. They found a positive relationship between corruption, as well as variables such as unemployment, education, and unionization, and income inequality in the long-run. They also observed both a short-run and long-run relationship between income inequality and corruption (corruption being the dependent variable) (Apergis et al., 2009). In his study of African governments, Gyimah-Brempong (2002) also found that corruption simultaneously decreased growth in per capita income and increased income inequality levels as corruption levels in a nation rose.

There is also some evidence that whether a country is a democracy or not will affect the level of income inequality that exists among citizens. Milanovic and Ying (2001) find that levels of inequality are higher in oligarchies relative to democracies, especially in the case of parliamentary systems. They attribute this finding to different processes that are used to distribute wealth, namely that democracies will have relatively more democratic process for wealth distribution. Moreover, additional studies also support government type as a significant independent variable. In their research on the relationship between economic openness, democracy, and income inequality levels, researchers Reuveny and Li (2003) found that higher levels of democracy contribute to reduced income inequality. They attribute the reduction to the fact that democracy provides the dispossessed with a voice and outlet for expressing grievances (Reuveny & Li, 2003). Alongside these articles, the study of Edward Muller (1988) analyzes the

relationship between democracy (by looking at levels of democracy and years of democratic experience) and income inequality. Muller takes into account the fact that the effects of democracy that could influence income inequality may take time to affect the dependent variable. His results indicated that, with time, democracy very clearly affects income inequality negatively (Muller, 1988). Moreover, although the study of Li et al. (1998) did not directly observe the relationship between government type and income inequality levels, their article revealed that nations with healthy political economies, which are characterized by high levels of secondary education attainment and high levels of political liberties (otherwise referred to as democratization), can expect to see relatively low levels of income inequality.

One variable not previously considered by scholars who study the determinants of income inequality is state-owned enterprises (SOEs), but there is evidence to suggest that SOEs might affect levels of inequality. Davies and Brucato (1987) discuss how government enterprises can be utilized to increase inequality by allowing officials to pull levers and give money to themselves and interest groups. They also explain how SOEs might be used to reduce income inequality levels by creating a system in which governments can create different taxation rates for different income groups. They found that growth in government banking had occurred more rapidly than in the private sector, but this was at the expense of profits, of which the private sector tended to earn significantly more of. Part of this economic advantage stems from the transferability of economic assets that is present in the private sector and not in the public. However, Davies and Brucato also suggest that the private sector dominates over the public sector in terms of profit because it charges unfair rates that exploit the citizens using their services. By creating distinct taxation rates for individuals of different incomes because they are not motivated by profits, public banks could contribute to reduced levels of income inequality.

Similarly, Przemyslaw Kowalski and his team (2013) argue that state-owned enterprises can be beneficial to a society as they can correct market failures present in an economy by providing positive externalities in the context of public or merit goods. Certain public goods are characterized by beneficial externalities of things such as basic nutrition or healthcare. Under general economic assumptions, private firms will often generate these externalities but at levels below the socially optimal point. Additionally, it can be argued that state-owned enterprises can be utilized by the government as a viable and efficient means of generating government revenue in addition to taxes and other government systems. Moreover, it has been said that state-owned enterprises can be used to establish economically desirable industries that would not have been developed privately. Many investors are unwilling to create a company in a market where externalities cannot be incorporated into pricing strategies or where capital and insurance markets are imperfect. Kowalski and his team actually state that many private enterprises owe much of their success to prior state ownership of their industry (Kowalski, Büge, Sztajerowska, & Egeland, 2013).

Lastly, with regards to literature on the subject of income inequality, there seems to be some discrepancy as to whether or not the infamous economic theory, the Kuznets curve, holds reliability. The theory states that there is an inverted U-shaped relationship between income and income inequality of a nation (Gregorio & Lee, 2002). That is to say, as GDP per capita increases, so too does income inequality, but income inequality eventually reaches a point where it will begin to diminish as the average national income increases. The underlying rationale of the theory is that as economic growth occurs in a nation, initially it is disproportionate (it greatly benefits the rich). However, Kuznets believed that as long as economic growth was occurring

and at least benefitting the wealthy of a society, the growth of several classes would contribute to growth in other classes, eventually eliminating the initial inequality (Gregorio & Lee, 2002).

In their study, Gregorio and Lee observed that income inequality grew more severe with higher levels of income until the specific income range of $1,800 and $2,700 (PPP prices) where income inequality levels begin to lessen, thus verifying Kuznets' theory. They do state, though, that although there is evidence supporting the theory, the relationship is quite weak. Gupta et al. and Li and his collaborators, on the other hand, were completely unable to verify this theory (Gupta et al., 1998; Li et al., 1998).

As illustrated above, the existing literature on income inequality determinants is quite detailed and extensive. The strongest evidence exists for links between income inequality and education, corruption, and government type. The fact still remains, though, that income inequality is one of the most complex social science conundrums currently facing researchers. One common theme throughout my research is that, while a study may have confirmed one variable, it only did exactly that; confirm one singular variable of the large and rather nebulous puzzle that is income inequality. Although the current scientific explanation of income inequality is thorough in its undoubtedly useful accomplishments thus far, it is by no means sufficient. Something as vast and overarching as income inequality cannot be explained by a mere three (more or less) variables, but likely by an expansive host of factors whose number could well be quite staggering. What contemporary research makes abundantly clear is that more research into separate determinants is absolutely necessary if income inequality is to be fully explained. Through my study, I hope to confirm and further explore already discovered determinants, offer another perspective on the discrepancies of the Kuznets curve, and add to the list of agreed upon catalysts of income inequality. More specifically, using the literature of state-owned enterprises

that I have highlighted above, I will test a theory regarding the relationship between income

inequality levels and the concentration of state-owned enterprises within a nation's borders.

Particular details regarding my theories will be discussed in the following section.

Chapter 3

Hypotheses

There are several hypotheses that I will test in order to understand the variables that may affect income inequality that, for various reasons, have not received much attention from scholars. The foremost of my hypotheses regards the relationship between state-owned enterprises (SOEs) of a nation and income inequality levels. I hypothesize that the higher the percentage of government-owned enterprises a nation possesses, the lower its level of income inequality will be. I form my theory on the basis of both intuitive logic and economic theory. I expect that the more enterprises a nation owns, the lower a nation's income inequality levels will be as a result of the government being able to redistribute more of its nation's wealth in an egalitarian manner. Alongside this assumption, Davies and Brucato (1987) discuss how government firms have the capabilities to "affect income distribution by providing consumption items to low-income recipients at below-cost prices", which provides low-wage individuals a possible avenue to increase their wealth. The state could also use government enterprises to destroy private monopolies as well as initiate capital intensive methods through collectivized production and the absorption of people without land (Davies & Brucato, 1987).

Moreover, one possible advantage to state-owned enterprises over privately-owned enterprises is that SOEs are often more efficient than privately-owned ones (Kowalski et al., 2013). Because privately-owned firms typically exist with the sole purpose of generating revenue for their company, the prices they charge are often socially suboptimal for consumers. As stated above, SOEs are run by the government and can therefore easily alleviate these market failures

by charging lower prices for goods and services (Davies & Brucato, 1987). Additionally, most enterprises provide their workers with some form of social benefits, and privately-owned enterprises generally do so at below socially optimal levels. If governments are in control of certain enterprises, they can choose to give out certain social benefits, like basic nutrition and health care, at higher levels (Kowalski et al., 2013). While it does not explicitly deal with state-owned enterprises, it is relevant to note that a possible feature of a publicly-owned enterprise, land distribution, has been linked empirically to lessened income inequality. Through regression analysis, Li et al. (1998) noted that more egalitarian land distribution serves to reduce income inequality by benefitting the poor of a society. It is plausible, then, to suppose a decrease in income inequality when a higher number of SOEs is present in a society as SOEs allow the government to own more property, and perhaps distribute said property to the populace in a more egalitarian manner than if there were less SOEs.

With regards to this specific hypothesis, the last detail that should be mentioned is that of economic development that stems from state-owned enterprises, this political characteristic being associated with increased income equality. SOEs serve to develop economies as the ensured security of government funding makes them significantly more likely to invest in nascent industries than a risk-averse private enterprise. In addition, many private firms have little or no incentive to invest in research due to weak or absent copyright laws. It is possible then that state-owned research institutions would contribute long-term benefits to a society and economy by performing the research instead (Kowalski et al., 2013). I surmise that the more state-owned enterprises a nation possesses, the more they shall develop both economically and technologically, in turn reducing income inequality levels in the nation under study.

My second hypothesis involves left versus right wing governments. Milanovic and Ying (2001) observe that societal values and social contexts play a moderate role in determining income inequality levels. As leftist ideology is often associated with values of increased social and economic equality, whereas rightist ideology is not particularly known for holding such values, I surmise that nations possessing leftist oriented governments, in terms of economic policy, will have lower levels of income inequality than nations that possess right wing or centrist governments, also in terms of economic policy.

The third hypothesis that I will test focuses on the relationship between political systems and income inequality levels. Milanovic and Ying note that democracy has more of an effect on income inequality if the nation in question possesses a parliamentary system as opposed to a presidential one. I will investigate the hypothesis that countries with a parliamentary system will have lower levels of income inequality than countries with presidential systems. The reasoning behind why this might hold true is that parliamentary governments are closer to direct democracy than presidential systems. By giving more authority to parties and formations of coalition governments, parliamentary governments could perhaps stimulate redistributionist-type policies that one often associates with the median voter (Milanovic & Ying, 2001).

The last hypothesis that I will investigate is the possible U-shaped relationship between average income and income inequality levels as captured in the Kuznets Curve. Specifically, the curve implies that as average income in a nation rises, income inequality initially rises, but then proceeds to drop as income levels continue to rise (Gregorio & Lee, 2002). I hypothesize that as average income (that is, GDP per capita) in a nation rises, ceteris paribus, income inequality will continue to rise. I do not expect to see a decrease in income inequality over time because, while an increase in GDP per capita may result in a decrease in income inequality on occasion, many

circumstances under which average income would rise do not all contribute to reduced income inequality. Rather than an increase in lower class wages, for instance, an increase in income per capita often implies an increase in upper class earnings, as is the case in the United States in recent years which is currently facing heightened levels of inequality. Additionally, often times, as is common in many Western nations, a rise in GDP per capita signifies not just a rise in lower class incomes (as would be necessary to reduce income inequality levels), but a rise in income levels across the socioeconomic spectrum. That is to say, as the poor become wealthier, it is often the case that the rich become richer.

Previous studies have produced mixed evidence about this relationship, although the work of Li et al. (1998), Gupta et al. (1998), and Teulings and Rens (2008) support my supposition. In Gregorio and Lee's (2002) study, they claimed to verify the curve. Despite this, they did state that the relationship was relatively weak for their observations from 1970 to 1990. Analyzing data that encompass this same period (1947 to 1994), Li et al. (1998) state that income inequality levels remained quite steady despite significant increases in income levels in their study. Moreover, Gupta et al. did not observe a U-shaped relationship between the variables in their analysis (Gupta et al., 1998). In Teulings and Rens' study (2008), they concluded that there is a negative relationship between the supply of human capital (the skills and characteristics that allow individuals to gain economic profit) and its social and private returns. So the fact that an economy is growing and supplying the market with human capital that was not present previously might even serve as an economic detriment to an individual and society by providing too much human capital. This repercussion of additional human capital that results from a growing economy could serve to actually increase income inequality through its negative social and private impacts (Teulings & Rens, 2008).

<div align="center">**Table 1. List of Hypotheses**</div>

	Hypotheses
H1	As the percentage of SOEs in a state increases, the level of income inequality in said state will decrease
H2	States that possess governments categorized as "leftist" in orientation will have lower levels of income inequality than states that possess governments categorized as "centrist" or "rightist"
H3	States that possess a parliamentary system of government will have lower levels of income inequality than states that possess a presidential system of government
H4	As GDP per capita in a state increases, the level of income inequality will continue to increase

Based off previous work on the subject, I've identified a set of variables to utilize as controls for my regressions. The first of these is simply country. In their study on the relationship between education and income inequality levels, Gregorio and Lee (2002) take great care to include as many control variables as necessary to ensure that their results have the utmost validity and reliability. In order to take into account those factors that affect income inequality that are not related to education and income (the independent variables of their study), Gregorio and Lee incorporate regional dummies into their regressions. While I do not use dummies in my study, I simply set a variable for "country" that I run in my linear regressions to control for country specific factors. It is important to include control variables such as this one because,

while I can surmise that certain factors play a role in reducing or increasing income inequality levels, there are most likely other factors particular to the region under study, be they of large or small sway, that I am missing. Therefore, it is imperative to control for those factors.

Additionally, it is essential that I control for already discovered catalysts of income inequality. The first of these variables is education. The work of Gregorio and Lee (2002) illustrate that lower levels of education inequality alongside high levels of education attainment serve to reduce income inequality levels. Following education, the study of Gupta et al. (1998) concluded that corruption has a major effect on poverty rates and income inequality levels as it disrupts a government's distribution of resources, redistribution of income, and economic policy. The last known explanatory variable for income inequality levels that I plan to control for is civil liberties. In their study on income inequality, Li et al. (1998) study the effect of what they call, political economy, on income inequality. Political economy consists of civil liberties and initial level of schooling. They conclude that civil liberties play a significant role in affecting income inequality levels. They state that the expansion of civil liberties, among several other factors, serves to aid the growth of GDP per capita in a way that benefits both the poor and wealthy, but reduces income inequality. I will therefore include a control variable for civil liberties as well.

Chapter 4
Data Analysis

Data and Methodology

In order to explain the variance in income inequality levels between countries, I have

conducted a time-series multiple regression analysis in RStudio. The unit of analysis in my study

is country-year. Originally, my study was to be focused on the standard OECD countries

(excluding Estonia, Latvia, Lithuania, and Slovenia because of gaps in these countries' data).

However, due to lack of available state-owned enterprise data for OECD nations, I expanded my

country to all countries for which there was comprehensive SOE data in the dataset used. My

dataset now includes 44 countries of both low and high-incomes from across the globe. Based on

the current data available for SOEs, my observations run from 1978 to 1991. I have selected the

Gini coefficient to measure income inequality levels, my dependent variable. The Gini

coefficient indicates levels of income inequality within a nation with an integer between 0 and

100. The lower the score, the less inequality in a nation. Due to its frequency of usage in

academic studies as a measure of income inequality levels alongside its straightforward formula,

its reliability as a consistent measure is quite strong. The coefficient is derived by finding the

distance between a nation's actual Lorenz Curve, a measure of a state's income distribution, and

a hypothetical Lorenz Curve in which everyone in the nation receives the same income. That is, a

theoretical representation of total equality in the country under question (Dorfman, 1979). The

mere nature of its derivation from the income distribution curve of a country attests to its validity

as an accurate measure of income inequality within a nation.

My Gini coefficient data come from the University of Texas Income Inequality Project's

Estimate Household Income Inequality Data Set (EHII) (2015). It was created by combining data

from the UTIP-UNIDO (University of Texas Inequality Project and United Nations Industrial

Development Organization) dataset of wage inequality within the industrial sector and the

Deininger and Squire Dataset of the World Bank ("Estimated Household Income Inequality

Dataset, EHII", 2019).

As mentioned previously, my primary area of study pertains to the possible relationship

between state-owned enterprises and income inequality levels. Specifically, my central

independent variable, presence of state-owned enterprises in a nation, is measured as a

percentage of GDP. To be considered a state-owned enterprise, the entity must be owned and

controlled by the state, and establish the majority of its profit by providing goods and services.

Additionally, nearly all of the SOEs held in the data are federal, nonfinancial enterprises (Shirley

et al., 1995). This standard, as well as a clear definition of the variable, ensure that the data could

be replicated by other scholars in separate studies. Moreover, the straightforward definition of

enterprises held by the state illustrates this measure's validity as an accurate measure of my

independent variable.

My SOE data come from a compilation collected by a team of researchers at the World

Bank in 1995. While this dataset is over 20 years old, it is the most comprehensive dataset on

state-owned enterprises that currently exists. It was collected for a project entitled *Bureaucrats in*

Business: The Economics and Politics of Government Ownership. The dataset compiled by the

World Bank researchers draws from a collection of several other sources. Those sources include:

World Bank country and sector reports, World Bank Economic and Social Database (BESD),

World Debt Tables, World Tables, and African Development Indicators (ADI); International

Monetary Fund Recent Economic Developments (country reports) and International Financial

Statistics; Floyd, Gray, and Short (1984); Nair and Fillipides (1989); Centre europeen de 1'

entreprise publique reviews-Statistics of Public Enterprises in the EEC; United Nations-Yearbook of National Accounts Statistics; and OECD-National Accounts Statistics. The data include information for approximately 90 countries from 1978 to 1991 (Shirley et al., 1995).

My next independent variables are party orientation and type of political system. With regards to party orientation, rightist party governments (defined as Christian democratic, conservative, and right-wing) are given a 1, leftist party governments (defined as social democratic, socialist, communist, and left-wing) are given a 3, centrist party governments (defined as parties with centrist ideologies. An example provided in the codebook is a party in which advocates attempt to strengthen private enterprise in a social liberal context) are given a 2, governments with no information are given a 0, and governments with no executive are given an "NA". However, of the party orientation data that I utilized for this study, no countries held any zeros. Moreover, in order to measure my hypothesis, because these variables are categorical as opposed to continuous, rightist parties are used as a baseline variable and therefore do not appear within my regression tables (Cruz, Keefer, & Scartascini, 2016).

With regards to political systems, parliamentary systems are given a 2, assembly-elected presidential systems are given a 1, and presidential systems are given a 0 (Cruz, Keefer, & Scartascini, 2016). It should also be noted that although I do not offer a hypothesis on assembly-elected presidential systems as I did not find significant literature that could support or deny a possible relationship with income inequality levels, my regressions will also include this variable as it is included in The Database of Political Institutions 2015. On that note, because assembly-elected presidential systems can be considered a type of presidential system, it is important for me to clarify a distinction. In my hypothesis, I expect that parliamentary systems will hold lower levels of income inequality than presidential systems. In this case, I am strictly referring to the

variable listed above that holds a zero. That is, presidential systems that are not assembly-elected. To specifically define presidential systems according to the codebook, these systems are those in which presidents are elected by an electoral college or are elected directly in governments where there is not a prime minister. Presidential systems are also those in which a president may veto legislation and the parliament needs a supermajority to override said veto, the president has the ability to appoint and dismiss prime ministers in addition to being able to dissolve parliament and call for new elections, and the president is mentioned more frequently than the prime minister in sources (countries such as Romania, Estonia, Yugoslavia). Those government systems that have unelected executive leaders are regarded as presidential systems as well. Parliamentary systems are then defined as those in which the legislature elects the chief executive. Assembly-elected systems are systems in which the president is elected by the legislature, however the president cannot easily be recalled (if the legislature must dissolve themselves to force the leader out, or if they require a 2/3 vote to impeach said leader). Because these variables are categorical, the presidential systems variable is used as a baseline variable and therefore does not appear in my regression table. Again, the clear-cut operationalization and definitions of each variable indicate a measurement system that would generate consistent results in separate studies. Moreover, because each party orientation definition consists of specific features of each ideology, it is quite clear that the data hold strong validity with regards to accurately measuring my intended variables. Data for both party orientation and political systems come from The Database of Political Institutions 2015. The collection covers data from 1975 to 2015 for 180 countries. Researchers compiled the database in 2000 at the World Bank Development Research Group (Inter-American Development Bank, 2016).

My fourth variable is GDP per capita, which represents income values within a state. Drawing from Quality of Government's Basic Time Series Data (University of Gothenburg, 2019), GDP per capita is defined as annual per capita USD income in a nation based off current (2019) prices (Dahlberg, Holmberg, Rothstein, Pachon, & Svensson, 2019). Because there is some evidence to support the Kuznets Curve (a graph depicting a U-shaped relationship between GDP per capita and the Gini coefficient), one of my regression models will also include the squared values of GDP per capita. In order to truly prove or disprove my hypothesis that income inequality will continue to rise as GDP per capita increases, this U-shaped relationship must be tested by including this squared variable in the model. The succinct nature of GDP per capita in addition to the clear terms of Quality of Government's specific measurement ensure that it is a valid indication of income levels in a nation. Moreover, because all of the data are clearly defined as based off the prices of one specific year, similar studies should have no issue replicating it.

Alongside GDP per capita, Quality of Government's Basic Time-Series Data is also the source for my three control variables. Those three controls are level of educational attainment, extent of corruption, and the presence, or lack thereof, of civil liberties. I measure education as the averages of the years of schooling attained by males and females over the age of 25 in a nation (Dahlberg et al., 2019). However, the dataset that I used only held education data at five year intervals (1980, 1985, and 1990). I therefore calculated the average levels of education attainment between the years listed and those values are the data I used for the initially missing years. So as not to impede the accuracy of the regressions of two highly correlated variables, my models only included education data for females. Although, in order to test if calculating the regressions with either male or female education data affects my results significantly, one of my

regressions substitutes female education data with male education data. To speak to the

reliability of this data, because this measurement is simply a government reported statistic,

researchers in similar studies should obtain the same values as this dataset. Moreover, the

validity of this measurement is inherent in the fact that these are observable statistics as opposed

to ones that are calculated. Although, the average measures that I have calculated are clearly

defined and come from observable statistics.

Corruption is measured on a scale of 0 to 100, 100 being a government with the

maximum amount of corruption, or "an abuse of power for individual gains", and 0 being a

government devoid of corruption. The corruption indicators are derived from the Bayesian

Corruption Index which draws its data from surveys, ensuring reliable measures that can be

expected to be consistent across studies (Dahlberg et al., 2019). Although surveys do not always

hold accurate information regarding their subject matter as respondents do not always record

accurate information, the questions pertain to corruption thus ensuring the validity of the index

as a sound representation of corruption, even if some responses are false.

My measure of civil liberties ranges from 1 to 7, where countries with the most "liberties

that allow for freedoms of expression of beliefs, organizational rights, rule of law, and personal

autonomy without state interference" are coded 1 and those least free coded 7 (Dahlberg et al.,

2019). Because corruption and lack of civil liberties are highly correlated variables, once again,

so as not to skew my results, I include corruption as a control variable in all of my regression

models aside from one in which I substitute it with civil liberties to observe if there are any

significant changes in the regression results. Because countries are evaluated and put on the scale

by a team researchers at Freedom House, the data of the civil liberties scale can therefore only be

collected from one source, ensuring its consistency. The validity of the measurement arises from the straightforward definition of civil liberties as general government-provided rights.

Results and Interpretations

To test my primary and secondary hypotheses (featured in Table 1), I ran five linear time-series regressions in RStudio. The first regression tested the effect of all my independent variables (excluding GDP per capita squared) on income inequality as measured by the Gini coefficient. This regression included the control variables of corruption and average level of education attainment for females over the age of 25. Corruption was used as a control variable instead of civil liberties in the majority of the regression models because there is more empirical evidence from previous studies supporting corruption as a determinant of income inequality as opposed to civil liberties. All models after Model 1 excluded SOEs as a percentage of GDP. Model 2 was simply a regression of all variables included in the first model, except SOEs. Model 3 contained all variables of the first model, but also included GDP per capita squared. Model 4 contained all variables of the first model, but the female education attainment control variable was substituted with the male education attainment variable. Model 5 contained all of the original variables of the first model, but corruption was substituted with civil liberties. Each model received some statistically significant results.

Model 1 revealed only three variables to hold statistical significance (see Table 2). The first of these was centrist-oriented governments, the second was assembly-elected presidential systems, and the last was the female education attainment control variable. SOEs as a percentage of GDP, the independent variable of my primary hypothesis, however, was not statistically significant. Therefore, I am unable to prove my primary hypothesis that the higher the percentage

of state-owned enterprises in nation, the lower the level of income inequality. Moreover, contrary to the wealth of studies on the topic, the variable of GDP per capita did not hold a statistically significant relationship with the Gini coefficient in Model 1. Despite the insignificant relationships of these two variables, Model 1 holds various significant implications regarding the other variables included in the regression.

Table 2. Table of Regression Models

Gini Coefficient (Dependent Variable)					
Independent Variable	Model 1	Model 2	Model 3	Model 4	Model 5
SOEs as % of GDP	-0.033 (0.542)				
Centrist-oriented governments	-1.243* (0.040)	-0.814* (0.023)	-0.871* (0.015)	-0.761* (0.036)	-0.075 (0.777)
Leftist-oriented governments	0.259 (0.535)	0.423 . (0.065)	0.435 . (0.057)	0.356 (0.123)	0.543** (0.002)
Assembly-elected presidential systems	2.312 . (0.084)	1.192 . (0.086)	1.534* (0.035)	1.185 . (0.094)	0.691 (0.313)
Parliamentary systems	1.713 (0.263)	0.510 (0.563)	0.756 (0.397)	0.587 (0.510)	0.316 (0.701)
GDP per capita	0.001 (0.276)	-0.001 (0.486)	0.001 (0.308)	-0.001 (0.280)	-0.001** (0.002)
GDP per capita squared			0.00 (0.118)		
Corruption	1.058 (0.114)	0.511 (0.188)	0.527 (0.174)	0.312 (0.440)	
Civil Liberties					-0.027 (0.824)
Education attainment for females 25+	-1.21 . (0.067)	-1.558*** (0.0001)	-0.605*** (0.0001)		-1.583*** (0.0001)
Education attainment for males 25+				-1.455*** (0.001)	
Observations	124	247	247	247	339
R-squared	0.981	0.986	0.986	0.987	0.984

Note: '.' $p<0.10$ '*'$p<0.05$ '**'$p<0.01$ '***'$p<0$. Effects of both country and year have been fixed.

Of the statistically significant variables, the first is centrist-oriented governments. With a strong p-value of 0.040, centrist-oriented governments received an estimated coefficient of -1.423. This indicates that there is strong evidence to support the claim that centrist-oriented governments will possess Gini coefficients 1.423 points lower than rightist-oriented governments (the baseline variable used for government systems throughout the regressions), reflecting their possible negative effect on the Gini coefficient. In the context of my hypothesis, I postulated that leftist governments would possess income inequality levels lower than both centrist and rightist oriented governments. The leftist-oriented government variable in this model was not statistically significant, although surprisingly enough, its estimated coefficient of 0.259 implied the inverse of my hypothesis. Because the leftist variable was insignificant, though, I am unable to prove my hypothesis. What can be stated regarding my theory is that there is strong evidence indicating that centrist-oriented governments will hold lower levels of income inequality than rightist-oriented governments.

The second statistically significant variable of model 1 is assembly-elected presidential systems. In the regression, this variable received a p-value of 0.084 that I will consider statistically significant because, while it is above the 0.05 threshold, it is still below 0.10 implying less certainty regarding its statistical significance, but confidence in its coefficient nonetheless. The same reasoning will be applied to all other p-values between 0.05 and 0.10 throughout the rest of this paper. The estimated coefficient of assembly-elected presidential systems is 2.312, suggesting that assembly-elected presidential systems will hold a Gini coefficient about 2 points higher than the baseline variable for government systems, presidential systems. Once again, as the coefficient associated with parliamentary systems is statistically

insignificant, I am unable to prove my hypothesis that parliamentary systems will hold lower levels of income inequality than presidential systems. This regression does provide evidence in support of the claim that assembly-elected presidential systems should expect to see higher levels of income inequality, suggesting their possible positive influence on income inequality.

The last variable of statistical significance in Model 1 is that of education attainment for females older than 25. As this variable was inserted in the regression as a control, its statistical significance is not surprising. It received a relatively uncertain p-value of 0.067 and a coefficient of -1.21. This coefficient runs in line with contemporary literature on the subject that supports the claim that increased educational attainment of females and males will lower income inequality levels in a nation. In terms of the control variable for corruption, this variable did not hold statistical significance even though previous studies have found strong evidence for a positive relationship between rate of corruption and income inequality levels. While I am unable to confirm any of my hypotheses after performing the first regression model, as stated above, this regression does provide useful information regarding several of my variables and their relationship with the Gini coefficient.

The final piece of information worth discussing about Model 1 is the low number of observations. The number of observations for this regression is only 124, a very low number, statistically speaking. This is of course, a direct result of the lack of available data on state-owned enterprises. While this sample size is large enough to conduct a formal empirical analysis, it is such a low value that the accuracy of the results could very well have been affected. Therefore, while this regression did not reveal statistically significant evidence for several of my hypothesized relationships, namely the possible relationship between SOEs and the Gini

coefficient, the relationships tested in this regression could perhaps hold statistical significance in future studies if analyzed with a larger number of observations.

For the second model, the regression performed contained all variables included in the first model, excluding SOEs as a percentage of GDP. In Model 2, the following variables were revealed to hold statistically significant relationships with the Gini coefficient: centrist-oriented governments, leftist-oriented governments, assembly-elected presidential systems, and education attainment of females over the age of 25. All other variables were statistically insignificant. Because SOEs were shown not to have a statistically significant effect on the Gini coefficient, eliminating the SOE variable from the regression equation should serve to enhance the accuracy of the variables' relationships with the Gini if those relationships are present. The number of observations for this model is significantly greater than that of the last model and rests at 247, also ensuring an enhanced level of accuracy.

Once again, the variable representing centrist-oriented governments received a strong p-value. In this model, the p-value dropped by a substantial margin from 0.040 to 0.023. The estimated coefficient also changed, albeit slightly, to -0.814 indicating the same implication of the first model that compared to rightist-oriented governments, centrist-oriented governments can be expected to hold to lower levels of income inequality. Contrary to Model 1, though, the estimated coefficient associated with leftist-oriented governments gained statistical significance with a new p-value of 0.065. While this variable did become statistically significant, the estimated coefficient was the opposite of what was expected. The coefficient of leftist-oriented governments produced by the second model is 0.423. Even though this number is quite small, it suggests that leftist governments should possess Gini coefficients that are higher than the baseline of rightist governments, and higher than that of centrist-oriented governments. This fact

therefore disproves my hypothesis that leftist-oriented governments will hold lower levels of income inequality than rightist- and centrist-oriented ones.

Regarding assembly-elected presidential systems, the p-value remained about the same with a slight upward shift from 0.084 to 0.086. The coefficient decreased from 2.312 to 1.192. Because the parliamentary systems variable did not gain statistical significance, I am still unable to prove my hypothesis after Model 2 and the information gleaned from the first regression remains the same. That is, assembly-elected presidential systems can be expected to possess Gini coefficients about one to two points greater than strictly presidential systems.

Lastly, the control variable for female educational attainment remained significant, with the p-value actually increasing its significance to an extremely low value of 0.0001. The estimated coefficient remained about the same at -1.558, confirming the previously identified negative relationship between education attainment and income inequality levels. It should also be mentioned, that once again, the control variable for corruption remained insignificant.

While the results of the second regression model were fairly similar to the first (excluding the results of the SOE variable), there were significant changes that allowed me to disprove one of my hypotheses. In particular, the gained significance of leftist-oriented governments and the continued significance of centrist-oriented governments provide evidence that leftist governments should expect to see higher rates of income inequality than centrist and rightist governments, and centrist governments should actually expect to see lower levels of income inequality than rightist governments. Additionally, once the SOE variable was removed from the model, there was very strong evidence supporting the negative relationship between education attainment and income inequality.

The third regression model tested the possibility of the Kuznets Curve. Model 3 included all the variables included in the prior two models, excluding SOEs as a percentage of GDP, and adding GDP per capita squared. The results of this model were similar to those of Model 2, although the statistical significance of some variables was slightly altered and neither the GDP per capita variable nor the GDP per capita squared variable held any statistical significance. Just as in the case of the last regression model, the number of observations in this model is 247, once more providing a moderate number of observations, enhancing the accuracy of the regression.

The variables for government party orientation each remained significant. Centrist-oriented governments became slightly more significant, the p-value shifting from 0.023 to 0.015. The estimated coefficient stayed about the same with a minor transition from -0.814 to -0.871. The leftist-orientation variable's p-value also did not change very much and went from 0.065 to 0.057, nearly breaking the 0.05 threshold. The coefficient changed from 0.423 to 0.425. These results hold the same implication of Model 2 that leftist-oriented governments should be expected to hold greater income inequality levels than rightist, and centrist-oriented governments should be expected to hold lower levels than rightist governments.

The variables representing type of government system also showed little changes. Nevertheless, assembly-elected presidential systems had a marked decrease in its p-value from 0.086 to 0.035. The coefficient rose by a minute amount from 1.192 to 1.534. Once more, I am still unable to prove my hypothesis about the relationship of government systems with the Gini coefficient as the parliamentary systems variable is insignificant.

The statistics surrounding the education attainment for females control variable stayed roughly the same as the previous model. The p-value was still quite low at -0.0001, but the effect on the Gini coefficient was diminished slightly. The estimated coefficient shifted from -1.558 to

-0.605, reflecting a less potent negative effect on the Gini coefficient in this model. The corruption control variable remained insignificant.

The final variables to discuss of Model 3 are the GDP per capita variables. In order to confirm or deny the presence of the Kuznets Curve (my hypothesis suggested that the curve does not exist), the regular measure of GDP per capita must have a positive effect on the Gini coefficient and the GDP per capita squared variable must have a negative effect on the Gini coefficient. Both variables must be statistically significant. In the context of the Kuznets Curve, to prove my hypothesis that as GDP per capita increases, income inequality will continue to increase, the GDP per capita variable must have positive relationship with the Gini and be statistically significant, while the GDP per capita squared value must be insignificant. As in the previous regression models, the GDP per capita variable did not receive a statistically significant coefficient. Moreover, the GDP per capita squared value also did not hold statistical significance. Both coefficients for the variables were extremely low. GDP per capita received a coefficient of 0.001 and the GDP per capita squared coefficient was low that the first three decimal places were recorded as 0.000. Because both values were statistically insignificant, I cannot prove my hypothesis. That being said, these results do not provide evidence for the Kuznets Curve either.

Although my regression models did not provide evidence in support of the curve, I produced two scatterplots to visualize the relationship between GDP per capita and the Gini coefficient so as to evaluate the surface trends for evidence of the Kuznets curve. Keeping all countries on one scatterplot resulted in an indiscernible figure, which is why I decided to split the countries into two groups. I chose to split the countries based off their level of income as national incomes are clear-cut measurements easily distinguishable between countries. Figure 1 holds a plot of low-income countries, and Figure 2 holds high-income countries. The theory of the U-

shaped relationship between these variables that was derived by Kuznets should have been

evident, if it existed, in the scatterplots that I generated.

Figure 1. Scatterplot of Relationship between GDP per Capita and the Gini Coefficient in Low-Income Countries
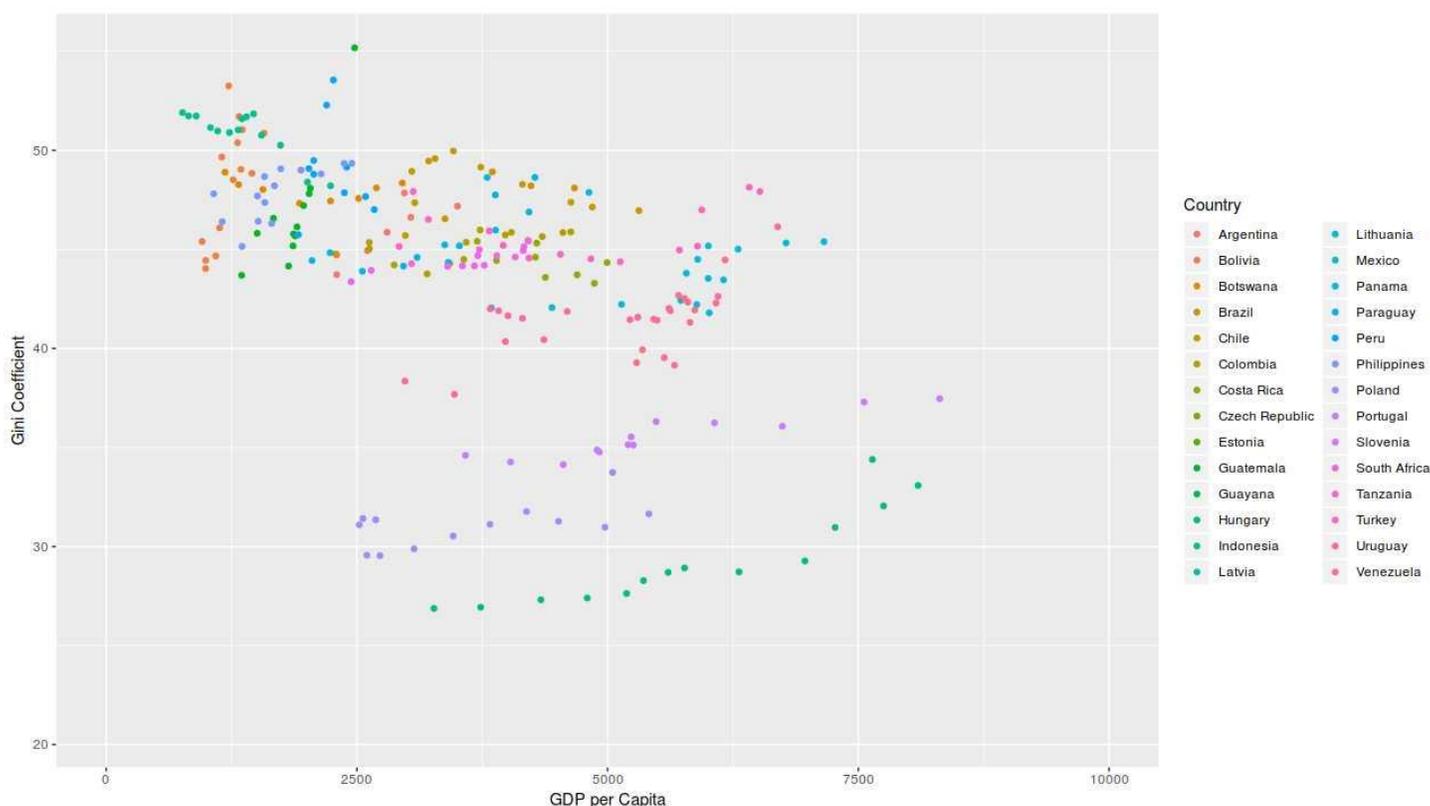
In the scatterplots, the Gini coefficients appear to fluctuate up and down. However, most

of the Gini coefficients appear to stay within five points above or below the initial Gini

measurement, indicating that the Gini coefficient perhaps tends to remain relatively stable as

GDP per capita increases. Even still, some of the country lines do maintain positive upward

trends in support of my hypothesis, such as Sweden and United States in Figure 2. Moreover,

aside from outliers such as Peru (Figure 1) and South Korea (Figure 2), none of the countries

seem to embody a U-shaped curve. Although it has not been verified empirically in this study, a

surface level analysis of the scatterplots depicting the relationship between GDP per capita and

the Gini coefficient do not support evidence of the Kuznets Curve and lean more toward a stable

Gini coefficient as GDP per capita increases. Despite the fact that Model 3 does not allow me to

prove or deny my hypothesis concerning GDP per capita, it does confirm some of the results of

the first and second regression model as mentioned above.

Figure 2. Scatterplot of Relationship between GDP per Capita and the Gini Coefficient in High-Income Countries
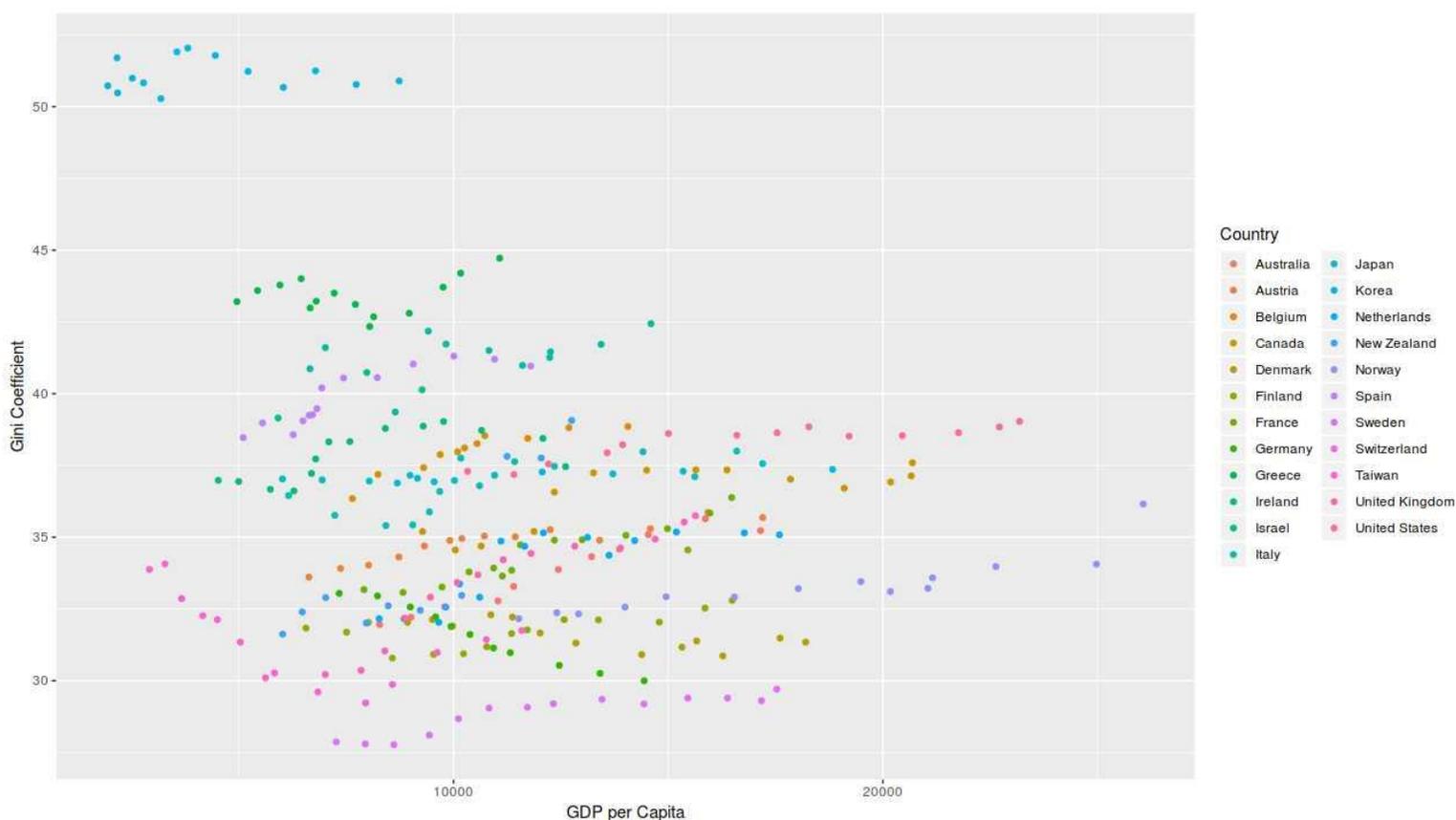
In Model 4, all variables regressed were the same variables included in the first model, excluding the SOE variable and substituting education attainment of females over 25 with education attainment of males over the age of 25. The results were quite similar to the first model. The variables that held statistical significance were centrist-oriented governments, assembly-elected presidential systems, and education attainment for males. The number of observations in this model is 247.

In contrast to Models 2 and 3, the statistical significance of the government party orientation variables shifted somewhat. The centrist-oriented systems variable maintained its statistical significance with a p-value of 0.036. Its estimated coefficient was still about the same as the previous two models with a value of -0.761. As in the case of all previous models, centrist-oriented systems can be expected to hold a Gini coefficient about one point lower than rightist-oriented systems. On the other hand, the leftist-oriented governments variable lost its statistical significance, not allowing me to speak on my hypothesis regarding leftist-oriented governments' relationship with the Gini relative to centrist- and rightist-oriented governments.

As was the case in previous models, the only government system variable to hold statistical significance in this model is that of assembly-elected presidential systems with a p-value of 0.094 and an estimated coefficient of 1.185. The evidence supporting the claim that assembly-elected presidential systems will have greater levels of income inequality than presidential systems is once again replicated in this model.

Similar to its counterpart, the control variable representing educational attainment of males aged over 25 is statistically significant (it received a p-value of 0.001) with a coefficient of -1.455 suggesting a negative relationship between educational attainment and income inequality levels. The corruption control variable still received a statistically insignificant p-value. This

regression illustrates that, although it's not a dramatic shift, switching out the education

attainment of females with males does alter the regression results in a non-trivial manner, mainly

by affecting the statistical significance of leftist-oriented governments and assembly-elected

presidential systems.

Model 5 includes all of the variables of the first model, excluding SOEs, and switches the

corruption control variable with the civil liberties control variable so as to depict any changes

that controlling for civil liberties instead of corruption might have on the Gini coefficient. This

model holds the highest number of observations with 339 in total. In Model 5, only three

variables hold statistical significance: leftist-oriented governments, GDP per capita, and

educational attainment of females.

Because leftist-oriented governments is the only statistically significant government party

orientation variable, this model does not permit me to prove or disprove the entirety of my

hypothesis that leftist-oriented governments will hold lower levels of income inequality than

centrist- and rightist-oriented governments. However, it does indicate that part of my hypothesis

is false. Just as Model 2 and 3, Model 5 provides evidence that leftist-oriented governments

should expect to have a Gini coefficient greater than the baseline variable of rightist-oriented

governments. In this model, the leftist-oriented governments variable holds a statistically

significant coefficient of 0.543 with a p-value of 0.002.

In regards to the government systems variables, neither variable was statistically

significant, so I was unable to prove my hypothesis with this model.

The next variable to hold statistical significance is GDP per capita with a strong p-value

of 0.002. The GDP per capita coefficient is extremely small, with a value of -0.001. Even though

it only has a slight effect on the Gini coefficient in this model, it is an effect nonetheless. Not

considering the Kuznets Curve, this coefficient disproves my hypothesis that GDP per capita has a positive effect on the Gini coefficient. The results of this model suggest that GDP per capita has a miniscule negative impact on income inequality levels.

Lastly, while the control variable for civil liberties has no effect on the Gini coefficient, the control variable of female education attainment once again has an extremely strong p-value. The p-value of this model is 0.0001 with a coefficient of -1.583. This of course, suggests the consistent trend throughout all of the other models that education attainment has a highly significant negative effect on income inequality levels.

Discussion

In summation of the five regression models that have been performed, there are several notable relationships of statistical significance. In four out of the five models, results revealed evidence supporting the assertion that centrist-oriented governments should hold lower Gini coefficients than rightist-oriented governments. In particular, centrist governments should expect to hold Gini coefficients that are about one point lower than rightist governments. In three out of the five models, the results provided evidence that leftist-oriented governments should expect to have about 0.5 points higher Gini coefficients than rightist-oriented governments, in contrast to my hypothesis. In three out of the five regression models, assembly-elected presidential systems were indicated to hold about 1.2 points higher Gini coefficients than presidential systems. In all five of the regressions, education attainment (regardless of whether it was male or female) of individuals older than 25 was revealed to have a negative effect on the Gini coefficient of about 1.5 points. All other variables were not statistically significant in any of the models (with the exception of GDP per capita in Model 5). While these core results were not entirely consistent

across the regression models, the fact that they remained relatively consistent throughout highlights their relevance to the study of income inequality.

The implications of the aforementioned results are both intriguing and thought-provoking. They raise various important questions that warrant further discussion. First, what factors inherent in centrist-oriented governments make them more conducive to lower levels of income inequality than both rightist and leftist governments? Is the best possible orientation to raise economic equality one that incorporates both rightist and leftist ideals such as a system that draws on both capitalist and socialist ideals? The answer remains unclear. Moreover, what is it about leftist-oriented governments that makes them more inclined than centrist and rightist governments to have higher levels of income inequality? This question is particularly interesting when one considers the centrality of economic equality to liberal ideology. Perhaps the policies that leftist-orient politicians believe to promote equality actually work to its detriment. Again, the answer remains ambiguous.

Furthermore, why do assembly-elected presidential systems hold higher levels of income inequality than simple presidential systems? The nature of this dichotomy could perhaps be explained by the direct democracy methods present in presidential systems and not in assembly-elected ones. The fact that the parliamentary systems variable was not statistically significant in any regressions begs the question of why this variable does not have any discernible statistically significant relationship with the Gini coefficient when assembly-elected presidential systems do. This could also simply be an issue with the data as this relationship was empirically confirmed in the study of Milanovic and Ying (2001).

The fact that the education attainment variable was statistically significant in all models and held a negative relationship with the Gini coefficient is consistent with modern literature on

this specific relationship. Although, Model 4 highlights that there might be some subtle differences between female and male education attainment data that contribute to different effects on the Gini coefficient. Why did the statistical significance of some variables decrease when female educational attainment was replaced with male educational attainment? Are increases in female educational attainment perhaps more beneficial to a nation's equality rates than increases in male educational attainment? This observation merits further research and should be considered in future studies that are specifically analyzing the effect of education attainment on the Gini coefficient. Model 4 also draws attention to the switching of the other correlational control variables, corruption and civil liberties. Why was it that whenever corruption was substituted with civil liberties that the results shifted so much? A comparison of Model 5 to all other models is particularly intriguing when one considers the strong correlational relationship between lack of civil liberties in a nation and corruption. What characteristics surround civil liberties, or restricted civil liberties, that do not surround corruption, that affect leftist-oriented governments and GDP per capita so that their significance would increase in this specific model? The answer is unclear. While the above regression models reveal fascinating results, they also illustrate the extent of research that still remains to be performed on the topic of income inequality.

Chapter 5
Conclusion

The nebulous nature of income inequality is a characteristic understood by all societies of history that have functioned using an economy. Identifying the innate economic and political factors that cause the gap, and the widening of said gap, between the affluent and impoverished in a nation is a universal challenge that has yet to be solved. In this study, I constructed and tested hypotheses in order to establish previously unrecognized determinants of income inequality as well as confirm variables that have been acknowledged in prior studies to have significant effects on income inequality levels. I ran five linear time-series regression models to perform my study.

My first hypothesis predicated that as the percentage of state-owned enterprises in an economy rises, the level of income inequality in that same economy will decrease. The first regression model revealed my SOE variable to be statistically insignificant.

My second hypothesis expected that as a result of the socioeconomic ideals characterized by left leaning parties, leftist-oriented governments would possess lower levels of income inequality than centrist- and rightist-oriented governments. My hypothesis was proven false. The results of the regression models yielded strong evidence that supports leftist-oriented governments as holding greater amounts of income inequality than both centrist- and rightist-oriented governments. Moreover, centrist-oriented governments were revealed to hold the lowest amounts of income inequality rates, their rates being lower than rightist-oriented governments. These results are both surprising and of great utility. While it might seem counterintuitive to think that leftist-oriented systems are expected to hold the greatest levels of income inequality of the government orientations examined in the models, this study illustrates that there must be

underlying factors at play that should be analyzed in future studies. This information can also serve to aid leftist lawmakers by perhaps coercing them to reevaluate the strategies implemented in order to combat inequality. They should perhaps focus on the tactics and policies utilized by more centrist-oriented governments as a means of furthering equality.

My third hypothesis predicted that parliamentary systems would possess lower rates of income inequality than presidential systems. I was unable to prove this hypothesis as all the received coefficients for the parliamentary systems variable were statistically insignificant. However, estimated coefficients of assembly-elected presidential systems were statistically significant in some models. The results show that assembly-elected presidential systems should possess greater levels of income inequality than simply presidential ones.

My fourth hypothesis theorized that as GDP per capita increases, income inequality would continue to increase, indicating a strictly positive relationship between the two variables. This hypothesis could not be proven. It should be noted that my results were also unable to verify the existence of the infamous Kuznets Curve as both my GDP per capita and GDP per capita squared variables were insignificant in their regression model. Nevertheless, the final regression model indicated a minute negative relationship between GDP per capita and the Gini coefficient that was of strong statistical significance.

The control variables of the study also provide valuable insight on the origins of income inequality. While both the corruption and civil liberties control variables were statistically insignificant, the variable for education attainment was statistically significant in every single regression model. Additionally, aside from the first regression model, the education attainment estimated coefficients maintained very strong statistical significance. The regression results were in line with previous studies on the relationship of education attainment and income inequality

levels such as Gregorio and Lee (2002), Li et al. (1998), and Rodriguez-Pose and Telios (2009) that observed a negative relationship between educational attainment and income inequality levels. The confirmation of this relationship serves to provide yet more evidence in support of one of the most deeply-studied determinants of income inequality.

There were various limitations to my study that should be addressed in future studies on the topic in order to receive results that are as reliable and accurate as possible. All of the major limitations of my project stem from data issues. The foremost issue is the lack of available data on state-owned enterprises. The regression model investing the possible relationship between SOEs and income inequality possessed a very low number of observations. This lack of comprehensiveness could possibly have contributed to the statistical insignificance of my SOE variable, thus skewing my results. Public data regarding SOEs is quite scarce and future studies would do well to create or collect their own comprehensive dataset of SOE statistics prior to performing their regressions so as to ensure maximum validity and reliability in their study. The inefficacy of my control variables such as civil liberties and corruption was also an issue that stems from insufficient data.

By confirming previously identified catalysts of income inequality such as education attainment and GDP per capita (in the regression model with civil liberties), this study offers supporting evidence of prior literature on the subject. Additionally, this study adds information regarding previously unknown relationships with income inequality such as the fact that leftist governments are disposed to possessing greater levels of income inequality than rightist governments while centrist governments are disposed to holding lower levels of income inequality than rightist governments. The implication that assembly-elected presidential systems are expected to hold greater levels of income inequality than strictly presidential systems also

contributes to the ever-growing collection of information regarding how governments are related to income inequality. To repeat what has been stated previously in this study, albeit beneficial, this work, alongside all other studies on the topic, illustrate the necessity and merit of further research in the field income inequality.

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ACADEMIC VITA

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IES Study Abroad | Santiago, Chile
Politics, Social Justice, and Language Program   February 2017- June 2017
- Gained strong proficiency in the Spanish language (both written and spoken)
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- Gained knowledge of Latin American politics, economics, and culture through hands-on classes

AFS Study Abroad | Kongsvinger, Norway   August 2013 - June 2014
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- Studied Norwegian language and culture through immersion into Norwegian society

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The Borgen Project | Pittsburgh, PA
Political Affairs Intern   June 2018 – August 2018
- Represented The Borgen Project in lobbying meetings with the offices of United States congressmen
- Organized a fundraising campaign that raised over $600 to combat global poverty
- Mobilized members of community to contact their congressmen through public presentations and grassroots tactics

IES Abroad | Santiago, Chile
Blogger (Intern)   February 2017- June 2017
- Published creative blog posts three times a month on IES Abroad's website
- Developed disciplinary skills by working to meet specific deadlines

LEADERSHIP ACTIVITIES AND VOLUNTEER WORK

Panoramapsu.com
Vice President   April 2018 - Present
- Ensure that the organization upholds its mission of increasing global awareness throughout the Penn State community by offering thorough coverage of international affairs
- Manage finances of the organization while also serving as Panorama's representative when interacting with Penn State's Office of Student Affairs

Phi Sigma Pi National Honors Fraternity| University Park, PA
Parliamentarian   December 2017- December 2018
- Participate and vote on the executive board of Phi Sigma Pi to make decisions regarding the fraternity's initiation process and bylaws while promoting the fraternity's tripod of ideals: leadership, fellowship, and scholarship
- Maintain order and efficiency at both executive and regular member meetings of Phi Sigma Pi by enforcing Robert's Rules of Order, the fraternity's constitution, and the fraternity's bylaws

UNICEF Club| University Park, PA
Member   August 2015 - Present
- Attend weekly meetings that hold discussions on issues facing children in developing nations throughout the world
- Organize and attend fundraising events that range from bake sales to "Penny Wars" with other universities

The Boy Scouts of America| Harrison City, PA
Eagle Scout   Awarded July 2013
- Planned and led the construction of an outdoor classroom at Mother of Sorrows School in Murrysville, PA

SKILLS

- Languages: Norwegian (full professional proficiency), Spanish (professional working proficiency), Swedish (limited working proficiency)
- Computer: Proficiency with R Studio (statistical research program), Microsoft Office, and social media