# CYBERSPACE Abstract: Locating Czech Constitutional Court Decisions in Doctrine Space and Measuring its Caselaw Consistency

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Our research explores the estimation of positions of Czech Constitutional Court decisions in a doctrine space using Bayesian statistical model. Traditional methods of estimating ideological positions suffer from limitations, prompting the adoption of new text-as-data approaches empowered by advances in computational technology and statistics. Two research teams have attempted to overcome previous constraints and estimate judicial positions more accurately, one in the SCOTUS context and one in the German lower courts context. Our study implements the method of Clark and Lauderdale of estimating the locations of SCOTUS decisions with positive or negative references to its caselaw: the closer decisions are to each other, the more likely they are to cite themselves positively and vice-versa. We combine our own dataset of all CCC decisions with the data on citations provided to us by Beck. We use the programming language R and the Bayesian engine Stan to estimate the positions employing the Bayesian model of Clark and Lauderdal. Estimating the positions allows us to examine the consistency of the CC's case law across different senates and the plenum. We narrow our analysis to areas of law in common doctrine space that are prone to inconsistency, namely restitution cases and costs of civil proceedings. The research contributes to harnessing the potential of machine learning and quantitative methods in legal research and clarifies the factors influencing caselaw consistency.

Especially American empirical legal science has long been trying to estimate the ideological position of judges or judicial decisions, especially in the context of SCOTUS (Supreme Court of the United States). Based on this estimation, the research seeks to answer subsequent sociological research questions. Spaeth-Segal (Segal et al. 1995) and Martin-Quinn (Martin and Quinn 2002) scores are among the examples of attempts to quantify the ideological position of judges. However, these traditional estimation methods suffer from various shortcomings, such as measuring ideological positions indirectly (based on the party the decision was made against) or using data not available outside the American context (information about judges' voting) and, thus, making the research near impossible to replicate elsewhere.

Recent developments in information technology enable more precise and diverse work with data, specifically with text as data. This progress is starting to make its way into social and legal sciences. Two research teams have utilised the progress to overcome the aforementioned limitations in traditional estimation efforts of judicial decisions and judges' positions. Both teams operate on the premise that the "closer" judicial decisions or other legal documents are to each other, the greater the likelihood that they will refer to one another. They employ similar statistical models to estimate the position of a given decision based on this premise. Moreover, their methods share the use of Bayesian statistics, whose expansion has been facilitated by the development of computational techniques. Despite these similarities, there is a fundamental difference between the two research teams in determining which intertextual reference is relevant for identifying the mutual position of judicial decisions.

Clark and Lauderdale examine SCOTUS, which, like the Czech Constitutional Court (Ústavní

soud - ÚS), primarily cites its own decisions (Clark and Lauderdale 2010). Therefore, they consider only these citations, which they further divide into positive and negative based on their relationship to the cited decision. In contrast, Arnold, Engst, and Gschwend study German general courts of lower instances, which primarily refer to various legal provisions and decisions of other courts (mostly higher in the judicial pyramide) (Arnold, Engst, and Gschwend 2023). Hence, they only use information about references to other legal texts, which can include not only decisions of the same court (as in the case of SCOTUS) but also provisions of any legal regulation or decisions of any court. Despite these differences, the outcome of both efforts is similar: estimating the placement of judicial decisions on a common dimension, whose substantive meaning must be subsequently interpreted by researchers.

The objective of our contribution is to present research in which we apply Clark and Lauderdale's method to the Czech Constitutional Court since we believe their approach is more suitable for the institutional setup of the Constitutional Court, where decisions refer primarily to its own case law, and references to legal provisions are not as diverse (Constitution, Charter of Fundamental Rights and Freedoms). However, we also intend to try the German method to compare the outcomes.

Based on the estimated positions of Constitutional Court decisions, we will examine primarily the consistency of the Court's case law across senates and the plenum. The interplay between the consistency of case law and the Court's internal structure has already been the subject of quantitative empirical research (Fjelstul 2021), which we build upon.

The case law of the Constitutional Court is inconsistent due to the massive number of constitutional complaints and the conscious or unconscious failure to unify the case law. The 3-member senates, into which the 15-member Constitutional Court is divided, either are unaware of conflicting case law, ignore it, or employ tricks to avoid its binding nature. Moreover, it can be often difficult even to identify that two decisions are in conflict with each other.

Scholarly literature provides examples of areas where the Constitutional Court's decision-making practice is particularly inconsistent (e.g., restitution matters). It can be assumed that the level of inconsistency may be related to the value-based or legal-political dimension of the issue, which causes different judges to tend to decide differently. Our research focuses on the areas of restitution and the costs of civil proceedings, as we perceive these areas to have the greatest potential for the Court's case law inconsistency.

Regarding the method, we employ a mix of quantitative methods (Bayesian statistics) and legal computational studies. First, we narrow down the selection of decisions to those falling under the given issues based on the subject matter index. With access to data from the Beck-online database, we can subsequently identify mutual citations in the Constitutional Court's case law, including the positive/negative relationship. The entire process of data wrangling is conducted using our custom code in the R programming language with the Tidyverse package. Meanwhile, we adapt Clark and Lauderdale's Bayesian model using the available code to replicate their research. But we use the more modern RStan as the Bayesian environment instead of RJags to simulate the Markov Chains Monte Carlo: "Stan's MCMC techniques are based on Hamiltonian Monte Carlo, a more efficient and robust sampler than Gibbs sampling or Metropolis Hastings for models with complex posteriors." (Brooks et al. 2011)

Subsequently, we analyse the results in connection with our research question regarding the consistency of the Constitutional Court's case law. Specifically, we compare the distributions of decision positions within the given areas across the Court's senates and the plenum and across different periods of the Constitutional Court.

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