



# Which democracies prosper? Electoral rules, form of government and economic growth

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## ABSTRACT

Electoral rules and form of government have important economic effects, for example on taxation and public spending. However, there are no robust results in the literature when it comes to their effect on economic growth. This paper investigates whether electoral rules and form of government affects economic growth by applying panel data techniques on a very extensive dataset. There is no robust effect of presidentialism or parliamentarism on growth. However, there is very robust evidence for a positive, and quite substantial, effect of Proportional Representation (PR) electoral rules on economic growth. This is partly due to PR systems' propensity to generate broad-interest policies, like universal education spending, property rights protection and free-trade, rather than special interest economic policies. Also semi-proportional systems seem to enhance growth relative to plural-majoritarian systems.

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## 1. Introduction

Do electoral rules or form of government (the parliamentarism-presidentialism distinction) matter for economic growth? Political scientists have long been interested in the potential *political* consequences of electoral rules and form of government, such as nature of the party system and regime stability. However, there has lately been an increasing focus also on constitutional rules' economic effects, largely thanks to the great work by Persson and Tabellini (e.g. 2003, 2004). This has resulted in several theoretical insights and empirical results. Among others, presidential systems and plural-majoritarian systems likely have lower tax rates, less public spending, and allocate a smaller share of public spending to universal programs (but, see Acemoglu, 2005; Gabel and Hix, 2005).

Constitutional rules may also affect economic growth through systematically affecting governments' economic policies (e.g. Persson and Tabellini, 2003; Rodrik, 1996) and countries' economic institutions (e.g. North, 1990; Acemoglu et al., 2001; Persson, 2005). However, there is no consensus on what *specific types* of constitutional features that improve growth. Although some studies indicate that PR and parliamentarism may improve growth, there are no well-established, robust results in the literature. By utilizing a greatly expanded dataset and panel data methodology, this study is able to more accurately test hypotheses related to whether electoral rules and form of government affects growth.

Section 2 discusses why electoral rules and form of government may matter for growth. Section 3 presents the data, and Section 4 the empirical analysis. The analysis finds no robust effect of parliamentarism or presidentialism on economic growth. However, PR and semi-PR electoral rules produce substantially higher growth rates than plural-majoritarian rules. This result is very robust, particularly for PR, and contrasts with the mainly non-robust results in previous studies based on less extensive data material.

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## 2. Literature review and arguments

### 2.1. Electoral systems and economic growth

As Gabel and Hix (2005: 4–5) put it, “[i]n their purest form, in PR systems voters choose between lists of candidates presented by parties in multi-member districts and seats are allocated in proportion to the share of votes received. In majoritarian systems, in contrast, voters choose between individual politicians in single-member districts and the winning candidate in each district is the one who receive the most votes in a district”. The simple dichotomy of PR and plural-majoritarian electoral rules hides substantial variation in electoral rule design (e.g. Lijphart and Grofman, 2003; Lijphart, 1999; Cox, 1997). In the empirical section, I add a third category of semi-PR systems, based on Schjølset’s (2008) classification. As Schjølset notes, this is a somewhat heterogeneous category, incorporating different systems that tend to produce intermediate outcomes in terms of proportionality between votes received and seats in parliament (p. 80). This category includes systems based on specific electoral rules, like the Single Nontransferable Vote, which is often considered semi-proportional (Lijphart, 1994), and systems, like Germany’s, that utilize both plurality- and PR rules when electing legislators.<sup>1</sup>

Political economic literature emphasizes political accountability’s importance for achieving “good” policies and outcomes, for example economic growth (e.g. Ferejohn, 1986; Benhabib and Przeworski, 2005). When accountability is high, voters can and do vote poorly performing politicians out of office (e.g. Powell and Whitten, 1993). This in turn induces politicians to exert extra effort and opt for better macroeconomic policies. Under plurality rule “mapping from votes to seats becomes steep if electoral races are close. This connection ought to create strong incentives for good behavior: a small improvement in the chance of victory would create a large return in terms of seats.” (Persson and Tabellini, 2004: 82). However, if parties or candidates expect to win or lose by a landslide, the incentives to exert effort or forego rents are weaker under plurality rule. Nevertheless, PR increases the frequency of coalition governments (Persson et al., 2003; Powell, 2000). Under coalition governments, voters are less able to discern which party to blame for bad performance or reward for good. Thus, retrospective “economic voting” decreases under coalition governments (Powell and Whitten, 1993). Also, plurality rule is associated with smaller district magnitudes, which eases voters’ monitoring of candidates, thus improving accountability at the district-level.

Electoral rules may also affect economic growth through affecting public sector size. PR increases taxation and public spending (Persson, 2005; Persson and Tabellini, 2003, 2004). However, it is unclear whether balanced increases in tax revenues and public spending increase or reduce economic growth. Microeconomic theory points to

distortionary effects from high tax-rates. However, more public revenue means better opportunities for investing in infrastructure, education and public health care, which enhance growth (e.g. Easterly and Rebello, 1993; Mankiw et al., 1992).

As seen above, plural-majoritarian rules were expected to increase district-level accountability. However, voters in small districts are perhaps less concerned with policies that enhance nationwide growth than with obtaining government resources at the rest of the country’s expense, or protectionist measures for their cornerstone industries. Voters in PR systems may also be concerned with redistributive policies, but larger districts and more continuous mapping from votes to seats reduce the political incentives for proposing narrowly targeted redistributive programs (e.g. Persson and Tabellini, 2004). Rather, politicians under PR systems may want to propose universal redistributive programs that appeal to large, geographically dispersed groups of votes. Such redistributive programs often include increased spending on broad-based public education programs and healthcare spending, both of which boost growth through increasing human capital (e.g. Mankiw et al., 1992). Indeed, several studies indicate that PR increases the share of public spending going to universal programs, and that plurality rule increases the share going to special interest groups, particularly geographically concentrated groups in electoral districts with tough competition (e.g. Persson and Tabellini, 2004; Milesi-Ferretti et al., 2002). Such spending-allocation is a rational political strategy for office-motivated politicians, but narrow programs that affect only particular regions and groups are likely to generate less economic benefit than broader programs related to national public goods.

Generally, PR produces “policies better serving the interests of broad majorities than do majoritarian elections, either directly through incentives of politicians, or indirectly via party formation and the incidence of coalition government” (Persson, 2005: 7–8). Politicians with large winning coalitions have stronger incentives for pursuing general property rights protection (Bueno de Mesquita et al., 2003). Thus, as PR increases the size of government’s winning coalition, we would expect PR systems to perform better on property rights protection. PR is also expected to induce open trade policies rather than selective protectionism for narrow producer interests, as it insulates politicians from protectionist demands by regional or sector-specific interests (Rogowski, 1987: 207–208). Empirically, Persson (2005) indeed finds that PR improves property rights protection and induces trade liberalization (see also Persson and Tabellini, 2006).

PR systems should also enhance growth rates relative to plural-majoritarian systems through yielding less abrupt changes in parliamentary seat composition before and after elections; policies by governments elected in PR systems are expected to last longer, and, if changed, policies will be adjusted rather than reversed (e.g. Rogowski, 1987). Conversely, one of the main problems with “majoritarian democracies” is the sudden and substantive policy-alterations induced by shifting electoral fortunes (Lijphart, 1999). Policy- and reform reversals have negative economic effects, as they create instability and render

<sup>1</sup> As for example Lijphart (1994) notes, also other aspects, such as election (or legal) threshold, district magnitude and assembly size affect the proportionality between votes and seats.

private investments less productive (Rodrik, 1991). Policy reversals become even more problematic when foresighted investors, in anticipation, withhold investments altogether. Policies' economic success hinge upon private actors' beliefs about their expected stability; success is negatively related to the probability of reversal (Kyddland and Prescott, 1977; North and Weingast, 1989). In addition to having less dramatic temporal changes in parliamentary seat composition, PR systems more often have broad coalition governments, implying that many reforms are political compromises with broad support.

To sum up, the political economic literature has focused on the beneficial accountability characteristics of plural-majoritarian systems, which may induce office-motivated politicians to enact growth-promoting policies. However, other aspects with PR systems may counter such an effect. First, there are stronger incentives for politicians under PR systems to enact public policies that benefit broad rather than narrow interests, including growth enhancing policies such as provision of education for the masses, property rights protection and free-trade policies. Moreover, PR systems should increase investment, as the investment climate is less risky because of less abrupt policy changes. Persson and Tabellini (2003) find some evidence for the hypothesis that PR increases productivity growth, but the result is not robust. Although Persson (2005) in some models finds a positive effect of PR on GDP per capita and total factor productivity, the effects are not robust. Persson and Tabellini (2006) find no significant effect of electoral rules on growth, when studying democratizing countries. Older empirical studies using smaller samples generally find a small, positive or no effect of "Consensus democracy" or PR more specifically on GDP growth (Lijphart, 1999: 263–270).

Carey and Hix (2009) show that 'intermediate' electoral systems to a large extent generate one of the beneficial outcomes of PR systems, relatively accurate representation of various voters' preferences, without reducing the accountability-benefit of plural-majoritarian systems too much. Above, plurality systems were hypothesized to enhance growth mainly through enhancing accountability. Moreover, representational issues are at least indirectly related to the argument on PR enhancing growth through inducing politicians to follow broad-interest policies. If the representation-accountability trade-off is concave, as argued by Carey and Hix, semi-PR systems may be expected to produce relatively high growth rates. The reason is simply that semi-PR systems may to a large degree possess the different advantages of both PR and plurality systems, without having the respective systems' drawbacks.

## 2.2. Form of government and economic growth

There is considerable institutional variation within the classes of presidential and parliamentary systems (e.g. Shugart and Carey, 1992; Strøm, 1990). However, in a parliamentary system "the executive ... is chosen by and responsible to an elective body (the legislature), thus creating a single locus of sovereignty", whereas in a presidential system "policy-making power is divided between two separately elected bodies: the legislature and the president" (Gerring et al., 2009: 337). It is common to operate with

a third category, semi-presidential systems; also denoted "mixed systems" (Cheibub, 2007). Cheibub classifies these as systems where either the assembly or the directly elected president can remove the government (2007: 34).

Presidential systems are more fragmented, institutionally, than parliamentary systems, because of weaker ties between legislature and executive. Separation of executive and legislative power is argued to facilitate credible political commitments (see Keefer and Stasavage, 2003) and increase information revelation about political processes to the public (Persson et al., 1997), thus improving political accountability, which may again enhance growth (e.g. Benhabib and Przeworski, 2005). Moreover, in a presidential system, both executive and legislature are "institutional veto players" (Tsebelis, 2002). Presidential systems are thus assumed to have greater checks and balances on executive power, which mitigates opportunities for power abuse. Power concentration may reduce growth, as the incentives of those in power are often not aligned with growth-conducive policies (e.g. Olson, 1993).

However, separation of powers under presidentialism may also amplify rigidity in the political system (Linz, 1990). The possibility of different parties controlling the legislature and the executive under presidentialism could result in political gridlock, thereby complicating passing of efficiency-enhancing economic reforms.<sup>2</sup> Presidential systems may also increase special interest groups' opportunity to affect political processes, which may reduce economic dynamism (Olson, 1982). Industrial groups or other lobbies can tie their fortunes with important groups in parliament or the president (e.g. Cox and McCubbins, 2001).

Presidential systems reduce public spending and taxation (see e.g. Persson et al., 2000; Persson and Tabellini, 2004). But as there is no clear link between public sector size and economic growth, it is unclear whether presidentialism hurts or helps growth through this channel. However, according to Gerring et al. (2009: 353), there are several other reasons why parliamentarism improves governance, and thus economic outcomes. One underlying factor is parliamentarism's propensity to better solve political coordination problems, since it institutionalizes debate and negotiations, and reduces the number of veto players (pp. 354–355). Parliamentarism also strengthens party discipline (e.g. Gerring et al., 2009), among others because of the vote of confidence procedure (e.g. Huber, 1996). High party discipline channels public spending towards broad, national programs, instead of narrow, targeted programs to region-specific interests. Indeed, parliamentary regimes allocate more of their public spending to broad, universal programs (Persson and Tabellini, 2004).

Gerring et al. (2009) find that parliamentarism outperforms presidentialism on among others economic growth, bureaucratic quality, investment environment and life expectancy. But, Persson and Tabellini (2003) find no robust effect on corruption of form of government. However, presidential systems inhibit economic institutional factors

<sup>2</sup> Several contributions have either nuanced (e.g. Shugart and Carey, 1992) or disputed (e.g. Cheibub, 2007) Linz' argument (1990) that presidentialism increases the probability of democratic breakdown.

like bureaucratic quality and property rights, and may reduce labor- and total factor productivity growth in low-quality democracies (Persson and Tabellini, 2003). Persson (2005) finds that reform towards parliamentary democracy may generate higher economic growth than reforms towards presidential democracy, but the results are not robust. Reforms into parliamentarism strengthen property rights and enhance trade openness (Persson, 2005). But, Persson and Tabellini (2006: 321) find that a “new parliamentary democracy grows 1.5 percentage points less than a new presidential democracy”, when studying democratizing countries.

### 3. Data and methodological issues

Several models below include more than 3500 country-year observations from over 100 countries. Some countries have time-series from 1820 to 2002, although most have shorter time-series. This is the most extensive dataset used for analyzing constitutional rules' economic effects. The long time-series used here dramatically expands the number of data points, and panel data analysis becomes an option. This allows utilizing within-nation-, as well as cross-sectional, variation. Constitutional structures seldom change (Persson and Tabellini, 2003: 88). However, there are democracies with different constitutional experiences, particularly on electoral rules. To name some, Argentina, Belgium, Chile, Colombia, Greece, Italy, Macedonia, New Zealand, Norway, The Philippines, Spain and Sri Lanka have all experimented with different electoral rules over the time period covered here. Thus, the dramatic expansion of time-series and application of panel data models contribute to a literature where empirical tests have found ambiguous and mainly non-robust results.

Data on PPP-adjusted GDP per capita and population are from Maddison (2006). Maddison has estimated GDP and population using a variety of sources, and some estimates rely on less valid proxies than others, especially before WWII (Maddison, 2006). Some of the population and GDP time-series are interpolated, assuming constant GDP and population growth rates. Data on democracy level and regime duration are from Polity IV (Marshall and Jaggers, 2002). I use Schjølset's (2008: 135–142) classification and data on constitutional structures. Only country-years with a Polity-score  $\geq 3$  are classified as democratic by Schjølset (the Polity-index goes from  $-10$  to  $10$ ), and thus included in the analysis. After 1820, 38 percent of classified country-years are presidential systems, 26 percent are semi-presidential, and 37 percent are parliamentary. Also, 44 percent are PR systems, 10 percent are semi-PR and 46 percent are plural-majoritarian.

I furthermore use Schjølset's (2008) data on federal, unitary and mixed federal-unitary systems. Colonizer-, region- and plurality religion dummies are from Knutsen (2007). Data on latitude, the Frankel–Romer instrument for trade openness (FRAROM), and fraction of English (ENGFRAC) and other major European language speakers (EURFRAC) are from Hall and Jones (1999). Ethnic fractionalization data are from Alesina et al. (2003). This index covers more countries than the older ELF-index used by Persson and Tabellini (2003).

On average, presidential systems had lower economic growth rates than semi-presidential and parliamentary systems from 1820 to 2002. Whereas presidential systems' GDP per capita on average grew 1.5 percent annually, parliamentary systems grew with 2.2 percent and semi-presidential with 2.5 percent. Especially after the oil-crisis in 1972, presidential systems grew slowly relative to other systems. On average, PR systems grew with 2.5 percent, whereas semi-PR and plural-majoritarian systems grew with 1.9 and 1.6 percent respectively. There are few observed semi-PR and PR country-years in the 19th century. Differences between electoral systems are therefore primarily based on data from the 20th century. PR systems outperformed plural-majoritarian systems throughout the 20th century, especially before 1972. However, countries with PR rules and parliamentarism may grow faster because they are systematically related to other relevant variables, like initial income level or geographic factors. I therefore control for such factors below.

There is no single, overarching theoretical framework on this issue, which complicates statistical modeling. However, the solid empirical work by Persson and Tabellini (2003), and later methodical criticisms (e.g. Acemoglu, 2005), has helped identify plausible control variables. I follow Persson and Tabellini (2003) closely, in terms of control variables used. Since particular institutional structures have been relatively popular in different time periods, and these periods are associated with different global economic growth rates, I enter decade dummies as controls in all models (1990s extend to 2002), to control for time-specific effects. In all models, the independent variables are lagged with two years, to reduce endogeneity problems.

I first employ OLS with Panel Corrected Standard Errors (PCSE) (Beck and Katz, 1995). OLS with PCSE utilizes both between- and within-nation variation. The interpretation of coefficients is similar to OLS, but the models take into account the cross-sectional – time-series structure of the data (standard errors take into account heteroskedasticity and contemporaneous correlation between panels, and AR1-autocorrelation within panels). GDP per capita growth is the dependent variable. In Model 1A, I enter dummies for PR and semi-PR systems and dummies for parliamentary and semi-presidential systems. Plural-majoritarian and presidential systems are reference categories. In addition, following Persson and Tabellini (2003), I add dummies for British (plus American) colonies, a dummy for Spanish and Portuguese colonies, and a dummy for other former colonies. I also add region dummies, dummies for federal and mixed federal-unitary systems, the ethnic fractionalization index, log GDP per capita, log population, log regime duration and decade dummies.

## 4. Empirical analysis

### 4.1. Main results

The results from Model 1A in Table 1, based on 3701 country-years from 107 countries, indicate a strong, significant effect of electoral rules; both PR and semi-PR systems produce higher growth than plural-majoritarian. The effect of PR is significant at the 0.1%-level and the effect of semi-PR

**Table 1**  
Results from OLS with PCSE and fixed effects models<sup>a</sup>.

	OLS1A	OLS1B	OLS1C	FE2A	FE2B	FE2C
	b/(t)	b/(t)	b/(t)	b/(t)	b/(t)	b/(t)
PR	0.93*** (3.31)	0.95** (3.20)	1.04*** (3.36)	1.22** (3.14)	0.95* (2.45)	0.81* (2.11)
Semi-PR	1.17** (2.86)	1.02* (2.53)	1.02* (2.39)	1.38* (2.30)	0.53 (0.91)	0.44 (0.75)
Parliam.	-0.15(-0.45)	-0.19(-0.57)	-0.21(-0.62)	0.30 (0.54)	0.41 (0.74)	0.58 (1.05)
Semi-pres.	-0.04(-0.12)	-0.25(-0.68)	-0.43(-1.07)	0.02 (0.03)	0.15 (0.28)	0.43 (0.82)
Ethnic fract.	-1.67***(-3.86)	-1.55***(-3.45)	-1.34*(-2.54)			
British col.	0.26 (0.69)	-0.24(-0.47)	-0.16(-0.29)			
Iberian col.	-1.61*(-2.16)	-2.62***(-3.47)	-2.46**(-2.96)			
Other col.	-2.03*(-2.52)	-2.651**(-3.10)	-2.23^(-1.78)			
Federalist	0.09 (0.32)	-0.02(-0.07)	0.01 (0.04)	0.11 (0.11)	0.19 (0.20)	0.63 (0.65)
Hyb. fed-un.	0.33 (0.76)	0.40 (0.97)	0.40 (0.98)	-0.22 (-0.37)	-0.00 (-0.00)	0.27 (0.44)
E.Eur.-Sov.	-0.73(-0.64)	-0.26(-0.27)	-0.41 (-0.42)			
Africa SS	-1.28*(-2.02)	-1.23(-1.50)	-0.83 (-1.00)			
Asia-Pacific	0.61 (0.99)	1.05 (1.34)	1.25 (1.27)			
M.E. - N.A.	0.18 (0.32)	0.22 (0.35)	0.78 (0.64)			
Latin Am.	0.27 (0.36)	0.14 (0.19)	-0.12 (-0.17)			
Ln GDP pc	-0.41(-1.55)	-0.35(-1.36)	-0.35 (-1.30)	-4.99*** (-9.22)	-4.21*** (-8.28)	-4.30*** (-8.42)
Ln Pop.	-0.08(-0.95)	-0.27*(-2.33)	-0.37** (-2.89)	-1.26*** (-3.36)	-1.04** (-2.84)	-1.06** (-2.90)
Ln Reg. dur.	0.02 (0.21)	-0.08(-0.74)	-0.12 (-1.06)	0.13 (0.95)	-0.12 (-0.92)	-0.17 (-1.33)
ENGFAC		-0.55(-0.93)	-0.66 (-1.01)			
EURFRAC		0.64 (1.43)	1.10* (2.12)			
HJFRAROM		-0.50*(-2.08)	-0.58* (-2.21)			
Latitude		-0.00(-0.46)	0.00 (0.47)			
Polity			-0.07(-1.00)			-0.17** (-2.61)
Sunni			-1.44(-1.46)			
Shia			1.57 (1.29)			
Catholic			-0.60(-0.47)			
Protestant			-0.45(-0.33)			
Orthodox			0.63 (0.39)			
Hindu			0.22 (0.17)			
Buddhist+			-0.54(-0.43)			
Indigeneous			-1.50(-1.11)			
N	3701	3521	3520	3701	3521	3520

<sup>a</sup> \*\*\* indicates  $p < 0.001$ , \*\* indicates  $p < 0.01$ , \* indicates  $p < 0.05$  and ^ indicates  $p < 0.10$ . Decade dummies and constant are omitted.

at the 1%-level. The estimates indicate that PR elections increase annual GDP per capita growth with almost 1 percentage point relative to plural-majoritarian. However, 1A shows no significant effects of form of government on growth.

Model 1B controls also for fraction of English speakers, fraction of other major European language speakers, the Frankel–Romer trade instrument and latitude. In 1B, several observations drop out because of missing data. The results are however strikingly similar to those from 1A; the positive effects of PR and semi-PR are quite large, and significant at the 1%- and 5%-levels respectively. There is still no significant effect of form of government. Model 1C also controls for degree of democracy (Polity) and plurality religion. As seen in Table 1, the results are relatively similar to those from 1A to 1B. The positive effects of PR and semi-PR are quite robust. Form of government, however, does not matter for growth.

The results above may be driven by omitted country-specific factors. There is relatively little within-nation variation in electoral systems and form of government over time (Persson and Tabellini, 2003: 88). However, I have more within-nation variation to draw on than Persson and Tabellini, because of much longer time-series. I therefore estimate Fixed Effects (FE) models, which control for country-specific factors by adding country-dummies. FE models thus estimate effects based only on within-nation

variation over time. The FE results are strikingly similar to the OLS with PCSE results. There is no significant effect of form of government. PR significantly improves growth in all models (at least 5%-level). *Even if we estimate the effect of PR without utilizing cross-country comparisons, we find that it improves growth.* Only the FE model with the fewest controls yields a significant effect (5%-level) for semi-PR. However, there are relatively few observations to draw inferences from for semi-PR, and the non-robust result is thus perhaps not very surprising, particularly given that the FE models do not utilize cross-country variation.

#### 4.2. Robustness checks

The results above may however be sensitive to different specifications. I therefore conducted additional robustness checks. OLS with PCSE results are reported, but results are quite similar when using FE models. First, I conducted sensitivity checks, leaving out one independent variable or set of dummies at a time from 1A. All models showed significant PR and semi-PR-coefficients at least at the 5%-level. The forms of government dummies were always insignificant. Second, I tested models with annual dummies rather than decade dummies. PR was still significant (1%-level) in all models, and form of government was still insignificant. Third, I tested different lags on the independent variables. Models where independent variables were

lagged with one or three years had significant PR-coefficients at the 1%-level; and models with four or five years had significant coefficients at the 5%-level. Also the semi-PR dummy was robust. There were no significant forms of government dummies in any model. Fourth, the criterion for being included in the samples above was a Polity-score  $\geq 3$ . Polity cut-offs of 4, 5, 6 and 7 were tested, and the results remain stable. The results above are thus not driven by the inclusion of “semi-democracies”.

Fifth, I estimated models using only data from after 1899, 1945 and 1979 respectively. All models still showed a positive, significant effect of PR (at least 1%-level) and semi-PR (at least 5%-level). Parliamentarism and semi-presidentialism were still insignificant (10%-level), but with an exception for the post-1979 sample: In 1A and 1B, parliamentarism had a positive, significant (5%-level) effect. This will be discussed further below.

Sixth, I tested whether electoral rules had different effects in Western countries (Western Europe, US, Canada, Australia and New Zealand) than in other countries. The effect of PR in the Western sample was somewhat weaker, but still significant at the 5%-level in 1A, 10%-level in 1B, and insignificant in 1C ( $p = 0.16$ ). This non-robust result is not very dramatic for the conclusion above, given the relatively few observations in the sample. Interestingly, PR systems had a significant positive effect at the 1%-level in all models in “the rest” of the world. The effect of PR is thus *relatively* robust over time and space.

Seventh, there may be outliers driving the results. The five Nordic countries have been economically successful, and have mostly used PR. However, the PR coefficient was still significant (1%-level), when excluding these countries from the global sample. The lack of positive effect of parliamentarism could have been due to the US' high growth. But, the effect of parliamentarism on growth was still insignificant when excluding the US. Table A2 in the Internet Appendix presents some of the results described above.

I also applied 2SLS to check whether the results above are due to economic growth affecting constitutional structures (see Persson and Tabellini, 2003; Acemoglu, 2005). These results yield weaker results for the hypothesis that PR enhances growth, and, like above, find no effect of form of government. These results, and a methodical discussion, are provided in the Internet Appendix together with other robustness checks, for example random effects- and non-parametric matching models. The latter models find quite similar results to those reported above; a positive effect of PR and semi-PR and no effect of form of government.

### 4.3. A brief discussion

Section 2.2 presented arguments indicating that presidentialism had both positive and negative effects on growth; the results above may be due to these effects cancelling each other out. However, the arguments in 2.2 may have questionable relevance in the first place. The number of veto players may affect growth. However, as Tsebelis (2002) points out, this number depends on several other institutional structures and political factors. There is also large institutional variation within the categories of parliamentary and presidential regimes. These variations

matter for different political processes and outcomes (e.g. Shugart and Carey, 1992), and may also matter for growth.

Moreover, formal checks on executive powers are at best moderately correlated with de facto checks. The negative effect of presidentialism in the post-1980 sample, Gerring et al.'s (2009) results based on data from after 1960, and Persson and Tabellini's (2003) result that presidentialism is economically harmful in low-quality democracies, may all be explained by personal power concentration in new, low-quality presidential democracies. Parliamentarism may concentrate power to parties controlling the majority of seats in parliament. However, *personal* power concentration is likely worse for an economy (e.g. Olson, 1993), and presidents may abuse their positions for personal gains. Presidentialism has been linked to power concentration, personalification of politics and weak parties in Africa (van de Walle, 1993) and Eastern European and ex-Soviet countries (Fesnic, 2006). There might thus be a selection effect in the post-1980 sample, as elites in young democracies have substituted low-quality presidential democracy for autocracy. However, if elites in democratizing African or ex-Soviet countries opt for presidentialism *because of its* (correctly) perceived “advantages” in allowing for personal power concentration, it is unclear whether this selection generates pure bias or is indirectly part of a negative effect of presidentialism on growth.

Section 2.1 presented an argument pointing out that plural-majoritarian systems enhanced growth because of high political accountability. Empirically, this seems to be trumped by other factors. The theoretical discussion pointed out PR systems' ability to reduce economic risk through generating more stable and credible policies. Risk reduction and stability could affect a wide variety of economic activities and transactions (North, 1990). One plausible candidate is physical capital investment. However, when I substitute real investment as share of GDP for economic growth as dependent variable, there is no significant effect of PR. The investment-data from the World Development Indicators (WDI) are not as extensive as the GDP data from Maddison. However, these results may indicate that PR does not enhance investment, which casts doubts on the “PR and credible policies” argument's validity.

However, another likely factor behind PR systems' higher growth is their tendency to produce broad-interest policies. There is already strong empirical evidence that PR enhances trade openness and property rights protection (Persson, 2005). Human capital is another vital source of economic growth (e.g. Mankiw et al., 1992), and provision of universal education is a typical broad-interest policy (Bueno de Mesquita et al., 2003). Indeed, models where primary or secondary school enrollment ratios (from WDI) are substituted for economic growth typically find a positive, significant effect of PR. The 1A-model, for example, finds a significant effect at the 1%-level for primary- and 0.1%-level for secondary schooling. This is a likely important pathway through which PR increases growth.

## 5. Conclusion

This paper estimated the effects of electoral rules and form of government on economic growth. The results were

based on a much larger dataset than earlier studies draw on. Presidentialism does *not* seem to reduce economic growth. Cheibub (2007) contested Linz (1990) perils-of-presidentialism thesis on democratic survival. This paper contests the economic-perils-of-presidentialism results recently recorded by Gerring et al. (2009). However, also this paper finds a negative effect of presidentialism on growth after 1979. Persson and Tabellini (2003) find that presidentialism only hurts growth in low-quality democracies, and Gerring et al.'s results may stem from many new, low-quality democracies opting for presidentialism.

Electoral systems, however, seem to matter systematically for growth. Plural-majoritarian systems may generate higher political accountability than PR systems, but not necessarily much higher than semi-PR systems (Carey and Hix, 2009). However, plural-majoritarian systems produce lower economic growth than both PR and semi-PR systems. PR systems likely produce higher growth because they promote broad-interest-, rather than special interest, policies, and perhaps because PR systems produce more stable and thus credible economic policies. The effect is astonishingly robust, and point-estimates indicate that PR increases growth rates with 1 percentage point relative to plural-majoritarian systems. PR and semi-PR systems are thus not only beneficial for representation of diverse groups in politics (Lijphart, 1999; Carey and Hix, 2009) and for decreasing the distance between median voter and median government member (Huber and Powell, 1994; Carey and Hix, 2009). PR and semi-PR systems also generate more prosperity than plural-majoritarian systems.

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### Appendix. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.electstud.2010.09.006.

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