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Institutional Foundations of Economic Freedom:
A time-series cross-section analysis

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Abstract: Using time-series cross-section analysis, we provide additional empirical validation for the principal-agent model developed by Adserà, *et al.* (2003). In our innovation, efficient economic policy is proxied by "economic freedom" from the Fraser Institute database and "political institutions" are proxied by variables from the Database of Political Institutions. Our results suggest that the more credible the threat of removal from office, the more government officials will pursue efficient economic policies.

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The tragic illusion was that the adoption of democratic procedures made it possible to dispense with all other limitations on governmental power. It also promoted the belief that the 'control of government' by the democratically elected legislation would adequately replace the traditional limitations, while in fact the necessity of forming organized majorities for supporting a programme of particular actions in favour of special groups introduced a new source of arbitrariness and partiality and produced results inconsistent with the moral principles of the majority. F. A. Hayek (Law, Legislation and Liberty, Vol. III, p. 3, 1979)

Introduction:

Some countries implement consistently good economic policy, while some others systematically fail to do so. Over time, some countries improve their governance while others do exactly the opposite (Spiller & Tommasi 2003, 281). In short, when it comes to economic policy, there are great variations over time and across countries.

We are reminded of these facts every time a new international survey comes out. These surveys may cover the level of corruption (e.g., from Transparency International), ethnicity and/or culture (Fearon 2003). Others are concerned with the level 'economic freedom' (e.g., Scully & Slottje 1991, the Fraser Institute and the Heritage foundation). There are also more business oriented surveys such as the "International Country Risk Guide" (which is a composite index combining measures of corruption, bureaucratic quality, rule of law and the risk of expropriation of propriety published by the Political Risk Services Group).

Economists have studied and documented at length the effects of these variables. For instance, the consequences of corruption are well established (e.g., Shleifer & Vishny 1993, Mauro 1995), ethnicity and cultural influences are sometimes important (Alesina, *el al*. 2003), while the impact of economic freedom on economic growth has

been shown to be quite robust and generally efficiency increasing (e.g., de Vanssay & Spindler 1994, 1996; Easton & Walker 1997; de Haan & Sturm 2000, and Scully 2002). Further, Keefer & Knack (1997) have studied the role of institutional variables, such as business risk and country risk, on economic growth and convergence.

There have been fewer studies dealing with the root causes of economic freedom. Specifically, why do some countries have consistently higher levels of economic freedom than others? Why does the level of economic freedom of some countries increase over time, while it decreases for some others? In other words, do some institutional settings perform better than others when it comes to delivering economic freedom, which allows for more efficient economic policies to be pursued both publicly and privately?

This paper attempts to answer some of these questions and is organized as follows. The first part deals with the concept of economic freedom and link with efficient economic policy. The second part presents the theoretical model developed by Adserà, *et al*. (2003), which supports and provides the foundations for the empirical work. The third part deals with the data and the empirical results. The fourth part provides our concluding observations.

The government is best which governs least. Thomas Jefferson

Economic Policy and Economic Freedom

The most basic paradigm in economics is the concept of constrained optimization. For example, consumers choose their behavior to maximize utility subject to their budget constraints and producers choose their behavior to maximize profit subject to production relations between input and output, and to input prices and output prices. Necessarily,

after some optimal level of constraints (say, the minimal "rules of the game") has been achieved, the greater the number of constraints on optimization, the lower the level of optimization. For example, consumers, who are subject to rationing, typically achieve a lower level of utility, while producers, who are subject to price controls, typically achieve a lower level of profit. The "rules of the game" may evolve and/or be chosen in private association or through public choice – that is, chosen though governing institutions, which may also choose optimally (or not!) subject to constraints (both natural and social – the "rules" of the "rules making game").

From this simple relation between constraints and utility, profit and/or welfare outcome sprung the notion that freedom from constraints was a superior economic policy. This led Milton Friedman in such publications as *Free to Choose* (1980, Ch. 2; written jointly with Rose Friedman) to suggest that measuring government-imposed economic constraints would be a worthwhile way to measure the efficiency of economies and, by implication, the efficiency of government economic policy, whether active or passive. The lower the level of such constraints, the higher is the potential welfare, profitability, and hence, the higher is the level of wealth of an economy.

Over approximately a decade from the mid-eighties to the mid-nineties, under Friedman's influence and the Liberty Fund's support, The Fraser Institute organized a series of conferences, which ultimately led to the worldwide measurement of Economic Freedom Indices (**EFI**) (See Gwartney, *et. al*. 2003). In general, these **EFI** are inversely related to government-imposed constraints. The implication is that government economic policies are more efficient when they are less constraining. Currently, there are no alternative direct measurements of economic policy efficiency. However, given

the availability of these comprehensive and validated indices of economic freedom, the obvious way to proxy the efficiency of government policies is to use The Fraser Institute's Economic Freedom Indices.

This supposition is strengthened by over a decade of research and publication of studies showing the positive relationship between *EFI* and economic performance as conventionally measured in aggregate by Gross Domestic Product (*GDP*), the growth rate of *GDP* (*g*), and various measures of economic distribution (For a recent survey, see Berggren 2003). This literature is not without its critics (Easterly 2002, de Haan & Strum 2003, and Hanson 2003), raising questions of causality, indentifiability, and indices weighting. However, given the variety of specifications and weightings tested empirically, the results are amazingly robust (de Haan & Strum 2000, Gwartney & Holcombe 1999, Hanke & Walters 1997, and Scully 2002). This provides some incentive for further exploration.

One path already opened by de Haan & Strum (2003) concerns the genesis of Economic Freedom – specifically, the role (if any) played by political institutions in the level and/or evolution of Economic Freedom as measure by various *EFI*s. Democratic institutions are apparently important in the sense that political freedom of a people contributes to their enjoyment of economic freedom as well. However, as noted in the quote above from Hayek, an important aspect of democracy is whether its exercise is constituted in a way that will more often, and uniformly, lead to the public good (de Vanssay & Spindler 1994,1996; Spindler & de Vanssay 2002, 2003). This depends in turn on whether political institutions provide for "incentive compatibility" between the "will of the people" and the actions of politicians. We will explore that question in the next

section where we extend the model of Adserà for different dependent and independent variables for time-series of cross-section data.

Sed quis custodiet ipsos custodes?[2]

Principal-Agent Theory and Practice

Adserà, *et al.* (2003, pp. 447-8) develop a theoretical model based on a principal-agent framework. This framework was first applied to politics by Barro (1973) as the "delegation problem". Later, this framework was applied to finance by Jensen & Meckling (1976) and is now commonly known as the "principal-agent problem". As applied to political economy, and in this paper, the "principal" is the representative (or median[3]) citizen and the "agent" is the (dominant) politician.[4]

In this model, citizens, in their role as the principal, want good economic policies enacted on their behalf. For the usual economic reasons that flow from specialization and exchange, principals delegate such functions to their agents. Agents, in turn, are required to represent faithfully the views of their principals. This is where a problem may arise. The interests of the principal and the agent may diverge. For instance, once in power, a politician may enrich herself or pursue policy objectives that are at odds with those of her principal. The problem is compounded by an asymmetry of information (concerning the effects of various policies for instance) available to principals and agents.

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[2] "But who will guard the guardians themselves?" (Juvenal, *Satires*, Book VI, Verse 347).

[3] Political modeling of citizen preferences as applied to governance most often uses the "median voter" as the focus for competitive politics. For example, see Mueller's (2003, various chapters) latest review of public choice literature.

[4] In a dictatorship, these roles may be reversed (however, see Mueller 2003, pp 406-7.), while within government, the principal(s) may be the politician(s) and the agent(s) may be the bureaucrat(s) (Though, these roles might also be reversed, as with bureaucratic models in Niskanen 1971).

In political exchange between principals and agents, an imperfect solution to this principal-agent problem is to establish a credible threat of removing politicians from office through periodically scheduled elections.[5] This solution is imperfect because principals may not find it optimal to be fully informed about agents' activities, while agents may find it optimal to deceive their principals continually and especially periodically as election dates approach. However, those prospective agents who are competing to take-over incumbent agents' offices provide an imperfect counter to agents' rational distortion and principals' rational ignorance. Thus, with effective competition, the threat may be real enough to push incumbent politicians to behave responsibly.

If the politicians are not under any threat of forced removal, there is less incentive to implement and enforce efficient economic policies. For instance, politicians relying on a particular special interest group support for systematic reelection will cater to that special interest group's needs – generally, at the expense of the "public interest" (as perhaps measured by the preferences of the "median voter").

Competitive pressures on politicians will tend to be greater in a "composite state", where horizontal competition exists between branches (i.e., the executive, the legislatures, and the judiciary) and vertical competition exists between levels (i.e., federal, state, and local), than in a "unitary state" with a unified hierarchy, such that competition only occurs for the top position.

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[5] An alternative, but compatible, approach would be to apply North's (1990) transactions cost theory of politics, where having a "credible threat" against political agents lowers the cost of achieving general interest policies.

At the extreme, a military dictator is even less likely to deliver efficient economic policies. This is because in the principal-agent model, the safeguard of regular elections has been removed or, to put it in another way, the cost of removing the agent has become prohibitive. One can even argue that, with a (military) dictatorship, the roles have been reversed: the citizens are now the agents of the dictators. Here, competition is still possible but it is more costly – generally involving a military takeover, either from within, as with a *coup d'état*, or from outside, by invasion, as with a *coup de Bush* (!).

These considerations lead us to hypothesize that the presence of free and fair elections, competition among politicians, checks and balances, the absence of military dictatorship, the absence of politicians relying on special interest groups for reelection, and the presence of electoral competition all contribute to the implementation of efficient economic policies.   Whereas, Adserà *et al*. (2003) uses corruption, quality of public service, and rule of law as dependent variables measuring various aspects of "accountable government" or "good governance", we propose using only the Economic Freedom Indices (**EFI**) as the dependent variable to proxy "efficient government" or "efficient public policy".   Whereas Adserà *et al*. (2003) uses both economic and political variables as independent variables, we propose using only political variables representing constitutionally determined or regime determined political institutions. This is because Adserà's independent economic variables, such as "trade openness" and "level of capital controls", are variables to be explained as a consequence of government policy, and, indeed, are actually components of **EFI**s.

We describe our data and our alternative specifications in the following section.

If you torture the data long enough, Nature will confess. Ronald Coase.

Data and Regression Analysis

In brief, we hypothesize that:

$$EFI = f(PV),$$

Where **EFI** is the Economic Freedom Index and **PV** are the political variables, both as described below.

The data on Economic Freedom Indices (**EFI**) are from the latest Fraser Institute study (Gwartney et al., 2003). They cover from 53 countries for the earliest data up to 122 countries for the latest data. Data were available for years 1970, 1975, 1980, 1985, 1990, 1995, 2000 and 2001.[6] **Table 1** provides summary statistics such as year, number of observations, mean, standard deviation and range for the EFI dependent variable.

Table 1: Economic Freedom: Summary Statistics

Year	Obs	Mean	Std. Dev.	Min	Max
1970	53	5.790549	1.150242	3.420001	8.226358
1975	70	5.200599	1.123742	2.84809	8.264246
1980	102	5.123577	1.121525	2.42886	8.446427
1985	109	5.205988	1.227797	1.716709	8.238367

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[6] More precisely, the data include 54 countries in 1970, 83 countries in 1975, 105 countries in 1980, 111 countries in 1985, 113 countries in 1990 and 122 countries for 1995, 2000 and 2001. These countries are: Albania, Algeria, Argentina, Australia, Austria, Bahamas, Bahrain, Bangladesh, Barbados, Belgium, Belize, Benin, Bolivia, Botswana, Brazil, Bulgaria, Burundi, Cameroon, Canada, Central African Republic, Chad, Chile, China, Colombia, Congo, Dominican Republic., Costa Rica, Cote d'Ivoire, Croatia, Cyprus, Czech Rep., Denmark, Dominican Rep., Ecuador, Egypt, El Salvador, Estonia, Fiji, Finland, France, Gabon, Germany, Ghana, Greece, Guatemala, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Kuwait, Latvia, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Mali, Malta, Mauritius, Mexico, Morocco, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Panama, Pap. New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Russia, Rwanda, Senegal, Sierra Leone, Singapore, Slovak Rep, Slovenia, South Africa, South Korea, Spain, Sri Lanka, Sweden, Switzerland, Syria, Taiwan, Tanzania, Thailand, Togo, Trinidad & Tobago., Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Venezuela, Zambia and Zimbabwe).

1990	113	5.490186	1.343119	2.431572	8.5312
1995	122	5.902125	1.287819	3.388494	9.048505
2000	122	6.34196	1.088458	3.369925	8.784595
2001	122	6.355179	0.9976643	4.04572	8.62571

The data on political institutions (**PV**) are selected from the **DPI2000** (Database of Political Institutions Version 2.0, (Beck *et al*., 2001, Keefer & Stasavage, 2003)). These are yearly data from 1975 to 2000. They have been modified so as to facilitate regression analysis and are divided into 4 sections:

1. Variables concerning the Chief Executive:

a. Political setting: The "political setting" of the Chief Executive is captured by three dummy variables:

systemd - takes the value of one if there is an assembly-elected president or a parliamentary system; takes the value of zero otherwise.

finittrm - takes the value of one if there is finite term to the mandate of the Chief Executive; takes the value of zero otherwise.

military - takes the value of one if the Chief Executive is a military officer (that is, if there is a rank in his title); takes the value of zero otherwise.

b. Party orientation: The "party orientation" of the Chief Executive with respect to economic policy is captured by four dummy variables:

execrlcd1 - takes the value of one if no affiliation (or not applicable), takes the value of zero otherwise.

execrlcd2 - takes the value of one if the affiliation is "right", takes the value of zero otherwise.

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execrlcd3 **-** takes the value of one if the affiliation is "left", takes the value of zero

otherwise.

execrlcd4 : takes the value of one if the affiliation is "center", takes the value of zero

otherwise.

c. Religious affiliation: The "religious affiliation" of the Chief Executive is captured by 4

dummy variables:

execrelg1 **-** takes the value of one if the affiliation is "not religious" (or not specified),

takes the value of zero otherwise.

execrelg2 **-** takes the value of one if the affiliation is "Christian" (including Catholic),

takes the value of zero otherwise.

execrelg3 **-** takes the value of one if the affiliation is "Hindu", takes the value of zero

otherwise.

execrelg4 **-** takes the value of one if the affiliation is "Islamic"", takes the value of zero

otherwise.

d. Special-interest orientation: The "special interest orientation" of the Chief Executive

is captured by one dummy variable:

execspec - takes the value of one if the party of the executive represents any special

interests (i.e. rural, religious, regional, nationalist), takes the value of zero

otherwise.

e. Extent of control: Finally, the "extent of control" of the Chief Executive is captured by

one dummy variable:

allhoused - takes the value of one if the party of the Chief Executive controls the

legislature (i.e., both houses when there is more than one house); takes the value

of zero otherwise.

Table 2 gives the summary statistics for the variables characterizing the Chief Executive.

Table 2: Chief Executive: Summary Statistics (1975-2001)

Variable	Obs	Mean	Std. Dev.	Min	Max
systemd	695	0.4906475	0.5002726	0	1
finittrm	687	0.8122271	0.3908153	0	1
military	695	0.2071942	0.4055878	0	1
execrlcd1	678	0.3185841	0.4662713	0	1
execrlcd2	678	0.2743363	0.4465086	0	1
execrlcd3	678	0.339233	0.4737986	0	1
execrlcd4	678	0.0678466	0.2516682	0	1
execrelg2	729	0.0397805	0.1955774	0	1
execrelg3	729	0.0041152	0.0640619	0	1
execrelg4	729	0.0178326	0.1324338	0	1
execspec	698	0.1733524	0.3788231	0	1
allhoused	713	0.5119215	0.5002088	0	1

2. Party variables in the Legislature:

A standard measure of concentration drawn from the industrial organization literature,

Herfindahl-Hirschman concentration ratio, is applied to measure the extent of "legislature

concentration".

Herfgov – is the Herfindahl Government Index calculated as the sum of the squared

seat shares of all parties in the government. It equals *NA* if there is no parliament,

or, if there are any government parties where seats are unknown, the cell is

blank. Note that *0 < herfgov < 1*. This index is a measure of power

concentration. It increases as the number of parties in the government decreases

and the disparity in size between these parties increases.

Herfopp – is the Herfindahl Opposition Index calculated in the same manner as

Herfgov. It equals **NA** if there is no parliament. If there are any opposition parties

where seats are unknown (cell is blank), the Herfindahl is also blank. No parties

in the Legislature results in a NA in the Herfindahl. Note that *0 < herfopp < 1*.

This index is a measure of opposition party concentration.

Table 3 gives the summary statistics for the variables characterizing the legislature.

Table 3 Legislature: Summary Statistics (1975-2001)

Variable	Obs	Mean	Std. Dev.	Min	Max
herfgov	589	0.7998876	0.2797765	0.0019802	1
herfopp	443	0.5518399	0.2765121	0	1

3. Electoral Rules and 'Checks and Balances':

A series of ratings and dummy variables proxy the restraint on government provided by

electoral and legislative rules.

liec - is a rating called the Legislative and Executive Indices of Electoral

Competitiveness. The higher its value, the higher level of electoral

competitiveness. Its possible values are: "**1**" (if no legislature), "**2**", "**3**", "**3.5**", "**4**",

"**5**", "**5.5**", "**6**", "**6.5**" and "**7**" (if largest party got less than 75%).

prd - takes the value of one if there is proportional representation; takes the value of

zero otherwise.

vote - takes the value of one if elections are possible, takes the value of zero otherwise.

votef – takes the value of one if vote fraud or candidate intimidation are serious enough

to affect the outcome of elections; takes the value of zero otherwise. It captures

"extra-constitutional" irregularities and is being used in conjunction with the vote

variable. This variable is only important for non-OECD countries with well

established democracies.

checks - is a rating which indicates the level of checks and balances. It varies between

1 and **15** (**1**, **2**, **3**, **4**…). The higher the value, the more checks and balances.

(See Beck, *et al.* 2001.)

Table 4 gives the summary statistics for the variables characterizing electoral rules.

Table 4: Electoral Rules: Summary Statistics (1975-2001)*

Variable	Obs	Mean	Std. Dev.	Min	Max
liec	694	5.516571	2.108205	1	7
prd	706	0.427762	0.4951049	0	1
vote	729	0.8203018	0.3841995	0	1
Votef *	729	0.079561	0.2707982	0	1
checks	656	2.643293	1.73008	1	15

*All the voting fraud takes place in the non-OECD countries.

4. Extent of Federalism:

The extent of federalism (ranging from unitary state, federal government, confederate

government), and devolution of power to states and provinces, is characterized by the

following four dummy variables.

auton - takes the value of one if there are contiguous autonomous regions; takes the

value of zero otherwise.

stated1 - takes the value of one if neither the legislature nor the executive are locally

elected, takes the value of zero otherwise.

stated2 - takes the value of one if the executive is appointed but the legislature is locally

elected, takes the value of zero otherwise.

stated3 **-** takes the value of one if both the legislative and the executive are elected

locally, takes the value of zero otherwise.

Table 5 below gives the summary statistics for the variables characterizing federalism.

Table 5: Federalism: Summary Statistics (1975-2001)

Variable	Obs	Mean	Std. Dev.	Min	Max
auton	667	0.047976	0.2138759	0	1
stated1	509	0.4223969	0.494427	0	1
stated2	509	0.2888016	0.4536513	0	1
stated3	509	0.2888016	0.4536513	0	1

5. State of Development

We also use a dummy variable to separate countries according to their political and

economic development level. This is not used in the regression *per se*, but is used to

separate the sample, when necessary, between **OECD** and **Non-OECD** Countries.

oecd **-** takes the value of one if a country is a member of the **OECD**; zero otherwise

The majority of **OECD** members joined in the 1960's. Others, however, joined in

the 1990's. The latest member is the Slovak Republic, which joined in December 2000[7].

Accordingly, the dummy variable does not take the value of one until the year the

country joins the **OECD** (and the years after). For instance, ***oecd*** for Poland takes the

value of 0 prior to 1996, 1 afterwards.

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[7] The 30 members are Australia (since June 1971), Austria (September 1961), Belgium (September 1961), Canada (April 1961), the Czech Republic (December 1995), Denmark (May 1961), Finland (January 1969), France (August 1961), Germany (September 1961), Greece (September 1961), Hungary (May 1996), Iceland (June 1961), Ireland (August 1961), Italy (March 1962), Japan (April 1964), Korea (December 1996), Luxembourg (December 1961), Mexico (May 1994), the Netherlands (November 1961), New Zealand (May 1973), Norway (July 1961), Poland (November 1996), Portugal (August 1961), the Slovak Republic (December 2000), Spain (August 1961), Sweden (September 1961), Switzerland (September 1961), Turkey (August 1961), the United Kingdom (May 1961), the United States (April 1961).

The reason for separating (albeit artificially) between **OECD** and developing countries is that "the level of political freedom hardly changed in the industrial countries, in contrast to developing countries" (de Haan & Sturm 2003, 549). A different dynamic is likely at work in each sample.

6. The regression results:

We report the results of various linear regressions using the Beck & Katz (1995) methodology using **PCSE**s (panel-corrected standard errors). This methodology, also used by Adesrà, *et al.,* yields the same coefficients as would an **OLS** regression, but with (larger) standard errors of the estimated coefficients (Beck & Katz 1995, 638). According to its authors, it corrects for the overconfidence of the **FGLS** *t*-values. Finally Beck & Katz (1995, 637) also note that their methodology is particularly appropriate when the panel data set is 'cross-section dominant' (when there are more countries than time-periods), which is the case here (Podestà 2002, 16).

We have regressed Economic Freedom Indices (**EFI**) against the various institutional variables detailed above. Specifically,

$EFI = f_1$**(Variables concerning the Chief Executive).**

$EFI = f_2$**(Party variables in the Legislature).**

$EFI = f_3$**(Electoral Rules and 'Checks and Balances' variables).**

$EFI = f_4$**(Federalism variables).**

These results are presented and briefly discussed in **Appendix A**

Finally, we combine the best performing variables from these separate regressions into one regression for all countries combined (**Table 6**), for **OECD** countries (**Table 7**) and for **Non-OECD** countries (**Table 8**), respectively.

Table 6: All Countries (OECD and Non-OECD)

(*Dep. Var.= EFI*; *# of obs.* = 403; R^2 = 0.3275)

Ind. Var.	Coefficient	Std. Err.	z
systemd	0.441266*	0.134413	3.28
military	-0.91633*	0.139258	-6.58
execrlcd2	-0.25549	0.146577	-1.74
execrlcd3	-0.64264*	0.117533	-5.47
execrlcd4	-0.29655	0.168669	-1.76
execspec	-0.22947	0.167802	-1.37
checks	0.144996*	0.034288	4.23
prd	0.195134*	0.056711	3.44
auton	-0.23177	0.162297	-1.43
stated2	0.066774	0.100754	0.66
stated3	0.533663*	0.077021	6.93
_cons	5.352985*	0.183973	29.1

* Significant at the 5-percent level

Table 6 gives a strong endorsement to our hypothesis that the principal-agent model can be applied to understand the basis for good governance. Governance is better (as measured by a higher Economic Freedom Index) when there is a credible threat of losing office. This occurs when there is a democratic system (*systemd* has a significant positive coefficient) and when there is not a military dictatorship (*military* has a significant negative coefficient). It also occurs when there is a more direct connection between both the executive and legislature and the people, as when both are elected (*stated3* has a significant positive coefficient) rather than when the executive is appointed by the legislature which in turn is elected (*stated2* has a non-significant positive coefficient).

This relationship between the people and the executive may be disturbed by ideological or interest group bias – especially leftist bias (*execrlcd2, execrlcd3, execrlcd4, and execspec* all have negative coefficients, though only the coefficient for

execrlcd3 – a left oriented Chief Executive – is strongly significant). Obviously, checks and balances also play a favorable role in keeping governance on track (*checks* has a significant positive coefficient).

The role of proportional representation also appears favorable in **Table 6** (*prd* has a significant positive coefficient), though this is questionable based on the results in other Tables (where, for example, *prd* has a negative coefficient in **Table 8** below and the **Appendix Tables A7**, **A8**, and **A9**, and which is only significant in the case of **Non-OECD** Countries when the regression is limited to the legislative variables). Similarly, our results are ambivalent about the role of autonomous regions (*auton* generally has a negative coefficient – the exception being in the **Appendix Table A11** for **Non-OECD** Countries– but is only significantly negative in the case of **Appendix Table A12 for OECD** Countries.)

Because **Table 6** has the largest sample of all our results, the variation of the independent variables is also the greatest. Therefore, the variables and their combination in **Table 6** have greater explanatory power than in subsequent tables presented both here and in the **Appendix**. This is particularly relevant because of the use of dummy variables. For example, consider the **OECD** Countries, which have broadly similar institutional characteristics that do not vary greatly over time. This sub-sample of 30 countries does not perform as well as the larger sample when dummy variables for institutional characteristics are used. This can be seen by comparing **Table 6**, which is inclusive of all countries (both OECD and non-OECD), with **Table 7** for only OECD Countries below.

Table 7: OECD Countries

(*Dep. Var.= EFI*; *# of Obs.*= 139; R^2 = 0.0834)

Ind. Var.	Coefficient	Std. Err.	z
systemd	-0.43329	0.29271	-1.48
herfgov	-0.67884*	0.258528	-2.63
liec	0.812231*	0.195954	4.15
prd	-0.44776	0.248017	-1.81
auton	-0.28405	0.172228	-1.65
_cons	2.402829	1.429653	1.68

* Significant at the 5-percent level

Table 7 shows that different institutional characteristics are more important in the most developed countries. All these countries are very similar with respect to their basic democratic and electoral institutions so that these characteristics do not offer much explanation for differences in the dependant variable within this sample (as opposed to between this and the **Non-OECD** sample). The **OECD** countries differ most with respect to their legislative organization, specifically with respect to concentration of political parties, and their competitiveness, inside the legislatures. The more concentrated is political control (*herfgov* has a significant negative coefficient), the less efficient is governance. The more competitive the political parties (i.e., when *liec* has a significant positive coefficient), the more efficient is governance.

Finally, we complete our overall empirical analysis by looking only non-OECD countries in **Table 8** below. **Table 8** generally adds some support to the conclusions drawn from **Table 6** in that, for a sub-sample of lesser developed countries, the variables associated with the credible threat of loss of office still significantly play their expected role as (now somewhat more significantly) modified by ideological and special interest bias.

Table 8: Non-OECD Countries
(*Dep. Var.* = *EFI*; *# of Obs.*= 340; R^2 = 0.2199)

Ind. Var.	Coefficient	Std. Err.	z

systemd	0.25819	0.132772	1.94
finittrm	0.232195*	0.107454	2.16
military	-0.799848*	0.115422	-6.93
execrlcd2	-0.13712	0.125552	-1.09
execrlcd3	-0.82037*	0.134202	-6.11
execrlcd4	-0.48348*	0.170133	-2.84
execspec	-0.39789*	0.102896	-3.87
herfgov	-0.09501	0.136125	-0.7
checks	0.044583	0.035038	1.27
auton	-0.21459	0.197113	-1.09
_cons	5.569195*	0.237245	23.47

* Significant at the 5-percent level

Noteworthy in **Table 8** is that an additional variable, denoting a limited term for the executive (***finittrm***), now enters with a significant positive coefficient thus showing the importance of a mandatory and regular periodic review of the Chief Executive by the voters. This characteristic likely distinguishes between non-OECD democracies which are relatively more or less stable as well as those where there are more or less advanced democratic ethics with respect to fair play.[8]

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[8] A paper by Fedderke (2003) recently brought to our attention also pays attention to institutional design and specifically mentions the term limits, which in his case refers to limits on the number of terms rather than to a limited length of term, which is what ***finittrm*** measures. His evaluation is worth quoting:

> The crucial point is that societies have a choice between designing institutions that limit the impact of abuse of privilege, or of limiting the time politicians may spend in office. Where a society does not have the institutions that control abuse of privilege, the only recourse is something like term limits. But equally, where a society has mechanisms that ensure probity in public office, the need to curb the length of time spent in office diminishes also. Fedderke 2003, 29-30.

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Despite the claims of political-economic models, there is no single cohesive unit called the "Government" devoted to maximizing the incumbency of the executive. Legislatures, legislative committees, bureaucracies, agencies, central banks, and all the others involved in shaping economic outcomes, all have quite different constituencies from the executive, and those constituencies may not be at all sympathetic to the economic program of the executive. (Tufte, p. 139)

Concluding Observations

In the spirit of Tufte's quote above, we will not claim to have shown the exact key to government control. Rather, our empirical results add further support to some common constitutional and electoral features (such as democratic selection, limited terms, and other checks and balances) long hypothesized as important in determining good governance. Our empirical results also suggest that the principal-agent model of government may be a useful paradigm for empirical political analysis, as previously hypothesized and measured by Adserà, *et al*. (2003) and by others who have used this model -- albeit with somewhat different theoretical and empirical interpretations.

Our model was initially inspired by Adserà's approach. We broadly reach the same conclusions on the importance of political accountability. However comparing the two papers is not an easy task. We have used different dependent and independent variables. For the dependent variable, we have used the Economic Freedom Index (**EFI**) as a proxy of "good economic policy", while Adserà, *et al*. (2003) used variables such as "corruption" or "the rule of law". The main differences, however, concern the independent variables. We have chosen to strictly limit ourselves to testing the principal-agent model of political accountability. Accordingly, we have only used political and institutional variables for our independent variables. We believe that our approach is valuable as an extension of the democracy and economic policy literature and that it nicely complements the pioneering work of Adserà, *et al*. (2003). However, unlike

Adserà (who finds "Constitutional arrangements are irrelevant, except for federalism, which reduces corruption." Adserà 2003, 480) and in line with our previous studies showing the importance of constitutional arrangements (de Vanssay & Spindler 1994, 1996; and Spindler & de Vanssay 2002), our current results show the relative importance of various constitutional arrangements in explaining differences in economic freedom indexes and, hence, the differences in the efficiency of economic policies.

Further, the results in our paper can be read as showing that political accountability and democratic competition tend to constrain politicians to promoting good economic policies. From other literature, we know that good economic policies translate into economic growth (Berggren, 2003). We also know that "the propensity for democracy rises with per capita GDP" (Barro, 1999, p. 158). So our paper can be viewed as a contribution to the empirical study of this "virtuous circle of democracy".

Hopefully, as further, more refined and diverse data measuring institutional characteristics and economic policies becomes available, future tests of the principal-agent paradigm might become ever more conclusive and ever less ambiguous. In the meanwhile, our empirical results lead us to feel confident in reaching a general qualitative conclusion that competitive democratic mechanisms are very important in promoting efficient economic policies.

Appendix:

Here we investigate the separate effects of political institution variables with respect to the Chief Executive, the Legislature, Checks and Balances, and Federalism.

A1. Chief Executive

First, we start with the variables concerning the Chief Executive. See **Tables A1**, **A2** and **A3**. Table **A1** summarizes the results for all countries (**OECD** and **non-OECD**),

Table A1: All Countries Summary
(**Dep. Var**. = **EFI**; **# of obs**. = 570: R^2 = 0.2955)

Ind. Var.	Coefficient	Std. Err.	z
systemd	0.54837 *	0.101203	5.42
Finittrm	0.417688 *	0.08962	4.66
Military	-1.02046 *	0.128598	-7.94
execrlcd2	-0.19386	0.112956	-1.72
execrlcd3	-0.5465 *	0.133787	-4.08
execrlcd4	-0.49618 *	0.116126	-4.27
execrelg2	0.738288 *	0.135067	5.47
execrelg3	-1.15477 *	0.381345	-3.03
execrelg4	-0.06522	0.242669	-0.27
Execspec	-0.37851 *	0.064777	-5.84
Allhoused	-0.37986 *	0.070562	-5.38
_cons	5.68781 *	0.198672	28.63

* Significant at the 5-percent level

The regression results give broad support to "principal-agent model of government".

When there is an assembly-elected president or a parliamentary system (**systemd**) or a finite term to the mandate of the Chief Executive (**finittrm**), there is a positive (and significant) impact on economic freedom. The Chief Executive has an incentive to adopt good economic policy in order to ensure her reelection.

On the other hand, when the Chief Executive is a military officer (**military**), the impact on economic freedom is negative (and significant). This is because the military

government is under no immediate threat of being replaced following an election. A popular vote can be delayed, cancelled, annulled or rescheduled at a time chosen by the military. The incentive to adopt good economic policies in the general interest has been replaced by the incentive to adopt economic policies destined to ensure the continuing support for the Chief Executive *within* the military and by elite groups served by the military.

When the party of the executive represents a special interest (***execspec***), the impact on economic freedom is negative (and significant). This is totally consistent with the principal agent model of government. When the Chief Executive is beholden to special interests (i.e. rural, religious, regional, nationalist), he has an incentive to adopt economic policies destined to placate them. These economic policies may be counter to the general interest. We should expect that the stronger the link between a special interest and the Chief Executive, the stronger the *quid pro quo* between them and the greater the continued political support for economic policies serving special interests.

The coefficient for ***allhoused*** is negative and significant. This means that, ceteris paribus, when the party of the Chief Executive controls both houses, this has a negative impact on economic freedom. Again, this is consistent with the principal agent model of government. Given the traditional division of powers, when the Executive and (both branches of) the Legislative are on the same side, there are three reasons why the Chief Executive will be under less pressure to promote efficient economic policies: First, it less likely that the Executive will be defeated by the Legislature through a non-confidence vote and be forced to obtain a new mandate from the electorate; Second, it also less likely that the Executive will dissolve the Legislature –and force *it* to obtain a

new mandate from the electorate; Third, by controlling *both* houses, the Executive has rendered the Senate basically ineffective as the 'Chamber of Sober Second Thought'.

An additional explanation for the negative sign is given by the "First do no harm" principle. It is possible that, when the Executive and the Legislative powers are on opposite sides, both are vulnerable politically and therefore more careful when it comes to legislation. So, less harm is done to the economy because less one-sided legislation is adopted.

The results are similar for the **non-OECD** countries shown in **Table A2**:

Table A2: Non-OECD Countries Summary
(***Dep. Var***. = ***EFI***: ***# of obs***.= 430; R^2 = 0.228)

Ind. Var.	Coefficient	Std. Err.	z
systemd	0.335948 *	0.085217	3.94
finittrm	0.301203 *	0.093926	3.21
military	-0.89212 *	0.123189	-7.24
execrlcd2	-0.1562	0.102098	-1.53
execrlcd3	-0.80438 *	0.128908	-6.24
execrlcd4	-0.53469 *	0.144021	-3.71
execrelg2	-0.1659	0.210536	-0.79
execrelg3	-0.36151	0.669972	-0.54
execrelg4	0.142558	0.229452	0.62
execspec	-0.40977 *	0.085217	-4.81
allhoused	-0.01864	0.072696	-0.26
_cons	5.512588 *	0.210672	26.17

* Significant at the 5-percent level

For the **OECD** countries, the results are (understandably) blander, as shown in **Table A3**. We have only 141 observations and we do not use the military variable (because there is no variation in that term for **OECD** Countries):

Table A3 OECD Countries Summary
(*Dep. Var*.= *EFI*; *# of obs*.=141; R^2 = 0.098)

Ind. Var.	Coefficient	Std. Err.	z
systemd	-0.53026	0.277516	-1.91
Finittrm *	2.324144	0.846523	2.75
execrlcd2	0.40147	0.719829	0.56
execrlcd3	0.347335	0.75168	0.46
execrlcd4	0.165615	0.547538	0.3
execspec	0.176405	0.252148	0.7
allhoused	-0.281	0.186082	-1.51
_cons *	4.523326	0.794284	5.69

* Significant at the 5-percent level

A2. The Legislature

Second, for the results concerning the party variables in the Legislature, see **Tables A4, A5** and **A6.**

Table A4: All Countries Summary
(*Dep. Var. = EFI*; *# of obs*. = 431; R^2 = 0.02)

Ind. Var.	Coefficient	Std. Err.	z
herfgov	-0.6502 *	0.220662	-2.95
herfopp	0.155783	0.222935	0.7
_cons	6.317631 *	0.123758	51.05

* Significant at the 5-percent level

The results indicate that a higher *herfgov* (the Herfindahl Government Index) leads to a lower level of economic freedom (*ceteris paribus*). This is consistent with our model. A high Herfindahl Government Index means that the government legislative coalition comprises few political parties. Assuming that a small political coalition is less likely to fall or being overthrown than a broader one, a high Herfindahl Government Index means less frequent elections or less frequent change in government *following* an election. The case of Canada's "natural governing party", the Liberals, comes to mind. As we have

seen the smaller the threat of being replaced, the less likely a government will adopt

good economic policies.

We obtain similar results for the **OECD** countries in **Table A5:**

Table A5: OECD Countries Summary
(*Dep. Var.* = *EFI*; *# of obs.* = 140; R^2 = 0.018)

Ind. Var.	Coefficient	Std. Err.	z
herfgov	-0.4947 *	0.172524	-2.87
herfopp	0.085799	0.366948	0.23
_cons	7.052206 *	0.173949	40.54

* Significant at the 5-percent level

Finally, the results for the **non-OECD** countries shown in **Table A6** do not give any

indication on the role of government coalition in the legislature on economic freedom.

Specifically, none of the coefficients are statistically significant (bar the constant). One

explanation for this might be that the **non-OECD** countries are on average less

democratic than the **OECD** ones. Therefore, elections, government coalitions and

parliamentary tradition are not as frequent as it is the case for **OECD** countries.

Table A6: Non-OECD Countries Summary
(*Dep. Var. = EFI*; *# of obs.*= 291; R^2= 0.007)

Ind. Var.	Coefficient	Std. Err.	z
herfgov	-0.27659	0.227325	-1.22
herfopp	0.254862	0.237959	1.07
_cons	5.572015 *	0.164234	33.93

* Significant at the 5-percent level

For these three regressions, the coefficient of ***herfopp*** (the Herfindahl Opposition

Index) is not statistically different from 0. This is also the case when we regress *EFI*

against ***herfopp*** by itself. This indicates that, when it comes to economic policy choices,

the strength and nature of the government coalition is more relevant that the one of the opposition.

A3. Checks and balances

Third, we regress *EFI* against the electoral rules and 'Checks and Balances' variables and present the results in **Tables A7**, **A8** and **A9**. Here, for obvious reasons we limit our sample to countries where elections take place (even if occasionally)

For 'all countries' where elections are possible, we consider if the presence of voting fraud has an impact on economic freedom. We are also interested in the role played by the variables *Checks and Balances* and *liec*. The results indicate that, when it occurs, voting fraud has a negative impact on economic freedom. We view the presence of electoral fraud as a mechanism by which sitting governments bypass the electorate's judgment and therefore are less inclined to adopt good economic policies. Interestingly, the variable *prd* (proportional representation) does not seem to play a serious role one way or the other. This is true whether or not we control for *votef* or the *liec*. One reason might be that, while it forces these governments to be more accountable to the electorate, proportional representation leads to more unstable and short lived governments because of the precarious coalitions (e.g., Italy, Israel,). Positive economic reforms for which the payoff will unfold only over time might not be undertaken when governments are too unstable.

The results from **Table 7** indicate that only the variables *liec* (Legislative and Executive Indices of Electoral Competitiveness) has a positive and statistically significant impact on economic freedom. The voting fraud is not considered in this regression as, already mentioned, all the vote frauds occur in **non-OECD** countries. Interestingly the

proportional representation variable ***prd*** has a negative (although not very significant)

sign.

Table A7: All "Voting" countries Summary
(***Dep. Var.*** = ***EFI***: ***# of obs***. = 504; R^2 = 0.2032)

Ind. Var.	Coefficient	Std. Err.	z
liec	0.295547*	0.068923	4.29
checks	0.118085*	0.046046	2.56
prd	-0.03298	0.104482	-0.32
votef	-0.47495*	0.193771	-2.45
_cons	3.536415*	0.324155	10.91

* Significant at the 5-percent level

For the **OECD** countries, the variable on vote and vote fraud are omitted. (The

database does not report any voting fraud for these countries and there were only 8 out

of 705 (total **OECD**) observations where voting was not allowed. This allows us to

concentrate on the role of ***liec*** and ***prd***. **Table A8** presents the relevant results:

Table A8: OECD Countries Summary
(***Dep. Var.*** = ***EFI***: ***# of obs***. = 140; R^2 = 0.0488)

Ind. Var.	Coefficient	Std. Err.	z
checks	0.056661	0.067508	0.84
liec	0.300277*	0.13939	2.15
prd	-0.37562	0.203354	-1.85
_cons	4.773488*	0.815765	5.85

* Significant at the 5-percent level

The positive (and statistically significant) sign for ***liec*** confirms that a high level of

'electoral competitiveness' renders governments more accountable and more attentive

to the wishes of the electorate. This, in turns, creates the foundations for sound

economic policies. Again, we see a negative sign (although not very significant) for the

prd.

Table 9 shows the results for the **non-OECD** countries where voting is allowed:

Table A9: Non-OECD Countries Summary
(*Dep. Var. = EFI*; *# of obs*. = 365; R^2 = 0.1345)

Ind. Var.	Coefficient	Std. Err.	z
liec	0.290395*	0.068546	4.24
checks	0.012772	0.036789	0.35
prd	-0.30767*	0.150217	-2.05
votef	-0.19074	0.181837	-1.05
_cons	3.660201*	0.296336	12.35

 * Significant at the 5-percent level

Here the proportional representation variable **prd** has a negative (and significant) coefficient. Interestingly the coefficient for **votef** is still negative but not significant anymore.

A4: Federalism

Fourth, we look at the role of the federalism variables (**Table A10**, **A11** and **A12**).

Table A10: All countries Summary
(*Dep. Var. = EFI*: *# of obs*. = 460; R^2 = 0.0827)

Ind. Var.	Coefficient	Std. Err.	z
auton	-0.14867	0.150467	-0.99
stated2	0.280161*	0.098415	2.85
stated3	0.88116*	0.109732	8.03
_cons	5.389696*	0.231283	23.3

* Significant at the 5-percent level

This table indicates that when the executive and/or the legislative is locally elected, there is a positive impact on economic freedom. This is consistent with the Principal-Agent Model. Indeed, locally elected governments are a form of choice for the electorate. Voters can vote with their feet and choose to relocate where the government is more responsible. On the other hand, the role of contiguous autonomous regions is not very significant. This is due, in part, to the fact that less than 5 % of the countries surveyed are concerned with this issue.

For the **non-OECD countries**, we have some intriguing results. (**Table A11**).

They indicate that federalism (in its various forms) is not an important contributing factor

(positive or negative) to economic freedom.

Table A11: Non-OECD countries
(***Dep. Var. = EFI; # of obs***. = 327***; R^2***= 0.057)

Ind. Var.	Coefficient	Std. Err.	z
auton	0.331282	0.20571	1.61
stated2	0.035528	0.100581	0.35
stated3	-0.09398	0.084062	-1.12
_cons	5.250233*	0.225925	23.24

*Significant at the 5-percent level

Would federalism be only relevant for **OECD** countries? **Table A12** provides

ambiguous answers to this question. These latter results are inconclusive. The role of

autonomous regions is actually negative for the sample. This is might be due to the fact

that we have only two countries with contiguous autonomous regions (i.e., Italy and

Spain).

Table A12: OECD Countries
(***Dep. Var***. = ***EFI***; ***# of obs***. = 133; ***R^2*** =   0.11)

Ind. Var.	Coefficient	Std. Err.	z
auton	-0.87078*	0.263195	-3.31
stated2	-0.17091	0.237795	-0.72
stated3	0.360387	0.212794	1.69
_cons	6.737024*	0.187247	35.98

*Significant at the 5-percent level

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