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Rescuing Comparative Law and Economics?
Exploring Successes and Failures of an Interdisciplinary Experiment

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EMPIRICAL METHODS IN COMPARATIVE LAW: DATA TALKS

*Vanessa Villanueva Collao**

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Why does a comparativist need empirical legal studies? Isn't it better to leave the numerical operations to a statistician? Comparative law has been a customary tool for generations of legal scholars, with a perspective focused not only on the study of the law but also on the history, social events, language, and culture of the system under study. However, this holistic comparative approach refrains from using empirical methodology in a refined functionalist fashion.

This article illustrates how comparative law would benefit from the scientific method to bolster its reliability when comparing legal systems. The scientific method is extrinsic to the legal field but can be used to gain a better understanding of the law. To attain this result, the use of empirical methods in law requires a jurist who can handle these methodologies—someone who can harmoniously interpret the data according to legal theory.

The question is no longer: Why compare? Or What should we compare? But How to compare? This article provides an excursus of the different movements in the U.S. legal scenario that influenced the development of empirical legal studies. Empirical legal methodology's departure from Law and Economics traces how these extrinsic methods are widely applied in social sciences (and increasingly in law) but scarcely advanced in comparative law.

Finally, the paper focuses on different types of quantitative empirical legal research and methods used in legal studies and how they can be connected to comparative law. It concludes by identifying the limitations of this methodology as applied to comparative law and previewing a future of combined methods.

I. INTRODUCTION

The evolution of comparative law has enriched the field by expanding the object of comparison, including new units that are not precisely rules or institutions but informal

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solutions to legal problems[1]. From a functionalist perspective, the goal of analyzing unconventional units (or re-imagining old units) is to establish their relation to society[2]. This connection or interaction requires that the comparativist investigates the appropriateness of the methods or tools for new units and topics in law. In short, a method is suitable for a unit of analysis when it "speaks" its language.

However, the emergence of new units of comparison has not mirrored the methods used in comparative law. One reason for the relatively narrow number of methods comes from the role of law and economics as an extrinsic method for legal analysis. The assumptions introduced by law and economics have been largely rejected in comparative law. This rejection has overlooked other extrinsic, namely non-legal, methodologies.

On the other side, comparative law has not solved its methodological flaws. When comparing different systems, the interrelationship between legal and non-legal solutions sheds light on the *prima facie* equivalent responses to legal problems. However, functional equivalence does not, by itself, ensure comparability. Therefore, I propose to approach the study of new units in comparative law with the help of extrinsic and less-frequently used fields of research, such as quantitative or statistical methods, to substantiate the choice between comparative functionalism or differentialism, to add context to the claims that flow from this analysis, and to promote academic interaction among fields and scholars.

Quantitative methods have been slowly adopted in the legal field but remain underutilized in comparative law. More than 20 years ago, econometrics was the only inferential statistics used in corporate law[3]. This mathematical analysis, congenial to quantitative research pointing to a definite numerical result, has been unpopular among legal scholars, especially among comparativists, because it leaves inconclusive answers to other questions pertaining to law, such as policy. In fact, pure quantitative methods would be unhelpful when answering noncausal questions, such as normative questions, or when categorizing legal rules, or even harmonizing laws.

Comparative law has frequently been more descriptive by using the historical method, by deconstructing legal systems, and by interpreting them based on observation[4]. Other times, the normativism of comparative scholars' work has contrasted with what practitioners

[1] M. Siems, *The Power of Comparative Law: What Type of Units Can Comparative Law Compare?*, in 67 *Am. J. Comp. L.* 861–889 (2020).

[2] R. Michaels, *The functional method of Comparative Law*, in M. Reimann, R. Zimmermann (eds.), *THE OXFORD HANDBOOK OF COMPARATIVE LAW* 2nd ed. (Oxford: Oxford University Press, , 2019), 345–389.

[3] R.M. Lawless *et al.*, *EMPIRICAL METHODS IN LAW* 2ND ED. (New York: Aspen Publishing, 2016), 3. For a prominent work on econometrics in corporate law, see M.C. Jensen, W.H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure*, in 3 J. FIN. ECON. 305 (1976).

[4] A. WATSON, *LEGAL TRANSPLANTS: AN APPROACH TO COMPARATIVE LAW* (1st. ed. Charlottesville, VA: University of Virgina Press, 1974; 2nd ed. Athens, GA.: Georgia University press, 1993).

(lawyers, judges, etc.) in the legal field do, i.e., reaching some form of legal closure instead of pure abstraction[5]. Likewise, empirical scholars, mainly from law and economics—with notable exceptions[6]—have not devoted their efforts to combining their methods (or tools) or to enriching their approach to legal problems guided by comparative law[7].

Empiricism is not new to comparative law. The techniques employed by comparativists are often borrowed from the social sciences, opening the field to ethnographic and anthropological studies that frequently use surveys, interviews, etc. Nevertheless, quantitative or statistical methods are largely neglected by comparativists[8].

Empirical comparative studies emerge as a subsection of empirical legal studies, with cross-country data as the main feature[9]. I refer to data as formal materials, such as judgments[10], as well as actors, such as people, judges, jurors, etc.

The design of empirical methods in comparative law facilitates the functionalist approach[11]. Functionalism—the study of the social function of rules, norms, or institutions as a response to legal problems instead of a bare comparison of formal rules—relies on neutrality and objectivity to establish a functional equivalence between units of comparison. This functional equivalence is driven by the primary assumption of functionalism—the belief that all of humanity shares the same problems[12]. However, by implying neutrality, the presumption of

[5] L.M. Friedman, *The Law and Society Movement*, in 38 *Stan. L. Rev.* 763 (1986).

[6] An early believer of this hybrid field has been Ugo Mattei. U. Mattei, *COMPARATIVE LAW AND ECONOMICS* (Ann Arbour, MI: University of Michigan Press, 1997); U. Mattei, A. Monti, *Comparative Law and Economics: Borrowing and Resistance*, in 5 *Glob. Jurist Front.* Art. 5 (2001); U. Mattei *et al.*, *Comparative Law and Economics*, in B. Bouckaert, G. de Geest (eds.), *ELGAR ENCYCLOPEDIA OF COMPARATIVE LAW* (Cheltenham: Elgar Publishing, 2000), 505–538.

[7] Comparativists acknowledge the relevance of law and economics in the comparative field, rarely applying it. G.B. Ramello, *The past, present and future of comparative law and economics*, in T. Eisenberg, G.B. Ramello (eds.), *COMPARATIVE LAW AND ECONOMICS* (Cheltenham: Elgar Publishing, 2016), 3–22; F. Faust, *Comparative Law and Economic Analysis of Law*, in Reinmann, Zimmermann, *supra* note 2, 827–851.

[8] There are some exceptions in comparative corporate law that take advantage of quantitative methods. *See e.g.*, D. Cabrelli, M. Siems, *Convergence, Legal Origins, and Transplants in Comparative Corporate Law: A Case-Based and Quantitative Analysis*, in 63 *Am. J. Comp. L.* (2015),109–153.

[9] H. Spamann, *Empirical Comparative Law*, in 11 *Annu. Rev. Law Soc. Sci.* 131–153 (2015).

[10] Judgments and court documents have been used to study the relationship among European Supreme Courts when cross-citing foreign caselaw. *See Id.* at 137 (citing M. Gelter, M. Siems, *Citations to foreign courts—illegitimate and superfluous, or unavoidable? Evidence from Europe*, in 62 *Am. J. Comp. L.* 35 (2014).

[11] Legal comparativists largely accept the use of the word method interchangeably as to tools and research instruments and materials, instead of methodology as a theoretical paradigm that informs the choice of methods. J. De Coninck, *The Functional Method of Comparative Law: "Quo Vadis"?*, in 74 *Rabel J. Comp. Int. Priv. L.* 318, 321 (2010). I will not delve into the dichotomic distinctions in this paper, but I will merely refer to method as an all-inclusive category.

[12] This view is in straight opposition with the one from differentialists, summarized in this way: if problems are a social construct in every legal system, then problems are associated with the system's history, culture, language, and so on, making them highly dependent on the context and culture. Therefore, differentialists emphasize the diversity of problems instead of their commonality and comparability.

problems' universality ignores the legal systems distinctions based on the contingencies of the solutions adopted[13].

Likewise, the presumption of universality poses an issue of how problems are framed[14]. This framing depends on the comparativist's scholarly or practitioner's influences, affecting how problems are stated and, eventually, the comparison's outcome.

The functional approach is helpful as an interpretative first step rather than a final step, where it merely offers a description of how societies work. Therefore, it is better to think about functionalism as a proposal (the hypothesis) of how a legal system (or a unit of comparison) should be understood[15]. Thus, empirical methods can then be used to test functional relations and theorizations in law using quantitative or statistical methods.

The advantage of quantitative empirical methods in law is that their reverse-engineering thought process produces a sophisticated result by challenging assumptions rather than merely relying on speculation (in most cases, pure intuition)[16]. In this sense, quantitative empirical methods serve as a bridge between the positive sciences (descriptive of a specific reality) and the normative sciences, such as the law.

These methods are tools for understanding legal problems from empirical reality and are subject to more than one interpretation (so-called refined functionalism, when the premises are functional relations). The focus does not lie in comparing the solution to legal problems but on the procedures and techniques used to identify either a problem or its solution[17].

Theory informs the empirical design, with a hypothesis capable of confirming or conferring validity to the comparative act[18]. The purpose of the hypothesis testing meets the refined functionalism's goal: to resort to external methods for comparative law by abstracting, isolating, and extracting functional concepts from national legal concepts[19]. As Ralf Michaels once said, empirical fields such as law and economics are essentially a refined functional method of comparative law, "one that measures legal rules not by their doctrinal consistency but by their ability to fulfill societal needs"[20]. If the law is like technology and helps to fulfill

[13] Indeed, the presumption around similarities should be the research starting point and treated as a hypothesis, confirming or refuting its validity. De Coninck, *supra* note 11, at 331.

[14] In this regard, comparativists regularly frame issues and make comparisons in a Eurocentric fashion. How problems are comparable to other legal problems usually stems from Eurocentric legal (cultural and social) reasoning.

[15] Michaels, *supra* note 2.

[16] Spamann, *supra* note 9.

[17] De Coninck, *supra* note 11, at 336.

[18] *Id.* at 331.

[19] In this way, numerical, statistical, or quantitative methods embrace the refined functionalism. A.V. Tkachenko, *Functionalism and the Development of Comparative Law Cognition*, in 5 *J. Comp. L.* 71, 73 (2011).

[20] R. Michaels, *The second wave of comparative law and economics?*, in 59 *Univ. Tor. L. J.* 197–213 (2009).

societal needs, then this tool (the law), without an empirical foundation, is subject to arbitrariness.

Empirical (quantitative) methods in comparative law have been used to transform legal rules into numerical values, focusing on the black letter of the law. However, quantitative methods that stem from empirical research also can be used to "code"—to transform data and values into numbers—other types of norms or social behavior in human societies, namely, culture. Therefore, comparativists can test their preferences of comparing differences over similarities, or vice versa, and the influence of culture. Eventually, empirical methods can provide a different dimension to comparative law by defining and measuring the relevance of cultural background when comparing legal systems[21].

In this sense, it is possible to code and test the assumption that societies' needs are somewhat similar and that institutions are built around those similarities. Following a school of thought[22], when the findings point to non-convergence between systems, or no similar needs, comparativists would be prone to rethink, rearrange, and replay a new comparison until that similarity is found. Quantitative empirical methods redress this presumption around similarities (*praesumptio similitudinis*) by falsifying the original assumption. The first part of this article traces the emergence of interdisciplinary studies in comparative law and the movements related to the United States' philosophical school of thought, legal realism, that aided in consolidating empirical legal studies as a tool in legal scholarship. The second part of the article provides an account of the types of quantitative empirical work in multiple areas of the law. Despite the lack of comparative design, the results of those studies still supply material for comparison by replicating the same study in a different system or region and implementing existing models in support of comparative law. These methods fulfill the *tertium comparationist* function of uncovering latent aspects, actors, needs, and problems in law with a (testable) standard of comparison.

The third part of this article discusses the role of methodology, the research question in an empirical study, and the issues with coding law. The fourth part illustrates how to apply the empirical method in comparative law using an example of regression analysis. The regression

[21] Cognitive sciences have been used to disprove the relativism of differentialists' assumptions of the influence of culture over a particular legal system, finding that there is a baseline (or common ground) between humankind's behavior. At the same time, cognitive sciences can improve functionalism by taking an experimental approach to cultural diversity. R. Caterina, *Un approcio cognitivo alla diversità culturale*, in R. Caterina (ed.), *I fondamenti cognitivi del diritto. Percezioni, rappresentazioni, comportamenti* (Milano: ESBMO, 2008), 205, 218.

[22] K. Zweigert, *Die «praesumptio similitudinis» als Grundsatzvermutung rechtsvergleichender Methode*, in M. Rotondi (ed.), 2 *AIMS & METHODS OF COMPARATIVE LAW* (Padova: CEDAM, 1973), 375; *See also* K. ZWEIGERT, H. KÖTZ, 1 *AN INTRODUCTION TO COMPARATIVE LAW* 2nd ed. (Oxford: Clarendon Press, 1987), 40.

analysis examines two units of comparison, a legal phenomenon and a social, or non-legal, phenomenon, at the intersection between business law and law and technology.

Finally, this article concludes with an overview of all the processes, reflecting on the future of combined methods and data preservation. Quantitative empirical methods allow the expansion of legal theories with implications that naturally flow from the data. Even if certain conditions do not allow quantitative research in law, there are conditions in which this type of research is needed and sheds light on further empirical, non-empirical, descriptive, and normative studies. The power of these methods is to broaden the scope of comparative law from quantitative methods to other methodologies already used in social research.

II. THE RISE OF EMPIRICAL METHODS IN LAW

This overview highlights comparativists' rejection of the law and economics model of understanding human activity without using an empirical approach. In the U.S., legal empiricism arose from the experience of the law and society movement, expanding knowledge in law with methods that came from a wide array of disciplines such as anthropology, sociology, and psychology. Law and society scholars apply methods from beyond the social sciences and "conventional" authorities separating the normative or prescriptive issues from the descriptive ones[23]. The movement mainly identifies the law as a human construct that changes and varies according to the "conditions of the culture in which it is embedded"[24]. In this sense, the law is not merely pragmatic, rational, or instrumental because people do not regularly think about legal concepts when thinking about the law but tend to merge the law with values[25].

Similar to law and society studies, comparative studies have shown the constant connection between law and culture[26]. The legal transplants proposed a non-functionalist and detached analysis from the cultural values inherent in law, resulting in the objective study of the behavior of a specific group (the legal élite)[27]. Among some scholars, there was a common understanding that this type of analysis aimed to avoid sociology's trivialization of the legal

[23] Friedman, *supra* note 5, at 764.
[24] *Id.*
[25] "'[P]ublic opinion" in the broadest sense, or those values, opinions, attitudes, and expectations that make up the legal culture, constitute fundamental building blocks of law.' *Id.* at 771.
[26] This connection is especially true in the case of legal transplants by showing how foreign rules were accessible to a specific legal culture determining its incorporation in a different legal system. WATSON, *supra* note 4, at 108–118.
[27] *See id. passim.*

tradition[28]. However, legal transplants theorists rejected this view, emphasizing that this analysis aims to uncover patterns and divergences in law and in society[29]. This observation of the legal élite was powerful in explaining a simple statement: we can understand the law using non-legal methods.

The use of non-legal methods in understanding the law advanced with the rise of law and economics. The two strands of law and economics, positive and normative, created a heated debate (and grounds for rejection) among legal scholars[30]. Rational Choice Theory's unrealistic characterization of an individual moved by a constant desire to maximize[31] utility to make choices triggered comparative legal scholars' skepticism towards law and economics[32]. Indeed, Rational Choice Theory showed its inability to mirror concrete scenarios, but without an approach separated from legal analysis, critiques from comparativists were unsuccessful and eventually surrendered to its use in law.

Legal comparativists' refusal to explore the tools law and economics offered revealed a bias against the methodology. For comparativists, efficiency is neither a compatible way to measure the law nor a remote function of it since, for the field, laws are adopted not necessarily for efficiency but to pursue the interests of justice[33]. As a result of the missing empirical approach, comparativists lost the opportunity to refine law and economics analysis and advance dialogue between legal scholars and economists.

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[28] According to this view, the legal tradition is seen as a monolithic institution that confers historical force to literal or originalist interpretations of the law. In other words, this (Eurocentric) conception of the law promotes cultural identity preservation. *See* B. Grossfeld, *The Strength and Weakness of Comparative Law* (Oxford: Clarendon Press, 1990), 43–45.

[29] Watson, *supra* note 4, at 107.

[30] For one strand, positive law and economics, legal rules have a predictive value—namely, their function centers on influencing future behavior—while the other strand, normative law and economics, focuses on minimizing resource waste by promoting efficiency, adopting rules that maximize wealth. It was also proposed to divide Normative Law and Economics between the Normative Coase Theorem, where the law should remove obstacles to private agreements, and the Normative Hobbes Theorem, where the efficiency feature is centered on the "allocation of property rights to the party who values them the most." R.D. Cooter, T.S. Ulen, *LAW & ECONOMICS* 6th ed. (Boston, Mass.: Person Education, 2012), 92–93.

[31] Maximization and efficiency are fundamental concepts to explain economic behavior. The third fundamental concept is equilibrium, "a pattern of interaction that persists unless disturbed by outside forces" to which maximization is strongly connected. Therefore, human interaction seeking maximization of utility tends to be in equilibrium. *Id.*

[32] [hereinafter RCT]. *See* T. S. Ulen, *Behavioral Law and Economics*, in T.S. Ulen (ed.), 10 *ENCYCLOPEDIA OF LAW AND ECONOMICS:METHODOLOGIES OF LAW AND ECONOMICS* 2nd ed., (Cheltenham: Elgar Publishing, 2017), 203.

[33] Some law and economics proponents were aware that the market responds to complex questions on human interaction almost automatically, in a *deus ex machina* fashion. Thus, the analysis should enlighten where corrections are needed through government regulation for the sake of wealth maximization. R.A. Posner, *THE ECONOMICS OF JUSTICE* (CAMBRIDGE, MASS.: HARVARD UNIVERSITY PRESS, 1982). However, law and economics analysis is not merely centered on the grounds of efficiency as the sole premise. T.S. Ulen, N. Garoupa, *Comparative Law and Economics: Aspirations and Hard Realities*, forthcoming in 69 *Am. J. Comp. L.* (2021) 664.

Only through significant critiques arising from psychology and cognitive studies [34], was it possible to understand how people made choices that were far from what RCT indicated[35]. Moreover, whereas these cognitive studies were derived from laboratory experiments, law and economics studies were not[36]. Law and economics was extraneous to any rigorous study requiring a control group or device because it was merely blind to culture and context[37].

The expanded evidence of the importance of context makes empirical methods relevant, which is fundamental in comparative analysis [38]. For example, in behavioral law and economics, the study of transaction costs using the endowment effect[39] demonstrated that the initial allocation of entitlements[40] affects the bargaining process[41] and the final allocation of resources[42]. These results contradict what law and economics predicted as a function of lower transaction costs: the parties would bargain regardless of the property rule. For comparativists, the endowment effect might explain why some systems privilege possessory interests over ownership interests.

Further experiments showed that professional traders' or dealers' market experience also attenuates the endowment effect (a broader manifestation of the loss aversion) affecting the bargaining process because they adjust to buyer-seller relationships, stepping back to the neoclassical prediction[43]. However, for comparativists, market experience is not the only way

[34] In particular, the seminal work of Kahneman and Tversky. D. Kahneman, A. Tversky, *Prospect Theory: An analysis of decision under risk*, 47 *Econometrica* 263 (1978).

[35] Economists are taught to make assumptions in analyzing how people make choices, but sometimes assumptions of some social context might be false or inaccurate. Moreover, the law and economics method seemed to disregard that choices are part of human behavior, which is not chaotic or given by chance but is predictable. Ulen, *supra* note 32, at 206.

[36] Cognitive studies allow a better understanding of human behavior. By understanding that behavior we can reach better predictions, or at least more accurate ones. Unfortunately, the scholarly production based on law and economics as a method suffered a relevant setback, compared to the 1990s, primarily due to the development of behavioral law and economics.

[37] Ulen, *supra* note 32.

[38] At the same time, the functional approach, or better-said approaches, seek interdisciplinarity to reveal aspects of society that can explain responses to the law. *See* Michaels, *supra* note 2, at 346.

[39] The endowment effect is explained as the tendency for a person who is assigned or owns something to care for and value that thing more than a person who does not own or is entitled to the thing at issue. *See* R. Thaler, *Toward a positive theory of consumer choice*, in 1 *J. Econ. Behav. Organ.* 39, 44 (1980). *See also* D. Kahneman *et al.*, *Experimental Tests of the Endowment Effect and the Coase Theorem*, in 98 *J. Polit. Econ.* 1325 (1990). D. Kahneman *et al.*, *The endowment effect, Loss Aversion, and Status Quo Bias*, in 5 *J. Econ. Perspect.* 193 (1991).

[40] The Coase Theorem established that when transaction costs are low, parties will bargain regardless of the property rule and with proper internalization of the externalities. R. Coase, *The Problem of Social Cost*, in 3 *J. L. Econ.* 1–44 (1960).

[41] In the bargaining process, property rules are irrelevant only if transaction costs are zero. Thus, the minimization of transaction costs would be the goal of the legal rules. However, this type of approach eradicates the role of the law and culture in negotiations. Faust, *supra* note 7, at 829.

[42] C. Jolls *et al.*, *A Behavioral Approach to Law and Economics*, in 50 *Stan. L. Rev.* 1471–1550 (1998), *passim*. For a criticism of this study, see R.A. Posner, *Rational choice, behavioral economics, and the law*, in 50 *Stan. L. Rev.* 1551 (1998).

[43] *See* J.A. List, *Does Market Experience Eliminate Market Anomalies?*, in 118 *Q. J. Econ.* 41 (2003). Although, subsequent studies showed a different pattern when the experiment was run between students and market professionals, with the latter developing loss aversion behavior. M.S. Haig, J.A. List, *Do Professional Trader Exhibit Myopic Loss Aversion?: An Experimental Analysis*, in 60 *J. Fin.* 523 (2005).

to measure loss aversion. Instead, it is one of many variables building up professional and environmental culture to influence bargaining[44].

These experiments explain that the so-called *homo oeconomicus* does not mirror a selfish or unbounded individual desperately searching for utility maximization, but an individual who ponders choices according to the surrounding circumstances, such as fairness, culture, or law, namely acts within *bounded self-interest*[45]. In other words, the extent to which willpower is bound depends on the cultural phenomena that influence the understanding of the surrounding circumstances.

Furthermore, the behavioral approach to law and economics purports to enhance the three functions of the law, i.e., positive (or descriptive), prescriptive, and normative[46]—the positive being the one that both economists and comparativists commonly use. For this reason, if culture is important for comparative law, then the behavioral approach can support the contextual specifications on which comparative claims are based[47].

Despite the promise of the behavioral approach to fields concerned with context, there is a great indifference in comparative law regarding the use of empirical studies,[48] sometimes preventing the field from advancing and maturing as a discipline[49]. In this sense, behavioral law and economics has been employed as a tool for analyzing domestic law and for forcing

[44] Likewise, the bargaining process can be affected by overconfidence bias and how different actors across cultures process their emotions, which more broadly, explains the choice of paternalistic rules as opposed to liberal ones. Caterina, *supra* note 21.

[45] Jolls *et al.*, *supra* note 42, at 1479. Therefore, it would make sense to observe why people might take actions against their maximization of utility (in the long term) but are capable enough to acknowledge that they have bounded willpower. This acknowledgment allows people to circumscribe or mitigate the effects of conflicting choices, an issue that law and economics had more trouble debunking. One should assume that individuals have multiple rational personalities or selves to be consistent with RCT. But still, it does not explain why we act in this conflicting way and how we can predict such conflicting behavior. Ulen, *supra* note 32, at 233. Some law and economics scholars suggested that there might be an explanation based on evolutionary studies for why certain types of (selfish) behavior are punished in the community and other (altruistic) ones are even encouraged. *See* Posner, *supra* note 33, at 1561.

[46] Jolls *et al.*, *supra* note 42, at 1474 (1998) (citing D.E. Bell *et al.*, *Descriptive, Normative, and Prescriptive Interactions in Decision Making*, in D.E. Bell *et al.* (eds.), *DECISION MAKING* (Cambridge: Cambridge University Press, 1988), 9.

[47] To this end, applying evolutionary studies to comparative law provides powerful insights regarding the identification of the cultural traits that are common to a variety of countries/contexts—the functionalist approach of homogeneity between individuals—and the diversity in cultural traits between two or more countries, or contexts—the difference theory. *Cf.* J. De Coninck, *Reinvigorating comparative law through behavioral economics? A cautiously optimistic view*, in 7 *Rev. L. Econ.* 711–736 (2011).

[48] There are few attempts to introduce behavioral analysis into comparative law, with particular regard to consumer law. G. Rühl, *Behavioural Analysis and Comparative Law, Improving the empirical foundation for comparative legal research*, in H-W. Micklitz, A. Sibony, F. Esposito (eds.) *RESEARCH METHODS IN CONSUMER LAW. A HANDBOOK* (UK: Elgar Publishing, 2018). The importance of cross-cultural consumer behavior is fundamental for the development of sound and updated legislation, even more crucial in terms of harmonization of consumer protections in the digital world.

[49] M. Reimann, *The Progress and Failure of Comparative Law in the Second Half of the Twentieth Century*, in 50 *Am. J. Comp. L.* 685 (2002).

the comparative approach by merely applying an "exotic" technique[50]. In the same vein, when law and economics is used in comparative law, comparativists highlight its benefits without any concrete application[51].

The proposed quantitative tools differ from the law and economics approach in not having efficiency as a premise for analyzing legal problems—although, admittedly, efficiency is not the sole goal of economics. Nevertheless, the bias against efficiency as a final goal or as an (alleged) premise for analysis demonstrates the limited knowledge of economic tools, such as game theory, and the depreciation of the value of these tools in comparative law.

III. QUANTITATIVE TECHNIQUES IN LAW

This section provides a non-exhaustive account of current quantitative empirical techniques in law. The following studies explore questions not investigated with a comparative mindset but supply results that can be the basis of comparison.

The lack of real-world data is not an exclusive comparativist issue. When the field of law and economics began, there was also apathy toward using real-world data to support their theories[52]. Nowadays, empirical law and economics has been used in criminal law[53] to test Becker's[54] theorization of the rational agent committing a crime if the expected benefits exceed the expected costs—assuming that the agent internalizes the law before committing a crime[55]. For example, a study conducted between the U.S. and Canada tested the deterrence of the death penalty and showed no impact on homicide rates. With fifty years of no

[50] Some scholarship has used the behavioral approach, inquiring on consumer behavior to assess EU consumer law's impact on domestic consumer behavior and rarely using behavioral economics applied to comparative consumer law. De Coninck, *supra* note 47. Instead, the law and economics normative approach could be useful in evaluations of alternative rules determined by efficiency at a supranational level, for example, in the Principles of European Contract Law. Faust, *supra* note 7, at 835.

[51] A recent work advocating for both normative and positive law and economics applied to comparative law, *see* Faust, *supra* note 7, at 837.

[52] Very few studies have used data to prove that tort law's function is to reduce or minimize the social costs of accidents. T.S. Ulen, *Empirical Law and Economics*, in Ulen, *supra* note 32, 244 (citing G.T. Schwartz, *Reality in the Economic Analysis of Tort Law: Does Tort Law Really Deter?*, in 42 *UCLA L. Rev.* 377 (1994), and D. DEWEES *ET AL.*, *EXPLORING THE DOMAIN OF ACCIDENT LAW: TAKING THE FACTS SERIOUSLY* (1996). Although, both studies ought to be reviewed due to the enormous amount of legislation and caselaw on accidents in the last 20 years. With real-world data, scholars furnish evidence in support of the theory rather than settling with a coherent hypothesis-framing as argumentation. Ulen, *supra* note 32, at 212. A recent study of the tort law literature showed the trends in assessing deterrent effects. However, those studies' scope had revealed limited if the hypothesis tested is not subject to more powerful empirical methods such as experiments, interviews or surveys. B. v. Rooij & M. Brownlee, *Does Tort Deter? Inconclusive Empirical Evidence about the effect of Liability in Preventing Harmful Behaviour*, in B. v. Rooij & D. D. Sokol (eds.) *THE CAMBRIDGE HANDBOOK OF COMPLIANCE* 311 (Cambridge University Press, 2021).

[53] J.J. Donohue III, J. Wolfers, *Uses and abuses of empirical evidence in the death penalty debate*, in 58 *Stan. L. Rev.* 791, 798 (2005).

[54] G.S. Becker, *Crime and Punishment: An Economic Analysis*, in 76 *J. Pol. Econ***.** 169 (1969).

[55] Ulen, *supra* note 32, at 244.

executions, Canada's homicide rates were roughly one-third of those in the U.S.,[56] and both countries' homicide rates moved in lockstep[57].

However, the study did not consider other specific factors that could have lowered the homicide rates in Canada, such as confidence in the police, or elements that might inform a more problematic pattern, such as the demographics of the victims[58]. It was not established whether the death penalty was a functionally equivalent rule in both systems or, more broadly, whether the legal foundations (functions) of criminal law in the U.S. and Canada pursue the same goals. Comparative law could incorporate those contextualizations and analyses.

Other techniques, such as Randomized Controlled Trials, are better equipped to implement contextualization in a study. Randomized Controlled Trials is the empirical technique that employs control groups—the so-called gold standard of empirical research[59] field. Borrowed from the medical field, randomly assign cases, judges, or units to different conditions. Observing these groups reveals whether the experimental group (the one receiving treatment) reacts differently from the control group (the one not receiving treatment), in other words, controlling for that added variable in the opposing group. Measuring and comparing both randomly assigned groups would make it feasible to see if their differences are tied to the desired outcome or an alternative explanation[60].

The application of Randomized Control Trials has been useful in understanding how decision-makers (judges and jurors) resolve issues according to risk assessment,[61] jury instructions,[62] jurors questioning witnesses,[63] etc. In addition, comparative law could highlight other differences in civil law trials. For example, scholars assume that the jurors have no impact in civil law trials, either because of the trial's lack of juries or the jurors'

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[56] Donohue, Wolfers, *supra* note 53, at 799.
[57] *Id.*
[58] Marginalized groups emerge as the target of severe crimes in Canada. The 2016 Canadian criminal justice system report assessed that indigenous populations were victims of homicides at a disproportionate rate compared to other groups. Canada Department of Justice, *The Canadian Criminal Justice System: Overall Trends and Key Pressure Points* (2016), https://www.justice.gc.ca/eng/rp-pr/jr/press/.
[59] This type of technique focuses on research questions that deal with cause and effect. *Id. See also*, LAWLESS *ET AL.*, *supra* note 3, at 80.
[60] In the medical field, these experiments use placebos to ensure that the actual difference stems from the treatment and not from taking a sugar pill. *Id.* at 81.
[61] D.J. Greiner, *The new legal empiricism & its application to access-to-justice inquiries*, in 148 *Daedalus, J. Am. Acad. Arts Sci. 64–74 (2019)*. Risk assessment is a scoring system or algorithm that gives information about an individual, such as recidivism rates before release decisions or the application of alternative detention measures. Unfortunately, judges use risk assessment also in hard cases, when scores are not available, subject to misleading outcomes. Randomized Controlled Trials allow judges to avoid this misrepresentation. *Id.* at 69.
[62] Lawless *et al.*, *supra* note 3, at 81.
[63] *Id.* (citing L. Heuer, S.D. Penrod, *Juror Notetaking and Question asking During Trial: A National Field Experiment*, in 18 *L. & Hum. Behav.* 121 (1994).

irrelevance in the verdict. Measuring and comparing studies in common law countries with civil law countries could uncover whether those assumptions are valid.

Similarly, experiments are the core concept of law and psychology, a prominent empirical technique in tort law analysis. One of the issues that tort law faces resides in the assessment of counterfactual reasoning. Ascertaining but-for causation is complicated because of the frailties of human memory. During recollection, people are likely to modify events, unusual conditions, and actions[64]. Thus, the risk of witnesses misrepresenting facts is latent.

Likewise, issues in tort law emerge in sufficient concurrent causes of accidents. Even if each concurrent cause is considered the factual cause of the harm, law and psychology studies found that the probability of finding liability is higher if one of the concurrent acts is morally blameworthy, for example, driving under the influence of alcohol as opposed to distracted driving[65]. These studies might make us rethink the admissibility of evidence that could be prejudicial and make us explore how these tort standards differ across jurisdictions.

Moreover, law and psychology studies have demonstrated how fact-finder decisions in tort compensation are affected by heuristics[66] since people tend to feel discomfort when dealing with all-or-nothing situations. For example, one study reviewed ten thousand negligence lawsuits[67] purported to test comparative negligence in its two variations, pure and partial or modified,[68] offering a twisted mechanism by which fact-finders awarded plaintiff recovery[69]. The results found *pure* comparative negligence as a more appropriate standard in tort law—where there is a reduction of recovery consistent with the plaintiff's percentage of responsibility. Under this standard, fact-finders assigned the plaintiff's negligence above the 50% threshold in a higher number of cases, reducing the plaintiff's recovery accordingly[70].

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[64] J.K. Robbennolt, V.P. Hans, *The Psychology of Tort Law*, in M.K Miller, B.H. Bornstein (eds.), 1 *Advances in Psychology and Law* (Cham: Springer, 2016), 249.

[65] *Id.* at 252. The original experiment focused on drivers speeding. One driver speeded with the intent to hide drugs, while the other hid an anniversary present. Participants in the treatment group finally concluded that the plaintiff's injuries were caused by the driver engaging in concomitant illegal activity (citing M.D. Alicke, *Culpable Causation*, in 63 *J. Personality & Soc. Psychol.* 368 (1992) and J. Nadler, M.-H. McDonnell, *Moral Character, Motive, and the Psychology of Blame*, in 97 *Cornell L. Rev.* 255 (2012)).

[66] Heuristics attribute cognitive biases to limitations in the available data and the human information processing capacity. As a result, people typically feel quite confident about their decisions and judgments, even when evidence is scarce and when they are aware of cognitive inclinations. *J. Baron, Judgment, in Encyclopedia of Cognitive Science* 654–657 (2006).

[67] Robbennolt, Hans, *supra* note 64, at 257 (citing E. Kahn Best, J.J. Donohue, *Jury Nullification in Modified Comparative Negligence*, in 79 *U. Chi. L. Rev.* 945 (2012)).

[68] In the U.S., states have gradually abandoned the rule of contributory negligence—this rule provides a complete bar on recovery if a plaintiff shares any amount of negligence in the event at issue—for comparative negligence.

[69] *See*, Kahn Best, Donohue, *supra* note 67.

[70] Under the rule of pure comparative negligence, any amount of liability reduces monetary recovery, but that recovery will never be barred. According to this study, fact-finders determined plaintiff's liability above the 50% threshold (thus, barring recovery) in 22% of cases (a small percentage). *Id.*

On the contrary, in states following *partial* or *modified* comparative negligence—where a pre-established threshold of plaintiff's liability will bar recovery—fact-finders assessed the plaintiff's responsibility above the 50% barring threshold in a limited number of cases. The results also showed cases where fact-finders assigned unusual percentages, such as 49%, which hinders juries' motivations (and sympathy) towards the plaintiff, allowing recovery by not reaching the threshold[71]. Thus, fact-finders presumably granted (otherwise barred) recovery by overcompensating the victim based on moral judgments (fairness).

Comparativists can use law and psychology studies to bring forth issues concerning rules and standards in different legal systems. For instance, we can understand how standards differ in a system that employs a jury as the fact-finder instead of the judge, acting as the fact-finder and decision-maker, or whether the same standards can have other effects besides overcompensation–as shown in the case above.

Network analysis is another technique used to illustrate small-scale interactions between individuals and the influence of their information and community development[72]. The emphasis is not centered on individuals' strong relationships or connections in well-defined/primary groups but on weak relationships in secondary groups to understand how these weak connections interact in each social structure[73]. In short, this technique assesses the quality of micro-level interactions. The results from network analysis help understand social mobility, social cohesion,[74] diffusion of information for enforcement purposes, and crime report, among others, showing that the network structure affects behavior[75].

One of its applications in law is in the study of the firm. Rather than analyzing a firm's legal characteristics, network analysis can assess its organizational structure to better understand

[71] The study assessed that awarding 49% of responsibility corresponds to an unusual number because people tend to think in rounded quantities (20, 30, 40, etc.). Robbennolt, Hans, *supra* note 64, at 257.

[72] M.S. Granovetter, *The Strength of Weak Ties*, in 78 *Am. J. Sociol.* 1360 (1973). Sociometry is one of those marginalized techniques in sociology (predecessor of network analysis) whose application was part of social psychology. *Id.* at 1360.

[73] Those studies use the sociological methodology to identify interactions between *i. actors* (nodes or vertices): people, judges, or things such as documents or other information, their connection with *ii. ties* (links/edges), such as friendships, working relationships, exchange relationships, and *iii. the network* (all actors and ties in population) *Id.* at 1361. The strength of a relationship is defined as the intracorrelation of (amount of) time, emotional intensity, intimacy, and reciprocal services which characterize the tie.

[74] One of the final roles of weak ties is promoting social cohesion since it is because of those weak ties that a person steps out from one network to another, blending them or establishing a link between them. *Id.* at 1372.

[75] *Id.* at 1370. The central idea is that those to whom our relationship is weak (the weak ties) evolve in different contexts (since people alike tend to aggregate between themselves), having access to different, more varied, and useful information. Therefore, the quality of the information received from a person in weak ties has been revealed to be crucial information.

its interactions. For example, some studies highlighted whether a firm under investigation is an integrated network in its connection between lawyers and lawyers and clients[76].

This kind of analysis extends to agencies and their network interactions in advancing enforcement. These studies help at a preventative level, enhancing enforcement by implementing its task force and revealing the path to enforcement and the actors involved in that process. For example, one study[77] examined Securities and Exchange Commission (SEC) gratitude acknowledgments in press releases (addressed to the target of regulation)[78] and the types of cooperation in investigations. Through those gratitude disclosures, the study confirmed the SEC's cooperation with formal institutions and self-regulatory organizations but also uncovered the prominent role of U.S. postal inspectors in securities enforcement, an unexpected actor[79].

A few scholars had advanced network analysis in systemology, exploring the consistency of the legal families' classification by identifying community structures,[80] not merely by describing the taxonomy of the world's legal systems but by stating normative implications. For instance, the attribution of European countries to different legal traditions is commonly seen as a potential barrier to E.U. harmonization[81]. However, through the interaction of a single country with one of the five clusters previously classified,[82] network analysis showed that the traditional legal systems' taxonomy is outdated, highlighting different paths that encourage the harmonization of legal norms. Furthermore, this study is not the ultimate, but the intermediate goal that can help test other empirical studies, such as court cross-citations across different countries and their interaction with the cluster[83].

This brief account suggests that comparative law can benefit from empirical quantitative methods[84]. Rather than merely offering neutrality, quantitative empirical tools help choose and substantiate the functionalist or differentiative comparative approaches[85] with a methodological choice according to the goals of comparative research.

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[76] A.J. Kluegel, *The Firm As a Nexus of Organizational Theories: Sociological Perspectives on the Modern Law Firm*, in 12 *Annu. Rev. L. Soc. Sci.* 459 (2016).

[77] V. Winship, *Enforcement Networks*, in 37 *Yale J. Regul.* 274 (2020).

[78] How these disclosures are externalized might accomplish a deterrent effect. *Id.* at 326.

[79] Many scholars analyze enforcement at the federal level (between repeat-players) but overlook the relevance of unusual actors and one-shotters collaboration at the state level. *Id.*

[80] The study chose three main categories distributed in five variables relating to the commonalities between groups of countries, five code attributes related to legal infrastructures, and five variables addressing specific areas of the law. M. Siems, *Comparative Law* 2nd ed. (Cambridge: Cambridge University Press, 2018), 180–228.

[81] *Id.* at 207.

[82] An early study presented data of legal systems divided into four clusters: European Legal Culture, Mixed Legal Systems, the Rule by Law, and the Weak Law in Transition. M. Siems, *Varieties of legal systems: Towards a new global taxonomy*, in 12 *J. Institutional Econ.* 579–602 (2016).

[83] Siems, *supra* note 80.

[84] V. Zeno-Zencovich, *Comparing Comparative Law*, in G. Resta *et al.* (eds.), *COMPARARE. UNA RIFLESSIONE TRA LE DISCIPLINE* (SESTO SAN GIOVANNI: MIMESIS, 2020).

[85] De Coninck, *supra* note 47.

IV. METHODOLOGY

Observation is the starting point of the scientific method, and so it is also the starting point of comparative research[86]. However, mere observation is not enough to make comparative law a science. Some authors contend that, unlike law, natural sciences tend to progress because they are cumulative—without necessarily implying that they move forward. In contrast, in law, sometimes knowledge is circular, and theories tend to repeat infinitely[87]. I do not share such a drastic position[88]. However, I agree that making progress in the legal field is possible by drawing inferences about the law with real-world evidence and achieving systematicity in the observation[89].

Here, I anticipate the comparativists' question: what can one do with these methods? One caveat is that the things comparativists can understand from the world using empirical methods are limited. For example, comparativists can answer composition questions (such as the formants[90] of a particular legal system), questions about the relationships between legal institutions, and descriptive and causal questions.

The inferences that flow from descriptive questions are congenial to comparative studies by explaining things we do not know from other systems and uncovering aspects of the law through observation. However, empirical research can also answer causal questions, which delve into relationships of causation between two or more variables—namely that one is the other's effect.

Causative studies are the next step in empirical analysis by answering why some events happen[91] and which factors are relevant for that event to occur. In other words, what occurs before or after a change in the law takes place—such as enacting regulation, case law, etc. Thus, through causal questions, it would be possible to understand the effects of a legal

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[86] Friedman, *supra* note 5, at 766.
[87] *Id.*
[88] In the early 2000s, it was argued that the law could be a science, albeit empirical methods and systematicity were missing. Nowadays, empirical methods in law might promote the legal field not merely as a social science but as a hard science. T.S. Ulen, *A Nobel Prize in Legal Science: Theory, Empirical work, and the Scientific Method in the Study of Law*, in Univ. Ill. L. Rev. 875, 893 (2002).
[89] L. Epstein, G. King, *The Rules of Inference*, in 69 *U. Chi. L. Rev.* 517 (2002).
[90] Sacco's theory of legal formants is developed around the elements of living law that do not stop at national rules but extend to the doctrine or formulations of legal scholars and the decisions of judges. R. Sacco, *Legal formants: A Dynamic Approach to Comparative Law (Installment I of II)*, in 39 *Am. J. Comp. L.* 1, 22 (1991). The deconstructed vision of the law offered by Sacco's legal formants, far from being a holistic approach, helps the jurist to identify the legal elements of a specific legal system when there is no positive law in appearance. Thus, it is possible to have conflicting "formants" within a given legal system. *Id.*
[91] Lawless *et al.*, *supra* note 3, at 23.

device or institution in its legal system and the consequences in the country or system of reception.[92]

A comparative empirical topic hinges on a cross-country area embracing unsolved questions of law followed by a literature review, which differs from non-empirical research. Besides helping to identify the undeveloped gaps or areas in the law,[93] the literature review in empirical research supports the research design, justifying the variables grounded in theory and invoking those that tend to produce observable implications. Only then would it be possible to elaborate on a plan of how to observe those implications[94]. Therefore, the empirical design must reflect the comparative scope through the research question by defining with extreme accuracy the terms (or variables) employed while considering the complexity of a legal system[95].

The role of the research question (or better-said hypothesis) is to invite theorizations or speculations about its answer[96]. Thus, the type of question will drive the choice of empirical methodology. In that sense, empirical quantitative method hypothesis using focuses on the comparability of legal solutions across systems. Comparability is based on the assumption of an alleged similarity (regardless of whether the units of comparison are functionally equivalent or not). As such, this assumption must be falsified. The falsification of the research question starts by establishing a null hypothesis, namely, a non-association between the variables to be tested.

The questions that can be answered through empirical quantitative design do not point in a single direction. They could involve an innovative question or a unique approach to an old question, but they can also address previous questions (or studies) that delivered conflicting responses. Empirically, it can update a study by introducing new data, taking advantage of technological developments, and using sophisticated tools that were not previously available[97].

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[92] Epstein, King, *supra* note 89, at 36. The causal inference is explained as the difference in two descriptive inferences (what we want to describe as an effect) translated in the average values of the dependent variables when a treatment is applied (the introduction of a regulation, a judgment, a filing, etc.) and the average values when that treatment is lifted or, better said, when the averaged values are controlled. By this operation, we would be able to observe the causal effect. *Id.*

[93] Lawless *et al.*, *supra* note 3.

[94] Epstein, King, *supra* note 89, at 65. In some instances, the implications we gather from mere observation are guided by intuition, which is not necessarily bad at first but it is likely incomplete or misleading. LAWLESS *ET AL.*, *supra* note 3, at 19.

[95] Friedman, *supra* note 5.

[96] Epstein, King, *supra* note 89, at 61. The speculation involved will help us theorize by giving a precise and reasoned answer flowing from the observable implication, i.e., what we expect to see in the real world. *Id.* (citing *J.E.B. v. Alabama*, 511 U.S. 127, 162 (1994) (Scalia, J., dissenting on a matter of jury peremptory challenges based on gender).

[97] *Id.*

When transforming the elements grounded in empirical comparative legal design, the legal values are converted into numerical/statistical values, synthesized in an equation. The equation is composed of independent or explanatory variables (those outcomes, events, or predictions) and dependent variables (the content of the outcome we try to explain in our research)[98]. Identifying those variables allows the comparison of the object of study with a standard, also known as the measurement process[99].

How do we measure or compare the object of a study with a standard? The measurement consists in finding the same meaning for the units of comparison. In pure quantitative empirical research, the measurement is done by obtaining (extracting) numerical values, while in qualitative empirical research, it involves a category. In the social sciences, quantitative and qualitative measurement methods usually merge.

The precision in defining the values assigned supports the empirical study's reliability and validity. Both reliability and validity are connected with the issues in coding law. As in any social science, numeric values attributed to the law face the problem of choosing a category transformed into two numbers: 1 and 0. For example, a positive reply to a legal question (e.g., Is this a comparative negligence jurisdiction?) is usually coded as 1, while a negative reply is coded as 0.

Social scientists frequently accept the idea that between 1 and 0, there are other "nuances" that we cannot observe[100]. In statistics, the probit model of regression analysis describes these nuances in quantitative empirical design and treats these responses as continuous and non-unidimensional variables. These characteristics assist the comparativist in drawing implications concerning the unobserved categories and, in some instances, formulating alternative explanations not initially considered in the design[101].

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[98] *Id.* at 65. Lawless *et al.*, *supra* note 3, at 21.

[99] Epstein, King, *supra* note 89, at 80.

[100] The definition of categorical variables as inherently discrete was proposed by George Udny Yule in 1912, employing a transformational approach by converting in 1 all the responses that were equal to a particular value in his studies on smallpox. This proposed characterization of variables started a debate between Yule and Pearson. Karl Pearson, Yule's former instructor, instead proposed the latent variable approach (known as the probit model), specifying that variables are continuous but unobserved. Notwithstanding, it is possible to categorize these latent variables because there is an underlying propensity to pertain to one category or another. J. Ekström, *The Phi-coefficient, the Tetrachoric Correlation Coefficient, and the Pearson-Yule Debate*, UCLA Department of Statistics Papers (2011). This model, the latent variable, better suits social research, especially when the observations are not extreme but can be less or equal to the expected value, as it is with respect to the elastic standards in the legal field.

[101] Since the legal field would be more inclined to use qualitative types of variables, it is wise to opt for a model that suits this type of analysis instead of opting for interval variables. Some authors deal with qualitative variables by including interval variables between 0 and 1 (0.1, 0.2, 0.3, etc.) when there is reason to believe that there is meaningful information in those intervals. *See* Siems, *supra* note 82. However, this approach forgets that even by slicing the variables into small pieces, the results will be the same as using the transformational approach, comparing exact values for 1 or 0, losing valuable information for legal implications.

How do we gather the information? Managing databases can entail alienating tasks. However, data science developments make the collection of information more accessible to legal scholars and favor the exploration of tools to answer the proposed question. While in some studies, the systematic collection of information is grounded on archival data; others have obtained study material by actively administering surveys.

Here is where the qualitative work merges with the quantitative since the product of those surveys is encoded into numbers. The social sciences and behavioral studies expertise allow the correct development of surveys, which require detail-oriented work. However, the responses and choices of participants can be affected by the framing effect[102] –how information is presented. Accordingly, the questions must be standardized to obtain participants' comparable information[103]. The standardization of questions for a survey poses an added hurdle in comparative law, dealing with multilingual, cross-country participants since the standardization of questions necessitates a standardization of language that goes beyond mere translation.

A recurrent technique in quantitative empirical legal studies is regression analysis. This type of analysis, borrowed from economics and statistics, involves correlation. Many are familiar with this word due to its use in daily parlance as indicating a comparison, but correlation involves much more than that.

This overview of quantitative empirical methodology illustrates how empirical design can add context to multiple areas of the law. Comparativists can take advantage of these methods and expand their scope by including culture in their analysis. Finally, comparativists can test when resorting to functional equivalences over differences (and vice versa) is appropriate in analyzing units of comparison.

V. REGRESSION ANALYSIS: AN EXAMPLE

In order to provide an example of the steps of empirical research, this section explores a preliminary study conducted on cryptoassets sales known as Initial Coin Offerings (ICOs)[104].

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[102] Ulen, *supra* note 32, at 207 (citing the studies of Kahneman, Tversky, *supra* note 34).

[103] Lawless *et al.*, *supra* note 3, at 62.

[104] Initial Coin Offerings or ICOs are vehicles for funding startups that use smart-contracts. Those vehicles try to mirror the Initial Public Offerings (IPOs) of regulated capital markets. P. DE FILIPPI, A. WRIGHT, *BLOCKCHAIN AND THE LAW: THE RULE OF CODE* (2018). There are different derivations of crypto asset sales process, such as Initial Exchange Offerings (IEO), Security Token Offerings (STO), Initial Token Offerings (ITO), etc. For the purposes of this section, ICOs encompass all these categories. J. Chod, E. Lyandres, *A Theory of ICOs: Diversification, Agency, and Information Asymmetry*, in 67 Mgmt.. Sci. 5969 (2021). The classification of crypto assets, in general, is still an open debate. See Y. Guseva, *A Conceptual Framework for Digital-Asset Securities: Tokens and Coins as Debt and Equity*, in 80 *Md. L. Rev.* 166 (2021).

ICOs are vehicles blockchain startups use to fund their enterprises at a low cost by creating cryptoassets—digital assets—and evading investor protection from securities regulations[105]. Over time, the issuance of cryptoassets through ICOs went from attracting coders as investors to potentially attracting anyone who has access to the internet by connecting directly to promoters that advertise these enterprises as high-return investments in a trustless environment[106]. ICOs' resemblance to Initial Public Offerings (IPOs) is not a coincidence. Both IPOs and ICOs offer a funding mechanism where companies issue shares (intangible assets) to the public, but only IPOs are adequately regulated. Furthermore, regulation around IPOs involves not only companies but also centralized institutions.

Those centralized institutions, such as banks, play a fundamental role in protecting investors and the market against money laundering. However, in the new world of cryptoassets sales,[107] centralized actors are less appealing since decentralization and disintermediation are desired features.

The predominance of these features set the stage for theories on decentralization, such as whether decentralization translates into structureless companies, and on disintermediation, such as how (the lack of) intermediaries affect capital in ICOs. Some studies focused on the functional equivalences of ICOs compared to IPOs[108]. However, before assuming that both virtual and non-virtual funding mechanisms are comparable, thus delving into a functionalist analysis, it is necessary to unravel the principal components of the new funding mechanism (a new unit of comparison)—which marks the beginning of Decentralized Finance (DeFi)[109]. Provided that cryptoassets' sales are cross-border transactions, the primary assumption arises from identifying a common aspect across jurisdictions in real-world finance that also exists in cryptoasset sales. The element in traditional finance that all jurisdictions have in common is anti-money laundering practices.

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[105] Usually, cryptoassets are called tokens or coins. There is no specific national regulation in the U.S. against ICO frauds, but the Securities and Exchange Commission continues to police ICO schemes that fall within its catch-all category of "investment contract." *SEC v Howey*, 328 US 293 (1946).

[106] See DE FILIPPI, WRIGHT, *supra* note 104.

[107] Besides seeing control as state-backed monetary systems, the Cypherpunk movement sees control as state-backed monetary systems, acknowledging the risk of money laundering under this new virtual world but never dealing with it. T.C. May, *The Crypto Anarchist Manifesto* (1992), https://www.activism.net/cypherpunk/crypto-anarchy.html .

[108] *See* M. Offir, I. Sadeh, *ICO v IPO: Empirical Findings, Information Asymmetry and the Appropriate Regulatory Framework*, in 53 *Vand. J. Transnat'l L.* 526 (2020); R. Amsden, D. Schweizer, *Are Blockchain Crowdsales the New 'Gold Rush'? Success Determinants of Initial Coin Offerings* (April 16, 2018)(unpublished Working Paper).

[109] DeFi is a non-centralized technological distribution of financial services covering multiple jurisdictions. D.A. Zetzsche *et al.*, *Decentralized Finance*, in 6 *J. Financ. Regul.* 172 (2020).

Hence, I conducted a study focused on anti-money laundering practices, particularly Know Your Customer (KYC)[110] or investors' collection of information,[111] during the cryptoassets' sales. To see how these socio-legal relations reflect the data,[112] I draw the following hypothesis: whether KYC practices are associated with or affect the ICOs' success?

The process starts by defining the variables. On the one hand, the independent variable or outcome is the ICO's success, which I defined as the amount of money required by cryptopromoters to finance their enterprises. On the other hand, the dependent variables are divided into three strands. The first strand is composed by variables specific to the cryptoassets context, such as the platform used for the project. In the second strand, I identified the variables used in IPO studies, such as the type of industry, the use of virtual exchanges,[113] the KYC requirement to buy cryptoassets,[114] and the country of issuance.[115] Finally, I identified regulatory compliance variables, such as the minimum investment requirement,[116] the tax regulations, and the regulations imposing KYC[117].

Following data collection, I began to look for comparisons through the descriptive statistics summarizing the data[118]. Showing raw percentages is helpful because our scope is to look for patterns. However, it will be reductive to end our understanding of this mechanism by merely

[110] Know Your Customer practices (hereinafter KYC) are due diligence procedures applied to financial institutions, business entities, or market participants (such as brokers, dealers). These procedures require that institutions know the identity of the client to deter "criminals, kleptocrats, and others looking to hide ill-gotten proceeds to access the financial system anonymously." *See* Customer Due Diligence Requirements for Financial Institutions, 31 CFR parts 1010, 1020, 1023, 1024, and 1026.

[111] When companies resort to public capital, underwriters, an intermediary, use KYCs to avoid leaving money on the table (underpricing the shares on sale). Considering how the Cypherpunk movement emerged, it is unrealistic to think that underpricing is the goal that ICO promoters envisioned when exacting investors' information.

[112] Siems, *supra* note 1, at 879.

[113] Recurring to exchanges is not feared by promoters who prefer to incur sunk costs to achieve a solid audience of investors. In this scenario, exchanges act as clearinghouses providing the match between offer and demand.

[114] The difference between the variable's regulation assessing KYC (RegKYC) and KYC is that the latter is voluntary or self-imposed by the startups, not being subject to any jurisdiction that compels them to obtain this information from investors.

[115] The selection of the variable country, as self-reported, determines whether the original assumption of a global virtual market can be supported. The study further suggested no correlation between the variable country and a successful ICO.

[116] Whether ICO promoters require a minimum amount to buy a token (cryptoasset) might explain the promoter's willingness to reduce the number of buyers and exempt the enterprise from securities regulations. In the U.S., a company selling securities requires registration if the holder of registry has more than 500 unaccredited investors. Securities and Exchange Act, Pub. L. 73–291, 48 Stat. 881 (1934) (codified at 15 U.S.C. § 78a et seq.).

[117] The hypothesis can be explained through an equation, $ICOSuccess = \alpha + \beta_1 KYC + \beta_2 Exch + \beta_3 Industry + \beta_5 Platf + \beta_6 MinInv + \beta_7 Country + \beta_8 RegTax + \beta_9 RegKYC + \varepsilon$. The equation presents ICO success as the independent variable and the remainder as dependent variables, plus the constant and the error margin.

[118] Mainly by observing frequent values and their distribution, i.e., examining the mean, median, mode, etc. Ulen, *supra* note 32, at 206.

observing rates[119]. Accordingly, the analysis followed the application of inferential statistics and the non-linear regression model[120].

In inferential statistics, statistical significance is a concept that explains the probability of the null hypothesis, namely, the non-correlation between KYC and successful cryptoassets' sales. A variable that reaches statistical significance[121] determines the rejection of the null hypothesis because it has been falsified, leading to an inference of an actual variable relationship. In other words, the alternative hypothesis shows a correlation between successful cryptoassets' sales through ICOs and KYC practices[122].

Even if the hypothesis-testing results showed an actual correlation,[123] testing the hypothesis is not enough since we need to analyze the effect's magnitude. Thus, it is necessary to use tools from complete logit analysis.

[119] Merely looking at raw data without further analysis amounts to "playing with numbers." It is possible to make some inferences from looking at raw data, but the risk of pursuing the wrong inferences is high. LAWLESS *ET AL.*, *supra* note 3.

[120] The legal field's complex questions make some of these models (primarily linear regression models) inadequate in answering empirical legal questions. To this end, categorical variables are a better fit because they capture "the quality of the observation under study." *Id.* at 145.

[121] Statistical significance or probability is explained through an arbitrary threshold of 5%, which, if met, indicates the percentage of risk of concluding that a correlation exists when there is no actual correlation. However, statistical significance does not mean that the variable in question is statistically important or material. For example, in the U.S. securities law, materiality of information disclosed by corporations is given by the probability (the statistical significance) and the magnitude of the event. *Basic, Inc. v. Levinson*, 485 US 224, 238 (1988) (reaffirming the principle expressed in *SEC v. Texas Gulf Sulphur Co.*, 401 F.2d 833 (1968)).

[122] Lawless *et al.*, *supra* note 3, at 192. Conversely, the lack of statistical significance is not the same as lack of evidence. It just means that we fail to reject the null hypothesis and that there might be some alternative explanation and a path for further study.

[123] We can reject the hypothesis that all coefficients except the intercept are zero at the 0.001 level ($LRX^2(8) = 59.37, p < .001$).

Table 1

Logit coefficients for variables of interest on total number of ICOs (N=1084)

	B	E^B	E^{Bx}	Z
Requires KYC to buy tokens?	**0.721*** **	**2.056**	**--**	**5.015**
Number of Tokens for sale	–0.001	1.000	0.898	–0.916
Minimum Investment Required	–0.0472	0.954	0.975	–0.399
Used an Exchange?	**1.193****	**3.298**	**--**	**3.098**
Type of Industry	0.002	1.002	1.016	0.246
Type of Platform used	0.007	1.007	1.011	0.169
Country (self-reported)	–0.015	0.985	0.941	–0.898
Regulation on transfer of tokens?	**–0.439*** **	**0.645**	**--**	**–3.342**
Regulation imposing KYC?	–0.278	0.758	--	–1.194
Intercept	–0.412	--	--	--

Note: **p< 0.05,
***p<0.001

The table[124] shows that all else being equal, ICO promoters that employ KYC practices have the odds of achieving the soft-cap ($500,000) and finance their projects as 2.06 higher or 105% more[125] than those who do not use KYC procedures. Moreover, promoters who opted for the Initial Exchange Offering increased the odds of successful funding by 3.30, holding other variables constant, or are more likely to fund their enterprises by 229.8%[126]. In contrast,

[124] The odds ratio interpretation might be a hard task for those not acquainted with the technique. For purposes of this section, it is sufficient to know that we are dealing with a multiplicative coefficient, where the positive effects are always greater than one (in our example KYC= 2.056 and IEO=3.30) and the negative effects are between 0 and 1 (Tax Regulation is 0.65, indicates a negative magnitude).

[125] $(z = 5.02, p < 0.001)$, holding all other variables constant.

[126] Holding all other variables constant $(z = 3.09, p < 0.05)$.

taxation over the transfer of tokens harms the ICO success (cryptoassets' sales through ICO), decreasing the odds of reaching the soft-cap by a factor of .65 or 35%[127].

The reported information also explains the occurrence of the event in a successful ICO[128]. A startup running an ICO that requires KYC to buy cryptoassets has higher probabilities of reaching the minimum amount necessary to finance its operations (the soft-cap) than a startup that does not require it[129]. Simultaneously, the results showed that using an intermediary (virtual exchange) also has higher probabilities of successfully attracting capital than without it[130]. Contrarily, the regulation regarding taxation between cryptoasset holders has a negative impact on raising capital compared to a jurisdiction where the transfer between holders is not affected by taxes[131].

Measures of information[132] allow for an assessment of the model and how well the selected variables' design indicates success[133]. These variables give input for contextualization and help us understand other aspects of cryptoassets' sales through ICOs. Applying empirical methods and their interpretation is more than a thought experiment because it unravels a set of patterns that we see in every successful ICO[134].

Accounting for (the Cypherpunk) culture emphasizes different implications. Essentially, the lack of intermediaries in ICOs has a downside. Startups still need to signal[135] the quality[136]

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[127] $(z = -3.34, p < 0.001)$, holding all other variables constant.

[128] All the results hold other variables at their mean.

[129] Precisely .17 higher probabilities. This difference is significant (95% CI: 0.11, 0.23).

[130] Higher probabilities of reaching the soft-cap by .29. Significance of the difference (95% CI: 0.12, 0.45).

[131] Lower probabilities by .10. Significance at 95% (CI: –0.17, –0.04). Further analysis shows that there are significant effects of the use of an exchange and tax regulation over tokens transfer (secondary markets) on the overall success of the ICO. The effect of these two variables was tested using different regression techniques, such as the Wald or the Likelihood Ratio Test, significance at the 0.001 level. J. SCOTT LONG, *Regression Models for Categorical and Limited Dependent Variables*, in 7 *Advanced Quantitative Techniques in the Social Sciences Series* 112 (1997).

[132] The information criteria are grounded in notions of fit (how well is the model presented) and complexity (the numbers of observations and the parameters employed). Information measures are an approach to scalar measures of fit that stem from information theory and are essentially divided into two types in social research Akaike's information criterion (AIC) and Bayesian information criterion (BIC). AIC is a well-known measure in statistics that suffers a penalty in its computation. This penalty shows the preference for parsimony (less complexity) in explaining a model. Contrarily, the BIC or Bayesian information criterion is an updated type of measure whose popularity is due to the less complexity of the model. A.E. Raftery, *Bayesian Model Selection in Social Research*, in 25 *Socio. Method.* 111 (1995).

[133] For example, in the logit model proposed, the original specification of the variables is the following: ICOSuccess, KYC, MinInvest, IEO, Industry, Platform, Country, Tokensfsale, RegTax. Then, after dropping some variables and comparing the model with the following: ICOSuccess, KYC, MinInvest, IEO, Tokensfsale, and RegTax, the results pointed out that the latter model is a better fit and provides *very strong support*. Raftery, *supra* note 132, at 134. The BIC measure also shows the strength of the evidence based on the value of the difference between the models. In our description, the Raftery BIC computation strongly favored the second model with a difference of 26.571. LONG, *supra* note 131.

[134] Siems, *supra* note 1, at 871.

[135] B.L. Connelly *et al.*, *Signaling Theory: A Review and Assessment*, in 37 *J. Mgmt.* 39 (2011).

[136] T. Certo, *Influencing Initial Public Offering Investors with Prestige: Signaling with Board Structures*, in 28 Acad. Mgmt. Rev. 432 (2003).

and reliability[137] of the project. Without reputational renters, the only way of signaling market integrity and transparency is by giving the impression of a filter among potential cryptoassets holders. This filter (KYC) can eradicate any fraudulent scheme thoughts between investors when entering the enterprise.

There are, however, unanswered questions from these results. Further information about KYC in this context is needed to rebut the original presumption around similarities. Since KYC is self-reported by startups, it is unknown whether KYC achieves different purposes and solves specific problems in regulated capital markets different from (and comparable to) unregulated ones. The data regarding KYC relies on a label that comes from IPOs. Although, when it comes to cryptoassets sales, there is a *mute* legal stratum (and ordering) even when, apparently, there is no positive law[138]. Promoters' request for KYC in ICOs pertains to that unwritten law guided by cultural rules different from the ones we see in IPOs.

This example describes how empirical methods supplement our understanding of units of comparison, specifically, how these units of comparison should be understood, not merely how they work[139]. Moreover, empirical studies can show convergence (looking at patterns) and divergence (when there is no correlation between variables). For comparativists, empirical studies' most important outcome is that the method does not force comparability by establishing a presumption around similarities. The law and legal orders reflect society, not only in the formal sense but also as a reaction to legal problems with non-legal solutions—as in this case with technological solutions.

VI. LIMITATIONS AND A FUTURE OF COMBINED METHODS

Empirical methods propose a standard of comparison to show, uncover, or challenging legal problems. At the same time, these methods help the comparativist construct evidence-based theories and explain practices that serve no function by using combined methods.

The law and society movement has attracted non-legal scholars for a long time because lawyers solve problems and deliver solutions contingent on time. Conversely, empirical studies do not provide a definite answer, but they are cumulative in their work—hard, grubby work outside of the realm of law and theory[140].

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[137] D.M. Kreps, R. Wilson, *Reputation and Imperfect Information*, in 27 *J. Econ. Theory* 253 (1982).

[138] The literature on ICOs plays too much emphasis on positive law (comparing them to IPOs). This emphasis collides with the "unspoken acts and mute sources" that are part of the social structure of blockchain and Cypherpunks. R. Sacco, *Mute Law*, in 43 *Am. J. Comp. L.* 455, 460 (1995).

[139] Michaels, *supra* note 2, at 370.

[140] Friedman, *supra* note 5, at 780.

Some of these methodologies are potent tools for answering specific legal questions. However, they might not assist in answering all of them. One such example is applying behavioral law and economics to deter criminal activity[141] or reduce specific social costs of accidents[142]. Behavioral law and economics fail to predict these instances (a positive application) because we are unable to predict happiness[143] or well-being in the long term[144]. Furthermore, it is a good habit not to immediately draw inferences from lab-experiment results when dealing with experiments because those results can have other explanations not initially considered[145]. The unobserved alternative explanation may arrive from comparative law. The efforts in searching for cross-citations among countries in Europe is such an example. While citing foreign legislation might indicate a constant dialogue between courts and an implicit transplant, the goal of using the citation (to show knowledge, or based on the court's reputation, the linguistic proximity) and its role in the final decision must be considered[146].

Unlike empirical studies that offer a description of the world, empirical causative studies face an issue of certainty, namely, providing evidence by reverting the facts under study[147]. The empirical analysis is more accurately framed in terms of association, relationship, or correlation between variables[148]. Even Randomized Controlled Trials, which purport to assess causation (to some degree of certainty), would not answer why or how some factors produce that result. To better show causation, the comparativist must equip the research

[141] A study revealed that the reaction to imprisonment factors, such as duration and certainty, play no role in deterrence. Thus, deterrence does not depend on criminal law black letter, as law and economics affirmed, but is related to the choice of the criminal system. Ulen, *supra* note 32, at 223–24 (citing Paul Robinson & John Darley studies).

[142] Ulen, *supra* note 32. However, other empirical techniques might provide better results.

[143] Better known as affective forecasting in hedonic studies. S.R. Bagenstos, M. Schlanger, *Hedonic Damages, Hedonic Adaptation, and Disability*, in 60 *Vand. L. Rev.* 745–97 (2007).

[144] Affective forecasting sheds light on overcompensation in tort liability because people (judges and juries) overlook the victim's adjustment capability, giving a higher weight to the victim's current situation. *Id.*

[145] Ulen, *supra* note 32, at 231 (citing real-world experiments that are compatible with behavioral results and predictions, *See* C.F. Camerer, *Prospect theory in the wild: Evidence from the field*, in D. Kahneman, A. Tversky (eds.), *CHOICE, VALUES, AND FRAMES* (Cambrige: Cambridge University Press, 2000), 288; S. DellaVigna*, Psychology and Economics: Evidence from the field*, in 47 *J. Econ. Lit.* 315 (2009)). Rival explanations must be considered to rule out the error of omitted variable bias—not accounting for a variable that clearly affected the outcome—and so leaving the causal inference biased. Epstein & King, *supra* note 89, at 78.

[146] Siems, *supra* note 82, at 186 (citing some empirical studies that showed inferences of transplantation due to cross-citations concluding that language is the main proxy in cross-citations, more than the legal system where the citation comes from).

[147] To revert an event, or consider it the cause or effect of another, the empirical technique needs to control for all the possible variables that might affect the outcome, with the possibility of giving also counterfactual proof of the inverse process. It is simply impossible. C. Engel, *Empirical Methods for the Law*, in 174 *J. Inst. Theor. Econ.* 5 (2018).

[148] Epstein, King, *supra* note 89, at 37.

with further qualitative or quantitative techniques that deliver information on the relevant factor and adopt a solid theoretical comparative framework[149].

The theoretical framework is vital to avoiding errors in coding law. For example, one of the first approaches to using empirical methods and cross-country data was a study that aimed to explain the strength of shareholders' and creditors' protections, focusing on the differences between common law and civil law countries—known as LLSV[150].

In this study, coding rules lacked any systemological approach and families classification when merging and coding divergent areas based on their origins in company laws (or commercial codes). As a result, some countries were indicated and counted as French-origin countries, such as Italy, Indonesia, and Peru. Setting aside Indonesia (an Islamic system with a strong Dutch legal influence), Italy and Peru might have a common root and share the exact copy of the code[151] but are quite different in the values they pursue and their interpretation. Thus, the LLSV study and its positivistic or formalistic approach centered on the law-on-the-books (black-letter of the law), reverting into an uninformed or bare comparison[152].

The central issue around this study was the complete disregard for the law, at least from the view of a legal scholar that interprets and connects it to society. In the LLSV study, the law is merely a variable unrelated to its *legal origins*, but to the degree of deregulation[153]. Economic cross-country studies, such as LLSV and Legal Origins,[154] exacerbated a conflicted relationship between economists and comparativists. A rebuttal from comparativists replicating the results using the same quantitative analysis coupled with the comparative methodology would have been effective[155]. However, the comparative field merely considered it unsuitable without further explanation[156]. Some years passed before comparativists partially replicated this quantitative analysis according to the functionalist view in comparative law[157].

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149 Greiner, *supra* note 61, at 69.

150 R. La Porta *et al.*, *Law and Finance*, in 106 *J. Polit. Econ.* 1113–1155 (1998).

151 Peruvian scholars had transplanted a quite realistic copy of the Italian Civil Code, which is also a commercial code.

152 De Coninck, *supra* note 47. Moreover, the research design highlights the outdated bi-partition between civil and common law countries, once part of early comparative studies in private law. V. Zeno-Zencovich, *COMPARATIVE LEGAL SYSTEMS. A SHORT INTRODUCTION* (Roma: RomaTre Press, 2018), 92.

153 Michaels, *supra* note 20.

154 R. La Porta *et al.*, *The Economic Consequences of Legal Origins*, in 46 *J. Econ. Lit.* 285–332 (2008).

155 Meanwhile, other reviewers arising from business law introduced different tools to analyze and challenge the Legal Origins study. See, for instance, H. Spamann, *The Antidirector Rights Index Revisited*, in 23 *Rev. Fin. St.* 467 (2009).

156 Ulen, Garoupa, *supra* note 33.

157 Cabrelli, Siems, *supra* note 8. For a recent study, challenging the Legal origins work focusing on property law see Y.-C. Chang *et al.*, *Drawing the Legal Family Tree: An Empirical Comparative Study of 170 Dimensions of Property Law in 129 Jurisdictions*, in 13 *J. Leg. Anal.* 231 (2021).

Nevertheless, the impact of the Legal Origins literature is widely used in empirical studies on economic growth. What is essential to consider in these studies is that they try to address a non-comparative law question[158]. Here, the comparativist failed to see that the empirical question speaks a corporate and economic language, rendering it more accessible to a non-comparative audience—its initial target[159]. Thus, it would be advisable to separate cross-country studies from comparative law studies and further from empirical comparative law studies.

The outcome of employing empirical methods is that they can facilitate communication between legal scholars from different systems and branches, something less problematic for countries from the European tradition but highly challenging for countries that rely heavily on case law[160].

The results from empirical studies are descriptive,[161] which is a strength. From that point, a comparativist can merge descriptive results with the systems' cultural baggage and, eventually, implement the descriptive part with a normative claim[162].

The candor of a study is achieved through replication, where a dataset with an intelligible explanation of the variables is of paramount importance[163]. Legal scholars consider replication less prestigious and less favored than resorting to theory or models[164]. However, replication also enhances theoretical transparency. One can only generalize a concept or refute its generalization through replication, even if it can lead to unpopular conclusions[165].

Moreover, empirical research entails a great cost for scholars who do not have prior empirical training. In fact, it would be productive to start collaborations between comparativists and

[158] For example, the Legal Origins study addresses a question on corporate law (efficient shareholder legal protections—connected to a degree of deregulation) from an economic standpoint, rather than a comparative law question from a business law perspective (measurement of shareholders protections observed in legal systems).

[159] The idea of having U.S. regulation on shareholder protections as a standard for comparison appalled European comparativists. However, comparative law has been extremely Eurocentric for such a long time. Only recently, comparative law has considered other systems. Still, there are few studies on informal legal structures such as community Andean regions (derecho comunitario andino) and their decision-making process. To the best of my knowledge, none of them are empirical.

[160] Ulen, *supra* note 88, at 894. The development of the European Union facilitated both the insertion of comparative law courses in the law curriculum as well as the dialogue between European countries for purposes of harmonization. On the contrary, in the U.S., comparative law has not received the same attention, thwarting students' understanding and connection with foreign rules. For example, consider the overreaching scope of the General Data Protection Regulation, a new job source in the legal field whose correct understanding requires a massive dose of European and comparative regulation.

[161] The legal field has not structured a common core in the study of law and has not developed methods to communicate between nations as it happens in hard sciences. The use of empirical methods might be such. Ulen, *supra* note 88, 899.

[162] Siems, *supra* note 82, at 599.

[163] As well as to avoid infamous circumstances such as fraudsters in academia. Ulen, *supra* note 52, at 25.

[164] Ulen, *supra* note 88, at 899.

[165] Greiner, *supra* note 61, at 70.

scholars in other fields. Nabokov's aspiration to pursue research in an ivory tower is not a good fit in modern research, where different perspectives can encourage discussion and an influx of ideas.

Furthermore, technological advancements such as Amazon Mechanical Turk (MTurk), a software that gives access to a vast audience of online participants to complete a research survey, have lowered the costs of research without diminishing its value[166]. However, few legally oriented datasets are ready to use, burdening comparativists. In the U.S., some governmental data is available,[167] as well as open databases such as the ICPSR[168]. Those can reduce empirical research costs but have not diminished comparative legal research costs[169]. Therefore, raising awareness about legal data storage and availability for these studies is essential.

VII. CONCLUSION

Why does comparative law need empirical methods? To explore this initial question, I described how a comparativist could measure different units of comparison with quantitative tools. In addition, using these methods enhances communication between scholars from different fields and jurisdictions and provides comparativists to engage in the empirical debate. Unfortunately, in the last few decades, the interest in comparative law has diminished, especially in the U.S. One of the reasons for this disinterest in comparative legal research is free online access to legal materials and their translation into English[170].

Empirical comparative law provides a different type of research with the added effort of using empirical or statistical tools. This characterization is consistent with comparative law's perspective as "part of the general development and consolidation of branches of human

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166 K. Irvine *et al.*, *Law and Psychology Grows Up, Goes Online, and Replicates*, in 15 *J. Empir. Leg. Stud.* 320 (2018).

167 Such as the United States Courts, Statistics & Reports, available at https://www.uscourts.gov/statistics-reports (last visited Jan. 18, 2022).

168 Inter-University Consortium for Political and Social Research (ICPSR), held by the University of Michigan, maintains and updates an impressive number of datasets arising from previous studies from scholars and U.S. governmental institutions. At the moment, ten countries use this portal for empirical research. ICPSR, Find & Analyze Data, https://www.icpsr.umich.edu/web/pages/ICPSR/index.html (last visited Jan. 18, 2022).

169 In Italy, the distinguished comparativist Maurizio Lupoi started the project *Archivio Mondiale dei Trust*, a multilingual open-source legal database with case law, agency rulings, and legislation regarding Trust law. Once held by the Consorzio Interuniversitario per l'Aggiornamento Professionale in Campo Giuridico UNIFORMA, it was updated until 2014, https://www.trusts.it/ (last visited Jan. 18, 2022). The new version of this archival repository is being held by the *Associazione Il trust in Italia* with further Italian legislation, case law, and rulings devoted to Trust law, https://www.il-trust-in-italia.it/index.php?mod=area&mid=70 (last visited Jan. 18, 2022).

170 The internet has reduced the distance between legal scholars and legal systems because of online resource availability. Google translate offers an instant translation of any webpage or document with great accuracy.

knowledge."[171] These branches are also scientific.[172] The added value is the methodological knowledge of comparative research that can inform hypothesis-based questions using combined methods.

The significance of experiments lies in their ability to provide evidence capable of correcting a false understanding of a substantive area of the law with methods retrieved outside of the law. After abandoning the realm of the law, the most difficult part is to preserve legal analysis even when using interdisciplinary studies. Interdisciplinarity is a two-way path. While other disciplines might help answer comparative law questions, comparative law might support other disciplines, informing questions from other social sciences.

The increasing interest in empirical legal studies has incentivized many law schools[173] to equip their students with an understanding of these tools and, most importantly, make them informed readers from a consumer perspective. Thus, future generations of lawyers, judges, and legal scholars will communicate, to various audiences, the relevance of expert testimony, policy choices, and engagement in empirical debate making the product of an empirical legal study understandable.

Finally, the main point to acknowledge is that these methods are used in a probabilistic non-deterministic manner. Thus, one should skeptically confront the results, especially when they confirm our predictions in law that might point to a functionalist or differentialist analysis and continue to develop a better holistic analysis for the alternative explanations since the law is, first of all, a social product[174].

[171] Zeno-Zencovich, *supra* note 84, at 230.
[172] Ulen, *supra* note 88.
[173] To mention some of the pioneers in teaching empirical methodology in U.S. Law Schools—currently, a rising course offered in the law school curricula—John J. Donohue III, *Statistical Inference in Law* at Stanford Law School, https://law.stanford.edu/courses/statistical-inference-in-law/; Richard H. Sander, *Empirical Reasoning in Law* at UCLA School of Law, https://law.ucla.edu/faculty/faculty-profiles/richard-h-sander/law-165/; Michael Heise at Cornell Law School, *Empirical Methods for Lawyers* https://www.lawschool.cornell.edu/faculty/bio_michael_heise.cfm; and Robert M. Lawless & Jennifer K. Robbennolt at the University of Illinois at Urbana-Champaign, *Empirical Methods in Law* https://law.illinois.edu/academics/courses/empirical-methods-in-law/.
[174] Zeno-Zencovich, *supra* note 152.