

Legislative processes as sequences

Exploring temporal patterns of Italian law-making
by means of sequence analysis

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As Arthur Bentley (1908) recalled more than a century ago: “Most bills that become laws do so after a fight with other bills for space in the calendar, rather than after a fight with an opposition of a more direct kind”. Then as now, the matter of competition is time, one of the scarcest resources in parliamentary settings. So far existing research has mainly focused on the factors accelerating/slowing the adoption of bills, thus giving central place to political factors such as the preferences of veto actors. This work contributes to existing research on the duration of legislative processes by focusing on a relatively neglected issue: variation in the temporal patterns of adoption. Indeed, legislative processes can be understood as sequences of stages a bill has to go through before its final adoption. Remarkably, the time spent in each of these stages varies considerably according to procedural, bill-specific and political factors. This work aims at exploring what are the most common adoption patterns and what attributes distinguish them. The time trajectories of legislative processes will be compared by using the tools of sequence analysis, a method commonly employed for the study of occupational histories or life courses. The analysis will be conducted on all legislative acts adopted in Italy from 1987 to 2008.

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1. Introduction

It is commonplace for political scientists and practitioners to refer to time as one of the scarcest commodities in politics (Döring 1995). The political relevance of decisions on the allocation of time in the decision-making process is comparable, if not sometimes superior, to that of decisions on the content of policies. Suffice to say that a mistake in the timing of a particular decision may undermine its final outcome, whatever its content. Parliaments, in their function of law-makers which collect social demands and try to respond through policies, act in time. For instance, according to analysts, it is really the time pressure exercised by Europe one of the reasons for the rising power of executives at the expense of legislatures in European affairs (for a review on the Europeanization of national legislatures, see Goetz and Meyer-Sahling 2008). Confronted with the current acceleration of social reality and the proliferation of inputs, both domestic and international, big assemblies struggle to keep the pace. The question of how national parliaments manage their time has never been more pregnant.

Large-N research dealing with legislative time understood it mainly as duration. The time taken to adopt a rule has implications for those affected by it, thus it is often a matter of conflict. When one refers to it as “delay”, it is normatively suggesting that the process is taking too long with respect to some pre-set deadline and it is unduly postponing the achievement of intended goals. Conversely, another may not agree with the pre-set deadline and argue that the time taken to discuss the rule is justified by the need to consult with all potential stakeholders. Time is both a matter of perception and argumentation.

Nonetheless, the work of legislatures is not merely to argue endlessly but also to produce decisions, thus a number of time rules are ordinarily applied to regulate this fundamental trade-off of democratic life (Riescher 1994; Cox 2006). These rules freeze historically rooted structures of power (Schedler and Santiso 1998) and tend to vary extensively across legislatures (i.e. Döring 1995), making it extremely challenging any cross-national comparison (but see Becker and Saalfeld 2004). The difficulty lies not only in the variation of overarching time rules, such as whether tabled bills lapse at the end of the legislative term (ibid: 242), but also in the heterogeneity of our unit of analysis: the

definition of legislative act (and consequently its substantive content and procedural requirements) differ widely cross-nationally (Trantas 1995). That said, the variance in time spells does not only reflect the working of institutional procedures. Firstly, it is strictly connected to the complexity of the task (Kerwin and Furlong 1992). Secondly, it is related to the multiple time strategies applied by political actors “to cope with the quasi-objective constraints set by time, the scarce and non-renewable resource” (Schedler and Santiso 1998, 10).

The question of what factors account for variation in legislative duration has been mainly framed in terms of time until the occurrence of bill adoption. Survival or event history models’ focus is the hazard rate of adoption, namely the conditional probability that a bill is adopted at a particular time interval (t) (Box-Steffensmeier and Bradford 2004). They are the best method available to analyse the relationship between the length of the observed duration and independent variables of theoretical interest. A statistical model can then be constructed to link the dependent variable to the covariates. This work does not aim at presenting an alternative to event history models. Rather, it offers a complementary approach to the study of time in legislative processes.

Similarly to the careers of individuals who aim at a top manager position and start from the bottom of the ladder, also bills may be said to enter the legislative process with the hope of adoption (i.e. promotion) and, through a series of fixed steps, they sometimes achieve it. What varies is the time spent on a specific stage, be it (let's say) the waiting time before the committee starts discussing it or the time spent on the floor. Event history analysis can help us make inferences regarding the influence of a set of covariates on the length of the duration and the occurrence (or non-occurrence) of some event. But this comes at the cost of missing the complexity of the trajectory as an entity made of different interdependent stages. The unit of analysis of this work is the bill trajectory.

The trajectory of a bill can be compared to driving a car from the beginning to the end of a variably congested highway. Depending on a series of factors (traffic at specific times but also ruthlessness of the driver, helpfulness of other drivers, conditions of the road), each kilometre in our hypothetical ten-kilometre highway can take longer or shorter. What is important to remark is that this work is not concerned with making inferences on what factors explains the time taken to drive that specific kilometre or the whole 10 kilometres. Rather, it is interested in studying the pattern of the entire ride as composed by a sequence of steps of variable duration.

Out of metaphor, the process of bill adoption can be described as a stop and go process where each stage varies in length. My unit of analysis is the temporal pattern of adoption for a bill considered as a

whole. Patterns are the most varied. The question that I ask is: can we reduce the large number of empirical sequences to a smaller number of classificatory categories? What kinds of bills are more likely to follow what kinds of sequences? Can these categories be helpful in shedding light on the functioning of the Italian legislative system over the last 20 years?

To address these research questions, I use sequence analysis. Sequence analysis is a primarily descriptive technique which takes whole sequences as the main unit of analysis.¹ The most common method to make order in the complexity of sequence patterns is to measure the pairwise dissimilarity between sequences through the so-called Optimal Matching Algorithm (OMA). In a nutshell, OMA calculates the minimum number of transformations it takes to turn one sequence into the other. The resulting matrix of dissimilarity is then subjected to further analysis, most frequently through cluster analysis, to extrapolate the most common patterns characterising the data.

The analysis will be conducted on the population of legislative acts adopted in Italy from 1987 to 2008. Data will be drawn from the newly created ILMA database (Italian Law-Making Archive), which – among other things - records all the relevant dates in the legislative trajectory of Italian laws (Borghetto et al. 2012).

This paper is organized as follows. Section two will sum up the literature on legislative duration and motivate the rationale underlying the choice to analyse legislative processes as sequences. Section three will detail the steps taken to perform OM analysis on legislative processes. Section four will discuss the resulting patterns. The final section concludes and points to further lines of research.

2. Studying duration of legislative processes in large-N analyses

Despite its intrinsic complexities, large-N analyses of legislative processes have not shied away from the analysis of duration. The availability of large amounts of legislative data and the progressive sophistication of methodologies specifically tailored for dealing with temporal variation, such as event history analysis, laid the ground for a number of works focusing on the spell length between the presentation of the bill and its final adoption. Mostly, these works dealt with it as a proxy for characteristics of the process which are rather difficult to observe, such as the *level of friction*

¹ The type of studied sequence in social studies is quite varied (for a review see Blanchard 2011). Most applications study biographies, e.g. occupational or partnership histories. Other studies dealt with topics as diverse as the implementation of welfare policies (Abbott and DeViney 1992), the rhetorical structure of sociological journal articles (Abbott and Barman 1997) and the frequencies of lynching in the Southern United States (Stovel 2001).

surrounding the adoption of bills, namely the resistance to change due to differing political and substantive views present in the process.² It takes time to carry out the parliamentary scrutiny of controversial legislation (Martin and Vanberg 2004) or to defeat the obstructionist strategies of opposition MPs acting from multiple venues (Becker and Saalfeld 2004; Daubler 2008; Manow and Burkhart 2008). A decrease in the friction of the process should accelerate the adoption of a bill and, vice versa, an increased level of resistance should correspond to a deceleration.

Following the seminal works by Buchanan and Tullock (1962) and Tsebelis (2002), Becker and Saalfeld (2004) test whether an increase either in the number of partisan actors - i.e. the number of governmental parties - whose consent is required to enact a bill or in their ideological range slow-down the decision-making process. Whereas their study includes a considerable number of countries (17), it focuses on legislation belonging to a specific policy field (working conditions, working hours and social security benefits). Their two hypotheses are not borne out by their empirical analysis when the entire legislative process is considered as a single episode. Most remarkably, when the same test is run on the time taken by each individual stage making up the whole process (pre-committee, committee, post-committee, second chamber), the estimated impacts are not uniform: certain stages witness an acceleration of time, others take longer and others are not affected. This finding points out that the impact of decision-making costs (measured as the number of negotiating actors or their level of disagreement) is not stable over time and one has to account for it.

Other works analysed the impact of preference divergence among coalition partners on the duration of legislative processes. Däubler (2008) finds out that an increase in the ideological range slows down the adoption process considered as a single episode, although the effect varies depending on the type of sponsorship. His study on the passage of social entitlements bills in Belgium, Germany and the UK from the mid-1980s to the early 2000s shows that the prediction works in the expected direction only when the initiator is an MP (belonging to the governing majority). He interprets this finding by conjecturing that executive bills are discussed more thoroughly at the pre-parliamentary stage and that the executive can count on specific agenda-setting devices to facilitate their adoption.

Martin and Vanberg (2004) suggest considering time as a proxy of the extent of parliamentary scrutiny on executive bills. The more intra-coalition preferences diverge, the more coalition members use

² From this viewpoint, focusing on time offers a dynamic perspective on legislative processes which cannot be grasped by simply focusing on the static *level of gridlock* characterising a system, evidenced by the share of legislative proposals which are passed within a specific time spell (Krehbiel 1998).

monitoring (committee hearings, consultation with outside experts) and amendatory mechanisms in Parliament to check that the agreed-upon policy compromise is respected. Their analysis on executive bills (adopted in Germany and the Netherlands between 1982 and 1994) shows that the policy distance between the drafting minister's party and its furthest coalition partner in a specific policy dimension affects negatively the duration of the process. On the other hand, the ideological distance between the parties in the opposition and the drafting minister's party does not display any significant effect on legislative duration. Prolonged approval times signal – they argue – that the parliament is effectively scrutinizing the proposals submitted to it and it does not act as a mere rubber stamp of decisions taken elsewhere.

While these contributions have undoubtedly advanced our knowledge on the time dimension of legislative processes, it is arguable that the relationship between duration and friction is more a matter of empirical analysis than an undisputed assumption (Grzymala-Busse 2010). It might be a correct specification in specific national or policy-specific settings, where time on average is invested in debates and/or scrutiny activities. In other cases, however, duration may be understood as the final sum of many phases, not all of them requiring an active intervention of political actors. Each phase features different rules and actors and, as a consequence, different temporal dynamics. As mentioned above, a hint at the importance of partitioning legislative processes already emerged in the work by Becker and Saalfeld. They observed that “a great deal of time is ‘lost’ *between the different stages* [...] while bills were ‘waiting’ to be dealt with by a committee” rather than in actual debate (2004, 74). In other words, the adoption of a piece of legislation does not stretch itself evenly over time; rather it looks like an irregular stop-and-go process. The number of issues which can fit the agenda of a committee and, even more so, of the plenary is limited at any given time and issues are constantly competing to get the attention of the legislator (Jones and Baumgartner 2005). Even contentious bills drop sometimes off the legislator's radar and have to queue before being considered. In the meanwhile, time inexorably elapses. The added-value of understanding legislative processes as sequences, namely as a succession of particular states involving different actors and rules, is the possibility to study duration while not losing sight of the composite nature of our study objects. Legislative processes of similar lengths may be stopped at different stages. Only an holistic view can reveal the differing underlying structure.

Important insights on the unfolding of the process over time might come not only from the consideration of the nature of the states and their associated durations but by their unique

combination. According to sequence analysis, “single events should not be isolated from each other but have to be understood in their continuity” (Aisenbrey and Fasang 2010, 421). Understanding the duration of each state in a legislative process as independent from the duration of previous and succeeding state/states might be misleading in the case of legislative processes. Previous research on law-making has pointed out that politicians are widely aware of the scarcity of floor time, hence they normally delegate to various offices the power to propose and block proposals to the plenary (Cox 2006). The creation of offices endowed with special agenda-setting powers and their distribution among majority representatives interested in furthering their interests (which in many cases overlap with those of the majority party/coalition) implies that there exists some form of inter-temporal planning underlying each process. The time spent in each stage is not determined randomly, but it is strategically chosen to enhance the probability of bill adoption. For instance, a bill trajectory may be congealed for many months at a specific stage to build a supporting coalition behind it. Once this is formed, one may witness a relative burst of activity and an acceleration of the process in later stages since major impediments to its adoption were eliminated. Sequence analysis, as an essentially data mining tool designed to deal with processes as units, should prove useful to gain new insights on this sort of temporal dependencies.³

In the end, this work originates from the acknowledgement that elucidating the causal mechanisms underlying law-making requires a greater attention to aspects of temporality. This does not imply that one should forcibly turn to the “thick description” of specific cases. Neither, it is an invitation to discard regression-based methods such as event history modelling or panel regression. Rather, it represents an original application of a technique, sequence analysis, which – albeit developed and applied in other fields – may represent a useful tool to explore available longitudinal data on law-making activities. To some extent, the introduction of sequence analysis to study legislative processes should be considered as “one way to more fully exploit the richness of available longitudinal data” (Aisenbrey and Fasang 2010, 425).

³ This justification for an “holistic perspective” is somewhat similar to the “strong viewpoint” exposed by Billari (2001) to substantiate its use in life-course research.

3. Applying sequence analysis for the study of Italian legislative processes

3.1 Sequence set-up: the alphabet

The popularity of sequence analysis in social sciences is mainly due to its applications in life course analysis to describe life or employment histories. Each individual's life course is represented as an ordered list of states (e.g. not married/married) or events (e.g. marriage, first child, second child, divorce). What distinguishes sequences in the social sciences from other kinds of sequences, such as the study of DNA in biology, is their time embeddedness: "The timing of event is often crucial in the social sciences as very often what matters is not only the events but when they occurs" (Lesnard 2010, 392). Longitudinal categorical data have to record not only the type and order of states but also their location in the time axis. So a sequence shall be defined as "a function associated with an individual, mapping portion of time to some state space" (King 2011) .

Similarly to individuals, also bills can be said to have their own "life" trajectory within a legislature before becoming laws. They are presented, discussed in different avenues, modified and ultimately adopted. In other words, they undergo a series of transitions which can be traced in time and space. That said, similarities end here and one enters the uncharted territory of defining how to demarcate specific states in an average bill trajectory. Every categorisation has to balance two constraining factors: 1) the capacity to cast light on relevant differences between sequences, while keeping in mind that each sequence should be invariantly a simplification of reality; 2) the availability of data (King 2011).

The definition of the so-called "sequence alphabet", namely the list of possible states, is a crucial step in sequence analysis. One first point to consider is that legislatures are decision-making machines, so the discussion and approval of bills is extensively regulated and not left entirely to the whim of MPs. Thus, contrary to career data for instance, legislative sequences exhibit a fixed order. Secondly, outlining what is a pivotal event in a legislative process is dependent on the research aims. The main goal of this work is to detect the presence of patterns in the time spent by each bill at each specific stage of its adoption process, where each step in the decision-making chain is characterised by different actors and institutional requirements. Following Becker and Saalfeld (2004), the passage of a bill in the first House is decomposed into four institutional states:

- **Assignment to committee**, namely the time spent before the bill is assigned to a committee.

The Rules of Procedure of both chambers state that after a bill is formally acknowledged by the

assembly, the Speaker of the house assigns it to one of the fourteen permanent parliamentary committees. Although this passage should be almost automatic and imply a minimum amount of discretion, it still requires time: on average 46 days (standard deviation [s.d.]: 62 days).⁴

- **Scheduling by committee**, namely the time spent before the bill is tabled for discussion in a committee. It is in this very preliminary phase that most of the bills ‘get lost’, that is they get virtually killed even before discussing them (Krutz 2005). Their number is outstanding. It concerns almost 70% of the total amount of bills submitted in the XIII and XIV legislatures (own calculations), that is almost 15,000 bills. In most cases, it is the speaker of the committee that has the final word on the calendar of the discussion. An average bill has to wait 107 days (s.d. : 184 days).
- **Committee examination**, namely the time spent before the committee finishes discussing the bill. Every committee is supposed to examine and, if necessary, amend the bill before either approving it – if it is conferred legislative powers under a specialised decentralised procedure (*see infra*) – or referring it to the floor. In this phase, it may be required to consult with other permanent or special committees according to the bill’s cross-sectoral implications. The average bill spends in this phase 146 days (s.d. : 281 days).
- **Floor examination**, namely the time spent under discussion on the floor. After the conclusion of the committee scrutiny the bill is expected to be referred to the floor and then examined and voted. Reaching this stage is no guarantee of approval for many bills. They are not rejected by the assembly, but they remain “pending” in the chamber until they lapse automatically at the end of the legislature. Mostly, they do not manage to enter the floor’s agenda and get voted. More than 1,000 bills followed this fate – roughly 2/3 in the 13th legislature and 1/3 in the 14th – representing almost 15% of those that passed the committee stage. The power to set the legislative agenda in both Chambers is vested on the respective Committees of Parliamentary Group Leaders and, in case of political standstill, the Speakers.⁵ The average bill spends in this phase 32 days (s.d. : 80 days).

⁴ For more details on Italian law-making and time-related considerations, see Borghetto & Giuliani 2012.

⁵ The adoption of the legislative program is scheduled by the Speakers after collecting the executive’s and the parliamentary groups’ preferences. Its passage requires a 75% majority among the delegates representing the parliamentary groups in the lower chamber, whereas the delegates representing the groups sitting in the Senate have to vote for it unanimously.

Each of these steps is repeated in the Second House. The bill is approved only when both houses agree on the same draft, which implies the possibility of more than two readings. In terms of duration, the most important reading is by far the first with 333 days on average. On average, the second reading lasts less than half as long as the first: 154 days. 433 bills (37%) need three or more readings. Their overall duration is invariably less than 100 days. These figures suggest focusing the attention only on the composition of the first reading and treat the rest of the time spent in the process as a unique stage. To back this decision, it is also worth mentioning that the highest ‘failure hazards’ in the Italian legislative process lie in the first reading, with almost 85% of the initiative terminated before approval by the first House. When a bill passes the first reading, it means that there is some degree of political commitment behind it and that it has a high chance to become law. This agreement, if necessary, is built during the first reading. Other readings are used to rubber stamp the deal struck in the first house or to sort out divisions among the majorities in the two houses. The average bill spends in other readings beyond the first 160 days (s.d. : 191 days).

In the end, our alphabet is composed of five states:

State 1	Assignment to committee
State 2	Scheduling by committee
State 3	Committee examination
State 4	Floor examination
State 5	Other readings

3.2 Data

The data used to construct the bill trajectories studied in this work are extracted from the newly created Italian Law-Making Archive (ILMA, Borghetto et al. 2012). This archive records, beyond a series of bill- and context-specific attributes, the dates of the main events in the legislative process of every Italian act from 1987 to 2008.⁶ For each reading, it reports the date of presentation, the date it was

⁶ Only adopted bills will be considered. While in this way one might lose some bills that were tabled but not approved because of the end of the legislature (the so-called right-censoring problem), this decision is defensible given the fact that it is largely difficult to agree on a general criterion to distinguish bills likely to reach the approval stage from the remaining background noise. In Italy – but not only - most bills are tabled and never move out of committee for a vote. In most cases, they are not meant to get ultimately enacted from the origin. Rather, an MP might use them as signalling device directed at his/her respective constituency or to catch the attention of party leaders, which might be leaned to award dynamic policy entrepreneurs with government appointments. Conversely, a minister might use the presentation of bills to press

assigned to a committee, the date the committee started its discussion, when the committee ended the discussion and the bill passed to the floor, and when the floor adopted it. The duration of each stage is measured in weeks, since this is the cadence both the committees and the floor set their calendar. Each week spent in a specific state is an *element* of the sequence. Each sequence is then composed of five spells, namely by one or multiple consecutive elements (read weeks) of the same state.

For reasons of comparability, these data were collected only for “ordinary laws”. All other types of primary legislation follow fixed (bills converting temporary decrees) or relatively pre-established calendars (budgetary laws), are characterised by supermajority requirements (constitutional laws) or are, for the most part, administrative in nature (laws ratifying international treaties) (these differences are illustrated in Borghetto and Giuliani 2012).

The legislative terms under study vary in their duration. Only three legislatures lasted for the whole 5-year mandate (X, XIII and XIV). Legislature XI, XII and XV were all dissolved after approximately two years. These latter legislatures were characterised by peculiar political conditions: political turmoil originated by the “Mani Pulite” trials in the early 1990s affected the XI, a caretaker government was in charge for half of the XII, a litigious and narrow majority governed the XV. Moreover, because of their short duration and the significance of timing in our research design (see *infra*), they are mostly incorporated in clusters where bills are presented early on in the legislative term and their average duration is around or less than two years.⁷

Table 1 presents an overview of the six legislatures under consideration.

TABLE 1 HERE

new issues in the parliamentary agenda, though he is aware that the political situation is not ripe for its eventual approval. In all these cases, bills are laid aside after their presentation and are stalled in parliament.

⁷ Italy underwent a major political upheaval at the beginning of the 1990s. After the watershed 1994 elections, historic parties disappeared or lost a substantial portion of their electoral support, extremist parties were legitimised to hold government positions, recently-created parties made their appearance and eventually won the elections. The change from the so-called First Republic to the Second concerned not only the identity of parties and their internal composition but the structure of the party system itself. The 40 year-old party system shifted from a case of extreme polarized pluralism to a case of bipolar alternation. With the change of the electoral rules in 1993 (from a proportional to a quasi-majoritarian electoral system) and, above all, with the 1996 general elections and the installation of a centre-left government, Italy started a long path towards a competitive democracy. Two centre-left coalitions (1996 and 2006) alternated with two centre-right coalitions (2001 and 2008).

3.3 Analysing sequence data

Since its creation, sequence analysis has been about the search for similarities between subjects and sequences (Kruskal 1983). The most widely known and used approach for analysing sequence data is the computation of pairwise dissimilarities between sequences. Although a number of techniques have been developed to this aim along the years, the lion's share of publications made recourse to the Optimal Matching Algorithm (OMA).⁸ OMA allows to calculate the minimum number of operations it takes to transform one sequence into the other (for an illustration of how OMA works see Abbott and MacIndoe 2004). The first step for the researcher is to define the costs for these basic operations. It is normally required from the researcher to justify its cost setup because it determines how sequences are matched and, as a result, how similarity is computed.⁹

The sequences considered have for the most part unequal lengths. The challenge in this sort of cases is to re-synchronise the different sequences by means of a combination of insertions/deletions (commonly referred as *indels*) and substitutions. I use the term re-synchronization because to align sequences of different lengths and fixed order where variation occurs at the level of spells, the choice is between to add or remove time units of identically coded states or to substitute one or more time units of one state with one or more units of another. To some extent, the function of substitutions is to expose structural similarities, that of *indels* is to expand or compress time (no matter what is added or removed from the sequence). It must be said at this point that there is no agreement in the literature on what is the correct cost system in each case (Lesnard 2010). The peculiarity of my sequence structure (fixed order of spells with varying duration) motivates the use of the current cost setup:

- Substitution costs are derived from the distance between states. Substituting an element of "Stage 1 (Assignment to committee)" with "Stage 3 (Committee examination)" costs 2 (the reversal holds true since the cost matrix is symmetrical). The maximum substitution cost is 4, namely the cost of substituting stage 1 for stage 5.
- Indels costs are set to a value higher than half the maximum substitution costs, namely 2,5. Since using two indels (deleting B and adding A) has the same effect of performing a substitution (substituting B for A), the latter will be always preferred to the former. In general, this is a

⁸ Although there exist several types of sequence analysis algorithms, since its introduction in the late 1980s by Abbott, OM has become the standard in the social sciences, so much that references to OM and sequence analysis often overlap.

⁹ Detractors of this method have usually pointed at the "arbitrariness" normally applied in defining the costs (Levine 2000)

common solution when *timing* and not *similarity in structure* is paramount (Lesnard 2010). Relatively high indels costs imply that more weight is given to the position of elements within the sequence.

- To moderate the effect of the differing length of sequences on distances, the minimum cost transformation value is standardized by division through the length of the longer sequence (Abbott & Forrest 1986, Abbott & Hrycak 1990).

4. Empirical analysis

4.1 Analysing clusters: duration and process

The output of Optimal Matching is a dissimilarity matrix. Matching sequences have a dissimilarity of 0. These distances are then processed and inductively grouped by means of cluster analysis. The clustering algorithm we selected was the Ward's agglomerative hierarchical method, one of the most used in the analysis of OMA-derived dissimilarity matrix in the social sciences (Martin et al. 2008).¹⁰ There is no agreement in the literature on the criterion to select the most appropriate number of clusters and the simple inspection of the tree diagram frequently used to illustrate the result of a hierarchical clustering (i.e. dendrogram, see appendix A) does not generally offer a ready-made solution. The cluster cut-off criterion implemented in this work is based on the dispersion of within- and between- cluster distances (Aisenbrey & Fasang 2010).¹¹ The applied cut-off criteria suggested a 13-cluster typology.¹²

As expected, our sequences exhibit a first sharp division based on the length of the sequences. A simple analysis of overall duration would lead us to build three groups (see table 2 and 3). At the same time, within each group it is possible to spot similarities and differences in the patterns.

¹⁰ The use of other algorithms did not result in major changes to the suggested number of clusters.

¹¹ The procedure employed to select the most appropriate number of clusters involves two steps. First, the ratio of mean within- to mean between-cluster distances should be higher than 0.5. This signals the presence of distinct patterns in the data. Second, the inclusion of further clusters below this threshold is determined by looking at the relative improvement of the within/between-cluster distance ratio. See Aisenbrey & Fasang 2010 for more details on the procedure. See also table B in the appendix.

¹² OMA computation was performed with TraMineR (Gabadinho et al. 2011).

Fast-paced processes (1 to 5)

Type 1 and 2 represent the fastest track a bill can take. Jointly, they amount to almost one fifth of the bill population (N=264, 18%). **Type 3** bills are a small group of bills that stay longer on the floor before getting assigned to a committee and then wait a little longer before being scheduled for discussion. Even so, when the discussion itself starts, it is fast. There is normally no need to revise the decision on other readings. **Type 4 and 5** could easily join the fast group: they are assigned to committee and tabled for discussion relatively fast. Discussion on the committee and on the floor does not take longer than one month. The only difference is a relatively longer period spent in other readings. Still, they do not appear as overtly controversial processes: the average duration of the whole second reading is respectively 13 and 8 weeks, no longer than 5 in the others.

Medium-paced processes (Type 6 to 10)

Type 6 shares with **type 8** the importance of other readings beyond the first. Further readings beyond the second are needed respectively in 48% and 65% of the cases and they can be prolonged: in some cases up to a fifth reading. **Type 7 and 9** are clusters where most of the time is spent at the committee stage. Both the debate on the floor and the second reading are rather fast. Cases in need of a third reading and the handful of cases ending in a fourth or fifth reading represent respectively 20% and 12% of the total. **Type 10** combines the characteristics of the two: it has high values both at the committee stage and on the second reading. It also features a relatively long floor examination.

Slow-paced processes (Type 11 to 13)

Although **type 11 and 12** bills are characterised by the longest average lengths, they might be said to share a common pattern since a lot of time has to elapse before the bill leaves the committee stage. What differentiates them is that type 11 bills spend more time waiting for being tabled for discussion, type 12 during discussion. **Type 13** is a cluster apart, where a longer discussion on the floor is preferred to bargaining behind the doors of committee rooms. In most cases, it is a debate which continues during other readings.

TABLE 2 AND 3 HERE

4.2 Inspecting patterns

▪ Decentralised procedure

The Italian case stands out for a peculiar version of committee examination: the so-called ‘Committee acting in its legislative capacity’.¹³ With specific exceptions (constitutional and budgetary laws, together with laws converting decrees), the final adoption does not necessarily need the involvement of the floor. Committees can be authorized by the Speaker of the House to legislate directly, but this power can be withheld upon request by the government, one-tenth of the assembly, or one-fifth of the committee itself. Bills that are adopted through this procedure have to rely on an extremely widespread support.

More than three out of four bills falling under the fastest categories (type 1 to 5) take the decentralised path (figure 1 and tables 4 and 5). The consensus needed to have a bill adopted in committee reflects itself on the pace of the process. The need of further readings beyond the first might simply be explained in terms of small revisions. Significantly, almost all type 3 bills are deliberated in committee and this provides a convincing justification for their specific temporal patterns. The amount of time elapsed before these bills are assigned to a committee could be simply time used by the Speaker to check or consolidate the majority needed to maintain this fast-track procedure. The very short adoption span in committee reveals that just a few hearings are needed: the longer waiting time before the start of discussion appears as a product of crowded agendas. Only half of the bills falling under cluster 6 and 8 are deliberated by committees. The choice of the procedure does not seem to affect their longer permanence in further readings. Type 7 and 9 are mostly populated by bills taking a decentralised track, which explains their relatively fast adoption on the floor in comparison with type 10. There is no other cluster where it is so apparent the time-saving effect of bargaining behind committee doors. Interestingly, the waiting time before assignment almost doubles for type 11 bills which are adopted in committee (4 out 5 bills) reaching the considerable threshold of 6 months on average. Once again, we suspect that this time is used mainly to consolidate

¹³ In the First Republic the Christian Democrats enjoyed the (almost) unilateral control over the internal agenda-setting process. One of the most important decisions was the assignment of the arena of legislative decision-making, i.e. plenary or committee, since it could mean the direct access to the parliament and a secure passage for those laws and “leggine” (small laws) backed by the governing coalition (Di Palma 1977). The preference for the decentralised committee is still dominant in the X legislature (the last in the First Republic), while it declined during the other comparably long legislatures (XIII and XIV).

or (better in this case, given the long duration) create the necessary majority to keep the bill in committee. Committee and floor discussions can be prolonged but once adopted in the first House, the path is relatively clear and quick. On the contrary, type 13 is the cluster where the proportion of “decentralised” bills is lower, namely where it was not possible to build a majority to get the committee to deliberate. In many cases, a debate on the floor was the preferred or the only option available and when it happened it required a fair amount of time.

FIGURE 1 AND TABLE 4 AND 5 HERE

▪ Sponsorship

Beyond the recourse to committees (Mattson and Strøm 2004), other institutional features have been singled out as especially relevant for the pace of law-making. One of them is the control of the legislative agenda (Döring, 1995). Despite a wide cross-national differentiation in terms of responsibility over the selection of proposals that arise for a vote and agenda-setting procedures, a common trait in parliamentary systems is to give the government some prerogative on this front (Döring, 1995). This is much less clear in the Italian case where the power to set the legislative agenda in both Chambers is vested on the respective Committees of Parliamentary Group Leaders and, in case of political standstill, the Speakers. Even so, when the Speakers have the last word, it may be expected that their political proximity to the ruling majority should confer a certain priority to government bills.

The trend emerging from the cross-tabulations of our clusters with the type of bill sponsorship shows clearly that executive bills have for the most part different trajectories with respect to private bills (table 6). 4 out of 5 executive bills are adopted with varying proportion from cluster 1 to 8. On the contrary, half of private bills fall in the category of fast-paced processes. Interestingly, there is no substantial difference between bills presented by an opposition and a majority MP.¹⁴ Distinguishing the type of sponsor for the number of signatories and their political affiliation reveals that inter-coalitional bills (namely bills supported by both majority and opposition MPs) have a distribution more similar to those of executive bills. Remarkably a consistent number of them were adopted following the first two fastest procedures (*see infra* for a possible justification).

¹⁴ Della Sala (1993: 163) already noted that “sending a private member bill to the assembly guarantees it a rough passage through Parliament, while its deliberation in committee results in a more serious effort to have it approved.”

TABLE 6 HERE

▪ **Bill size and policy sector**

The nature of bills is the most various. Whereas there are bills including a handful of short articles, other bills may take up several pages and present a complex structure made of many articles (on their turn varying in terms of number of commas, words), annexes, tables etc. If we assume a mechanistic perspective, the expectation is that the intrinsic complexity of a bill should affect the time required to adopt it and the trajectory it takes. As a general rule, the passing of complex bills should involve more directly the committee system because information has to be collected on what is feasible in a particular policy area and the possible legal and practical implications of its many provisions. The size of the bill should be to some extent associated with cluster where committee discussion takes longer than usual. This is indeed the case for type 11 and 12 bills, where the average number of words is respectively 2363 spread across an average of 10.2 articles and 2697 spread across an average of 12.9 articles (table 7). Explaining the relatively high dimensions of type 2, 6 and 8 requires a closer look at their policy content. Remarkably, most bills related to economic issues fall in these categories (table 8). The inspection of bills deviating from the expected pathways reveals the existence of two categories of oversized bills. As regards type 2, these are a few but extremely big “emergency” laws adopted hastily in the attempt to patch up Italian economic problems (for instance to meet the criteria for admission in the Eurozone). As regards type 6, these are relatively uncontroversial laws which make small adjustment to the national budget items, such as minor modifications to a ministry’s appropriations or the clarification of a tax code. They are used periodically in the Italian system to make small corrections to the Annual Budget law and, although they cannot rely on allocated slots in the parliamentary calendar (as in the case of Budget Acts) they are normally dealt with expeditiously. Because of their size and complexity, these are also measures where occasionally everybody expects to extract some sort of compensation for its constituency. This would explain why they mostly need more than two readings: members’ of both chambers want to get their spoils. It also explains why the ranking in terms of number of articles does not respect the ranking in terms of number of words. Very often, these small amendments are incorporated as relatively obscure commas within a sizeable article. It is quite the reverse for type 13 bills. Their average dimension is due to the inclusion in this set of wide-ranging reforms in fields such as health care, employments benefits, banking and financial system. The political sensitivity and expected implications of the issues under discussion is reflected in

their trajectory, which takes place mainly on the floor and requires multiple readings by the Houses before it comes to a conclusion.

TABLE 7 AND 8 HERE

▪ **The timing of bill introduction**

Our comparison between sequences has been so far blind to timing issues, namely when bills are introduced in the legislative term. The importance of the electoral cycle cannot be underrated in our analysis. As pointed out by Kovats, “all kinds of political action, and in particular the policy-making process, adapt to this cycle and one is able to observe recurring political phenomena that appear regularly depending on the current phase of the legislative term” (2009, 240). The difference in the time horizon of bills presented at the beginning and towards the end of the legislature should have an impact on the type of sequential patterns observed.¹⁵ Legislators are well aware that legislative acts not completed at the end of the legislative period lapse automatically, which means that the whole process has to restart anew in the next legislature (if their sponsors are re-elected or re-appointed to a ministerial position). In other terms, the ‘choices of actors may be highly time-dependent, especially with regard to the electoral cycle’ (Becker and Saalfeld 2004: 89).

The boxplot in figure 2 reveals that the median day of presentation is progressively anticipated when moving from the group of fast-paced, medium-paced and finally slow-paced bills. Unsurprisingly, long processes start early in the legislature, so as to be allotted enough time to complete the process.¹⁶ Almost 40% of the bills presented within the first year of the legislature belong to types 11 to 13. This proportion drops already to 16% for bills tabled during the second and third year. It is difficult to disentangle the effect on the duration of the process exerted by the length of time horizons from bill-specific characteristic such as its complexity and contentiousness. The differing patterns of type 11 and 12 on one side, and type 13 on the other, are evidence that both dynamics are at play. Even so,

¹⁵ Martin (2004) correctly conceptualizes this stage as one where coalition partners (and opposition members in non-majoritarian systems) “collectively prioritize their competing policy initiatives” (Ibid. :446). On the other hand, it is debatable whether the timing of bill introduction is the result of a game played by ministers and coalition partners to submit a bill. This would imply that most draft bills share a common start point: the first months in the legislature. This is clearly not true if we consider that some bills are elaborated from scratch at different time points in the legislature, mostly as a consequence of unexpected events or new emerging priorities. For this reason, we will not qualify this phase on its own terms. Its addition is relevant because of the consequences for the legislative process.

¹⁶ Only 5-year legislatures are considered in this section.

the majority of cases (207 bills in type 11 and 12 against 108 cases in type 13) fit better in the category of bills which are tabled at the beginning of the legislature and, because of the low time pressure, remain pending for months before being introduced in the agenda or between committee meetings. The underlying dynamic characterizing their path seems to point to the general low salience of these measures. They are presented at the beginning of the legislature to increase their hopes of success and jump on and off the agenda until they squeeze into the calendar and are eventually adopted. Since the reading in the first House stretches itself over the whole course of the legislature, once they pass this stage they proceed faster through the other readings due to the looming prospect of elections.

FIGURE 2 HERE

5. Discussion and next steps

This paper represents a first attempt to study Italian legislative processes as sequences. It quantifies each process by subdividing it into stages a bill has to go through before adoption. Since the order of the stages is fixed, these sequences differ mainly in terms of length of each stage. Sequence analysis was introduced to measure the level of dissimilarity between sequences.¹⁷ Sequences were then clustered based on their pairwise distances into thirteen types. These types provide an articulated description of Italian law-making.

Fast-paced bills (type 1 to 5) are mainly sponsored by the executive and introduced through the decentralised procedure, thus skipping confrontation on the floor. These trajectories are populated in general by small laws but it was showed that occasionally also big laws are fast-tracked in response of emergency situations.

¹⁷ It must be remarked that sequence analysis is a pattern research technique that does not make any assumption about the data generation process underlying the sequences under observation. Therefore they should be understood as a complement rather than as a replacement of Event History Analysis. The difference lies in the fact that whereas in event history analysis the units of observations are the transitions to an event (e.g. approval in committee, final adoption), in sequence analysis it is the process as a whole. Legislative processes are represented as an ordered listing of states, in which each state has specific characteristics, a duration, a position in the sequence and a timing when it occurs. The contribution of sequence analysis is to measure the extent to which two processes share a similar underlying pace while allowing for some variation at the level of states.

Medium-paced bills (type 6 to 10) provide for more variation. Type 6 and 8 bills are bills that divide their time equally between the houses. More often than not a third reading is needed. They are oversized due mainly to the presence of consensual omnibus distributive measures, which might explain the need of more than one (fast) reading in both houses. Type 7 and 9 are private or (more often) executive bills taking the decentralised road. They represent a clear example of bills fighting to enter the committee agenda. When an agreement is reached behind the scenes, they proceed fast to their adoption. The same dynamic seems to apply to type 10 bills, though the bigger reluctance to decentralise these measures may indicate a greater degree of contentiousness.

Slow-paced bills (Type 11 to 13) represent a class apart. Their initiators are for the most part MPs. They are rather big and may sometimes lay the basis for large reforms. Type 11 are mainly private bills presented in the first part of the legislatures which remain pending in committee, until for a variety of reasons they are resurrected, introduced in the agenda and in a comparably small amount of time adopted. The adoption process of Type 12 bills should be similar but with a smaller proportion of them adopted through the decentralised procedure. Type 13 are bills that cannot rely on a sufficient supporting majority to be agreed in committee and have to take the comparably longer route of the ordinary process.

The creation of these clusters represents a first step in the enterprise of gaining new insights on temporal patterns of Italian law-making. They make explicit the presence of multiple ways to get to same destination, although they do not provide an explanation of the general mechanisms underlying the various roads. Likewise driving on a big busy highway, it might be a matter of windows of opportunity opening and closing rather unpredictably, of taking the fastest lanes, of setting off on the right moment. The main point of this paper is that, by putting order in the complexity of trajectories through sequence analysis we can gain a better handle on the flow of traffic in the legislative process and on the strategies used to regulate it.

Probably, the most important lesson learned from this first application of sequence analysis is that "Sequence analysis never was, and cannot be, a one size fits all model" (Aisenbrey & Fasang 2010 431). Therefore, further efforts need to be done to check for the robustness of the findings. One first area to explore is the use of alternatives to the classic OM algorithm to compute the dissimilarity matrix (Brzinsky-Fay and Kohler 2010). These techniques should be also more sensitive to the issue of timing which was only analysed in a cursory way by this work. The second is to use the insights gained

from the comparison of my cluster more systematically in case studies or to check the hypothesised mechanisms through event history methods.

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Table 1. An overview of Italian legislatures (1987-2008)

LEGISLATURE	LEG_START	LEG_END	N
X	02.07.1987	22.04.1992	645
XI	23.04.1992	14.04.1994	120
XII	15.04.1994	08.05.1996	51
XIII	09.05.1996	29.05.2001	408
XIV	30.05.2001	27.04.2006	233
XV	28.04.2006	28.04.2008	29
Total			1486

Table 2. An overview of the 13 clusters

	N	Mean value	Standard deviation	Min	Max	Assignment Scheduling				
						to committee	by committee	Committee examination	Floor examination	Other readings
Type 1	114	6	1,7	4	10	1	1	1	1	2
Type 2	150	14	2,7	8	20	3	2	3	2	5
Type 3	65	40	11,0	21	61	10	19	6	4	5
Type 4	63	22	2,7	17	27	2	2	3	4	15
Type 5	133	26	4,1	18	35	4	6	6	5	9
Type 6	154	39	9,2	28	68	4	5	6	8	20
Type 7	131	46	10,7	53	101	5	10	20	6	9
Type 8	132	71	7,2	25	59	4	6	10	9	46
Type 9	58	72	15,6	45	106	9	21	36	3	6
Type 10	171	89	20,9	52	137	9	18	27	13	28
Type 11	80	177	50,9	77	252	22	84	60	13	8
Type 12	127	172	40,8	104	249	14	41	75	20	35
Type 13	108	158	36,0	96	250	8	12	30	28	92
Total	1486	70	60,6			7	15	21	11	23

Note: To better visualize difference in durations, it was used a scale of colors which goes from red (fast), then white (medium) and finally blue (slow). Durations are expressed in weeks. Less than 3,5 days are still computed as 1 week.

Table 3. Overview of other readings beyond the first

	Number of bills adopted at the 2°, 3°, 4°, 5° or 6° readings					Average duration of readings*			
	2°	3°	4°	5°	6°	2°	3°	4°	Others
Type 1	110	4				2	1		
Type 2	123	24	3			4	1	2	
Type 3	60	4	1			4	1	1	
Type 4	34	27	2			13	2	1	
Type 5	108	20	3	2		8	2	5	3
Type 6	79	64	9	2		17	4	3	2
Type 7	105	23	2	1		8	3	2	1
Type 8	45	66	17	4		39	8	7	6
Type 9	51	5	2			5	2	1	
Type 10	79	77	15			24	6	3	
Type 11	68	9	1	2		7	3	5	3
Type 12	68	43	12	2	2	29	8	6	10
Type 13	20	62	17	8	1	76	15	9	11
Total	950	428	84	21	3	19	7	6	7

Note: * Durations are expressed in weeks. Less than 3,5 days are still computed as 1 week.

Figure 1. Proportion of bills adopted by the committee in the first reading

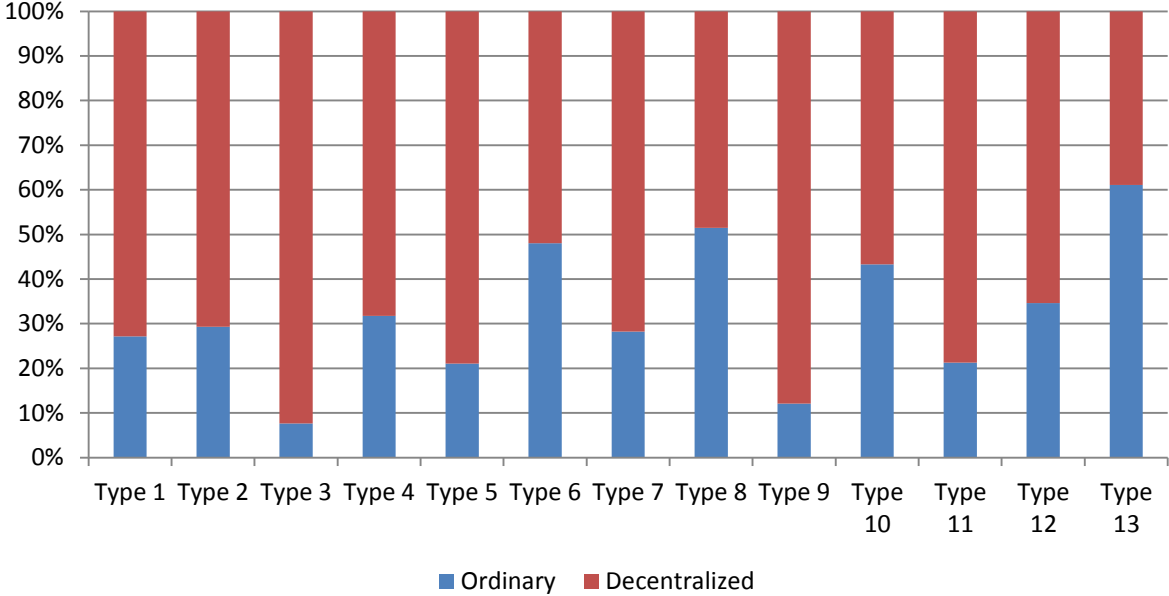


Table 4 Patterns of bills adopted through the ordinary process

	Assignment to committee	Scheduling by committee	Committee examination	Floor examination	Other readings	Mean
Type 1	1	1	1	1	1	6
Type 2	1	2	3	2	5	14
Type 3	5	23	1	4	3	37
Type 4	2	2	3	4	13	23
Type 5	3	6	6	5	8	27
Type 6	4	4	6	8	19	41
Type 7	5	9	21	6	9	50
Type 8	4	5	10	9	42	70
Type 9	11	26	30	3	5	75
Type 10	7	17	27	13	25	90
Type 11	10	83	71	13	9	187
Type 12	14	40	75	20	32	182
Type 13	6	11	30	28	80	155
Total	5	13	22	11	27	79

Note: To better visualize difference in durations, it was used a scale of colors which goes from red (fast), then white (medium) and finally blue (slow). Durations are expressed in weeks. Less than 3,5 days are still computed as 1 week.

Table 5. Patterns of bills adopted through the decentralized process*

	Assignment to committee	Scheduling by committee	Committee examination	Other readings	Mean
Type 1	1	1	1	2	6
Type 2	3	2	3	5	14
Type 3	10	18	7	5	40
Type 4	2	2	3	15	21
Type 5	5	6	6	9	26
Type 6	4	6	6	22	38
Type 7	5	10	19	9	44
Type 8	4	6	9	51	71
Type 9	8	20	37	6	72
Type 10	10	19	27	31	88
Type 11	25	84	57	8	175
Type 12	14	41	75	36	166
Type 13	10	13	29	111	163
Total	7	17	21	21	65

Note: To better visualize difference in durations, it was used a scale of colors which goes from red (fast), then white (medium) and finally blue (slow). Durations are expressed in weeks. Less than 3,5 days are still computed as 1 week.

Table 6. Distribution of bills by type of sponsorship and cluster

	Government	Private	Majority	Opposition	One signer	Same party	Within coalition	Intercoalitions	Government
Type 1	70	44	34	10	1	10	2	31	70
Type 2	101	49	34	15	1	9	8	31	101
Type 3	28	37	22	15	4	16	6	11	28
Type 4	36	27	22	5	2	4	5	16	36
Type 5	91	42	30	12	5	12	7	18	91
Type 6	104	50	33	17	3	17	8	22	104
Type 7	67	64	45	19	9	20	10	25	67
Type 8	86	46	31	15	7	18	6	15	86
Type 9	13	45	34	11	5	17	7	16	13
Type 10	62	109	68	41	20	38	21	30	62
Type 11	6	74	43	31	17	36	10	11	6
Type 12	17	110	65	45	27	46	17	20	17
Type 13	35	73	44	29	19	28	18	8	35
Total	716	505	265	770	120	271	125	254	716

Note: Cells are highlighted when the number of bills is above the average per column.

Table 7. Average number of words and articles by cluster

	Average Number of words	Average Number of Articles
Type 1	739,7	4,0
Type 2	2742,1	6,9
Type 3	564,7	3,8
Type 4	1571,5	6,5
Type 5	1656,1	6,7
Type 6	2543,9	9,6
Type 7	1717,1	7,5
Type 8	2559,4	10,4
Type 9	1803,5	8,5
Type 10	2213,9	9,1
Type 11	2363,0	10,2
Type 12	2697,1	12,9
Type 13	2981,6	11,1
Total	2115,0	8,5

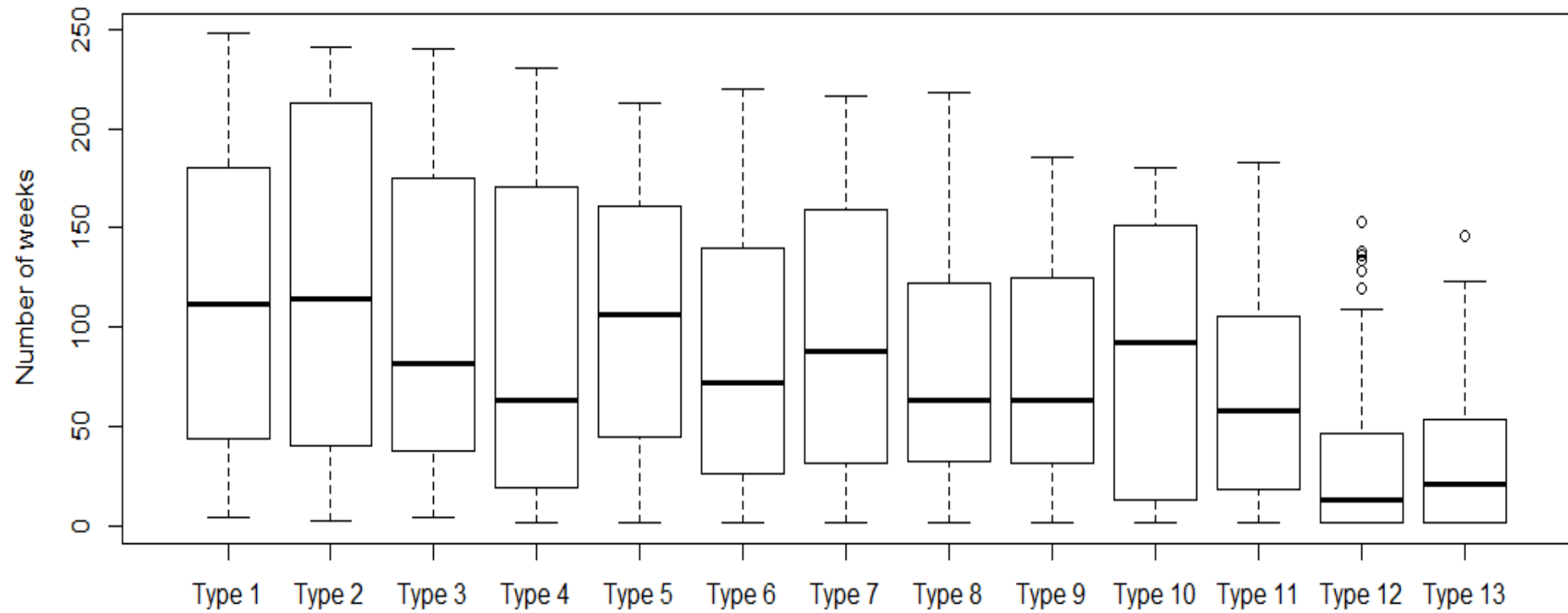
Note: Shades of red have been used to better visualize the increase in the quantities

Table 8. Distribution of bills by sector and cluster*

Type	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
Economy	4	15	2	3	4	8	5	5		1	1	2	1	51
Civil rights	6	3	1	2	8	6		3		4	3	8	2	46
Health	3	4	2		1	3	4	3	3	8	5	7	12	55
Agriculture	5	6	4	2	7	8	6	7	8	11	7	7	3	81
Employment	4	1	1	2	6	2	3	3	1	3	7	3	10	46
Education	7	6	6	8	8	14	5	6	2	10	6	9	8	95
Environment	3	6	3	1	8	4	4	4	3	3	1	2	2	44
Energy	2	1		1	4			4		2	1	2		17
Immigration	3	2	1		1	1	2			1	1	1		13
Transport	4	6	4	3	8	7	7	8	3	13	6	8	1	78
Law	13	23	8	10	14	24	16	21	4	26	8	20	17	204
Welfare	2	3	6	1	3	2	7	2	3	3	9	7	3	51
Housing	4	3		2	3	1	1	2	1	3	1	3	3	27
Finance & Banking	3	10	2	2	8	8	14	10	10	15	3	14	14	113
Defense	3	12	5	1	11	8	11	8	2	16	4	7	7	95
Technology		4	1	2	2	6	7	1		3	1	4		31
Foreign trade	4	1		2	2		2	1	2	3	1	1	2	21
Foreign affairs	8	14	5	6	7	18	7	16	2	10	2		2	97
Government	25	14	8	9	14	21	16	19	10	19	7	10	16	188
Public lands	3	1	2	2	2	3	5	3	1	4	1	5	1	33
Culture	8	15	4	4	12	10	9	6	3	13	5	7	4	100

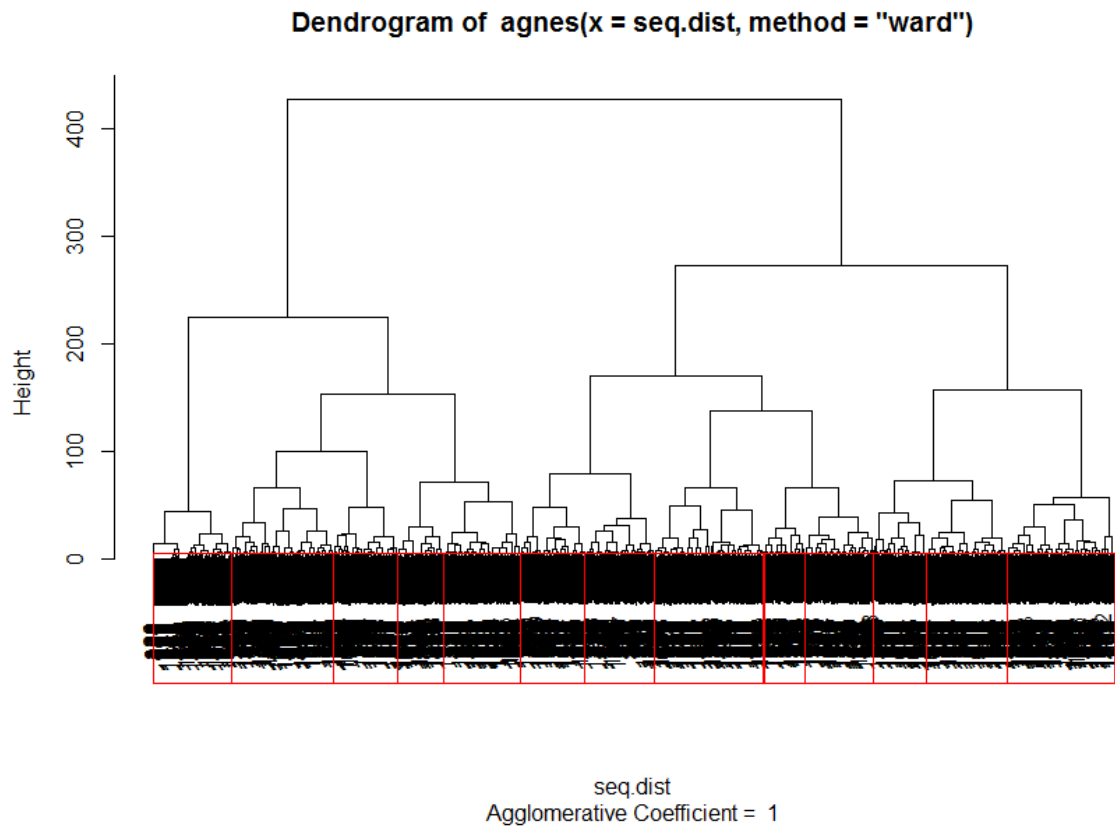
Note: Cells are highlighted when the number of bills is above the average per row. The classification of policy topics is based on an adaptation of the Policy Agendas codebook ([www. http://www.policyagendas.org](http://www.policyagendas.org))

Figure 2. Timing of bill introduction by cluster



Note: 0 is the start of the legislature. Only 5-year legislatures are considered.

APPENDIX A



APPENDIX B

cluster	average.between	average.within	ratio of mean within- to mean between-cluster	relative improvement of the within/between-cluster distance ratio
2	1.648698	1.220284	0.7401503	0
3	1.585847	1.11096	0.7005468	0.039603519
4	1.578375	1.04948	0.664912	0.035634826
5	1.548161	1.005031	0.6491772	0.015734807
6	1.541064	0.9491062	0.615877	0.033300163
7	1.524085	0.872511	0.5724817	0.043395262
8	1.512562	0.8182979	0.5410013	0.031480466
9	1.506132	0.7823468	0.5194411	0.021560154
10	1.49971	0.7710996	0.5141658	0.005275344
11	1.494204	0.7535522	0.5043169	0.009848891
12	1.488651	0.7460618	0.5011663	0.003150605
13	1.484721	0.7346527	0.4948088	0.006357504
14	1.48274	0.706597	0.4765483	0.018260523
15	1.477782	0.7000622	0.4737248	0.002823432