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RESEARCH ARTICLE

The Empirical Foundation of Normative Arguments in Legal Reasoning

Yun-chien Chang* and Peng-Hsiang Wang†

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Abstract

Quantitative empirical legal studies are often challenged by traditional doctrinal legal scholars as irrelevant to normative legal reasoning. This essay explores, through the lens of jurisprudence and by drawing on dozens of empirical works, the junction between empirical facts and normative arguments. Teleological and consequential arguments, both of which are prevalent in normative legal reasoning, employ "difference-making facts" as one of their premises, which states the causal effects of certain legal measures and can be identified by causal inference in empirical research. All causal-identifying empirical findings thus constitute an essential part of teleological and consequential arguments for or against a normative claim. Finally, although some classical canons of legal interpretation, such as textual and systematic interpretations, appear not to take the form of teleological or consequential arguments, the use of these specific legal arguments must nonetheless be justified by teleological or consequential arguments at the meta-level. Thus, normative legal reasoning, one way or another, must have empirical foundations.

1 Introduction

The relationship between empirical facts and normative arguments in legal research is a century-old issue. In American jurisprudence, it is called the divide between "Is" and "Ought," and corresponds to the dichotomy between "*Sein*" and "*Sollen*" in German jurisprudence. The mainstream view appears to be that the relation is a difficult one; that is, one cannot jump from an empirical finding to a normative conclusion. This gap has led to different developments in the U.S. and elsewhere. In the U.S., empirical legal studies[1] thrive anyway. Some critics, however, point out that empirical legal studies have a life of their own and often ignore their normative implications. In Germany and many civil-law countries, empirical legal

* Cornell University, ycchang@cornell.edu, https://orcid.org/0000-0001-8050-2702.

† Academia Sinica, philaw@sinica.edu.tw, https://orcid.org/0009-0008-6783-679X.

[1] For definitions of empirical studies and empirical methods, see, for instance, Lawless, Robbennolt, and Ulen (2009: 7–14); Epstein and Martin (2010: 905–908); Cane and Kritzer (2010: 1–3); Kritzer (2021); Eisenberg (2000; 2004; 2011); Engel (2017). While empirical methods contain both quantitative and qualitative approaches, this essay mainly defends quantitative empirical methods, even though many of our arguments can apply to the qualitative approach as well.

scholars may find themselves on the outskirts of legal communities, as their work is considered irrelevant to legal science (*Rechtswissenschaft*) or the doctrinal study of law (*Rechtsdogmatik*), which is usually regarded as a normative discipline. We find these phenomena to be unfortunate, and this essay offers a framework for uniting the empirical and normative dimensions of legal scholarship. As readers and authors of *European Journal of Empirical Legal Studies* are most likely already convinced that empirical legal studies are valuable, this essay is not written to convince them. Rather, its aim is to provide a framework to assist empirical legal scholars in convincing their doctrinal law colleagues that normative legal reasoning must have an empirical foundation and empirical legal studies could have significant implications for normative legal reasoning. In particular, the quantitative empirical legal works identifying causal relations, if one is clearly aware of their normative implications, are not just helpful, but necessary for normative legal reasoning at least when it takes the form of teleological or consequential arguments, namely the arguments used to justify a legal decision or a legal rule by showing that this decision or rule promotes a certain goal or produces some desirable consequence.

Joshua Fischman (2013) makes a seminal contribution to reuniting "Is" and "Ought" in empirical legal scholarship. Fischman (2013: 154) argues that 1) empiricists should first prioritize normative questions and be explicit about the values that motivate their research; 2) empiricists should allow substantive questions to drive their choice of methods; and 3) empiricists need to be more explicit about how they are combining objective findings with contestable assumptions in order to reach normative conclusions. Fischman (2013: 157–158) goes further and elaborates what he means by prioritizing normative goals and setting standards for important empirical works. Specifically, empirical research is important if it can guide legal reform, describe important legal phenomena, and contribute to the development of theories.

We agree with almost everything Fischman (2013) says, but we wish to dig even deeper. We contend that the connection between empirical and normative dimensions of legal reasoning can be made more explicit. In Continental Europe and elsewhere, Fischman's argument may not resonate with doctrinal scholars who still cannot find a place for empirical work in their shrine of the doctrinal study of law. In this essay, we offer a framework that can weave empirical legal studies into normative legal reasoning. Dagan, Kreitner, and Kricheli-Katz (2018: 301) stress that "integrating empirical insight into legal discourse requires translation." Our framework provides such a bridging mechanism. Rubin (1997: 546) pessimistically points out that "[w]e have no methodology to move directly from the discourses we perceive as *descriptive*… to decisions about the way to organize our society and the kinds of laws we *should* establish to effect that organization. Nor does it seem likely that we will be able to develop one" (emphasis added). This essay strikes a positive note and advances a framework to bridge "Is" and "Ought" in normative legal reasoning.

In short, we argue that in legal reasoning[2] normative arguments often rely directly on sophisticated empirical facts, which are discovered — or at least scrutinized — by empirical legal studies. In many cases, legal reasoning takes the form of teleological argument or consequential argument. Both, at their core, adopt a special form of syllogism (see Part II. B.), and one of the two premises in a teleological or consequential argument is a normative prior goal or value, whereas the other premise represents a causal fact. Numerous empirical legal

[2] Rubin (1988: 1847), among others, points out that "the most distinctive feature of standard legal scholarship is its prescriptive voice."

studies attempt to draw causal inferences,[3] and such empirical findings can serve as necessary premises in teleological and consequential arguments. However, many traditional jurists are not aware of, or have long ignored, the fact that empirical findings of causal relationships are essential to such normative legal arguments: the factual or empirical premise in teleological or consequential arguments is a causal statement and heavily relies on the findings of empirical research. Viewed in this light, not only are "Is" and "Ought" united in teleological or consequential arguments, but the domain of legal scholarship and legal analysis is broader than is generally perceived in traditional Continental European doctrinal law studies. Moreover, although not all normative arguments in legal reasoning, such as the textual interpretation based on the semantic argument, are teleological or consequential, we will argue that the use of other types of normative argument, such as the priority of semantic arguments in the ranking of the canons of legal interpretation, are justified by teleological or consequential arguments at the meta-level (see Part II. C). Ultimately, normative arguments in legal reasoning must be built on some empirical foundation.

In this essay, we argue that empirical legal studies that identify causal relations are essential to normative legal arguments, but we recognize that not all empirical legal studies are causal and these works, albeit descriptive, are useful and should not be cast aside.[4] In our previous work in Chinese, we pointed out that a descriptive theory of legal reasoning delineates what reasons the participants of a legal system (such as legislators and judges) employ in enacting, applying, or interpreting legal norms and what factors influence their institutional behaviors. This task of empirically describing valid law exemplifies what Ross (2019) and Alexy (1989: 251–252) call the empirical dimension of the doctrinal study of law. Describing valid law empirically also falls into the domain of empirical legal scholarship, but it will not be further discussed in this focused essay.

The role and value of empirical legal studies that identify causal relations are well demonstrated in a recent blockbuster case *Students for Fair Admissions v. Harvard*, 600 U.S. 181 (2023), decided by the Supreme Court of the United States, the majority opinion of which holds that affirmative action on the basis of race in college admissions processes violate the Equal Protection Clause of the Fourteenth Amendment of the United States Constitution. The key factual issue of the case is whether Asian Americans, *ceteris paribus*, have a lower admission rate than white Americans. In the 77-page verdict written by the Federal District Court, *Students for Fair Admissions v. President and Fellows of Harvard College*, 397 F.Supp.3d 126, which determines the facts of this case, the court spends 20 pages (*id*, at 158–177) discussing the statistical evidence presented by expert witnesses on both sides who, through

[3] There are simply countless articles to cite here. See, e.g., prior empirical works by one of us that attempt to identify causation: Wu, Lin and Chang (2024), Lin and Chang (2023) (using differences in difference), Chang et al. (2023c) (using lab experiments), Lin and Chang (2017) (using differences in difference), Chang et al. (2023a) (using structural equation models), etc. See also, e.g., empirical legal studies done in the European context: Kantorowicz-Reznichenko, Kantorowicz, and Weinshall (2022), Spamann et al. (2021), Engel, Goerg, and Traxler (2022), Dušek and Traxler (2024 forthcoming), Dušek (2015), Peukert et al. (2022), Engel (2023), Merane, Sharma, and Stremitzer (2023) and Zac et al. (2023).

[4] Examples of descriptive works that have implications for theories and policies by one of us include, for instance, Hsu, Chiang, and Chang (2024 forthcoming), Chang and Miller (2024 forthcoming), Chang and Lin (2024 forthcoming), Chang and Miller (2023), Chang, Huang, and Her (2024 forthcoming), Chang et al. (2023b), Lin and Chang (2022), Chang and Klerman (2022), Chang and Miller (2021), Chang and Hubbard (2021), Chang, Garoupa, and Wells (2021), Bradford et al. (2021), Chang and Tu (2020), Chang and Hubbard (2019), Lin and Chang (2018), Chang, Ho, and Hsu (2016), Chang (2012a), Chang (2012b), Chang (2011), Chang (2010), and Chang (2009).

sophisticated research designs, attempt to identify whether race causes differences in admission rates.[5]

Below, this essay elaborates the role of empirical findings in normative legal reasoning, mainly focusing on their use in proportionality analysis and teleological and consequential arguments.

2 The Role of Empirical Facts in Normative Arguments

Although David Hume (2000 [1739–40]: 302) famously contended that there is an unbridgeable gap between "Is" and "Ought," in ordinary discourse, we often deploy empirical facts to justify our normative claims about what ought to be done. We tell others to quit smoking because it damages one's health. We send our children to bed early, claiming that being an early bird brings all kinds of health advantages. These health-related facts (smoking damages one's health, sleeping early improves one's health) are empirical, but they are also normative reasons for certain actions: they explain why people ought to quit smoking or why children should go to bed early. Succinctly stated, a fact that can be used to justify a normative claim is a *normative reason*.

In philosophical literature, a normative reason is often defined as a fact that counts in favor of an action (Scanlon 1998; Parfit 2011). Nonetheless, the phrase "counting in favor of" is ambiguous. Even if it is understood as a justificatory relation between a fact and an action that ought to be done, it is still not clear what kind of facts can be regarded as reasons to justify a normative claim. Our main idea is that a normative reason is a *difference-making fact* indicating that an action makes a difference to the occurrence or the probability of a certain outcome. This outcome can be a valuable or desirable state of affairs, or the realization of some end or goal.[6] For example, the fact that smoking is injurious to one's health is a reason to quit, which is a difference-making fact in that smoking makes a difference to one's health. To give another example, the fact that sleeping early will lead to an increase in children's height is also a difference-making fact, which shows that sleeping early makes a difference to the increase of children's height. This fact is a reason for sending our children to bed early.

A difference-making fact can be conceived of as a *causal fact* in the sense that causation is a difference-making relation — in other words, a cause is something that makes a difference to its effect.[7] For example, in the framework of interventionist theory of causation, the notion of "cause" is characterized as a difference-making relation between two variables X (the treatment variable) and Y (the outcome variable): X causes Y if and only if an intervention that changes the value of X would make a difference to the value of Y or to the probability distribution of Y (Woodward 2003; Pearl 2009). If we adopt a probabilistic theory of causation,[8] we can say that X causes Y when X is a probabilistic difference-maker of Y — that is, if X were set to a certain value, the probability distribution of Y would be different.[9] For readers

[5] For a plain-language discussion of this case and how causal-inference research design in regressions enables courts to tease out whether race was a driving factor in admission decisions, see Chilton and Rozema (2024: Chapter 5).

[6] For a detailed account of the difference-making-based theory of normative reasons, see Wang and Wang (2015: 199–213).

[7] For various difference-making-based accounts of causality, see Illari and Russo (2014).

[8] For the importance of adopting a probabilistic theory in the law and development context, see Chang (2022).

[9] Using Pearl's notation *do*(X = x) to represent that the value of variable X is set to X = x by means of an intervention, X = x causally raises the probability of Y = y (X = x makes a probabilistic difference to Y = y) if and only if Pr (Y = y |

and authors of *European Journal of Empirical Legal Studies*, a difference-making fact is just what empiricists call a causal relationship between two variables. In addition, a probabilistic difference-maker is simply the treatment variable in a regression framework, where the treatment variable does not perfectly predict the outcome variable — as is almost always the case in empirical legal scholarship.[10] As we will demonstrate below, the notion of normative reasons as difference-making facts is the critical junction of empirical studies and normative arguments.

By pointing out what differences an act makes, a difference-making fact provides a *teleological* explanation of what ought to be done and thus can be used to justify a normative claim. For example, the rationale for quitting smoking is that smoking causes damage to one's health; to avoid this undesirable consequence, one should not smoke. In the same way, the claim that children should go to bed early is justified by the fact that sleeping early will lead to an increase in height. To facilitate growth, they should go to bed early.

A normative claim justified or explained in this way depends on a given goal as well as on a causal fact that a certain action makes a difference (at least a probabilistic difference) to the realization of the goal. If one does not aim to be healthy, or if an increase in height is not a desirable outcome for children, the difference-making facts that serve as normative reasons in the previous examples will not be deployed to justify the normative conclusions. Granted, choosing a goal is a normative decision. Yet having a goal itself does not tell us what to do and how to achieve the goal. One who desires to be fit needs to know the effective ways to lose weight. One who aims to be healthy also has to know whether quitting smoking can prevent his health from being damaged. Whether a putative means is effective to achieving some goal depends on the causal relation between the means and the end, such as "if you jog for one hour per day, you will lose five pounds in a month." In other words, an effective means-end relation is a difference-making fact, and a firm grasp of difference-making facts is essential to ascertaining whether performing or refraining from a certain action can help achieve one's goal. Once the normative goal is settled, the justification for the normative conclusion — that is, whether a certain action ought to be done in order to achieve the goal — is contingent upon the relevant difference-making facts (more on this in Section 2.2).

In the following, we will first use proportionality analysis as an introductory example to explain the critical role of empirical facts (above all, difference-making facts) in legal reasoning (Section 2.1), then explore how difference-making facts are embedded in teleological and consequential arguments, which are used both in first-order legal reasoning to justify a legal decision or a legal measure (section 2.2) and in second-order legal reasoning to justify utilizing a specific legal argument (section 2.3).

2.1 Using Empirical Facts in Proportionality Analysis

We consider proportionality analysis to exemplify the critical role of empirical facts in normative legal reasoning. Proportionality analysis in constitutional and administrative review is prevalent in the civil-law European (above all in Germany), East Asian, and Commonwealth

$do(X = x)) > \Pr(Y = y \mid do(X \neq x))$. On this view, deterministic difference-making is just a special case of probabilistic causation, i.e. $\Pr(Y = y \mid do(X = x)) = 1$ and $\Pr(Y = y \mid do(X \neq x)) = 0$. Note that the idea of causation as difference-making encounters some counterexamples, such as causal overdetermination and preemption, but we will provisionally set this issue aside. For a detailed treatment of the problem of overdetermination and preemption in the causal modelling framework, see Pearl (2009: 309–330).

[10] For regression estimators of causal effects in social sciences, see, e.g., Morgan and Winship (2015: 188–266).

countries (Stone Sweet and Mathews 2008; Barak 2012; Huang and Law 2016; Petersen 2017; Yap and Lin 2022). Even in the U.S., proportionality analysis has been an inherent part of U.S. Supreme Court jurisprudence since the nineteenth century (Mathews and Stone Sweet 2011).[11] The proportionality analysis encompasses three tests (Stone Sweet and Mathews 2008: 105–108 ; Alexy 2014; 2017: 14): 1) the *suitability* test; 2) the *necessity* test; and 3) the *balancing* test.[12] Each of the three tests draws on empirical facts (Petersen 2013: 302). The suitability test examines whether a legal means is effective in achieving some policy goal. The means-end relationship, as stated above, is a difference-making fact and needs to be verified by causal inference in empirical research. The necessity test requires the legal means to be "least restrictive." Comparing whether a means is more or less restrictive than another also requires empirical evidence. The last test, the balancing test, compares the costs associated with infringing on rights and the benefits of the legal act. While normative or evaluative reasoning is involved in, say, assigning normative weight to the infringed rights, weighing costs and benefits is, again, fact-laden. Proportionality analysis is essentially "cost-effectiveness analysis" (Zerbe and Bellas 2006) in economics and policy studies. Viewed in this light, it should not be surprising that proportionality analysis relies on empirical facts (Chang and Dai 2021: 1113).

Globally, in the practice of proportionality analysis, empirical legal research is seldom cited, if at all. The proportionality analyses offered by, for instance, Constitutional Courts in Germany and Taiwan, rarely, if ever, rely on solid studies on causal inferences. The indispensable role of empirical facts in proportionality analysis is rather established by implicit common sense, intuition, or unempirical social scientific theories. (We provide some examples below.) While sometimes this could suffice, empirical legal research should always be welcomed and never dismissed as irrelevant.

2.2 Teleological and Consequential Arguments

Teleological and consequential arguments are often used in legal reasoning. Both teleological and consequential arguments necessitate the inclusion of difference-making facts as an indispensable premise. As stated above, by pointing out the difference an act makes, a difference-making fact provides a teleological or consequentialist explanation of why the act ought to, or ought not, be done, thereby constituting a normative reason to perform or refrain from this very act. To put it more concretely, since difference-making facts point out the causal effects of actions for which they are reasons, they can be used by an agent (such as a legal decision-maker, for example, judges, administrative agency or the legislature) to deliberate on whether to perform an action (such as implementing a certain legislative or administrative measure or rendering a judicial decision) in order to bring about (or avoid) certain consequences or to achieve a certain goal. Therefore, the relationship between empirical legal studies and normative legal reasoning is as follows: empirical legal research makes causal inferences (that is, offers evidence for the causal claims at issue) which identify difference-making facts that are essential to teleological and consequential arguments. Moreover, most[13] difference-making facts identified by empirical legal research can be

[11] For a critique of the use of the proportionality analysis, see Kaplow (2019: 1451–1459) and Chang and Dai (2021); Dai and Chang (2021).

[12] Some scholars argue for a four-part test (e.g., Urbina 2017: 49) or a five-part test (e.g., Michelman 2017: 32), but the differences do not affect our core arguments.

[13] We emphasize that most, but not all, difference-making facts identified by empirical legal research can be readily transformed into the indispensable empirical premise of at least consequential argument. For instance, if an

transformed into the indispensable empirical premise of at least consequential argument; hence, nearly all causal empirical legal works could have some normative legal implications. In what follows, we more formally explain the role of difference-making facts in teleological and consequential arguments.

Although no prior literature explains the role of empirical facts in normative arguments in precisely the same manner as we suggest, we are not without predecessors. Petersen (2013: 298) underscores that teleological or functionalist reasoning draws on effects or consequences. However, Petersen did not couch his arguments in the framework of difference-making facts and the formal structure of teleological and consequential arguments. Towfigh (2014: 676) delineates three avenues for public law doctrines to incorporate empirical knowledge. Our framework further clarifies the theoretical foundation for Towfigh's claims. Hamann and Hoeft (2017), citing a prior version of this essay, agree that empirical legal work is a part of legal scholarship. Dagan (2015: 55) argues that "[l]egal analysis needs both empirical data and normative judgments."

2.2.1 Teleological Argument: Form and Examples

Teleological arguments are pervasive in legal reasoning. A judicial decision is often justified by showing that the decision is instrumental in promoting a certain legal goal, and legal rules can be considered as a means to realize some social or economic goals (Feteris 2008). In the traditional methodology of the doctrinal study of law, teleological arguments often find use in teleological interpretations of legal rules (including both subjective and objective teleological interpretations) and the so-called teleological extension and reduction in the judicial development of law (*Rechtsfortbildung*) (see, e.g., Larenz 1991; Barak 1995; Möllers 2017).[14]

The basic structure of a teleological argument takes the following form, which is often called *practical syllogism* (see, e.g., Alexy 1989: 237–238; Feteris 2008):

(1) Goal E shall be achieved.
(2) Means M helps achieve Goal E (i.e., if M is not adopted, E will not be achieved or will be less likely achieved).
Therefore, M shall be adopted.

The major premise (1), stipulating a valuable or a desirable goal, is normative, but ascertaining Goal E sometimes requires an empirical endeavor. For instance, if E is the original intent of the Framers, it could be verified through archival work or other historical investigations. Yet E is often a matter of value judgment and is the subject of normative debates, to which empirical legal research can barely contribute. Fischman (2013) admonishes that empirical researchers should keep E in mind.

empirical study finds that women, as compared to men, receive lower wages, the normative conclusion cannot be that women should undergo surgeries to become men in order to receive equal wages. Here, the normative implication for gender equality is clear, but the difference-making fact (gender difference leading to unequal wages) does not readily lend itself to a consequential argument.

[14] Barak (1995) uses "purposive interpretation" to refer to teleological interpretation. Although Barak neither explicated the argument form of purposive interpretation nor accepted the distinction between subjective and objective teleological interpretation in the continental legal methodology, he regarded the purposive element (*telos* or *ratio juris*) as "values, goals, interests, policies, and the aim that the text is designed to actualize" (Barak 1995: 87–89). In this regard, it seems that teleological arguments are still to be used in Barak's purposive interpretation.

Once E is established, or at least clearly formulated, the plausibility of the normative conclusion in a teleological argument depends on whether the minor premise (2) stands. The minor premise is empirical, representing a difference-making fact, and thus the subject of empirical legal research. For instance, E is "awarding punitive damages in like cases alike"; the empirical question in the minor premise is whether using juries to determine punitive damages achieves this goal. Empirical studies,[15] if finding a negative answer, may underpin reform proposals to put a cap on punitive damages or to employ bench trials for assessing the amount of punitive damages.

It is worth emphasizing that difference-making facts can be probabilistic. Most, if not all, empirical legal research draws probabilistic rather than deterministic causal inferences. More specifically, M may *not always* lead to E, but adopting M may increase the likelihood of E by, say, 70%. Empirical legal research can estimate the probability, but the uncertainty in the causal relations would affect the strength of the conclusion in the syllogism. If an empirical work finds the probability to be 90%, a strong case for M could be made. If the probability is 30%, the case for M is far weaker. Of course, the conclusion "M should be adopted" is valid (only) within the practical syllogism. In formulating real-world policies, other considerations (such as M's cost) should be taken into account to determine whether it is worthwhile to implement M.

As mentioned above, teleological arguments are used very frequently in legal reasoning. In any standard textbook on the methodology of statutory interpretation in Germany (e.g., Larenz 1991; Möllers 2017; 2020), teleological (or purposive) interpretation sits alongside textual, historical, and systematic interpretations. We posit that every continental lawyer has explicitly or implicitly used the teleological argument framework. For example, per de Blasio and Vuri (2019: 480), a 2006 divorce law reform in Italy established joint custody the default for separating couples (the prevailing practice was that the mother would be the sole custodian), because of the normative goal that "it is a right of the child to have a balanced and lasting relationship with both parents." The rationale of Italian lawmakers could be conceptualized as following a teleological argument: (1) Goal "a balanced relationship with both parents" shall be achieved; (2) Means "changing the legal default rule to joint custody" helps achieve the goal; and thus the statutory divorce provision regarding custody shall be reformed. de Blasio and Vuri (2019: 497), using a differences-in-difference regression framework, find that after the reform, joint custody does increase. In this sense, the empirical foundation of the Italian legislature's normative decision is borne out by subsequent rigorous empirical studies.

Take constitutional review as an example: no matter whether under the proportionality principle, or the strict scrutiny standards of review in the due process and equal protection jurisprudence of the U.S. Supreme Court, once state interests have passed constitutional muster, they become the normative prior — i.e., the major premise of the teleological argument. Courts then have to examine the means-end relationship and the relationship has to be "narrowly tailored" in the U.S. (Choper 2008: 291–293, 313) or "suitable" in Germany under the proportionality principle. Whether the means-end relationship can sustain constitutional review depends on the assessment of difference-making facts, but they are almost always presumed or considered common-sensical, while in fact they are often ascertainable only through sophisticated empirical research.

[15] For empirical studies of this issue, see, for instance, Eisenberg et al. (1997); Eisenberg et al. (2006); Eisenberg and Wells (2006).

Decisions rendered by the Constitutional Court of Taiwan, the court we know best, demonstrate our point clearly. In Constitution Interpretation No. 791, rendered in 2020, a controversial decision that invalidates the criminal code provision that criminalizes adultery, the Constitutional Court of Taiwan applies the proportionality principle. Under the suitability test, the court should demonstrate whether or not the criminal punishment makes a difference regarding married persons' inclination to have an extra-marital relationship. As is well known to empiricists, whether a criminal punishment has a deterrent effect is an empirical question. The court opinion, however, simply states that to achieve the goal of protecting the institution of marriage and specific marriages, criminal punishment's suitability is "low" though "not entirely unsuitable" without citing any empirical or social science evidence.

In addition, in Constitution Interpretation No. 476, rendered in 1999, the court upheld the constitutionality of imposing life sentences and death penalty on drug producers and traffickers. The suitability of these harsher punishment is explained by stating that shorter-term sentences would not be sufficient to achieve the goal of eliminating drugs. Again, whether, say, death penalty is more effective than other penalties is well studied empirically (e.g., Donohue III and Wolfers 2006), but the court does not find it necessary to engage in a discussion of causal relationships in the test of suitability.

As a final example, let us turn to Constitution Interpretation No. 712, rendered in 2013. In that case, the court upheld the restriction on Taiwanese who have children to adopt Chinese citizens. The court emphasizes that the state interest of stability and security of the Taiwanese society is important, and the restriction is suitable to achieve this abstract goal because if the restriction is lifted, Taiwanese will adopt many Chinese and the flood of adopted Chinese will unbalance the population structure and eventually seriously affect the social security in Taiwan. The court has no problem establishing a long causal chain with one sentence. In our work in Chinese (Wang and Chang 2015: 213), we drew on statistics published by the Ministry of the Interior to demonstrate that Taiwanese rarely adopt, and when they do, they predominantly adopt Taiwanese. The aggregate data are not perfect and no causal-identifying research design can be exploited, but the existing data suggest that the suitability reasoning by the court is not grounded in any fact.

2.2.2 Consequential Argument: Form and Examples

Consequential arguments typically justify a legal decision or rule by demonstrating that the decision or applying the rule brings about some desirable or valuable consequences (Alexy 1989: 198–200). While not widely acknowledged as a standard interpretive method in the traditional legal methodology, consequential arguments are frequently employed in legal decision-making, including both the judicial application of law and the legislative impact assessment (Deckert 1995; Mathis 2011). Consequential arguments adhere to the following structure:

(1) Means M leads to Outcome C.
(2) Outcome C is desirable (or, C is undesirable).
Therefore, M shall be adopted (or, M shall not be adopted).

In fact, teleological and consequential arguments share a similar structure, the only difference being the flipped major and minor premises. In a consequential argument, the major premise is a difference-making fact (M leads to C), whereas the minor premise is the normative evaluation. The key point is that both forms of arguments require difference-making facts as one of the premises.

However, there are some subtle differences in the practical use of consequential and teleological arguments. Unlike teleological arguments, the consequence here (C) is not necessarily the realization of some goal or valuable end; rather, C could be a side effect of a legal measure (such as requiring the plaintiff to specify the amount of claimed damages creates the anchoring effect[16]) or a legal institution (such as judges' "sitting by designation" changes reversal rates or have other ripple effects[17]). Moreover, when employing teleological arguments, the advocate usually has a specific goal in mind and assumes a certain relation between means and ends. Empirical legal research is oftentimes an *ex post* examination of the presumed empirical premise in a teleological argument.[18] The purpose of this kind of empirical work would be clear. Again, this is what Fischman (2013) proposes.

By contrast, in consequential arguments, the empirical studies may go first. That is, a researcher would predict or discover the possible consequences of a legal measure, but to make a case for or against the measure depends on the evaluation of those consequences, which is often not (and cannot be) pre-determined by empirical research. As a result, the normative significance in this type of empirical research might be more ambiguous. Nonetheless, one should not jump to the conclusion that empirical research is useless for consequential arguments in normative reasoning. The normative significance is not apparent perhaps because the normative goal or the evaluation of consequences is still in dispute or unexplored. Empirical methods cannot contribute to this. For example, Chang and Miller (2021) find that state supreme courts in the U.S. tend to cite nearby courts. Perhaps regional common law, where precedents in a contiguous court is overemphasized as compared to those rendered by a distant court, suggests that the best legal precedents are not always consulted properly, but perhaps regional common law suggests that courts rely on their neighboring counterparts because of similarity in institutional backgrounds. Scholars lack sufficient basis to explore this normative issue before empiricists uncover the fact. Empirical legal studies thus open up important normative debates regarding previously underexplored issues.

Consequential arguments frequently appear in legal reasoning (for various examples in German law, see Deckert 1995). While certain commentators have expressed concerns about using consequential arguments in legal reasoning (see, e.g., Pawlowski 1990), we have demonstrated above that the structure of teleological and consequential arguments are essentially the same. Unless these commentators are prepared to discard teleological arguments altogether, consequential arguments cannot be easily swept away as inapplicable in the law, especially in *de lege ferenda*.

Currently, not all empirical legal works integrate their causal findings into a framework of teleological or consequential argument, but they could. A causal inference in the legal

[16] For observational studies on this issue, see, e.g., Chang et al. (2023a) and Chang et al. (2017).

[17] For empirical studies on this issue, see, e.g., Lin and Chang (2023), Lemley and Miller (2015), and Sayer, Hess, and Hall (2021).

[18] As an additional example, in the takings compensation context, the major premise (the normative goal) is indisputably giving condemnees fair, full, or adequate compensation, and lawmakers have designed various ways to ensure the realization of this goal, such as requesting the condemners to commission real estate appraisers with a certain designation to assess the value of the expropriated property (Chang 2010; 2011; 2013) or asking property owners to self-assess their property values ex ante (Levmore 1982; Bell and Parchomovsky 2007; Chang 2012a; Posner and Weyl 2018). Empirical studies in this context often examines whether the legal mechanism delivers the promise of fair, full, or adequate compensation (see also Levine-Schnur and Parchomovsky 2016). Relatedly, takings statutes often include various mechanisms that prevent certain groups from being subject to disproportionately high probability of expropriation (i.e., the normative prior is equality). Empirical studies can examine whether the politically weak are most susceptible to property expropriation (e.g., Levine-Schnur 2022).

context can easily lend itself to particularly a consequential argument framework. Below, we use several recent empirical studies with European data as examples. Engel (2022), studying the German Constitutional Court, demonstrates that the longer the judges have been serving in the same panel, the more likely they are to declare a law unconstitutional—one of the more politically difficult decisions a judge can make. The challenge arises in determining the proper normative posture. If a commentator can make a normative case for more frequent unconstitutional ruling, the conclusion in the syllogism would be that the judge tenure in the German Constitution Court (and potentially highest courts in other countries if the finding is generalizable) should be aligned so that familiarity among judges is maximized. Relatedly, Swalve (2022: 240) finds that German Constitutional Court judges who serve together longer tend to produce longer (and presumably better) opinions, as panel members familiar with one another are more likely to share candid opinions and less likely to enter into conflict. Opinions of higher quality are a less controversial normative goal. Commentators holding this view could then come to the syllogistic conclusion that the judge tenure should be aligned, or even that judges on the German Constitutional Court should serve longer.

Beyond Germany, Kalliris and Alysandratos (2023), studying an urgent topic in Greece, find that single-member panels are as efficient as three-member ones. Suppose that policy-makers in Greece, given the serious judicial delay in Greece, were concerned about judicial inefficiency if criminal cases would be handled by a single judge. The finding that single-member panels are equally efficient in resolving disputes and free up judicial manpower would be sufficient to come to a syllogistic conclusion that Greece should use single-member panels more often.

The study by Kricheli-Katz and Weinshall (2023) with Israeli data suggests that when judges are able to invest more time and resources in resolving individual cases, they tend to be less influenced by stereotypes about gender and ethnicity. There are abundant normative arguments against stereotyping, so the normative premise should be an easy one to pass muster. The syllogistic conclusion is thus that judicial reforms that could afford judges with more time and resources are desirable.

Of course, a policy suggestion or a statutory interpretation is not as simple as a syllogism with two premises and a final conclusion. Oftentimes, a policy suggestion or a statutory interpretation is an aggregate of multiple arguments. In the preceding examples, we use "syllogistic conclusions" to suggest that it is only one step toward a final conclusion (a policy suggestion or a statutory interpretation). To continue with the German Constitution Court example, a longer judicial tenure at the German Constitution Court could increase the years that judges serve together, thus increasing opinion quality and the frequency of invalidations of statutes on constitutional grounds. Nonetheless, longer tenures may create other effects (perhaps judges miss the beat of the society or become more complacent over the years). These effects are the subject of another causal-identifying empirical study that should be incorporated in that ultimate decision-making process.

2.3 Teleological and Consequential Arguments at the Meta-Level

Teleological and consequential arguments incorporate difference-making facts, establishing the normative relevance of empirical legal studies. However, our case for the normative relevance of empirical work seems limited when legal reasoning takes other types of argument, such as the textual interpretation based on semantic arguments, to justify the normative conclusion. In traditional methodological discussions of the ranking of the canons of interpretation, it is widely assumed that the textual interpretation should take (at least *prima-facie*) priority over other canons of statutory interpretation, unless the semantic argument by itself cannot definitively determine the answer to a legal question (see, e.g., Koch and Rüßmann 1982; Alexy 1989; Larenz 1991). Nevertheless, the semantic argument is obviously neither teleological nor consequential.[19] While consulting a dictionary on the meaning of a statutory term or investigating its usage in the linguistic community is partly an empirical endeavor, more sophisticated empirical works appear to be of little use here. In other words, the textual interpretation seemingly does not rely on difference-making facts to justify its legal conclusion.

We contend that the justification for the priority of semantic arguments in statutory interpretation (i.e., the textual interpretation) embodies a teleological argument at the meta-level. In other words, the utilization and priority of textual interpretation is a normative conclusion following from a meta-teleological argument. In this meta-teleological argument, the major premise is "the rule of law demands treating like cases alike," or "legal certainty, predictability, or deference to the intent of the democratic legislator are desirable ends"; the minor premise, again, is a seldom-verified empirical claim about a difference-making fact that the textual interpretation can help achieve the aforementioned goals. In other words, adopting the textual interpretation makes a difference to the achievement of legal certainty, predictability, democracy, etc. (see, e.g., Koch and Rüßmann 1982: 112–114; Alexy 1995: 89–91). We are not quibbling with the legitimacy of textual interpretation or its presumptive priority in the ranking of the canons of interpretation. Rather, our point is that, even though the semantic argument underlying a textual interpretation does not itself contain a difference-making fact, the justification of the textual interpretation takes a meta-teleological argument, which still includes a (higher-order) difference-making fact as its empirical premise and can benefit from more solid empirical studies to confirm the intuition of many.

Our point here is slightly different from that made in preceding sections. The preceding sections are concerned with teleological or consequential arguments used to justify certain legal *measures* — be they legislative enactments, administrative rule-makings or judicial decisions — and we argue that teleological or consequential arguments in this context, which might be termed "first-order" legal reasoning, include empirical premises stating that a legal measure makes a difference to a given goal or some desirable consequence. Hence, a causal

[19] According to Alexy (1989: 235), semantic arguments can be divided into three forms, where W stands for some semantic considerations (such as the meaning or usage of a term in the legal or ordinary context), R' for an interpretation, and R for a legal rule:

(1) By reason of W_i, R' *must* be accepted as an interpretation of R.

(2) By reason of W_k, R' *cannot* be accepted as an interpretation of R.

(3) It is *possible* both to accept and not to accept R' as an interpretation of R, since neither W_i nor W_k holds.

The argument form (3) states that the wording of a legal rule allows of a semantic leeway. In this situation, other arguments beyond semantic considerations are needed in order to justify an interpretation of R.

inference made by empirical legal studies in the specific legal contexts is essential to the soundness of those first-order teleological or consequential arguments.

By contrast, this section is concerned with teleological or consequential arguments used to justify the adoption of specific legal *argument forms*, such as the textual interpretation (or other canons of legal interpretation), in first-order legal reasoning.[20] Teleological or consequential arguments of this kind might be termed "second-order" or "meta" arguments, and we argue that the normative significance of a semantic argument is to be justified by a meta-teleological argument, which also includes an empirical premise to the effect that utilizing and prioritizing the textual interpretation makes a difference to some goals or desirable consequences. The point here is that the meta-argument for the priority of semantic arguments in the statutory and constitutional interpretations still needs to be based on some empirical findings. In other words, the claim that the textual interpretation promotes legal certainty, predictability or democracy is one about certain difference-making fact, which not only can be but also needs to be verified by empirical research — but only a specific type of empirical works that examine this very causal relationship would be relevant. All the empirical works cited thus far in this essay do not seem very helpful in supporting (or refuting) such a causal relationship as they are concerned only with difference-making facts that figure in first-order teleological arguments (i.e., implementing a legal measure promotes certain goals or causes some valuable outcomes) rather than those that figure in second-order teleological arguments (i.e., utilizing a specific legal argument promotes certain goals or causes some valuable outcomes). In order to provide a solid empirical foundation for arguing about the assumed priority of textual interpretation, which in turn is a general meta-methodological problem about the choice of competing interpretive methods, more sophisticated empirical research is warranted. [21]

Put differently, readers and authors of this empirical journal should take comfort because normative arguments, at the first-order and/or second-order levels, rest on empirical foundations. This being the case, empirical legal studies should no doubt be part of legal scholarship. On the other hand, our cautionary note is that empirical legal studies consumed or produced by readers and authors of this empirical journal are mostly only directly relevant to certain types of normative legal reasoning, namely the first-order teleological or consequential arguments in the justification of legal measures.

[20] For the idea that the canons of interpretation represent different legal argument forms, see Alexy (1989: 235–244).

[21] It is worth noting that the systematic interpretation, one of the four classical canons of interpretation in traditional legal methodology, is subject to a similar analysis and thus can be justified by a meta-teleological argument. Moreover, when, at the first-order level, textual, historical, teleological, and systematic interpretations lead to different conclusions, some meta-methodological considerations have to come into play in order to reach a single, coherent conclusion. Such meta-methodological considerations often take the form of a meta-teleological or consequential argument, like the one which justifies the use and priority of textual interpretation. We have developed this point in more detail in our work in Chinese (Wang and Chang 2019).

3 Conclusion

Normative legal reasoning must have an empirical foundation. Although the conclusion of legal reasoning is normative, empirical facts are essential to such normative reasoning. Difference-making facts, usually identified or tested by the empirical research employing the methods of causal inference, are indispensable premises in teleological and consequential arguments, which are widely employed in legislative policy-making, administrative regulation-making, and judicial reasoning, especially in hard cases. Given that difference-making facts serve as normative reasons for judicial decisions, as well as for implementing, amending or repealing certain legal measures, quantitative empirical legal studies that make causal inferences contribute to normative legal reasoning. In this way, "Is" and "Ought" should and can be united both in doctrinal and empirical legal studies.

Quantitative empirical legal studies are essential aspects of legal scholarship. That is, no matter whether the jurisdiction is common-law, civil-law, or mixed, lawyers must rely on difference-making facts to justify their normative claims. Doctrinal jurists ought to clarify the empirical premises and foundations of their normative arguments, and be more open to the possibility that their normative claims might be rejected if the hopefully explicit, or still implicit, causal facts underlying the normative arguments are not borne out by empirical evidence. Empirical lawyers should strive to make their social-scientific works more normatively relevant by spelling out the related policy issues and how their findings could fit into teleological or consequential arguments in normative legal reasoning. Legal reasoning would not be complete without carefully formulated normative theory and carefully executed empirical investigation.

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References

Alexy, Robert. 1989. *A Theory of Legal Argumentation: The Theory of Rational Discourse as a Theory of Legal Justification*. Oxford: Oxford University Press.

Alexy, Robert. 1995. *Recht, Vernunft, Diskurs*. Frankfurt a.M.: Suhrkamp.

Alexy, Robert. 2014. Constitutional Rights and Proportionality. *Revus* 22:51–65. https://doi.org/10.4000/revus.2783.

Alexy, Robert. 2017. Proportionality and Rationality. In *Proportionality: New Frontiers, New Challenges* 13–29, edited by Vicki C. Jackson and Mark Tushnet. Cambridge: Cambrige University Press. https://doi.org/10.1017/9781316691724.

Barak, Aharon. 1995. *Purposive Interpretation in Law*. Princeton, N.J.: Princeton University Press.

Barak, Aharon. 2012. *Proportionality: Constitutional Rights and Their Limitations*. Edited by David Dyzenhaus and Adam Tomkins, *Cambridge Studies in Constitutional Law*. United Kingdom: Cambridge University Press.

Bell, Abraham, and Gideon Parchomovsky. 2007. Taking Compensation Private. *Stanford Law Review* 59:871–906.

Bradford, Anu, Yun-chien Chang, Adam Chilton, and Nuno Garoupa. 2021. Do Legal Origins Predict Legal Substance? *The Journal of Law and Economics* 64 (2):207–231. https://doi.org/10.1086/712420.

Cane, Peter, and Herbert M. Kritzer. 2010. Introduction. In *The Oxford Handbook of Empirical Legal Research* 1–10, edited by Peter Cane and Herbert M. Kritzer. https://doi.org/10.1093/oxfordhb/9780199542475.013.0001.

Chang, Yun-chien. 2009. Empire Building and Fiscal Illusion? An Empirical Study of Government Official Behaviors in Takings. *Journal of Empirical Legal Studies* 6:541–584. https://doi.org/10.1111/j.1740-1461.2009.01153.x.

Chang, Yun-chien. 2010. An Empirical Study of Compensation Paid in Eminent Domain Settlements: New York City 1990–2002. *Journal of Legal Studies* 39:201–244. https://doi.org/10.1086/605095.

Chang, Yun-chien. 2011. An Empirical Study of Court-Adjudicated Takings Compensation in New York City: 1990–2003. *Journal of Empirical Legal Studies* 8 (2):384–412. https://doi.org/10.1111/j.1740-1461.2011.01213.x.

Chang, Yun-chien. 2012a. Self-Assessment of Takings Compensation: An Empirical Study. *Journal of Law, Economics & Organization* 28:265–285. https://doi.org/10.1093/jleo/ewq013.

Chang, Yun-chien. 2012b. Tenancy in "Anticommons"? A Theoretical and Empirical Analysis of Co-ownership. *Journal of Legal Analysis* 4:515–553. https://doi.org/10.1093/jla/las011.

Chang, Yun-chien. 2013. *Private Property and Takings Compensation: Theoretical Framework and Empirical Analysis*. Northampton, Mass.: Edward Elgar.

Chang, Yun-chien. 2022. Property Rights: (Probabilistically) Necessary or Sufficient for Economic Development in China and Beyond? *Law & Social Inquiry* 47 (2):727–733. https://doi.org/10.1017/lsi.2021.79.

Chang, Yun-chien, Kong-Pin Chen, Jen-Che Liao, and Chang-ching Lin. 2023a. Ask More, Awarded More: Evidence from Taiwan's Courts. *International Review of Law & Economics* 76 (106171):1–11. https://doi.org/10.1016/j.irle.2023.106171.

Chang, Yun-chien, Adam Chilton, Nuno Garoupa, and Mila Versteeg. 2023b. Colonial Experiences and Contemporary Laws. *working paper*.

Chang, Yun-chien, and Xin Dai. 2021. The Limited Usefulness of Proportionality Principle. *International Journal of Constitutional Law* 19 (3):1110–1134. https://doi.org/10.1093/icon/moab068.

Chang, Yun-chien, Theodore Eisenberg, Tsung Hsien Li, and Martin T. Wells. 2017. Pain and Suffering Damages in Personal Injury Cases: An Empirical Study. *Journal of Empirical Legal Studies* 14:199–237. https://doi.org/10.1111/jels.12145.

Chang, Yun-chien, Nuno Garoupa, and Martin T. Wells. 2021. Drawing the Legal Family Tree: An Empirical Comparative Study of 170 Dimensions of Property Law in 129 Jurisdictions. *Journal of Legal Analysis* 13 (1):231–282. https://doi.org/10.1093/jla/laaa004.

Chang, Yun-chien, Han-wei Ho, and Jimmy Chia-Shin Hsu. 2016. Non-Pecuniary Damages for Defamation, Personal Injury, and Wrongful Death: An Empirical Analysis of Court Cases in Taiwan. *The Chinese Journal of Comparative Law* 4 (1):69–97. https://doi.org/10.1093/cjcl/cxv020.

Chang, Yun-chien, Sieh-chuen Huang, and Su-Li Her. 2024 forthcomig. Son Preference: An Empirical Study of Estate Distribution in Wills. *Cornell Internaional Law Journal*. https://doi.org/10.2139/ssrn.4556264.

Chang, Yun-chien, and William H.J. Hubbard. 2019. Speedy Adjudication in Hard Cases and Low Settlement Rates in Easy Cases: An Empirical Analysis of Taiwanese Courts with Comparison to U.S. Federal Courts. In *Selection and Decision in Judicial Process Around the World: Empirical Inquiries* 73–109, edited by Yun-chien Chang. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781108694469.004.

Chang, Yun-chien, and William H.J. Hubbard. 2021. New Empirical Tests for Classic Litigation Selection Models: Evidence from a Low Settlement Environment. *American Law and Economics Review* 23 (2):348–394. https://doi.org/10.1093/aler/ahab008.

Chang, Yun-chien, David Ta-wei Hung, Chang-ching Lin, and Joseph Tao-yi Wang. 2023c. Emotional Bargaining After Litigation: An Experimental Study of the Coase Theorem. *Working pape*r. https://ssrn.com/abstract=3340930.

Chang, Yun-chien, and Daniel Klerman. 2022. Settlement Around the World: Settlement Rates in the Largest Economies. *Journal of Legal Analysis* 14 (1):80–175. https://doi.org/10.1093/jla/laac006.

Chang, Yun-chien, and Chang-ching Lin. 2024 forthcoming. Do Parties Negotiate After Trespass Litigation? An Empirical Study of Coasean Bargaining. *Journal of Law and Empirical Analysis* 1.

Chang, Yun-chien, and Geoffrey P. Miller. 2021. Regional Common Law. *The Journal of the Legal Profession* 45:151–181.

Chang, Yun-chien, and Geoffrey P. Miller. 2023. Do Judges Matter? *Journal of Institutional and Theoretical Economics* 179:224–246. https://doi.org/10.1628/jite-2023-0020.

Chang, Yun-chien, and Geoffrey P. Miller. 2024 forthcoming. Decay of Precedent in State Supreme Courts. *NYU Journal of Legislation and Public Policy*.

Chang, Yun-chien, and Su-hao Tu. 2020. Two-way Selections Between Flat-fee Attorneys and Litigants: Theoretical and Empirical Analyses. *European Journal of Law and Economics* 49:131–164. http://doi.org/10.1007/s10657-017-9566-3.

Chilton, Adam, and Kyle Rozema. 2024. *Trial by Numbers: A Lawyer's Guide to Empirical Evidence*. Oxford: Oxford University Press.

Choper, Jesse H. 2008. *Constitutional Law*. Chicago, IL: Thomson/West.

Dagan, Hanoch J. 2015. Law as an Academic Discipline. In *Stateless Law: Evolving Boundaries of a Discipline*, edited by Helge Dedek and Shauna Van Praagh. Farnham, Surrey, England: Ashgate. https://doi.org/10.4324/9781315610719.

Dagan, Hanoch, Roy Kreitner, and Tamar Kricheli-Katz. 2018. Legal Theory for Legal Empiricists. *Law & Social Inquiry* 43 (2):292–318. https://doi.org/10.1111/lsi.12357.

Dai, Xin, and Yun-chien Chang. 2021. Cost-Benefit Reasoning Versus Proportionality: A Rejoinder. *ICONnect: The Blog of the International Journal of Constitutional Law* (http://www.iconnectblog.com/2021/11/cost-benefit-reasoning-versus-proportionality-a-rejoinder/).

de Blasio, Guido, and Daniela Vuri. 2019. Effects of the Joint Custody Law in Italy. *Journal of Empirical Legal Studies* 16 (3):479–514. https://doi.org/10.1111/jels.12225.

Deckert, Martina Renate. 1995. *Folgenorientierung in der Rechtsanwendung*. München: C. H. Beck.

Donohue III, John J., and Justin J. Wolfers. 2006. Uses and Abuses of Empirical Evidence in the Death Penalty Debate. *Stanford Law Review* 58 (1):791–846. https://doi.org/10.2139/ssrn.879765.

Dušek, Libor. 2015. Time to Punishment: The Effects of a Shorter Criminal Procedure on Crime Rates. *International Review of Law and Economics* 43:134–147. https://doi.org/10.1016/j.irle.2014.04.007.

Dušek, Libor, and Christian Traxler. 2024 forthcoming. Fines, Non-Payments, and Revenues: Evidence from Speeding Tickets. *Journal of Law, Economics, & Organization*.

Eisenberg, Theodore. 2000. Empirical Methods and the Law. *Journal of the American Statistical Association* 95 (450):665–669. https://doi.org/10.1080/01621459.2000.10474247.

Eisenberg, Theodore. 2004. Why Do Empirical Legal Scholarship. *San Diego Law Review* 41:1741–1746.

Eisenberg, Theodore. 2011. The Origins, Nature, and Promise of Empirical Legal Studies and a Response to Concerns. *University of Illinois Law Review*:1713–1738.

Eisenberg, Theodore, John Goerdt, Brian Ostrom, David Rottman, and Martin T. Wells. 1997. The Predictability of Punitive Damages. *The Journal of Legal Studies* 26 (S2):623–661. https://doi.org/10.1086/468010.

Eisenberg, Theodore, Paula L. Hannaford-Agor, Michael Heise, Neil LaFountain, G. Thomas Munsterman, Brian Ostrom, and Martin T. Wells. 2006. Juries, Judges, and Punitive Damages: Empirical Analyses Using the Civil Justice Survey of State Courts 1992, 1996, and 2001 Data. *Journal of Empirical Legal Studies* 3 (2):263–295. https://doi.org/10.1111/j.1740-1461.2006.00070.x.

Eisenberg, Theodore, and Martin T. Wells. 2006. The Significant Association Between Punitive and Compensatory Damages in Blockbuster Cases: A Methodological Primer. *Journal of Empirical Legal Studies* 3:175–195. https://doi.org/10.1111/j.1740-1461.2006.00067.x.

Engel, Christoph. 2017. Empirical Methods for the Law. *Journal of Institutional and Theoretical Economics* 174:5-23. https://doi.org/10.1628/093245617X15096094637968.

Engel, Christoph. 2022. Lucky You: Your Case Is Heard by a Seasoned Panel— Panel Effects in the German Constitutional Court. *Journal of Empirical Legal Studies* 19 (4):1179–1221. https://doi.org/10.1111/jels.12327.

Engel, Christoph. 2023. The German Constitutional Court: Political, but Not Partisan? *working paper*.

Engel, Christoph, Sebastian J. Goerg, and Christian Traxler. 2022. Intensified Support for Juvenile Offenders on Probation: Evidence from Germany. Wiley Subscription Services, Inc. https://doi.org/10.1111/jels.12311.

Epstein, Lee, and Andrew D. Martin. 2010. Quantitative Approaches to Empirical Legal Research. In *The Oxford Handbook of Empirical Legal Research* 901–925, edited by Peter Cane and Herbert M. Kritzer. Oxford: Oxford University Press. http://doi.org/10.1093/oxfordhb/9780199542475.013.0038.

Feteris, Eveline T. 2008. The Pragma-Dialectical Analysis and Evaluation of Teleological Argumentation in a Legal Context. *Argumentation* 22. http://doi.org/10.1007/s10503-008-9083-1.

Fischman, Joshua B. 2013. Reuniting 'Is' and 'Ought' in Empirical Legal Scholarship. *University of Pennsylvania Law Review* 162 (1):117–168.

Hamann, Hanjo, and Leonard Hoeft. 2017. Die empirische Herangehensweise im Zivilrecht: Lebensnähe und Methodenehrlichkeit für die juristische Analytik? *Archiv für die civilistische Praxis* (217):311–336. https://doi.org/10.1628/000389917X15002739282653.

Hsu, Ching-fang, Ivan Kan-hsueh Chiang, and Yun-chien Chang. 2024 forthcoming. Lawyers' Legal Aid Participation: A Qualitative and Quantitative Analysis. *Journal of Empirical Legal Studies*.

Huang, Chengyi, and David Law. 2016. Proportionality Review of Administrative Action in Japan, Korea, Taiwan, and China. In *Research Handbook in Comparative Law and Regulation* 305–334, edited by Francesca Bignami and David Zaring. Northampton, MA: Edward Elgar. https://doi.org/10.4337/9781782545613.

Hume, David. 2000 [1739–40]. *A Treatise of Human Nature*. Edited by David Fate Norton and Mary J. Norton. Oxford: Oxford University Press.

Illari, Phyllis, and Frederica Russo. 2014. *Causality: Philosophical Theory Meets Scientific Practice*. Oxford: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199574131.001.0001.

Kalliris, Konstantinos, and Theodore Alysandratos. 2023. One Judge to Rule Them All: Single-member Courts as An Answer to Delays in Criminal Trials. *Journal of Empirical Legal Studies* 20 (1):233–268. https://doi.org/10.1111/jels.12341.

Kantorowicz-Reznichenko, Elena, Jarosław Kantorowicz, and Keren Weinshall. 2022. Ideological Bias in Constitutional Judgments: Experimental Analysis and Potential Solutions. *Journal of Empirical Legal Studies* 19 (3):716–757. https://doi.org/10.1111/jels.12323.

Kaplow, Louis. 2019. Balancing Versus Structured Decision Procedures: Antitrust, Title VII Disparate Impact, and Constitutional Law Strict Scrutiny. *University of Pennsylvania Law Review* 167:1375–1462.

Koch, Hans-Joachim, and Helmt Rüßmann. 1982. *Juristische Beründungslehre*. München: C. H. Beck.

Kricheli-Katz, Tamar, and Keren Weinshall. 2023. Judging Fast or Slow: The Effects of Reduced Caseloads on Gender- and Ethnic-based Disparities in Case Outcomes. *Journal of Empirical Legal Studies* 20 (4):961–1004. https://doi.org/10.1111/jels.12363.

Kritzer, Herbert M. 2021. *Advanced Introduction to Empirical Legal Research*. Northampton, MA: Edward Elgar.

Larenz, Karl. 1991. *Methodenlehre der Rechtswissenschaft*. 6 ed. Berlin: Springer. https://doi.org/10.1007/978-3-662-08711-4.

Lawless, Robert M., Jennifer K. Robbennolt, and Thomas S. Ulen. 2009. *Empirical Methods in Law*. New York, NY: Aspen.

Lemley, Mark A., and Shawn P. Miller. 2015. If You Can't Beat 'Em, Join 'Em: How Sitting by Designation Affects Judicial Behavior. *Texas Law Review* 94:451–484. https://doi.org/10.2139/ssrn.2449349.

Levine-Schnur, Ronit. 2022. Political Divide, Weak Property Rights, and Infrastructure Provision: An Empirical Examination of Takings Decisions in Jerusalem. *Law & Social Inquiry* 47 (3):821–856. https://doi.org/10.1017/lsi.2021.57.

Levine-Schnur, Ronit, and Gideon Parchomovsky. 2016. Is the Government Fiscally Blind? An Empirical Examination of the Effect of the Compensation Requirement on Eminent-Domain Exercises. *The Journal of Legal Studies* 45 (2):437–469. https://doi.org/10.1086/687248.

Levmore, Saul. 1982. Self-Assessed Valuation Systems for Tort and Other Law. *Virginia Law Review* 68 (4):771–861. https://doi.org/10.2307/1072726.

Lin, Chang-ching, and Yun-chien Chang. 2023. Learning or Networking? The Causal Effect of Judges Sitting by Designation. *working paper*.

Lin, Lauren Yu-Hsin, and Yun-chien Chang. 2022. Do State-Owned Enterprises Have Worse Corporate Governance? An Empirical Study of Corporate Practices in China. *European Business Organization Law Review* 23:711–734. http://doi.org/10.1007/s40804-021-00223-1.

Lin, Yu-Hsin, and Yun-chien Chang. 2017. Does Mandating Cumulative Voting Weaken Controlling Shareholders? A Difference-in-Differences Approach. *International Review of Law and Economics* 52:111–123. https://doi.org/10.1016/j.irle.2017.09.003.

Lin, Yu-Hsin, and Yun-chien Chang. 2018. An Empirical Study of Corporate Default Rules and Menus in China, Hong Kong and Taiwan. *Journal of Empirical Legal Studies* 15 (4):875–915. https://doi.org/10.1111/jels.12200.

Möllers, Thomas M.J. 2017. *Juristische Methodenlehre*. München: C. H. Beck.

Möllers, Thomas M.J. 2020. *Legal Methods*. München: C.H.Beck.

Mathews, Jud, and Alec Stone Sweet. 2011. All Things in Proportion? American Rights Doctrine and the Problem of Balancing. *Emory Law Journal* 60 (4):799–875. https://doi.org/10.2139/ssrn.1569351.

Mathis, Klaus. 2011. Consequentialism in Law. In *Efficiency, Sustainability and Justice to Future Generations* 3–29, edited by Klaus Mathis. Dordrecht: Springer. https://doi.org/10.1007/978-94-007-1869-2_1.

Merane, Jakob, Vandit Sharma, and Alexander Stremitzer. 2023. The Deterrent Effect of Private GDPR Enforcement: First Evidence From the Google Fonts Dispute. *working paper*.

Michelman, Frank I. 2017. Proportionality Outside the Courts with Special Reference to Popular and Political Constitutionalism. In *Proportionality: New Frontiers, New Challenges* 30–50, edited by Vicki C. Jackson and Mark Tushnet. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781316691724.003.

Morgan, Stephen L., and Christopher Winship. 2015. *Counterfactuals and Causal Inference: Methods and Principles for Social Research*. 2 ed. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9781107587991.

Parfit, Derek. 2011. *On What Matters, Vol. 1*. Oxford: Oxford University Press.

Pawlowski, Hans-Martin. 1990. *Methodenlehre für Juristen*. 3 ed. Heidelberg: C. F. Müller.

Pearl, Judea. 2009. *Causality: Models, Reasoning and Inference*. 2 ed. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511803161.

Petersen, Niels. 2013. Avoiding the Common-wisdom Fallacy: The Role of Social Sciences in Constitutional Adjudication. *International Journal of Constitutional Law* 11 (2):294–318. https://doi.org/10.1093/icon/mot008.

Petersen, Niels. 2017. *Proportionality and Judicial Activism: Fundamental Rights Adjudication in Canada, Germany and South Africa*. Cambridge: Cambridge University Press.

Peukert, Christian, Stefan Bechtold, Michail Batikas, and Tobias Kretschmer. 2022. Regulatory Spillovers and Data Governance: Evidence from the GDPR. *Marketing Science* 41 (4):746–768. https://doi.org/10.1287/mksc.2021.1339.

Posner, Eric A., and E. Glen Weyl. 2018. *Radical Markets: Uprooting Capitalism and Democracy for a Just Society*. Princeton, NJ: Princeton University Press.

Ross, Alf. 2019. *On Law and Justice*. Translated by Uta Bindreiter. Oxford: Oxford University Press. https://doi.org/10.1093/oso/9780198716105.001.0001.

Rubin, Edward L. 1988. The Practice and Discourse of Legal Scholarship. *Michigan Law Review* 86:1835–1905. https://doi.org/10.2307/1289072.

Rubin, Edward L. 1997. Law and and the Methodology of Law. *Wisconsin Law Review* 1997:521–565.

Sayer, Andrew, Melanie Hess, and Matthew E. K. Hall. 2021. Affirming the District Judge: An Empirical Analysis of the Effect of District Judges Sitting by Designation on Circuit Court Panels. *Journal of Empirical Legal Studies* 18 (2):461–484. https://doi.org/10.1111/jels.12284.

Scanlon, Thomas M. 1998. *What We Owe to Each Other*. Cambridge, MA: Belknap Press.

Spamann, Holger, Lars Klöhn, Christophe Jamin, Vikramaditya Khanna, John Zhuang Liu, Pavan Mamidi, Alexander Morell, and Ivan Reidel. 2021. Judges in the Lab: No Precedent Effects, No Common/Civil Law Differences. *Journal of Legal Analysis* 13 (1):110–126. https://doi.org/10.1093/jla/laaa008.

Stone Sweet, Alec, and Jud Mathews. 2008. Proportionality Balancing and Global Constitutionalism. *Columbia Journal of Transnational Law* 47:72–165.

Swalve, Tilko. 2022. Does Group Familiarity Improve Deliberations in Judicial Teams? Evidence from the German Federal Court of Justice. *Journal of Empirical Legal Studies* 19 (1):223–249. https://doi.org/10.1111/jels.12308.

Towfigh, Emanuel V. 2014. Empirical Arguments in Public Law Doctrine: Should Empirical Legal Studies Make a "Doctrinal Turn"? *International Journal of Constitutional Law* 12 (3):670–691. https://doi.org/10.1093/icon/mou039.

Urbina, Francisco J. 2017. *A Critique of Proportionality and Balancing*. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781316796276.

Wang, Peng-Hsiang, and Yun-chien Chang. 2015. The Normative Significance of the Empirical Dimensions: On the Role of Empirical Studies in the Doctrinal Study of Law. *Academia Sinica Law Journal* (17):205–294.

Wang, Peng-Hsiang, and Yun-chien Chang. 2019. On the Use of Economic Analysis in Legal Methodology. *National Taiwan University Law Journal* 48 (3):791–871. https://doi.org/10.6199/NTULJ.201909_48(3).0001.

Wang, Peng-Hsiang, and Linton Wang. 2015. Rules as Reason-Giving Facts: A Difference-Making-Based Account of the Normativity of Rules. In *Problems of Normativity, Rules and Rule-Following* 199–213, edited by Michael Araszkiewicz, Pawel Banaś, Tomasz Gizbert-Studnicki and Krzysztof Płeszka. Dordrecht: Springer. https://doi.org/10.1007/978-3-319-09375-8_15.

Woodward, James. 2003. *Making Things Happen: A Theory of Causal Explanation*. Oxford: Oxford University Press. https://doi.org/10.1093/0195155270.001.0001.

Wu, Patrick, Chang-Ching Lin and Yun-chien Chang. 2024. Familiarity Breeds Contempt or Deference? An Empirical Study of Appellate Judicial Panels. Working paper.

Yap, Po Jen, and Chien-Chih Lin. 2022. *Constitutional Convergence in East Asia*.

Zac, Amit, Pablo Wey, Stefan Bechtold, David Rodríguez Torrado, and Josee María del Álamo Ramiro. 2023. The Court Speaks, But Who Listens? Automated Compliance Review of the GDPR. *working paper*.

Zerbe, Richard O. Jr., and Allen S. Bellas. 2006. *A Primer for Benefit-Cost Analysis*. Northampton, MA: Edward Elgar.