2011

Constitutional Amendment Rules: The Denominator Problem

Rosalind Dixon

Richard T. Holden

CHICAGO

PUBLIC LAW AND LEGAL THEORY WORKING PAPER NO. 346

CONSTITUTIONAL AMENDMENT RULES: THE DENOMINATOR PROBLEM

Rosalind Dixon and Richard Holden

THE LAW SCHOOL
THE UNIVERSITY OF CHICAGO

May 2011

CONSTITUTIONAL AMENDMENT RULES: THE DENOMINATOR PROBLEM

Rosalind Dixon & Richard Holden

Formal procedures for constitutional amendment play a number of important functions in a constitutional democracy. In cases of major constitutional change, they help ensure that change occurs via legal, rather than extra-legal, means (Griffin). In other cases, they provide legislatures with the means to alter or "update" specific constitutional rules, or to engage in "dialogue" with courts about the interpretation of more open-ended constitutional provisions (see Dixon 2010a; and compare also Denning & Vile; Forbath).

Over time, there may also be increasing demand for constitutional amendment procedures to play both this kind of rule-updating and dialogic function. Changing social circumstances and understandings will often make specific constitutional rules outmoded, yet in most countries, courts do not respond to this by changing their interpretation of such rules (Dixon 2010a). Courts also tend over time to engage in more interpretation in aggregate (Samaha) in a way that invites greater scope for legislative disagreement – or dialogue. As an empirical matter, there is certainly evidence that older constitutions tend to be amended more frequently than newer ones (see Lutz 1995, p.253; Ferejohn 1997, p. 524; Elkins, Ginsburg, and Melton 2009).

At the same time, as constitutions age, they may also become more difficult to amend. One reason for is that in most jurisdictions the population tends to increase over time in a way directly raises the costs of, or hurdles to, successful constitutional amendment.[1]

A number of authors have suggested the possibility of this kind of a "denominator problem" in the context of constitutional amendment rules (see Buchanan & Tulloch, Samaha). James Buchanan and Gordon Tullock, for example, have argued that "[e]veryday experience in the work of committees of varying size confirms… [the] direct functional relationship between the individual [bargaining or decision] costs of collective decision-making and the size of the group required to reach agreement" (Buchanan and Tullock [1962] 2004, p. 55). Because there is greater uncertainty in larger decision-making bodies about what others will do, and therefore the benefits of cooperation, they have also posited a direct a relationship between the size of a collective decision-making body and holdout costs, or the "opportunity cost of bargains that are never made" (Buchanan and Tullock [1962] 2004, pp. 65-66). In other work, we have also suggested that successful constitutional amendment may be more difficult in larger decision-making bodies, simply as a result of *the law of large numbers* (Holden, 2009; Dixon 2010a, Dixon 2011).

In this chapter, we provide the first empirical test to date of these hypotheses, by gathering and analyzing a unique year-by-year dataset on constitutional amendment rates at a state constitutional level in the U.S. Using this dataset, we show a clear, statistically significant negative relationship between the size of legislative voting bodies and the rate of constitutional amendment in various states, under various specifications. We further suggest that this finding has potentially important – yet hitherto overlooked– implications for the design of constitutional amendment rules.

[1] See United Nations 2007, p. vii. Another reason is that constitutions may become more venerated over time, in ways that increase the political costs of proposing amendments: see e.g. Griffin.

The chapter is divided into four parts. Part I briefly sets out the existing theoretical arguments about the relationship between the size of constitutional decision-making bodies and the costs, or hurdles, to constitutional amendment. Part II sets out the basic empirical findings of the paper. Part III discusses possible implications for constitutional design, including the role mechanisms such as: (i) sliding-scale constitutional amendment rules; (ii) a low, as compared to high, constitutional super-majority rules; and (iii) constitutional convention could play in addressing the denominator problem identified, and the potential disadvantages, as well as advantages, of each mechanism. Part IV offers a brief conclusion.

I. CONSTITUTIONAL AMENDMENT, DIFFICULTY & SCALE: THEORETICAL ARGUMENTS

The size of a particular voting body will have the potential to influence the effective difficulty of constitutional amendment for two inter-related reasons: one having to do with the *decision costs* associated with the process of constitutional amendment; and another with the statistical *likelihood* that (at least quasi-) independent decision-makers will ultimately favor a particular proposed amendment.

In most constitutional settings, there will be some practical limit on the number of constitutional amendments that will be feasible for a legislature, or population as a whole, to adopt. The higher the decision costs are, for any given successful constitutional amendment, the fewer the amendments there will therefore be, overall. According to almost all theories of constitutional decision-making, the decision-costs associated with a successful process of constitutional amendment will also have a clear capacity to increase, along with the size of the relevant constitutional voting body.

For many constitutional theorists, a key function of constitutional amendment rules is to ensure that adequate deliberation occurs about the potential advantages and disadvantages of any proposed constitutional change, before such change occurs (see e.g. Ackerman 1991; Michelman 1986). In most countries, this means that the process of constitutional amendment requires some degree of legislative, not just popular, involvement. Where this is the case, the time– and therefore also opportunity cost –of debating proposed constitutional amendments will have a clear relationship with the size of the relevant voting body. The more members there are in a given decision-making body, the more time it will take to hear from each member. Because deliberation involves an exchange of ideas, adding new members to a legislative body will also increase the time taken for existing members to absorb and respond to the arguments of new members, and also to debate with one another, about those new arguments. As the size of the legislature increases, deliberation-based decision costs ("deliberation costs") therefore have the potential not only to increase but also to do so exponentially.

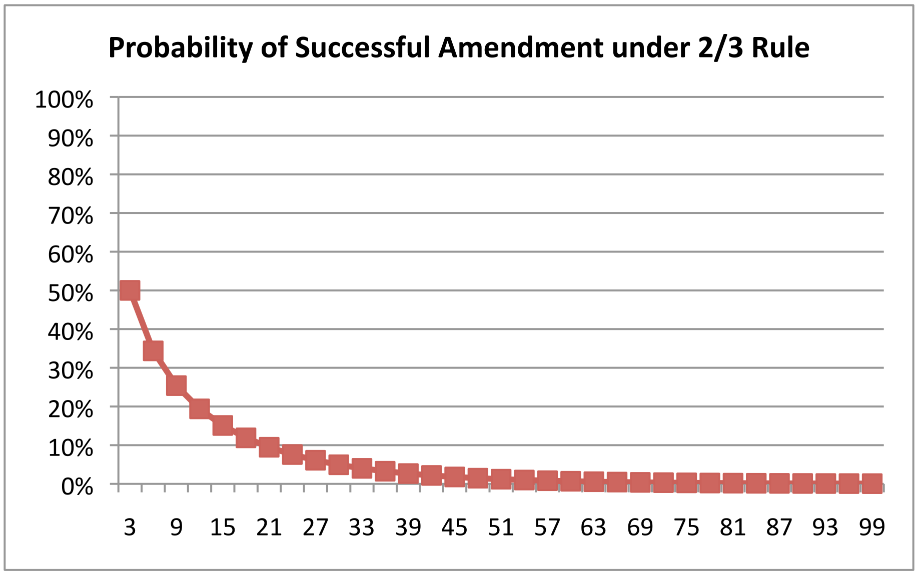
For other constitutional theorists, constitutional amendment rules embody a more outcome-oriented trade-off from the perspective of individual citizens, between, on the one hand, the danger of "external costs", and on the other, the likely magnitude of "bargaining"– and also "hold out" – costs (see e.g. Buchanan and Tullock [1962] 2004). External costs are those that individuals must bear as "a result of the actions of others over which he [or she] has no direct control," or in a constitutional context, the costs to an individual of constitutional changes that he or she does not favor (Buchanan and Tullock [1962] 2004, p. 43). Bargaining costs are the costs individuals must occur in seeking to bargain, or negotiate, collective agreement in favor of a proposed constitutional amendment they favor; and holdout costs the "opportunity cost of bargains that are never made" (Buchanan and Tullock [1962] 2004, pp. 65-66). According to scholars such as James Buchanan and Gordon Tullock [1962] 2004, both forms of decision cost may also increase significantly with the size of a collective decision-making body. "Everyday experience in the work of committees of varying size confirms", Buchanan and Tullock ([1962] 2004) suggest, the "direct functional relationship between the individual [bargaining] costs of collective decision-making and the size of the group required to reach agreement" (Buchanan and Tullock [1962] 2004, p. 55). Holdout costs will also tend to increase, along with the size of a collective decision-making body, because greater uncertainty about what others will do, and therefore the benefits of cooperation, may make individuals "more reluctant to grant concessions" (Buchanan and Tullock [1962] 2004, p. 55).

Decision costs aside, we have argued that successful constitutional amendment may also be more difficult in larger polities, simply as a result of *the law of large* numbers (Holden 2009, Dixon, 2010a, Dixon 2011). The reason for this is that, in larger voting bodies, there will tend to be less idiosyncratic variation in the distribution of voter preferences, relative to the underlying views of the median voter, and therefore less likelihood of there being a super-majority position in favor of a change to the *status quo*.

Assume, for example, that the median voter in a given polity is more or less indifferent when it comes to whether or not to amend the constitution*;* that the views of the median voter on this question do not tend to change radically with the scale of the polity; and that the views of a particular representative voting body – such as the legislature or a sub-section of voters who choose to vote at a particular election – are drawn at least semi-randomly from the voting population as a whole. Under a super-majority voting rule, the law of large numbers means that, even absent any change in decision costs, in a large decision-making body it is far less likely than in a smaller body that there will be an idiosyncratic draw of preferences or types in favor of amendment.

Consider the probability, shown in *figure 1,* of obtaining a majority vote in favor of ratifying a constitutional amendment, by way of a coin toss – "heads" being a vote in favor of changing the *status quo*, and "tails" being a vote for the *status quo*. For a voting body with (say) 3 or 6 members, the probability of successful amendment is 50% or 34%; respectively whereas for a voting body of even 12 or 24 the probability is as low as 19% or 8%. For a voting body with a 100 members, the probability of successful amendment falls below 1%.

Figure 1 –Scale & probability of amendment given Super-majority Rule



As one of us has shown elsewhere, this effect is also quite general, and does not depend on the binary nature of outcomes in the "coin flip" setting (see Holden 2009). Rather, it applies even where there is a continuum of voter preferences and policy choices. The only limitation on this effect is that it is likely to apply most strongly at the lower, rather higher, ranges of population size – i.e. where the law of large numbers is yet to apply.

In a legislative setting, both decision costs and the law of large numbers suggest that, after controlling for other factors, such as the relevant constitutional amendment rule, there should be quite clear negative relationship between the size of a legislative voting body and the effective rate of constitutional amendment (hypothesis 1).

In a popular setting, by contrast, it seems much less likely that there will be a statistically significant relationship between the scale of a polity and the rate of amendment, considering that, in such a setting, there is both limited opportunity for deliberation and bargaining, and sufficiently large population from the outset, that a principle of diminishing returns (to the law of large numbers) is likely to apply. However, to the extent that there is any relationship found between the size of the overall population and the effective rate of constitutional amendment, in states with a popular ratification requirement (i.e. all states other than Delaware), both theories would also predict that the relationship should be negative, rather than positive (hypothesis 2).

II. THE DATA ON AMENDMENT RATES & DENOMINATORS

In order to test the two relevant hypotheses empirically, we collected data for 41 states on state population size, legislative size, the formal requirements for constitutional amendment and the annual amendment rate, for each state constitution, from the time of adoption of the present constitution to the present.[2] This generated 4372 observations. For each constitution in our dataset, we also obtained data on the length of the relevant constitution, its life-span or number of years in existence, and its co-existence with other constitutional restrictions such as a single-subject rule and a double passage requirement.

The key advantage of obtaining year-by-year data of this kind, rather than simply aggregate data such as that used by Donald Lutz (1995) in his pioneering earlier work in this area, is that it allowed us to test state-level types of constitutional heterogeneity.[3] Since there have been several changes to amendment rules within various states, over time, the use of all state constitutions, both past and present, also provided us with useful additional variation in testing hypotheses 2-4 in particular. As John Ferejohn (1997) has shown in a closely related context, using all the available variation in the data has significant advantages in this context, and can even lead to different conclusions. *Table 1* presents summary statistics of these variables.

[insert table 1]

VAP is the voting-age population in a given year, and VAPSQUARED is the square of this. INITIATIVE is a dummy variable measuring the possibility of popular initiatives, which takes the value 0 if initiatives are not possible, 1 if the requirement is less than 10% of the voting population (usually measured as the percentage of those who voted in the last gubernatorial election), and 2 if 10% or more such signatures are required. DOUBLEPASS is a dummy variable which takes the value 1 if amendments must pass the legislature in two successive sessions; and 0 otherwise. LEGBUCK_n is a dummy variable which measures the voting rule for passage in the legislature: it takes value 1 (i.e. LEGBUCK1) if the rule is 50%, 2 if it is 60%, 3 if there is a 2/3 requirement, and 4 if there is a ¾ requirement.[4] EXPOSURE is the number of years which the current constitution has been in place. LENGTH is the length of the constitution in words.[5] SINGSUB is a dummy variable which takes the value 1 if the constitution has a single subject rule for constitutional amendment.

---

[2] These data were collected from the text of the state constitutions, the National Bureau of Economic Research ("NBER") state constitutions project, the US Census Bureau, and numerous copies of *The Book of the States*, The Council of State Governments, Lexington, KY. The states for which data was not available were: Alabama, Georgia, Illinois, Indiana, Maryland, Minnesota, Missouri, Tennessee, and Wyoming. For these states, data was available on amendment rates, but not on the size of the state legislature for relevant time-periods.

[3] On the more general advantages of longitudinal count data such as those assembled here, see e.g. Neyman 1965; Hausman, Hall and Griliches 1984 (in the context of patents/research and development). For an excellent overview and extension to more general stochastic processes see King, 1989. As Hausman, Hall and Griliches (1984) pointed out in their pioneering work, there are certain additional complications involved the analysis of panel count data. The two main issues are how to allow for persistent state effects (ie. fixed or random effects), and how to allow for disturbances-in-the-equation for a discrete probability distribution. The negative binomial specifications we use address these issues.

[4] For all 50 states the current voting rule is the same in the upper and lower houses of the state legislature, and hence we do not separate upper and lower house voting rules.

[5] We do not have this data available on a year-by-year basis, and thus use the current length for all years.

We also assembled data on the aggregate number of amendments for each of the 50 state constitutions, since adoption. *Table 2* presents summary statistics of these variables.

[insert table 2]

Many of the variables are the same as those in the panel data, but there are some differences. PASSED is the total number of amendments to a constitution since its inception. RATE is the number of amendments per annum. HOUSENOW is the number of members of the lower house in each state, while HOUSEADOPT is the number of members when the constitution was adopted. Similarly, VAGEPOP is the voting age population of the state, while POPADOPT is the voting age population of the state at the time the constitution was adopted. Finally, CONBUCK is a measure of the difficulty of constitutional amendment, with 1 representing the lowest level of difficulty, and 20 the highest.[6] CONBUCK is an aggregate measure of the overall difficulty of constitutional amendment, and includes consideration of legislative voting rules, voting rules for popular ratification, and the presence and level of difficulty for the proposal of amendments by popular initiative. It is constructed by ordering states lexicographically: first on the popular initiative rule (i.e. the percentage of voters required to initiate an amendment), second on the legislative rule, and finally on the popular rule.

The fact that we are dealing, in this context, with count data—i.e. a situation in which the number of amendments over a particular time-frame is the dependent variable – means that careful treatment is required, in order to acknowledge that both negative outcomes are impossible (i.e. a state cannot have -7 amendments), and only integer outcomes are possible (i.e. a state can't have 2.2 amendments in a year). In this setting, Ordinary Least Squares (OLS) estimates are statistically inefficient; do not have consistent standard errors; and can produce the impossible prediction that a negative number of events (here, constitutional amendments) may have occurred. We also found that for a poisson regression, there was a problem of over-dispersion in our data.[7] We thus ran a fixed effects panel negative binomial regression, and used a random effects specification as a robustness check.

Table 3 presents the results of this negative binomial regression for *aggregate* data on the rate of amendment in each state in our dataset, controlling for various measures of the difficulty of amendment and the number of members of the legislature. Since this is, by necessity, so-called "rate data" it also controls for the number of years each constitution has been in effect by including log (EXPOSURE) on the right-hand side.

---

[6] This measure is similar to the measures used by Lutz 1995, Lijhpardt 1999 and Elster 2000, but different in some respects. Lutz (1995) considers 70 possible different amendment requirements in three general categories: legislative majority, double passage requirements, and referendum requirements. He then assigns cardinal values to different requirements. For example, he assumes that if an amendment must pass two houses of parliament this is twice as hard as if it had to pass only one house. In contrast, we take an ordinal approach to remain agnostic about the exact *degree* of difficulty. Lijhpardt (1999, p.219) focuses solely on the voting rule (simple majority, 50%-2/3, 2/3 plus). Elster (2000, p.101) focuses on four categories: legislative supermajority requirements, parliamentary quorum requirements, state ratification, and referendum requirements. Our measure ranks (from easiest to hardest) lexicographically popular initiative requirement, then legislative majority rule, then popular majority rule.

[7] The unconditional variance of many variables of interest is greater than the mean, as can be seen from the summary statistics table. A poisson specification imposes a parametric assumption which assumes that mean to be equal to the variance, which may lead to misleading results (Hausman, Hall and Griliches, 1984).

[insert table 3]

Consistent with our first hypothesis, though the relationship was not particularly statistically significant (it had a p-value of 0.166), we found that an increase in the number of members in the house lead to fewer amendments, or for a one standard deviation change in the number of house members (compared to an overall average rate of amendment of 1.37 per annum), approximately 0.143 fewer amendments per annum. Conversely, contrary to our second hypothesis, we found that states with a larger population tended to have *more* amendments.

The other variables we found to be statistically significant were LENGTH; LIMIT; VAP; and LEGBUCK_2. As authors such as Lutz (1995) and Ferejohn (1997) have previously found, longer constitutions were amended with greater frequency (Lutz 1995, p. 249; Ferejohn 1997, p. 524). Formal limits on the number of amendments permissible in a given year, and a two-thirds supermajority requirement for legislative passage of a constitutional amendment, also led to there being fewer amendments.

However, while these aggregate results are informative, they do not use the full amount of variation available in the data, and therefore we also ran panel data count regressions, in order to obtain more efficient estimates. *Table 4* reports the results of a negative binomial regression using the full panel structure of our data (i.e. year-by-year amendments rather than total amendments).

[insert table 4]

Most notably, it shows that the size of the lower house of the state legislature – i.e. number of house members – is negative and statistically significant at the one per cent level, and therefore provides strong confirmation of our first hypothesis. The magnitude of this effect is also quite significant. For example, a one standard deviation in the number of house members is associated with 0.27 fewer amendments per annum – or 2.7 fewer per decade. This represents a 14.6% reduction in the number of amendments relative to the mean.

Contrary to our findings for the aggregate amendment data, it also shows that in this setting there was no statistically significant relationship between VAP, or VAPSQUARED, and the rate of amendment, but that to the extent there was a relationship between the two, it was negative. This confirms our second hypothesis.

Also of note, from the perspective of the hypotheses set out in part I, is the finding that neither the presence of a double passage requirement nor single subject rule had a statistically significant effect on the overall rate of amendment. This suggests that there is limited support for either hypothesis 3 or 4, and thus also for deliberation and bargaining costs, as distinct explanations for the general scale-effect we find.

Other factors we did find to have a statistically significant effect were LEGBUCK2; LEGBUCK3; INTIATIVE2; EXPOSURE and LENGTH. As Panel 1 shows, compared to a 50% majority voting in a state legislature, a 60% super-majority rule reduces number of amendments by 0.603 per annum (compared to a mean number across all states of 1.823 per annum); and a

2/3 majority rule by 0.243 per annum. [8] These effects were also clearly statistically significant – at the at the 1 and 5% levels respectively. EXPOSURE and LENGTH were also significant at the 1% level, indicating that, as Lutz (1995), Ferejohn (1997) and others have found in the context of aggregate data, both longer-lived and longer-in-length constitutions tend to be more prone to amendment (see Lutz 1995, p.253, Ferejohn 1997, p.524).[9]

The effect of an initiative provision on the ultimate rate of constitutional amendment appears more complex. Only in the case of a relatively demanding initiative requirement (i.e. INITIATIVE2) did we find that there was any positive and statistically significant effect on the overall rate of amendment. For less demanding initiative rules (i.e. INITIATIVE1), the presence of an initiative rule in a constitution had not statistically significant effect on the overall rate of amendment, most likely because it was possible for proponents of constitutional change to propose an amendment, without first building a broad base of political support.

As panel 2 shows, the random effects model also produced almost identical estimates for these findings, with no change in which variables are significant, and little change in magnitudes, under this model.

As an additional robustness check, we also considered the possibility that our results could be affected by the presence of multiple amendments in a given state in a particular year, followed by few amendments in other years; [10] and therefore recoded our data to include a variable AMEND, the value of which is set at zero if no amendments are made in a particular year and one if the constitution is amended. Since this produced a binary dependent variable, we then ran three different econometric specifications: a linear probability, a logit and a probit model. *Table* 5 reports the results of these three regressions, with standard errors clustered by state.

[insert table 5]

Consistent with our results in *tables 3* and *4*, it shows that for three of these specifications, we found that the size of the legislature had a clear negative relationship with the overall amendment rate – and again that this result was statistically significant at the 1% level. As before, it also shows that variables such as DOUBLEPASS, SINGSUB, LIMIT and INIT1 had no statistically significant effect.

For a linear probability model, as panel 1 shows, the only major difference in our findings was that LEGBUCK2 and LEGBUCK3 were no longer statistically significant; and that the effect of INIT2 was both less statistically significant and reversed – none of which affected

---

[8] Since LEGBUCK is a categorical variable, LEGBUCK1 (equal to 1 if and only if a state has a 50% legislative rule) is dropped from the regression for standard collinearity reasons. It is immaterial which of the 4 variables is dropped, but dropping LEGBUCK1 makes the interpretation easier.

[9] For similar findings in a global context, see Elkins, Ginsburg, and Melton (2009).

[10] This could reflect a mechanical effect where a change to the constitution requires multiple textual changes, or bundling of disparate changes due to legislative bargaining or other factors.

our core hypothesis or findings.[11] For a logit model, as panel 2 reports, the only change in the results is that LEGBUCK4 becomes significant at the 10% level, with a positive coefficient indicating that a 75% legislative rule makes it harder to amend. For a probit model, which panel 3 reports: EXPOSURE, LENGTH and HOUSE were all significant at the 1% level. The interpretation of the coefficient on HOUSE is that a one standard deviation change in the number of house members leads to a 7% decrease in the probability of amendment in a given year (at the mean).

As a final check of robustness, we also considered the possibility of common shocks across states as an explanation for these findings, and thus re-ran our original year-by-year negative binomial regression for a number of time sub-samples of the data.[12] One period in particular that we focused was the 1960's, because this was a period in which there both a relatively large number of observations in our dataset, and large-scale parallel changes across different states in the functioning of many state and local governments, and also in the recognition of various civil rights claims at a state as well as national constitutional level (see e.g. Williams 1985, pp. 1210-1212). Not surprisingly, given the smaller number of observations in this sub-sample than our overall dataset, we found that our result was somewhat weaker in this context. However, we found that it was nonetheless still present and statistically significant at the 9 percent level.

Overall, we therefore find quite clear support, at a state constitutional level in the U.S., for the existence of a scale-difficulty tradeoff in the process of constitutional amendment.

III. SCALE, AMENDMENT RULES & CONSTITUTIONAL DESIGN

For constitutional designers, this finding also suggests that there is a clear potential for a denominator problem to arise in the operation of constitutional amendment rules.

It is certainly possible that, in some contexts, a progressive increase in the difficulty of constitutional amendment could be beneficial. However, in most cases, the weight of opinion on constitutional amendment favors the idea that the difficulty of amendment should at least remain stable, if not actually decrease over time (for discussion of this more Jeffersonian view, see e.g. discussion in Holmes 1995, pp. 158-61).[13] This will also be especially true, if as noted at the outset, there are legitimate reasons why the demand to use constitutional amendment procedures may increase with time.

This part therefore considers three potential ways in which a constitutional designer might go about attempting to address this denominator problem: (i) sliding-scale constitutional

---

[11] One explanation for this increased difficulty of amendment in INIT2 states may have something to do with informal attitudes towards the legitimacy of amendment in such states: compare Vermeule (2006); Sullivan 1995.

[12] Since there is no variation within decade (or overall) in certain variables such as the legislative amendment rule, length, and crucially, the number of house members, it was not statistically feasible to run our main specification including time dummies for each decade.

[13] Two reasons to avoid substantially decreasing the difficulty of amendment, over time, are the desire to protect successful constitutional experiments, and also the decision costs and uncertainty associated with whole-scale constitutional revision. Compare Strauss 1996, p. 910.

amendment rule; (ii) a low, as compared to high, constitutional super-majority rule; and (iii) constitutional convention mechanisms; and the potential strengths and weaknesses of each when it comes to concerns about political party dominance, minority rights protection and constitutional stability.

A. THREE POSSIBLE DESIGN SOLUTIONS

1. SLIDING-SCALE VOTING RULES

In the European Union, as the size and membership of the Union have changed over time, so too have both the actual and proposed requirements for "qualified majority" voting in the Council of the European Union. In many instances, these changes have reflected a concern on the part of larger member states to prevent the progressive enlargement of the E.U. from unduly diluting their voting power (see e.g. Dinan at 253-54).[14] However, in more recent years, changes have also been proposed to these rules that would make the requirements for E.U voting *less* rather than more demanding, in the face of increases in the size of the relevant voting body (see Paris Treaty).

It is also seems quite feasible to imagine that a similar model could be adopted at a national constitutional level, so as to create a sliding-scale constitutional amendment rule, whereby the level of majority support required for a particular amendment decreased as the size of a relevant voting body increased (or potentially also vice versa).

Such a sliding-scale rule could, for example, be derived by combining two separate findings in our data: one, relating to the relationship between changes in the scale of the legislature and the difficulty of amendment; and the other, the relationship between the formal difficulty of amendment and effective rate of amendment. In our data, we find, for example, that in the first context a one standard deviation increase in the size of the lower house of a legislature leads to a decrease in the rate of constitutional amendment of approximately 2.7 amendments per decade; and in the second context, that a one step increase in the formal amendment rule (i.e. the move from LEGBUCK1 to LEGBUCK2, or from 50% to 60%) is associated with an increase in the amendment rate of approximately 6 amendments per decade. If one combines these findings, and also assumes linearity in respect of the effect of changes in the formal amendment rule, this would imply that the formal difficulty of amendment should decrease by 5% for every standard deviation increase in the size of a state legislature – at least up to a lower threshold of 50%.[15]

---

[14] For example, in 2004, in the wake of 10 new members joining the Union, Art 205 of the Nice Treaty introduced new requirements for qualified majority voting requiring that proposed legislation obtain the support not only of 50% of member states– or 72% of Council members – but also 62% of the total population of the EU, upon a request for such a count (Official Journal of the European Union (OJEU) 29.12.2006 C 321 E/136-137). Subsequent proposed reforms, such as those contained in the Treaty of Lisbon, have also attempted to add go further in this same direction, by imposing a super-majority requirement of 55% of member states and 65% of the total EU population (OJEU 17.12.2007 C 306).

[15] This result is, of course, potentially highly sensitive to the assumption of linearity.

2. LOWER SUPER-MAJORITY RULES

While they are far less common than super-majority voting requirements for constitutional amendment (see Elkins, Ginsburg and Melton 2009), simple majority rules apply in 15 states in the U.S. in the context of legislative amendments to the constitution; and also in many national constitutions, particularly those influenced by the UK's non-codified constitutional model (see e.g. Young 2007). In other countries, such as India, simple majority requirements also apply to the amendment of a particular sub-set of constitutional issues.[16]

At an empirical level, we also found clear evidence to suggest that simple majority rules of this kind help counteract, at least to some degree, the effect of increases in scale in the legislature on the difficulty of constitutional amendment.[17]

As table 6 shows, for example, when we re-examined the panel data reported in *tables 4* and *5* and included an interaction term between the number of house members and whether a state has a 50% legislative rule (interact HOUSE and LEGBUCK_1), we found both that the previously estimated variables were essentially unchanged and that there was a clear positive interaction effect, statistically significant at the 5% level, between these two variables. The implication of this finding is that, when there is an increase in the size of the legislature, the presence of a simple majority rule will tend, all else being equal, to lead to a clear increase in the number of successful constitutional amendments per year.[18]

[insert table 6]

At a theoretical level, one potential explanation for this, compared to more demanding super-majority voting rules, lower super-majority rules will tend to be more robust to changes in the size of the underlying voting population, particularly from the perspective of the statistical likelihood of there being independent support for a particular amendment. As *figure 2* demonstrates, if votes are drawn entirely randomly and independently, as they are in a coin flip setting, the probability of successful amendment under an ordinary majority rule will (subject to integer rounding considerations) remain constant at 50%.

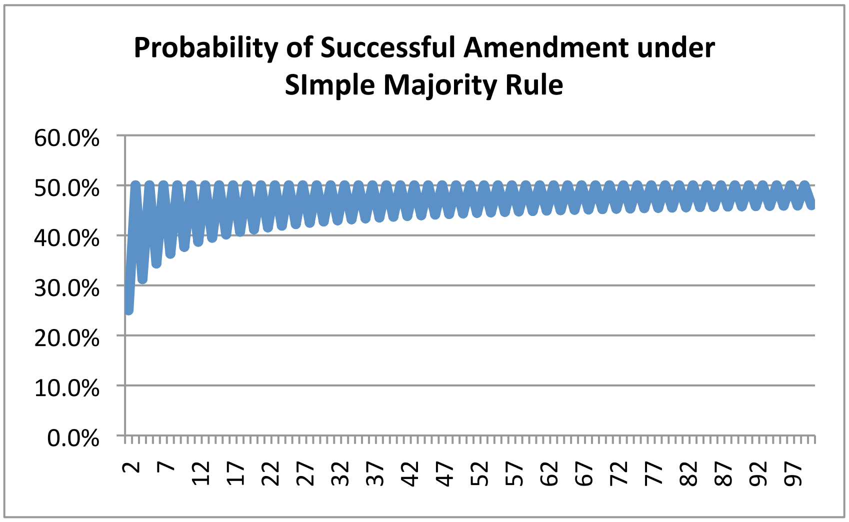
---

[16] Constitution of India, Art 368.

[17] As a robustness check we estimate the samples separately (i.e. those states with a 50% rule, and the others), and find a significant difference between the coefficient of HOUSE in the two samples.

[18] As a robustness check we estimate the samples separately (i.e. those states with a 50% rule, and the others), and find a significant difference between the coefficient of HOUSE in the two samples.

Figure 2 –Scale & probability of amendment given Simple Majority Rule



3. CONSTITUTIONAL CONVENTIONS

In the U.S, both Art V of the Constitution and most state constitutions explicitly provide for the possibility that constitutional amendments may be proposed by a constitutional convention, rather than the legislature. Similar provisions also exist in the Swiss Constitution (see Tschaeni), as well, as more implicitly in the small 'c' constitutional framework of countries such as Australia (see Twomey).

In most jurisdictions where actual conventions have been called, the practice has also been for conventions to be relatively small, at least compared to national or state legislatures. This, various scholars argue, both increases the likelihood of meaningful deliberation among members of a convention and reduces the costs of convening a convention, as a special legislative-like body (compare Saunders, Twomey etc).

Provided, therefore, a constitutional designer can ensure that a constitutional convention is in fact called where there is a demand for constitutional change, a convention mechanism will offer another potential way in which to respond to the denominator problem identified in part II.

There are also at least two ways in which a constitutional designer could overcome potential hurdles to a convention being called: first, by creating of a lower threshold for the calling of a convention than for the legislative approval of actual constitutional amendments; and second, by making a popular vote on the calling of a convention mandatory, at fixed points in time. Lower voting thresholds frequently apply in state constitutions in the U.S., and also countries such as Switzerland, for the proposal of constitutional amendments, as compared to the ratification or approval of amendments (see e.g. Swiss Federal Constitution 1999, Arts 138-42).

At a state level in the U.S., fourteen states also explicitly require a regular vote to be held on whether to call a constitutional convention (see e.g. Twomey).[19]

B. COMPARATIVE DANGERS (OR DISADVANTAGES)

In assessing these three potential design solutions, it is, of course, important for a constitutional designer to consider a range of other constitutional structures and values – such as the structure of political parties (Isacharoff), the protection of minority rights (see e.g. Rawls 1993; Sager 2001) and the importance of constitutional stability – and not simply the effect of a denominator problem.

The strength and discipline of political parties, for example, will tend to have a major impact on the actual difficulty of constitutional amendment in almost all constitutional contexts. This impact may also be particularly pronounced for sliding-scale and simple majority voting rules. (In the context of constitutional conventions, the influence of political parties will depend almost entirely on the mechanism adopted for the selection of convention delegates).

Under such rules, the greater the dominance of a single party, for example, the greater the danger (at least, in the case of sliding-scale rules, over time) that amendments will be passed without adequate deliberation and support from a diverse range of perspectives (compare Issacharoff 2003). By contrast, the stronger the degree of competition and discipline among two major parties, the more likely it is that political pressures will constrain the use of amendment procedures in a way that makes formally weak super-majority or even simple-majority voting requirements more than adequate to guard against the danger of overly flexible amendment.

The protection of minorities, and particularly "discrete and insular" minorities in the political process (see Ely 1980), will be another important factor for constitutional designers to consider when adopting various amendment mechanisms. One potential advantage to a constitutional convention mechanism, from this perspective, will be that it allows seats to be reserved for particular minority groups (such as, in Australia, indigenous groups: see Twomey). Sliding-scale and simple majority rules, on the other hand, may raise particular dangers. If they adopt such rules, therefore, constitutional designers may also wish to consider applying them to only some, rather than all, forms of constitutional amendment – i.e. to only those amendments that do not touch on basic constitutional rights protections. Implicitly, this is the model adopted in the U.S. by state constitutions that have simple majority amendment requirements, given that such amendments are also subject to the Fourteenth Amendment of the U.S. Constitution.[20] Several other countries have also adopted a similar approach by making certain fundamental rights guarantees either unamendable (see e.g. the German *Basic Law* of 1949; and as a matter of judicial interpretation) the *Constitution of India* 1950: see e.g. Diwan and Diwan 1997, Neuborne 2003), or subject to higher majority voting requirements (see Constitution of South Africa 1996, s. 74(1)).

---

[19] The relevant states are: Alaska (every 10 years), Connecticut (20 years), Hawaii (9 years), Illinois (20 years), Iowa (10 years), Maryland (20 years), Michigan (16 years), Missouri (20 years), Montana (20 years), New Hampshire (10 years), New York (20 years), Ohio (20 years), Oklahoma (20 years), and Rhode Island (10 years).

[20] See e.g. *Romer v. Evans*, 517 U.S. 620 (1996) (invalidating a Colorado constitutional amendment adopted by popular initiative for inconsistency with the Equal Protection clause).

The value of constitutional stability, and maintaining certain kinds of "internal" constitutional pre-commitment (see e.g. Ferejohn & Sager 2003), will be another factor for constitutional designers to consider. One of the most serious objections against a constitutional convention mechanism, for example, is that can empower a small sub-group of voters or representatives to propose whole-scale revisions to a constitution, when the initial popular demand is for a much narrower form of constitutional updating or dialogue. Whatever the formal legal limits on a particular convention (and there has been a major debate in the U.S. in particular on this question: see e.g. Dellinger), as a political matter, most commentators agree, it will be extremely difficult to restrain a "runaway convention" that exceeds the bounds of its mandate for constitutional change, and therefore, the calling of such a convention always represents some threat to constitutional stability.

Compared to more demanding super-majority requirements, or even-sliding scale rules, simple majority voting rules can also pose a threat to constitutional stability. For sliding-scale rules, there will be an initial period in which amendment is more difficult, and therefore, also less likely; and this, our findings in part II suggest, can have a significant impact on the subsequent likelihood of actual constitutional amendment. [21]This is also another reason, beyond considerations of minority protection, why if she chooses such a simple majority rule, a constitutional designer might wish to limit its use to more minor amendments, as opposed to more large-scale forms of constitutional revision (compare e.g. Art XVIII of the California Constitution), or to certain subjects that do not touching on the "basic structure" of a constitution.

IV. CONCLUSION

Political scientists and economists have long hypothesized that there is a connection between the size of a decision-making body and its output, in terms of constitutional amendment; and in this chapter, we show that, at a state constitutional level in the U.S., there is significant empirical support for this prediction. Our results show that for all states in the U.S. for which house size data is available, a larger house of representatives leads to a significantly lower probability of constitutional amendment: a one standard deviation in the number of house members in a particular state, we found, was associated with 2.7 fewer amendments per decade—or. a 14.6% reduction relative to the mean number of amendments. These results were also robust to the inclusion of a number of controls, as well to various different count data specifications (i.e. Poisson and negative binomial).

Our focus, in part III, is on exploring the possible normative implications of this for the design of constitutional amendment rules, and in particular, on the way in which three design mechanisms – namely, sliding-scale voting rules, simple majority voting rules and constitutional

---

[21] In our data we found, for example, that if state amended its constitution in a given year, it was 2.8 times more likely than other states to amend it again 2 years later; and 1.9 times more likely to do so 4 years later. There was also a strong degree of persistence for this effect, with the odds ratio of amendment still standing at 1.4 after 10 years. These findings were also statistically significant at the 1% level. See Table 7 in the appendix (reporting the results of a logistic regression of amendment on a series of lags of that variable).

convention mechanisms – may be able to help address potential denominator problems in amendment procedures, over time.

The empirical findings of the paper, however, also have potential relevance to a range of other constitutional debates, including debates about the optimal size of legislatures (see e.g Taapega & Shugart, 1989), and even, nations (see e.g. Alesina & Spolaore, 2003). These are simply questions that, because of their complexity, are beyond the scope of this short chapter to address.

References

Ackerman, Bruce. 1991. *We the People: Foundations*. Cambridge, Mass: The Belknap Press of Harvard University Press.

Alesina, Alberto and Enrico Spolaore. 2003. *The Size of Nations*. Cambridge, Mass: The MIT Press

Alexander, Gregory S. 2006. *The Global Debate Over Constitutional Property: Lessons for American Takings Jurisprudence*. Chicago: University of Chicago Press.

Allen, Tom. Forthcoming 2011. The Right to Property. In *The Research Handbook in Comparative Constitutional Law*, edited by Rosalind Dixon and Thomas Ginsburg. Northhampton, Mass: Elgar Publishing.

Amar, Akhil Reed. 1994. The Consent of the Governed: Constitutional Amendment Outside Art V. *Columbia Law Review* 94: 457-511.

Ambwani, Justice Sunil. 2007. I.R. Coelho (dead) by L.Rs. Vs. State of Tamil Nadu & Others: A Case Study. *Lecture Delivered at the Advocates Association organized by SAMVAAD*.

Bearak, Barry. 2009. Final Results Show Resounding Victory for ANC in South Africa. *The New York Times*, April 25.

Buchanan, James M, and Gordon Tullock. [1962] 2004. *The Calculus of Consent: Logical Foundations of Constitutional Democracy*. Indianapolis: Liberty Fund, Inc., Vol. 2.

Choudhry, Sujit. 2007. Rethinking Comparative Constitutional Law: Multinational Democracies, Constitutional Amendment, and Secession. *Paper presented at the annual meeting of the The Law and Society Association.*

Dahl, Robert A. and Edward R. Tufte. 1973. *Size and Democracy*. Stanford: Stanford University Press.

Dellinger,Walter. 1979. The Recurring Question of the “Limited” Constitutional Convention. *Yale Law Journal* 8:1623-40

Devans, Neal and Louis Fisher. 2004. *The Democratic Constitution*. New York: Oxford University Press.

Dinan, Desmond. 2005. *Ever Closer Union: An Introduction to European Integration*. 3rd edition. London: Lynne Rienner Publishers, Inc.

Diwan, Paras and Diwan, Peeyushi. 1997, *Amending Powers and Constitutional Amendments: From First to the Latest Amendment.* New Delhi: Deep & Deep Publications.

Dixon, Rosalind. 2007. Creating Dialogue About Socio-economic Rights: Strong v. Weak-form Judicial Review Revisited, *International Journal of Constitutional Law* 5:391-418.

Dixon, Rosalind. 2009. The Supreme Court of Canada, Charter Dialogue and Difference. *Osgoode Hall Law Journal* 47: 235-286.

Dixon, Rosalind. 2010a. Updating Constitutional Rules. *Supreme Court Review* 2009:319-346.

Dixon, Rosalind. Forthcoming 2010b. Partial Constitutional Amendments. *University of Pennsylvania Journal of Constitutional Law*.

Dixon, Rosalind. Forthcoming 2011. Constitutional Amendment Rules: a Comparative Perspective . In *The Research Handbook in Comparative Constitutional Law*, edited by Rosalind Dixon and Thomas Ginsburg. Northhampton, Mass: Elgar Publishing.

Dixon, Rosalind and Richard Holden. 2009. Amending the Constitution: Article V and the Effect of Voting Rule Inflation. Working Paper.

Duclos, Jean-Yves, Joan Esteban and Debraj Ray. 2004. Polarization: Concepts, Measurement, Estimation. *Econometrica* 72:1737-1772.

Eisgruber, Christopher L. 2001. *Constitutional Self-Government*. Cambridge, Mass: Harvard University Press.

Ely, John Hart. 1980. *Democracy and Distrust: A Theory of Judicial Review.* Cambridge, Mass: Harvard University Press.

Elster, Jon. 2000. *Ulysses Unbound. Studies in Rationality, Precommitment, and Constraints*. Cambridge: Cambridge University Press.

Epstein, Richard. 2009. Executive Power in Political and Corporate Contexts. Unpublished Manuscript, University of Chicago Law School.

Elkins, Zachary, Tom Ginsburg and James Melton. 2009. *The Endurance of National Constitutions*. Cambridge: Cambridge University Press.

Esteban, Joan-María and Debraj Ray. 1994. On the Measurement of Polarization. *Econometrica* 62: 819-851.

Ferejohn, John. 1997. The Politics of Imperfection: The Amendment of Constitutions. *Law and Social Inquiry* 22: 501-530.

Ferejohn, John and Lawrence Sager. 2003. Commitment and Constitutionalism. *University of Texas Law Review* 81:1929-1963.

Flavelle, Lucinda and Philip Kaye. 1986. Party Discipline and Legislative Voting. Canadian Parliamentary Review 9. Available at: http://www2.parl.gc.ca/Sites/LOP/Infoparl/english/issue.asp?param=117&art=665

Friedman, Barry. 1993. Dialogue and Judicial Review. *Michigan Law Review* 91:577-682.

Gilbert, Michael D. 2006. Single Subject Rules and the Legislative Process. *University of Pittsburgh Law Review* 67:803-870.

Giovannoni, Francesco. 2003. Amendment Rules in Constitutions. *Public Choice* 115:37-61

Griffin, Stephen M. 1998. The Nominee Is . . . Article V. Pp. 51-53 in *Constitutional Stupidities, Constitutional Tragedies*, edited by William N. Eskridge and Sanford Levinson. New York: New York University Press.

Guizan, Julia Anne. 1997. Is the California Civil Rights Initiative a Wolf in Sheep's Clothing?: Distinguishing Constitutional Amendment from Revision in California's Initiative Process. *University of Loyola Los Angeles Law Review* 21:261-296.

Hausman, Jerry, Bronwyn H. Hall and Zvi Griliches. 1984. Econometric Models for Count Data with an Application to the Patents-R&D Relationship. *Econometrica* 52:909-938

Hirschl, Ran. 2009. The "Design Sciences" and Constitutional "Success." *University of Texas Law Review* 87:1339-1374.

Hogg, Peter W. and Allison A. Bushell. 1997. The *Charter* Dialogue Between Courts and Legislatures (Or Perhaps The *Charter of Rights* Isn't Such A Bad Thing After All*). Osgoode Hall Law Journal* 35: 75-124.

Holden, Richard. 2009. Supermajority Voting Rules. Working Paper.

Holmes, Stephen, 1995. *Passions and Constraint: On the Theory of Liberal Democracy.* Chicago: University of Chicago Press.

Holmes, Stephen and Cass Sunstein. 1995. The Politics of Constitutional Revision in Eastern Europe. Pp. 275-306 in *Responding to Imperfection: The Theory and Practice of Constitutional Amendment*, edited by Sanford Levinson. Princeton: Princeton University Press

Issacharoff, Samuel. 2003. The Enabling Role of Democratic Constitutionalism: Fixed Rules and Some Implications for Contested Presidential Elections. *University of Texas Law Review* 81:1985-2012.

King, Gary. 1989. Variance Specification in Event Count Models: From Restrictive Assumptions to a Generalized Estimator. *American Journal of Political Science* 33:762-784.

Levinson, Sanford. 2001. Designing an Amendment Process. Pp. 271-287 in *Constitutional Culture and Democratic Rule*, edited by John Ferejohn, Jack M. Rakove and Jonathan Riley. Cambridge: Cambridge University Press.

Lijphart, Arend. 1999. *Patterns of Democracy. Government Forms and Performance in Thirty-Six Countries.* New Haven: Yale University Press.

Lutz, Donald S. 1995. Toward a Theory of Constitutional Amendment. Pp. 237-274 in *Responding to Imperfection: The Theory and Practice of Constitutional Amendment*, edited by Sanford Levinson. Princeton: Princeton University Press.

Michelman, Frank L. 1986. The Supreme Court 1985 Term, Foreword: Traces of Self-Government, *Harvard Law Review* 100:4-77.

Neuborne, Bert. 2003. The Supreme Court of India. *International Journal of Constitutional Law* 1: 476-510.

Neyman, Jezry. 1965. Certain chance mechanisms involving discrete distributions. In *Classical and Contagious Discrete Distributions*, edited by Ganapati P. Patil, Calcutta: Statistical Publishing Society.

Sager, Lawrence. 2001. The Birth Logic of a Democratic Constitution. Pp. 110-146 in *Constitutional Culture and Democratic Rule*, edited by John Ferejohn, Jack M. Rakove and Jonathan Riley. Cambridge: Cambridge University Press.

Samaha, Adam M. 2008. Originalism's Expiration Date. *Cardozo Law Review* 30: 1295-1368.

Rawls, John. 1971. *A Theory of Justice*. Cambridge, Mass: The Belknap Press of Harvard University Press.

Rawls, John. 1993. *Political Liberalism*. New York: Columbia University Press.

Riley, Jonathan. 2001. Imagining Another Madisonian Republic. Pp 170-204 in *Constitutional Culture and Democratic Rule*, edited by John Ferejohn, Jack M. Rakove and Jonathan Riley. Cambridge: Cambridge University Press.

Saunders, Cheryl. 1997. Why a Convention? *Public Law Review* 8:213

Sadurski, Wojciech. 2002. Judicial Review and the Protection of Constitutional Rights. *Oxford Journal of Legal Studies* 22:275-299.

Strauss, David. 1996. Common Law Constitutional Interpretation. *University of Chicago Law Review* 63:877-936.

Strauss, David. 2001. The Irrelevance of Constitutional Amendments. *Harvard Law Review* 114:1457-1505.

Sullivan, Kathleen M. 1995. Constitutional Amendmentitis. *The American Prospect*, September 21.

Sunstein, Cass R. 2009. The Enlarged Republic – Then and Now. *The New York Review of Books* 56, March 26.

Taapega, Rein, and Matthew Sobert Shugart. 1989. *Seats and Votes: The Effects and Determinants of Electoral Systems*. New Haven: Yale University Press.

Tushnet, Mark. 1995. The Whole Thing. *Constitutional Commentary* 12:223-226.

Tushnet, Mark. 2008. Some Skepticism about Normative Constitutional Advice. *William and Mary Law Review* 49:1473-1495.

Tushnet, Mark. 2009. Constitutional Workarounds. Texas Law Review 87:1499-1516.

Twomey, Anne. 2008. Constitutional Conventions, Commissions and Other Constitutional Reform Mechanisms. *Sidley Law School Research Paper No. 08/38*. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1120628

Tschaeni, Hanspeter. 1982. Constitutional Change in Swiss Cantons: An Assessment of a Recent Phenomenon. *Publius: The Journal of Federalism* 12:113-130

United Nations. Department of Economic and Social Affairs. Population Division. 2007. *World Population Prospects: The 2006 Revision, Highlights*. New York: United Nations. Available at: http://www.un.org/esa/population/publications/wpp2006/WPP2006_Highlights_rev.pdf.

Vermeule, Adrian. 2006. Constitutional Amendments and Common Law. Pp. 229-273 in *The Least Examined Branch: The Role of Legislatures in the Constitutional State*, edited by Richard W. Bauman and Tsvi Kahana. Cambridge: Cambridge University Press.

Warhurst, John. 2008. Conscience Voting in the Australian Federal Parliament. *Australian Journal of Politics and History* 58: 579-596.

Williams, Robert F. 1985. Equality Guarantees in State Constitutional Law. *Texas Law Review* 63:1195-1224.

Young, Ernest. 2007. The Constitution Outside the Constitution. *The Yale Law Journal* 117:408-473.

TABLE 1: Panel Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
vap	5285	2156768	5498174	10698.28	1.29E+08
amendts	4535	1.822933	6.148128	0	130
amend	4535	0.322161	0.4673558	0	1
legbcuk	5198	2.192959	0.8885848	1	4
init	5315	0.5629351	0.8033729	0	2
doublepass	5315	0.2957667	0.4564296	0	1
limit	5315	0.1047977	0.3063214	0	1
exposure	5315	66.8984	46.86321	1	226
house	5315	118.6591	73.25775	31	749
singsub	5315	0.2425212	0.4286481	0	1
length	5315	36117.12	47408.06	9200	340136
vapsquared	5285	3.49E+13	4.87E+14	1.14E+08	1.66E+16

TABLE 2: Aggregate Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
proposed	49	215.4286	209.3933	8	1063
passed	50	139.62	140.8594	8	766
buck	50	13.52	5.003019	1	20
vagepop	50	3859319	3905686	360316	2.00E+07
rate	50	1.378804	1.277779	0.2465116	7.158878
popadopt	50	1039159	1879353	10698.28	7865581
housenow	50	110.24	55.58614	40	400
legbuck	49	2.204082	0.9124051	1	4
adopted	50	1899.32	52.96762	1780	1986
intitiative	50	0.56	0.8121526	0	2
doubpass	50	0.24	0.4314191	0	1
limit	50	0.1	0.3030458	0	1
singsub	50	0.26	0.4430875	0	1
length	50	35985.08	47816	9200	340136

Table 3: Amendment Rates Using Aggregate Data

VARIABLES	rate
Vagepop	1.53e-07**
	(7.70E-08)
Housenow	-0.00255
	(0.00184)
legbuck_1	-0.408
	(0.292)
legbuck_2	-0.549**
	(0.222)
legbuck_3	-0.215
	(0.283)
doubpass	-0.597
	(0.427)
limit	-1.039***
	(0.22)
init_1	-0.043
	(0.361)
init_3	-0.206
	(0.401)
singsub	0.0016
	(0.295)
length	5.58e-06***
	(1.30E-06)
vagepopsq	0
	(0)
Constant	-4.157***
	(0.419)
Observations	49

Table 4: Panel Negative Binomial Results

VARIABLES	amendts	amendts
	(1) Fixed Effects	(2) Random Effects
doublepass	0.0974	0.0598
	(0.107)	(0.102)
limit	-0.00878	-0.0614
	(0.127)	(0.120)
legbuck_2	-0.603***	-0.516***
	(0.135)	(0.130)
legbuck_3	-0.243**	-0.218**
	(0.105)	(0.0998)
legbuck_4	0.275	0.338
	(0.425)	(0.381)
init_1	0.168	0.159
	(0.132)	(0.123)
init_2	-0.455***	-0.413***
	(0.136)	(0.130)
singsub	0.185	0.147
	(0.118)	(0.110)
house	-0.00363***	-0.00377***
	(0.000695)	(0.000671)
exposure	0.00756***	0.00708***
	(0.000702)	(0.000692)
length	1.45e-05***	1.46e-05***
	(2.00e-06)	(1.93e-06)
vap	-3.90e-09	2.08e-09
	(9.59e-09)	(9.36e-09)
vapsquared	-0	-0
	(0)	(0)
Constant	-2.179***	-2.152***
	(0.153)	(0.146)
Observations	4390	4390
Number of stateid	41	41

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 5: Estimates of Amendment Probability

VARIABLES	amend	amend	amend
	(1) Linear Probability	(2) Logit	(3) Probit
vap	9.79e-09	-0.0155	-0.0168
	(9.58e-09)	(0.245)	(0.150)
doublepass	-0.00933	-0.255	-0.149
	(0.0506)	(0.218)	(0.133)
limit	-0.0519	0.00600***	0.00361***
	(0.0451)	(0.00173)	(0.00106)
exposure	0.00117***	-0.00506***	-0.00277***
	(0.000376)	(0.00156)	(0.000845)
legbuck_2	-0.0605	-0.251	-0.161
	(0.0575)	(0.264)	(0.162)
legbuck_3	-0.0147	-0.0427	-0.0325
	(0.0422)	(0.202)	(0.123)
legbuck_4	0.0634	0.453*	0.251
	(0.0546)	(0.265)	(0.159)
init_1	0.0323	0.138	0.0840
	(0.0362)	(0.186)	(0.108)
init_2	-0.0637*	-0.335**	-0.195*
	(0.0375)	(0.170)	(0.105)
singsub	0.0361	0.122	0.0810
	(0.0316)	(0.147)	(0.0894)
length	3.78e-06***	4.58e-08	1.08e-05***
	(9.65e-07)	(4.62e-08)	(2.62e-06)
vapsquared	-0	-0	2.82e-08
	(0)	(0)	(2.63e-08)
house	-0.000742***	1.78e-05***	-0
	(0.000253)	(4.32e-06)	(0)
Constant	0.200***	-1.228***	-0.777***
	(0.0534)	(0.268)	(0.160)
Observations	4390	4390	4390
R-squared	0.064		

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 6: House-Legislative Rule Interaction

VARIABLES	amendts
doublepass	0.0464
	(0.109)
limit	-0.0611
	(0.129)
legbuck_2	-0.0929
	(0.259)
legbuck_3	0.269
	(0.246)
legbuck_4	0.828*
	(0.488)
init_1	0.106
	(0.135)
init_2	-0.413***
	(0.138)
singsub	0.170
	(0.118)
house	-0.00419***
	(0.000744)
exposure	0.00799***
	(0.000728)
length	1.38e-05***
	(2.03e-06)
vap	-1.31e-08
	(1.05e-08)
vapsquared	0
	(0)
houserule50interact	**0.00542***
	(0.00234)
Constant	-2.560***
	(0.226)
Observations	4390
Number of stateid	41

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Amendment Lags

VARIABLES	amend
doublepass	1.145
	(0.145)
limit	0.797
	(0.116)
legbuck_1	2.217
	(1.467)
legbuck_2	2.235
	(1.468)
legbuck_3	2.077
	(1.351)
house	0.998**
	(0.000785)
init_1	1.083
	(0.159)
init_2	0.871
	(0.147)
singsub	1.026
	(0.144)
length	1.000***
	(3.13e-06)
vap	1.000
	(5.86e-09)
amendlag1	0.954
	(0.114)
amendlag2	2.837***
	(0.291)
amendlag3	1.020
	(0.125)
amendlag4	1.924***
	(0.206)
amendlag5	0.890
	(0.109)
amendlag6	1.553***
	(0.168)
amendlag7	0.963
	(0.120)
amendlag8	1.395***
	(0.152)
amendlag9	0.808*
	(0.0978)
amendlag10	1.400***
	(0.157)
amendlag11	0.941
	(0.114)
amendlag12	1.587***
	(0.174)
amendlag13	0.959
	(0.118)
amendlag14	1.121
	(0.129)
amendlag15	1.048
	(0.131)
amendlag16	1.126
	(0.131)
amendlag17	0.787*
	(0.0982)
amendlag18	1.305**
	(0.145)
amendlag19	1.003
	(0.122)
amendlag20	1.416***
	(0.159)
Constant	0.0465***
	(0.0316)
Observations	3479

Robust z-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Readers with comments may address them to:

Professor Rosalind Dixon
University of Chicago Law School
1111 East 60th Street
Chicago, IL 60637
dixon@uchicago.edu

The University of Chicago Law School
Public Law and Legal Theory Working Paper Series

For a listing of papers 1–300 please go to http://www.law.uchicago.edu/publications/papers/publiclaw.

300. Anu Bradford, When the WTO Works, and How It Fails (March 2010)
301. Aziz Z. Huq, Modeling Terrorist Radicalization (March 2010)
302. Adam M. Samaha, On Law's Tiebreakers (March 2010)
303. Brian Leiter, The Radicalism of Legal Positivism (March 2010)
304. Lee Anne Fennell, Unbundling Risk (April 2010)
305. Aziz Z. Huq, What Good Is Habeas? (April 2010)
306. Aziz Z. Huq, Easterbrook on Academic Freedom (April 2010)
307. Jonathan S. Masur and Jonathan Remy Nash, The Institutional Dynamics of Transition Relief (April 2010)
308. Alison L. LaCroix, Temporal Imperialism (May 2010)
309. Lior J. Strahilevitz, Reunifying Privacy Law (May 2010)
310. Lee Fennell, Possession Puzzles (June 2010)
311. Jonathan S. Masur, Booker Reconsidered (June 2010)
312. Mary Anne Case, What Feminists Have to Lose in Same-Sex Marriage Litigation (July 2010)
313. Mary Anne Case, A Lot to Ask: Review Essay of Martha Nussbaum's *From Disgust to Humanity: Sexual Orientation and Constitutional Law* (July 2010)
314. Adam M. Samaha, The Story of FCC v. Pacifica Foundation (and Its Second Life) (August 2010)
315. Jonathan S. Masur and Eric A. Posner, Climate Regulation and the Limits of Cost-Benefit Analysis (August 2010)
316. Jonathan Masur, Patent Inflation (August 2010)
317. Bernard E. Harcourt and Tracey L. Meares, Randomization and the Fourth Amendment (August 2010)
318. Adam M. Samaha, Low Stakes and Constitutional Interpretation (August 2010)
319. Brian Leiter, The Demarcation Problem in Jurisprudence: A New Case for Skepticism (August 2010)
320. Brian Leiter, Legal Formalism and Legal Realism: What Is the Issue? (August 2010)
321. John Bronsteen, Christopher Buccafusco, and Jonathan S. Masur, Retribution and the Experience of Punishment (September 2010)
322. Lior Strahilevitz, Pseudonymous Litigation (September 2010)
323. Bernard E. Harcourt, Risk As a Proxy for Race (September 2010)
324. Christopher R. Berry and Jacob E. Gersen, Voters, Non-Voters, and the Implications of Election Timing for Public Policy, September 2010
325. Lee Anne Fennell, Willpower Taxes, October 2010
326. Christopher R. Berry and Jacob E. Gersen, Agency Design and Distributive Politics, October 2010
327. Eric A. Posner, The Constitution of the Roman Republic: A Political Economy Perspective, November 2010
328. Tom Ginsburg, James Melton and Zachary Elkins, On the Evasion of Executive Term Limits, November 2010
329. Rosalind Dixon and Eric A. Posner, The Limits of Constitutional Convergence, November 2010
330. Tom Ginsburg, Constitutional Specificity, Unwritten Understandings and Constitutional Agreement, November 2010.

331. Tom Ginsburg, Written Constitutions and the Administrative State: On the Constitutional Character of Administrative Law, November 2010
332. Rosalind Dixon, Amending Constituting Identity, December 2010
333. Eric A. Posner and Adrian Vermeule, Demystifying Schmitt, January 2011
334. Jonathan S. Masur, Regulating Patents, January 2011
335. Bernard E. Harcourt, Reducing Mass Incarceration: Lessons from the Deinstitutionalization of Mental Hospitals in the 1960s, January 2011
336. Jacob E. Gersen, Designing Agencies, January 201l
337. Stephen J. Schulhofer, Tom R. Tyler, and Aziz Z. Huq, American Policing at a Crossroads, February 2011
338. Aziz Z. Huq, The Signaling Function of Religious Speech in Domestic Counterterrorism, February 2011
339. Aziz Z. Huq, Tom R. Tyler, and Stephen J. Schulhofer, Why Does the Public Cooperate with Law Enforcement? The Influence of the Purposes and Targets of Policing, February 2011
340. Aziz Z. Huq, Tom R. Tyler, and Stephen J. Schulhofer, Mechanisms for Eliciting Cooperation in Counter-Terrorism Policing: Evidence from the United Kingdom
341. Bernard E. Harcourt, Making Willing Bodies: Manufacturing Consent among Prisoners and Soldiers, Creating Human Subjects, Patriots, and Everyday Citizens—The University of Chicago Malaria Experiments on Prisoners at Stateville Penitentiary, February 2011
342. Jonathan S. Masur, Patent Liability Rules as Search Rules, February 2011
343. Brian Leiter, The Law of Religious Liberty in a Tolerant Society, March 2011
344. Rosalind Dixon, Updating Constitutional Rules, March 2011
345. Rosalind Dixon and Martha Nussbaum, Abortion, Dignity and a Capabilities Approach, March 2011
346. Rosalind Dixon and Richard Holden, Constitutional Amendment Rules: The Denominator Problem, May 2011