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Moving Forward from the Arab Spring: Predicting the Level of Democracy in a Nation Post-Revolution

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ABSTRACT

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The Arab Spring consisted of a series of revolutions throughout the Arab world that attempted to remove dictatorial powers and institute democratic reform. However, the events after the Arab Spring beg the question of whether these nations will achieve their intended ends. Various factors have been identified to affect the level of democracy in nation including income levels, colonization history, and income inequality, among others. However, recent literature focuses on the role that cultural values play in affecting the development of political institutions. Cultural values play an interesting role during political disequilibrium. Revolutions represent the breakdown of formal institutions. During this time, prior research finds that people use informal institutions (culture) to guide their decision making. The level of democracy after a revolution should be highly affected by the cultural values on the people within a nation. Using an OLS and two stage least squares approach, I develop models to predict the level of democracy after a period of political disequilibrium. The PolityIV database marks points of disequilibrium using special measures based on foreign intervention, anarchy and political transition. The average level of democracy after disequilibrium can be predicted with a model using various explanatory variables including income per capita, colonization history, income inequality and culture. Using instruments for cultural values, we find that values such as individualism have a significant impact on the level of democracy after a period of political disequilibrium.

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Section I: Introduction

In an unprecedented set of events and coincidence, the Arab world exploded. With the suicide of fruit vendor Mohamed Bouazizi, the Arab World began what is expected to be a slow transition toward institutional change. The people in Arab nations have expressed their desire for more democracy through the World Value Surveys. However, prior to the recent Arab Spring revolutions, the Arab World was controlled by a few men in stable autocracies or in established monarchies. The Arab Spring countries hope to transition from these autocratic regimes toward democracies and more political accountability. Major political transitions have occurred in Tunisia, Egypt, Libya and Yemen while protests/uprisings are currently taking place in Bahrain, Syria, Algeria, Jordan, Morocco and Iraq.

In Tunisia, former President Zine El Abidne Ben Ali was removed from power in January of 2011 after a 24 year reign. Hosni Mubarak maintained control of Egypt for 30 years until February of 2011. After 18 days of protest in Egypt, Mubarak was ousted from his role as president. The Libyan revolution was a little more complex than the other Arab Spring movements. Colonel Muammar Gaddafi was removed from power after 34 years in power. He was killed during the subsequent fighting after NATO deployed troops to aid anti-government forces in October of 2011. The other major transition occurred in Yemen. Former President Ali Abdullah Saleh was removed from power in 2012 after a reign of 22 years in the unified Yemen. He was removed in February 2012 and granted immunity from prosecution. In each of these nations, higher levels of unemployment, political censorship and income inequality all seem to be the major forces causing political disequilibrium.

The successful elections of the Muslim Brotherhood in Egypt and the Al Nahda (Renaissance) party in Tunisia have represented the movement toward more democratic political

institutions. However, questions remain considering the role of these moderate Islamic governments moving into the future. Democracy is not, as some believe, a political system that nations either have or do not have. On August 19, 2012, the newly elected President of Egypt, Mohamed Morsi, removed the leader of the Supreme Council of the Armed Forces (SCAF) in Egypt. President Morsi, who had been in a struggle with the SCAF for control of the nation, established unilateral control of the Egyptian government and began to place Muslim Brotherhood members into unfilled positions within the government. These actions raise the question of what level of democracy the people within this Arab Spring nation obtained.

The recent developments in some Arab Spring nations and past history teach us to exercise caution when determining the impact the Arab Spring will have on the nations in the region. In 1933, the Vaps Movement in Estonia was voted into power after prior attempts to remove the parliament. The leaders of the movement overhauled the government and put in its place a presidential system of government. However, an authoritarian style "democracy" was put in place of the parliament. A coup in Brazil in 1964 removed then President Goulart. General Castello Branco replaced Goulart and became a de facto dictator of the nation. The current political transitions have the possibility of allowing more unsavory political actors to gain power, but may also allow more stable government institutions to take hold.

In Egypt, the fear is that a tyrant was removed only so that another can fill the current void in power. Nations such as Argentina and early 19th century France has had to deal with wavering between weak democracies, oligarchies, monarchies and dictators. Determining what level of democracy after a point of political disequilibrium requires an analysis of various factors including income levels, colonization history, and cultural values, among others. Specific attention will be paid to how culture affects the level of democracy after a political transition. In

many of these nations, cultural norms aid people in making decisions because of the lack of quality formal institutions. After political transitions, governments are not completely in place and formal institutions are not able to guide people's actions. In these situations, culture would seem to matter more. A preliminary look at Figure 1 supports these claims.

According to Figure 1 in the appendix, we see that there is value in studying the factors that affect of different variables on post-transitional democracy. Some level of variability can be explained by the models that are developed in this study. Culture may explain a major portion of the variability in post-transitional levels of democracy. Along with other factors such as economic development, colonization history and natural resource abundance, we can develop a model to explain that variability in post-transitional democracy.

The following chapters outline the existing literature on determinants of democracy followed by analysis of the role of culture. In section II, I outline the factors that other research has found to be important in determining the level of democracy in a nation. I also introduce the role that culture plays in affecting political institutions. In Section III, I break down the data that I use to measure culture and democracy. I also introduce the other variables that I include in my analysis. In Section IV, I introduce the results of my analysis including both OLS and IV models. I also attempt to predict the level of democracy in some nations currently undergoing political disequilibria. In Section V, I conclude my analysis and look to what work can be done in the future.

Section II: ***Literature Review of Determinants of Democracy***

The level of democracy after a revolution may be affected by many factors. Past work, however, has focused on the equilibrium democracy within nations, not the level of democracy after disequilibrium. Research in the past has shown that there are four distinct periods of democratization. The initial wave of democratization spanned from 1800 to 1920. In this time, nations such as Argentina and Chile were fighting off colonizing nations. Furthermore, France was embroiled in the French Revolution and the following reign of terror. This period represents the initial stage of democratization. The second stage of democratization occurred between 1920 and 1944. This period is marked as the "Interwar" period. During this time, the Ottoman Empire was broken into separate nations such as Albania and Greece. Along with the creation of new states, fascism was spreading through some states in Europe after World War I and taking hold in Italy. The fascism revolutions and the early formation of new states in the Mediterranean and in Northern Africa mark the "Interwar" period. The "Pre-Cold War" era was between 1944 and 1989. During this period, a rapid stretch of decolonization occurred as high income nations such as Britain and France were ravaged by the effects of World War II. Furthermore, during this period, the USSR rose to power and subsequently fell. As these new nations formed, some underwent periods of anarachy and revolution. For example, Ghana was officially recognized as a sovereign nation in 1960. In 1969, the first parliamentary elections occurred in Ghana since the coup that brought the National Liberation Council into power in 1966. After these elections, another coup took place in 1975 in which the Supreme Military Council took power. In 1978, other military leaders took action against the Supreme Military Council and overthrew the leaders. The nation was then transitioned into free elections for the first time since its formation.

Links between income levels and democracy were originally established but have recently been under scrutiny after the use of instrumental variable techniques. Other literature studies the relationship between weak political institutions and natural resources within nations. The presence of natural resources was exploited by colonizing nations. These colonizing nations were through to put in place weak institutions that persist through time. Both ethnolinguistic fractionalization and income inequality have also thought to play a significant role in the development of democratic institutions. During points of equilibrium, government institutions are highly persistent; however, revolutions present an opportunity for institutional change.

More recent literature on the development of political institutions looks at the role that cultural values play in establishing democratic institutions. Empirically derived instruments have been used to determine a causal link between cultural values such as individualism, "civic" culture and the prevalence of democracy. However, the link between culture and the level of democracy after a revolution has not been studied.

Section A: Income Levels and Education

Lipset (1959) uses simple correlation analysis to determine the types of conditions that are necessary for democracy. He did not look at the specific level of democracy; however, he did divide the data based on the language and whether or not the democracy in a country was stable or unstable. Lipset looks into various measures of income, literacy and urbanization and their correlation with stable democratic institutions. European nations with stable democracies have higher levels of income per capita, a more literate population and higher levels of urbanization. He purports that a more educated population allows nations a better chance at having a stable democracy. Furthermore, Lipset supports the idea that organized democracy is a result of having

cities and an urban life. Lipset states that a social climate in which the population is educated, has a high level of income per capita and is urbanized is more likely to have a stable democracy. These are all considered to be the "social requisites" of democracy. Interestingly, Lipset points to the ability of an educated population to incite the entire nation in a movement toward democracy.

However, more recent research by Acemoglu, Johnson, Robinson and Yared (2008) found no causal link between income and democracy. Because of the possible reverse causality between the level of democracy (as defined by the Freedom House Index) and the income per capita, Acemoglu et al use the savings rate from the past five years as the instrument for the log of GDP per capita. The savings rate from the past is thought to affect income, and provide no reason why savings rate would affect the democracy within a nation. A strong relationship was found between the savings rate and the log GDP per capita. However, no relationship was found between the instrumented log GDP per capita and the Freedom House index of democracy.

Benhabib, Corvalan and Spiegel (2011) attempted to reestablish a link between democracy and income. Using the expanded Maddison income database and a limited-dependent econometric model, Benhabib et al are able to show that higher income per capita are correlated with higher levels of democracy. The research contends that because democracy indices are truncated at either end (-X to X), the linear relationship between the democracy and income is masked. Furthermore, by using an expanded dataset, more within country observations are used and the relationship is robust to the inclusion of country fixed effects. A lagged income is used as the independent variable; however, the question of reverse causality is not answered in this analysis as no instrument is proposed. Because there is such a debate over whether income plays a real role in affected the prevalence and level of democracy, it would be wise to include it in our

analysis. There is still a possible link between the two and leaving the variable out may bias the results.

Section B: Natural Resources

Other factors have been thought to affect not only political institutions within a nation but also on economic growth. One major player in the development of economic and political institutions is the prevalence of natural resources (minerals, oil, etc.). Countries with high levels of natural resources have performed poorly economically leading economists to coin the phrase "The Curse of Natural Resources." Sachs and Warner (2001) empirically test the resource curse using exports of natural resources as an independent predictor of GDP growth. Furthermore, they control for geographic factors such as distance to the nearest port, the percent of land in the tropics and others. Using these controls, Sachs and Warner find the natural resource abundance is negatively related to economic growth. Natural resources are thought to lead to rent seeking behavior on the part of authority figures. Natural resources, while thought to play a role in modern society, also played a role in the distant colonial history.

Some work by political scientists Jensen and Wantchekon (2004) looks at the correlation between the levels of democracy in African nations and the size of the natural resource sector. They argue that natural resources affect democratic transition and the success of democratic consolidation. Using regression analysis, Barro (1999) uses natural resources as a determinant of democracy. Barro includes a dummy variable for oil exporters (based on IMF categorization) when attempting to predict the level of democracy within nations. He finds that nations that heavily rely on natural resources have lower levels of democracy. Barro, however, uses the Freedom House Index and looks at recent levels of democracy (1972 – 1995). Natural resource

abundance is thought to affect the decision making process of government figures and decreases the pressure for human and physical capital accumulation. It would be wise to include natural resources in our analysis of post-revolutionary democracy considering it plays a role in equilibrium democracy.

Section C: Colonization

Colonization efforts were undertaken mainly by Europeans and have been thought to have an effect on modern day institutions. In an attempt to explain the variation in output per worker around the world among various nations, Hall and Jones (1999) look toward a variable they coin as social infrastructure. Social infrastructure includes institutions (economic, political) and government policies. Hall and Jones construct a measure of social infrastructure known as government anti-diversion policy based on law and order, bureaucratic quality, corruption, risk of expropriation and government repudiation of contracts. Because of the possible endogeneity issue in using social infrastructure as an explanatory variable for product ivity, Hall and Jones use an instrumental variable approach. The distance from the equator is used as a geographic instrument for social infrastructure. This instrument, along with others outlined in their research, explain a large portion of the constructed social infrastructure variable. Distance from the equator also does not affect the productivity of workers now. Hall and Jones theorize that distance from the equator played a role in the historical development of social institutions as a result of influence by Western Europeans.

Acemoglu, Robinson and Johnson (2001) studied the varying policies of colonizers within respective colonized nations. Acemoglu et al look at the role that institutions play in the huge divergence in income per capita among the nations of the world. By exploiting some new

data on the mortality rates of settlers in new colonies, they are able to make a link between the policies of colonization, the quality of institutions now and ultimately, economic performance. They state that colonial policies favored extraction or investment. In nations with higher levels of settler mortality, colonizing nations were likely to set up extractive settlements that were focused on resource extraction. These policies of extraction resulted in poor institutional quality during the colonial era. Those nations with low levels of settler mortality; however, were set up with strong institutions such as property rights and rule of law. Acemoglu et al theorize that those past institutions, whether poor or strong, persist through time and can account for some of the difference in income per capita among nations. Furthermore, Acemoglu et al relate the settler morality to early (1900) government institutions (democracy) through a measure on the "constraints of the executive." They find that differences in settler mortality explain 50% of the variation in early institutions. This variable is considered to be a measure of the quality of democratic institutions. The settler mortality measure is based on colonial era data concerning the deaths of soldiers and priests in settlements. The settler mortality is used as an instrument for the average protection against expropriation, a measure of modern day institutions. The mortality is highly negatively correlated with the protection against expropriation risk. These modern institutions result in higher levels of income per capita. The colonial excursions of western Europeans, as evidenced by Acemoglu et al (2001), were based on either natural resource abundance within nations or a desire to nation-build. The presence of poor institutions in nations that were colonized for natural resources also plays a role in supporting higher levels of inequality within nations.

Section D: Income Inequality

Inequality is thought to exist based on not only colonial history affecting institutional quality, but also the presence of rent seeking behavior as a result of natural resource abundance. Sokoloff and Engerman (2000), based on chronicles of colonial history, look into the relative factor endowments (climate, natural resources, soil etc.) of nations during the colonial era. During the colonial period, nations in the Caribbean with favorable factor endowments had the highest income per capita. In these nations, land was abundant and the marginal product of labor was large. The use of slaves was prevalent as large plantations were necessary to growth cash crops. The New World began to specialize in the production and distribution of sugar, coffee and other cash crops. The high volume of slaves in the New World colonies resulted in an unequal distribution of income. This was also seen in territories that had high mineral output in which few colonizers controlled vast amounts of land for natural resource extraction. Nations with small native populations and few factor endowments (US, Canada) grew based on the human capital provided males of European descent. Slavery was not as wide spread, and income distribution was more equal in these territories.

To test Sokoloff and Engerman's theory of development, Easterly (2007) uses an instrument that takes into account factor endowments. Easterly uses the log of the wheat to sugar ratio as an instrument for the Gini coefficient. The Gini coefficient is a measure of income inequality that has been used throughout the literature but does face some criticism. The instrumented Gini coefficient is then used to measure the effect of exogenous income inequality of development measures such as secondary enrollment and income per capita. Furthermore, Easterly looks into the role the inequality plays in affecting different institutions including the rule of law, political stability, freedom from corruption and government effectiveness. He finds

that inequality is strong predictor of institutional quality and that institutional quality has an effect of development.

Democracy can also come through revolution, often violent, against the ruling elite in attempt to redistribute economic wealth. Polybius, in Volume VI of *The Histories*, presents the concept of Anacyclosis. He states that political transitions go from benign forms of government such as monarchy, aristocracy and democracy into malignant forms such as tyranny, oligarchy and "mob-rule." In his theory, he states that nations start with monarchy which degrades into tyranny as leaders begin to take advantage of their status. In an attempt to remove the corrupt leader, a small group of aristocrats overthrow the tyrant and take control of the nations. However, these aristocrats begin abuse their power. The masses of people will remove the aristocrats and establish a democracy.

This presentation of democracy fits the colonial narrative in which few ruling elite controlled much of the land and economic power within colonies. Acemoglu and Robinson (2001) present a game theoretic model of political transition based on oscillating oppressive and democratic regimes in Latin America and the history of political institutions in western civilizations. Similar to the other model by Acemoglu and Robinson (2000), the lower class can threaten revolution in an attempt to redistribute income in society. However, the elite have an incentive to mount of a coup against the democratically elected government in an attempt to regain the redistributed income. Higher levels of income inequality can result in government oscillating between oppressive oligarchies and democratic governments. Inequality, according to Acemoglu and Robinson, is the key to determining whether or not a democracy consolidates after revolution. The lower class can choose to revolt and can seize the income with in a nation post revolution. The lower class can also choose not to revolt, and accept the tax redistributed

income of the upper class. Intense asset redistribution, such as land reform, increases the likelihood of the former elite mounting a coup against the consolidated democracy.

Section E: Ethnolinguistic Fractionalization

Most of the focus in the literature involving democratic revolutions revolves around *income* inequality. However, nations with high levels of income inequality have also had to deal with huge ethnic divisions. These ethnic divisions can play a huge role in preventing revolutions from occurring as it is harder to overcome the collective action problem outlined in the models by Acemoglu and Robinson (2000, 2001). Using ethnolinguistic diversity as an explanatory variable, Easterly and Levine (1997) find that high levels of ethnic diversity are associated with low schooling, political instability, and insufficient infrastructure. A data set was used measuring the probability that two randomly chosen individuals within a nation will be from two different ethnolinguistic tribes. Easterly and Levine theorize that more ethnolinguistic diversity results in more polarization in the population and leads to rent-seeking. Those within a specific ethnic group will not favor public goods necessary for long term growth. In an extension of the ethnic diversity studies, Alesina, Devleeschauwer, Easterly, Kurlat and Wacziarg (2003) use different, more expansive measures of ethnic fractionalization to study quality of institutions and growth. They find that ethnic and linguistic fractionalization is a strong predictor of the quality of institutions and economic growth. However, they also find that there is a high level of multicollinearity in standard least squares between the explanatory variables. There is a possibility that ethnic fractionalization is endogenous. However, Alesina et al state that the time period they use does not allow for changes in ethnicity. The variation in ethnicity may result in an increase rent seeking behavior and ineffective institutions.

Section F: Previous Levels of Democracy

Barro (1999) introduced another factor that may have a significant effect on the level of democracy after a revolution. He attempts to determine the factors that affect equilibrium democracy using panel data from 1960 to 1995. Barro uses the 5 and 10 year lag of the level of democracy as an explanatory variable for democracy and finds that both are significant regressors in his models. He states that nations with more experience with democracy are more likely to be democratic. Using the previous level of democracy, I determine if transitions truly have an impact on the level of democracy.

Persson and Tabellini (2009) study the effects of "democratic capital" on the exit rate of nations from democracy and autocracy. Deemocratic capital refers to a nation's previous historical experience with democracy. Persson and Tabellini contend that respect for a democratic system of governance is necessary for consolidation. When the citizens within a nation have more experience with democracy, there is less possibility of a successful military coup. The respect that citizens have for democracy is coined as democratic capital by Persson and Tabellini; however, it may point to a cultural inclination toward a democratic form of rule. As opposed to being an accumulation of experience, the people within a nation may be more inclined to respect individual choice and decision making, which is important in making democracy successful. Persson and Tabellini use the Polity IV index and divide up nations into autocracies (0 if a negative score in the Polity IV index) and democracies (1 if a positive score in Polity IV index). Using this index for measuring historical levels of democracy, they find that a high democratic capital (more experience with democracy) decreases the probability of exit from democracy and increases the exit rate from autocracy.

Section G: The Role of Culture

More recent literature on the quality and presence of specific institutions (rule of law, property rights, etc) revolves around culture. Culture is defined as the set of morals and beliefs people use to govern their actions in the social sphere. Since the release of the Acemoglu et al (2001) research on settler mortality, there has been hunt to determine what results in the persistence of past institutions into modern times. Some contend that factor endowments or ethnic fractionalization play a strong role in allowing the persistence of past institutions. Tabellini (2008a) contends that culture, more specifically, the conception of morality within a group of people, acts as the link between past and present institutions. Tabellini divides morality in two specific categories, generalized morality and limited morality. Generalized morality is defined to mean to that an individual will "value a general application of norms of good conduct in a society of abstract individuals entitled to specific rights." Nations with a culture of generalized morality have stronger institutions because the people are more likely to be law-abiding, politicians are less corrupt and because voters want high quality politician interested in social welfare. Limited morality is found when specific codes of honor are followed only within a small group of people and there is no widespread value for the rights of an individual. Tabellini finds that "trust and respect" as measured by the World Values Survey is highly, positively related to quality political institutions. Because of the possible reverse causality between Trust and the quality of political institutions, Tabellini uses a linguistic variable to instrument for Trust. Specifically, he uses pronoun drop and the Tu/Vous distinction found in some languages to instrument for the cultural value of trust/respect and remove the possibility of endogeneity from the model. The explanations for the linguistic variables are found Section II of this study.

It has long been contended that culture matters greatly in the development of markets and is used in some models as a factor in the economic viability of later generations. Tabellini (2008b) studies a model in which cultural values are transmitted from parents to children. Parents determine which values they wish to transmit based on the conditions (economic, political, etc.) of the environment and by determining which set of cultural values would be useful in the future. In Tabellini's model, historical institutions that result in weak political forces and weak enforcement systems force the mass of people to look at informal avenues to guide their decision making. In a classic argument for the role of culture in democracy, Putnam (1994) analyzes why some nations are able to implement democracy effectively while others fail. Putnam looks into how certain cultural values such as civic engagement, political equality, trust, tolerance and structures available for cooperation play a role in developing the "civic community." A stronger civic community correlates strongly with institutional performance for various states in Italy. He also argued that religion plays a role in developing a civic culture. The relationship between government institutions and culture has been more formally developed using two stage least square regression (2LS) models. Licht, Goldschmidt and Schwartz (2007) use 2LS models to determine the relationship between government norms such as rule of law, corruption and democratic accountability. Licht et al find that culture has a significant effect on these government norms. To combat the possibility of endogeneity in the regression analysis, Licht et al use the "pronoun drop" linguistic measure as an instrument for individualism.

Apolte (2012) contends that income inequality is not necessary for revolution. Acemoglu and Robinson state that the gains of the individual after a revolution are the same as the gains by a group. Apolte disagrees and brings in a more complicated angle to the political economy of revolution. He argues that collective action is the key to revolution and that the mechanisms to

overcome the issues surrounding collective action are more important to the potential for revolution than is income inequality. Apolte introduces a model in which he adds in a deeper, mathematical model for the collective action problem within the scheme of a revolution. He states that revolution is normally carried out by a poor crowd within a nation; however, the activities of the revolution are planned by the elite of the poor. The poor elite is kept small to minimize free riding and increase efficient decision making. Apolte makes the conclusion that, ultimately, revolutions occur if there is sufficient revolutionary potential. That potential is realized only if a sufficient number of poor revolutionaries commits to a single collective action; this commitment depends on the social commitments and culture within a nation of different groups of people.

Section II: Concluding Remarks

Our analysis is focused on determining the level of democracy after a point of political disequilibrium. The literature mainly focuses on democracy levels at equilibrium, but the variables studied in the literature may play a role in the transitional level of democracy. Using the literature as a guide, specific determinants of equilibrium democracy will be studied. Economic development, institutional quality, natural resource abundance and income inequality may affect the strength of democratic institutions after political equilibrium and will be included in our analysis.

Culture may play an interesting role in nations after revolutions. As was seen in Tabellini's model (2008b), people tend to fall back on their cultural values to guide decisions when formal institutions are weak. Culture can play the role of informal institutions, and as was seen in the study by Licht et al (2007), can affect formal, government norms. In the years

following a revolution, formal institutions are broken down, and theoretically, informal institutions begin to guide the decisions of people. The level of democracy may be highly affected by the cultural values of the mass after a revolution. However, to study a causal link between culture and the level of democracy after a revolution, strong empirical and theoretical foundations are necessary.

Hofstede and Schwartz develop measures for other dimensions of culture. These will be discussed in the data section. Revolution represents a point in the history of a nation in which sudden change is taking place. The nations of Arab Spring are attempting to rid themselves of despotic regimes. The hope is that democratic institutions will be developed and fostered in these Arab nations after revolution. Democracy is valued as a way for the individual to voice his/her concerns in the public square. However, after a revolution, the level of democracy may not reflect the initial revolutionary endeavors of the public. It is possible that the democracy realized by these revolutions could dissolve into more tyrannical forms of government. To determine the level of democracy after a revolution, various factors outlined in this section must be studied. Using strong instruments for possibly endogenous explanatory variables will allow a strong empirical backing to our determination of the effect of various factors on the level of democracy after a revolution.

Section III. ***Definition of Data***

Section A: Dependent Variable

Polity IV: The Polity IV dataset contains an index of democracy ranging from values of -10 to 10 including three special values. The special index values are -66, -77 and -88. The polity data set looks into the qualities of democracy and identifying nations that have strong democracies (10 on the index) or autocratic regimes (-10 in the index is a hereditary monarchy). The index is constructed from studies based on executive recruitment, constraints of executive authority and political competition. Nations with high constraints on the executive and high levels of political competition are considered to be stronger democracies. The studies that constructed this data set also categorize the data into three groups based on the index. Nations with an index from -10 to -6 are considered to be autocracies while nations from -5 to +5 are considered anocracies. The special values, -66, -77 and -88, are considered to be anocracies as well. Index values from +6 to +10 are considered to be democracies.

For our study, we are concerned with the special values coded for in the Polity IV index. Anocracies are considered to be in between autocracies and democracies. In these nations, power is in the hands of the elite of the nation, but the elite are not consolidated like in an oligarchy. Warlords or other elite groups compete for power. Each value, however, has its own specific definition based on the type of political disequilibrium taking place. A value of -66 represents a point of foreign intervention in which another nation enters and replaces the existing government. This was the situation in Kuwait in 1990. Both -77 and -88 involve disequilibria precipitated by internal strife in a nation. The -77 code is a point of interregnum. Interregnum involves the presence of a decentralized government in which informal rulers have control of various regions within a nation. This was found to occur in Lebanon from 1975 to 2005. A -88

code represents what can be considered a true revolution. During these years, the nation is in a full transition as a result of civil unrest. The Iranian movement in 1953 represents a transition period. The level of democracy after these transitions was measured by taking the 5 year average of the Polity IV index after a transition period.

Section B: Explanatory Variables

In this section, the major explanatory variables will be described briefly based on the reviewed literature. Also, a brief overview of the theory and construction of possible instruments for cultural values will be discussed.

Cultural Variables

Defining culture is as troublesome as measuring it numerically. Culture is defined as a set of values, morals, symbols and guidelines that direct a person's actions. Culture also consists of the complex interaction of all of these factors that provide the underpinning for various norms within a society (Markus and Kitayama 1994). Attempts have been made to break down culture into a set of specific values that can be measured using surveys. This analysis will focus on individualism as a cultural value because strong instruments exist that can control of reverse causality. The issue of reverse causality will be addressed later on. Three major measures of individualism have been constructed by different groups.

Measuring Individualism

World Values Survey (WVS) Measure: Ronald Inglehart and his colleagues (2000) carried out a project to document the cultural values of people across the world. The project started in 1981 and covered more than 90 countries. To measure individual responsibility, each

respondent was asked to rate their feelings about individual responsibility on a ten-point scale in which an answer of one represents that, "People should take more responsibility to provide for themselves," while ten meant the respondent had the belief that "The government should take more responsibility to ensure that everyone is provided for." These values were reversed so that larger values corresponded to a higher level of individualism. The WVS also measured a level of "Respect" for people across cultures. The survey asked "Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five" (choose out of good manners; independence; obedience; hard work; feeling of responsibility; imagination; thrift, saving money and things; determination and perseverance; religious faith; unselfishness, tolerance and respect for others"). Respect is defined as the percent of respondents indicating that tolerance and respect for others is an important quality to teach.

Hofstede and Schwartz Measures of Individualism: Hofstede (2001) and Schwartz (2006) develop separate measures of individualism based on separate surveys. Hofstede measures 4 different dimensions of culture based on surveys of IBM employees in 70 different nations. Hofstede creates a measure of individualism, power/distance (social inequality), masculinity and uncertainty/avoidance. Schwartz develops measures for individualism/collectivism, harmony/mastery (attitudes toward the environment) and hierarchy/egalitarianism (class structure) based on surveys of school teachers and college students from across 70 nations. The Schwartz and Hofstede databases have been used extensively in previous economic analysis; however, neither provides as broad a sample as the WVS measure of individualism.

Cultural values are considered to be slowly changing when compared to economic variables; however, it is possible that the level of democracy in a nation can affect people's

attitudes. In a study by Maseland and van Hoorn (2011), the people of nations with low levels of democracy value democracy more than people of other nations. This reflects what Maseland and van Hoorn called marginal preference for democracy. From this study, it would seem that the level of democracy does have an effect on cultural attitudes. However, to measure the effect that culture has on the level of democracy after a revolution, strong instruments must be used to control for the possibility of reverse causality. Recent work has focused on developing instruments for the aforementioned individualism variables.

Instruments for Individualism

A recent push in economics literature has been to find strong instruments for cultural values. Instruments have been developed for the individualism variables (WVS, Hofstede, Schwartz); however, new data must be analyzed to find instruments for the other cultural dimension variables. Because this analysis focuses on the effect of individualism on the level of democracy after a transition, I will delve into the instruments that have been used for this dimension of culture.

Linguistic Instruments

Pronoun Drop: Kashima and Kashima (1998) first analyzed the presence of pronoun drop in different languages throughout the world. Pronoun drop is based on a speaker's ability to drop the pronoun when referring to an action. For example, in English, it is necessary for the speaker say "I write." Without the pronoun, the sentence is ambiguous. In Spanish, one would say "Escribo," or "Yo escribo." Both signal to the listener that the speaker is referring to self. In Japanese, however, one may say " 知らない。気に入った," which phonetically translates to *Shiranai. Ki ni itta?"* This translates into "**I** don't know. Do **you** like **it**?" However, the

pronouns, highlighted in bold, are not stated in the phonetic translation, they are inferred. Using pronoun drop as an instrument for cultural values is based on the Linguistic Relativity Hypothesis or the Sapir-Whorf theory. The original theory is broken down into two basic precepts. Variation in language systems result in cognitive differences between speakers of each respective language. Also, the actual construction of a language, as stated by Brown (1954) "strongly influences or fully determines the world-view he will acquire as he/she learns the language (Kay and Kempton 2009)." Essentially, the native language of an individual acts as the constraint on a person's world view and cultural values. We can make use of this theory and use pronoun drop as an instrument for cultural values.

Genetic Markers: Blood types are considered to be neutral genetic markers that are a result of alleles that do not affect the psychological profile of a person. Gordonichenko and Roland (2011) take advantage of variations in the frequency of blood type alleles to instrument for the cultural value of individualism. Gordonichenko and Roland base this instrument on the correlation between cultural values and genetic inheritance. They theorize that parents transmit selective cultural values just as alleles are passed down through generations. Cultural values change slowly in the context of economic time; however, genetic differences are even slower to change. Using this instrument, Gordonichenko and Roland find that individualism has a causal effect on economic growth when controlling for other factors such as institutional quality. They find that nations that are less genetically distant from the US have more individualistic cultures.

Spolaore and Wacziarg (2009) also state that alleles are passed down from parents to children, similar to the weigh cultural values are transmitted.. They find that genetic distance between populations is positively correlated with income per capita even when controlling for other factors such as geographic differences. Culture, however, is not directly studied in this

paper. Instead, they use genetic distance from the US or UK as a measure of barriers to diffusion. These genetic differences could also play a role as an instrument for cultural values. Gordonichenko and Roland (2011) use the genetic variable from Spolaore and Wacziarg to test the robustness of their genetic instrument.

Average Covariance of Rainfall: Davis (2012) develops another interesting instrument for individualism based on a risk sharing model. Davis uses rainfall variation as a measure of agricultural risk. Rainfall data is available for many countries and extends back to 1697. The model of risk sharing makes a connection between the average rainfall variation within a nation and cultural values of individualism/collectivism. Davis finds a strong effect of rainfall variation on the WVS measure of individualism. Individualism, after it is instrumented for using rainfall variation data, has a strong positive effect on economic development.

Multiple instruments have been developed to combat the presence of reverse causality between the level of democracy after a revolution and the cultural dimension of individualism. We can make use of these instruments in our analysis together and test the robustness of each.

Characteristics of the Revolution and Time Sensitivity

Using the Polity IV dataset, variables can be constructed that capture general characteristics of all revolutions. The length of the revolution and the 5 year average of the level of democracy before the revolution are used as explanatory variables. A dummy variable was created to mark whether the transition was a foreign intervention, anarchy or a transition. It is thought that the characteristics of a political disequilibrium caused by outside forces are different than those of an internal nature. Along with nations that are undergoing a transition due to political strife, the new states created as a result of colonization or other factors are included in

the dataset. These nations are normally transitioning from rule by another country into sovereign states of their own. For example, Turkmenistan was formed as a result of the breakup of the Soviet Union in 1991. A form of government had to be determined by those that fell within the national lines of Turkmenistan. This is a narrative that is familiar to nations that are formed as a result of the decolonization of African nations in post-World War III era such as Ghana. A dummy variable is generated to separate new states and other forms of transition. Furthermore, the "5 Year Pre-Transition Polity" for each of these new nations was assigned a value of "-2." These nations were formed as a result of the removal of the extended leadership put in place by the central authority. This value was selected so as to keep the "New State" dummy insignificant as it appeared in model prior to the assignment of a -2 value for the "5 Year Pre-Transition Polity" variable.

In an attempt to capture "democracy spillovers," the number of countries with a democracy (polity2 score > 0) in any year was included as a regressor. Other nations going through transition may be more likely to form a stable democracy as more democratic nations exist throughout the world. Between 1800 and present day, different waves of democratization also took place. The first wave of democratization occurred in retaliation of colonization, mainly in Latin America (Extended 19th Century). The next wave occurred in the period prior to World War II (Interwar Period). Another shock to democratization occurred before the cold war as a result of Soviet breakdown (Pre-Cold War Era), while the last shock is in the current era of democratization.

Section C: Control Variables

Economic Development- Income, Urbanization and Primary Enrollment Rate: Using the expanded Maddison database, the income per capita for each nation in this analysis was determined. This database provides income data for nations back to 1820 and is ideal for analyzing revolutions. The Maddison database was also used by Benhabib et al (2011) in their updated analysis regarding the relationship between income and democracy. However, because the income per capita data contains many missing variables, a linear adjustment was carried out to fill in missing values. A best fit line was generated based on the available income per capita data for each nation and the missing years were filled in. The 5 year average of the income per capita prior to the revolution was used as a possible control. Income per capita, however, may be difficult to utilize in the analysis because it is endogenous with respect to democracy levels.

Benavot and Riddle (1988) expanded the current data available on primary enrollment rates for over 125 nations. The advantage of this dataset is that they estimate primary enrollment between 1870 and 1940. Their data consists of enrollment rates in each data between that time period. This dataset covers much of the early portions of the PolityIV dataset utilized in this analysis. To cover each year between each decade, a linear extrapolation of the data was carried out. A best fit line was generated based on the decade-based primary enrollment rates, and the specific years between the decades were filled in. The enrollment rate after 1940 was obtained from the World Bank's World Development Indicators.

Colonization Variables: The distance of each nation from the equator is also included in this analysis as a proxy for institutional quality. Hall and Jones (1999) use the distance from the equator as an instrument for institutional quality. The log of the arable land suitable for wheat to

the land suitable for sugar harvest ratio is included in our models as a control. Easterly (2007) used this geographic measure as an instrument for income inequality. The Gini coefficient is normally used as a measure for income inequality; however, it is also an endogenous regressor. The log of the wheat to sugar ratio is exogenous and acts as a strong proxy for income inequality. La Porta et al (2008) look into the role that legal origin plays on creditors rights' in the present. Legal origin is related to the legal system of the colonizing nation. For example, the United States was originally a colony of Great Britain. The US ultimately adopted a British style legal system. Only the French legal origin was included in our analysis because there are a limited number of observations. Four regional dummy variables were created to control for cross-regional effects. Dummies for East and South Asia, Europe and Central Asia, Middle East and Africa and the Western Hemisphere were constructed.

Ethnic Fractionalization: Ethnic fractionalization is also included in our analysis. Alesina et al (2003) find that ethnic fractionalization is more important than religion in affecting the quality of policies and institutions. However, they also found strong correlation between ethnic fractionalization and other explanatory variables (specifically geographic variables). Ethnic fractionalization is measured by differentiating between linguistic, ethnic and religious fractionalization. Ethnicity was determined based on a combination of linguistic and racial characteristics.

Natural Resources: Natural resources were divided into oil exports and other natural resource exports. Using Easterly's Social Indicators Fixed Factors Database. A dummy variable is created for nations in which more than 50% of all exports are natural resources. There is a substantial amount of measurement error in these variables because no date is marked as to when

oil or other natural resources were discovered/mined in each country. Oil exporters are marked only after 1900.

Muslim Share in 1900: Using the dataset developed by Barro and McCleary (2003), I add the Muslim share of the population in 1900 as a regressor. This measure acts as a proxy for the current share of the Muslim population in any country.

Section IV. ***Results of Regression Analysis***

The results are broken down into 6 major sections. Initially, I will present the descriptive statistics of the variables used in the analysis. In section B, the structural characteristics of each transition will be taken into account to create a general model of post transitional democracy levels. I test the effect of cultural dimensions on post-transitional democracy levels in Section B using this model of political transitions. In section C, I test if culture affects the post-transitional level of democracy by including in the model from section B. I can then continue to test the robustness of the cultural dimension measures using other factors.

In Section D, I test the robustness of the cultural dimension variables against economic development, colonization history, natural resources, among other factors that may affect the post-transition level of democracy. These factors are derived from other studies outlined in the literature review. Section D1 is dedicated to testing the robustness of cultural dimension variables against economic development and colonization variables. In section D2, natural resource variables, ethnic fractionalization and the Muslim population share are included as controls in the model of post-transitional democracy. In Section D3, a composite model including multiple controls is generated. In this model, I test if the cultural dimension measures affect post-transitional democracy when included with controls for various factors.

Section E contains the IV regressions using our three different instruments for each measure of individualism. Instrumental variable analysis aids in determining if there is a causal link between post-transitional levels of democracy and culture. In Section F, the post-transitional level of democracy within various Arab Spring nations will be predicted using multiple models to get a sense of where the Arab Spring nations are heading with their political institutions.

Section A: Descriptive Statistics

Using the Polity IV dataset and other dataset, a general model of political transitions can be generated. The variables used in the analysis of post-transitional democracy are shown in table A of the appendix. The average post-transitional level of democracy is at -0.7 while the standard deviation is large. In this table, we should particularly focus on the cultural dimension variables. The Hofstede individualism measure has a mean of 39. This signifies that, on average, most nations are collectivist. The lowest level of individualism in this dataset is Guatemala while the largest level of individualism is for Australia. Similarly, for the power-distance measure, the lowest power-distance measure is from Austria while the highest is in Malaysia. The other major cultural value used in this analysis is the WVS measure of individual responsibility. The mean of individualism based on the WVS measure is 5.14. Austria is the nation with the highest individualism measure while Macedonia registers with the lowest. The descriptive statistics for the other control variables and the instruments are shown in table A.

Section B: Characteristics of the Revolution

All political disequilibria contain some common characteristics. Before testing the effect of culture of the post-transitional level of democracy, different characteristics of each transition are tested to develop a model of political transition.

In Table 1 of the appendix, the different structural features of each transition are taken into account. Democratization has been broken down into 4 major waves over time as described in the literature review. Dummy variables are used to mark new states and transitions that occur within each of the periods outlined. These dummy variables are in reference to the omitted present day dummy which covers from 1989 to the present. These variables mark specific

plateaus of democratization through time. In each of the models, the time periods are all significant predictors of post-transitional democracy. This is interesting considering the recent trend of democratization is based on the breakup of the former Soviet Union. It is possible that these more recent democratic transitions have not yet reached an equilibrium level of democracy.

Over time, the total number of nations that have adopted more democratic styles of government has increased. This may be due to the effect of democratic spillovers. The "Total Democratic Nation in that Year" captures the effect of democratic spillover in any single year. This regressor is significant at the 1% level in each model. If the number of democracies increases by one from a single year to the next, the post-transitional level of democracy in that year increases by approximately 0.16 units in column (1) of table 1 .

The New State dummy is not significant in any of the regression models except column (5) of table 1. It is omitted in column (6) because no length of transition can be given to nations that are just formed. Different types of transitions were also accounted for. Political disequilibria were differentiated by dummy variables depending on if the disequilibrium was a foreign intervention, a state of anarachy or a political transition (people's revolution/free elections). Only "anarchy" was significant at the 10% level in column (4).

Furthermore, a variable was included for nations that experienced some sort of disequilibrium within the past 10 years of the current transition. This is a measure of stability of democracy. This can measure whether the leaders of the new transition were able to increase the level of democracy after learning from the past. This variable is negative but insignificant in column (1).

Within this analysis, the "5 year Pre-Transition Polity" is included. This variable is used to measure a nation's previous experience with democracy. This regressor attempts to capture the "democratic capital" of a nation, as coined by Perrson and Tabellini. The previous level of democracy prior to transition does not seem to affect the post-transitional level of democracy. This would support that these political disequilibria are causing some legitimate change in the political institutions.

Lastly, regional dummies are included in the analysis. Regions are separated mainly by geographic location. The East/South Asia region has significantly higher post-transitional levels of democracy than other regions. A transition in that geographic region seems to have a 3 point increase in post-transitional levels of democracy. Furthermore, transitions in Europe/Central Asia also tend to have a 2 point head start in post-transitional levels of democracy. The omitted group is the Middle East/Africa. The final model includes the time period dummies, the democracy spillover variable, the new state dummy, regional variables and the previous level of democracy.

Section C1: Cultural Dimension Variables and Transitions

In this section, I test the central hypothesis that cultural values play a role in determining the post-transitional level of democracy. Two dimensions of culture were used in this analysis because they may have an effect on people's individual view of government and social hierarchy. According to Tabellini (2008a), egalitarianism plays an important role in affecting the formal institutions that develop in nations. Furthermore, work by Licht et al (2007) supports that individualism strongly affects the development of political institutions. Based on these works, it would be prudent to test whether these two dimensions affect the post-transitional level of democracy. The individualism measure by Hofstede, Schwartz and the World Values Survey is

used along with a measure of egalitarianism. Egalitarianism is measured by the Hofstede Power-Distance variable, the WVS Respect and the Schwartz Hierarchy variable. While other cultural dimension measures are available, these two are the major focus of this analysis because of their role in affecting political institutions and decision making.

In table 2 of the appendix**,** the effect of individualism and egalitarianism on the post-transition level of democracy are seen. Columns (1) to (3) measure the effect of individualism. The Hofstede measure of individualism is significant at the 1% level and positively affects post-transitional levels of democracy. A one standard deviation (20.4) increase in the Hofstede measure of individualism results in a 2.0 point increase in the post transition level of democracy. For example, a transition in Egypt (Hofstede Individualism = 25) should result in a lower level of democracy after a revolution (1.26) as compared to a transition in Saudi Arabia (Hofstede Individualism = 38) with all else held constant. The WVS measure of individualism also positively and significantly affects the post-transitional level of democracy. A single standard deviation (0.85) increase in this measure of individual responsibility results in a 1.56 point increase in the dependent variable. If we look again at the example of Egypt and Saudi Arabia, we find different outcomes. A transition in Saudi Arabia, according to this measure (WVS Individual Responsibility = 5.769) would have a higher level of democracy (3.65 units) than a transition in Egypt (WVS Individual Responsibility = 3.78) holding all other factors constant. The Schwartz measure of collectivism is significant at the 1% level and negative. This is expected because collectivist attitudes are the opposite of individualistic attitudes. A single standard deviation (0.35) increase in this measure of individualism, results in a decrease in democracy by 2.6 units after a transition. A transition in Israel (Schwartz Embededness = 3.823)

is expected to have a higher level of democracy after the transition (1.5 units higher) than a Turkish transition (Schwartz Embededness = 4.026).

In columns (4) to (6) of table 2, the effect of egalitarianism is measured. The Hofstede power-distance variable is negative and significant at the 1% level. An increase in the power distance measure by one standard deviation (18.8) results in a 1.9 point decrease in the post transition level of democracy. However, the "Respect" dimension studied in the WVS is not significant. The correlation between these value and the other social hierarchy tolerance variables is negative. This would support the idea that the Respect dimension is capturing the cultural value of egalitarianism. The Schwartz measure of egalitarianism is negative and significant at the 1% level. It is negative because it captures tolerance for social hierarchy, similar the power-distance measure. A single standard deviation (0.49) increase in the Hierarchy variable results in a 3 unit decrease in the level of democracy after a transition.

The theory of various waves of democratization seems to hold when analyzing their effect on post-transitional levels of democracy. Among the controls, the democratic spillover variable is also significant at the 1% level in all the models. When controlling for culture, the effect of having more democratic nations in the years after transition increases the post-transitional level of democracy by approximately 0.18 to 0.2 units. The New State dummy is also significant and positive in all the models. The effect of being a New State is accentuated in columns (3) and (6) because of the limited number of new states found in the dataset when the Schwartz measures are included. New states tend to start with 2 units more of post-transitional level of democracy. The level of democracy before transition is not significant in any model. This variable may have been acting as a proxy for cultural values.

The WVS measure of individualism is significant and positive at the 1% level and includes the largest number of observations of transitions. Interestingly, each measure of individualism delivers a similar economic significance on the post-transition level of democracy. Both the Hofstede measure of individualism and the WVS measure point to a similar increase in the level of post-transition democracy. An increase in individualism seems to have anywhere from a 1.5 to 2 point increase on the post transition level of democracy. Similarly, the egalitarianism measures also affect the post-transitional level of democracy in similar fashions. This supports that the measures are picking up similar cultural constructs of individualism and egalitarianism.

Individualism and egalitarianism do have an effect on the transitions of these nations into democracy. The R^2 value rises dramatically from our initial models (~0.13 to ~0.23) as a result of including our cultural dimension variables. In the case of the Schwartz variables, the explanatory power of the cultural dimensions increases dramatically to 0.349 (column (3)). However, because no other variables are included in the analysis it is possible that there is a bias in our results. Our results strongly support that the assertion that culture matters for the post-transitional level of democracy.

Section D: Robustness of Cultural Dimension Variables

Other factors have been theorized to affect the equilibrium level of democracy in any nation. The robustness of our cultural dimension variables in predicting the post-transition level of democracy will be done in three separate sections. In Section C1, the effects of economic development and factors such as institutional quality, inequality and colonization on post-

transitional democracy are studied. In Section C2, post-transitional democracy is further analyzed using natural resource data.

Section D1: Economic Development, Colonization History, Cultural Dimensions and Political Transitions

Economic development is theorized to affect the equilibrium level of democracy based on research by Lipset (1959) and Benhabib et al (2011). The linear extrapolations of income per capita and primary enrollment rates are included in the analysis of post-revolutionary democracy.

Table 3 of the appendix outlines the change in the individualism variables after the inclusion of our economic development measures. When included with the linear income per capita, columns (1), (4) and (7) show that the effect of individualism is cut and less accurately specified. However, individualism is still significantly important in determining the post-transitional level of democracy. The WVS measure is particularly robust in column (4). The linear income per capita is significant in models (4) and (6) at the 1% level. The explanatory power each model does not increase greatly by the inclusion of the income per capita. The effect of including the linear primary enrollment rate is seen in columns (2), (5) and (8) of Table 3. The primary enrollment rate data limits the available observations to 120, 142 and 79 for the Hofstede, WVS and Schwartz measures respectively. The Hofstede individualism measure and the WVS measure are robust after primary enrollment rates are added at the 10 and 5% levels respectively. The Schwartz embededness measure is significant to the inclusion of primary enrollment rate at the 1% level. However, only 79 observations are used in this analysis.

Other studies have shown that culture and income per capita are highly related to one another. Davis (2012) establishes the positive relationship between income levels and

individualism using the WVS individual responsibility measure. Economic development is also thought to cause a breakdown of informal institutions which support more collectivist attitudes based on kin relationships. Davis (2006) develops a model in which he demonstrates the breakdown of informal institutions as a result of economic development. Individualistic attitudes would increase with more economic development. However, his model does not address how cultural attitudes can shape economic development. Gordonichenko and Roland (2011), find culture to be significantly related to productivity levels. They develop a model in which countries with higher levels of individualism have stronger incentives to innovate because of social rewards. Higher levels of innovation result in higher levels of economic growth and income per capita.

Culturally guided economic decisions are one way in which culture can affect post-transitional democracy levels. Culture affects income per capita which then affects the democracy level after a political disequilibrium. This explanation is also true for primary enrollment rate (which seems to be the more important economic development measure in this study). If individualism and income per capita are positively correlated, then the coefficient on individualism should fall as the explanatory power of culture drops. By using IV estimation, we can determine if culture directly affects the post-transitional level of democracy or only affects it through the channel of economic development.

Proxies for colonization history are also included in our analysis of the post-transitional level of democracy. Columns (3), (6) and (9) include proxies for institutional quality (distance from the equator and legal origin) and income inequality (wheat to sugar ratio). All measures of individualism are highly robust to the inclusion of each of the exogenous measures. The Hofstede individualism measure has a larger coefficient when these proxies are included in the

analysis. The legal French origin is significant in column (3) at the 10% level, but not in any other model. The distance from the equator is significant and positive in all the included models. The wheat to sugar ratio is significant in all the included models, however, the sign is opposite of what is expected. It has been theorized by Acemoglu and Robinson (2001) that higher levels of income inequality can distort gains from democracy. The negative coefficients on the wheat to sugar ratio variable suggest that nations with higher levels of income inequality (lower wheat to sugar ratios) tend to have higher levels of post-transitional levels of democracy. This fits in well with the model proposed by Acemoglu and Robinson (2001). Those in lower classes revolt against the ruling elite when there can be a gain from revolution. Revolution will occur if the disparity in income between the elite and poor reaches some critical limit. When there are higher levels of income inequality, there is more to gain from revolution. It is important to keep in mind that we are studying the effect of culture during the post-transitional period, not at the equilibrium level. Higher levels of income inequality are theorized to destabilize the equilibrium level of democracy. In this model, I find that indeed income inequality (as a result of agricultural differences) plays a large role in affecting the development of democracy in nations. Furthermore, the negative relationship between individualism and the wheat to sugar ratio suggests that not including the wheat to sugar ratio biases the results of the OLS coefficients down.

The same analysis is repeated in Table 4 of the appendix except in this table, the egalitarianism measures are tested. The addition of the economic development variables reduces the effect of egalitarianism. Furthermore, the WVS measure for egalitarianism is not robust to the inclusion of economic development measures. Income per capita and primary enrollment rate are both significant and positively affect the post-transitional level of democracy. Each measure

of egalitarianism is significant to the inclusion of our colonization proxies. The magnitude of the coefficient on the Hofstede power-distance measure and WVS respect measure increase after controlling for the exogenous colonization proxies. Again, the wheat to sugar ratio has a significant and negative effect on the post-transitional level of democracy.

The time period controls are still significant in our models. Surprisingly, the effects of democratic spillover are still highly significant and positive. The previous level of democracy is still not an important predictor of post-transition level of democracy. Lastly, the New State dummy is significant in some models, but not in others. In those models where it is a significant regressor, it has a positive sign. Those nations that are formed as a result of de-colonization or civil war tend to have higher levels of post-transitional levels of democracy. In these models, there is an increase in the amount of variability in post-transitional democracy levels that is explained. The R^2 value in each of these models is larger than when culture is included as the lone regressor. In the models including the colonization proxies, the R^2 increases dramatically to approximately 0.36. A stronger portion of post-transitional democracy can be explained using each of these measures.

From these models, we find that culture is still robust to the inclusion of institutional quality, income inequality and legal French origin. Income inequality and institutional quality may also play a significant role in predicting the post-transitional level of democracy. We also find that our economic development regressors are important in determining the post-transitional level of democracy. Culture may play a role in affecting the economic development of a nation while not affecting the post-transitional level of democracy directly.

Section D2: Natural Resource, Ethno-linguistic Fractionalization, Islam, Culture and Transitions

Natural resources have also been thought to affect the equilibrium level of democracy because high levels of natural resources generate political rents and support corruption in the political sphere. Ethnic fractionalization is another important measure of social differences within a single nation. Higher levels of ethnic fractionalization are thought to result in more disjointed political systems and weaker institutions. Another important aspect of democracy, especially in the context of the Arab Spring, is the Muslim share of the population. Barro (1999) finds that most Muslim nations are not normally democratic.

Table 5 in the appendix shows the robustness of our individualism measures to the inclusion of natural resource exports, ethnic fractionalization and the Muslim share of the population in 1900. In columns (1), (4) and (7) we find that individualism significantly affects the post-transitional level of democracy after inclusion of the natural resource exporters dummy. In each of the models, the sign on the natural resource exporters dummy is negative, and significant except in column (7). In columns (2), (5) and (8), we find individualism is robust to the inclusion of ethnic fractionalization. The ethnic fractionalization measure is negative, but not a significant regressor in the models. In prior research, Alesina, Glaeser and Sacerdote (2001) find that nations with higher levels of ethnic fractionalization tend to have a less favorable view of government redistribution. The results of their study may have actually been omitting the role that culture plays in developing a view of government institutions and programs. The role of the Muslim share in 1900 is shown in columns (3), (6) and (9). Each of the individualism measures is significant to the inclusion of the Muslim Share of the population in 1900. This share is used

as a measure of religion affiliation because it can act as an exogenous proxy for current religious shares.

In Table 6, I repeat the analysis using our cultural measures for egalitarianism. From the table, we observe similar results after the inclusion of natural resource exporters and ethnic fractionalization. The egalitarianism measures are significant to the inclusion of the natural resource exporters dummy, ethnic fractionalization and the Muslim Share of the population. In each of these models, the WVS Respect measure is not significant or marginally significant. The results from this variable do not give the same results as the other two measures of egalitarianism.

We find similar results in our controls when controlling for natural resource exporters, ethnic fractionalization and the Muslim Share in 1900 as we did with economic development and colonization history. The time periods are significant in this analysis while the democratic spillover variable is still a highly significant predictor of post-transitional levels of democracy. New state dummies still show about a 2 point increase for nations forming as a result of de-colonization.

Section D3: A Composite Model of Culture and Transitions

A total model of political transitions including economic development, colonization proxies, natural resources and culture is generated to paint a better picture of political disequilibrium events. In this model, the income per capita, distance from the equator, wheat:sugar ratio, natural resources and Muslim share variables are used to develop a more holistic model of transitions. Income per capita is used in this analysis instead of primary enrollment because income per capita contains about 40 more observations than primary

enrollment. Furthermore, economic development measures tend to move together over time as they are all related to one another.

Table 7 depicts the results from the composite model of political transition. In each of the models outlined, culture tends be a strong predictor of the post transitional level of democracy except in column (5) where the WVS Respect measure is not significant. In each model, the effect of culture is cut by the inclusion of the control variables. Furthermore, income per capita is strongly positive in this model. We have yet to answer the question regarding the effect of culture on income per capita. It is possible that culture is affecting income per capita, which then affects economic development and the development of democracy. Distance from the equator is no longer significant or marginally significant in each of the models shown while the wheat to sugar ratio is highly significant and negative in each model. This, again, supports the model of political transition proposed by Acemoglu and Robinson (2001).

Interestingly, neither the Muslim Share in 1900 nor natural resource exporter dummy affects the post transitional level of democracy. Religions are institutions that consist of both formal and informal constructions for society. Islamic societies tend to be more collectivist; however, along with the cultural attitude of collectivism come formal actions within Islam that support the development of a more collectivist society. For example, it is believed, in Islam, that when people pray together in groups, more blessing is attained. This develops a more connected society that may be collectivist in attitude. Formal and informal institutions come from religions. It is difficult to determine which part of culture is affecting post-transitional levels of democracy because religion encompasses so many aspects of life for people. By using cultural measures, we may be picking the portion of Islam that emphasizes collectivism. In each model, the democratic

spillover measure is strongly positive and significant while the previous level of democracy plays no significant role in determining the post-transitional level of democracy.

Section D: Conclusions

The results from this section suggest the culture does matter in nations after transitions. It has a significant effect on the post-transitional level of democracy. However, no causal link has been identified yet.

The effect of economic development is still in question because culture can affect democracy through a direct and indirect path. Culture can affect income levels and education levels, while also directly affecting the decision making processes of those who plan to revolt against a nation and set up a democracy. However, both income per capita and primary enrollment rate are important in determining the post-transitional level of democracy. Institutional quality and income inequality also seem to affect the democracy levels after a transition in a significant way. Natural resource exporters also tend to have lower post-transitional levels of democracy. The explanatory power of our models does not increase greatly after the inclusion of the economic development measures. The R^2 increases from about 0.22 to 0.28. The inclusion of our colonization proxies drives up the explanatory power of our models, but again, culture seems to be the major predictor of post-transitional levels of democracy. Furthermore, the R^2 measure also does not increase dramatically in Table 7 with the composite model of transitions. Only about 35% of the variability in post-transitional levels of democracy is obtained using our models.

However, there is still a possibility the culture is endogenous in these models. Using instruments outlined in the data section, we can determine if the exogenous effects of culture affect the level of democracy after a political disequilibrium.

Section E: Instrumental Variable Estimation

To control for the endogeneity of culture and determine if there is a causal link between culture and post-transitional levels of democracy, instrumental variable estimation is used. Along with determining the causal link between culture and post-transitional levels of democracy, we also can include our endogenous economic development measure to better understand the channels through which culture affects post-transitional levels of democracy. In the *Literature Review* and *Data* sections, a set of instruments were outlined that are used in this study to determine if the exogenous component of culture has an effect on post-transitional levels of democracy.

Tables 8, 9 and 10 outline the first stage models of the IV regressions for each individualism measure using only the characteristics of the transition as controls. Three instruments from the literature are used to predict the instrumented individualism variables. The F-statistic is reported in each table. The p-value for the overidentifying restrictions test is also included in this analysis when more than one instrument is used. This tests the validity of each instrument jointly, contingent on at least one instrument being a significant predictor of culture. The overidentifying restrictions test determines whether the instruments are acting only through culture or through other possible channels.

In Table 8, Hofstede individualism is instrumented for using the genetic distance from the UK, the covariance in rainfall and the Kashima pronoun drop variable. The coefficient on the

genetic distance instrument and pronoun drop is large in magnitude and negative. Column (4) outlines the effect of both the genetic distance and pronoun drop variables on the Hofstede individualism measure. This model includes only the significant instruments in the model. When the rainfall instrument is included, it is not significant (data not shown). The F-statistic is large and the R^2 value is also large. Also, the null hypothesis of the overidentifying restrictions test cannot be rejected. Further analysis with the instrumented Hofstede individualism measure is done using column (4) as the basic IV first stage model with added controls.

Table 9 contains the first stage regressions for the WVS individualism measure. In columns (1), (2) and (3), the effect of genetic distance from the UK, the rainfall instrument and pronoun drop on the WVS measure of individualism are seen respectively. The genetic distance instrument is not significant when included with the other regressors. The rainfall instrument and pronoun drop are highly significant determinants of individualism; however, the R^2 value is not very large. The F-statistic when both significant instruments are included in the regression is small. This measure of individualism is not as strong once instrumented for because the instruments do not explain a large portion of the variation in the measure. The WVS individual responsibility variable suffers from a weak instrument problem; however, I still use to see if the effect with weak instruments is similar to the effect of the instrumented Hofstede cultural measure.

The Schwartz embededness measure is instrumented for in Table 10. The genetic distance instrument is significant at the 1% level while the pronoun drop instrument is significant at the 5% level. The rainfall instrument is not significant in column (2) and is dropped from the final first stage model in column (4). The R^2 for the final model is high, but the number of observations using the Schwartz measure is highly limited. In all the Schwartz first stage models,

the previous level of democracy also stands out as a significant regressor. This, again, may be due to the lack of the variation in a limited set of observations.

For each IV model estimated the first stage F-stat and overidentifying restrictions test p-value will be shown in the tables. The full first stage regression will not be shown. Only the individualism variables will be used in this analysis because no strong instruments for social equity cultural dimensions have been developed. Furthermore, each analysis will be carried with the first stage models that include two instruments (column (4) in tables 8 to 10).

Section E1: Instrumented Cultural Dimensions and Political Transitions

The analysis from Section D will be repeated using our instrumented culture variables. For each of the models presented, the first stage F-statistic and overidentifying restrictions test p-value will be shown.

In Table 11, the instrumented individualism variables are tested. The effect of each individualism variable on post-transitional democracy is seen. In column (1), the effect of the instrumented Hofstede individualism variable increases compared to the effect of the endogenous Hofstede value in column (1) of Table 2. The coefficient on Hofstede individualism increases by about 80% after IV estimation. The endogenous portion of culture biased the estimation on the effect of culture down. In column (2), we find that the WVS individualism measure is a significant predictor of post-transitional democracy at the 5% level. The magnitude of the coefficient increases by about 50% compared to the endogenous estimation of the WVS individualism effect on post-transitional democracy levels; however, the variable is not as precisely estimated and the first stage F-statistic is low showing a lack of joint significance. However, we cannot reject the null of the overidentifying restrictions test. Lastly, in column (3)

we find similar changes in the coefficient on the Schwartz embededness. Once instrumented for, the effect of the Schwartz embededness variable increases two-fold. The Schwartz measure is significant at the 1% level. Using the Schwartz measure, however, the number of observations severely decreases to include less than two-thirds of the initial dataset.

In each model, the democratic spillover measure is still highly significant and positive. Furthermore, the new state dummy is significant and positive in each model. In each model, the R^2 is similar to or increases compared to the endogenous regressions in Table 2. The exogenous component of culture seems to strongly affect post-transitional levels of democracy. Using the same robustness controls used in Section D1 and D2, I test the robustness of the instrumented individualism variables to the inclusion of economic development, colonization and natural resource controls.

Section E2: Economic Development, Colonization History, Instrumented Cultural Dimensions and Political Transitions

In this section, we revisit the question of the paths through which culture can affect post-transitional levels of democracy. In the initial robustness regressions, there is a relation between economic development variables and culture. Culture may affect post-transitional levels of democracy directly or indirectly, through economic development. When we use only the exogenous portion of culture, we determine if culture can directly affect post-transitional democracy or if culture affects the dependent variable through other means.

In table 12, I test the robustness of our instrumented cultural variables against economic development measures and proxies for colonization/development. Columns (1), (4) and (7) test the role of individualism after the inclusion of income per capita. The coefficients on each of the

instrumented individualism variables increase after the inclusion of income per capita in the model. In column (1), the Hofstede individualism measure is significant at the 1% level while in column (7), the Schwartz embededness variable is significant at the 5% level. Each of those models has large first stage F-statistics and the null hypothesis of the overidentifying restrictions cannot be rejected. In column (4), the WVS measure of individualism is not significant and the F-statistic is low. The overidentifying restrictions test shows that the null hypothesis cannot be rejected at the 5% significance level. Omitting income per capita from the estimation of post-transitional democracy levels seems to bias the effects of the cultural values down. These results tend to support that rising income levels increase people's taste for government redistribution and thus, strengthen attitudes of collectivism. Davis and Knauss (2013) empirically show that increases in the WVS individual responsibility measure are negatively related to recent changes in the growth rate. In column (1), income per capita is not a significant predictor of post-transitional democracy after culture is instrumented for. This would lead to the assumption that income per capita is not affecting post-transitional democracy, but rather culture is the major factor when there are changes in income levels associated with post-transitional democracy.

In columns (2), (5) and (8), the linear primary enrollment rate is included with the individualism measures. Upon inclusion of primary enrollment rates, the WVS and Schwartz cultural dimension measures are no longer significant and the magnitude on the coefficient drops drastically. Furthermore, the null of the overidentifying restrictions test for the WVS individualism measure can be rejected at the 10% significance level. The coefficients on the Hofstede individualism variable increases in column (1); however, this measure is also less accurately specified and significant only at the 10% level. The Schwartz measure is also not a significant regressor in column (8). The role of primary enrollment rate does not change from the

results shown in table 3. It is possible that the exogenous portion of culture does not directly affect post-transitional levels of democracy; however, the endogenous portion of individualism may affect people's decisions about going to school and getting an education. Both economic development measures, however, are still endogenous in these models. Past research has shown the links between income and democracy while causal links have been difficult to ascertain.

In columns (3), (6) and (9), the robustness of each measure of individualism to the inclusion of colonization variables is tested. When compared to the results in Table 3, the coefficients on each individualism measure are increased. Each measure is also a significant determinant of post-transitional levels of democracy. It is likely that income inequality as picked up by differences in the wheat to sugar ratio biases the effects of culture down in the OLS model. Here, we find that the portion of culture explained by our instruments still strongly affects post-transitional democracy when other proxies for colonization history are taken into account. In column (6), however, the overidentifying restrictions test's null hypothesis can be rejected at the 5% level. Again, there seems to be a weak instrument problem with the WVS individualism measure. It is possible that if stronger instruments are utilized in the analysis, that the cultural dimension captured by the WVS individualism measure would be even more strongly related to post-transitional levels of democracy considering the strong significance of the other cultural measures. The effects of the colonization variables match the effects observed in Table 3. The wheat to sugar ratio is large in magnitude and negative. Distance from the equator is positive and significant in each model. The legal French origin is a marginally significant determinant of post-transitional democracy.

In each model, the democratic spillover variable is significant and positive. The New State dummy is significant in some regressions. In each of these models, we find the exogenous

component of culture does seem to matter when determining the level of democracy after transitions after controlling for economic development and colonization history. Economic development variables are endogenous in each model and more research must be done to determine what instruments would be valid to utilize in estimating a strong IV model of post-transitional democracy.

Section E3: Natural Resource, Ethno-linguistic Fractionalization, Islam, Instrumented Culture and Transitions

As was stated in section D3, natural resources, ethno-linguistic fractionalization and religion have been theorized to play a large role in affecting the development of political institutions. When testing the exogenous cultural variables against each of these regressors, results change drastically.

In Table 13 in the appendix, I test the robustness of the individualism measures to the inclusion of a natural resource exporters dummy, ethnic fractionalization and the Muslim share of the population in 1900. In columns (1), (4) and (7) of table 13, the coefficients on each culture variable are similar those found in Table 11. In column (3), we find that the WVS individual responsibility variable is significant at the 5% level, but the overidentifying restrictions test is rejected at the 10% level and the first stage F-statistic is only at 5.99.

Interestingly, in each model, the natural resource exporters variable is marginally significant or not significant. When controlling for the portion of cultural that guides informal decision making, the effect of natural resources are not as important in affecting post-transitional democracy levels. It is possible that the presence of natural resources is not a key determinant of

democracy. The cultural context in which natural resources are found matters more according to this analysis.

In columns (2), (5) and (8) table 13, ethnic fractionalization is included in the analysis of post-transitional democracy. In each of these models, the effect of culture is significant and positive. Each cultural measure is significant in these models, but ethnic fractionalization is not a strong predictor of post-transitional democracy. Differences in ethnicity among people within a nation may actually be a physical representation of cultural differences. Differences among various ethnicities with regards to government may have resulted from deeper cultural differences that ultimately resulted in the formation of multiple ethnic groups. In columns (3) and (9), the cultural measures are significant to the inclusion of the Muslim share of the population in 1900. However, in column (6), the WVS individualism measure is not significant, but still highly positive. Again, this variable suffers from a weak instrument problem. Furthermore, in these models, we find that the Muslim share is no longer a significant predictor of post-transitional levels of democracy. In the OLS regressions, it is possible that the endogenous portion of culture related to religious preferences. The exogenous culture as explained by our instruments seems to support that religious institutions contain many formal and informal norms that develop within society. Culture may affect people's attitudes towards government more so than religion.

In each model, democratic spillover is a significant, positive predictor of post-transitional levels of democracy. Some time period dummies are significant in the models.

Section E4: Composite Model of Instrumented Culture and Transitions

To gain a more holistic view of the nature of culture in transitions, a composite model of transitions and instrumented cultural dimensions is shown in table 14. In this model, the income per capita, distance from the equator, wheat:sugar ratio, natural resources and Muslim share variables are included. Income per capita is used in this analysis instead of primary enrollment because there are more available observations. This analysis mimics the analysis in Section D3.

The effect of culture in these models is larger than in the OLS regressions found in the similar analysis in table 7. However, the effect of instrumented culture when including all controls is lower than the coefficients found in table 11. In columns (1) and (2) of table 14, the effect of culture is positive and significant. When using the Schwartz measure in column (3), the effect of culture drops off. However, this may be due to the lack of variation in the data when many different variables are included with a limited number of observations. In each model, we find that income levels strongly affect post-transitional democracy while the institutional quality as determined by a geographic proxy may not affect the post-transitional level of democracy. Interestingly, this would make sense because formal institutions break down during transition periods. During these political disequilibria, formal institutions should not affect the decision making of people within the society. The income inequality as explained by the wheat to sugar ratio is still strongly negative and significant.

Culture does seem to impact the post-transitional level of democracy even with the inclusion of multiple factors. Again, we find that income levels of endogenous in this model. Using instruments for income may increase the role of the exogenous form of culture.

Section E: Conclusions

The results from this section suggest the exogenous portion of culture does matter in nations after transitions and that a causal link exists between culture and post-transitional levels of democracy. The effect of culture is stronger when instrumenting for the variable using strong instruments. Barring the issues of weak instruments, culture does seem to guide people's decision making process after the breakdown of formal institutions.

Culture may affect democracy by first affecting people's attitudes towards government redistribution. These attitudes would then affect the income per capita in any nation. Primary enrollment rate seems to be an important factor affecting post-transitional democracy. The colonization history of any nation also plays a strong role in affecting democracy levels after a transition. The wheat to sugar ratio, acting as a proxy for income inequality, is a strong determinant of post-transitional democracy levels. The negative sign on the variable also lends support to Acemoglu and Robinson (2001) theory of political transition. The results also support the idea that natural resource exports are not important predictors of post-transitional levels of democracy when controlling for culture. I find a similar result for religion.

Using a couple of these models as guides, the post-transitional level of democracy in any country can be determined. By adding some Arab Spring nations to our dataset, we can determine what the possible future level of democracy in each of these nations will be after their respective transitions.

Section F: Predicting the Level of Democracy in Arab Spring States

By adding in some nations that are currently undergoing political transition, we can project what the future post-transitional level of democracy using different models. To complete

the analysis, I chose to add in nations that are possibly going through a political transition or may in the near future. In the dataset, the Egypt, Iran, Iraq, Jordan, Kuwait, Kyrgyz Republic, Libya, and Mali are included. The post-transitional level of democracy can be determined in each of these nations using the separate models of political transition. Using the indicated controls the post-transitional level of democracy will is determined. Both instrumented and un-instrumented forms of culture are used in the prediction to determine how each plays a role in affecting the transitions of these nations. The Schwartz measure will not be used in this analysis because of lack of available data for the aforementioned countries.

In Table 15 in the appendix, I predict the post-transitional level of democracy for each nation using the indicated controls. 5values are generated for each nation, three for different Hofstede measures and two for the WVS individualism measures. The previous level of democracy, prior to the disequilibrium, is also shown. The largest possible change in post-transitional democracy is 20 units, a change from a -10 to 10 or vice versa. In each observation, there is an increase in the post-transitional democracy from the previous level of democracy. Each nation becomes a more democratic state after the political disequilibrium event. For example, prior to the political disequilibrium, the democracy level in Egypt is a -3. This is during the presidency of Hosni Mubarak. After the recent political transition, the predicted level of democracy, as predicted by each model shows an increase in the post-transitional level of democracy. Specifically, we find that the composite model and the colonization model show high levels of growth. There may be some upward bias in these results because of the high magnitude on variables such as the wheat to sugar ratio. Furthermore, the high levels of oil wealth in some Arab nations results in an upward bias on the coefficients for income and the composite model. We see this in the situation of Kuwait in which the income model predicts an

increase in the level of democracy to about 9. This is similar to the democracy found in South Africa. However, if we look at the model including the Muslim Share in 1900, the level of democracy in Kuwait drops to 2, the same level of democracy found in Pakistan. There are significant gains in democracy after political disequilibrium events. Interestingly, if we focus on the case of Mali, we see that there is a drop in the overall level of democracy after the current civil unrest in the nation. This is interesting because this may represent a move toward a more equilibrium position. Mali may have had a higher level of democracy prior to the civil unrest and the transition is aiding in moving the country to a point of equilibrium democracy.

Using the different models generated throughout this paper, I am able to predict the post-transitional level of democracy in some of the Arab Spring nations and other nations currently facing some political disequilibrium. The results from our models paint an optimistic picture for the future of these nations. The democracy levels are expected pick up greatly to the point where most nations transition from some type of autocracy toward more democratic government institutions. The major factors that may affect this are the cultural dimensions of the nations in question, the income levels, the income inequality and the effect of democratic spillover. However, our analysis does have some limitations that will be discussed in the next section.

Section V: Discussion

The recent events of the Arab Spring allow us to ask the question of what happens to nations after they undergo some type of political disequilibrium. Past history has shown that some nations fall into cycles of weak democracy and autocracy while other nations are able to accomplish their goal of establishing a stable democracy. Using econometric techniques, I develop a model of post-transitional democracy that can be used to predict the democracy level within some of the Arab Spring nations after a point of political transition.

Literature on democracy has pointed to various factors affecting the equilibrium level of democracy. However, not much literature is available on the variables that affect post-transitional democracy. In many situations, equilibrium democracy depends on institutional quality, economic development, income inequality, natural resource exports, among others. However, during political transition, formal institutions tend to break down. During this point, past research has shown that people allow informal institutions or cultural norms/mores to guide their decision making process. During the period of political transition, it is likely that culture acts to guide the development of democracy. Specifically, cultural norms concerning individualism and egalitarianism should be particularly important.

Section A: Summary of Results

The analysis I carry out provides evidence for the central hypothesis that culture does affect the post-transitional level of democracy. Higher levels of individualism positively affect the level of democracy after a revolution, while higher levels of egalitarianism seems to also have the same effect. When controlling for income per capita and primary enrollment rate, individualism is still a significant and positive predictor of post-transitional levels of democracy.

Economic development is also significant in each of the models. Egalitarianism is also robust to the inclusion of economic development. Furthermore, both individualism and egalitarianism are robust to the inclusion of exogenous measures of institutional quality and income inequality.

To control for the possible endogeneity of culture in this model, an IV estimation approach is utilized. Three separate instruments for culture from the literature are included in this analysis. The WVS measure suffers from some weak instrument problems because there is a low F-statistic for this measure and rejection of the overidentifying restrictions test. We continue to utilize it in our analysis, but with the knowledge that it suffers from a weak instrument problem. The egalitarianism measures do not have strong instruments and are not included in the analysis.

Section E outlines the results of the instrumental variable analysis. We find that each of our instrumented cultural variables is significant and the coefficients are larger when only the exogenous portion of culture is used. Culture may also affect the economic development in nations, but also affects decision making. In the IV model, the results support that culture affects decision making. Another interesting result is that democratic spillover is highly significant in all models. This result supports the idea that there is a positive feedback loop that is generated from political transitions. As more nations become democratic, other nations that undergo political transition are likely to become more democratic.

In the table 15, I use each model to predict the post-transitional level of democracy in nations that are currently undergoing political transitions. The results of this analysis provide an optimistic view of these transitions. The level of democracy after transitions increases in mostnation when using the cultural values model and the controlled models.

Section B: Limitations of the Study and Moving Forward

The analysis carried out in this paper support the hypothesis that culture matters during points of political disequilibrium when formal, government institutions break down dramatically. Furthermore, I find that, the exogenous component of culture is still a strong determinant of post-transitional democracy and robust to the inclusion of economic development, colonization history and natural resource measures. In the study, our analysis suffers from some limitations mainly based on the availability of cultural data across all nations.

From the initial models in table 1, we find that there are approximately 320 points of political disequilibrium across all nations. However, once cultural measures are included, the total observations are cut by about one-third. This limits the amount of information we can gain from all the political disequilibria throughout history. Furthermore, by limiting the total observations, it prevents the use of a fixed-effects model because of the limited scope of the model we can develop.

Beyond the availability of data, there are some issues with the construction of our cultural values variables. Survey data is subject to measurement error because the question type and method of delivery can affect the answers that are given by respondents. We see this issue arise when using the egalitarianism measures. The WVS Respect measure does not seem to be a significant predictor of post-transitional democracy. However, the other egalitarianism measures affect post-transitional democracy. The construction of the respect question in the WVS is different than the other surveys' questions on egalitarianism. In the WVS, people are asked to select five values that are important to teach their children. This question is different than the surveys that ask to rate the important of respect for others or tolerance for social hierarchy.

Furthermore, there are differences in the effects of each survey measure. This is mainly due to measurement error and differences in the answers given by respondents even within the same nation.

If we consider the instrumental variable approach I used to determine the effect of the exogenous component of culture, we find that the WVS measure of individualism suffers from a weak instrument problem. The three instruments are not able to overcome some of the issues with the low F-statistic or the overidentifying restrcitions test. Furthermore, no instruments have been found to strongly associate to the egalitarianism measures. Further research should focus on developing instruments for cultural measures so that a causal link between culture and other dependent variables can be found.

As research using cultural dimensions and political transition continues, we find that there are areas of opportunity. One possible point of research involves developing a mathematical model that can better explain how culture can affect political transitions and if cultural values act as either an impetus for revolution. Furthermore, it may be possible that certain aspects of culture would lock people in a state of weak democracy or autocracy instead of allowing for political transition. A theoretical model could better elucidate these questions. Another area of future work involves determining what causes political disequilibria to happen more than a once within a short period of time. In some situations, there are points when a nation will undergo a political transition only to undergo another transition within the next 10 years. Determining the factors that affect this can allow us to better develop a full picture of political transitions.

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Appendix

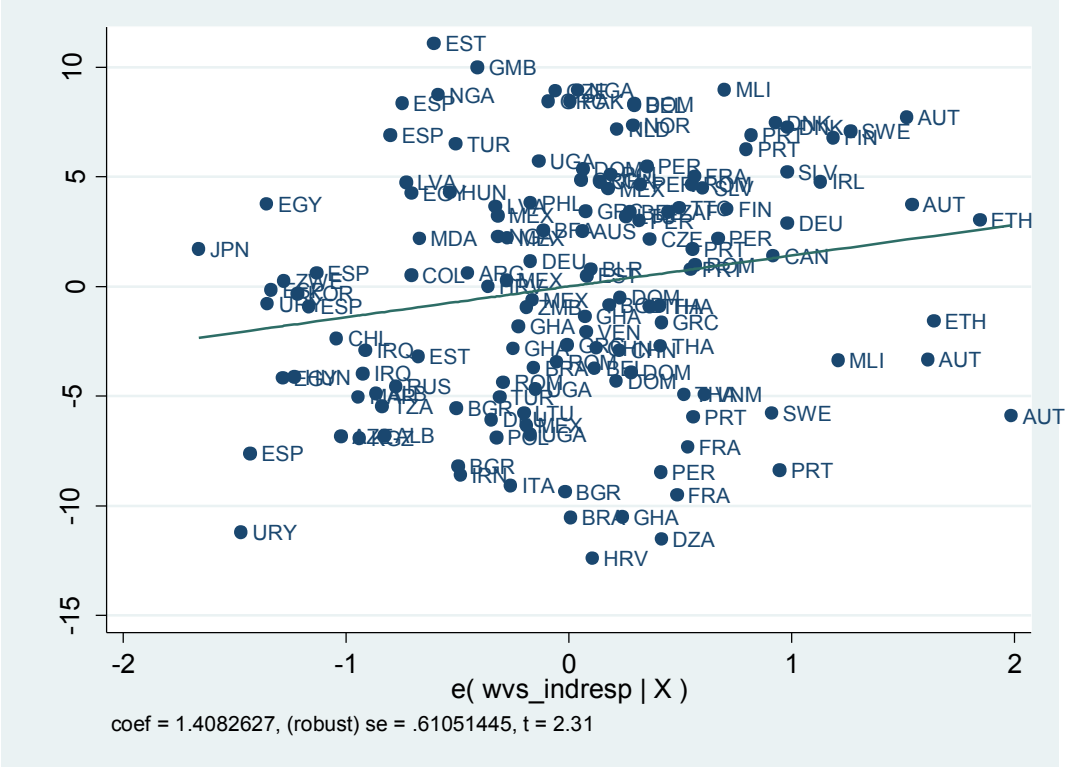

Figure 1: The effect of the WVS measure of individualism on the post-transitional level of democracy. The best fit line shows that there is some value in analyzing each of these different transitions in a single model. Nation such as Ethiopia and Canada have transitions that can be explained using this model, while other transitions such as the one in Austria may not be as easy to explain.

Variable	Observations	Mean	Std. Dev.	Min	Max
Post-Transitional Democracy	319	-0.6897597	6.360024	-10	10
Extended 19th Century (1800 - 1920)	332	0.2590361	0.4387668	0	1
Interwar Period (1921-1944)	332	0.1506024	0.3582008	0	1
Pre-Cold War Era (1945-1989)	332	0.3915663	0.4888373	0	1
Present (1989 - Present	332	0.1957831	0.3974013	0	1
New State	332	0.3343373	0.4724704	0	1
intervention	332	0.1445783	0.352206	0	1
anarchy	332	0.1054217	0.3075595	0	1
transition	332	0.4216867	0.4945744	0	1
Revolutionary Length	213	3.112676	3.545723	1	30
Total Democratic Nations	332	44.45482	29.1468	2	114
5 Year Pre-Transition Polity	332	-2.605924	4.615258	-10	10
Hofstede Individualism	170	39.04706	20.07053	6	90
Hofstede Power-Distance	170	62.81765	18.57582	11	104
Schwartz Embededness	111	3.719081	0.3504077	3.097	4.503
Schwartz Hierarchy	111	2.193937	0.4868836	1.411	3.63
WVS Individual Responsibility	195	5.13844	0.8661021	3.363566	7.26865
WVS Respect	180	0.6505347	0.0815766	0.4845	0.8640994
Linear Income Per Capita	318	7.320795	0.9622043	4.0863	10.77268
Linear Primary Enrollment Rate	238	50.2516	29.73301	0.8841	99.96667
Distance from the Equator	202	31.96571	16.22335	0.228	60.212
log_Wheat:Sugar Ratio	258	0.1115629	0.2101019	-0.3925617	0.5775324
Legal French Origin	255	0.5176471	0.5006712	0	1
Natural Resource Exporters	329	0.3768997	0.4853476	0	1
Ethnic Fractionalization	321	0.4470858	0.2625715	0	0.930175
Muslim Share in 1900	320	0.2053469	0.3457676	0	1
East/South Asia	329	0.112462	0.3164153	0	1
Western Hemisphere	329	0.2066869	0.4055457	0	1
Europe/Central Asia	329	0.2705167	0.4449034	0	1
Middle East/Africa	329	0.4012158	0.4908912	0	1
Genetic Distance from the UK	190	0.085977	0.0478044	0.010034	0.1970938
Rainfall Variation	204	-0.161802	0.4237379	-0.7607387	0.9523977
Pronoun Drop	166	0.7349398	0.4427007	0	1

Table A: Descriptive statistics for each variable used in this analysis are shown above.

VARIABLES	(1) pp5	(2) pp5	(3) pp5	(4) pp5	(5) pp5	(6) pp5
Extended 19th Century (1800 - 1920)	7.779***	7.303***	7.343***	7.710***	7.714***	8.239**
	(2.416)	(2.440)	(2.502)	(2.447)	(2.436)	(3.894)
Interwar Period (1921-1944)	6.680***	6.038***	6.063***	6.521***	6.343***	6.601*
	(2.193)	(2.238)	(2.269)	(2.243)	(2.219)	(3.486)
Pre-Cold War Era (1945-1989)	3.579**	3.227**	3.238**	3.513**	3.358**	3.823
	(1.564)	(1.588)	(1.599)	(1.587)	(1.554)	(2.505)
Total Democratic Nations in that Year	0.162***	0.156***	0.156***	0.165***	0.160***	0.168***
	(0.0282)	(0.0287)	(0.0289)	(0.0294)	(0.0283)	(0.0437)
5 Year Pre-Transition Polity		0.107	0.108	0.104	0.118	0.114
		(0.0784)	(0.0784)	(0.0788)	(0.0811)	(0.0807)
Transition 10 Years Prior	-0.534					
	(1.148)					
New State	1.038	0.950	0.927	0.651	1.663*	
	(0.789)	(0.781)	(0.810)	(0.797)	(0.944)	
intervention			-0.119			
			(0.986)			
anarchy				-2.037*		
				(1.156)		
transition					1.100	
					(0.852)	
Length of the Transition						-0.121
						(0.127)
East and South Asia	3.735***	3.570***	3.580***	3.506***	3.637***	1.447
	(1.110)	(1.117)	(1.114)	(1.116)	(1.104)	(1.277)
Western Hemisphere	1.241	1.098	1.095	1.084	1.060	0.292
	(0.932)	(0.944)	(0.946)	(0.935)	(0.940)	(1.146)
Europe and Central Asia	2.098**	1.962**	1.961*	1.982**	1.967**	1.454
	(1.002)	(0.996)	(0.997)	(0.987)	(0.985)	(1.349)
Constant	-13.61***	-12.62***	-12.62***	-12.99***	-13.66***	-12.69***
	(2.823)	(2.944)	(2.941)	(2.957)	(2.993)	(4.200)
Observations	316	316	316	316	316	204
R-squared	0.137	0.142	0.142	0.151	0.147	0.154

Table 1: A model of political transition is generated in the analysis above. The "Present" time period and "Middle East/Africa" regional dummy are omitted. The number of observations and R^2 for each model are shown. The previous level of democracy for "New States" was assigned a -2 so as to keep the regressor insignificant. Robust standard errors are shown in parenthesis and ***, **, * represent $p<0.01$, 0.05 and 0.10 respectively.

VARIABLES	(1) pp5	(2) pp5	(3) pp5	(4) pp5	(5) pp5	(6) pp5
Hofstede Individualism	0.0973***					
	(0.0308)					
WVS Individual Responsibility		1.836***				
		(0.621)				
Schwartz Embededness			-7.503***			
			(2.065)			
Hofstede Power-Distance				-0.0995***		
				(0.0273)		
WVS Respect					9.001	
					(6.624)	
Schwartz Hierarchy						-6.180***
						(1.521)
Extended 19th Century (1800 - 1920)	6.741**	6.947**	11.28***	7.058***	6.664**	12.35***
	(2.711)	(2.687)	(4.081)	(2.606)	(2.821)	(3.876)
Interwar Period (1921-1944)	5.904**	5.268**	10.31***	5.997**	5.040*	10.25***
	(2.492)	(2.527)	(3.564)	(2.365)	(2.600)	(3.555)
Pre-Cold War Era (1945-1989)	3.868**	4.397**	8.194***	3.831**	3.732*	7.600***
	(1.821)	(1.857)	(2.708)	(1.733)	(2.092)	(2.708)
Total Democratic Nations in that Year	0.183***	0.193***	0.272***	0.188***	0.175***	0.278***
	(0.0330)	(0.0345)	(0.0545)	(0.0318)	(0.0363)	(0.0515)
5 Year Pre-Transition Polity	0.0943	0.107	0.142	0.0947	0.0697	0.0786
	(0.103)	(0.0989)	(0.127)	(0.106)	(0.107)	(0.120)
New State	2.505**	2.555**	5.452***	2.713**	1.330	3.822***
	(1.091)	(1.074)	(1.366)	(1.055)	(1.077)	(1.370)
Constant	-16.07***	-22.73***	10.56	-6.689	-17.68***	-4.581
	(3.272)	(4.504)	(9.843)	(4.154)	(5.529)	(5.525)
Observations	165	189	111	165	175	111
R-squared	0.238	0.217	0.349	0.258	0.186	0.373

Table 2: The effect of each cultural variable on post-transitional levels of democracy is noted above. The time periods are included in the analysis but not show. The "present' time dummy is the omitted group. The number of observations and R^2 are shown. Regional variables are included in this model, but not shown. East/South Asia, the Western Hemisphere and Europe/Central Asia are included while the Middle East/Africa dummy is excluded. Robust standard errors are shown in parenthesis and ***, **, * represent p<0.01, 0.05 and 0.10 respectively.

VARIABLES	(1) pp5	(2) pp5	(3) pp5	(4) pp5	(5) pp5	(6) pp5	(7) pp5	(8) pp5	(9) pp5
Hofstede Individualism	0.0778**	0.0757*	0.115***						
	(0.0353)	(0.0399)	(0.0316)						
WVS Individual Responsibility				1.693***	1.396**	1.717***			
				(0.580)	(0.612)	(0.632)			
Schwartz Embededness							-5.627**	-5.313**	-7.211***
							(2.185)	(2.445)	(2.615)
Linear ln_Income Per Capita	1.026			1.896***			2.347***		
	(0.770)			(0.580)			(0.850)		
Linear Primary Enrollment Rate		0.0595**			0.0808***			0.104***	
		(0.0285)			(0.0226)			(0.0324)	
Distance from Equator			0.160**			0.175***			0.218***
			(0.0618)			(0.0614)			(0.0789)
log_Wheat:Sugar Ratio			-12.57***			-6.968*			-12.92***
			(3.640)			(3.590)			(4.186)
Legal French Origin			2.399*			1.554			2.485
			(1.286)			(1.317)			(1.586)
Extended 19th Century (1800 - 1920)	6.590**	7.497**	6.328**	6.444**	8.921***	6.594**	10.69***	12.23**	12.01**
	(2.689)	(3.041)	(3.006)	(2.617)	(2.869)	(2.779)	(3.926)	(4.622)	(4.648)
Interwar Period (1921-1944)	5.306**	6.146**	4.845*	4.094	6.705**	4.617*	9.009**	8.958**	10.43**
	(2.528)	(2.796)	(2.696)	(2.480)	(2.658)	(2.645)	(3.478)	(4.316)	(4.009)
Pre-Cold War Era (1945-1989)	3.310*	4.409**	5.260**	3.276*	4.490**	4.940**	6.352**	5.911*	9.350***
	(1.879)	(2.213)	(2.081)	(1.845)	(2.224)	(1.969)	(2.669)	(3.243)	(3.037)
Total Democratic Nations in that Year	0.165***	0.139***	0.189***	0.154***	0.150***	0.200***	0.218***	0.226***	0.314***
	(0.0337)	(0.0399)	(0.0410)	(0.0361)	(0.0403)	(0.0372)	(0.0600)	(0.0626)	(0.0621)
5 Year Pre-Transition Polity	0.0800	0.0934	0.0481	0.0671	0.0798	0.0343	0.0837	0.160	0.0329
	(0.105)	(0.115)	(0.109)	(0.100)	(0.103)	(0.104)	(0.132)	(0.145)	(0.139)
New State	2.612**	1.561	2.329**	2.684**	2.171*	2.048*	5.062***	2.548	5.282***
	(1.105)	(1.406)	(1.118)	(1.078)	(1.283)	(1.211)	(1.330)	(2.030)	(1.619)
Constant	-22.08***	-16.25***	-18.86***	-33.47***	-22.35***	-26.01***	-11.56	-0.405	1.711
	(5.231)	(3.523)	(3.612)	(5.411)	(4.582)	(4.877)	(11.88)	(12.01)	(13.27)
Observations	164	120	141	186	142	168	108	79	96
R-squared	0.243	0.306	0.358	0.254	0.291	0.271	0.378	0.424	0.439

Table 3: The effect of individualism on post-transitional levels of democracy is noted above. The "Present" time period is omitted. The number of observations and R^2 for each model are shown. Regional variables are included in this model, but not shown. East/South Asia, the Western Hemisphere and Europe/Central Asia are included while the Middle East/Africa dummy is excluded. Robust standard errors are shown in parenthesis and ***, **, * represent p<0.01, 0.05 and 0.10 respectively.

VARIABLES	(1) pp5	(2) pp5	(3) pp5	(4) pp5	(5) pp5	(6) pp5	(7) pp5	(8) pp5	(9) pp5
Hofstede Power-Distance	-0.0906***	-0.0970***	-0.110***						
	(0.0294)	(0.0327)	(0.0302)						
WVS Respect				6.708	0.741	12.78*			
				(6.267)	(7.794)	(6.641)			
Schwartz Hierarchy							-4.260**	-5.701***	-5.542***
							(1.922)	(1.975)	(1.930)
Linear ln_Income Per Capita	1.129			1.726***			2.094*		
	(0.693)			(0.609)			(1.069)		
Linear Primary Enrollment Rate		0.0657**			0.103***			0.0892**	
		(0.0269)			(0.0258)			(0.0347)	
Distance from Equator			0.163***			0.170**			0.209***
			(0.0610)			(0.0707)			(0.0734)
log_Wheat:Sugar Ratio			-12.18***			-5.555			-11.26**
			(3.695)			(4.282)			(4.353)
Legal French Origin			3.949***			1.768			2.233
			(1.299)			(1.414)			(1.722)
Extended 19th Century (1800 - 1920)	6.726**	7.666**	6.867**	6.748**	9.994***	2.857	11.58***	12.88***	14.73***
	(2.636)	(3.162)	(3.407)	(2.764)	(3.401)	(3.158)	(3.784)	(4.508)	(4.447)
Interwar Period (1921-1944)	5.232**	5.862**	5.006*	4.319*	7.544**	1.746	9.149***	8.848**	12.01***
	(2.440)	(2.903)	(2.951)	(2.590)	(3.146)	(3.076)	(3.469)	(4.193)	(4.068)
Pre-Cold War Era (1945-1989)	3.143*	3.934*	5.280**	3.393	4.774*	0.192	6.308**	6.560**	10.85***
	(1.820)	(2.218)	(2.338)	(2.062)	(2.643)	(2.178)	(2.661)	(3.168)	(2.877)
Total Democratic Nations in that Year	0.167***	0.140***	0.204***	0.139***	0.128***	0.0988***	0.224***	0.237***	0.316***
	(0.0330)	(0.0401)	(0.0436)	(0.0383)	(0.0460)	(0.0267)	(0.0642)	(0.0676)	(0.0587)
5 Year Pre-Transition Polity	0.0727	0.0808	0.0380	0.0585	0.0752	-0.0105	0.0515	0.135	0.00561
	(0.105)	(0.115)	(0.112)	(0.105)	(0.113)	(0.109)	(0.128)	(0.133)	(0.135)
New State	2.792***	1.792	2.927**	1.721	1.670	0.802	3.902***	1.530	3.576**
	(1.050)	(1.327)	(1.164)	(1.100)	(1.362)	(1.241)	(1.318)	(1.941)	(1.565)
Constant	-14.43**	-7.558	-10.37**	-27.58***	-16.26***	-22.47***	-22.03**	-8.345	-15.24**
	(6.559)	(4.767)	(4.922)	(5.589)	(6.067)	(6.211)	(9.906)	(6.583)	(6.992)
Observations	164	120	141	174	127	157	108	79	96
R-squared	0.269	0.345	0.369	0.217	0.287	0.245	0.378	0.460	0.449

Table 4: The effect of egalitarianism on post-transitional levels of democracy with the included controls is noted above. The "Present" time period is omitted. The number of observations and R^2 are shown. Regional variables are included in this model, but not shown. East/South Asia, the Western Hemisphere and Europe/Central Asia are included while the Middle East/Africa dummy is excluded. Robust standard errors are shown in parenthesis and ***, **, * represent p<0.01, 0.05 and 0.10 respectively.

VARIABLES	(1) pp5	(2) pp5	(3) pp5	(4) pp5	(5) pp5	(6) pp5	(7) pp5	(8) pp5	(9) pp5
Hofstede Individualism	0.0881***	0.0900***	0.0915***						
	(0.0309)	(0.0309)	(0.0308)						
WVS Individual Responsibility				1.808***	1.743***	1.321**			
				(0.598)	(0.611)	(0.632)			
Schwartz Embededness							-7.260***	-7.192***	-8.042***
							(2.119)	(2.350)	(2.164)
Natural Resource Exporters	-2.396*			-2.887**			-0.870		
	(1.305)			(1.220)			(1.832)		
Ethnic Fractionalization		-2.000			-2.656			-0.903	
		(2.243)			(2.099)			(3.586)	
Muslim Share in 1900			-5.791***			-4.948***			3.796
			(1.977)			(1.826)			(4.408)
Extended 19th Century (1800 - 1920)	6.763**	6.265**	7.241***	7.217***	6.585**	7.712***	11.01***	11.02**	10.54**
	(2.759)	(2.789)	(2.617)	(2.551)	(2.721)	(2.478)	(4.154)	(4.340)	(4.354)
Interwar Period (1921-1944)	6.022**	5.398**	6.709***	5.562**	4.853*	6.363***	10.08***	10.05**	9.587**
	(2.514)	(2.573)	(2.453)	(2.448)	(2.557)	(2.407)	(3.622)	(3.831)	(3.803)
Pre-Cold War Era (1945-1989)	4.092**	3.653**	4.503**	4.815***	4.311**	4.896***	8.034***	8.016***	7.495**
	(1.885)	(1.835)	(1.743)	(1.808)	(1.855)	(1.735)	(2.726)	(2.873)	(2.924)
Total Democratic Nations in that Year	0.188***	0.182***	0.192***	0.203***	0.194***	0.202***	0.271***	0.270***	0.269***
	(0.0336)	(0.0335)	(0.0329)	(0.0334)	(0.0343)	(0.0328)	(0.0546)	(0.0561)	(0.0559)
5 Year Pre-Transition Polity	0.0721	0.0974	0.0867	0.0816	0.110	0.0918	0.138	0.140	0.139
	(0.106)	(0.104)	(0.105)	(0.101)	(0.0992)	(0.0994)	(0.127)	(0.127)	(0.127)
New State	2.585**	2.586**	3.108***	2.519**	2.610**	2.956***	5.392***	5.453***	5.225***
	(1.051)	(1.086)	(1.062)	(1.050)	(1.081)	(1.040)	(1.400)	(1.367)	(1.426)
Constant	-15.19***	-14.61***	-14.91***	-21.90***	-20.81***	-19.83***	10.15	9.934	13.04
	(3.419)	(3.743)	(3.178)	(4.467)	(4.713)	(4.463)	(9.858)	(9.923)	(10.54)
Observations	165	165	165	189	189	189	111	111	111
R-squared	0.253	0.242	0.282	0.240	0.224	0.247	0.350	0.349	0.354

Table 5: The effect of individualism on post-transitional levels of democracy with the included controls is noted above. The "Present" time period is omitted. The number of observations and R^2 are shown. Regional variables are included in this model, but not shown. East/South Asia, the Western Hemisphere and Europe/Central Asia are included while the Middle East/Africa dummy is excluded. Robust standard errors are shown in parenthesis and ***, **, * represent p<0.01, 0.05 and 0.10 respectively.

VARIABLES	(1) pp5	(2) pp5	(3) pp5	(4) pp5	(5) pp5	(6) pp5	(7) pp5	(8) pp5	(9) pp5
Hofstede Power-Distance	-0.0978***	-0.0946***	-0.0880***						
	(0.0269)	(0.0272)	(0.0275)						
WVS Respect				12.13*	8.993	10.36			
				(6.294)	(6.807)	(6.679)			
Schwartz Hierarchy							-6.002***	-5.848***	-6.812***
							(1.528)	(1.694)	(1.394)
Natural Resource Exporters	-2.796**			-3.470**			-1.553		
	(1.215)			(1.391)			(1.767)		
Ethnic Fractionalization		-1.947			-2.486			-1.644	
		(2.226)			(2.363)			(3.329)	
Muslim Share in 1900			-5.173***			-8.014***			5.337
			(1.822)			(1.966)			(4.903)
Extended 19th Century (1800 - 1920)	6.987***	6.556**	7.529***	7.278***	5.985**	7.415***	11.84***	11.82***	11.42***
	(2.621)	(2.697)	(2.496)	(2.647)	(2.853)	(2.431)	(3.990)	(4.197)	(4.103)
Interwar Period (1921-1944)	6.070**	5.484**	6.747***	5.594**	4.462*	6.568***	9.828***	9.767**	9.225**
	(2.369)	(2.451)	(2.326)	(2.497)	(2.637)	(2.366)	(3.615)	(3.828)	(3.740)
Pre-Cold War Era (1945-1989)	4.043**	3.611**	4.437***	4.524**	3.500*	4.817**	7.344***	7.317**	6.557**
	(1.776)	(1.735)	(1.674)	(2.039)	(2.106)	(1.863)	(2.716)	(2.786)	(2.906)
Total Democratic Nations in that Year	0.193***	0.187***	0.196***	0.189***	0.172***	0.193***	0.277***	0.275***	0.274***
	(0.0319)	(0.0320)	(0.0313)	(0.0347)	(0.0365)	(0.0335)	(0.0521)	(0.0535)	(0.0526)
5 Year Pre-Transition Polity	0.0647	0.0967	0.0908	0.0489	0.0697	0.0337	0.0755	0.0800	0.0679
	(0.109)	(0.107)	(0.106)	(0.107)	(0.109)	(0.110)	(0.122)	(0.121)	(0.119)
New State	2.790***	2.779***	3.236***	1.385	1.483	2.531**	3.809***	3.947***	3.338**
	(1.011)	(1.052)	(1.052)	(1.044)	(1.116)	(1.044)	(1.340)	(1.336)	(1.484)
Constant	-6.047	-5.785	-6.590*	-19.45***	-16.05***	-17.44***	-4.100	-4.329	-2.604
	(4.169)	(4.423)	(3.976)	(5.040)	(5.934)	(5.291)	(5.608)	(5.609)	(5.757)
Observations	165	165	165	175	171	168	111	111	111
R-squared	0.279	0.261	0.292	0.216	0.188	0.266	0.377	0.374	0.382

Table 6: The effect of egalitarianism on post-transitional levels of democracy with the included controls is noted above. The "Present" time period is omitted. The number of observations and R^2 are shown. Regional variables are included in this model, but not shown. East/South Asia, the Western Hemisphere and Europe/Central Asia are included while the Middle East/Africa dummy is excluded. Robust standard errors are shown in parenthesis and ***, **, * represent p<0.01, 0.05 and 0.10 respectively.

VARIABLES	(1) pp5	(2) pp5	(3) pp5	(4) pp5	(5) pp5	(6) pp5
Hofstede Individualism	0.0801**					
	(0.0358)					
WVS Individual Responsibility		1.246**				
		(0.578)				
Schwartz Embededness			-5.895**			
			(2.841)			
Hofstede Power-Distance				-0.0668**		
				(0.0302)		
WVS Respect					8.290	
					(6.243)	
Schwartz Hierarchy						-5.051**
						(2.235)
Linear ln_Income Per Capita	2.271***	2.582***	2.419**	2.484***	2.590***	1.813
	(0.761)	(0.653)	(0.965)	(0.750)	(0.692)	(1.274)
Distance from Equator	0.0909	0.105*	0.145*	0.0887	0.0817	0.148**
	(0.0617)	(0.0614)	(0.0822)	(0.0607)	(0.0664)	(0.0734)
log_Wheat:Sugar Ratio	-12.81***	-10.07***	-13.33***	-12.81***	-10.24***	-11.84***
	(3.441)	(3.183)	(4.133)	(3.504)	(3.538)	(4.267)
Natural Resource Exporters	-0.829	-0.485	-1.072	-1.206	-1.305	-1.896
	(1.433)	(1.324)	(2.041)	(1.353)	(1.498)	(1.922)
Muslim Share in 1900	-0.598	-3.732	1.806	-0.916	-6.592***	3.719
	(2.598)	(2.536)	(5.185)	(2.418)	(2.502)	(5.587)
Total Democratic Nations in that Year	0.146***	0.158***	0.239***	0.146***	0.156***	0.256***
	(0.0408)	(0.0365)	(0.0631)	(0.0412)	(0.0382)	(0.0665)
5 Year Pre-Transition Polity	0.0496	0.0187	0.0526	0.0494	0.00547	0.0227
	(0.111)	(0.104)	(0.135)	(0.114)	(0.111)	(0.131)
New State	2.686**	2.838***	4.555***	2.901***	2.954***	3.050**
	(1.103)	(1.056)	(1.534)	(1.109)	(1.060)	(1.472)
Constant	-28.20***	-36.23***	-13.66	-22.80***	-34.37***	-21.49*
	(5.331)	(5.665)	(14.72)	(6.794)	(5.744)	(12.27)
Observations	145	173	101	145	156	101
R-squared	0.365	0.330	0.438	0.367	0.337	0.445

Table 7: The effect of individualism and egalitarianism on post-transitional levels of democracy with the included controls is noted above. The time period dummies are included with the omitted dummy being the "Present" time. The number of observations and R^2 are shown. Regional variables are included in this model, but not shown. East/South Asia, the Western Hemisphere and Europe/Central Asia are included while the Middle East/Africa dummy is excluded. Robust standard errors are shown in parenthesis and ***, **, * represent p<0.01, 0.05 and 0.10 respectively.

VARIABLES	(1) hof_idv	(2) hof_idv	(3) hof_idv	(4) hof_idv
Genetic Distance from United Kingdom	-213.9***			-209.9***
	(32.04)			(23.27)
ln_Covariance of Rainfall		-4.657		
		(3.786)		
Pronoun Drop			-18.26***	-17.98***
			(4.191)	(2.992)
Extended 19th Century (1800 - 1920)	14.19	11.15	11.98*	14.69**
	(9.284)	(11.42)	(6.707)	(6.229)
Interwar Period (1921-1944)	11.00	7.950	10.63*	13.35**
	(8.011)	(9.798)	(6.023)	(5.639)
Pre-Cold War Era (1945-1989)	9.081	5.845	5.967	8.617*
	(6.703)	(7.806)	(4.971)	(4.935)
Total Democratic Nations in that Year	0.235**	0.0786	0.0658	0.216***
	(0.111)	(0.124)	(0.0694)	(0.0732)
5 Year Pre-Transition Polity	0.359*	0.424**	0.205	0.0319
	(0.194)	(0.201)	(0.182)	(0.165)
New State	4.397	1.891	1.459	3.451
	(2.843)	(3.389)	(2.937)	(2.550)
Constant	31.23***	23.74*	35.88***	43.71***
	(11.02)	(13.31)	(8.787)	(8.312)
Observations	152	160	157	144
R-squared	0.646	0.531	0.628	0.745
F-Statistic	38.86	21.96	42.88	54.07
OIR Test				0.8762

Table 8: The effect of the three different instruments on Hofstede measures of individualism are noted above. The time period dummies are included with the omitted dummy being the "Present" time. The number of observations and R^2 are shown. Also, the p-value for the overidentifying restrictions test is shown along with the First Stage F-statistic. Regional variables are included in this model, but not shown. East/South Asia, the Western Hemisphere and Europe/Central Asia are included while the Middle East/Africa dummy is excluded. Robust standard errors are shown in parenthesis and ***, **, * represent p<0.01, 0.05 and 0.10 respectively.

VARIABLES	(1) wvs_indresp	(2) wvs_indresp	(3) wvs_indresp	(4) wvs_indresp
Genetic Distance from United Kingdom	-2.128			
	(1.293)			
ln_Covariance of Rainfall		-0.704***		-0.847***
		(0.165)		(0.235)
Pronoun Drop			-0.737***	-0.504***
			(0.156)	(0.166)
Extended 19th Century (1800 - 1920)	-0.219	-0.0534	-0.559	-0.406
	(0.374)	(0.354)	(0.396)	(0.350)
Interwar Period (1921-1944)	-0.243	-0.0332	-0.471	-0.280
	(0.359)	(0.330)	(0.381)	(0.329)
Pre-Cold War Era (1945-1989)	-0.321	-0.230	-0.644*	-0.559*
	(0.275)	(0.262)	(0.333)	(0.297)
Total Democratic Nations in that Year	-0.0122***	-0.00993**	-0.0136***	-0.0104***
	(0.00455)	(0.00423)	(0.00433)	(0.00380)
5-Year Pre-Transition Polity	0.00152	-0.00364	-0.00580	-0.00772
	(0.0118)	(0.0112)	(0.0113)	(0.0112)
New State	-0.458***	-0.430***	-0.361**	-0.288**
	(0.135)	(0.126)	(0.145)	(0.139)
Constant	5.910***	5.625***	6.584***	6.333***
	(0.483)	(0.430)	(0.482)	(0.428)
Observations	188	193	151	151
R-squared	0.265	0.322	0.327	0.395
F-Statistic	7.24	7.83	6.76	8.36
OIR Test				0.1571

Table 9: The effect of the three instruments on WVS measures of individualism are noted above. The time period dummies are included with the omitted dummy being the "Present" time. The number of observations and R^2 are shown. Also, the p-value for the overidentifying restrictions test is shown along with the First Stage F-statistic. Regional variables are included in this model, but not shown. East/South Asia, the Western Hemisphere and Europe/Central Asia are included while the Middle East/Africa dummy is excluded. Robust standard errors are shown in parenthesis and ***, **, * represent p<0.01, 0.05 and 0.10 respectively.

VARIABLES	(1) schw_embed	(2) schw_embed	(3) schw_embed	(4) schw_embed
Genetic Distance from United Kingdom	4.712***			4.745***
	(0.762)			(0.975)
ln_Covariance of Rainfall		0.0579		
		(0.102)		
Pronoun Drop			0.207**	0.189***
			(0.0866)	(0.0671)
Extended 19th Century (1800 - 1920)	0.0199	-0.0604	-0.115	0.102
	(0.218)	(0.279)	(0.394)	(0.264)
Interwar Period (1921-1944)	0.0670	-0.0343	-0.0715	0.153
	(0.183)	(0.230)	(0.365)	(0.239)
Pre-Cold War Era (1945-1989)	0.113	0.0590	-0.0299	0.167
	(0.157)	(0.199)	(0.351)	(0.221)
Total Democratic Nations in that Year	0.00508*	0.00548	0.00630*	0.00587**
	(0.00282)	(0.00393)	(0.00354)	(0.00246)
New State	0.00226	0.00445	0.000568	-0.000403
	(0.00448)	(0.00591)	(0.00506)	(0.00358)
5 Year Pre-Transition Polity	0.183***	0.213***	0.253***	0.197***
	(0.0565)	(0.0637)	(0.0606)	(0.0602)
Constant	3.167***	3.563***	3.385***	2.913***
	(0.250)	(0.338)	(0.426)	(0.269)
Observations	100	111	97	92
R-squared	0.606	0.380	0.454	0.674
F-Statistic	15.45	7.66	11.18	18.78
OIR Test				0.7238

Table 10: The effect of the three instruments on Schwartz measures of individualism are noted above. The time period dummies are included with the omitted dummy being the "Present" time. The number of observations and R^2 are shown. Also, the p-value for the overidentifying restrictions test is shown along with the First Stage F-statistic. Regional variables are included in this model, but not shown. East/South Asia, the Western Hemisphere and Europe/Central Asia are included while the Middle East/Africa dummy is excluded. Robust standard errors are shown in parenthesis and ***, **, * represent p<0.01, 0.05 and 0.10 respectively.

VARIABLES	(1) pp5	(2) pp5	(3) pp5
Hofstede Individualism	0.174***		
	(0.0467)		
WVS Individual Responsibility		2.775**	
		(1.414)	
Schwartz Embededness			-13.39***
			(3.191)
Extended 19th Century (1800 - 1920)	3.347	8.185***	11.72***
	(2.786)	(2.626)	(4.449)
Interwar Period (1921-1944)	3.009	7.278***	11.80***
	(2.578)	(2.512)	(3.981)
Pre-Cold War Era (1945-1989)	1.996	5.481***	9.879***
	(2.103)	(1.974)	(3.319)
Total Democratic Nations in that Year	0.152***	0.213***	0.301***
	(0.0363)	(0.0344)	(0.0636)
5 Year Pre-Transition Polity	0.0489	0.124	0.00750
	(0.108)	(0.106)	(0.138)
New State	2.023*	3.151**	6.640***
	(1.120)	(1.248)	(1.394)
East and South Asia	3.423**	2.131	3.581
	(1.488)	(1.707)	(2.209)
Western Hemisphere	0.485	-0.482	-1.444
	(1.563)	(1.481)	(2.007)
Europe and Central Asia	-2.306	0.544	-1.739
	(1.778)	(1.679)	(1.781)
Constant	-14.30***	-28.95***	29.74**
	(3.413)	(8.328)	(11.95)
Observations	141	148	92
R-squared	0.225	0.181	0.374
First Stage F-Statistic	54.07	8.36	18.78
OIR Test p-value	0.8762	0.1571	0.7238

Table 11: The effect of instrumented individualism on post-transitional levels of democracy. The "Present" time period is omitted. The number of observations and R^2 are shown. The first stage F-statistic and p-value from the overidentifying restrictions test is shown as well. Regional variables are included in this model, but not shown. East/South Asia, the Western Hemisphere and Europe/Central Asia are included while the Middle East/Africa dummy is excluded. Robust standard errors are shown in parenthesis and ***, **, * represent $p<0.01$, 0.05 and 0.10 respectively.

VARIABLES	(1) pp5	(2) pp5	(3) pp5	(4) pp5	(5) pp5	(6) pp5	(7) pp5	(8) pp5	(9) pp5
Hofstede Individualism	0.149***	0.114*	0.166***						
	(0.0578)	(0.0645)	(0.0458)						
WVS Individual Responsibility				2.161	1.352	3.314***			
				(1.374)	(1.269)	(1.058)			
Schwartz Embededness							-8.191**	-4.037	-12.88***
							(3.576)	(5.186)	(4.614)
Linear ln_Income Per Capita	1.101			2.471***			2.828***		
	(0.893)			(0.672)			(0.922)		
Linear Primary Enrollment Rate		0.0589*			0.0824***			0.135***	
		(0.0356)			(0.0243)			(0.0424)	
Distance from Equator			0.131**			0.215***			0.142
			(0.0658)			(0.0574)			(0.105)
log_Wheat:Sugar Ratio			-12.63***			-10.88***			-11.85***
			(3.601)			(3.903)			(4.353)
Legal French Origin			2.108*			2.485*			1.859
			(1.253)			(1.316)			(1.745)
Extended 19th Century (1800 - 1920)	3.004	5.620*	3.431	6.078**	8.111***	7.636***	9.476**	15.46***	10.89**
	(2.671)	(2.908)	(2.833)	(2.547)	(2.688)	(2.713)	(4.489)	(5.914)	(5.215)
Interwar Period (1921-1944)	2.330	4.693*	2.801	4.580*	6.765***	6.647***	8.673**	12.35**	10.30**
	(2.478)	(2.675)	(2.596)	(2.443)	(2.485)	(2.538)	(4.283)	(5.548)	(4.754)
Pre-Cold War Era (1945-1989)	1.333	3.616	3.804*	3.050	4.457*	6.920***	6.577*	7.689*	9.417**
	(2.002)	(2.476)	(2.106)	(1.961)	(2.318)	(1.974)	(3.739)	(3.991)	(3.734)
Total Democratic Nations in that Year	0.134***	0.126***	0.153***	0.155***	0.147***	0.226***	0.212***	0.203**	0.335***
	(0.0373)	(0.0418)	(0.0402)	(0.0379)	(0.0425)	(0.0358)	(0.0737)	(0.101)	(0.0700)
5 Year Pre-Transition Polity	0.0330	0.102	0.00697	0.0597	0.125	0.0529	-0.0227	0.139	-0.0841
	(0.108)	(0.113)	(0.109)	(0.105)	(0.109)	(0.110)	(0.133)	(0.153)	(0.156)
New State	2.304**	1.291	2.098*	3.510***	2.511	3.837***	6.017***	1.856	6.707***
	(1.132)	(1.450)	(1.115)	(1.177)	(1.623)	(1.299)	(1.321)	(2.239)	(1.709)
Constant	-20.64***	-14.62***	-16.35***	-40.08***	-21.42***	-37.21***	-5.889	-8.274	24.19
	(5.789)	(3.449)	(3.463)	(8.220)	(7.743)	(6.336)	(15.56)	(19.18)	(19.23)
Observations	141	105	131	147	109	138	92	68	86
R-squared	0.247	0.323	0.337	0.282	0.341	0.305	0.410	0.422	0.445
First Stage F-Statistic	58.17	62..08	51.69	6.13	7.84	7.48	18.21	175.19	148.48
OIR Test p-value	0.6385	0.3300	0.2944	0.1321	0.0742	0.0508	0.9960	0.8680	0.6818

Table 12: The effect of instrumented individualism on post-transitional levels of democracy when included with economic development and colonization variables. The "Present" time period is omitted. The number of observations and R^2 are shown. The first stage F-statistic and p-value from the overidentifying restrictions test is shown as well. Regional variables are included in this model, but not shown. East/South Asia, the Western Hemisphere and Europe/Central Asia are included while the Middle East/Africa dummy is excluded. Robust standard errors are shown in parenthesis and ***, **, * represent p<0.01, 0.05 and 0.10 respectively.

VARIABLES	(1) pp5	(2) pp5	(3) pp5	(4) pp5	(5) pp5	(6) pp5	(7) pp5	(8) pp5	(9) pp5
Hofstede Individualism	0.163***	0.167***	0.147***						
	(0.0454)	(0.0479)	(0.0433)						
WVS Individual Responsibility				2.965**	2.480*	2.282			
				(1.374)	(1.449)	(1.746)			
Schwartz Embededness							-13.32***	-14.30***	-15.06***
							(3.128)	(4.293)	(3.679)
Natural Resource Exporters	-2.797*			-2.773*			-1.856		
	(1.457)			(1.457)			(1.940)		
Ethnic Fractionalization		-1.413			-3.232			2.367	
		(2.408)			(2.371)			(4.445)	
Muslim Share in 1900			-3.363			-1.813			6.888
			(2.486)			(2.868)			(4.600)
Extended 19th Century (1800 - 1920)	3.511	3.178	4.501	8.187***	7.391***	8.294***	10.97**	12.57***	10.45**
	(2.556)	(2.753)	(2.783)	(2.472)	(2.659)	(2.596)	(4.620)	(4.805)	(4.884)
Interwar Period (1921-1944)	3.246	2.806	4.213	7.404***	6.459**	7.451***	11.18***	12.62***	10.60**
	(2.397)	(2.564)	(2.668)	(2.398)	(2.545)	(2.492)	(4.137)	(4.339)	(4.320)
Pre-Cold War Era (1945-1989)	2.300	1.967	2.871	5.643***	5.083**	5.440***	9.419***	10.40***	8.674**
	(1.974)	(2.051)	(2.113)	(1.896)	(1.983)	(1.973)	(3.485)	(3.567)	(3.611)
Total Democratic Nations in that Year	0.163***	0.153***	0.165***	0.224***	0.210***	0.214***	0.302***	0.310***	0.300***
	(0.0350)	(0.0360)	(0.0357)	(0.0331)	(0.0341)	(0.0338)	(0.0626)	(0.0688)	(0.0667)
5 Year Pre-Transition Polity	0.0205	0.0498	0.0607	0.0910	0.122	0.127	-0.00485	0.0107	-0.00984
	(0.110)	(0.108)	(0.107)	(0.110)	(0.107)	(0.106)	(0.138)	(0.139)	(0.137)
New State	2.233**	2.082*	2.433**	3.363***	3.171**	3.157**	6.664***	6.581***	6.414***
	(1.058)	(1.118)	(1.160)	(1.191)	(1.241)	(1.265)	(1.344)	(1.381)	(1.405)
Constant	-13.36***	-13.43***	-13.88***	-29.26***	-25.43***	-26.02**	30.45***	31.59**	36.37***
	(3.272)	(3.753)	(3.231)	(8.135)	(9.053)	(10.27)	(11.70)	(13.87)	(13.99)
Observations	141	141	141	148	148	148	92	92	92
R-squared	0.249	0.230	0.292	0.234	0.236	0.232	0.379	0.373	0.386
First Stage F-Statistic	52.83	48.58	56.45	5.99	6.05	6.25	18.81	20.64	16.97
OIR Test p-value	0.4702	0.7391	0.9207	0.0683	0.0680	0.0973	0.8607	0.6906	0.8942

Table 13: The effect of instrumented individualism on post-transitional levels of democracy when included with natural resources, ethnic fractionalization and the Muslim share in 1900. The "Present" time period is omitted. The number of observations and R^2 are shown. The first stage F-statistic and p-value from the overidentifying restrictions test is shown as well. Regional variables are included in this model, but not shown. East/South Asia, the Western Hemisphere and Europe/Central Asia are included while the Middle East/Africa dummy is excluded. Robust standard errors are shown in parenthesis and ***, **, * represent p<0.01, 0.05 and 0.10 respectively.

VARIABLES	(1) pp5	(2) pp5	(3) pp5
Hofstede Individualism	0.117**		
	(0.0547)		
WVS Individual Responsibility		2.313*	
		(1.321)	
Schwartz Embededness			-8.323
			(5.304)
Linear ln_Income Per Capita	2.321***	3.202***	3.137***
	(0.712)	(0.641)	(1.007)
Distance from Equator	0.0687	0.105*	0.0947
	(0.0637)	(0.0567)	(0.0866)
log_Wheat:Sugar Ratio	-12.65***	-11.98***	-12.10***
	(3.340)	(3.466)	(3.925)
Natural Resource Exporters	-0.657	0.00994	-1.576
	(1.454)	(1.392)	(2.026)
Muslim Share in 1900	0.00286	1.816	2.693
	(2.531)	(3.006)	(5.350)
Total Democratic Nations in that Year	0.115***	0.141***	0.218***
	(0.0389)	(0.0369)	(0.0835)
5 Year Pre-Transition Polity	0.0117	0.0327	-0.0522
	(0.108)	(0.107)	(0.134)
New State	2.578**	3.579***	5.454***
	(1.059)	(1.098)	(1.366)
Constant	-26.56***	-45.92***	-6.973
	(5.101)	(8.570)	(22.84)
Observations	136	142	91
R-squared	0.362	0.372	0.472
First Stage F- Statistic	48.75	7.62	22.15
OIR Test p-value	0.4641	0.1617	0.5324

Table 14: The effect of instrumented individualism on post-transitional levels of democracy when included with multiple controls. The time period variables are included but not shown, and the "Present" time period is omitted. The number of observations and R^2 are shown. The first stage F-statistic and p-value from the overidentifying restrictions test is shown as well. Regional variables are included in this model, but not shown. East/South Asia, the Western Hemisphere and Europe/Central Asia are included while the Middle East/Africa dummy is excluded. Robust standard errors are shown in parenthesis and ***, **, * represent p<0.01, 0.05 and 0.10 respectively.

Nation	Included Control	Previous Level of Democracy	Predicted Post-Transitional Level of Democracy (Hofstede Individualism)	Predicted Post-Transitional Level of Democracy (Hofstede Power-Distance)	Predicted Post-Transitional Level of Democracy (WVS)	Predicted Post-Transitional Level of Democracy (Instrumented Hofstede)	Predicted Post-Transitional Level of Democracy (Instrumented WVS)
Egypt	Income	-3	7.27	7.77	6.55	7.66	6.82
Egypt	Primary Enrollment	-3	6.41	7.16	6.91	7.45	7.27
Egypt	Colonization History	-3	12.63	13.88	10	11.28	9.91
Egypt	Muslim Share in 1900	-3	4.29	5.09	3.92	5.74	5.12
Egypt	Natural Resources	-3	8.23	8.97	7.88	9.27	7.23
Egypt	Composite Model	-3	11.98	12.31	8.72	11.39	10.86
Iran	Income	-6.6	8.91	9.35	8.94	10.66	9.99
Iran	Primary Enrollment	-6.6	8.01	8.83	8.73	9.64	8.91
Iran	Muslim Share in 1900	-6.6	4.45	4.94	3.81	7.3	6.18
Iran	Natural Resources	-6.6	6.98	7.11	6.15	9	6.5
Iraq	Income	3	7.61	5.36	5.63	8.03	5.46
Iraq	Primary Enrollment	3	7.85	5.78	7.8	9.14	8.45

Iraq	Colonization History	3	11.98	9.91	9.3	10.53	8.49
Iraq	Muslim Share in 1900	3	4.78	3	3.79	6.55	5.26
Iraq	Natural Resources	3	6.7	4.11	5.12	7.41	4.4
Iraq	Composite Model	3	8.84	6.58	5.16	8.36	7.49
Jordan	Income	-3			6.32		
Jordan	Primary Enrollment	-3			7.07		7.44
Jordan	Colonization History	-3			10.06		9.85
Jordan	Muslim Share in 1900	-3			3.14		4.66
Jordan	Natural Resources	-3			4.82		4.17
Jordan	Composite Model	-3			7.64		10.82
Kuwait	Income	-7	9.2	8.14		9.94	6.52
Kuwait	Primary Enrollment	-7	6.5	5.41		7.51	
Kuwait	Muslim Share in 1900	-7	2.86	2.01		4.87	

Kuwait	Natural Resources	-7	7.94	6.75		9.2	
Kyrgyzstan	Income	-2			4.4		3.57
Kyrgyzstan	Primary Enrollment	-2			6.08		6.44
Kyrgyzstan	Colonization History	-2			8.91		7.06
Kyrgyzstan	Muslim Share in 1900	-2			3.53		4.9
Kyrgyzstan	Natural Resources	-2			7.84		6.12
Kyrgyzstan	Composite Model	-2			4.26		6.64
Libya	Income	-7	9.02	7.74		10.6	
Libya	Primary Enrollment	-7	7.69	6.61		9.2	
Libya	Muslim Share in 1900	-7	4.39	3.19		6.98	
Libya	Natural Resources	-7	6.69	4.93		8.5	
Mali	Income	7			6.19		6
Mali	Primary Enrollment	7			7.64		8.6
Mali	Colonization History	7			9.55		11.07

Mali	Muslim Share in 1900	7			9.12		10.33
Mali	Natural Resources	7			8.2		9.29
Mali	Composite Model	7			5.67		5.95

Table15: The post-transitional level of democracy in the above countries is predicted using 5 different models of post-political transition. Five different models are used because of the high level of model uncertainty. Each model predicts that there should be increases in the level of democracy in many of the Arab Spring nations after political transitions.