

Committee Strength in Parliamentary Democracies: A New Index

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Abstract

Much recent research on coalitions and policy-making in parliamentary democracies requires high quality data on the strength of legislative institutions. In this note, I introduce a new index of committee policing strength which improves on existing measures in important ways. I specify key index parameters using a binary rooted tree model and engage human coders to score formal rules. I obtain a novel time-series of committee policing strength in 17 western and eastern European democracies since 1945. I validate the new estimates through convergent validation and discuss ways in which the new index contributes to future work.

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INTRODUCTION

There is increasing interest in how coalitions in parliamentary democracies use legislative committees to police government ministers (Hallerberg 2000; Kim and Loewenberg 2005; Martin and Vanberg 2011, 2020; Carroll and Cox 2012; Franchino and Wratil 2019). Empirical work in this area requires high quality institutional data and recently indicators of committee policing strength have been proposed (Martin and Vanberg 2011, 2020; André, Depauw, and Martin 2016). But while the existing indices capture important information about committee powers and structures, they also leave space for improvement.

In conceptual terms, little consideration has so far been given to the dimensions of strength that can be considered necessary conditions, and to how such dimensions can be accommodated in the index construction. Relatedly, indices often model legislative scrutiny as a one-step process without considering various paths that bills may follow before adoption. In empirical terms, measurements of committee strength rarely distinguish between formal rules, informal conventions and behavioural patterns; explanations of coding decisions tend to be limited, hindering reproducibility; and limited time-series data is available for established democracies before the 1970s and for new democracies in the 1990s.

In this work, I contribute to addressing these challenges. I propose a new index of committee policing strength which (i) introduces the extent of partner control over referral as a key necessary condition, (ii) allows for strength to be measured across key stages of the legislative procedure, and (iii) ensures that estimates are sensitive to various paths that bills may follow before adoption. I further demonstrate how parameters in the new index formula can be specified using a binary rooted tree model, a standard technique of discrete mathematics with applications in social sciences.

In an empirical contribution, I use the new formula to estimate committee policing strength in 17 western and east-central European parliamentary democracies since 1945 or the date of democratization. The estimation is based on a systematic qualitative analysis of formal legislative rules. For each country, I construct timelines of textual changes and engage human coders to analyze the legal texts. I support all coding decisions with references to specific rules. The new data are made publicly available, facilitating openly accessible, reproducible and cumulative measurement of committee strength.

Finally, I validate the new index through convergent validation, assessing whether the estimates are associated with existing measures of committee policing strength (Adcock and Collier 2001). I find that the new formula produces estimates with high convergent validity. In the concluding section, I discuss important empirical work that the new index makes possible but which would have been difficult using existing measures.

COMMITTEE POLICING STRENGTH

Index Specification

The existing research tends to measure committee policing strength as a simple dot product of some weights vector and a vector of committee feature scores (e.g. Martin and Vanberg 2011, 2020; André, Depauw, and Martin 2016). The weights vector is typically a vector of normalized equal weights or the normalized eigenvector associated with the highest eigenvalue from a principal component analysis. Committee features normally include attributes such as the number of committees, their size, staffing, correspondence to ministerial jurisdictions, as well as powers such as the right of committees to propose and rewrite bills, subpoena ministers, civil servants and documents, and to control their own timetable. The feature scores vector is normalized through min-max normalization or z-score standardization. Indices of committee strength thus usually take the form of Equation (1), where ω_k are the weights, a_k are the normalized feature scores and m is the number of committee features.

$$\mu = \sum_{k=1}^m \omega_k a_k \quad (1)$$

I propose to extend this common formula in three important ways. First, I argue that the sum of weighted feature scores μ must be moderated by the extent of control p that a coalition partner has over committee referral in the legislative procedure. No scrutiny can take place *unless a bill is referred to a committee*. It is only when a bill has been committed that coalitions can benefit from scrutiny-enhancing features such as committee specialization or the authority to recast proposals. While existing work considers the ability of ministers to resist legislative scrutiny, it has not considered it as a moderating variable.¹ Yet, in settings

¹See Supplementary Information, Section A, for a detailed discussion.

in which the partner prefers to scrutinize a bill, but rules allow the minister to cause referral *not* to be made, the ability to resolve delegation problems through committee scrutiny is restricted. This is the case *even though* committees may have desirable structural features or procedural powers. Conversely, if rules allow extensive recourse to referral, the ability to contain ministerial shirking is enhanced even if committees have limited procedural powers.

The second important extension is to measure both the sum of weighted scores μ and the extent of partner control over referral p across all key stages in the legislative procedure. There is much evidence that, in most parliaments, bills must undergo a few distinct rounds of deliberation before they are enacted (Grey 1982). Referral opportunities and scrutiny-enhancing features at multiple stages can be argued to increase the ability of coalition parties to address ministerial shirking. This is not least because early-stage scrutiny helps to reveal information about the desirability of proposals, while late-stage scrutiny can guard against repeated cheating.² Moreover, if multiple opportunities for committee scrutiny exist, coalitions are able to dynamically respond to unexpected events. The accuracy of measurements of committee strength can thus be enhanced if information about opportunities for coalition monitoring at multiple legislative stages is integrated into a committee strength index.

The third extension is for the committee strength index to capture variation in the sum of weighted scores μ and the extent of partner control p not only across, but also *within* stages of the legislative procedure. Bills may be enacted into law through multiple routes, or *paths*, each governed by a unique configuration of procedural rules. This is crucial because at any stage in the legislative procedure the opportunities for triggering committee scrutiny may be contingent on the path that a bill has followed at earlier stages. The same is true of committee powers which may be configured differently depending on the preceding bill path.³ When assessing committee strength at any stage, one must therefore measure the sum of committee features μ and the extent of partner control p *separately* for different paths through which a bill has arrived at that stage.

I thus extend Equation (1) as follows. Let s be a stage in the legislative procedure and j be a procedural path leading to a committee referral at stage s . Let $p_j^{(s)}$ be the extent

²That early and late-stage scrutiny may be important for coalitions has been argued by others (Martin and Vanberg 2011, 44; Heller 2001). See Supplementary Information, Section B, for illustrative scenarios.

³Empirical examples are provided in Supplementary Information, Section C.

of partner control over referral at stage s for a given j and let $\mu_j^{(s)}$ be the corresponding sum of weighted feature scores. Committee strength can then be measured by: taking the product of $p_j^{(s)}$ and $\mu_j^{(s)}$ for each path j at stage s , summing these products within stage s , and summing these sums over all stages in the legislative procedure. See Equation (2). This formula has clear advantages over Equation (1). Taking the product of $p_j^{(s)}$ and $\mu_j^{(s)}$ means that scrutiny-enhancing committee features are moderated by the extent of partner control over referral. The inner summation over j makes sure the index is sensitive to different procedural paths leading to committee referral. The outer summation over s ensures that the index captures the *totality* of committee policing strength in a given parliament.⁴

$$\text{Committee Policing Strength Index (CPSI)} = \sum_s \sum_j p_j^{(s)} \mu_j^{(s)} \quad (2)$$

A Binary Tree Model

I propose to use a rooted binary tree model to specify the parameters of the CPSI index. Trees are a standard technique of discrete mathematics, and are used widely in mathematical social sciences (Rosen 2012). They are particularly useful for modeling procedures carried out using a sequence of decisions. Trees have been used, for example, as a convenient tool for modelling various classes of sequential voting procedures (Miller 1995).⁵ To specify parameters $p_j^{(s)}$ and $\mu_j^{(s)}$, I first construct a binary tree model of the committee referral process in a given parliament. This task requires two types of inputs: (i) data on procedural stages through which a bill must pass to become law; and (ii) information about whether committee referral is required, permitted or prohibited at each stage. With a complete list of stages known, and committee referral rules specified for all stages, a tree representation of the referral process can be constructed for any parliament at any time (see Supplementary Information, Section D, for a detailed tree construction algorithm).

Figure 1 shows a model constructed for a hypothetical parliament in which the legislative

⁴ $\sum_j p_j \leq 1$ is assumed for each s . Stages are weighted equally, but differential weights can be explored.

⁵Formally, a rooted tree is a type of directed graph $T = (V, E, x_0)$, defined as a finite set V of vertices (nodes), together with the root $x_0 \in V$ and a set E of directed edges between certain pairs of vertices. For every vertex $x_i \in V$ there is a unique path from x_0 to x_i . In a pair of vertices x_1 and x_2 , linked with a directed edge from x_1 to x_2 , x_1 is the *parent* of x_2 and the x_2 is the *child* of x_1 . Vertices with the same parent are called *siblings*, and a vertex is called a *leaf* if it has no children.

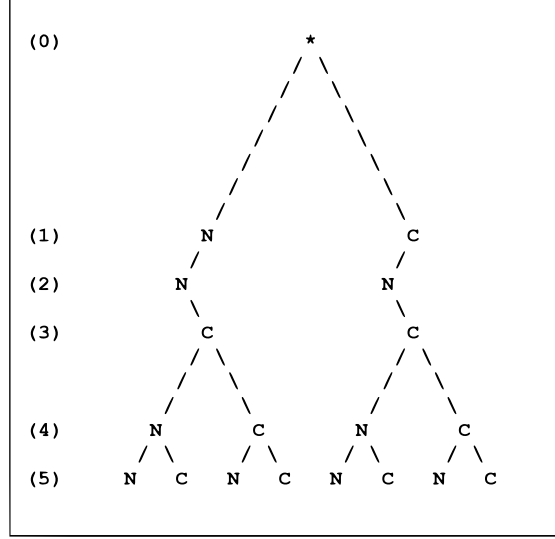


Figure 1: A Tree Representation of Committee Referral Processes

procedure consists of five stages (1) - (5) after bill initiation (0). The asterisk denotes the root, and the direction of edges in the graph is assumed to be away from the root. Each vertex labelled N denotes that a bill proceeds through the stage without a committee referral, while each vertex labelled C denotes that a bill is referred to a committee at that stage. If a vertex N has no sibling, the procedure prohibits a committee referral at that point. In this hypothetical parliament, a committee referral is prohibited at stage (2). If a vertex C has no sibling, the procedure requires a committee referral. Here, a referral is mandatory at stage (3). If a vertex has a sibling, the rules permit, but do not require, a committee referral at that point. In this example, a committee referral is permitted at stages (1), (4) and (5).⁶

Parameter Specification

Using a binary tree model of the committee referral process, I can now specify parameters $p_j^{(s)}$ and $\mu_j^{(s)}$. I re-define path j as a subset of vertices x_i linking the root and a given vertex labelled C at stage s , where j also includes vertex C . To specify the extent of partner control $p_j^{(s)}$, I rely on *transition probability*, a concept that originates in the analysis of Markov chains and captures the probability of a particle moving between states (Chung 1979, 252-260). I use this concept to define $p_j^{(s)}$ as *the probability of a bill transitioning from the root of the tree to a given vertex labelled C if a partner party prefers the bill to be considered in a committee*

⁶Note that in practice tree models can be asymmetric, as referral opportunities can vary within a stage.

and the minister prefers to avoid legislative scrutiny.

The calculation of the probability $p_j^{(s)}$ proceeds in two steps. First, one obtains the probability p_i of a bill reaching vertex x_i when transitioning from the parent of x_i , for each $i > 0$. Intuitively, this probability equals 1 for any vertex which has no sibling, i.e., when rules either require or prohibit committee referral of a bill. In these cases, the partner always obtains a committee referral if the rules stipulate it as an obligatory step, and always obtains no referral if the rules prohibit it. The issue is more complex if the rules permit referral. The probability p_i then lies between 0 and 1, and its value α must be specified empirically or theoretically (see below). The parameter p_i is thus defined as:

$$p_i = \begin{cases} 1 & \text{if vertex } x_i \text{ has no sibling} \\ \alpha & \text{if vertex } x_i \text{ has a sibling, where } 0 < \alpha < 1 \end{cases} \quad (3)$$

In the second step, for each vertex x_i for which the label is C , one computes $p_j^{(s)}$ as the probability of reaching that vertex in exactly s steps, when starting from the tree root. The intuition here is that the extent of partner control is measured as the probability of securing a committee referral at a given point in the law-making process, conditional on the probability of the bill reaching the immediately preceding point in the legislative procedure. More formally, the parameter $p_j^{(s)}$ is calculated as a product of transition probabilities p_i for all vertices $x_i \in j$ at stage s . See Equation (4).

$$p_j^{(s)} = \prod_i p_i \text{ for } x_i \in j \quad (4)$$

In specifying the parameter $\mu_j^{(s)}$, I follow the existing research and define it as a weighted mean of scrutiny-enhancing attributes that legislative committees have at a given point in the legislative procedure. When using the binary tree model of committee referral opportunities, I must obtain $\mu_j^{(s)}$ for each path j leading to vertices labelled C at stage s . More formally, I re-specify Equation (1) as follows: let $a_{k,j}^{(s)}$ be normalized feature scores for a procedural path j leading to committee referral at stage s , and let $\omega_{k,j}^{(s)}$ be the corresponding normalized

weight. The final formula for the parameter $\mu_j^{(s)}$ is thus given in Equation (5).

$$\mu_j^{(s)} = \sum_k \omega_{k,j}^{(s)} a_{k,j}^{(s)} \quad (5)$$

ESTIMATION

I use the new index specification to obtain longitudinal estimates of committee policing strength in 17 European parliamentary democracies. The purpose here is to provide a proof-of-concept of the proposed measurement approach, and I select old and new democracies with sufficient variation in the design of democratic institutions. These countries are: Austria, Czech Republic, Denmark, Estonia, France, Germany, Hungary, Ireland, Latvia, Lithuania, The Netherlands, Poland, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom.

Formal Rules and Committee Strength

To obtain parameter values, I undertake a systematic analysis of formal rules codified in parliamentary standing orders. A focus on the *de jure* rules has limitations, not least because important informal conventions may be overlooked. Yet, relying on formal rules also has clear advantages, as it enhances reproducibility of empirical work and facilitates measurement of procedural change over time. For this application, I analyze a subset of rules that relate to the passage of *government bills* in the *ordinary legislative procedure*. In bicameral legislatures, the analysis covers the legislative procedure in the lower chamber.⁷

I proceed by constructing a repository of standing orders and amendments for the sample of 17 European democracies, starting from 1945, or date of democratization, until 2011. All non-English texts are translated into English and a detailed timeline of textual changes is created for each clause governing the legislative process. I engage two coders to analyze the rules. The first coder reads texts in English. The other cross-validates the work of the first coder, reading texts in the original language. Both readers code relevant rules and compare results. If coders cannot agree, a third reader, a parliamentary expert, is approached. All coding decisions are recorded and supported with a reference to specific rules of procedure. The coding protocol is provided in Supplementary Information, Section E.

⁷This choice has some limitations as weak policing power in one chamber can be compensated by scrutiny powers in the other. I thank an anonymous reviewer for bringing this point to my attention.

Operationalization

I operationalize the parameters of the CPSI index as follows. I define stage s as one of *five* possible steps through which bills may be adopted. While the structure of the legislative procedure varies across parliamentary democracies, an inductive review reveals a set of five stages through which bills proceed after initiation: presentation; general consideration; first detailed consideration; second detailed consideration; and final passage (see Supplementary Information, Section F). This list is exhaustive in the sense that all assemblies reviewed provide for at least one of these stages, and none provide for a stage that is not in this list.

I define the probability α theoretically based on an interpretation of rules governing the legislative procedure. The key question for the human interpreter is: Given the formal rules, what is the probability that a bill moving from one stage to the next reaches a given vertex if the partner prefers a referral and the minister does not? I assume two procedural features are crucial here: the choice of the default procedure and the configuration of the override mechanism. I distinguish eleven rule configurations governing the default procedure and the override mechanism. Each configuration is ranked in terms of how difficult it makes it for the partner to secure a referral (see Table 1 and Supplementary Information, Section G).

Table 1: Probability α Under Different Rule Configurations

Rule configurations	α if label $x_i =$	
	C	N
Referral is the default but this can be overridden by floor with super-majority	11/12	1/12
No referral is the default but this can be overridden by single MP	10/12	2/12
Referral is the default but this can be overridden by floor with simple majority	9/12	3/12
No referral is the default but this can be overridden if demanded by MP group	8/12	4/12
Referral is the default but this can be overridden by speaker or house committee	7/12	5/12
There is no default and the parliament decide in each case	6/12	6/12
No referral is the default but this can be overridden by speaker or house committee	5/12	7/12
Referral is the default but this can be overridden if demanded by MP group	4/12	8/12
No referral is the default but this can be overridden by floor with simple majority	3/12	9/12
Referral is the default but this can be overridden by single MP	2/12	10/12
No referral is the default but this can be overridden by floor with super-majority	1/12	11/12

To operationalize features $a_{k,j}^{(s)}$, I use a small set of procedural rights that are widely recognized as contributing to policing strength (see Table 2).⁸ The first is committee special-

⁸Existing research identifies three types of variables as important for determining policing strength: (i)

ization. The ability of coalitions to overcome information asymmetries is augmented if bills are normally referred to specialized committees that are set up for a session or term and have legislative competence in a specific policy jurisdiction. The second feature is the ability of committees to rewrite bills. If committees have the rewrite authority, then coalition partners are in a strong position to press for amendments to ministerial bills. The third feature is the right to gate-keep bills. If committees have this prerogative, a coalition partner can threaten to prevent a bill from being reported to the floor. Where committees cannot gate-keep bills, a discharge procedure exists that allows ministers to cancel a committee referral and proceed without a report. The final feature is the extent to which the floor can impose a deadline on committee work. The scope for correcting ministerial drift is circumscribed if committee work is carried out under a mandatory deadline. The reverse is true if an out-date cannot be imposed or is only permitted. I normalize the scores for both features to have an identical range $[0,1]$ and operationalize $\omega_{k,j}^{(s)}$ as normalized equal weights.

Table 2: Committee Features

Feature	Coding
Specialization	1.0 = specialized committees 0.0 = non-specialized committees
Rewrite authority	1.0 = rewrite authority exists 0.0 = rewrite authority does not exist
Gate-keeping	1.0 = bill discharge is not possible 0.0 = bill discharge is possible
Timetable control	1.0 = no deadline 0.5 = permitted deadline 0.0 = mandatory deadline

An Illustrative Example

Before I present the CPSI estimates for all 17 European democracies, I provide an illustrative example of how index values are calculated for a lower chamber in one parliament – the UK House of Commons in March 1945.⁹ The House of Commons is a good case for

structural features affecting committee specialization; (ii) powers to scrutinize and amend legislation; (iii) the ability of ministers to resist scrutiny (Martin and Vanberg 2011). The set of features used here contains at least one attribute from each of these categories (but given my focus on the ordinary procedure, the precise mechanisms may be different from those used in existing work – see Supplementary Information, Section E).

⁹See Supplementary Information, Section H, for a more detailed presentation.

illustration purposes because of its relatively simple referral procedures. In the first step, I construct a binary tree model of the committee referral process. See Figure H.1. This model reveals that, once a bill was submitted in the House of Commons, it had to move through five procedural stages before it could become law, and that a committee referral was permitted before the third stage (known as ‘the report stage’) and prohibited before all other stages.

With only a single path leading to a committee referral at the report stage, the calculation of the CPSI index is fairly straight-forward. Figure 2 shows, as label subscripts, the estimates for p_i obtained based on a qualitative analysis of the formal rules. The value of p_i for vertex C is coded as 9/12 because a committee referral before the report stage constitutes the default procedure but this default can be overridden by the floor with a simple majority (see Table 1). The value of $p_j^{(s)}$ for vertex C is calculated as $1 \times 1 \times 9/12 = 0.75$, as per Equation (4). The features $a_{k,j}^{(s)}$ for vertex C are scored based on a qualitative analysis of the relevant rules in the House of Commons. This analysis reveals, that before the report stage, bills could be referred to non-specialized committees with rewrite authority, and that a referral decision was subject to a floor discharge but not to timetabling restrictions. The CPSI estimate is thus obtained as $1 \times 1 \times 9/12 \times (0.25 \times 0.0 + 0.25 \times 1.0 + 0.25 \times 0.0 + 0.25 \times 1.0) = 0.375$.

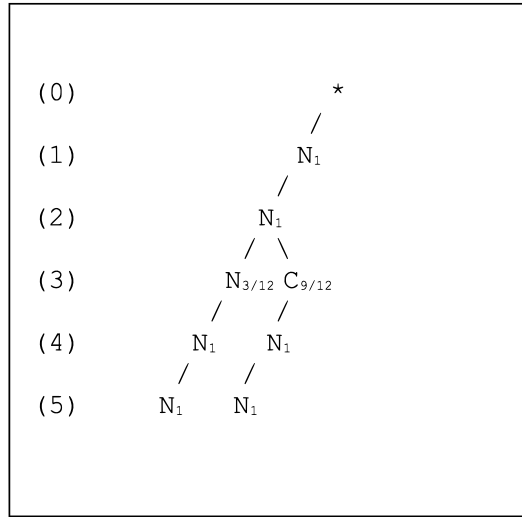


Figure 2: A Binary Tree Graph: UK House of Commons, 1945

Committee Policing Strength in 17 European States, 1945-2011

Figure 3 presents longitudinal estimates of committee policing strength for the 17 Eu-

ropean parliamentary democracies. The data begins in the immediate post-war years for the western European states, except Spain which democratized in late 1970s; for the new eastern European democracies, the series begins in the early 1990s. The time series ends on 31 December 2011. The theoretical range of the CPSI index is between 0 and 5, with higher values indicating greater policing strength.¹⁰ The actual maximum of committee strength in the data is 2.75 (Estonia in 2003-11) and the actual minimum is 0.167 (The Netherlands in 1946-1953). The detailed index calculations, procedural data and coding notes for all parliaments can be found in the CPSI Index Dataset.¹¹ Supplementary Information, Section I, contains an overview of all reforms and CPSI value changes for each of the 17 countries.

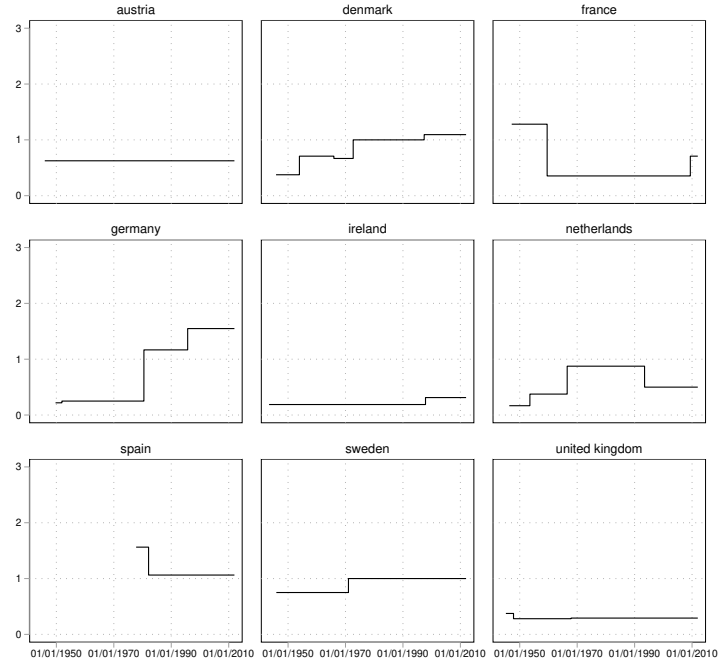
The data reveals much cross-temporal variation in committee policing strength. Lower chambers in all of the 17 states, except *Der Nationalrat* in Austria, have experienced at least one procedural reform affecting their index score. The frequency of such reforms has been particularly marked in eastern European democracies. In more than two decades since democratization, committee strength changed in all of these states, and in six of them reforms occurred twice or more. In western European democracies, shifts in committee strength occurred less frequently, although in some states, in particular Denmark, Germany and the Netherlands, change occurred quite often. In directional terms, there is a slight a tendency toward committee strength expansions, with CPSI values increasing for 11 of the 17 parliaments over the observation period. Overall, the data shows that committee strength evolves over time and that major shifts in institutional strength are far from uncommon.

VALIDATION

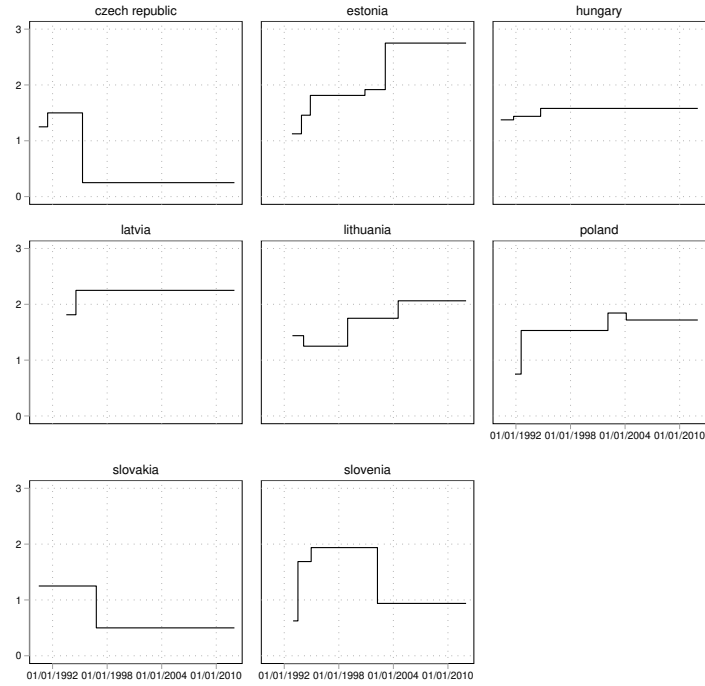
The CPSI estimates show good face validity. In line with what might be expected from previous research on western Europe after the 1970s, legislative committees in Westminster-style parliaments in the UK and Ireland (especially until the 1990s) are scored as having relatively low policing strength, and those in continental multi-party democracies, in particular in Denmark and Germany, as having high levels of strength. Moreover, committees in new democracies in east-central Europe have higher average scores than western Euro-

¹⁰The index takes values in the range [0,5] as the maximum number of stages s is five, the feature scores are normalized to the [0,1] range, and normalized equal weights are used.

¹¹The CPSI Index Dataset will be made available on publication.



(a) Western Europe.



(b) Eastern Europe.

Figure 3: Committee Policing Strength in 17 European States

pean states, a pattern that accords well with findings from previous research (Ágh 1998; Yläoutinen and Hallerberg 2009). The estimates for new democracies also exhibit much higher variability than those for established democracies which is to be expected given the sometimes turbulent political transitions these political systems underwent in the 1990s.

For a more systematic validation, I use convergent tests assessing whether the new estimates are empirically associated with existing measures of the same concept (Adcock and Collier 2001)¹². In verifying convergent validity, I examine associations between the CPSI index and two existing indicators of committee policing strength. The first is André, Depauw and Martin (2016)’s Index of Committee Strength (ICS). The ICS index provides estimates of committee policing strength for a single point in time, the year 2010, and is available for 31 parliamentary democracies, including all of the 17 countries examined here. The other indicator is the Legislative Policing Strength Index (LPSI), developed by Martin and Vanberg (2011), which is available for 16 western European democracies, including all of the nine western European countries covered here. Originally based on averaged values over a period of several years, the LPSI index has recently been extended to provide yearly estimates for the period 1971-2010 (Martin and Vanberg 2020). In the case of both these indices, higher values indicate more policing strength, and lower values indicate less policing strength.

Figure 4 shows empirical associations between the new CPSI index and the two existing indicators. Panel (a) plots Pearson’s r coefficients (with 90% bootstrap CIs) between the CPSI estimates and the ICS index for the end of each year between 1994 and 2010.¹³ The association increases as one moves closer to the time when the alternative measurement was taken, reaching a maximum at 0.56 ($p < 0.01$). In panel (b), a scatterplot of standardized country estimates as at 31 December 2010, overlaid with a linear regression line, reveals a few outliers. Excluding the most extreme outlier (Latvia) increases Pearson’s r to 0.69 ($p < 0.01$). Panel (c) plots Pearson’s r coefficients (with 90% bootstrap CIs) between the CPSI estimates and the LPSI index for the end of each year between 1983 and 2006, i.e. the period for which Martin and Vanberg’s annual estimates are available for all the nine countries covered here. The association varies between 0.71 and 0.86 with $p < 0.01$ in all

¹²The estimates can be further validated through construct validation. I leave such tasks for future work.

¹³The year 1994 is the first year for which the CPSI estimates are available for all the 17 states.

the years. In panel (d), a scatterplot of standardized CPSI estimates as at 31 December 2006 and Martin and Vanberg’s 2006 scores, overlaid with a linear regression line, shows high correspondence between the two measurements.

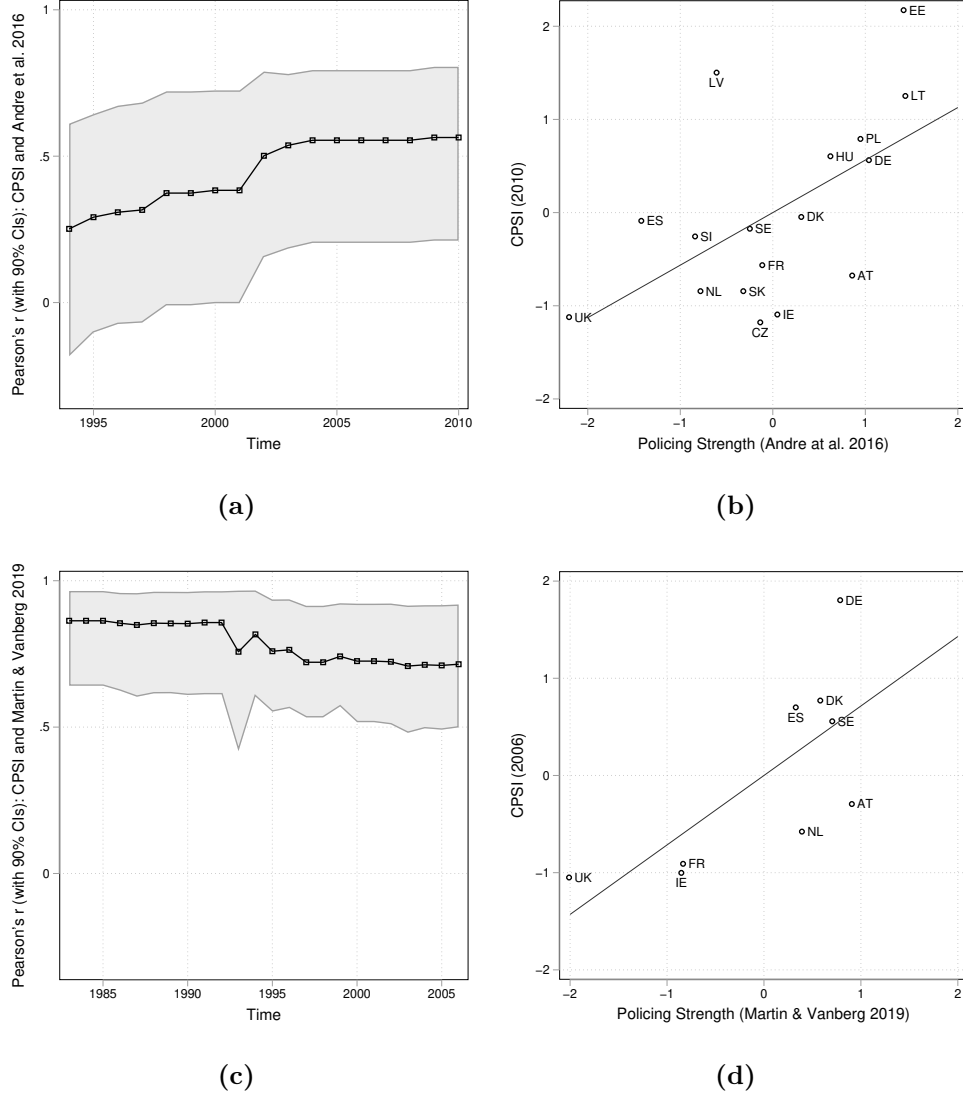


Figure 4: General Convergent Validity

It is a reasonable question whether individual components of the CPSI index demonstrate convergent validity. To check this, I perform two additional convergent validity tests. First, I replicate the results from Figure 4, using two partial versions of the CPSI index: one that assumes that $\mu_j^{(s)} = 1$ for all s 's and j 's, and the other that is obtained as a sum over s of mean $\mu_j^{(s)}$ within each stage. The former captures the effect of the extent of control p , while

removing the effect of committee features; the latter captures only the effect of the feature component μ . This analysis indicates that both components p and μ are positively associated with the concept of policing strength (see Supplementary Information, Section J). Second, I obtain stage-specific CPSI estimates, re-specifying the index as $\sum_j p_j \mu_j$ for each s . In an analysis based on ten European democracies in which the standard legislative procedure consisted of all five stages (as at the end of 2010), I find that the associations between all such stage-specific CPSI estimates and an existing measurement of policing strength are positive, providing some evidence of an association with the concept of committee policing strength (see Supplementary Information, Section K).

DISCUSSION

The validation results show that the new index formula produces estimates of committee policing strength with high convergent validity. What are the benefits of the new measure? The CPSI index offers three important advantages compared to existing measures.

First, the index is the first composite measure that explicitly models institutions that can be considered necessary for policing strength. Previous work has given little systematic consideration to identifying necessary dimensions of strength. Yet, an appropriate integration of *sine qua non* components is critical for a valid measurement of social science concepts (Goertz 2006). The CPSI index introduces a key necessary condition – the extent of control that parties have over committee referral. By doing so, it provides a unique tool for exploring the effect of necessary components of strength on policing behaviour, either in isolation (through partial versions of the index), or in combination with other powers and structures.

Second, the CPSI index makes it possible to study committee policing at various stages in the legislative procedure. Important theoretical claims have been made about the impact of early-stage and late-stage committee scrutiny, but they have rarely been put to systematic tests. By capturing committee strength across the full span of the legislative procedure, the new index facilitates such important work. Based on a binary tree model, the index formula is sufficiently flexible to allow for differential weights to be assigned to various legislative stages, or for stages to be analyzed separately. Future studies of policing behaviour will thus be able to examine institutional effects at specific points in the legislative procedure.

Third, the CPSI index and the accompanying dataset contribute to openly accessible, reproducible and cumulative measurement of committee strength. Binary tree models of ordinary legislative procedures for all 17 countries in the 1945-2011 period are made available on publication, as are all the component scores used in the index. Each coding decision is supported with a reference to a specific article or section in the national parliamentary rules of procedure. Thus, any scholar who wishes to replicate the coding can easily do so for any country at any point in the period covered. Any errors and misinterpretations can be readily identified and corrected by future research. Finally, the index formula can be easily extended to include other relevant committee features and procedures.

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