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The Role of Cultural Values in the Formation and Survival of Pro-Growth Institutions

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Abstract
This paper examines the link between culture and the development of institutions that promote economic growth. Specifically, we analyze the role that cultural norms play in the change and volatility of economic and political freedoms. We employ several empirical specifications to investigate the influence that informal cultural norms may have on the permanence of changes in economic and political institutions when controlling for existing levels of economic output, international trade, and educational attainment.

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I. Introduction

In *The Road to Serfdom*, Hayek explains how markets (economic freedom) will lead to a higher standard of living than central planning because the price system incorporates a lot of decentralized information—more information than a central planner could possibly obtain and employ. Hayek maintains that political freedom and economic freedom are linked, describing economic freedom as "the prerequisite of any other freedom." To Hayek, "only within this [capitalist] system is democracy possible. When it becomes dominated by a collectivist creed, democracy will inevitably destroy itself." Likewise, in *Capitalism and Freedom*, Friedman stresses the importance of property rights and describes a link between economic freedom and political freedom. He maintains that free enterprise is "a necessary condition for political freedom" and that free enterprise leads to economic growth.

This focus on institutions is an important component of the growth theory developed by North (1990), who asserts that institutions "are the underlying determinant of the long-run

performance of economies." North's theory fits well with the growth theory of Kuznets (1973), which specifically includes technology, institutions, and people's attitudes as important factors in sustained economic development. Kuznets (1973) states that growing economic capacity is "based on advancing technology and the institutional and ideological adjustments that it demands." The importance of people's attitudes is further explored by McCloskey (2010), who explains that the explosion of economic growth in the Western world beginning in the late eighteenth century (the Great Divergence) was due to increased respect for commerce. Hence, culture and the presence of certain institutions matter for growth, as do the evolution and adaptation of these institutions over time.

This paper examines the link between culture and the formation of institutions that promote economic growth. Specifically, we analyze the role that cultural norms play in the change and volatility of economic and political freedoms. We employ several measures of culture,[1] as well as several empirical specifications, to investigate the impact that informal cultural norms have on the permanence of economic and political institutional change when controlling for existing levels of economic output, international trade, and educational attainment.[2]

To better analyze the relationship between culture and progrowth institutions, we turn to Williamson's (2000) "hierarchy of levels of social analysis" that provides insight into the degree to which formal and informal institutions should play a role in economic analysis (see table 1). Williamson contends that the higher the level of social analysis, the more permanent are the associated characteristics. Further, each level imposes constraints on the levels below it. For example, a society's embedded informal institutions (level 1), which can take 100 to 1,000 years to change, will constrain the nature of the formal rules of the game (level 2). The formal rules, in turn, may constrain institutions that may lead to economic growth and political stability (level 3). These institutions will ultimately affect the allocation of resources (level 4).

[1] World Values Survey data, the KOF Globalization Index, and Fractionalization data.

[2] Measured by the Fraser Institute's Economic Freedom of the World Index and Freedom House's Political Rights and Civil Liberty Indexes.

Table 1. Williamson's Hierarchy of Social Analysis

Level	Description	Years to change
1	Embeddedness: informal institutions, customs, traditions, norms, and religion	100–1,000
2	Institutional environment: formal rules of the game, especially property (polity, judiciary, and bureaucracy)	10–100
3	Governance: play of the game, especially contracting (aligning governance structure with transactions)	1–10
4	Resource allocation and employment (prices and quantities, incentive alignment)	continuous

Guiso, Spaienza, and Zingales (2006) describe informal cultural institutions similarly, by differentiating between traits that are "inherited" (such as religion and ethnicity) and those that are "learned" (such as nationalism and culture). The authors note, however, that causality may work both ways. While the permanence of cultural institutions should affect formal institutions that lead to political stability and resource allocation, formal institutions should also have a reverse impact on the informal institutions. Coyne and Williamson (2012), for example, show that openness to trade significantly impacts the cultural institutions associated with exchange and entrepreneurship, such as trust and self-determination.

Using Williamson's hierarchy, the permanence of inherited cultural traits enables us to use the deeper aspects of ethnic and religious heterogeneity across countries (level 1) to analyze differences and variability in trust and beliefs about the rule of law and the polity (level 2). It follows from this general concept that differences in the more permanent informal institutions (levels 1 and 2) play a role in the persistence and survival of formal and less permanent institutions (level 3 and 4). To accomplish the latter, we take a broader interpretation of culture than Guiso, Sapienza, and Zingales (2006). As Alesina and Giuliano (2015) explain, a theoretical line can be drawn between values and beliefs, but most empirical studies combine the two. Our definition of culture includes both traditional, incredibly permanent values such as religiosity, ethnicity, and language as well as beliefs more associated with social capital, such as trust, self-reliance, and rationality. In essence, we are collapsing Williamson's first two levels into one category. This simplification allows us to view these more permanent institutions as

fixed and exogenous at any point in time so that we can focus on the implications of these "cultural" values on the permanence of shocks to formal economic institutions.

The next section reviews some of the earlier attempts to investigate the relationships among culture, institutions, and economic growth. We then review various measures of culture and explain the specific measures that we employ in this study before describing our empirical model and econometric results. Finally, we offer some concluding insights into the importance of culture in economic development.

II. Literature Review

A cannon of empirical literature clearly demonstrates the link between prosperity and institutions, particularly the institutions that foster economic freedom and political freedom.[3] De Haan, Lundström, and Sturm (2006) survey studies investigating the link between economic freedom and growth. They conclude that generally, economic freedom is an important determinant of economic growth, and that political freedom also contributes to economic freedom, though economic freedom may not contribute to political freedom. Aron's (2000) survey of the literature on political institutions and growth concludes that higher quality institutions are linked to economic growth, "but the evidence is by no means robust." A recent study by Hall and Lawson (2014) surveys the literature that cites the economic freedom index and concludes that higher economic freedom is overwhelmingly correlated with positive outcomes, including economic growth and other indicators of quality of life, such as happiness. The general conclusion of the institutions literature, then, is that economic freedoms, political freedoms, and civil liberties help to describe cross-country differences in economic growth, but that the link is stronger for the economic freedoms.

This explosion of work on economic institutions since the 1990s encouraged economists to go beyond studying formal institutions into studying informal institutions, which took them into the nature and role of culture. Economists such as Landes (1998) and Guiso, Sapienza, and Zingales (2006) emphasize the links from culture to beliefs and values, as well as from beliefs and values to economic

[3] See, for example, Barro 1997; Gwartney, Lawson, and Holcombe 1999; Acemoglu, Johnson, and Robinson 2001, 2002; Glaeser et al. 2004; Rodrik, Subramanian, and Trebbi 2004; Acemoglu and Johnson 2005; Sobel, Clark, and Lee 2007.

outcomes (see also Temple and Johnson 1998; Whiteley 2000; and Knack and Keefer 1997).

The "cultural values" literature shows that measures of trust, self-determination, respect for others, and openness also facilitate growth. Guiso, Sapienza, and Zingales (2006) provide a broad analysis of these conclusions. The authors demonstrate in various settings the role that inherited cultural norms such as religiosity and ethnicity play on institutional formation and the desire for government redistribution and general economic welfare. The authors, however, are quick to point out the inherent endogeniety problem that exists among institutional formation, cultural norms, and economic growth. In addition, Boettke, Coyne, and Leeson (2008) and Williamson (2000) argue that for *formal* institutions to survive, they must be rooted in *informal* institutions, indicating that informal institutions underlie certain formal institutional arrangements. Although formal institutions can be changed statutorily, constitutionally, or through other political means, informal institutions tend to change slowly because they are embedded in culture, norms, and traditions (Williamson 2000; North 1990). Therefore, informal institutions are likely to be much more permanent, but play an important role in the less permanent, but very important, formal institutions. Coyne and Sobel (2011), for example, show that changes in economic and political freedom indexes are cointegrated, suggesting that changes in one form of institution are accompanied by similar changes in other institutions. In addition, the authors find that indexes that measure economic institutions are nonstationary, suggesting a permanence to changes that is not found in measures of political freedom. This finding supports the hypotheses of Williamson's (2000) institutional hierarchy. Williamson suggests that informal institutions such as religiosity and ethnicity are the most permanent, while economic and political institutions are less permanent.

One view of the relationships among culture and economic and political institutions is offered by the modernization theory developed by Lipset (1959) and used by Inglehart and Welzel (2005) and others. This theory hypothesizes that as countries develop economically, the increased wealth causes cultural changes. According to Inglehart and Welzel (2005), technological and scientific progress leads not only to industrialization, but also to a secularized world view. Second, as industrialized economies transform into service-based economies, they increasingly rely on creativity and knowledge in the workplace. This increased capacity

for imagination and the economic growth and prosperity leads people to take basic survival for granted and allows them to focus on quality of life issues. Finally, modernization theory predicts that the cultural changes caused by economic development cause demands for political change toward democracy. Inglehart and Welzel (2005), using Granger causality, show that economic growth causes cultural change, which in turn causes changes in political institutions.

Modernization theory has been criticized on both theoretical and empirical grounds. Przeworski et al. (2000) use theoretical and empirical analysis to conclude that economic prosperity does not lead to democracy. Likewise, Acemoglu et al. (2009) show that increases in income are not necessarily linked to democratic reforms. Acemoglu and Robinson (2012) further criticize modernization theory, arguing that it is overly optimistic to presume that prosperity leads to cultural change in favor of democracy. They explain that modernization theory ignores the important difference between inclusive and extractive institutions that are needed for growth to be sustainable.

Much of the recent literature on the importance of sustainable institutions for growth examines the great divergence of the late eighteenth century when countries of the Western world experienced tremendous economic growth, leaving the rest of the world behind. McCloskey (2010) attributes the phenomenon to changing rhetoric about business and a new respect for the bourgeoisie. McCloskey's earlier (2006) work describes how the cultural adoption and practice of "bourgeois virtues . . . have been the causes *and consequences* of modern economic growth and political freedom."

Acemoglu and Robinson (2012) provide an institutions-based theory that the growth in the West diverged and has been sustained because it is built upon "inclusive economic and political institutions" instead of "extractive" ones. Inclusive economic institutions are ones that create equal opportunities, enforce rules of the game, and encourage innovation and investment in human capital, while extractive ones enable the elite few to expropriate wealth from the masses. Inclusive political institutions involve a diffusion of power and maintenance of the rule of law, while extractive ones concentrate power into the rule of man. In the divergent countries, the inclusive economic and political institutions interact to promote long-run economic growth.

While Acemoglu and Robinson (2012) criticize the hypothesis that the West and the rest diverged due to underlying cultural

differences, their model does allow a role for culture "in the sense that social norms, which are related to culture, matter and can be hard to change, and they also sometimes support institutional differences," which is the basis of their theory of why some nations fail to prosper. Our contribution to the literature, then, is to test the importance of culture as a determinant of sustainable progrowth institutions.

III. An Earlier Measure of Culture

While a theoretical relationship exists between culture and progrowth institutions, it may prove difficult to measure culture in an effective enough way to include in empirical models. There have been, however, many attempts at measures and processes to analyze cross-country differences in culture.

Adelman and Morris (1968) make an early attempt to measure cultural differences. They examine culture in order to help identify which less-developed countries have the most potential for development. The authors devise an index to measure the extent of modernization of the educated urban class in the country. The index is based on interviews and judgmental observations (of things such as the adoption of Western dress and the importance of civic groups). While the authors admit that future work should be based on more objective measures, they nonetheless find an empirical link between modernization and the potential for economic development.

The first detailed survey study of cultural dimensions is by Hofstede (1980), who performed a values survey of IBM employees across countries. He defines cultural dimensions that are pertinent for success in international business. Schwartz (1999) provides another measure of culture related to the workplace. His measure includes conservatism vs. intellectual autonomy, hierarchy vs. egalitarianism, and mastery vs. harmony.

The cultural dimensions included in these three cultural measures may be theoretically important for economic growth. These measures, however, have not been kept up to date or are only available for a limited number of countries, so they are not very useful for analyzing changes in institutions over time. The three sets of cultural measures described below—the World Values Survey, KOF Globalization Index, and Fractionalization data—are available for many countries for relatively recent years, so these are the indicators we use for our empirical analysis.

IV. Data and Empirical Analysis

Our empirical analysis builds on the general understanding of the role that culture plays in formal institutional change. To accomplish our task, we estimate whether existing cross-country differences in informal cultural attitudes impact changes in and the volatility of formal economic and political institutions. While there has been a general trend since 1980 of increased levels of economic and political freedom (see Coyne and Sobel 2011), our empirical analysis focuses on the impact of culture on the degree of long-term change of formal progrowth economic and political reforms; we use multiple cultural variables for our analysis.

We use a panel data set of ninety-nine countries collected in five-year increments from 1985 through 2015. A broad-based measure of economic institutions was collected from the Fraser Institute's Economic Freedom of the World Index. The index has five broad categories or "areas" of market-oriented policies and institutions: size of government, legal structure and security of property rights, access to sound money, exchange with foreigners, and regulation of credit, labor, and business. Each of these areas encompasses a variety of individual components that are assigned a score ranging from 0 to 10, with higher values representing greater levels of market liberalization. Each of these components are calculated by a simple average of their multiple subcomponents. The simple average of the five area components then determines the overall economic freedom score.

The average change in economic freedom from 1985 through 2015 for the ninety-nine countries in our sample is 1.59, with a standard deviation of 1.17. More importantly, only four countries in our sample have seen their economic freedom scores decline over the thirty-year period. The greatest improvements were in area 3 (sound money) and area 4 (outward orientation), and smallest were in area 1 (size of government) and area 5 (regulation of business). This, perhaps, suggests that the globalization of international trade and the role of external organizations such as the World Trade Organization and the International Monetary Fund have had a significant impact on the growth of progrowth institutions.

The level of democracy was measured using the Polity IV Index from Systemic Peace. This index examines "concomitant qualities of democratic and autocratic authority in governing institutions, rather than discreet and mutually exclusive forms of governance." The Polity Index consists of six component measures that record key qualities of executive recruitment, constraints on executive authority,

and political competition. It also records changes in the institutionalized qualities of governing authority. The Polity Score captures this regime authority spectrum on a 21-point scale ranging from –10 (hereditary monarchy) to +10 (consolidated democracy). The Polity Scores can also be converted into regime categories in a suggested three-part categorization of "autocracies" (–10 to –6), "anocracies" (–5 to +5, and "democracies" (+6 to +10). In our analysis, we use the Polity2 variable, which measures the net of the democracy and autocracy scores, but leaves out any countries that are listed as "undefined" or in a state of significant political transition. The average change in the Polity2 score for the period 1985–2015 was 5.29, with a standard deviation of 7.9. A total of seven countries saw net declines in their level of democracy, and nineteen showed no change whatsoever.

To capture culture, we focus on identifying characteristics relevant to social and economic interaction that should not be directly affected by the past or present formal institutions in place. Our data include a number of different measures for cultural values spanning thirty years. Cultural variables were collected entirely from the World Values Survey and are measured in six waves: 1981–1984, 1990–1994, 1995–1998, 1999–2004, 2005–2009, and 2010–2014. Values from each wave were recorded in the nearest future period, such that wave 1 results were listed in the 1985 sample year. The development of the World Values Survey (WVS) dataset has facilitated recent research into the importance of cultural values (see Inglehart and Norris [2004] and Inglehart and Welzel [2005]). Surveys have been done in "waves" by an international network of scholars administering detailed common questionnaires and in-person interviews in about 100 countries. The detailed international survey data are ultimately aggregated into two summary measures for each country called Traditional/Secular-Rational and Survival/Self-Expression values, and we use these aggregates in our models.

Inglehart and Norris (2004) explain that the Traditional/Secular-Rational score indicates how important religion and traditional family values are in the country. People in traditional cultures place a high value on respect for authority, whereas secular-rational people are more independent. Independent thought may lead to higher creativity and economic growth. Inglehart and Welzel (2005) focus on the Survival/Self-Expression indicator, which measures the extent to which people in the culture are more concerned about basic material well-being or about individual freedom and the ability to express

themselves. People in survival cultures are less trusting of others and less likely to value participation in civic activities than those in self-expressive cultures. Participation in civic activities is a sign of high social capital (trust) that increases the capacity for specialization and economic growth.

Research by Tabellini (2010), and later expanded upon by Williamson and Kerekes (2011, identifies cultural traits that serve as incentives and constraints on entrepreneurial behavior and economic development. These researchers break "economic" cultural variables into four categories: trust, control and individual self-determination, respect, and obedience. Tabellini (2010) and Harper (2003) argue that trust, respect, and self-determination encourage social interaction and exchange. Obedience, on the other hand, will likely negatively affect economic development by hindering risk-taking behaviors that lead to entrepreneurial growth activities.

We use both the aggregate measures for the WVS Survival/Self-Expressive (SURVSELF) and Traditional/Secular-Rational (TRADRAT), measured from 1985 through 2010, and the often-used components for social trust (TRUST) and civic engagement (CIVIC), both measured from 1985 through 2015. Trust is measured by the percentage of people who responded positively to the question "most people can be trusted." Our Civic variable is the average score of three questions: (1) Is it justifiable to take government benefits you are not entitled to? (2) Is it justifiable to skip a fare on public transportation? and (3) Is it justifiable to cheat on your taxes? These questions are scored on a 10-point Likert scale, where 1 represents "it is never justifiable" and 10 represents "it is always justifiable." Since, according to modernization theory, countries that are more secular and hold self-expressive values are expected to have higher rates of institutional quality, the expected signs for these aggregate and component measures would be positive and negative, respectively.

In addition to these measures, we also use selected questions from the Schwartz Index, which has been collected as part of the WVS starting with wave 5. These questions pertain only to a person's beliefs about life, outside the context of formal policy-related institutions such as economic reform or political freedom. Again, we focus on questions pertaining to trust, control, self-determination, respect, and obedience. Specifically, we look at responses to the following questions: (1) Is it important to this person to take risks? (2) Is it important to this person to help others and society? (3) Is it important to this person to be secure? (4) Is it important to this

person to act properly within social norms? and (5) Is it important to this person to maintain traditions? Answers are given on a 10-point scale, where 1 represents "very much describes" and 10 represents "not at all describes." We use the mean score for a country. Since these data are only available for 2010 and 2015 regressions, they are smaller than the other regressions.

Finally, following Alesina et al. (2002) and Guiso, Sapienza, and Zingales (2006), we include two measures of cultural fractionalization as a way to measure cultural heterogeneity within a country. Desmet, Ortuna-Ortin, and Wacziarg (2015) create a set of measures using the first five waves (1985–2010) of the WVS that look at the difference in responses across ethnic backgrounds. The first measure we use, the cultural fractionalization index (CFRAC), "measures the average probability that two randomly drawn individuals from a population give different answers to a randomly drawn question." This measure is slightly different than the standard fractionalization measures used because ethnicity does not matter. Rather, it measures a level of general "antagonism" across individuals within a country (Desmet, Ortuna-Ortin, and Wacziarg 2015). Specifically, this variable measures the degree to which the entire society holds similar cultural views. The second measure is the fixation index (FST), which measures the share of between-group (ethnolinguistic) heterogeneity in overall cultural heterogeneity. This measure provides information on the amount of a country's cultural fractionalization that can be accounted for by ethnolinguistic differences, similar to the ethnic and linguistic fractionalization measures developed by Alesina et al. (2002). These measures allow us to control for informal institutional differences in beliefs that are likely to be the most permanent of informal attitudes within a country, differentiating from those cultural values that may be associated with or influenced by social interactions (social capital). While fractionalization measures do not represent a specific cultural component, they do play a role in the ability of formal institutions to be widely accepted within a country. It is expected that more fractionalization would hinder the development of formal economic and political freedoms as well increase the volatility of these measures over time, so the coefficients on these variables are expected to be negative. Table 2 provides the correlation between our cultural measures.

Table 2. Institutional Variables Correlation Matrix, 2010

Correlation, 2010	CFRAC	CIVIC	FST	SHELP	SPROPER	SRISK	SSECURE	STRAD	SURV SELF	TRAD RAT	TRUST
CFRAC	1.000										
CIVIC	0.239	1.000									
FST	0.007	0.066	1.000								
SHELP	0.127	–0.024	0.122	1.000							
SPROPER	0.203	–0.094	–0.139	0.439	1.000						
SRISK	0.102	–0.016	–0.525	0.295	0.536	1.000					
SSECURE	0.150	–0.116	0.031	0.522	0.708	0.364	1.000				
STRAD	0.321	–0.148	–0.310	0.500	0.718	0.441	0.664	1.000			
SURVSELF	0.544	–0.173	–0.208	0.035	0.503	0.165	0.354	0.581	1.000		
TRADRAT	0.249	–0.028	–0.198	0.384	0.726	0.507	0.624	0.668	0.162	1.000	
TRUST	0.125	–0.288	0.145	0.221	0.598	0.132	0.480	0.422	0.171	0.288	1.000

Several empirical studies have looked at the impact of factors on economic and political freedom, though few have specifically incorporated cultural values as explanatory variables. Using a specification designed by Knedlik and Kronthaler (2007) and modified by Dreher and Rupprecht (2007) and Hecklemen and Knack (2008), we specify the following equations for the fifteen-year change in economic and political freedoms, respectively.

(1) Change in Econ Free = $\alpha + \beta_1 \log(\text{GDP}) + \beta_2$ GINCOME + β_3 (SCHOOL) + β_4 TRADE + β_5InitialECONFREE + β_6POLFREE + β_D DREGIONS + β_{15}+ Culture$_i$ + ε;

(2) Change in Pol Free = $\alpha + \alpha + \beta_1 \log(\text{GDP}) + \beta_2$ GINCOME + β_3 (SCHOOL) + β_4 TRADE + β_5InitialPOLFREE + β_6ECONFREE + β_D DREGIONS + β_{15}+ Culture$_i$ + ε;

Control variables include the initial level of economic freedom and the initial level of political freedom, as well as the average value for political freedom (economic freedom) over the sample period. Initial economic freedom (and initial political freedom in equation 2) captures any regression-to-mean effect, as countries with higher values in the initial period have less room for improvement than those with lower initial values. We also include the initial level of GDP per capita (logged), average annual per capita income growth (measured by purchasing power parity), average years of schooling, and average level of trade as a percentage of GDP. All of these

measures come from the World Bank's World Development Indicators database. Higher-income countries may be prone to reform, for a given level of institutional development. Rapid growth may disrupt special interests that would otherwise attempt to block reforms. Controlling for income and growth may also capture any tendency for the subjectively assessed components of the index to be inferred from economic performance. Controlling for education level proxies for sustained economic development, which may encourage both increased promarket economic institutions as well as more self-expression in political institutions. Trade volume is included to control for the impact of openness and globalization on economic and political reform. Finally, we include regional dummy variables to account for spatial similarities and cultural similarities across the world. Table 3 includes the descriptive statistics for our regression variables based on their individual sample sizes.

Table 3. Individual Sample Descriptive Statistics

Var. Name	Mean	Median	Max.	Min.	Std. dev.	Obs
SCHOOL	7.801	8.110	13.180	0.780	2.702	588
CIVIC	2.383	2.267	4.300	1.233	0.582	206
EF	6.386	6.530	9.110	2.000	1.294	574
FIXATE	0.011	0.007	0.059	0.000	0.012	282
GDP per capita	110210.60	12652.18	19068466.00	561.26	991972.60	567
INCOME	4.068	4.159	20.213	–13.876	3.999	473
PF	5.434	8.000	65.000	–9.000	7.908	542
SHELP	2.303	2.250	3.460	1.660	0.379	42
SPROPER	2.667	2.600	3.750	1.620	0.484	42
SRISK	3.896	3.970	4.840	2.650	0.493	42
SSECURE	2.512	2.435	3.610	1.670	0.501	42
STRADITION	2.634	2.630	4.220	1.280	0.581	42
SURVSELF	0.062	–0.035	2.350	–1.880	1.007	178
TRADE	80.927	68.194	440.309	12.678	55.929	571
TRADRAT	–0.073	0.075	1.960	–2.060	1.044	178
TRUST	0.286	0.250	0.742	0.028	0.157	238

V. Estimation and Results

To estimate our base equations, we use a differenced panel ordinary least squares approach, where multiple fifteen-year changes (1980–2010) in the dependent variables are estimated on the assumption of

a constant variance across the independent variables. Since there are different measurement periods for the cultural variables, each regression equation will have differing numbers of periods (three to five) and observations based on the amount of available information between fifteen-year periods. All equations were estimated with White's corrected standard errors. We use a first difference model to account for time invariant effects within the sample. Due to the relative stationarity of our cultural variables over time and the small sample size in cross-sections for a number of our cultural measures, we use this structural form in lieu of a fixed effects model. We include regional dummy variables to account for geographic and other spatial similarities between countries. An *F*-test of the regional dummies showed them to be significant in our base models. Further, a test of the included variables showed no correlation between our regression estimate and the error term of the regressions.[4] In an effort to show the stability of our base results over time, we also include results for the entire sample period of thirty years as a purely cross-sectional analysis.

Table 4 reports the results for our base regressions of economic and political freedom. The results are consistent with previous studies, in that the initial level of output is negative (though insignificant), but sustained increases in income lead to greater increases in economic freedom but smaller increases in political freedom. Higher average levels of education and trade are positively related to increases in fifteen-year changes of economic freedom but are otherwise insignificant over the longer thirty-year period. While positive, education and trade are insignificant in determining the level of change in political freedom. The coefficients for the initial levels of economic and political freedom are negative and statistically significant, suggesting that countries that start with higher initial levels of formal institutions will see less growth over time.

[4] We also estimated our model as a generalized method of moment approach. Under this approach, we treated both changes in economic freedom and changes in political freedom as endogenous and added average growth in the population and international trade as a percentage of income as additional instruments. Our results were not significantly different from our OLS results and the *p*-value on *j*-statistic suggested that the instruments were overidentified.

Table 4. Economic and Political Freedom

	Change in economic freedom		Change in political freedom	
Variable	15-year (panel)	30-year	15-year (panel)	30-year
Constant	4.044	5.335	–3.788	–12.807
	–11.537	7.373	–1.203	–1.595
Log(GDP per capita)	0.013	0.000	0.302	0.000
	–0.380	0.685	1.412	0.210
Income	0.070	0.150	–0.256	–0.377
	2.638	2.731	–1.688	–0.874
School	0.085	0.017	–0.207	0.210
	4.075	0.387	–1.181	0.649
Trade	0.001	0.001	–0.006	–0.013
	1.624	0.694	–0.854	–1.043
Initial EF	–0.700	–0.847	1.058	2.936
	–16.644	–10.196	2.467	2.713
Average EF			1.354	2.508
			2.977	2.213
Initial PF	0.009	0.041	–0.302	–0.879
	1.121	1.828	–6.387	–10.226
Average PF	0.023	0.048		
	2.477	2.213		
East Asia	–0.451	–0.597	1.420	0.000
	–2.861	–1.501	0.964	0.000
Europe/C. Asia	0.053	0.056	–0.538	0.152
	0.463	0.169	–0.491	0.063
Latin America	–0.099	–0.276	0.147	2.315
	–0.771	–0.810	0.135	0.942
Middle East/N. Africa	–0.278	0.031	–2.503	–4.103
	–1.718	0.080	–1.904	–1.508
Southern Asia	–0.376	–0.605	–1.274	–0.271
	–2.004	–1.478	–0.993	–0.089
South America	–0.222	–0.828	–1.055	0.867
	–1.479	–1.790	–0.763	0.248
Num. Obs.	295	50	295	50
Adj R2	0.621337	0.883435	0.2296	0.802803
F-statistic	35.46805***	20.98773***	6.441977***	16.34478***

*** denotes significance at the 1 percent level.

Table 5. Estimates of Cultural Measures on Change in Economic Freedom

	15-year change (panel)	1995–2010	30-year change	Non-OECD	OECD
SURVSELF	–0.905491	–0.752577	0.268176	0.655618	–0.337879
t-stat	–1.027639	–1.016771	0.1474	0.362389	–0.942007
Num. Obs	83	37	36	42	41
R-squared	0.646966	0.523819	0.828876	0.491091	0.9702
TRADRAT	0.194585	0.528899	–1.552889	0.091354	0.098758
t-stat	0.340107	0.901235	–1.935837	0.085375	0.546856
Num. obs	83	37	36	42	41
R-squared	0.642093	0.521354	0.854639	0.489179	0.969657
TRUST	–0.688756	–0.791173	–0.162695	–3.425584	–2.719692
t-stat	–0.179845	–0.124874	–1.867523	–0.677452	–0.593687
Num. obs	142	33	40	60	57
R-squared	0.235534	0.140385	0.911119	0.484491	0.266359
CIVIC	–0.110178	–1.409874	–0.37016	0.497018	3.119588
t-stat	–0.107765	–1.03385	–0.288082	0.433425	2.516184
Num. obs	131	33	40	52	57
R-squared	0.222115	0.197236	0.902511	0.445634	0.355499
SRISK	–0.47594	0.881837	0.277989	–0.110292	2.08163
t-stat	–0.181062	0.408174	1.114139	–0.043218	1.218217
Num. obs	54	32	22	16	16
R-squared	0.31034	0.115703	0.881159	0.52927	0.951281
SHELP	–2.492548	–1.194406	–0.00352	2.956794	–0.993666
t-stat	–0.795042	–0.51265	–0.00681	0.746297	–0.843437
Num. obs	52	32	22	16	16
R-squared	0.31798	0.11936	0.868301	0.563847	0.9464
SSECURE	0.317455	–0.249806	0.703817	2.851319	1.499746
t-stat	0.116541	–0.128221	1.361064	0.825472	1.322576
Num. obs	54	32	22	16	16
R-squared	0.310001	0.109933	0.886402	0.570913	0.952758
SPROPER	1.605941	–0.824444	0.450003	2.491076	1.283348
t-stat	0.55031	–0.360521	1.145917	0.77662	1.306925
Num. obs	54	32	22	16	16
R-squared	0.315079	0.114302	0.8818	0.566496	0.952534
STRADITION	1.615495	0.297525	–0.09614	3.996169	0.977219
t-stat	0.563838	0.139136	–0.29169	1.298679	0.728714
Num. obs	54	32	22	16	16
R-squared	0.315342	0.110046	0.869789	0.620565	0.945116
CFRAC	23.44278	–0.485132	–23.57676	15.07433	12.02013
t-stat	2.442817	–0.031842	–0.539132	0.95691	1.523049
Num. obs	151	33	24	67	57
R-squared	0.667395	0.75784	0.909216	0.61361	0.96659
FST	92.69862	44.70285	243.8669	77.10342	–77.07682
t-stat	3.125516	1.02244	1.09813	2.00553	–2.627161
Num. obs	151	33	24	67	57
R-squared	0.676069	0.767938	0.917357	0.632963	0.969329

Table 6. Estimates of Cultural Measures on Change in Political Freedom

	15-year change (panel)	1995–2010	30-year change	Non-OECD	OECD
SURVSELF	0.303	–0.096	0.171	0.874	0.142
t-stat	1.430	–0.900	0.563	1.216	1.463
Num. obs	62	28	36	31	31
R-squared	0.739	0.919	0.879	0.804	0.922
TRADRAT	–0.158	0.048	0.015	–0.062	–0.145
t-stat	–1.294	0.566	0.095	–0.275	–2.657
Num. obs	62	28	36	31	31
R-squared	0.730	0.918	0.877	0.783	0.933
TRUST	–0.428	–0.259	–0.002	0.400	0.676
t-stat	–0.681	–0.462	–0.096	0.449	2.060
Num. obs	113	35	40	50	48
R-squared	0.882	0.905	0.880	0.770	0.836
CIVIC	–0.085	–0.203	0.214	–0.147	–0.040
t-stat	–0.959	–1.768	0.980	–0.856	–0.396
Num. obs	113	35	39	43	48
R-squared	0.803	0.913	0.872	0.870	0.824
SRISK	0.072	–0.177	–0.476	–0.485	0.425
t-stat	0.327	–0.884	–0.181	–2.047	2.076
Num. obs	54	32	54	16	18
R-squared	0.841	0.903	0.310	0.997	0.959
SHELP	–0.179	–0.211	–2.493	0.036	0.187
t-stat	–1.012	–1.139	–0.795	0.046	1.321
Num. obs	52	32	52	16	16
R-squared	0.867	0.904	0.318	0.984	0.948
SSECURE	–0.051	–0.111	0.317	–0.385	–0.045
t-stat	–0.275	–0.600	0.117	–0.839	–0.239
Num. obs	54	32	54	16	16
R-squared	0.841	0.901	0.310	0.884	0.942
SPROPER	–0.013	–0.202	1.606	0.212	–0.115
t-stat	–0.071	–0.958	0.550	0.102	–0.601
Num. obs	54	32	54	16	16
R-squared	0.841	0.904	0.315	0.984	0.944
STRADITION	–0.040	–0.135	1.615	0.592	0.288
t-stat	–0.190	–0.691	0.564	0.140	2.317
Num. obs	54	32	54	16	16
R-squared	0.841	0.902	0.315	0.984	0.957
CFRAC	–0.247	–1.033	–5.369	–2.944	5.519
t-stat	–0.159	–0.313	–0.989	–1.082	2.251
Num. obs	123	33	24	52	45
R-squared	0.772	0.779	0.949	0.728	0.895
FST	3.660	–16.161	–9.545	11.781	35.703
t-stat	0.412	–2.855	–0.287	1.611	3.167
Num. obs	123	33	24	52	45
R-squared	0.772	0.782	0.846	0.583	0.549

Tables 5 and 6 provide the coefficient results for the addition of our cultural measures to our base regressions for economic and political freedom. We ran a number of alternate specifications in order to provide additional analysis. For parsimony, we present only the coefficient results, *t*-statistics, *R*-squared, and number of observations for the culture measures. The coefficients and statistical relevance from our base regressions are consistent across all specifications that include the cultural measures.

The results indicate that cultural attitudes as measured by the WVS do not significantly influence economic freedom. In table 5, columns 1, 2, and 3 provide results for our fifteen-year panel, fifteen-year cross-section, and thirty-year cross section, respectively. In the panel regressions, only our "antagonism" and "fractionalization" measures are significant. The positive signs on these two measures suggest that countries with greater percentages of differing cultural views have faster growth in economic freedom. Given that this measure is fixed across time periods, the positive coefficients suggest that more diverse countries have seen more significant market liberalization than those that are more homogeneous. This result supports the idea that markets provide opportunity across ethnic and social differences. In our thirty-year cross-section model, higher rational values and trust led to slower relative growth rates. This finding supports the idea that nations with high levels of rational ideals and trust in one another already have higher levels of economic freedom.

Columns 4 and 5 test whether the starting level of economic development may change the impact of culture on promarket reforms. Again, it appears that the cultural values analyzed have little to no statistical impact on the increase in a country's development of progrowth economic institutions.

The results for the impact of culture as measured by WVS data on the amount of political freedom are negligible. On one hand, the adoption of self-expressive values is associated with higher levels of political freedom. On the other hand, the movement away from traditional values and toward secular values is associated with lower political freedom. This result could be influenced by the rise of Asian countries that tend to have more economic freedom while maintaining very narrow command-and-control political regimes.

Given the results from our initial estimates, table 7 provides some alternate approaches. In columns 1 through 5, we replace the Overall EFI score with the scores of its components because the Overall EFI

score may not be as sensitive to cultural differences as its components are. The right-hand side of the equation is specified the same as the base panel regression, with the initial area level replacing the initial level of the overall score. The results are similar to our results in table 4, though SCHOOL and TRADE are positive and significant in all area regressions. The results show a much greater impact of our cultural measures, especially in area 1 (size of government), area 2 (property rights), and area 4 (openness). Our results in area 1 support the general finding that the size of government is growing over the sample period. The area 2 and area 4 results provide the most interesting story. As we would expect, nations with stronger levels of trust, self-reliance, and civic belief have seen larger growth in property rights institutions than those that hold more traditional values and have lower levels of civic responsibility. These same measures, especially self-reliance, also suggest an increase in institutions that promote openness. Higher levels of security (SSECURE), on the other hand, reduce the amount of change in openness. These results support the work of Dreher (2006) and Coyne and Williamson (2012), which suggest that openness is the key component to progrowth institutional formation.

Table 7. Alternative Specifications for Cultural Measures

	Area 1	**Area 2**	**Area 3**	**Area 4**	**Area 5**	**PRCL**
SURVSELF	–0.1912	0.397954	0.300279	0.431034	0.002376	–1.95614
t-stat	–0.62427	1.682749	0.633527	1.885729	0.014619	–2.44438
Num. obs	83	82	83	83	81	65
R-squared	0.203074	0.350663	0.615796	0.724046	0.608776	0.304797
TRADRAT	–0.44329	0.264589	0.235602	0.137273	0.049303	0.548079
t-stat	–2.48788	1.367873	0.975474	1.127405	0.512349	1.158749
Num. obs	83	82	83	83	81	65
R-squared	0.260698	0.348968	0.617667	0.71553	0.610705	0.248637
TRUST	–2.45966	2.548446	0.335828	0.243294	0.440394	1.717187
t-stat	–3.97896	3.846597	0.449998	0.52284	1.481204	0.833818
Num. obs	141	141	142	142	142	104
R-squared	0.391304	0.392309	0.702358	0.748843	0.658496	0.222471
CIVIC	–0.07541	–0.40034	–0.24485	0.134015	–0.038	–0.71084
t-stat	–0.47366	–2.82067	–1.22357	0.830854	–0.55466	–1.31929
Num. obs	53	130	131	131	130	94
R-squared	0.327636	0.307394	0.729987	0.760638	0.680818	0.188404

	Area 1	Area 2	Area 3	Area 4	Area 5	PRCL
SRISK	0.317213	0.038238	–0.0754	0.07028	–0.14055	–0.36297
t-stat	1.134784	0.273946	–0.27058	0.301973	–0.9066	–0.37264
Num. obs	53	54	54	54	52	51
R-squared	0.530707	0.643066	0.922992	0.681323	0.743198	0.327501
SHELP	–0.66561	–0.07799	–0.31696	–0.27165	0.159413	–0.39585
t-stat	–2.32192	–0.41099	–1.18065	–1.34083	0.938457	–0.38338
Num. obs	53	54	54	54	52	51
R-squared	0.555803	0.632943	0.924179	0.715944	0.740507	0.327727
SSECURE	–0.37051	0.157277	–0.27003	–0.3515	0.255891	0.009353
t-stat	–1.00879	0.862595	–0.95291	–1.82117	1.535129	0.011146
Num. obs	53	54	54	54	52	51
R-squared	0.533083	0.648388	0.924203	0.699086	0.748438	0.323613
SPROPER	–0.53245	0.230174	–0.53242	–0.13352	0.308917	–0.60043
t-stat	–1.79006	1.146612	–1.71172	–0.66449	1.484304	–0.60828
Num. obs	53	54	54	54	52	51
R-squared	0.541589	0.651894	0.926799	0.682436	0.749547	0.333879
STRADITION	–0.58037	0.241703	–0.44324	–0.08926	–0.13838	–0.90075
t-stat	–2.32333	1.28996	–1.43504	–0.39583	–0.50945	–1.05159
Num. obs	53	54	54	54	52	51
R-squared	0.554395	0.655145	0.926248	0.681588	0.74267	0.353403
CFRAC	–9.89285	4.694919	–3.8039	6.013482	–0.1078	–23.113
t-stat	–3.5931	1.605298	–0.84994	1.902797	–0.06465	–2.30694
Num. obs	150	150	151	151	149	100
R-squared	0.323112	0.362552	0.725365	0.741869	0.601425	0.289778
FST	11.5356	17.36175	–8.2951	–13.0253	11.18018	–26.4214
t-stat	1.728036	2.296185	–0.82161	–2.10086	2.980875	–1.0016
Num. obs	150	53	151	151	149	100
R-squared	0.278919	0.372804	0.724768	0.739301	0.616322	0.256439

Column 6 in table 7 provides an alternative measure of political freedom, Freedom House's Political Rights and Civil Liberties Index. Political rights and civil liberties can take a value of 1 (mostly free) to 7 (not free). We sum the two measures so that a country with the highest level of political freedom will have a value of 2 while one with the least amount of freedom will have a value of 14. This measure provides slightly more variation across both time and space; further, it supports individual rights over structural government form. Again, the right-hand side of our model stays the same as our base model. Our coefficient results for our base coefficients are similar, though

INCOME is much more significant across cultural specifications, supporting the findings of Farr, Lord, and Wolfenbarger (1998). The results for our cultural measures are similar to those provided in column 1 of table 6. We do find negative and significant results for self-reliance, suggesting that nations with higher levels of self-reliance have seen a greater increase in political rights relative to those nations with higher levels of survival tendencies. Our results for fractionalization differ from those of Dreher and Rupprecht (2007), who show that linguistic fractionalization reduces the level of economic freedom in a country. In our case, our antagonism measure plays a positive and significant role in the growth of political rights. One potential hypothesis for this finding is that diverse communities push for formal political institutions as a way to protect and encourage trade.

VI. Volatility

While the general trend in both our economic freedom measures have been positive, and the political change has been relatively stable for our sample of countries, it is possible that culture could play a role in the volatility of growth trends over the past thirty years. We would expect that countries with higher levels of trust and civic responsibility, as well as those with higher levels of self-reliance and rational values, would be more accepting of change, seeing less volatility over a thirty-year period.

We focus here only on the volatility of economic freedom, as there is simply not enough variation and volatility in either of the two political measures we have investigated. We estimate a model equivalent to our original base models, but we use the coefficient of variation, the standard deviation normalized by the mean, in economic freedom as our dependent variable. The standard deviation and mean were calculated using all of the available five-year observations over the entire thirty-year period. Our regression is estimated cross-sectionally over the entire thirty-year period. Regional dummy variables were estimated in each equation, but for space were not included in the results.

Our results are as predicted. Higher levels of rational views, trust, and civic responsibility all have a significant impact on reducing the volatility of changes in economic freedom. This result supports the idea that trust and a responsibility to others are important as economies transform and grow as the result of market liberalizing policies.

Table 8. 30-Year Relative Volatility in Economic Freedom

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
C	0.461	0.446	0.424	0.446	0.379	0.313	0.525
t-stat	9.788	7.870	8.070	9.073	5.725	1.417	7.365
log(GDP per capita)	–1.12E–06	–8.01E–07	–8.81E–07	–6.96E–07	–8.04E–07	–1.23E–06	–1.56E–06
	–1.993	–1.109	–1.345	–1.070	–1.243	–1.421	–1.858
INCOME (growth)	–0.005	–0.009	–0.008	–0.006	–0.004	–0.005	–0.011
	–0.983	–1.559	–1.509	–1.093	–0.703	–0.609	–1.419
SCHOOL	–0.001	0.003	0.003	0.002	0.000	–0.002	0.001
	–0.175	0.517	0.577	0.512	0.068	–0.304	0.081
TRADE	0.000	0.000	0.000	0.000	0.000	0.000	–0.001
	0.510	0.569	0.446	0.093	0.122	–0.983	–1.258
Initial EF	–0.058	–0.057	–0.056	–0.055	–0.056	–0.062	–0.063
	–7.818	–5.496	–5.705	–6.300	–5.813	–4.656	–4.812
Initial PF	0.001	0.002	0.002	0.001	0.001	0.002	0.003
	1.306	1.045	1.236	0.959	1.242	1.097	1.480
SURVSELF		–0.017					
		–0.945					
TRADRAT			–0.020				
			–2.363				
TRUST				–0.002			
				–1.735			
CIVIC					0.026		
					1.875		
CFRAC						0.390	
						1.005	
FIXATE							2.023
							1.279
Num. obs.	53	39	39	43	42	27	27
Adj. *R*-squared	0.675	0.670	0.712	0.713	0.703	0.684	0.694
F-statistic	18.995	12.024	14.443	15.934	14.837	9.039	9.407

VII. Conclusions

This paper has attempted to incorporate different culture-based measures into models of change of progrowth institutions of economic and political freedom. We first estimate the relationships between the institutions of economic and political freedom (table 4).

We then reestimate these models with eleven different measures of culture (tables 5 and 6). We then provide some alternative analysis, looking at disaggregated measures of economic freedom and an alternative measure of political rights (table 7). Finally, we conclude by looking at the impact of a select number of cultural measures on the volatility of the change in progrowth economic institutions (table 8). Our main finding is that market-liberalizing reforms, as measured by the Economic Freedom Index, have grown across our sample in spite of the level of trust and civic responsibility. While our results provide limited support for the role of these cultural traits in areas such as property rights protection and openness to foreigners, overall it would appear that globalization and international trade have had a greater influence. As Coyne and Sobel (2011) point out, overall economic freedom over the last thirty years has expanded, with little signs of retracting. Perhaps this study provides some evidence that markets and trade can overcome differences in culture. With this said, our analysis does support the idea that countries with higher levels of self-reliance, trust, and civic responsibility are better placed to deal with the changes brought about by market reform.

To put our results into perspective, the vast literature on culture and growth suggests that culture matters. Logically, this literature supports the earlier argument set forth by Kuznets (1973) about the importance of people's attitudes. Our research provides additional analysis on an avenue of research trying to measure the degree of the link between cultural values (measured in many different ways) and the formation and maintenance of the progrowth institutions of economic and political freedom recognized as important by Hayek (1944) and Friedman (1962).

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