Political regime experience and economic freedom

Antonio Saravia *

Abstract

There is vast evidence that the adoption of democracy is not a sufficient condition for the adoption of institutions of economic freedom. We develop a model that integrates political regime experience into the strategic optimization problem faced by incumbent rulers when deciding whether or not to adopt institutions of economic freedom. We find that it is not the adoption of a particular political regime that matters but the nation’s historical experience with such regime. By developing expectations of political stability, democratic and autocratic experience are more robustly associated with the adoption of institutions of economic freedom than current or contemporaneous measures of such regimes. On the empirical side, we propose a reduced model in which the adoption of institutions of economic freedom depends on political regime experience, current measures of democracy or autocracy, and control variables. Our econometric findings support our main theoretical insights.

Key words: Economic Freedom; Democracy; Autocracy; Institutional Change

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* Department of Economics, Georgia State University
Email address: asaravia@gsu.edu (Antonio Saravia).

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1 Introduction

The average adoption of political and economic freedom in the world has experienced a sustained increase in recent decades. As several studies have reported, however (see Giavazzi and Tabellini (2005) and Persson and Tabellini (2007)), the adoption of political freedom did not seem to be a necessary nor a sufficient condition for the adoption of economic freedom. Indeed, within the last three decades, some countries adopted institutions of economic freedom while adopting or strengthening their democracies, others adopted such institutions without modifying their autocratic regimes, and others were unable to do so despite having opened their political systems.\footnote{1}

The aforementioned evidence is not surprising. Although largely studied, the relationship between political and economic freedom still poses a challenging puzzle. Conventional wisdom has long suggested that political freedom was a condition for economic freedom (see, for example, Friedman (1962)). First, many of the institutions needed for political freedom carry the seeds of economic freedom (independent legal systems, civil liberties, stable definition of property rights, etc.). Second, through the generation of political competition, political freedom induces incumbent rulers to adopt Pareto improving institutions (Barro (1973) formalized this proposition portraying citizens as principals and politicians as agents who are compensated for the establishment of Pareto improving institutions by reelevation). Third, political freedom, and the resulting system of checks and balances, provide a legitimate base for managing social conflicts (see Aslund et al. (1996), North (1990) and Rodrik (1999)).

While appealing not only at a positive but also at a normative level, several authors have contested the aforementioned view and posed that autocratic regimes may be more conducive to economic freedom particularly at the beginning of the liberalization process when layoffs and cuts in entitlements are common (see, for example, Edwards (1991), Shleifer (1998) and Fidmuras (2000)). Additionally, as argued by the Public Choice literature, given that politicians tend to favor ‘key’ interest groups that can guarantee relection, political freedom may not necessarily generate the incentives for incumbent rulers to adopt efficient institutions (see, for example, Rowley, Tollison and Tullock (1989), Alesina and Perotti (1994) and Block (2002)).

Reconciling both views, Acemoglu and Robinson (2006) have suggested that the relationship between political and economic freedom may not be linear. According to these authors, incumbent rulers have more incentives to adopt efficient institutions when they face either low or high political competition (i.e. when they belong to entrenched autocratic regimes or face highly competitive democracies) but not when facing competitive levels in between. This
happens because the adoption of efficient institutions not only increases economic output (and, consequently, the incumbent ruler’s share of economic output), but also creates political turbulence (e.g. layoffs and cuts in entitlements) that increases the probability that the incumbent ruler is replaced. If the incumbent ruler belongs to a highly entrenched autocratic regime, however, this effect is non-binding and the incumbent ruler feels secure enough to adopt efficient institutions. At the other extreme, if the incumbent ruler faces a highly competitive democracy, he is ‘forced’ to adopt efficient institutions as he competes for the citizens’ preference with potential new rulers (a result consistent with Barro’s (1973) political principal-agent paradigm). It is only when the incumbent ruler faces mild levels of political competition, therefore, that his optimal choice may be to not adopt efficient institutions in order to reduce the probability of being replaced.

An important insight of Acemoglu and Robinson’s (2006) model is that, in both of the extreme cases conducive to the adoption of efficient institutions, the implicit key variable is the expectation of regime stability. Incumbent rulers facing highly competitive democracies or highly entrenched autocracies develop incentives to adopt efficient institutions only because they expect these regimes - and themselves - to remain in place the next period. In fact, the longer the expected regime stability, the higher the incentives for incumbent rulers to adopt efficient institutions as the discounted value of future pecuniary and non-pecuniary - benefits of incumbency increase. Additionally, such expectations make citizens less prone to threaten the regime even if the adoption of efficient institutions negatively affects them in the short run. Workers who lose their jobs as a consequence of privatization, for example, would be less willing to instigate a coup or a revolution if they expect the regime to remain stable nonetheless (perhaps because the majority of the citizens will support it). This effect further strengthens the incentives for incumbent rulers to adopt efficient institutions, generating a virtuous cycle.

While several variables may affect the expectations of regime stability, history (particularly the extent of political regime experience embedded in the polity) plays a relevant role in this regard. In the case of democracy, for example, rulers and citizens develop expectations of democratic stability as they learn to respect and cherish democracy as a method of government (see Gerring et al. (2005) and Persson and Tabellini (2007)). Common democratic values, however, do not develop overnight or in a vacuum but rather through a slow and lengthy accumulation of a stock of civil liberties and political rights. Persson and Tabellini (2007), call this stock of democratic experience, “democratic capital.” In the case of autocracy, a similar logic applies. Long-standing (and wide-reaching) autocratic regimes are naturally expected to be more stable in the future than recent (and class-specific) ones.

Several authors have studied political regime experience as a determinant
of economic performance. Clague et al. (1997), Olson (1997), and Grier and Munger (2006), for example, have all studied the importance of autocratic experience on economic growth. Londregan and Poole (1990), Comeau (2003), Gerring et al. (2005), and, as mentioned before, Persson and Tabellini (2007), have all studied the effect of democratic experience on the same variable. Although most of these studies argue that political regime experience affects economic growth through the adoption of efficient institutions, none make this connection explicit. In particular, none of these studies integrate political regime experience (and its role determining the expectations of regime stability) into the strategic optimization problem faced by incumbent rulers when deciding whether or not to adopt efficient institutions. Our aim is to contribute to fill this gap.

By integrating political regime experience into the incumbent ruler’s optimization problem - as oppose to simply assuming that this variable is likely to promote the adoption of institutions of economic freedom -, we gain a better understanding of the role of history as a determinant of such institutions. In particular, this framework allows us to investigate the relationship between political and economic freedom as a stock-flow rather than a flow-flow relationship as in some of the previous literature. Additionally, this exercise allows us to ask a) whether there are circumstances under which young democracies or autocracies can adopt institutions of economic freedom, and b) whether there are circumstances under which political regime experience may not foster the incentives in incumbent rulers to adopt such institutions.

To accomplish our goal, we propose a simple evolutionary game in which citizens and rulers endogenously determine the probability that the accumulation of democratic or autocratic experience continues at each period. This probability allows us to link the degree of political regime experience with the expectations of incumbent rulers regarding regime stability and, so, with their incentives to adopt institutions of economic freedom. On the empirical side, we propose a reduced model in which the adoption of institutions of economic freedom depends on political regime experience, current measures of democracy or autocracy, and control variables. Our econometric findings support our main theoretical insights.

In section two, we present the model and some illustrative simulations. In section three, we propose a reduced specification and develop the empirical analysis. In section 4, we present the main conclusions.
2 The model

Consider a sequential game played by an incumbent ruler, a group of citizens with mass normalized to 1, and Nature. The citizens produce and consume $y = A$, where $A$ is the state of ‘technology’ available. The variable $A$ is broadly construed so that it also captures the positive effect of adopting institutions of economic freedom. The incumbent ruler decides whether or not to adopt institutions of economic freedom and levies a *confiscatory tax* $T = tA$ on citizens. All parameters are public information.

The incumbent ruler moves first by deciding whether or not to adopt institutions of economic freedom. Based on this decision, Nature (a random draw from a given probability function) determines whether a coup (if the incumbent ruler is democratic) or a revolution (if the incumbent ruler is autocratic) arises. Following Acemoglu and Robinson (2006), the adoption of institutions of economic freedom represents the following trade-off. On one hand, the adoption of institutions of economic freedom increases $A$’s expected growth rate and, consequently, the incumbent ruler’s expected tax gains. On the other hand, such adoption generates political turbulence (as mentioned before, layoffs and cuts in entitlements are common at this stage) which increases the probability that Nature instigates a coup or a revolution which increases, in turn, the probability of observing a change of political regime (from democracy to autocracy or vice-versa). If this happens, the incumbent ruler is ousted before realizing the tax gains.

If a coup or revolution arises, citizens play a *global game* by choosing whether or not to defend the current political regime. Following Persson and Tabellini (2007), let $\mu$ be the true individual cost beared by a citizen who participates in the defense of the current regime. Citizens bear this cost irrespective of whether the defense is successful or not. Importantly, however, ex-ante, citizen $j$ only observes a noisy signal of this cost, $m_j = \mu + v_j$, where $v_j$ is an error term drawn from a normal distribution $N(0, \zeta)$.

If citizen $j$ participates in the defense of a democratic regime (or joins a revolution against an autocratic regime) and democracy prevails, citizen $j$ perceives a ‘social democratic benefit,’ $b > 0$. This benefit represents the personal utility or satisfaction perceived by individuals from participating in the social defense of democracy. It need not be confused, therefore, with the potential economic gains that individuals may perceive if democracy prevails. The probability that democracy prevails is equal to the fraction of citizens that participate in this defense, $s$. The expected net benefit from supporting democracy for individual $j$ is, therefore, $E(b - \mu) = bs - m_j$. If the current regime survives the coup or revolution, the incumbent ruler realizes the tax gains.
Importantly, each citizen treats the probability of defense success as independent of his own participation. In particular, citizens may perceive economic gains (or losses) if the defense of democracy succeeds but these individual gains do not determine the decision to participate. Atomistic individuals treat the probability of success as parametric. Additionally, the utility from non-participation is normalized to 0. When citizens do not participate in the defense of the current regime they bear no cost and, if the regime was democratic and survived, receive no social democratic benefit.\(^8\)

The global game played by citizens fulfills conditions A1-A5 in Morris and Shin (2002). Thus, in equilibrium all individuals follow an identical strategy \(\sigma(m_j)\) of participating \((\sigma = 1)\), or not \((\sigma = 0)\), based upon a unique cutoff value for their signal:\(^9\)

\[
\sigma(m_j) = \begin{cases} 
1 & \text{if } m_j < \mu^* = b/2 \\
0 & \text{if } m_j \geq \mu^* = b/2 
\end{cases} 
\]

The fraction of citizens who defend democracy is, therefore,

\[
s^* = \text{Prob}(v < b/2 - \mu) \equiv \Omega(b/2 - \mu) 
\]

where \(\Omega(\cdot)\) is the c.d.f. of the normally distributed error \(v\).

Solving for the sub-game perfect equilibrium, the incumbent ruler chooses whether or not to adopt institutions of economic freedom by comparing the expected returns of these options as a function of \(s\).

2.1 Political regime experience and institutional evolution

We model the accumulation of political regime experience and the adoption of institutions of economic freedom as the result of an evolutionary process called fictitious play. This process consists of largely repeating the previously described one-shot game, and allowing new generations of players to learn from the outcomes of previous versions of the game.

The key evolutionary parameter is \(b\), the social democratic benefit of participating in a successful defense of democracy. As in Persson and Tabellini (2007), we interpret this parameter as a function of the degree of democratic experience or democratic capital enjoyed by society. A higher degree of democratic experience is likely to generate a larger appreciation of democracy and, so, a larger social benefit of defending it. We assume that parameter \(b\) increases, therefore, in periods of democracy and remains constant (or even decreases)
in periods of autocracy. The actual growth rate depends on the performance of the economy under both regimes. Arguably, the stock of democratic capital would be higher if this regime was associated with high economic growth in the past. Conversely, the stock of democratic capital would be smaller if autocratic regimes were associated with high economic growth in the past.

A simple way to capture the trade-off faced by the incumbent ruler when deciding to adopt institutions of economic freedom is to use a binary specification as follows. If the incumbent ruler adopts institutions of economic freedom, $A$ increases at rate $\alpha > 0$ with probability $\gamma$, or at rate $\delta > 0$ with probability $1 - \gamma$, with $\alpha > \delta$. Additionally, Nature instigates a revolution (or a coup) with probability $\chi$. If, on the other hand, the incumbent ruler does not adopt institutions of economic freedom, $A$ increases at rate $\alpha$ with probability $\lambda$ or at rate $\delta$ with probability $1 - \lambda$, with $\gamma > \lambda$. Additionally, Nature instigates a revolution (or a coup) with probability $\phi$, with $\chi > \phi$. Furthermore, assume that, during periods of democracy, $b$ increases at the same rate that $A$ does. During periods of autocracy, however, $b$ remains constant if $A$ increases by $\delta$ and decreases (also by $\delta$) if $A$ increases by $\alpha$.

Based on these parameters, an autocratic incumbent ruler chooses whether to adopt institutions of economic freedom or not by comparing the following expected values:

Adoption: $[\chi(1 - s) + (1 - \chi)]t(1 + \gamma \alpha + (1 - \gamma)\delta)Y_0$

No adoption: $[\phi(1 - s) + (1 - \phi)]t(1 + \lambda \alpha + (1 - \lambda)\delta)Y_0$

Importantly, the probabilities under which Nature instigates a coup or a revolution ($\phi$ and $\chi$) can be interpreted as the natural - exogenous - propensities to social unrest (before and after structural reforms respectively). The extent to which $\chi$ is greater than $\phi$ can be interpreted, in turn, as the degree of influence of internal elites with vested interests against the general adoption of institutions of economic freedom. If $\chi$ is sufficiently greater than $\phi$, therefore, the expectations of regime stability generated by political regime experience may not generate sufficient incentives for the incumbent ruler to adopt institutions of economic freedom. Conversely, if the difference between the two probabilities is sufficiently small, incumbent rulers in polities lacking long political regime experience may still develop the incentives to adopt institutions of economic freedom.

2.2 A numerical example

Assume that an autocratic regime is in place beginning in the first period. Consider, furthermore, the specific set of parameters in Table 2. According to these values, parameter $b$ is set equal to one and the true cost of regime defense
equal to 0.5. If Nature instigates a revolution, therefore, citizen \( j \) supports democracy if \( v_j < 1/2 - 0.5 = 0 \) (remember that \( v \) is normally distributed with mean 0 and, in this parameterization, standard deviation 0.1). Additionally, if the incumbent ruler adopts institutions of economic freedom, \( A \) grows at rates 0.03 or 0.01 with probabilities 0.7 and 0.3 respectively. The adoption of institutions of economic freedom, however, sets the probability that Nature instigates a coup at 0.1. If, on the contrary, the incumbent ruler does not adopt institutions of economic freedom, \( A \) grows at the same rates as before but with reversed probabilities. In this latter case, the probability that Nature instigates a coup is only 0.05. Finally, the initial income level is set at 1, the tax rate at 0.1, and the population of citizens at 100.

In the first round of our first simulation, random realizations of \( v \) determined that \( v_j < 1/2 - 0.5 = 0 \) for a fraction \( s = 0.48 \) of the total population. As a result, the expected value of adopting institutions of economic freedom was less than the expected value of not adopting them (0.087 < 0.096). In equilibrium, therefore, the incumbent ruler did not adopt institutions of economic freedom. Nature, in turn, did not instigate a revolution (the probability of this happening was only 0.05) and the regime remained autocratic at the beginning of round 2. Additionally, the rate of growth of \( A \) was \( \delta = 0.01 \) and, so, \( b \) remained constant. Similar results were found for rounds 2 to 9. The only difference was that, for some of those rounds, \( A \) grew at a rate \( \alpha \) and, so, \( b \) decreased.

The previous pattern changed in round 10 when Nature instigated a coup and citizens supported it. The advent of democracy, however, did not change the adoption decision of the incumbent ruler in round 11. This happened because parameter \( b \) did not increase sufficiently in one period so as to generate a value for \( s \) large enough to make the expected value of adoption greater than the expected value of no adoption. In fact, 19 more rounds had to pass before \( b \) reached that level. The adoption of institutions of economic freedom was verified in round 30 and, from this point onwards, the simulation began to converge to a virtuous cycle in which \( b \) kept increasing, \( s \) approached 1, democracy became stable, incumbent rulers found the adoption of institutions of economic freedom optimal, and the economy’s expected growth rate increased.

After running 100 different simulations using the same set of parameters (each one including 100 rounds), we find the following results:

- The process eventually converged to a stable democracy (democracy in each round) in 60% of the simulations. In these cases, the democratic string started, on average, in the 32nd round. The adoption of institutions of
economic freedom, however, did not become consistent until, on average, the 52nd round. As before, contemporaneous democracy did not generate enough expectations of regime stability to foster the incentives to adopt institutions of economic freedom.

- The process remained autocratic in all periods in 40% of the simulations. In these cases, the adoption of institutions of economic freedom did not become consistent until, on average, the 80th round. As in the case of democracy, contemporaneous autocracy did not generate enough expectations of regime stability to foster the incentives to adopt institutions of economic freedom. Notice, that, in this case, a longer regime experience was needed to generate the incentives in rulers to adopt institutions of economic freedom.

The last result is particular to the set of parameters employed. Relative to the number of rounds used, we started with a ‘high’ value of $b$ ($b = 1$) that determined a ‘high’ starting value of $s$. As a result, if Nature does not instigate a revolution for a number of periods (or, if it does, citizens do not support it), $b$ decreases, but requires many rounds before generating low enough values of $s$ that would make the expected value of adoption higher than the expected value of no adoption under autocracy.

If we change the starting value of $b$ to 0.7, for example, we find that the process converges to democracy in only 30% of the cases. In 60% of the cases the regime remains autocratic in all rounds and incumbent rulers begin to adopt institutions of economic freedom, on average, in the 65th round. In the remaining 10% of the cases, neither democracy nor institutions of economic freedom are ever consistently adopted.

Similar intuitive results are found when modifying the rest of the parameters. Decreasing or increasing $\mu$ (the cost of defense participation) has the same effect as increasing or decreasing $b$. Increasing $\alpha$, $\delta$ (the rates of growth) and $t$ (the confiscatory tax rate) increases the rate of convergence to a democratic experience and institutional adoption or autocratic experience and institutional adoption virtuous cycle depending on the initial values of $b$ and $\mu$. The same is true for $\gamma$ and $\delta$ (the probabilities of observing rates of growth $\alpha$ and $\delta$ respectively). Increasing $\chi$, on the other hand, delays the adoption of institutions of economic freedom, even if the polity had accumulated long political regime experience, as such adoption poses a higher risk of replacement. If $\phi$, simultaneously increases, however, this effect is mitigated. If both probabilities are small, in turn, incumbent rulers may have incentives to adopt institutions of economic freedom without requiring long political experience.
2.3 Stylized facts

The main lessons derived from our evolutionary model and simulations are the following:

- By raising the expectations of regime stability in incumbent rulers and citizens, democratic (autocratic) experience increases the incentives for incumbent rulers to adopt institutions of economic freedom.
- For given initial levels of the individual social democratic benefit of defending democracy ($b$) and the cost of defending the current regime ($\mu$),
  - Political processes converge sooner to a virtuous cycle of democratic (autocratic) stability and adoption of institutions of economic freedom when democracy (autocracy) was associated with high rates of economic growth in the past, the confiscatory tax rate is high, and the probabilities under which Nature instigate a coup are low.
  - Political processes may remain trapped in a vicious cycle of regime instability and no adoption of institutions of economic freedom when democracy (autocracy) was associated with low rates of economic growth in the past, the confiscatory tax rate is low, and the probabilities under which Nature instigate a coup are high. Countries experiencing this cycle would require long periods of time (a large number of rounds) to escape the trap.

3 Empirical strategy

The main implications of our theoretical model can be empirically study using the following reduced specification:

$$EF_i = \alpha + \beta PRE_i + \gamma CPR_i + \delta C_i + u_i$$

where $EF$ is a measure of the adoption of institutions of economic freedom, $PRE$ is a measure of political regime experience (democracy or autocracy), $CPR$ is a measure of the contemporaneous political regime (democracy or autocracy), $C$ is a vector of control variables, and $u$ is the error term.

Ideally, we would have also liked to add a measure of the natural propensity to social unrest following structural reforms (the likelihood $\chi$ with which Nature instigates a coup or a revolution after the adoption of institutions of economic freedom). As in Acemoglu and Robinson (2006), this measure would proxy the influence of elites with vested interest against economic freedom. While it is possible to find measures of the extent of unions and cartels in a given country, weighted indices of these and other relevant variables are difficult to produce.
and use. First, data are not consistent nor harmonized until after 2005 and, second, thresholds need to be identified to correspond to “low” and “high” degrees of elites’ influence. These thresholds would naturally vary depending on region, culture, and other social variables. Our empirical analysis abstracts itself, therefore, from this potentially important effect. Case studies in which the extent of the influence of elites could be consistently measured are an important venue for future research.

Assuming the influence of elites opposing the adoption of institutions of economic freedom is not significantly large, we would expect $PRE$ to be robustly significant and positively related to $EF$ within the sub-samples of democratic and autocratic countries. That is, for currently democratic (autocratic) countries, the degree of democratic (autocratic) experience should be able to positively explain the observed differences in the adoption of institutions of economic freedom. Additionally, we would expect $CPR$ to be non-significant or, in line with the ambiguous results of previous literature, non-robustly related to $EF$.

Economic freedom

Several indices provide data on the adoption of institutions of economic freedom. We use here the Economic Freedom of the World (chain-linked summary) Index (EFWI) elaborated by Gwartney et al. (2007) but our results (available upon request) are very similar when using the Index of Economic Freedom produced by the Heritage Foundation and The Wall Street Journal (Holmes, Feulner and O’Grady (2008)).

The first important observation is that the adoption of institutions of economic freedom is typically an incremental and slow process that takes place over several years. One would like to measure such adoption, therefore, over the length of five years or a decade. Given that before the year 2000 the EFWI is reported every five years, our analysis covers the following decades/periods: 1980s: 1980-1985, 1990s: 1990-1995, and 2000s: 2000-2005. Given, furthermore, that the EFWI is measured on a closed scale (0-10), using the average EFWI over each period instead of the change, captures more appropriately the intuition behind a country’s commitment to economic freedom. Developed countries at the high end of the scale, for example, present little or no EFWI variation within the decade chosen. Using changes, therefore, would severely underestimate the continuous effort of building and keeping institutions of economic freedom in these countries.

Political regime experience

We are aware of only two sources of long-term historical data on regime type: Polity IV (Marshall and Jaggers (2006)) and Boix and Rosato (2001). Both sources provide data on regime type since 1800 (or the first year available)
until 2005, in the case of Polity IV, and 1999, in case of Boix and Rosato (2001). Given that the variable of interest is the experience accumulated over time, our sample considers only countries for which at least 30 years of data on regime type before 1980 are available.

Polity IV reports the indices Democ and Autoc that measure the annual degree of democracy and autocracy, respectively, in each country on a 0-10 scale. To generate indices of democratic and autocratic experience we first adjust these indices by the annual rate of economic growth. As emphasized by our theoretical model, countries that present higher (lower) economic growth rates under democracy or autocracy accumulate a larger (lower) experience or appreciation for the corresponding regime. Given that the rate of economic growth in 98% of our observations ranges from -10 to 10%, we simply add the percentage rate of growth (on a 100 points basis) to the Democ and Autoc indices. The second step is to discount the adjusted Democ and Autoc indices so that recent democratic or autocratic experiences weigh more than distant occurrences of these regimes. As in Persson and Tabellini (2007), we use a discount rate of 0.99. Finally, we add all annual adjusted discounted indices up to 1979, 1989, and 1999 and re-scale the sum to a 0-10 scale.

Boix and Rosato (2001), in turn, report an annual dummy variable that assigns 0 to autocratic regimes and 1 to democratic regimes. We construct two separate dummy variables with these values (one for democracy and another for autocracy) and follow the procedure described above to generate alternative indices of democratic and autocratic experience (the only difference is that the rate of economic growth is now added in decimal points to the dummy variable).

Contemporaneous degree of democracy or autocracy

Several indices measuring the degree of democracy are available. We use the Democ index from Polity IV, the dummy variable reported by Boix and Rosato (2001) (except for the 2000-2005 period for which this measure is not available), and the Executive and Legislative Indices of Electoral Competitiveness (EIEC and LIEC) (Beck et al. (2001)) which measure the degree of political competition at the executive and legislative levels on a 1 to 7 scale. In all cases, we use the average value over the corresponding period.

We are aware of only two indices measuring the degree of autocracy: the Autoc index from Polity IV and the dummy variable from Boix and Rosato (2001) (not available for the 2000-2005 period). As before, we use the average value of these indices over the corresponding period.

Control variables

Following other empirical studies on the adoption of institutions of economic
freedom (see, for example, Adserà et al. (2003) and de Haan and Sturm (2003)), we use the following control variables.

**Past per capita GDP growth (GDPpcg):** We control for past per capita GDP growth (the average for the decade before the period of analysis), as it is likely that countries that grew faster in the recent past, possibly because of the previous adoption of institutions of economic freedom, may be inclined to increase their economic freedom in the future (data from Heston et al. (2006)).

**Past per capita GDP level (GDPpc):** We control for past per capita GDP level (the average for the decade before the period of analysis), as it is possible that more developed countries may be inclined (or face less popular resistance) to adopt institutions of economic freedom. Data from Heston et al. (2006).

**Openness:** It has also been argued that globalization may foster the adoption of institutions of economic freedom as countries initiate reforms to participate in international markets. We control for this influence with a traditional measure of the openness or exposure of a country to international markets consisting of the ratio of imports plus exports to GDP. As with the previous two variables, we use the average of the decade before the period of analysis. Data from Heston et al. (2006).

Consolidating the previous data results in a sample of 88 countries in each one of the three periods considered. We define a country as being currently democratic (autocratic) if the difference between its Democ (Autoc) and Autoc (Democ) indices for the period under consideration is greater than or equal to 3 (remember that these indices are measured on a 0-10 scale). According to this definition, our samples include 42 democratic and 36 autocratic countries in the 1980-1985 period, 60 democratic and 19 autocratic countries in the 1990-1995 period, and 68 democratic and 10 autocratic countries in the 2000-2005 period. Naturally, as the average adoption of political freedom increased in recent years, few countries remained autocratic in the last two periods. Empirically, this poses a difficulty as the analysis of autocratic countries in the last two periods is reduced to only 19 and 10 observations.

As an illustration, figure 1 presents the indices of political regime experience vs. the indices of contemporaneous democracy and autocracy for the sub-samples of democratic and autocratic countries in the 1980-1985 period. Clearly, the contemporaneous indices of democracy and autocracy are poor indicators of the country’s political regime experience. This evidence rejects concerns of multicollinearity in our specification.

[Fig. 1 about here.]

Additionally, figure 2 plots the sample of democratic countries in the 1980-
the Index of Contemporaneous Democracy - Average EFWI quadrant. Notice that, as expected, the cloud of countries does not present an obvious positive trend. Furthermore, while all OECD countries (Switzerland, USA, UK, Canada, Australia, Austria, Finland, Spain, Ireland, Denmark, New Zealand, Sweden, etc.) present the same level of current democracy (10), they differ in their levels of economic freedom. Spain and Sweden for example, present levels of economic freedom three index points below those of Switzerland and the USA, and similar to those of Honduras and South Africa. If current democracy was a significant determinant of the adoption of institutions of economic freedom, however, countries presenting the same index of current democracy should present very similar levels of EFWI. Figure 3 sheds some light on this puzzle. Using the Index of Democratic Experience, instead of the Index of Contemporaneous Democracy, the cloud of countries presents a clear positive trend and OECD countries are arranged according to their levels of economic freedom and democratic experience. The Appendix presents similar graphs for autocratic countries in the 1980-1985 period.

3.1 Cross-sectional regressions: Democratic countries

Tables 2 and 3 report the results of OLS cross-sectional regressions for our sub-sample of democratic countries during the 1980s. In table 2, the index of democratic experience is construed based on the index Democ from Polity IV (IDE (Democ)). In table 3, this index is construed based on the dummy variable reported by Boix and Rosato (2001) (IDE (B&R)). The index of contemporaneous democracy (Cont Dem) is given, alternatively, by the averages of Democ, Boix and Rosato, LIEC, and EIEC.

Results are consistent with our main theoretical insights assuming a non-significantly large influence of elites opposing economic freedom. In table 2, the coefficient of IDE (Democ) is robustly positive and significant while the coefficient of Cont Dem is never significant. Additionally, as expected, the coefficients of the control variables past per capita GDP (GDPpc), Openness, and the annual growth rate of per capita GDP (GDPpcg) are all robustly significant and positive. Column 6 shows the final results after eliminating the non-significant variable.
Similar results are found in table 3 when using IDE (B&R). A couple of unexpected results are produced, however, when using Boix and Rosato and EIEC as the measures of contemporaneous democracy. In the first case, the coefficient of the measure of contemporaneous democracy is rendered negative and significant (a result consistent with some of the ambiguous results reported by previous literature). In the second case, the coefficient of IDE (B&R) is rendered not significant. When eliminating the contemporaneous measure of democracy (highly non-significant in three of the four alternative specifications), however, this last result disappears.

Tables 4 and 5 report the equivalent analysis for the 1990s. Again, the coefficient of the indices of democratic experience are positive and significant while the coefficients of the contemporaneous measures of democracy are not significant. In terms of the control variables, however, these tables report an unexpected result: the variable Openness presents a robust negative significant coefficient. Given that we do not explicitly model the role of this variable, we can only speculate that Openness, for this period, worked as a substitute for the adoption of institutions of economic freedom. While intriguing, this unexpected result is only present in this particular period.

Finally, tables 6 and 7 report the equivalent results for the 2000s. In table 6, the results in two of the three alternative models are consistent with previous ones. In table 7, however, when using IDE (B&R) as our measure of democratic experience, this variable fails to present significance in all of the three alternative models (although the coefficients remain to be positive). Notice, however, that the contemporaneous measure of democracy remains to be non-significant.

Overall, out of 26 different cross-sectional regressions for the three different periods, 22 present results supporting a positive relationship between democratic experience and the adoption of institutions of economic freedom. Additionally, in only three of the 26 regressions the contemporaneous measure of democracy is significantly related to the adoption of institutions of economic freedom. Consistent with the ambiguous results found in previous literature, the sign of the coefficient of this latter variable was negative in one of the cases (for the 1980s) and positive in the other two cases (for the 2000s period).
3.2 Cross-sectional regressions: Autocratic countries

Tables 8 and 9 report the results of OLS cross-sectional regressions for our sub-sample of autocratic countries during the 1980s. In table 8, the index of autocratic experience is construed based on the index Autoc from Polity IV (IAE (Autoc)). In table 9, this index is construed based on the dummy variable reported by Boix and Rosato (2001) (IAE (B&R)). The index of contemporaneous autocracy (Cont Auto) is given, alternatively, by the averages of Autoc and Boix and Rosato.

[Table 8 about here.]

[Table 9 about here.]

Results are consistent with our main theoretical insights assuming a non-significantly large influence of elites opposing economic freedom. In both tables, the coefficient of the indices of democratic experience are almost always positive and significant (the one regression in which this is not the case - table 9 - , statistical significance is achieved at 11%). The coefficient of the contemporaneous index of autocracy, in turn, is never significant. Additionally, in most cases, the coefficients of past per capita GDP (GDPpc), Openness, and the annual growth rate of per capita GDP (GDPpcg) show the expected significance and sign. Column 4 in both tables shows the final results after eliminating the non-significant variable.

[Table 10 about here.]

[Table 11 about here.]

As we mentioned before, results produced by similar regressions for the 1990s and 2000s should be considered rather carefully as they are produced using only 19 and 10 observations respectively. Furthermore, for these periods, we have only one measure of contemporaneous autocracy available: the average of Autoc. Tables 10 and 11 report the results for the 1990s. In table 9, when using IAE (Autoc), neither this index nor the measure of contemporaneous autocracy are significant. In fact, none of the control variables are robustly significant either. In table 11, when using IAE (B&R), this index is only significant when all other non-significant variables are eliminated. Furthermore, extremely low R²s indicate that our reduced model is inadequate to explain the adoption of institutions of economic freedom in this period.

[Table 12 about here.]

[Table 13 about here.]
Tables 12 and 13 report the results for the 2000s. The index of autocratic experience becomes significant in both tables once all other non-significant variables are eliminated. Furthermore, column 5 of table 12 checks that the contemporaneous measure of autocracy does not become significant when eliminating the index of autocratic experience. Interestingly, in terms of the control variables, only per capita GDP in the recent past is robustly significant and positive.

In summary, while our cross-sectional regressions for autocratic countries for the 1980s present results clearly consistent with the ones found for democratic countries, similar regressions for the 1990s and 2000s present ambiguous results. In these last two periods, it is only when we eliminate other non-significant variables that one of the indices of autocratic experience presents a positive and significant coefficient. It is highly likely that the small number of observations in these last two periods is at the root of these results. We can also speculate that, for these two decades, the influence of elites with vested interests against economic freedom was highly significant. As we mentioned before, case studies may be needed to further explore these relationships.

4 Conclusion

We have developed a simple model that integrates political regime experience into the incumbent ruler’s strategic optimization problem when deciding whether to adopt or not institutions of economic freedom. The model uses an evolutionary game in which citizens and rulers endogenously determine the probability that the accumulation of democratic or autocratic experience continues at each period. This probability allows us to link the degree of political regime experience with the expectations of incumbent rulers regarding regime stability and, therefore, with their incentives to adopt institutions of economic freedom.

We find that, by raising the expectations of regime stability in incumbent rulers and citizens, political regime experience increases the incentives for incumbent rulers to adopt institutions of economic freedom. The convergence to a virtuous cycle in which regime stability and the adoption of institutions of economic freedom reinforce each other is faster when political regime experience is associated with high rates of economic growth, the confiscatory tax rate enjoyed by incumbent rulers is high, and the probabilities with which Nature instigates a coup or revolution are low.

The last condition is particularly important. In line with Acemoglu and Robinson (2006), the probability with which Nature instigates a coup or a revolution after the incumbent ruler adopts institutions of economic freedom can
be interpreted as the degree of influence of internal elites with vested interest against such adoption. If this probability is sufficiently high, political regime experience may not generate enough incentives for incumbent rulers to adopt institutions of economic freedom. Conversely, incumbent rulers in young democracies or autocracies, may develop the incentives to adopt institutions of economic freedom if the aforementioned probability is sufficiently small.

On the empirical side, we have proposed a reduced model in which the adoption of institutions of economic freedom depends on political regime experience, current measures of democracy or autocracy, and control variables. Our analysis covers the 1980s: 1980-1985, 1990s: 1990-1995, and 2000s: 2000-2005. We have developed indices of democratic and autocratic experience based on the indices Autoc from Polity IV and the dummy variable reported by Boix and Rosato (2001), and adjusted for annual economic growth rates.

The results for the sub-samples of democratic countries in all of the three periods are largely consistent with our main theoretical insights assuming a non-significantly large influence of elites opposing economic freedom. For the vast majority of the regressions, the indices of democratic experience are positive and significantly related to the adoption of institutions of economic freedom. The indices of contemporaneous democracy, on the other hand, are non-significantly or non-robustly related to the same dependent variable. Similar results are found for the sub-sample of autocratic countries during the 1980s. The indices of autocratic experience are positive and significantly related to the adoption of institutions of economic freedom but the indices of contemporaneous autocracy are not. Equivalent results for the 1990s and 2000s are, however, less convincing. Given the small number of observations (19 and 10 respectively), the regressions for these periods present low R²s and most of the control variables are rendered non-significant. Without a variable measuring the extent of elites’ influence with vested interests against economic freedom, we can only speculate that such influence was significant within these sub-samples.

Several venues for further research are available. At the theoretical level it would be interesting to identify the role of the different individual elements that constitute democracies and autocracies in the accumulation of political regime experience. Democracies, for example, differ in terms of their electoral rules (majority vs. proportional), the form of government (presidential vs. parliamentarian), and the degree of centralization (federal vs. unitary). Do these different characteristics generate different degrees of democratic experience accumulation? If so, is it because of the different degrees of popular participation that they promote? How would the global game played by the citizens differ under these different types of democracy? What about the different types of autocracies? Also, what kind of informal social norms and conventions are
conducive of democratic experience accumulation? And, possibly more importantly, does this accumulation depend on a rising middle class?

At the empirical level, given the small number of recent autocratic countries (1990s and 2000s) for which data are available, individual case studies may shed more light on the relationship between autocratic experience and the adoption of institutions of economic freedom. A more immediate task, however, would be to develop measures of the influence of elites opposing the adoption of institutions of economic freedom and study their effect on our econometric specification. Case studies may be the most appropriate first step in this direction.
References


Notes

1 Following Gwartney et al. (2007) we refer to institutions of economic freedom as the formal and informal conventions determining the protection of private property, free competition, and freedom of exchange. The world average of the (chain-linked summary) Economic Freedom of the World Index produced by these authors increased from 5.5 in the 1980s, to 6.0 in the 1990s, and 6.4 in the early 2000s. Similarly, the world average of the democratic index produced by Polity IV (Marshall and Jaggers (2006)) increased from 3.2 in the 1980s, to 4.85 in the 1990s, and 5.46 in the early 2000s (both indices are measured on a 0 to 10 scale).

2 Persson and Tabellini (2007) report empirical evidence suggesting that democratic experience does reflect the extent to which citizens value democracy. Using the results of the World Value Surveys for the late 1990s for a large cross section of countries (Inglehart and Welzel (2005)), they find that the agreement of citizens to the question “Democracy may have problems but is it better than any other form of government?” is strong and positively correlated to their own indices of democratic experience.

3 Gerring et al. (2005), for example, assume that as countries accumulate democratic experience they also accumulate “political capital” understood as the overall health of the polity (and defined by the same components that define economic freedom, i.e. low corruption levels, high bureaucratic quality, rule of law, etc.). Similarly, Persson and Tabellini (2007) assume that, by generating expectations of democratic stability, long democratic experience helps to improve the country’s “investment climate” characterized by the rule of law.

4 The confiscatory tax, $T$, is meant to represent the pecuniary and non-pecuniary benefits that rulers perceive when in power rather than the mere source of public funding.

5 Notice that an important difference between our formulation and that of Acemoglu and Robinson (2006) is that, in the latter, the adoption of efficient institutions does not increase the probability of political regime change but the probability of political replacement (which, particularly in the case of democracy, can happen within the same type of political regime). Under the expectations of long run democratic stability, however, incumbent rulers facing highly competitive democracies could find it in their interest to adopt institutions of economic freedom even if this means being replaced in the next election. The expectations of long regime horizon generate not only static, but also inter-temporal political competition. If, however, the incumbent rulers’ expectations are such that the democratic system itself is at risk, then the aforementioned incentives could be reversed.

6 It is important to mention that each citizen holds the (improper) prior that $\mu$ has a uniform distribution in the real line.
Notice that, as in Persson and Tabellini (2007), we assume that citizens perceive a social benefit from democracy but not from autocracy. This assumption is only needed for construction and can be reversed without affecting our results.

This assumption avoids individuals’ free-riding incentives.

See Morris and Shin (2002) for a complete proof.

There is nothing particularly special about this specification. As we will see below, assigning different rates of change to \( b \) only affects the speed of convergence of the process. In particular, discounting past values of this parameter has no qualitative influence in the results.

See Morris and Shin (2002) for a complete proof.

These elites can take the form of, for example, monopolies, cartels or unions.

This result is the main difference between our model and that of Persson and Tabellini (2007). In the latter, political regime experience is assumed to unambiguously foster the adoption of institutions of economic freedom.

Programming and results in Mathematica are available upon request.

It is important to note that our data on economic growth (Heston et al. (2006)) go as far back as 1951. As a result, only the most recent years are adjusted by economic growth as described in the text.

The scale of the EIEC is defined as: (1) no legislature, (2) unelected legislature, (3) elected executive when there was only one candidate, (4) one party, multiple candidates, (5) multiple parties are legal but only one party won seats, (6) multiple parties did win seats but the largest party received more than 75% of the seats, (7) largest party got less than 75%.

Using the average of the previous decade smoothes out possible short-run shocks and avoids possible problems of endogeneity.

Notice that the sample of countries needs not be identical in all three periods. For example, some countries may have data available for the 2000s but not for the 1980s.

We have also tried separating democratic and autocratic countries based on differences between the indices Democ and Autoc greater than 4 and 5. While results for the 1980s are qualitatively similar, these definitions limit the number of autocratic countries in the 1990s and 2000s to an even greater extent.

The correlation between the indices of contemporaneous democracy and democratic experience based on Democ for the 1980s is in the order of 60%.
Figures

(a) Democratic countries

(b) Autocratic countries

Fig. 1. 1980-1985: Indices of Political Regime Experience vs. Indices of Contemporaneous Democracy and Autocracy (based on Democ and Autoc from Polity IV)
Fig. 2. 1980-1985: Sample of democratic countries in the Index of Contemporaneous Democracy - Average EFWI quadrant
Fig. 3. 1980-1985: Sample of democratic countries in the Index of Democratic Experience - Average EFWI quadrant
Tables

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<td>$\lambda$</td>
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</tr>
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</tr>
<tr>
<td>$Y_0$</td>
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</tr>
<tr>
<td>$\mu$</td>
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Table 1
Set of parameters for a numerical example
### Table 2

Cross-sectional data estimates for democratic countries during the 1980s - IDE uses Democ

Dependent variable: EFWI Av. 1980-1985

<table>
<thead>
<tr>
<th>Cont Dem:</th>
<th>Democ</th>
<th>Boix and Rosato</th>
<th>LIEC</th>
<th>EIEC</th>
<th>None</th>
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<tr>
<td>Constant</td>
<td>3.317 (5.74)(^a)</td>
<td>3.708 (10.38)(^a)</td>
<td>3.597 (4.19)(^a)</td>
<td>3.3 (6.97)(^a)</td>
<td>3.34 (10.33)(^a)</td>
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<tr>
<td>IDE (Democ)</td>
<td>0.177 (2.23)(^b)</td>
<td>0.167 (2.18)(^b)</td>
<td>0.18 (2.22)(^b)</td>
<td>0.177 (2.12)(^b)</td>
<td>0.178 (2.26)(^b)</td>
</tr>
<tr>
<td>Cont Dem</td>
<td>0.004 (0.04)</td>
<td>-0.421 (-1.3)</td>
<td>-0.043 (-0.28)</td>
<td>0.007 (0.08)</td>
<td></td>
</tr>
<tr>
<td>GDPpc</td>
<td>9.82E-05 (2.17)(^b)</td>
<td>1.11E-04 (2.74)(^b)</td>
<td>1E-4 (2.57)(^b)</td>
<td>9.87E-05 (2.53)(^b)</td>
<td>9.9E-05 (2.54)(^b)</td>
</tr>
<tr>
<td>Openness</td>
<td>0.007 (2.03)(^b)</td>
<td>0.007 (1.8)(^b)</td>
<td>0.007 (2.09)(^b)</td>
<td>0.007 (2.09)(^b)</td>
<td>0.007 (2.1)(^b)</td>
</tr>
<tr>
<td>GDPpcg</td>
<td>0.141 (2.69)(^b)</td>
<td>0.132 (2.99)(^b)</td>
<td>0.147 (2.76)(^b)</td>
<td>0.141 (2.83)(^b)</td>
<td>0.141 (3.07)(^b)</td>
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<td>Adjusted R2</td>
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<td>0.694</td>
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</table>

IDE (Democ): Index of democratic experience based on Democ from Polity IV

Cont Dem: Contemporaneous measure of democratic experience

GDPpc: Per capita gross domestic product

Openness: Imports plus Exports divided by GDP

GDPpcg: Annual growth rate of per capita gross domestic product

* t-statistics are in parenthesis

Significance levels: a (1%), b (5%), and c (10%)

### Table 3

Cross-sectional data estimates for democratic countries during the 1980s - IDE uses Boix and Rosato

Dependent variable: EFWI Av. 1980-1985

<table>
<thead>
<tr>
<th>Cont Dem:</th>
<th>Democ</th>
<th>Boix and Rosato</th>
<th>LIEC</th>
<th>EIEC</th>
<th>None</th>
</tr>
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<td>Constant</td>
<td>3.4 (5.37)(^a)</td>
<td>4.09 (10.48)(^a)</td>
<td>3.93 (4.38)(^a)</td>
<td>3.471 (7.39)(^a)</td>
<td>3.525 (11.52)(^a)</td>
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<tr>
<td>IDE (B&amp;R)</td>
<td>0.136 (1.73)(^c)</td>
<td>0.15 (1.86)(^c)</td>
<td>0.141 (1.69)(^c)</td>
<td>0.135 (1.57)</td>
<td>0.136 (1.73)(^c)</td>
</tr>
<tr>
<td>Cont Dem</td>
<td>0.02 (0.2)</td>
<td>-6.737 (-1.83)(^c)</td>
<td>-0.067 (-0.44)</td>
<td>0.009 (0.11)</td>
<td></td>
</tr>
<tr>
<td>GDPpc</td>
<td>1E-04 (2.22)(^c)</td>
<td>1.1E-04 (2.96)(^c)</td>
<td>1.1E-04 (2.87)(^c)</td>
<td>1E-04 (2.82)(^c)</td>
<td>1.1E-04 (2.82)(^c)</td>
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<tr>
<td>Openness</td>
<td>0.007 (1.8)(^c)</td>
<td>0.005 (1.45)</td>
<td>0.006 (1.79)(^c)</td>
<td>0.007 (1.85)(^c)</td>
<td>0.007 (1.86)(^c)</td>
</tr>
<tr>
<td>GDPpcg</td>
<td>0.149 (2.44)(^c)</td>
<td>0.137 (2.73)(^c)</td>
<td>0.16 (2.61)(^c)</td>
<td>0.15 (2.6)(^c)</td>
<td>0.151 (2.81)(^c)</td>
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<td>Adjusted R2</td>
<td>0.66</td>
<td>0.683</td>
<td>0.663</td>
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<tr>
<td>Observations</td>
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</table>

IDE (B&R): Index of democratic experience based on Boix and Rosato

Cont Dem: Contemporaneous measure of democratic experience

GDPpc: Per capita gross domestic product

Openness: Imports plus Exports divided by GDP

GDPpcg: Annual growth rate of per capita gross domestic product

* t-statistics are in parenthesis

Significance levels: a (1%), b (5%), and c (10%)
### Table 4
Cross-sectional data estimates for democratic countries during the 1990s - IDE uses Democ

Dependent variable: EFWI Av. 1990-1995

<table>
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<tr>
<th>Current Dem:</th>
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<th>Boix and Rosato</th>
<th>LIEC</th>
<th>EIEC</th>
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<tr>
<td>Constant</td>
<td>5.43  (10.71)$^a$</td>
<td>5.245 (22.18)$^a$</td>
<td>5.691 (8.03)$^a$</td>
<td>5.85 (8.73)$^a$</td>
<td>5.118 (34.24)$^a$</td>
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<tr>
<td>IDE (Democ)</td>
<td>0.128 (2.4)$^b$</td>
<td>0.123 (2.37)$^b$</td>
<td>0.127 (2.45)$^b$</td>
<td>0.135 (2.63)$^b$</td>
<td>0.115 (2.19)$^b$</td>
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<tr>
<td>Cont Dem</td>
<td>-0.048 (-0.69)</td>
<td>-0.207 (-0.7)</td>
<td>-0.092 (-0.79)</td>
<td>-0.118 (-1.06)</td>
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<tr>
<td>GDPpc</td>
<td>7.31E-05 (3.24)$^a$</td>
<td>7E-05 (3.34)$^a$</td>
<td>6.82E-05 (3.27)$^a$</td>
<td>6.67E-05 (3.29)$^a$</td>
<td>6.82E-05 (3.2)$^a$</td>
</tr>
<tr>
<td>Openness</td>
<td>-5.57E-04 (-2.1)$^b$</td>
<td>-5E-04 (-1.86)$^b$</td>
<td>-5.4E-04 (-2.08)$^b$</td>
<td>-4.96E-04 (-1.91)$^b$</td>
<td>-5.61E-04 (-2.07)$^b$</td>
</tr>
<tr>
<td>GDPpcg</td>
<td>0.116 (2.66)$^a$</td>
<td>0.11 (2.46)$^b$</td>
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<td>0.108 (2.56)$^b$</td>
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</table>

**IDE (Democ):** Index of democratic experience based on Democ from Polity IV

**Cont Demo:** Contemporaneous measure of democratic experience

**GDPpc:** Per capita gross domestic product

**Openness:** Imports plus Exports divided by GDP

**GDPpcg:** Annual growth rate of per capita gross domestic product

$t$-statistics are in parenthesis

Significance levels: a (1%), b (5%), and c (10%)

### Table 5
Cross-sectional data estimates for democratic countries during the 1990s - IDE uses Boix and Rosato

Dependent variable: EFWI Av. 1990-1995

<table>
<thead>
<tr>
<th>Current Dem:</th>
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<tr>
<td>Constant</td>
<td>5.312  (10.11)$^a$</td>
<td>5.385 (21.94)$^a$</td>
<td>5.55 (8.16)$^a$</td>
<td>5.61 (8.91)$^a$</td>
<td>5.167 (34.85)$^a$</td>
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<tr>
<td>IDE (B&amp;R)</td>
<td>0.012  (1.85)$^b$</td>
<td>0.015 (2.28)$^b$</td>
<td>0.012 (1.76)$^c$</td>
<td>0.013 (1.78)$^c$</td>
<td>0.012 (1.69)$^c$</td>
</tr>
<tr>
<td>Cont Dem</td>
<td>-0.022 (-0.31)</td>
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<td>-0.061 (-0.55)</td>
<td>-0.07 (-0.68)</td>
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</tr>
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<td>GDPpc</td>
<td>7.51E-05 (2.67)$^a$</td>
<td>6.95E-05 (2.95)$^a$</td>
<td>7.26E-05 (3)$^a$</td>
<td>7.23E-05 (3)$^a$</td>
<td>7.21E-05 (2.97)$^a$</td>
</tr>
<tr>
<td>Openness</td>
<td>-6.67E-04 (-2.56)$^b$</td>
<td>-6E-04 (-2.31)$^b$</td>
<td>-6.58E-04 (-2.58)$^b$</td>
<td>-6.36E-04 (-2.45)$^b$</td>
<td>-6.65E-04 (-2.56)$^b$</td>
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<tr>
<td>GDPpcg</td>
<td>0.136 (3.15)$^a$</td>
<td>0.129 (3)$^a$</td>
<td>0.136 (3.22)$^a$</td>
<td>0.133 (3.12)$^a$</td>
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<td>Adjusted R2</td>
<td>0.64</td>
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<td>Observations</td>
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**IDE (B&R):** Index of democratic experience based on Boix and Rosato

**Cont Demo:** Contemporaneous measure of democratic experience

**GDPpc:** Per capita gross domestic product

**Openness:** Imports plus Exports divided by GDP

**GDPpcg:** Annual growth rate of per capita gross domestic product

$t$-statistics are in parenthesis

Significance levels: a (1%), b (5%), and c (10%)
Table 6
Cross-sectional data estimates for democratic countries during the 2000s - IDE uses Democ
Dependent variable: EFWI Av. 2000-2005

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<td>4.59 (9.25)(^a)</td>
<td>7.71 (3.58)(^a)</td>
<td>5 (2.86)(^a)</td>
</tr>
<tr>
<td>IDE (Democ)</td>
<td>0.047 (1.32)</td>
<td>0.074 (1.78)(^c)</td>
<td>0.073 (1.74)(^c)</td>
</tr>
<tr>
<td>Cont Dem</td>
<td>0.191 (2.88)(^a)</td>
<td>-0.268 (-0.86)</td>
<td>0.126 (0.49)</td>
</tr>
<tr>
<td>GDPpc</td>
<td>3.15E-05 (2.73)(^a)</td>
<td>5.13E-05 (3.83)(^a)</td>
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</tr>
<tr>
<td>Openness</td>
<td>3.68E-05 (0.23)</td>
<td>-7.48E-05 (-0.5)</td>
<td>-8.58E-05 (-0.57)</td>
</tr>
<tr>
<td>GDPPpcg</td>
<td>0.003 (0.1)</td>
<td>0.033 (0.94)</td>
<td>0.035 (0.98)</td>
</tr>
<tr>
<td>Adjusted R2</td>
<td>0.67</td>
<td>0.61</td>
<td>0.61</td>
</tr>
<tr>
<td>Observations</td>
<td>68</td>
<td>68</td>
<td>68</td>
</tr>
</tbody>
</table>

IDE (Democ): Index of democratic experience based on Democ from Polity IV
Cont Demo: Contemporaneous measure of democratic experience
GDPpc: Per capita gross domestic product
Openness: Imports plus Exports divided by GDP
GDPPpcg: Annual growth rate of per capita gross domestic product
t-statistics are in parenthesis
Significance levels: a (1%), b (5%), and c (10%)

Table 7
Cross-sectional data estimates for democratic countries during the 2000s - IDE uses Boix and Rosato
Dependent variable: EFWI Av. 2000-2005

<table>
<thead>
<tr>
<th></th>
<th>Democ</th>
<th>LIEC</th>
<th>EIEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.584 (8.97)(^a)</td>
<td>7.82 (3.58)(^a)</td>
<td>4.98 (2.61)(^b)</td>
</tr>
<tr>
<td>IDE (B&amp;R)</td>
<td>0.001 (0.41)</td>
<td>0.004 (0.97)</td>
<td>0.004 (0.89)</td>
</tr>
<tr>
<td>Cont Dem</td>
<td>0.199 (2.95)(^a)</td>
<td>-0.276 (-0.88)</td>
<td>0.135 (0.49)</td>
</tr>
<tr>
<td>GDPpc</td>
<td>3.97E-05 (3)(^a)</td>
<td>6.19E-05 (5.19)(^a)</td>
<td>6E-05 (4.99)(^a)</td>
</tr>
<tr>
<td>Openness</td>
<td>2.8E-05 (0.17)</td>
<td>-9.78E-05 (-0.66)</td>
<td>-1E-04 (-0.72)</td>
</tr>
<tr>
<td>GDPPpcg</td>
<td>0.006 (0.17)</td>
<td>0.04 (1.14)</td>
<td>0.04 (1.16)</td>
</tr>
<tr>
<td>Adjusted R2</td>
<td>0.67</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Observations</td>
<td>68</td>
<td>68</td>
<td>68</td>
</tr>
</tbody>
</table>

IDE (B&R): Index of democratic experience based on Boix and Rosato
Cont Demo: Contemporaneous measure of democratic experience
GDPpc: Per capita gross domestic product
Openness: Imports plus Exports divided by GDP
GDPPpcg: Annual growth rate of per capita gross domestic product
t-statistics are in parenthesis
Significance levels: a (1%), b (5%), and c (10%)
Table 8
Cross-sectional data estimates for autocratic countries during the 1980s - IAE uses Autoc
Dependent variable: EFWI Av. 1980-1985

<table>
<thead>
<tr>
<th>Cont Auto:</th>
<th>Autoc</th>
<th>Boix and Rosato</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>5.253 (5.95)(^a)</td>
<td>3.98 (1.5)</td>
<td>4.6 (21.9)(^b)</td>
</tr>
<tr>
<td>IAE (Autoc)</td>
<td>0.09 (1.92)(^c)</td>
<td>0.1 (2.24)(^d)</td>
<td>0.1 (2.36)(^d)</td>
</tr>
<tr>
<td>Cont Auto</td>
<td>-0.087 (-0.79)</td>
<td>0.63 (0.24)</td>
<td></td>
</tr>
<tr>
<td>GDPpc</td>
<td>2.7E-04 (3.06)(^a)</td>
<td>2.45E-05 (2.51)(^b)</td>
<td>2.4E-5 (2.54)(^b)</td>
</tr>
<tr>
<td>Openness</td>
<td>1E-04 (2.01)(^c)</td>
<td>2.2E-04 (3.95)(^d)</td>
<td>2.3E-04 (4.06)(^d)</td>
</tr>
<tr>
<td>GDPpcg</td>
<td>-0.004 (-1.33)</td>
<td>-0.005 (-2.84)(^d)</td>
<td>-0.005 (-2.83)(^d)</td>
</tr>
<tr>
<td>Adjusted R2</td>
<td>0.161</td>
<td>0.145</td>
<td>0.142</td>
</tr>
<tr>
<td>Observations</td>
<td>36</td>
<td>36</td>
<td>36</td>
</tr>
</tbody>
</table>

IAE (Autoc): Index of democratic experience based on Autoc from Polity IV
Cont Auto: Contemporaneous measure of autocratic experience
GDPpc: Per capita gross domestic product
Openness: Imports plus Exports divided by GDP
GDPpcg: Annual growth rate of per capita gross domestic product
t-statistics are in parenthesis
Significance levels: a (1%), b (5%), and c (10%)

Table 9
Cross-sectional data estimates for autocratic countries during the 1980s - IAE uses Boix and Rosato
Dependent variable: EFWI Av. 1980-1985

<table>
<thead>
<tr>
<th>Cont Auto:</th>
<th>Autoc</th>
<th>Boix and Rosato</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>5.04 (4.92)(^a)</td>
<td>3.972 (1.55)</td>
<td>4.511 (15.36)(^b)</td>
</tr>
<tr>
<td>IAE (B&amp;R)</td>
<td>0.08 (1.62)(^c)</td>
<td>0.09 (2.3)(^d)</td>
<td>0.09 (2.37)(^d)</td>
</tr>
<tr>
<td>Cont Auto</td>
<td>-0.068 (-0.59)</td>
<td>0.546 (0.22)</td>
<td></td>
</tr>
<tr>
<td>GDPpc</td>
<td>2.63E-05 (3.27)(^a)</td>
<td>2.43E-05 (2.81)(^b)</td>
<td>2.44E-05 (2.84)(^b)</td>
</tr>
<tr>
<td>Openness</td>
<td>1.9E-04 (1.61)</td>
<td>2.33E-04 (2.92)(^d)</td>
<td>2.35E-04 (2.99)(^d)</td>
</tr>
<tr>
<td>GDPpcg</td>
<td>-0.003 (-1)</td>
<td>-0.004 (-1.88)(^d)</td>
<td>-0.004 (-1.89)(^d)</td>
</tr>
<tr>
<td>Adjusted R2</td>
<td>0.163</td>
<td>0.154</td>
<td>0.151</td>
</tr>
<tr>
<td>Observations</td>
<td>36</td>
<td>36</td>
<td>36</td>
</tr>
</tbody>
</table>

IAE (B&R): Index of autocratic experience based on Boix and Rosato
Cont Auto: Contemporaneous measure of autocratic experience
GDPpc: Per capita gross domestic product
Openness: Imports plus Exports divided by GDP
GDPpcg: Annual growth rate of per capita gross domestic product
t-statistics are in parenthesis
Significance levels: a (1%), b (5%), c (10%), and *(11%)
### Table 10
Cross-sectional data estimates for autocratic countries during the 1990s - IAE uses Autoc
Dependent variable: EFWI Av. 1990-1995

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>3.841</td>
<td>2.37</td>
<td>1.65</td>
<td>0.105</td>
</tr>
<tr>
<td>IAE (Autoc)</td>
<td>-0.11</td>
<td>0.83</td>
<td>-0.13</td>
<td>0.899</td>
</tr>
<tr>
<td>Cont Auto</td>
<td>0.113</td>
<td>0.47</td>
<td>0.24</td>
<td>0.808</td>
</tr>
<tr>
<td>GDPpc</td>
<td>4.42E-05</td>
<td>0.90</td>
<td>4.42</td>
<td>0.001</td>
</tr>
<tr>
<td>Openness</td>
<td>0.009</td>
<td>0.79</td>
<td>0.01</td>
<td>0.993</td>
</tr>
<tr>
<td>GDPpcc</td>
<td>0.201</td>
<td>1.90</td>
<td>0.10</td>
<td>0.919</td>
</tr>
<tr>
<td>Adjusted R2</td>
<td>0.348</td>
<td>0.10</td>
<td>3.48</td>
<td>0.001</td>
</tr>
</tbody>
</table>

**IAE (Autoc):** Index of democratic experience based on Autoc from Polity IV  
**Cont Auto:** Contemporary measure of autocratic experience  
**GDPpc:** Per capita gross domestic product  
**Openness:** Imports plus Exports divided by GDP  
**GDPpcc:** Annual growth rate of per capita gross domestic product  
**t-statistics are in parenthesis**  
**Significance levels: a (1%), b (5%), and c (10%)**

### Table 11
Cross-sectional data estimates for autocratic countries during the 1990s - IAE uses Boix and Rosato
Dependent variable: EFWI Av. 1990-1995

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.257</td>
<td>2.93</td>
<td>1.45</td>
<td>0.152</td>
</tr>
<tr>
<td>IAE (B&amp;R)</td>
<td>-0.04</td>
<td>0.22</td>
<td>-0.20</td>
<td>0.841</td>
</tr>
<tr>
<td>Cont Auto</td>
<td>0.048</td>
<td>0.21</td>
<td>0.23</td>
<td>0.819</td>
</tr>
<tr>
<td>GDPpc</td>
<td>5.15E-05</td>
<td>1.11</td>
<td>4.64</td>
<td>0.001</td>
</tr>
<tr>
<td>Openness</td>
<td>0.005</td>
<td>0.51</td>
<td>0.01</td>
<td>0.993</td>
</tr>
<tr>
<td>GDPpcc</td>
<td>0.155</td>
<td>1.42</td>
<td>0.11</td>
<td>0.919</td>
</tr>
<tr>
<td>Adjusted R2</td>
<td>0.314</td>
<td>0.07</td>
<td>4.42</td>
<td>0.001</td>
</tr>
</tbody>
</table>

**IAE (B&R):** Index of autocratic experience based on Boix and Rosato  
**Cont Auto:** Contemporary measure of autocratic experience  
**GDPpc:** Per capita gross domestic product  
**Openness:** Imports plus Exports divided by GDP  
**GDPpcc:** Annual growth rate of per capita gross domestic product  
**t-statistics are in parenthesis**  
**Significance levels: a (1%), b (5%), and c (10%)**
Table 12
Cross-sectional data estimates for autocratic countries during the 2000s - IAE uses Autoc
Dependent variable: EFWI Av. 2000-2005

<table>
<thead>
<tr>
<th>Variable</th>
<th>IAE (Autoc)</th>
<th>Cont Auto</th>
<th>GDPpc</th>
<th>Openness</th>
<th>GDPpcg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>3.286 (1.25)</td>
<td>3.735 (3.4)</td>
<td>3.83 (4.85)</td>
<td>3.23 (2.62)</td>
<td></td>
</tr>
<tr>
<td>IAE (Autoc)</td>
<td>0.3 (1.06)</td>
<td>0.237 (1.4)</td>
<td>0.244 (1.82)</td>
<td>0.337 (1.8)</td>
<td></td>
</tr>
<tr>
<td>Cont Auto</td>
<td>0.075 (0.22)</td>
<td>0.023 (0.11)</td>
<td>0.385 (4.14)</td>
<td>5.84E-05 (3.54)</td>
<td></td>
</tr>
<tr>
<td>GDPpc</td>
<td>8.16E-05 (2.14)</td>
<td>8.72E-05 (2.89)</td>
<td>8.85E-05 (4.14)</td>
<td>5.84E-05 (3.54)</td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td>0.002 (0.35)</td>
<td>0.002 (0.35)</td>
<td>0.002 (0.35)</td>
<td>0.002 (0.35)</td>
<td></td>
</tr>
<tr>
<td>GDPpcg</td>
<td>-0.07 (-0.39)</td>
<td>-0.07 (-0.39)</td>
<td>-0.07 (-0.39)</td>
<td>-0.07 (-0.39)</td>
<td></td>
</tr>
</tbody>
</table>

IAE (Autoc): Index of democratic experience based on Autoc from Polity IV
Cont Auto: Contemporaneous measure of autocratic experience
GDPpc: Per capita gross domestic product
Openness: Imports plus Exports divided by GDP
GDPpcg: Annual growth rate of per capita gross domestic product
*Statistics are in parenthesis*
Significance levels: a (1%), b (5%), and c (10%)

Table 13
Cross-sectional data estimates for autocratic countries during the 2000s - IAE uses Boix and Rosato
Dependent variable: EFWI Av. 2000-2005

<table>
<thead>
<tr>
<th>Variable</th>
<th>IAE (B&amp;R)</th>
<th>Cont Auto</th>
<th>GDPpc</th>
<th>Openness</th>
<th>GDPpcg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>3.984 (1.31)</td>
<td>3.13 (2.31)</td>
<td>3.635 (3.56)</td>
<td>3.635 (3.56)</td>
<td></td>
</tr>
<tr>
<td>IAE (B&amp;R)</td>
<td>0.114 (0.5)</td>
<td>0.175 (1.39)</td>
<td>0.03 (1.84)</td>
<td>0.03 (1.84)</td>
<td></td>
</tr>
<tr>
<td>Cont Auto</td>
<td>0.08 (0.27)</td>
<td>0.16 (1.14)</td>
<td>0.16 (1.14)</td>
<td>0.16 (1.14)</td>
<td></td>
</tr>
<tr>
<td>GDPpc</td>
<td>7.51E-05 (2.15)</td>
<td>7.57E-05 (3.36)</td>
<td>8.43E-05 (3.69)</td>
<td>8.43E-05 (3.69)</td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td>-0.001 (-0.34)</td>
<td>-0.001 (-0.34)</td>
<td>-0.001 (-0.34)</td>
<td>-0.001 (-0.34)</td>
<td></td>
</tr>
<tr>
<td>GDPpcg</td>
<td>0.05 (0.31)</td>
<td>0.05 (0.31)</td>
<td>0.05 (0.31)</td>
<td>0.05 (0.31)</td>
<td></td>
</tr>
</tbody>
</table>

IAE (B&R): Index of autocratic experience based on Boix and Rosato
Cont Auto: Contemporaneous measure of autocratic experience
GDPpc: Per capita gross domestic product
Openness: Imports plus Exports divided by GDP
GDPpcg: Annual growth rate of per capita gross domestic product
*Statistics are in parenthesis*
Significance levels: a (1%), b (5%), and c (10%)