# The Constitutional Court Database
## Conceptualizing a relational database

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**Abstract.** To what extent is a constitutional court an integral actor in the system of checks and balances? In order to answer this question, we present the novel Constitutional Court Database (CCDB) which links (1) 2006 Senate decisions (2) combining 3284 different proceedings referred to the German Federal Constitutional Court (GFCC) between 1972 to 2010 to (3) information from the political environment and (4) to societal developments. The relational structure of the database is well suited to connect information across the four different layers in flexible and dynamic ways. This allows to take different perspectives on the GFCC as a legal, political or societal actor and as a representative case of a highest court with constitutional review powers.

In order to outline the usability of the database, we present a "how-to" paper. Designing the relational, multi-layered database a number of theoretical, conceptual and computational challenges had to be overcome. Presenting those challenges and details on how to compute the database will help scholars of political science and methodologists alike. Moreover, connecting the judicial and legislative domain to address the question to what extent legislative length is a predictor of a law's referral to a constitutional court, we present a use-case to outline the power of the database. The flexible CCDB extents on existing static databases, such as the Supreme Court database. The aim of the novel data-structure is to provide a tool useful to legal scholar, scholars of political science, journalists and the public.

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# 1 Introduction

To what extent is a constitutional court an integral actor in the system of checks and balances? In order to evaluate this question we need to link information across different political institutions and we need to account for contextual and societal factors within a political system. This leads to a number of theoretical and empirical challenges before we are able to answer a question, which addresses fundamentals of democracy.

The theoretical challenge is that we need to combine insights from law and different subfields of political science; especially from judicial politics, legislative research and political sociology. The empirical challenge is that data which traces organizational behavior across institutions rarely exists even within the same political system. Both challenges are present for research on European highest courts and also, albeit to a lesser extent, for studies on the US Supreme Court and Congressional decision-making. In what follows we seek to address some of the challenges which allow as to study highest courts as integral actors within a political system. In particular, we present the *Constitutional Court Database* (CCDB; Hönnige et al. 2015) as a tool to engage in largescale research on the German Federal Constitutional Court (GFCC).

Research on European constitutional courts lags behind research on the US Supreme Court with regard to theory, data, methods and quantity (Hönnige, 2011; Dyevre, 2011). Scholarship focusing on the latter can rely on the Supreme Court Database (Spaeth et al., 2017). This database, albeit being designed as dataset rather than as a database, is an established tool available to scholars who work quantitatively on the decision-making by the US Supreme Court. Nevertheless, a similar tool is missing for highest courts in Europe. There are only a few studies which provide small datasets often designed to serve one particular research interest and to address one or only a few questions (e.g., Hönnige, 2009; Brouard, 2009; Dyevre, 2010; Magalhães, 2003; Santoni and Zucchini, 2004; Hanretty, 2012, 2014). A true relational database integrating judicial decision-making by a constitutional court with other political institutions and

the societal context would contribute to our efforts to understand inner-court behavior and intra-institutional interaction beyond the legal domain.

In what follows we design such a database which will allow as to asses the inner-court behavior of the GFCC and the court's interaction with the political branches of government and the society. Moreover, the relational nature of the database allows as to also analyse the reverse interaction to better understand the behavior of the political branches *vice versa* the judiciary. Within the database, the information on judicial decisions and the laws addressed in decisions is linked to data that summarizes the legislative process as well as the broader political and societal context.

The GFCC is a prominent and stronger, yet archetypal constitutional court established as one of the first constitutional courts following the Austrian-German model of constitutional review (Kelsen, 1931, 1942; Epstein, Knight and Shvetsova, 2001). Analysing this court allows to uncover important insights about the system of constitutional review, in contrast to the widely-studied system of judicial review. At the same time, while archetypal, the GFCC is not a special but rather a typical case – representative of many constitutional courts in newly-established democracies (Hönnige, 2008; Kneip, 2008; Engst, 2017, 2018).

Designing the CCDB we had to face multiple theoretical and conceptual challenges. Judicial decision-making is multi-layered and the different parts of decisions link to the political and societal environment in many ways. For example, the GFCC often combines multiple referrals by different petitioners against a number of potentially unjustified acts in one decision. The different proceedings combined in one case can have different outcomes and implication. Subsequently, a dynamic, relational database which is able to capture different data models appeared as the most applicable solution to summarize all 2006 decisions made by the two senates of the GFCC between 1972 to 2010. The court addresses 3284 proceedings referred by 4087 petitioners and directed against 6790 constitutional issues in the 2006 decisions. These decisions are linked to

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demographics on 105 judges serving at the court, 7482 bills considered in the legislature, 262 party positions and various monthly polling data.

In order to present the CCDB we will first discus the necessity for the novel data-structure. Afterwards we introduce theoretical, conceptual and methodological challenges when designing the database. Finally, we outline the technical implementation of the database and present a use-case to outline the power of the CCDB.

# 2 Highest courts do not play alone

## 2.1 Highest courts in democracies

In modern democracies highest courts with constitutional review powers are commonly separated in two groups: Courts designed following the Anglo-American Supreme Court model and courts designed following the Austrian-German Constitutional Court model (Kelsen 1942, Epstein, Knight and Shvetsova 2001, 120-123; Stone Sweet 2000, Ch.3). In countries which follow the former tradition, the supreme court is the highest appellate court in the regular legal hierarchy. The court reviews constitutional cases and decides on disputes between parties. On the contrary, constitutional courts are empowered to only exercise constitutional review. They do not decide on substantial issues raised in petitioners' referrals. The courts are positioned somewhat separate to the regular appellate courts. Nevertheless, supreme and constitutional courts are empowered to review legislation based on constitutional norms and are able to nullify legislative acts. From this perspective the highest courts become negative legislators. They are not empowered to make laws but they can nullify them which strongly influences political decision-making. The role of courts as negative legislators has been a dominate paradigm in research on constitutional courts in Europe (Tate and Vallinder, 1995; Stone Sweet, 2000; Shapiro and Stone Sweet, 2002; Hirschl, 2002, 2008; Hönnige, 2011; Dyevre, 2011).

However, what constitutional courts do, how they do it and whom they address is far more complex. We should therefore extent the research agenda on European constitutional courts (Dyevre, 2010; Hönnige, 2011). Scholarship on the US Supreme Court increasingly encourages scholars on European constitutional courts to go beyond established paradigms. In particular, we need to more systematically assess the relationship between (1) inner-court decision-making and (2) courts intra-institutional interaction with the political branches of government as well as the society at large (Hönnige, 2011; Hönnige and Gschwend, 2010; Engst, 2018).

Inner-court decision-making is not fully understood yet. The lowest common denominator is that policy preferences of justices seem to influence judicial behavior (Segal and Spaeth, 1993, 2002). This has been studied extensively in the context of the US Supreme Court where individual judicial votes and documents of the decision-making process are published (Epstein and Knight, 1998; Hammond, Bonneau and Sheehan, 2005). However, research on European constitutional courts is often forced to understand courts as collective actors (Dyevre, 2011; Magalhães, 2003; Hönnige, 2009). Individual judicial votes are rarely published or only available in the form of a few separate opinions (Raffaelli, 2012; Wittig, 2016; Engst et al., 2017; Kelemen, 2013).

Moreover, highest courts do not play alone but are integrated in a political system (Epstein and Knight, 1998). Court decisions do not only effect petitioners but also governments, legislators and the public at large. Scholarship on European constitutional courts accounts for this perspective to a certain extent. On the one hand public support has proven essential to the functioning of highest courts. The courts anticipate public support for the legal and political branches to ensure the implementation of decisions (Gibson, Caldeira and Baird, 1998; Vanberg, 2001, 2005; Sternberg et al., 2015). On the other hand the ideological location of the government vice versa the court may influence judicial decision-making (Brouard, 2009; Santoni and Zucchini, 2004; Rebessi and Zucchini, 2018; Brouard and Hönnige, 2017). Nevertheless, we need to link the

external perspective to the aforementioned internal perspective. Only this way we are able to understand the mechanisms of how external constraints shape judicial decision-making.

Two conclusions can be drawn: First, courts are not monolithic actors. Instead, individual judges, clerks and inner-court procedures influence the internal decision-making of highest courts (Epstein and Knight, 1998; Segal and Spaeth, 2002). However, research on European constitutional courts is limited in this regard. Second, courts are embedded in a political and societal environment. Scholarship on European courts seeks to account for respective environmental factors (Vanberg, 2005; Hönnige, 2009; Brouard and Hönnige, 2017). Nevertheless, a link between (1) inner-court activities and the (2) intra-institutional interaction would benefit the research on mechanism in judicial decision-making. This is true not only for constitutional but also supreme courts. In order to achieve such a link, one plausible approach is to reconsider the tools scholars use to study highest courts. To do so we review the existing tools in the next section and present a novel approach in the following sections.

## 2.2 Datasets on highest courts (...and not databases)

In previous research judicial decision-making is analyzed mainly with datasets generated from information in the judicial domain. Additional variables of interest from other domains - such as public opinion (Vanberg, 2001, 2005) or political positions (Hönnige, 2009) - were afterwards added to these datasets. This has limited scholars to mainly address one aspect of decision-making or focus on one institutional mechanism.

The most prominent tool to study judicial decision-making is the Supreme Court Database (Spaeth et al., 2017), which stems from the attitudinal model of judicial decision-making (Segal and Spaeth, 1993, 2002). The dataset allows to systematically test hypotheses on cases decided by the US Supreme Court since 1946 and includes more than 200 variables on the litigants, case features and the justices. The dataset

consists in two forms; one case-centred version one justices-centred. This makes the dataset a strong tool to understand judicial decision-making from a perspective on the inside of the US Supreme Court.[1]

The data available to study European constitutional courts is more diverse and a number of datasets have been published meanwhile. The datasets available cover the litigation behavior and the success of minority parties in Spain, Portugal (Magalhães, 2003), France and Germany (Hönnige, 2009; Sternberg, 2019). Moreover, the datasets address the justices' positions based on separate opinions in Spain, Portugal, the UK and Bulgaria (Hanretty, 2012, 2014) or Germany (Engst et al., 2017; Wittig, 2016).

In addition, the influence of public opinion on judicial decision-making has been assessed (Vanberg, 2001; Sternberg et al., 2015; Sternberg, 2019) or the attitudes of citizens towards judges (Engst, Gschwend and Sternberg, 2018). Finally, datasets have been compiled to assess the veto behavior of courts in Italy (Santoni and Zucchini, 2004; Rebessi and Zucchini, 2018) and France (Brouard, 2009). Some scholars focus on courts in macro-comparative perspective (Herron and Randazzo, 2003; Smithey and Ishiyama, 2000) or supreme courts beyond the prominent US case (Evans and Fern, 2015). Others simply compile information from different sources and make it available, for instance, about the composition of the panels within a constitutional court (for the GFCC, see Hamann, 2019) – information that is otherwise available in machine-readable form. The challenge of the high number of datasets compiled to study specific questions is that it is hard to see how they can be linked easily to assess a broader set of hypotheses. Instead, existing data-structures have a rather narrowed focus.

In sum, existing datasets to understand inner-court judicial action or the intra-institutional interaction between the judiciary and other branches of government do not link to one-another. Subsequently, we still require tools to develop a comprehensive perspective on courts. In order to do so we design a database for one court which

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[1]  The Supreme Court Database was the point of departure to design the Constitutional Court Database.

combines multiple information on processes internal and external to the court in different data-tables. The result is the Constitutional Court Database (CCDB; Hönnige et al. 2015) on the German Federal Constitutional Court. This database provides for a dynamic data-structure that allows for multiple combinations of various data-tables to develop a number of datasets to address different units of analysis. In order to design this database we had to overcome the challenge that judicial decision-making is multifaceted, as we outline in the next section.

# 3 Conceptualizing the Constitutional Court Database

The aim of the database is twofold. On the one hand, we seek to quantify inner-court activities which are inherent to judicial decision-making. On the other hand, we wish to embed the court in the intra-institutional interaction with the political branches of government and the society. In order to reach both aims we need to address the challenges to identify information of relevance in legal decisions and the judicial domain. Afterwards, we embed the judicial domain in a dynamic data-structure and link information to the political and societal domain. However, prior to performing both steps we need to understand the institutional setup of the German Federal Constitutional Court (GFCC).

## 3.1 Institutional Set-up

In this section we provide an overview about the particular institutional context of the GFCC. The constitutional court is a representative yet one of the more influential apex courts worldwide (Kneip, 2008; Hönnige, 2008; Engst, 2018). The GFCC is not a supreme court in the anglo-american sense but a highest court following the Kelsian tradition (Kelsen, 1942; Epstein, Knight and Shvetsova, 2001; Stone Sweet, 2000). As such, it is not a court of last resort but reviews constitutional matters only.

The Court consists of 16 judges in two Senates (eight-judge panels) selected alternately by the lower house (*Bundestag*) and the upper house (*Bundesrat*), with a two-thirds majority (see Article 94 of the German constitution). Each house also elects the President and the Vice-President of the GFCC alternately, which are the respective chairpersons of the senates. Judges are appointed for a 12-year non-renewable term. The two-thirds majority requirement has so far ensured that the right to nominate candidates rotates between two ideological camps following along Germany's two major parties; the right-center Christian Democrats (CDU/CSU) and the left-of-center Social Democrats (SPD). On occasion, both parties grant the right to nominate a candidate to their respective coalition partners.

As with many apex courts without full docket control, the GFCC created several three-judge panels in 1986, so-called Chambers (*Kammern*), to deal with the huge caseload, in particular with the large number of constitutional complaints (Engel, 2017; Vanberg, 2005). We do not compile chamber decisions because they do not address new legal matters. Instead they merely comprise cases where a decision on a similar case has been taken before. Chambers are not allowed to declare a law as unconstitutional (§93c I Act on the GFCC). They only can take decisions unanimously or, otherwise, they need to refer the case to the senate. Finally, the senates present their decisions as a collective outcome of the constitutional court (Engst, 2018; Wittig, 2016) and very rarely publish individual judicial votes not making available any conference proceedings (Hönnige and Gschwend, 2010; Kelemen, 2013; Engst et al., 2017).

The GFCC allows for a large number of access routes for different plaintiffs: abstract review initiated by political institutions, concrete review initiated by lower courts, constitutional complaints initiated by individual citizens, and a number of horizontal and vertical competence conflicts (Vanberg, 2005; Kommers and Miller, 2012). The overall caseload of the court is rather high: on average one can see about 2 to 3 abstract reviews and competence conflicts, 20 concrete reviews and about 6000 constitutional

complaints each year. In the following section we outline the challenge to transfer the court's decision-making in our database.

## 3.2 Inner-court activities: Analyzing judicial decision-making

The starting point for doing empirical research on topics that involve courts are judicial decisions. Subsequently, the characteristics of the decisions made by the senates of the GFCC are of utmost importance to our database. Ideally, scholars (as well as the public) would be interested in data that is (1) generated by official sources, (2) available in the public domain, (3) provides a complete picture of the court, (4) contains raw text information and is (5) electronically searchable and usable (Coupette and Fleckner, 2018). We seek to address all five points when designing the Constitutional Court Database (CCDB).

The initial challenge is, that none of the following available sources for decisions made by the GFCC fulfill all five criteria. First, there is the official collection of senate decisions by the court published since 1951 – the so called *Amtliche Sammlung*. Second, there are two commercial full-text databases that contain senate decisions: *Juris* and *beck-online* - these databases are similar to the US search engine *Westlaw*. Third, the court publishes a number of Senate decisions on its own website since 1998. In order to code the decisions we referred to the digital version (available on a CD-ROM) of the official collection of senate decisions as our prime source. The official collection appears as most reliable and most complete source.[2]

In order to mirror the inner-court activities of the GFCC in our database, we coded characteristics of the court's decisions. How does a "typical" decision of the GFCC

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[2] *Juris*, for instance, does not always include the so-called *Rubrum* of a decision, i.e., the headnotes showing the names of the parties, docket number as well as the *tenor* (operative provisions) of a judgment. The Court's website provides information on decisions only from 1998 onward. Moreover, the online resources are not transparent whether or not all decisions are available.

looks like?[3] A typical decision consists of two layers.[4] On the one hand, there is the *case layer* encompassing characteristics that refer to one entire decision made by the court. On the other hand, multiple referrals to the court can be combined in one decision on the *proceeding layer*. Different proceedings contain information with regard to each referral separately. For example, a petitioner claims her constitutional rights are violated by a specific act of a public authority, a previous ruling of another court, or an enacted law. In the same way, other petitioners submit referrals considering a closely related issue, for example the same law as the previous petitioner or a court decision with similar implications for the petitioner's rights. Hence, these claims reveal substantial similarities but, at the same time, differ significantly: One petitioner may be a private person while the other one is a political actor. One petitioner may refer to one constitutional article being violated while the other one refers to another one. Moreover, one petitioner deems one article of a law unconstitutional while the second one addresses another article from the very same law. Subsequently, upon referral to the GFCC each petitioner's proceeding receives a separate file number. Nevertheless, there is a high chance that the GFCC bundles proceedings, addressing related issues, in one decisions. Subsequently, we need to consider the case layer and the proceedings layer separately, albeit being able to link both layers.

Let us consider the **case layer** in greater detail. The text body of a decision is published in the aforementioned official collection. The collection refers to a decision as BVerfGE (*Bundesverfassungsgerichtsentscheidung*). The individual decisions can be distinguished by the Volume Number and the Starting Page of the respective decision. Hence, decision BVerfGE 98, 218 is a decision in volume 98 of the official collection starting on page 218. There are several case layer characteristics that apply equally to the whole decision; for example which senate made the decision, the date the decision

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[3] Over the course of the project implementing the CCDB we learned that there are many exceptions from the "typical" decision.

[4] We closely follow the description in Wittig (2016, chapter 2).

was announced, or whether the decision contains separate opinions by individual judges – which rarely happens (see, e.g. Wittig, 2016; Engst et al., 2017).

There are, however, characteristics that do not apply to the whole decisions but are unique to a proceeding(s) addressed in a decision. Subsequently, one can identify unique characteristics in comparison to other proceedings within the very same decision. Roughly every third senate decision contains multiple proceedings. Hence, it is necessary to account for the **proceedings layer**. The proceedings layer is decisive for example once the court renders a verdict. Verdicts in one decision can be proceedings specific. While the court might see a legitimate constitutional claim in one proceeding this might not necessary be the case for other proceedings in the very same decision. Moreover, every proceeding can have different (and multiple) petitioners and across proceeding petitioners might challenge different (and multiple) constitutional norms. Finally, there are different types of proceedings and different rules for the admissibility apply to the different types.

In sum, there are case characteristics and (multiple) proceedings characteristics in one decision. A major challenge is that we do not find a clear hierarchical structure for decisions where proceedings are nested into decisions. Instead, a proceeding can occur more than once in the set of decisions. This is due to the fact that multiple types of decisions exist. There are rulings prior as well as subsequent to a main judgment. Those rulings do not decide on the substantial matter but only preliminary issues, concern preparatively procedural questions, or deal with executing certain consequences of a judgment. Independent of whether occurring in a provisional ruling, a main decision, or subsequently, the file number of the proceeding remains the same. In other words, the very same file number of one proceeding can occur multiple times across decisions. Subsequently, since every decision has a unique BVerfGE Number, the very same File Number of a proceeding can occur in combination with varying BVerfGE Numbers. Hence, the case layer and the proceeding layer provide a cross-classified data structure.

Figure 1: Example of multidimensional structure of "typical" decisions by the GFCC
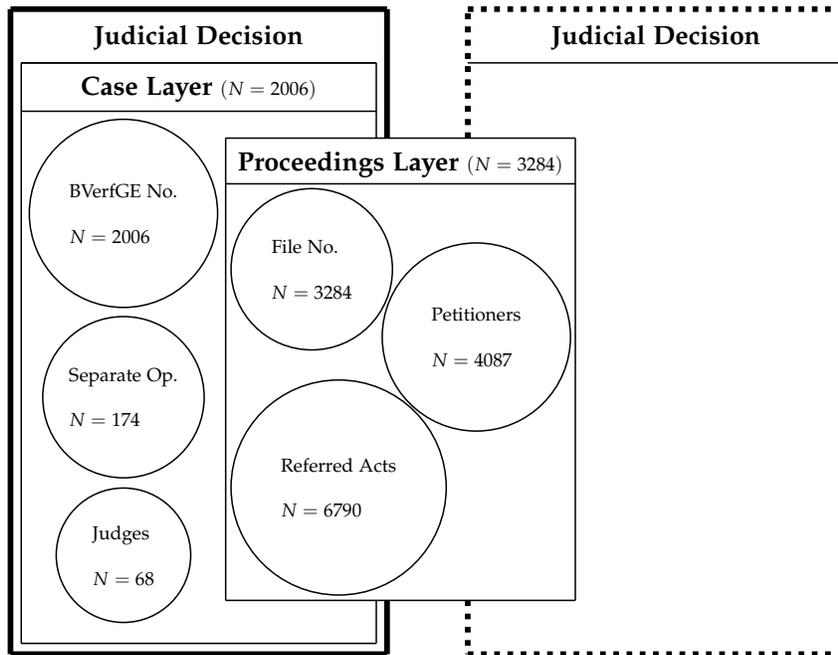


Neither the case layer nor the proceeding layer alone will suffice. Instead, a decision by the GFCC is uniquely identified only once linking the case characteristics with a BVerfGE Number to the proceeding characteristics with a File Number.

The outline of the (1) case and (2) proceeding layer already highlight challenging issues of dimensionality when extracting information form decisions made by the GFCC. There are more examples but in essence we are able to link additional information to the case and proceedings layer. However, all information linked can cause a further increase in dimensions of our database. For example, judges can choose to vote on a decision but also to vote on different sections of the same decision separately. Moreover, the votes can differ across proceedings within one decision. Subsequently, when linking votes to cases there is not necessarily only one link. In sum, the structure of a "typical" decision leads to substantial challenges when designing a database.

In figure 1 we summarize our discussion and illustrate the issue of dimensionality.

The bold square highlights our unit of analysis, namely judicial decisions. Nested in decisions we find information on the case layer and information on the proceedings layer. Information on the proceedings layer can be of relevance to multiple decisions (see dashed box). The circles highlight different data tables within layers. These data tables summarize respective variables of interest. In total, the CCDB combines case layer information on 2006 senate decisions which address 3284 proceedings filed by 4087 petitioners who referred 6790 different constitutional issues between December, 13th 1972 and October, 27th 2009. This time period is equivalent to Germany's $7^{th}$ to the end of the $16^{th}$ legislative periods. The choice to follow electoral periods already indicates that we deem necessary to embed a highest court in the political environment. Hence, in order to understand "the choices justices make" (Epstein and Knight, 1998) we use the next section to outline how to embed judicial decision-making in the political and societal environment.

## 3.3 Embedding the court: the political and societal environment

The second aim of our database is to link the inner-court activities to legislative decision-making, governmental action and the societal environment within Germany.

We already outlined that courts do not play alone. Instead, courts influence and are influenced by other (political) actors and the public at large (e.g., Brouard and Hönnige, 2017; Engst, 2018; Epstein and Knight, 1998; Sternberg, 2019; Vanberg, 2005). Hence, a complete picture of judicial decision-making requires to add more layers to the case and proceedings layers.

The first layer of the CCDB links 2006 Senate decisions with the second layer of 3284 different proceedings referred to the GFCC between 1972 to 2010. This link is in a way functionally equivalent to the most prominent database for court decisions of an apex court, the Supreme Court Database (Spaeth et al., 2017). In order to study the empirical implications of courts not playing alone we add two layers to our CCDB. One layer

describes legislative activities and the other layer describes Germany's political and societal context.

The third layer of the CCDB links legislative outcomes to the proceedings layer of the court. In order to do so we identify the constitutional issue referred to the court for review. If the issue is a federal law initially considered by the *Bundestag*, then we link this particular law to a dataset on German legislative action. This dataset, called GESTA/DIP (originally compiled by Manow and Burkhart (2007)) encompasses all bills considered between the $7^{th}$ to $15^{th}$ legislative period of the *Bundestag*. We expanded the data and added the $16^{th}$ legislative period (in cooperation with Stecker (2016)). The expanded dataset contains 7476 bills encompasses more than 100 variables covering all steps of the legislative process from the sponsoring of a bill until either the defeat on the floor or the promulgation in the federal law gazette. Hence, the **legislative layer** adds the legislative environment to our database.

The fourth layer consists of additional metadata to describe the societal and political context in Germany. For instance, we compile various information from public opinion surveys to measure public support for political actors on a monthly bases, support for the court or other institutions (e.g. Politbarometer, 2013). Moreover, we incorporated the ideological position of various political parties using common manifesto scores (Laver and Budge, 1992; Lowe et al., 2011; König, Marbach and Osnabrügge, 2013). Finally, we compiled from different sources socio-demographic information on the judges that had served on the court from 1972 to 2010. All these independent datasets and pieces of information are summarized in the **metadata layer**. This layer can be linked to information on the case or decision layer.

The final setup of our database allows us to follow-up on research assessing the degree to which courts take political actors, the public at large or their own personal imprint into account when making decisions (Engst, 2018; Brouard and Hönnige, 2017; Hönnige, 2009; Sternberg, 2019; Sternberg et al., 2015; Vanberg, 2001, 2005; Krehbiel,

2016). Nevertheless, to easily link all the layers and to compute a respective dynamic data-storage requires considerable technical considerations which we outline in the next section.

# 4 Implementation of the CCDB

We outlined that conceptualizing judicial-decision making requires a multidimensional approach. Connecting data from decisions to the political and societal arena one has to account for multiple connections between the legal and non-legal domain. In order to establish such connections and to overcome the presented challenges we design the relational Constitutional Court Database (CCDB; Hönnige et al. 2015). In what follows we outline the technical side of the database and present a use-case.

## 4.1 A manageable database

The CCDB is constructed as a relational database. This allows for a particular flexible structure which can account for the multiple layers in judicial decision-making and in the interaction between the GFCC and other actors.

Figure 2 is a schematic illustration of the database. In essence, each of the four layers summarizes a number of data tables and the tables can be linked to one another, also across layers (see ⊙). This structure makes a large amount of data manageable. First, it is (theoretically) possible to extract all proceedings from the PROCEEDINGS TABLE and all bills in the GESTA/DIP TABLE. However, if one is interested only in laws that occur in judicial proceedings then one can link the tables to extract only the information of interest. One would link the PROCEEDINGS TABLE, the CONST. ISSUE TABLE and the GESTA/DIP TABLE. Second, redundant information is coded only once. For example, a judge is nominated by a political party and a party also has a policy position. Instead, of coding the party's general information, such as party label and name, twice it is

Figure 2: Schematic illustration of the Constitutional Court Database (CCDB)

| Constitutional Court Database | | |
|---|---|---|
| **Case Layer** | **Proceedings Layer** | **Legislative Layer** |
| Cases Table | Proceedings Table | GESTA/DIP Table |
| ⊙ BVerfGE; Proceeding $N = 2006$ | ⊙ BVerfGE; File No. $N = 3284$ | ⊙ Const. Issue $N = 7482$ |
| BVerfGE Table | File No. Table | **Metadata Layer** |
| ⊙ Cases; Proceeding $N = 2006$ | ⊙ Proceedings $N = 3017$ | Judges Table |
| Separate Opinion Table | Petitioner Table | ⊙ Opinion, Signing Judges $N = 105$ |
| ⊙ Cases $N = 174$ | ⊙ Proceedings $N = 4087$ | Parties Table |
| Signing Judges Table | Const. Issue Table | ⊙ Party Position, Judges $N = 26$ |
| ⊙ Cases; Judges $N = 68$ | ⊙ Proceedings; GESTA $N = 6790$ | Party Positions Table |
| | Opinion Table | ⊙ Parties; date variables $N = 262$ |
| | ⊙ Proceedings; Judges $N = 3038$ | Public Surveys Table |
| | | ⊙ Date variables $N = 348 \mid 336$ |
| Validation Through Partially Automated Process | | |

Only major tables of the database are shown; ⊙ Links between tables.

enough to code this information once and link the information from the PARTIES TABLE to the PARTY POSITIONS TABLE and the JUDGES TABLE (see metadata layer).

On the judicial side the proceedings layer is the most decisive one. Why? We outlined that a decision is uniquely identified only once a BVerfGE Number and a file number are linked. This link is done in the PROCEEDINGS TABLE on the proceedings layer. The layer summarizes information on the outcome of different proceedings and incorporates information on the petitioner or the referred constitutional issues in separate tables. The case layer summarizes the features that apply in general across one decision, including the BVerfGE number.

The legislative layer contains the full GESTA/DIP dataset (Manow and Burkhart 2007 extended with Stecker 2016). In order to link the layer to the decisions we identified from among the acts referred to the GFCC all federal laws submitted for review. Referred acts are part of the CONST. ISSUE TABLE on the proceedings layer. A proceeding

can address multiple acts albeit of different type (e.g. federal laws, administrative acts, decisions by lower courts). Federal laws identified in the CONST. ISSUE TABLE, were assigned the unique identifier from the GESTA/DIP TABLE. This way we established a link between the proceedings and the legislative layer.

The metadata layer combines tables with information from the societal, political and judicial context. Especially public survey data (such as the support for political parties) or political information (such as manifesto scores) is published periodically. To connect data on this layer with the other layers we accounted for the time-span to which an information on the metadata layer applies. For example, party positions are computed based of manifestos for each legislative period. Subsequently, we assume that the manifesto score for one legislative period can be matched to a respective date variable summarizing when a decision was made.[5] This date variable is included on the case layer. Moreover, we also collected demographic information on the court's judges in a separate JUDGES TABLE on the metadata layer. The GFCC rarely publishes judicial votes but the participating judges sign decisions. Signing judges are coded on the case layer. Subsequently, we can link metadata on the judges to a decision through the SIGNING JUDGES TABLE on the case layer.[6]

Many information summarized on the metadata and legislative layer were complied by other scholars. We only processed the information to incorporate them into the CCDB. Nevertheless, we had to self-collect variables on the case and proceedings layer. In order to reduce errors we implemented a multi-step procedure: First, all coders were trained and provided a codebook. Second, where appropriate the decisions of the coders were restricted by drop-down menus. Third, joint coding workshops were held where project staff address issues. Fourth, each coder was assigned a set of clearly identifiable decision and the coder's action was logged in the database. Fifth, we double coded about 10% of the cases. Six, the most essential variables were reevaluated

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[5]  This is a strong assumption but it is inherent to the data generating process of manifest scores.
[6]  The database provides for more links. The once presented are for illustrative purposes.

by the most experienced coders. Corrections were done consulting with the project staff. Finally, we implemented automated plausibility checks. In order to do so we computed a second database which does not allow for personal interference. The court decisions collected in the database assembled by the coders were transferred into the final database only once passing all plausibility checks.[7]

In sum, the CCDB is a multi-layered, relational database that allows to establish links among variables in various tables across layers of relevance to inner-court decision-making and the legal environment. The database makes large amounts of data easily manageable. In order to create and use such a structure scholars need to account for the technical side of the database which we outline in the next section.

## 4.2 The technical side of the CCDB

The techniques employed to design a database determine its convenience of use. In this regard a compelling database design will (1) allow for flexibility in data management, (2) a structured data collection process, and (3) parsimony in the amount of data that has to be managed. We incorporated these three aspects when programming the CCDB.

To ensure flexibility in data management, we decided to define our data structure using Structured Query Language (SQL) in order to build a relational database. The advantage of SQL is its easy to use syntax and large distribution. Employing SQ Language we are able to address the issue of flexibility in data management as it allows for building relationships between information in a database. Information is collected in tables, and different tables contain different information. Tables are, therefore, comparable to single datasets. Different characteristics of decisions taken by judges at the constitutional court are collected in different datasets. We connect these datasets via assigned keys in each table. Through linking unique keys we are able to draw connections between different tables called data models. Data models define the

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[7] For example, if a judge signed a decision but was - according to her metadata - not yet selected to sit on the bench, then a case was not transfer to the final database but to an error report.

relationship between two entities or, in our case, information in two tables. We end up having different relationships. For example, we have always one decision of the constitutional court, but each decision can comprise multiple proceedings. Hence, a one-to-many relationship characterizes the link between the decision and its proceedings. In addition, in each case petitioners refer certain constitutional issues affecting them. Multiple plaintiffs can refer one issue while one plaintiff can also refer multiple issues. Therefore, the relationship between plaintiffs and the constitutional issues is a many-to-many relationship. Programming the database using SQL allows for capturing these different data models. This guarantees flexibility in the data management process.

We use the open source web framework `django` to ensure a structured data collection process. It is based on the higher programming language python, and we coupled it with our database. The advantage of `django` is that it allows for an administration interface that provides an input screen for untrained users. Thus, it is not necessary for coders to have SQL or python proficiency when entering data into the database. Instead, the collection interface looks similar to any online form one uses for example when paying a bill online. Moreover, the admin interface permits to control the data collection process by introducing rules. Pop-ups prevent coders from entering an impossible date or saving a table without entering data that is surely available. This contributes to a high data quality. Finally, the interface includes help buttons and comparable supportive tools. Inexperienced coders are thus guided through a structured data collection process.

Subsequent to the data collection process it is necessary to clean the data and to validate collected information. Databases have the advantage that one can enhance this process. While logic checks and cross checks of double blind coding are possible just like in a dataset, the advantage of a database is that sources of mistakes can be reduced due to the link between data. The idea is that purely identical information that appears in two or more different decisions by the Constitutional Court – for example

the same judge signing multiple decisions - needs to be collected and stored only once. As a unique key is assigned to each judge it can be used multiple times in different cases, which themselves have unique keys. Therefore, the possibility to make mistakes decreases since only one entry (e.g. the judge's name) needs to be checked for accuracy. This reduces the amount of data compared to a dataset where the information on the judge needs to be collected repeatedly for each data-entry. Finally, it contributes to the manageability of data as the whole size of the database shrinks. Therefore, the idea of linking data in a database contributes to the parsimony in the amount of data to be collected.

Nevertheless, one should not underestimate the process of programming a database. Outlined here is an ideal process. It requires an in-depth knowledge of the information to be collected and how this information is connected to each other. In addition, a programmed database requires extensive tests to see whether the designed tool is able to capture not just the information one wishes to collect but also the relationships between this information. In order to illustrate the power of the CCDB we conclude in the next section with a use-case, predicting whether a law is referred to the court or not depending on the length of the legislative process.

## 4.3 Use-case: Legislative length and referral to courts

To what extent is legislative length a predictor of a law's referral to a constitutional court? It seems reasonable that the length of the legislative process can have one of two theoretical effects on the probability of a law being referred to a court. On the one hand, a longer legislative process can be an indicator of conflict in the legislature. The governing and opposition parties bargain over legislation and the outcome maybe a compromise not satisfying all actors. Defeated actors my take legislation to the highest courts. On the other hand, the length of the legislative process may indicate that the actors involved carefully considered all legal implications. This way, constitutional

issues are actively addressed. Subsequently, laws that take longer are less often referred to the highest courts. The CCDB allows to assess both competing theoretical considerations.

In order to do so we identify all laws published in Germany. Afterwards, we compare the length of the legislative process for laws published and not referred to the GFCC to laws referred for judicial review.[8] Therefore, we extract from the GESTA/DIP TABLE (see figure 2) all published federal laws and we draw a link between those laws and the BVERFGE TABLE. In order to establish the link we connect the GESTA/DIP TABLE with all referrals against federal laws which are flagged in the CONST. ISSUE TABLE. This latter table can be connected to the PROCEEDINGS TABLE which links to the BVERFGE TABLE.

In our assessment we focus on the period from December $14^{th}$, 1976 to October $17^{th}$, 2002 and using the outlined linkage structure we identified 3981 entries. However, these are not the final entries for our assessment. Instead, it is necessary to account for the dimensionality of judicial decisions. This requires us to closely consider the data generating process on the judicial side of the CCDB. Subsequently, we do the following: First, we subset the judicial data to only main decisions leaving aside special or preliminary rulings. Second, it is possible that different petitioners referred the same law within one decision. Subsequently, a law would appear multiple times in one decision which inflates the data. Given that we do not care who referred a law to the court, we aggregate the laws across the petitioners. This way we ensure that all laws referred to the GFCC in one decision occur only once.[9] The final dataset, accounting for the data generating processes on the judicial side, consists of 3204 entries, i.e. different laws. 2896 laws were not referred to the GFCC and in 308 judicial decision, federal laws

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[8] It is possible that a law not yet referred to the court but published will be referred in the future. Thus, the data is potentially censored. This is a limitation of our use-case which we need to accept.

[9] We currently keep entries in which the same law was considered in different decisions. One could also reduce the whole dataset to law-level data only. However, our choice only affects the effect size of our latter findings but not the overall result (see also findings in the appendix).

where referred to the court for review. Hence our dependent variable is dichotomous and distinguishes non-referrals (0) from referrals (1) in our analysis.

The length of the legislative process is our key independent variable which is computed from variables in the GESTA/DIP TABLE. To compute the variable we subtract the date a bill was presented to the legislature from the date a bill was published in the federal law gazette. Instead of using the resulting raw number of days we calculated an indicator variable which highlights whether the length a bill was considered was above average (=1) or below average (=0) within a respective legislative period.

The legislative layer in the CCDB provides for additional variables which may explain why the legislative process could influence a law's probability to be referred to the court for review. In particular we assess whether a law was sent to the conference committee to settle conflict between both legislative chambers. Moreover, the German political system knows two types of bills; consent bills which need to be passed by both parliamentary chambers and objection bills which are passed by the first chamber and the second chamber is empowered to raise an objection only (Fortunato, König and Proksch, 2013). We control for situations in which there was conflict over the type of bill. Finally, the GESTA/DIP TABLE provides a variable whether a bill was passed with a broad majority or along a divide between the governing parties and the (major) opposition parties. We control for a possible divide. In a similar vain we assess whether a bill was present by the government (also together with legislators) or by either of the legislative chambers alone.

Table 1 summarizes results from two logistic regressions of the legislative length on a law's referral to the GFCC. We included legislative period fixed effects in the baseline and complete model. The significant negative estimates for the legislative length in both models suggests that the longer the legislative process the less likely a law will be referred to the court. This speaks in favor of the idea that a longer legislative process

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Table 1: Logistic regression of legislative length on referral to the GFCC

| | Law referred to court (=1) | |
| | Baseline | Complete |
| --- | --- | --- |
| Legislative length above average (=1) | −0.308* | −0.483** |
| | (0.132) | (0.142) |
| Law in conference committee (=1) | | 1.203** |
| | | (0.180) |
| Conflict over type of bill (=1) | | 0.231 |
| | | (0.277) |
| Vote in 1st chamber divided btw. gov. and opp. (=1) | | 1.150** |
| | | (0.148) |
| Law presented by federal government (=1) | | −0.215 |
| | | (0.147) |
| Constant | −1.713** | −2.122** |
| | (0.158) | (0.217) |
| N | 3,204 | 3,204 |
| Log Likelihood | −923.410 | −829.600 |
| AIC | 1,864.820 | 1,685.200 |

*p < .05; **p < .01 – Both models with legislative periode fixed effects.

may also lead to a more legally sound law. From among the alternative explanations the involvement of the conference committee or a conflicting vote in the first chamber increase the likelihood of a law's referral to the GFCC.

In figure 3 we estimate the predicted probabilities of a law's referral comparing the effect size once the legislative length was below (or at) average to a legislative length above average. The average probability of a law being referred to the GFCC is about 17 percent for laws passed at a normal or below average length of the legislative process. This probability decreases to about 11 percent once the legislative length is above average. The first difference in the right panel of figure 3 highlights that the difference in length of the legislative process significantly reduces the likelihood of a law's referral by about 7 percentage points.[10]

In sum, the length of the legislative process has a negative effect on a bills referral to

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[10] In the appendix we re-estimate all findings using plain law-level data accounting for the fact that laws can be referred to the court multiple times in different decisions (see also Fn 9)

Figure 3: Probability of referral of a law to GFCC dependent on legislative length
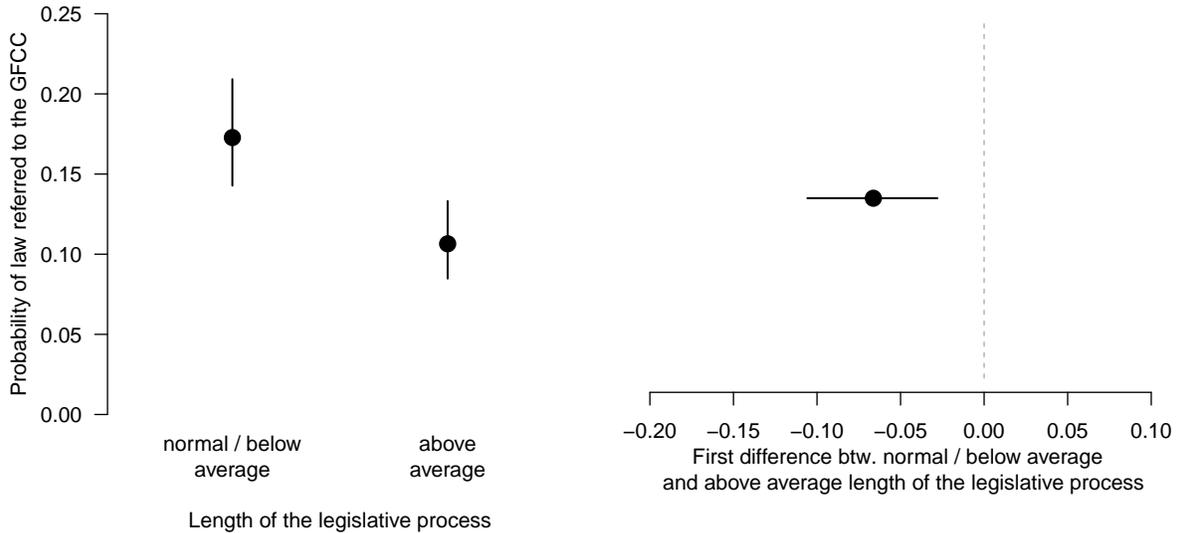


1000 simulations from the complete model in table 1 using an observed value approach (Hanmer and Ozan Kalkan, 2013) varying the length of the legislative process.

a constitutional court. We were able to obtain such a result through connecting data from the legislative domain to the judicial domain. The CCDB allows for a flexible data structure to establish such and other connections between the judicial, legislative a societal domain.

## 5 Conclusion

Highest courts do not play alone. Instead, they are institutions embedded in an ever changing political and societal environment. If scholars want to understand the role of highest courts in political systems they need to account for two aspects. First, the inner-court activities of judges and law clerks. Second, the inter-institutional interaction of highest courts with other institutions. The latter are foremost governments and parliaments as they produce the legislation that courts decide upon. Moreover, they are the actors who are responsible to implement judicial decisions. The relational Constitutional Court Database (CCDB) provides for a tool to better understand highest

courts. Compared to its academic role model - the US Supreme Court Database (SCDB) - the German CCDB links the traditional focus on inner-court activities to the inter-institutional interaction with governmental and legislative actors, as well as society at large.

Research on the GFCC is comparatively numerous for a highest court which is not the US Supreme court. Existing studies often employ a comparative case-study perspective with data from various samples and different time frames operationalizing different characteristics of the GFCC (e.g., Hönnige, 2007; Vanberg, 2005; Krehbiel, 2016; Sternberg et al., 2015; Engst et al., 2017; Schröder, 2019) Nevertheless, the multiple datasets are often designed to answer specific rather than a wide range of questions. Variables of interest are mostly extracted from judicial decision and if information is connected to other institutions scholars account for a limited set of variables only. Thus, our picture of the court's (political) roll is still fragmented. In designing the CCDB we seek to overcome limitation and aim to provide scholars with a tool they can employ in their own research

There were a number of challenges computing the CCDB. First, judicial action and the decision-making is multi-layered. Subsequently, we had to move away from rectangular datasets and choose to develop a relational, multidemsional database with multiple data models. Second, connecting information form the legal domain to information from the political and societal domain we had to translate judicial concepts in concepts which link to political information and political science. This adds further dimensionality to our data. At the same time we need to take detailed legal considerations on the judicial side very serious. Legal language is very particular and gladly we observe a trend among scholars of political science to take language in decisions serious (e.g., Clark and Lauderdale, 2010; Dyevre, 2010, 2019; Lax, 2011; Arnold, Engst and Gschwend, 2019; Sternberg, 2019). The CCDB combines traditional perspectives of political science with these more recent trends in the literature. This

way we seek to take law and the content of judicial decision-making serious to also overcome unnecessary scholarly divide. Finally, and related to the latter point, data from the database needs to be manageable and multidimensional issues in judicial decision-making should be addressed appropriately but also as simple as possible to allow a broad – maybe less data-experienced audience – to use the database.

The CCDB contains variables for 2006 decisions by the two senates of the GFCC made between 1972 to 2010. Moreover, the database allows to connect decisions to socio-demographic information on the judges at the GFCC and to variables from the legislative, political and social arena. The use-case on the effect of legislative timing on referral to the highest court illustrates that the multi-layered structure of the CCDB allows for new research that systematically combines information from the judicial domain to information from the legislative process. If the passage of a bill takes longer the probability of a law being referred to the GFCC decreases. This is evidence in favour of the idea that various groups and legislative actors should be heard and accommodated to avoid referral to the highest courts (Vanberg, 1998). This consideration could not have been assessed previously, without the clear link between the legislative and the judicial realm. The CCDB can help to test existing theories and to generate new empirical findings.

The publication of the data will occur in two steps. First, we will publish versions of data from our database soon on our project homepage. This parallels the approach of the Supreme Court database and will entail rectangular datasets from the CCDB. The level of observation would be the case level and the proceedings level. Second, we discuss with organizations who offer data achieves the possibility to establish an institutionalized solution to make the database accessible. However, there are a number of remaining consistency checks of the once we describe above which have to be addressed before we make a first version of the database publicly available. Like the Supreme Court database, we hope that the CCDB can serve as a template for scholars

interested in setting-up databases of judicial decisions in other countries. This "how-to" study might help scholars to assess both, the potential as well as the challenges when embarking on such an endeavor.

Finally, to strengthen a comparative research agenda on courts future research should focus on developing comparative concepts to describe judicial decision-making much like comparative legislative scholars are doing this for the process of law-making. It would be great to start conceptualize and develop a comparative infrastructure that allows to study how different courts deal with common threats and the diffusion of legal reactions to shared societal developments, for instance through the continued Europeanization of law or privacy issues that loom large in more digitized societies.

# 6 Appendix

In table 2 and figure 4 we repeat our main analysis but this time we account for the fact that across multiple judicial decisions the same laws are considered. We exclude possible duplications and reduce the data to have only law-level data. The results confirms our major findings but the effect size is reduced. The first differences in the right panel of figure 4 illustrates that the likelihood of a law being referred to the court significantly reduces by about 3 percentage points when the legislative process is above average compared to when the process is of normal / below average length.

Table 2: Logistic regression of legislative length on referral to the GFCC

|  | Law referred to court (=1) | |
|---|---|---|
|  | Baseline | Complete |
| Legislative length above average (=1) | −0.222 | −0.356* |
|  | (0.159) | (0.168) |
| Law in conference committee (=1) |  | 0.999** |
|  |  | (0.209) |
| Conflict over type of bill (=1) |  | 0.416 |
|  |  | (0.304) |
| Vote in 1st chamber divided btw. gov. and opp. (=1) |  | 1.144** |
|  |  | (0.176) |
| Law presented by federal government (=1) |  | −0.237 |
|  |  | (0.174) |
| Constant | −2.220** | −2.491** |
|  | (0.195) | (0.256) |
| N | 3,089 | 3,089 |
| Log Likelihood | −683.802 | −628.037 |
| AIC | 1,385.604 | 1,282.074 |

*p < .05; **p < .01 – Both models with legislative periode fixed effects.

Figure 4: Probability of referral of a law to GFCC dependent on legislative length
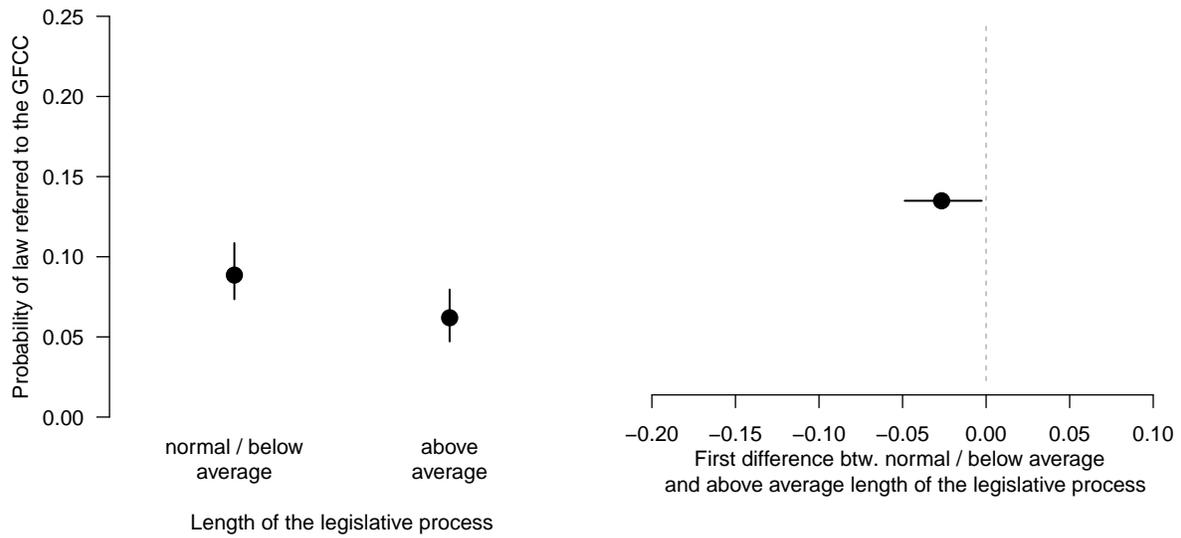


1000 simulations from the complete model in table 2 using an observed value approach
(Hanmer and Ozan Kalkan, 2013) varying the length of the legislative process.

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