THE RIMINI CENTRE FOR ECONOMIC ANALYSIS

WP 36_12

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DO POLITICAL INSTITUTIONS YIELD MULTIPLE GROWTH REGIMES?

Do Political Institutions Yield Multiple Growth Regimes? *

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April 21, 2012

Abstract

We investigate the effects of political institutions on economic growth. We specifically explore this relationship while controlling for heterogeneity and model uncertainty. We use threshold regression (Hansen (2000)) to search for possible nonlinearities and/or interaction effects with respect to political institutions. We also implement a novel approach to account for theory uncertainty by applying Bayesian model averaging in the threshold regression context. We find that less democratic countries, specifically those with less competitiveness in executive recruitment, follow a different growth process than those with higher competitiveness.

Keywords: Economic Growth, Institutions, Threshold Regression, Regression Trees, Bayesian Model Averaging.
JEL Classifications: C21, C51, O43, O47.

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1 Introduction

An important question in the cross-country economic growth literature is the effect of different political institutions on long-run economic performance. The growth literature has provided strong evidence that political institutions are an important fundamental determinant of long-run growth. For example, Barro (1996), using an index measure of democracy from the Polity IV data, argues that incremental political rights are beneficial to growth (although the relationship is nonlinear). Other recent work by Hall and Jones (1999), Acemoglu, Johnson and Robinson (2001, 2002), Easterly and Levine (2003), Dollar and Kraay (2003), and Rodrik, Subramanian, and Trebbi (2002), has built the case that limiting the executive powers of government plays a key role in attaining higher levels of economic performance.

The theoretical arguments for why having a democratic regime potentially implies a different growth outcome from having an autocratic regime were explored in Olson (1993). Olson theorized that democratic competition does not give leaders the incentive an autocrat has to extract the maximum attainable social surplus. This would suggest that long-serving autocrats should foster stronger economic growth during their regime, since they have a longer horizon to plan for compared to a democratic leader. However, Olson also notes that democracies yield property rights and civil liberties, which help to spur actors to create economic activity. Acemoglu (2008b) adds that authoritarian regimes that focus on economic growth may maintain power, but since greater economic growth leads to the desire for civil liberties and political freedoms, the regime will eventually lose power if the country grows too fast.

However, efforts to empirically uncover the effects of political institutions on growth have suffered from a range of methodological issues. First, attempts to uncover the effects of political institutions on growth using regression analysis do not typically account systematically for the presence of theory uncertainty in specifying the growth process. As Brock and Durlauf (2001) point out, growth theories are inherently openended in the sense that the inclusion of one theory of growth (such as political institutions) does not preclude other growth theories from also potentially being in the true growth process. The growth literature has suggested a whole host of other potential fundamental determinants of growth, including economic institutions (e.g., Knack and Keefer (1995), Acemoglu, et al. (2001)), geography (e.g., Gallup, et al. (2001)), ethnic diversity (e.g., Easterly and Levine (1997) and Alesina, et al. (1999)), and culture (e.g., Barro and McCleary (2003)). Theory openendness suggests that the estimated effects of growth regressors (including political institutions) may be fragile and may vary substantially across plausible models, creating substantial model uncertainty. To this end, Przeworski and Limongi (1993) compiled a survey of 18 papers relating democracy and growth published between 1966 and 1992. They found that 8 analyses reported that authoritarian states grew faster than democracies, 8 reported that democracies grew faster than authoritarian states, and 2 reported there was no measurable difference between the two regimes.

Second, the effects of political institutions on growth have been frequently argued to be nonlinear. For example, Barro (1996) attempts to capture the nonlinear effects of democracy on growth by adding quadratic terms to the growth regression. He finds that democracy enhances growth at low levels of political freedom but depresses growth when a moderate level of freedom has already been attained. Another way that concerns over nonlinearities has been expressed in the literature is through the search for heterogenous effects of different political regimes on growth. For example, Rodrik (1997) found that democracies provide more stable growth rates than non-democracies. Krieckhaus (2006) finds that the effect of democracy varies over regions so that it has a positive impact in Africa, but a negative effect in Asia and Latin America.

The main contribution of this paper is to systematically investigate the effects of political institutions on growth by explicitly accounting for theory uncertainty and heterogeneity. We first address the issue of theory uncertainty in the linear context by employing Bayesian model averaging (BMA) methods[1]. Our BMA findings, consistent with the existing literature, suggest no significant role for political institutions in determining economic growth. We then proceed to investigate whether political institutions may have nonlinear/heterogeneous effects on growth when we simultaneously

[1] Model-averaging methods have been employed extensively in the growth literature: see Brock and Durlauf (2001), Fernandez et al. (2001), Sala-I-Martin et al. (2004), Masanjala and Papageorgiou (2008), and Durlauf et al. (2008).

account for theory uncertainty. To do so, we model nonlinearity/heterogeneity using a threshold regression model; see Hansen (2000). The threshold regression model classifies countries into different linear growth processes according to whether the observed values for a threshold variable (e.g., political institutions) is above a threshold value.

The main methodological contribution of this paper is to exploit an important finding in Kourtellos, et al. (2011), which shows that the threshold parameters in a threshold regression model can still be consistently estimated using Hansen's concentrated least squares strategy even when linear restrictions are placed on regime-specific linear growth processes. One implication of their finding is that, even if we face theory uncertainty, we can still obtain consistent estimates for the threshold parameters by estimating regime-specific growth processes that include only variables shown to be significant and robust from our linear BMA exercise. We can then account for theory uncertainty by applying BMA to each regime-specific linear growth process. To our knowledge, this is the first paper to employ this strategy. Using this approach, we find that political institutions (specifically the competitiveness of executive recruitment) sort countries into multiple growth processes. Our findings contrast with those of Owen, et al. (2009), for example, who do not find, using latent class models, that political institutions (which they proxy with an index of democracy) are a significant predictor of regime membership.

2 Canonical Growth Regression Model and Discussion of Data

The basic growth model of this analysis follows the form:

$$g_i = \boldsymbol{\alpha} + \boldsymbol{\beta}_z \boldsymbol{z}_i + \boldsymbol{\beta}_x \boldsymbol{x}_i + \varepsilon_i \tag{1}$$

where g_i is the growth rate of country i, $\boldsymbol{z}_i$ is a vector of variables always included in the model, $\boldsymbol{x}_i$ is a vector of other growth regressors, and ε_i is a regression error.

We employ an unbalanced panel of 86 countries for two time periods, 1970-88 and 1989-2007, for a total of 154 observations. The dependent variable in (1), g_i, is the average growth rate of real GDP per capita across each time period. The set of variables, $\boldsymbol{z}_i$, consists of the set of neoclassical growth determinants (see, Mankiw, et al. (1992)); i.e., the log of the investment share of GDP (*ishare*), the log of the average number of years of schooling for males aged 25 and over (*maleschooling*), the log of population growth plus 0.05 (n), and the log of per capita GDP in the initial year (*initialGDP*), measured for each time period. The schooling data comes from Barro and Lee (2000) while the rest derive from the Penn World Tables (PWT)(Heston, Summers, & Aten, 2009).

The set of variables, x_i, includes the set of political and economic institution variables that are of central interest in this paper, as well as other controls. Our political institution variables come from the Polity IV data set, which is collected on a yearly basis for most countries of the world (Marshall & Jaggers, 2008).[2] We consider seven measures of political institutions that, collectively, aim to capture the constraints on the executive powers of political elites as well as how firm a hold they have on power: (1) the level of constraints (legal limits) placed on the power of the executive (*execconst*), (2) the competitiveness of political participation (*partcomp*), (3) the level of regulations placed on participating in the political process (*partreg*), (4) the competitiveness of executive recruitment (*execcomp*), (5) the openness of executive recruitment (*execopen*), (6) the regulation of chief executive recruitment (*execreg*), and (7) the *durability* of the ruling regime; i.e., the log of the number of years since the most recent regime change.

In addition to the impact of political institutions on economic growth, this paper also aims to discern the impact of economic institutions on growth. The growth literature typically thinks of economic institutions as being largely associated with property rights; see, Hall and Jones (1999)

[2] We investigate the possibility that the political institutions variables may be highly correlated and may therefore be amenable to principal components analysis. However, after the components were estimated, the Kaiser-Meyer-Olkin measure of sample adequacy indicated that the data was not correlated strongly enough to warrant such an analysis.

and Acemoglu, Johnson, and Robinson (2001). In this paper, we broaden the notion of economic institutions to encompass not just property rights but also a set of policy choices that characterize the economic environment within which agents make decisions. The following measures of five important economic institutions were adapted from the Fraser Institute's Economic Freedom in the World (2009): (1) the effectiveness of the rule of law ($ruleoflaw$), (2) the size of government in relation to the economy ($govtsize$), (3) the access to sound money ($soundmoney$), (4) the relative freedom to conduct trade in international markets ($freetrade$), and (5) the level of regulations placed on credit, labor, and business ($regCLB$).

Finally, we also include a set of growth regressors that has been argued by the growth literature to be important determinants of economic performance. First, we include a number of geographic variables; specifically, the log of the percent of land within the geographic tropics (*tropicland*) and the log of the percent of land within 100km of the coast or a river (*landsea*). We also control for cultural/ethnic differences through a measure of ethnolinguistic fractionalization (ELF). Our measure of ethnolinguistic fractionalization is adapted from Roeder (2001), and is measured once in 1961, which we assign to the first time period, and again in 1985, which we assign to the later time period. While the two assignments do not correspond perfectly with our two time periods, the change in ethnolinguistic fractionalization between the two time periods is small for nearly every country, which suggests that it is a slow-moving variable. Lastly, to account for regional fixed effects, we include a dummy for Sub-Saharan African countries ($AFRICA$) and another for countries in Latin America and the Caribbean ($LAMERICA$).[3]

3 Addressing Model Uncertainty in Linear Models

Using Bayesian averaging is an intuitive way of accounting for model uncertainty, since it accounts for the likelihood of each model, $M_1, M_2, ..., M_K$ being the true model. Bayesian model averaging (BMA) assumes that the true model lies somewhere in the model space. Hoeting, et al. (1999) explain how to use BMA to account for model uncertainty. To use BMA, one must find the posterior distribution of the parameter in question, β_z , given data, D. In this case, the posterior distribution is:

$$P(\beta_z \mid D) = \sum_{k=1}^{K} P(\beta_z \mid M_k, D) P(M_k \mid D) \tag{2}$$

where

$$P(M_k \mid D) = \frac{P(D \mid M_k) P(M_k)}{\sum_{l=1}^{K} P(D \mid M_l) P(M_l)} \tag{3}$$

and where

$$P(D \mid M_k) = \int P(D \mid \theta_k, M_k) P(\theta_k \mid M_k) d\theta_k \tag{4}$$

where θ_k is the vector of parameters of M_k, $P(\theta_k \mid M_k)$ is the prior density of θ_k under model M_k, $P(D \mid \theta_k, M_k)$ is the marginal likelihood, and $P(M_k)$ is the prior probability that M_k is the true model. With this information, the posterior mean and variance can be determined as follows:

$$E[\beta_z \mid D] = \sum_{k=1}^{K} \hat{\beta}_{zk} P(M_k \mid D) \tag{5}$$

$$Var[\beta_z \mid D] = \sum_{k=1}^{K} (Var[\beta_z \mid D, M_k] + \hat{\beta}_{zk}^2) P(M_k \mid D) - E[\beta_z \mid D]^2 \tag{6}$$

where $\hat{\beta}_{zk} = E[\beta_z \mid D, M_k]$.

As is standard in the literature, we take the posterior mean to be our model-averaged coefficient estimate and the square root of the posterior variances as the corresponding standard errors. We

[3] A full description of the variables and summary statistics are available from the authors upon request.

also report the posterior inclusion probability (PIP) for each growth variable. The PIP of a growth variable is given by the sum of the model posterior probabilities of models that include that variable. To implement BMA, we use the BMS software developed by Zeugner (2011). We refer the reader to Zeugner (2011) for a detailed discussion of model and parameter prior specifications and choices. In this paper, we employ a uniform model prior so that we are agnostic about which model in the model space is the true model. The uniform model prior also implies that the prior probability of a growth regressor being in the true model is set to 0.5. We use an Empirical Bayes estimate for Zellner's g prior, following the work of Liang, et al. (2008). In terms of the settings for the MCMC stochastic search algorithm, we use a burn-in phase of 50,000 draws, and then calculate posterior probabilities based on 1 million successive draws. After 1 million draws, the correlation of posterior model probabilities is 0.9989, indicating that the 500 most successful models have converged over the million draws.

3.1 Findings

Table 1 shows our our results for the globally linear model. We first estimate standard OLS estimates for the growth model, including the entire set of regressors. We find that only six regressors have a robust impact on growth at the 5% significance level. First, we find that none of the political institutions have a significant impact on growth. Of the economic institutions, we find that only $ruleoflaw$ has a significant (positive) impact on growth. Looking at the canonical Solow regressors, we see that a higher $initialGDP$ corresponds with lower growth rates as the literature predicts. We also see that a higher *ishare* is associated with higher growth rates. In terms of the auxiliary regressors, we find that both geographic indicators, *tropicland* and *landsea* are significant determinants of growth, having a negative and positive effect, respectively.

The OLS findings are largely upheld when we account for theory uncertainty using BMA. We find that no political institutions have a PIP greater than 0.27, well below the prior probability of 0.5. Our BMA findings therefore suggest that, given a globally linear growth process, political institutions do not appear to have a robust impact on growth. In terms of economic institutions, we find that $ruleoflaw$ is a robust determinant of growth with a PIP of 0.974 (well above the 0.5 prior). The coefficient on $ruleoflaw$ is significant and positive at the 1% level, suggesting that a greater rule of law is associated with higher economic growth rates. In terms of the canonical Solow regressors, we find strong evidence for conditional convergence. The PIP for $initialGDP$ is 1.000 and the coefficient estimate is negative (-1.84) and significant at the 1% level. Consistent with theory, *ishare* is found to be a robust growth determinant (with a PIP of 1.000) and has a highly significant (at the 1% level) and positive coefficient (1.58), suggesting that a higher investment share of GDP is associated with greater growth. Finally, similar to the OLS case, we find that both *tropicland* and *landsea* are robust and significant determinants of growth. The BMA results indicate that countries with a greater percent of land contained within the geographic tropics experience relatively lower growth while those countries that have greater access to a navigable body of water experience better growth outcomes.

As noted, both our OLS and BMA findings for the globally linear growth regression context are largely consistent with those in the existing literature. This is an encouraging outcome since it suggests that the data that we are using is comparable with those in the literature, and that the model space we are considering is adequate. However, the results do also suggest that given the linear model, we would conclude that political institutions do not have a robust impact on economic growth.

4 Evidence for Nonlinearity

4.1 Threshold Regressions

We therefore explore the possibility of a nonlinear growth model. We start by asking whether there exists evidence for a nonlinear relationship between institutions and growth. A simple way to account for nonlinearities in the data is to employ threshold regression. A simple threshold regression model with one threshold is given by

$$g_i = \theta_1^T \varpi_i + \varepsilon_i, \quad q_i \leq \gamma \tag{7}$$

$$g_i = \theta_2^T \varpi_i + \varepsilon_i, \quad q_i > \gamma \tag{8}$$

where $\varpi_i = (\boldsymbol{z}_i, \boldsymbol{x}_i)$ as described in (1) and q_i is a threshold variable that could be an element of ϖ_i. The threshold regression is therefore a parsimonious way of modeling potential parameter heterogeneity and nonlinear effects through the estimation of the regime-specific slope coefficients $\theta_j = \left(\beta_{zj}, \beta_{xj}\right)$; $j = 1, 2$, and the threshold value γ. We can further simplify this model into a single equation by making use of an indicator function:

$$I(q_i \leq \gamma) = \begin{cases} 1 \text{ iff } q_i \leq \gamma \\ 0 \text{ iff } q_i > \gamma \end{cases}$$

and combining (7) and (8) as follows:

$$g_i = \theta_1^T \varpi_i I(q_i \leq \gamma) + \theta_2^T \varpi_i I(q_i > \gamma) + u_i \tag{9}$$

Hansen (2000) proposes a statistical theory for testing for the existence of a threshold (against the null of linearity), conducting threshold estimation, and inference. Hansen also shows how it is possible to iteratively implement the above method on subsequent subsamples of the data obtained from initial sample splits from threshold regression to estimate a model with more than one threshold. In an application, using data from Durlauf and Johnson (1995), Hansen showed that this iterative threshold regression method delivers results that are similar to those obtained using classification and regression tree methods (CART; see, Breiman, Friedman, Olsen, and Stone (1984)).

If we wish to find a consistent estimate of the threshold value, γ, we could do so using an estimate, $\hat{\gamma}$, of the unrestricted model 9 with ϖ_i containing the full set of regressors. This is simply Hansen's concentrated least squares estimator. However, suppose we consider a model with linear restrictions:

$$g_i = \theta_1^T \tilde{\varpi}_i I(q_i \leq \gamma) + \theta_2^T \tilde{\varpi}_i I(q_i > \gamma) + u_i \tag{10}$$

so that $\tilde{\varpi}_i$ is a subset of ϖ_i. Kourtellos et al. (2011) show that the estimate of the threshold from the restricted model, $\tilde{\gamma}$, and the threshold estimate from the unrestricted model, $\hat{\gamma}$, both converge to the true threshold value, γ. The finding that the threshold estimate $\tilde{\gamma}$ for the restricted model is a consistent estimator for γ is therefore particularly useful (especially in empirical growth applications), when we do not know what the true model is due to theory uncertainty. For example, we can simply set $\tilde{\varpi}_i$ to be the set of variables that BMA in the globally linear case found to be robust growth determinants; the linear restriction here is then that the coefficients to all other variables in the model space are zero. Further, Kourtellos et al. show that the estimator $\tilde{\gamma}$ is super-consistent while the slope estimators θ are $\sqrt{n}$-consistent. This suggests that we can first obtain a consistent threshold estimate based on the restricted model, $\tilde{\gamma}$, and then carry out regime-by-regime BMA to obtain model-averaged slope estimators for each regime.

4.2 Findings

4.2.1 The *execcomp* Tree

As discussed above, we consider a restricted model (10) to search for thresholds, defining $\tilde{\varpi}_i$ as an intercept term, the $per1$ dummy, and the four regressors from the unrestricted linear model with a PIP greater than 0.9–$ruleoflaw$, $initialGDP$, $ishare$, and $tropicland$. We test for the existence of a threshold against the null of (global) linearity with respect to the set of growth variables and find strongest evidence for a statistically significant sample split (with a p-value of 0.00) on *execcomp* at a threshold value of 0.64. We therefore consider two subsamples (or, growth regimes); i.e., observations with *execcomp* ≤ 0.64, or the less-competitive regime, and those with *execcomp* > 0.64, or the more-competitive regime. A list of countries by regime can be found in Table 2. Countries in the less-competitive regime had an average growth rate of 5.3 percent, while those in the more-competitive regime had an average growth rate of 5.6 percent. These growth rates do not seem far apart, but this similarity is explained, in part, by the high number of countries from the earlier time period in the less-competitive regime. In the earlier time period, less-competitive countries and more-competitive countries grew at a similar rate, with the more-competitive countries growing at 7.4 percent and the less-competitive countries growing at 7.2 percent. In the later time period, however, less-competitive countries achieved an average growth rate of 3.2 percent, while more-competitive countries grew at a faster pace of 4.5 percent.

After separating country observations into our two regimes, we carry out BMA on each regime for the full set of growth regressors used in the globally linear model in Section 3 to uncover evidence for robust regressors. Full results for this exercise can be seen in Table 1. Our BMA results suggest that both regimes experience conditional convergence. The coefficient on *initialGDP* for both regimes were negative and significant at the 1% level for the less-competitive regime and at the 10% level for the more-competitive regime. in both instances, the PIP for *initialGDP* was high at way over 80%. We have therefore uncovered evidence for two convergence clubs. Nevertheless, the growth processes across the two convergence clubs exhibits substantial heterogeneity. For the less-competitive regime, we find strong evidence (PIP of 0.975) that *ruleoflaw* is an important growth determinant. Similarly, we also find that higher levels of investments (*ishare*; with a PIP of 0.964) leads to higher levels of growth for countries in this regime. The coefficients for both these variables are highly significant (at the 1% level). However, for the countries who have highly competitive political systems; i.e., countries in the more-competitive regime, we find instead that human capital (*maleschooling*) and geography (*tropicland*) may be important for growth. Both these variables have PIP over 0.7, far higher than the 0.5 prior. However, the coefficients for both variables are insignificant from zero.

Our results therefore suggest that there are key interaction effects between political institutions and other growth determinants. Countries with less open political systems (less-competitive executive recruitment) are still able to achieve growth if they maintain strong rule of law (and investment rates). However, countries who have political systems that are qualitatively more open (so that *execcomp* is above the critical value of 0.64) enjoy slightly higher rates of growth overall.

5 Conclusion

This paper investigates the relationship between political institutions and economic growth. We explicitly account for heterogeneity by allowing for multiple growth regimes and theory uncertainty by using Bayesian model averaging. It employs a novel strategy of using a restricted model to estimate thresholds. When we do this, we find regimes with different growth processes based on the competitiveness of executive recruitment.

Due to the statistical significance of the threshold found on *execcomp*, our analysis provides evidence that political institutions can be thought of as threshold variables that determine which growth path a country follows. Our findings thus support a growth model with multiple convergence clubs.

A key caveat in our analysis is the issue of the endogeneity of political institutions (see, Lipset (1959)). The issue of endogeneity is endemic in the growth literature, and so, as with the rest of the literature, we would be hesitant to strongly advance any causal claims associated with our work. Nevertheless, we view our work as a contribution, within the context of the existing literature, to understanding the nature of the potential influence of political institutions on growth.

Table 1: OLS and Bayesian Model Averaging Results for Full Model and Terminal Nodes of the *execcomp* Tree; Dependent Variable: Average Yearly Growth Rate of Real GDP Per Capita

	OLS		BMA Full Model			Less-competitive Regime ($execcomp \leq 0.64$)			More-competitive Regime ($execcomp > 0.64$)		
Regressor	Coef.	SE	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD
initialGDP	-1.752***	(0.423)	1	-1.84	0.376	0.949	-1.676	0.667	0.87	-1.082	0.586
ishare	1.283***	(0.401)	1	1.585	0.361	0.964	1.681	0.629	0.103	0.015	0.151
ruleoflaw	0.400**	(0.157)	0.974	0.463	0.164	0.975	0.648	0.221	0.299	0.082	0.156
tropicland	-1.814***	(0.53)	0.962	-1.477	0.552	0.737	-1.273	0.984	0.713	-0.878	0.677
landsea	1.057**	(0.514)	0.832	0.999	0.606	0.536	0.94	1.118	0.156	0.069	0.224
per1	1.676**	(0.69)	0.746	0.933	0.711	0.744	1.611	1.305	0.905	1.542	0.816
LAMERICA	0.495	(0.428)	0.517	0.446	0.536	0.223	-0.104	0.538	0.1	-0.005	0.138
regCLB	0.188	(0.189)	0.353	0.098	0.168	0.559	0.286	0.318	0.177	-0.052	0.154
maleschooling	0.454	(0.445)	0.315	0.184	0.35	0.237	0.135	0.377	0.781	1.086	0.71
freetrade	0.184	(0.149)	0.268	0.058	0.131	0.242	0.049	0.174	0.14	0.023	0.086
partreg	-0.938	(0.879)	0.265	-0.249	0.57	0.417	1.591	2.434	0.111	0.04	0.306
execopen	0.853	(0.848)	0.233	0.181	0.453	0.167	-0.013	0.335	0.095	0.093	1.018
AFRICA	-0.243	(0.547)	0.209	-0.104	0.321	0.241	-0.125	0.477	0.141	-0.092	0.36
partcomp	-0.718	(1.403)	0.204	-0.164	0.486	0.188	0.112	0.797	0.309	0.682	1.245
soundmoney	0.106	(0.104)	0.202	0.021	0.063	0.313	0.072	0.15	0.117	-0.01	0.052
ELF	0.298	(0.732)	0.171	0.068	0.341	0.235	-0.211	0.715	0.097	0.003	0.209
govtsize	0.04	(0.128)	0.16	0.01	0.052	0.202	0.027	0.119	0.09	0.001	0.03
n	0.59	(0.988)	0.158	0.007	0.502	0.203	-0.149	1.12	0.118	0.086	0.47
durability	0.097	(0.193)	0.158	0.015	0.077	0.256	0.097	0.249	0.109	-0.006	0.071
execconst	-1.364	(1.344)	0.153	-0.072	0.399	0.204	0.201	1.005	0.154	-0.213	0.707
execcomp	0.999	(1.217)	0.146	0.025	0.292	0.296	0.664	1.474	0.231	-0.686	1.847
execreg	-0.537	(1.643)	0.137	0.015	0.363	0.172	-0.027	0.71	0.184	-0.307	1.74
Constant	9.248***	(3.008)	–	–	–	–	–	–	–	–	–
	N:154 R^2: 0.702		N:154 Corr. PMP: 0.9989			N: 70 Corr. PMP: 0.9976			N: 84 Corr. PMP: 0.9997		

Note : The posterior inclusion probability (PIP) represents the sum of the posterior probabilities of models that contained the given variable. We show the posterior mean and posterior standard deviation as substitutes for coefficient estimates and standard errors in the BMA models. These measures are averages of coefficient estimates and standard errors for a given variable, weighted by each model's posterior probability.

Table 2: Countries Included in the Analysis by Regime in the *execcomp* Tree

Less-competitive Regime		More-competitive Regime	
Algeria	Mali	Argentina	Jamaica
Argentina	Mexico	Australia	Japan
Benin	Nepal	Austria	Korea, Republic of
Botswana	Nicaragua	Bangladesh	Mali
Brazil	Niger	Belgium	Mozambique
Cameroon	Pakistan	Bolivia	Netherlands
Central African Republic	Panama	Brazil	New Zealand
Chile	Papua New Guinea	Canada	Nicaragua
China	Paraguay	Chile	Norway
Congo, Democratic Republic of	Peru	Colombia	Panama
Congo, Republic of	Philippines	Costa Rica	Peru
Dominican Republic	Poland	Cyprus	Philippines
Ecuador	Rwanda	Denmark	Poland
Egypt	Senegal	Dominican Republic	Portugal
El Salvador	Sierra Leone	Ecuador	South Africa
Ghana	Syria	El Salvador	Spain
Guatemala	Taiwan	Finland	Sri Lanka
Haiti	Thailand	France	Sweden
Hungary	Togo	Greece	Switzerland
Indonesia	Tunisia	Guatemala	Taiwan
Iran	Uganda	Guyana	Thailand
Jordan	Uruguay	Honduras	Turkey
Kenya	Zambia	Hungary	United Kingdom
Korea, Republic of	Zimbabwe	India	United States
Kuwait		Ireland	Uruguay
Malawi		Israel	Venezuela
Malaysia		Italy	Zimbabwe

Note : Some counties appear in both regimes, e.g. Argentina. In these countries, it is usually the case that the country was in the less-competitive regime in the earlier time period, but moved into the more-competitive regime in the later period. However, it is also possible for a country to move from the more-competitive regime to the less-competitive regime, as in the case of Zimbabwe.

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