

Law & Economics at sixty: Mapping the field with bibliometric and machine learning tools

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Abstract

As the year 2020 marks the 60th anniversary of the landmark paper in the Law & Economics (L&E) field by Ronald Coase—The Problem of Social Cost—we provide a systematic bibliometric analysis of the development of this field over the years. We look at the output and input side of knowledge production in the field of L&E. The former consists of the volume of production and thematic coverage of the field. The latter—input—looks at the producers of knowledge, the institutional and country affiliations of authors, and the intellectual structure of the field. Thus, the “who”, the “where” knowledge is produced as is also that of on “whose” shoulders the field stands. We demonstrate that Law & Economics shifted from more theory driven work to empirical and evidence-based contributions. Likewise, we show that the Law & Economics field tends to be dominated by authors affiliated with economics departments, and crucially; however, more impactful research seems to be produced by inter-disciplinary cooperation. The L&E field further resembles the economics domain in terms of co-authorship patterns, number of citations and lengths of papers. Finally, we look at diversity in the field of L&E and show, for instance, that the share

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of female scholars has been steadily growing for the last two decades.

KEYWORDS

bibliometric analysis, Law and Economics, machine learning, network analysis, text analysis

1 | INTRODUCTION

The year 2020 marks the 60th anniversary of the landmark paper in the Law & Economics (L&E) field *The Problem of Social Cost* by Ronald Coase published in the *Journal of Law & Economics*. This ground-breaking contribution expanded the economic analysis of law beyond anti-trust and taxation (Hovenkamp, 1989; Medema, 2020). In his work, Coase (1960) succeeded in convincing the economists that law matters for the functioning of the market and demonstrated to the lawyers how economic criteria could be useful for the evaluation of the efficiency of legal rules (Harris, 2018).

Even though the L&E movement has roots already starting from the end of the 19th century (Hovenkamp, 1989; Pearson, 1997), it became prominent body of thought only in the last 60 years (Mercuro & Medema, 2006). It has been considered as the most influential development in legal thought since legal realism (Landes & Posner, 1993, 385). From the economics of crime and punishment (Becker, 1968) to property rights (Calabresi & Melamed, 1972), it is hard to think today of a legal subject which has not been analyzed through the application of the economic theory. Starting with Coase's Theorem 60 years ago, which served as the foundation of modern L&E movement (Butler & Klick, 2018; Eisenberg, 2011; Landes, 2003), economic thought became more prominent in legal scholarship particularly in the U.S. Nowadays all major American law schools employ economists, and many legal scholars also hold advanced degrees in economics (Landes, 2003; Posner, 2004). The movement was further spread when in 1991, a designated association was established—the American Law and Economics Association (ALEA). Moreover, even prior to this event, the L&E movement had found its way to Europe. The European Association of Law and Economics (EALE) was established in 1984, and a new journal—the *European Journal of Law and Economics*—was established in 1994 to provide a forum for the economic analysis of the law in European countries (Backhaus & Stephen, 1994).

Despite the common interchangeable use, the terms “law and economics” and “economic analysis of law” represent two different approaches within the L&E field (Calabresi, 2016; Harnay & Marciano, 2009). The former, led by Coase in the period of the “new” or “modern” law and economics, focuses on economic problems and refers to legal rules only as they relate to those economic problems. On the other hand, “economic analysis of law” places in its center legal problems and uses economic theories to analyze them. The latter was first used by Guido Calabresi in his 1960 paper on risk distribution and liability rules but was coined by Richard Posner in his 1972 work with the same name “Economic Analysis of Law” (Marciano, 2012). As Coase himself stated, “law and economics is a study of the influence of the legal system on the working of the economic system” and economic analysis of law is “using economists’ approach and concepts to analyze the working of the legal system.” (Coase, 1996, 103–104). We acknowledge this difference, but aside from explicitly discussing the developments of those different approaches in the historical part and how they are reflected in our findings, we treat the terms interchangeably.

The 60th anniversary of the landmark paper triggered us to perform a systematic mapping of the L&E field using the bibliometrics and machine learning tools. We investigate its development in terms of covered areas of interest; used methods; influential works and scholars; geographical spread; diffusion of L&E to the parents fields; gender diversity, and more. One of our main findings is that while at the beginning L&E was more prominent in the legal field, over the years there was a convergence between economics and L&E. It might have resulted from the spill overs of the “empirical turn” from economics to L&E and the expansion of the substantive areas of interests, to include more broadly social policy issues.

To perform the systematic mapping of the field, we use data on peer-reviewed articles published in the designated L&E journals (Butler & Klick, 2018; Parisi, 2004). There are 12 such journals, and these are in chronological order¹: *Journal of Law & Economics* (JLE, Aaron Director, 1958), *Journal of Legal Studies* (JLS, Richard Posner, 1972), *Research in Law and Economics* (ResLE, Richard Zerbo, Jr., 1979), *International Review of Law & Economics* (IRLE, Charles Rowley and Anthony Ogus, 1981), the *Supreme Court Economic Review* (SCER, Peter Aranson, 1982), *Journal of Law, Economics, and Organization* (JLEO, Jerry Mashaw and Oliver Williamson, 1985), *European Journal of Law & Economics* (EJLE, Jürgen Backhaus & Frank Stephen, 1994), *American Law & Economics Review* (ALER, Orley Ashenfelter and Richard Posner, 1999), *Journal of Empirical Legal Studies* (JELS, Theodore Eisenberg, 2004), *Review of Law & Economics* (RLE, Robert Cooter, Ben Depoorter, Lewis Kornhauser, Gerrit De Geest, Nuno Garoupa, and Francesco Parisi, 2005), *Journal of Competition Law and Economics* (JCLE, Damien Geradin and Gregory Sidak, 2005), and *Asian Journal of Law and Economics* (AJLE, Jeong-Yoo Kim, 2010). For completeness of information, we look at the years 1960–2020. We deal with the information on authors, titles, and abstracts for 7331 articles. This information is retrieved from the Web of Science (WoS), Scopus and, in case of the *Supreme Court Economic Review*, by scraping the relevant journal webpages. Since the WoS provides the highest quality data on cited references, when we are performing analysis involving citations, we refer only to records extracted from the WoS ($N = 6002$).

Aside from looking at the designated L&E journals, we also examine the L&E-related publications outside the designated L&E journals (articles which include L&E relevant terms in their titles and/or abstracts). However, even though looking more broadly than just in the designated L&E journals allows for a better estimation of the field’s development, we acknowledge that our analytical strategy still under-estimates the entire universe of articles published which are related to L&E. The reason is that some scholars might use economic analysis when writing about legal topics, without explicitly connecting it to the L&E approach (Garoupa & Ulen, 2007; Gazal-Ayal, 2006). Furthermore, in Europe in particular, there are scholars who use the L&E approach in local publications in national languages (Holzhauer & Teijl, 1992; Depoorter & Demot, 2011; Schäfer, 2009) and these publications are not covered in the present research. Therefore, we define L&E work narrowly as reflected in publications in the designated L&E journals, and other articles written in English, which contain the relevant terms, but are published outside the designated L&E journals.

Furthermore, we acknowledge that not all the authors who publish in the designated L&E journals necessary define themselves as L&E scholars. In the 1970s, with the work of economists such as Gary Becker, economics crossed the boundaries of its traditional research questions and turned its focus on a new set of problems such as health, education, crime, and law (Backhouse & Cherrier, 2017). Therefore, many economists who are interested in social policy issues might consider L&E journals as part of the suitable outlets for such research. But as such their goal is not to contribute to the L&E scholarship, nor do they consider themselves as L&E scholars.

However, given that this work was accepted to be published in the designated L&E journals, it seems reasonable to consider this research as part of the L&E field.

2 | BRIEF HISTORICAL OVERVIEW

Despite its landmark moment in the 1960s, the L&E movement did not start then. Already at the end of the 19th century economists had turned their attention to law, with a notable example of Charles Francis Adams who in 1876 identified that market failures constitute the justification for regulation (Hovenkamp, 1989). In the 19th century (institutional) economists developed an interest in understanding why rights develop differently across time and space. Law was no longer treated as given, but as something which also needs to be investigated (Pearson, 1997).

In the same period, the legal field was going through its own developments which eventually created the right environment for the introduction of economics in the law schools' curriculum. In particular, it was the Legal Realism movement (which was preceded by the "sociological jurisprudence") which peaked in the 1930s and paved the way to the acceptance of economics in law. This movement served as a contra to the formalist doctrinarism approach. It acknowledged the need to explore the interrelations between the law and other fields such as sociology, psychology, political science, and economics. Economics was important given that economic factors were considered to influence legal change as well as economic consequences and changes were driven by legal changes (Mercuro & Medema, 2006).

The introduction of economics into legal analysis could be seen as enhancing the understanding of law. This approach uses concepts such as efficiency to add to (or according to some, even replace) the traditional legal doctrinal concepts of justice and fairness. Even though law and economics can be traced back to the 19th century, it has become prominent body of thought both in economics and in law only after mid-20th century. Yet it was more systematically institutionalized in law faculties rather than in economics departments. In economics it remained as merely another field where the microeconomics theory was applied, rather than a separate disciplinary philosophy as it did in law (Mercuro & Medema, 2006).

Despite its current status, the field of L&E did not emerge naturally without obstacles. It developed despite the initial objections of especially the lawyers (Manne, 2005), but also of the economists, to the merger. Even though economic analysis of law already existed (in the works of Chicago Law School scholars like Henry Simons, Aaron Director and Coase himself), it was the most cited work of Coase—the Problem of Social Cost—which pushed L&E across the boundaries to cover also what is considered non-market behavior such as family law, crime and punishment, torts, etc. (Parisi, 2004; Posner, 2004). The focus of the field transformed from investigating the effects legal rules have on the functioning of the market (early 1960s) to using economic analysis to better understand the legal system (starting from the 1970s) (Parisi, 2004). Not only did the L&E movement have an impact on legal scholarship, but it also penetrated legal practice. The U.S. Supreme Court, for example, has already for decades demonstrated openness to economic arguments (Easterbrook, 1984). Furthermore, L&E scholars could even be found among Federal Judges (Posner, 2004).

In academia, the Chicago Law School took the lead in bringing economics into legal scholarship. It was led by economists such as Ronald Coase and Aaron Director, who used legal rules only as a relevant factor for the economic problems they were analyzing. However, the field was then taken further by influential scholars such as Guido Calabresi and Richard Posner, who brought it closer to the lawyers by performing economic analysis of the *legal rules* themselves and using an

economic criterion against which to assess the efficiency of those rules (Harris, 2018; Marciano, 2012; Mercurio & Medema, 2006). Such approach was partially inspired by the influential work of Gary Becker (Harnay & Marciano, 2009). Even though Becker himself did not analyze many legal rules, he opened up economics to areas of the legal system which were not conceived as amenable to economic analysis before (Fleury, 2015; Posner, 1974; Posner, 1993). In 1972 Richard Posner established the JLS with the aim to “encourage the application of scientific methods to the study of the legal system” (Posner, 1972), and to clearly distinguish it from JLE, enabling the former to pursue a (more specific) approach (Harris, 2018).

Guido Calabresi's writings had not only impact on the development of the Chicago school but were also foundational to the New Haven approach, which developed at Yale law school where Calabresi taught during the 1960s. In particular, Calabresi' paper on the risk distribution (1960), and the subsequent classical book the *Costs of Accidents: A Legal and Economic Analysis* (1970), as well as the paper with Douglas Melamed *Property Rules, Liability Rules, and Inalienability* (1972) shaped the distinct approach known as the New Haven school. This approach takes as a starting point efficiency and market failures as the Chicago school but at the same time stresses the need to also account for distributional concerns, as well as justice and fairness (Mercurio & Medema, 2006, 284–5).

However, other entrepreneurial projects contributed to the spread of L&E in academia as well as in practice. With the financial support of private corporations, Henry Manne² in particular contributed to the diffusion of this field with his project of training law professors from different law schools in economics (Butler & Klick, 2018). Those professors, who held responsibilities for recruiting new academic staff, were now more willing to hire L&E scholars, thus making the academic market more amenable to this field. Later this program provided by the Law and Economics Center (LEC) at the University of Miami, with instructors such as Milton Friedman and Paul Samuelson, and extended not only to scholars but also to Federal Judges such as Ruth Bader Ginsburg (Butler, 1999; Teles, 2012). A recent study has empirically investigated the effect these training programs had on federal judges. The authors found that those judges who went through the training used in their judgments economic language to a larger extent than judges who were not trained in L&E and were more conservative in their verdicts (e.g., not favoring regulatory agencies, and imposing longer criminal sentences) (Ash et al., 2022).

An additional notable contribution to the promotion of L&E in the U.S. law schools was made by the Olin Foundation (Alessi, 1999). Olin saw in L&E an opportunity to bring conservative thought more into the forefront of the legal network, which at the time was dominated by liberal thinking. By funding and supporting L&E programs in the elite law schools, the Olin Foundation raised the prestige of this field and the demand of other law schools for students trained in this interdisciplinary field (Teles, 2012, Chapter 4).

In Europe, the situation is different (Garoupa & Ulen, 2007). Despite some seeds of attention to economics and its relation to law from the beginning of the 20th century (Harnay & Kirat, 2015) the field of modern L&E reached Europe in the 1980s (Harris, 2018). Among the first countries to show interest in L&E were Germany, the Netherlands and Belgium. Other countries such as the UK (Medema, 2015), France (Harnay, 2015), and Italy (Pardolesi, 2015) soon followed through (Mackaay, 2021). Recently, the L&E movement has also extended to Eastern European countries (Billiet, 2011).

Nevertheless, several decades later, and despite having its own association, national L&E associations (Billiet, 2011), and a designated journal, the field has not gained the same prominence in the legal world as in the U.S. (Gazal-Ayal, 2006). The vast majority of law schools do not employ any L&E scholars. Appointing law school professors with a background in economics is very rare.

Economic thought is not part of the law schools' curricula in the majority of European countries. And the impact of economic concepts on court decisions in Europe is negligible (Dau-Schmidt & Brun, 2005).

Different explanations have been provided for the disparity between the U.S. and Europe in terms of the prominence of the L&E approach in the legal field (Depoorter & Demot, 2011). Dau-Schmidt and Brun (2005), for instance, argue that differences between the U.S. and European countries in culture, legal systems, and legal academia can explain the level of receptivity of the legal system to the economic analysis of law. They explain that things such as individualism versus collectivism, (mis)trust in governments, the ability of judges to incorporate in their decisions new concepts, and the need of legal scholars to search complementary or alternative approaches to traditional legal approaches all matter for the impact L&E can have on the legal field. On the other hand, Garoupa and Ulen (2007) attribute the different level of openness to L&E to the incentives provided to legal scholars by the academic environment. Innovative thoughts can only prosper in competitive markets. Since according to them the European legal academic market is less competitive than the American one, there is less space for novel approaches such as L&E. In his later article, Garoupa (2011) mentions legal parochialism as the reason for the general rejection of the "law and" approaches. His explanation of that is that each country uses protectionism against innovations developed in other systems.

Despite the fact that Europe lags behind the U.S. when it comes to the embeddedness of the L&E field in the legal world, one should keep in mind that it is difficult to capture the true intellectual impact the field has on legal scholarship in Europe. The reason for that is the large number of legal publications in national languages that utilize the L&E approach (Billiet, 2011; Schäfer, 2009, 1488). Therefore, looking only at publications in English, under-estimates the real impact of L&E on European legal scholarship. Depoorter and Demot (2011), for example, argue that the gap between the U.S. and Europe is exaggerated as it does not account for the institutional differences. They assert that the field of L&E is more prominent in Europe than it is usually portrayed but is "hidden" in publications in domestic journals given the different incentives and tenure requirements.

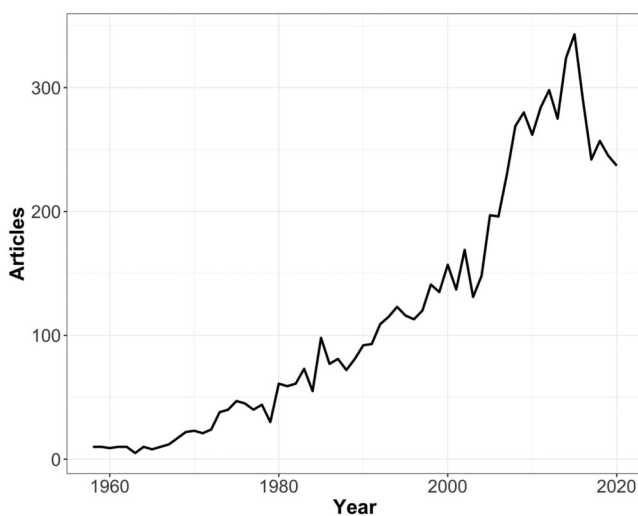
Finally, Israel should also be mentioned. The L&E field had a great impact on the Israeli legal scholarship. Many legal scholars publish in L&E journals and participate in L&E conferences. Furthermore, L&E is incorporated in law school's curriculum (Billiet, 2011; Garoupa, 2011; Gazal-Ayal, 2006).

This brief historical overview provides some understanding of how the field of modern L&E was established and broadly speaking where it is now. This paper looks how the field has developed in the period between those two points

3 | DATA AND METHODS

In total, we have extracted data on authors, titles and abstracts for 7331 articles (full sample)³ published in 12 L&E journals in the period 1958–2020. This data were mainly retrieved from the WoS and to a lesser extent from Scopus (to be precise, from Scopus we extracted only these articles which were not covered by the WoS). For one journal—Supreme Court Economic Review—the data were web scraped as neither WoS nor Scopus accounts for this outlet in their databases. We, however, use only one source of data—the WoS sample (6002 articles in total)—when performing analysis involving cited references. We made this decision based on the fact that WoS offers structured and well curated information on cited references, and this source alone covers 82% of

FIGURE 1 Production of articles in the designated L&E journals in 1958–2020. Note: Full sample.



articles from the full sample. See the Supplementary Materials for the description of the data and journals (Table S1).

To merge data extracted in the plain text and csv formats from WoS and Scopus, respectively, we used the bibliometrix package for R (Aria & Cuccurullo, 2017). This package was further employed to compute various descriptive statistics for the entire collection of data. Network visualizations were performed with VOSviewer—a software package for bibliographic mapping (Van Eck & Waltman, 2010). Specifically, we display networks of citations and co-citation links, whereby a co-citation link is an edge between two items (cited references) that are both cited by the same article. We also run an unsupervised structural topic model (STM; Roberts et al., 2019) to track the prevalence and evolution of various substantial legal topics within the field of Law & Economics, and a supervised classification (support vector machine) of articles into those which primarily deal with theory or empirics. The machine learning classifier was trained based on the manual labelling of randomly selected sub-sample of articles as “theory” or “empirical”. Lastly, the educational background of authors was manually coded for a subset of articles and Gender API was employed to identify the gender of authors.

4 | RESULTS: OUTPUT

4.1 | How much “knowledge” is produced?

Figure 1 demonstrates the yearly production of articles in all 12 L&E journals. It shows a steady growth of article at the yearly rate of about 5%. In the Supplementary Materials we show the trend per journal (Figure S1) and demonstrate there that this growth is mainly driven by the establishment of new L&E journals. Nonetheless, one can also see that some journals, such as the EJLE, observed an abrupt increase in published manuscripts.

The sudden drop in the number of articles from 2017 onwards is mainly caused by the fact that the journal *Research in Law and Economics* ceased to publish, and some journals were publishing fewer issues in that period (for more details, see the Supplementary Materials).

Figure 2 provides a quick overview of the citation network between the designated L&E journals (who cites whom). It is evident that the JLE and the JLS, the two journals which started in the



FIGURE 2 Citation network between the designated L&E journals. Note: WoS sample. Nodes proportional to total link strength.

field while initially offering somewhat different approaches, are central in the L&E field as they are cited most frequently by articles published in the other journals. The core of the network is further filled by IRLE and JLEO. Other L&E outlets are situated in more peripheral positions, most notably JCLE and AsJLE. The reason for these outlying positions is quite clear. Both these journals were established quite recently and thus lack long-lasting embedding within the field. Likewise, JCLE is a specialized journal, which might further explain its positioning within this network.

4.2 | What “knowledge” is produced?

In the brief history part, we have discussed how the field of modern L&E has expanded from the traditional topics, such as anti-trust law, to cover a wide range of legal and policy fields. To examine this development, and whether topics expanded over time, we perform an unsupervised topic modelling.⁴ The structural topic model (STM; Roberts et al., 2019) was run on articles containing abstracts ($N = 6026$ articles)⁵. In Figure 3, we can see that the topics of criminal law, family law and social matters, judicial decision making, and tort law became generally more prominent over the years. Such a trend fits the idea of expanding the economic analysis to fields of law which less naturally fitted it at the beginning.

The increased attention to the topic of “social issues” might have its origins in the transformation of the parent field—economics—since the 1990s. Since then, and in particularly in the last two decades the discipline of economics became more policy oriented. This shift required also a methodological shift, from pure theory to data-based research (Backhouse & Cherrier, 2017). As we show in the next section, social issues topics in particular have gone through such a methodological shift in L&E, being researched more frequently using empirical methods. Therefore, we

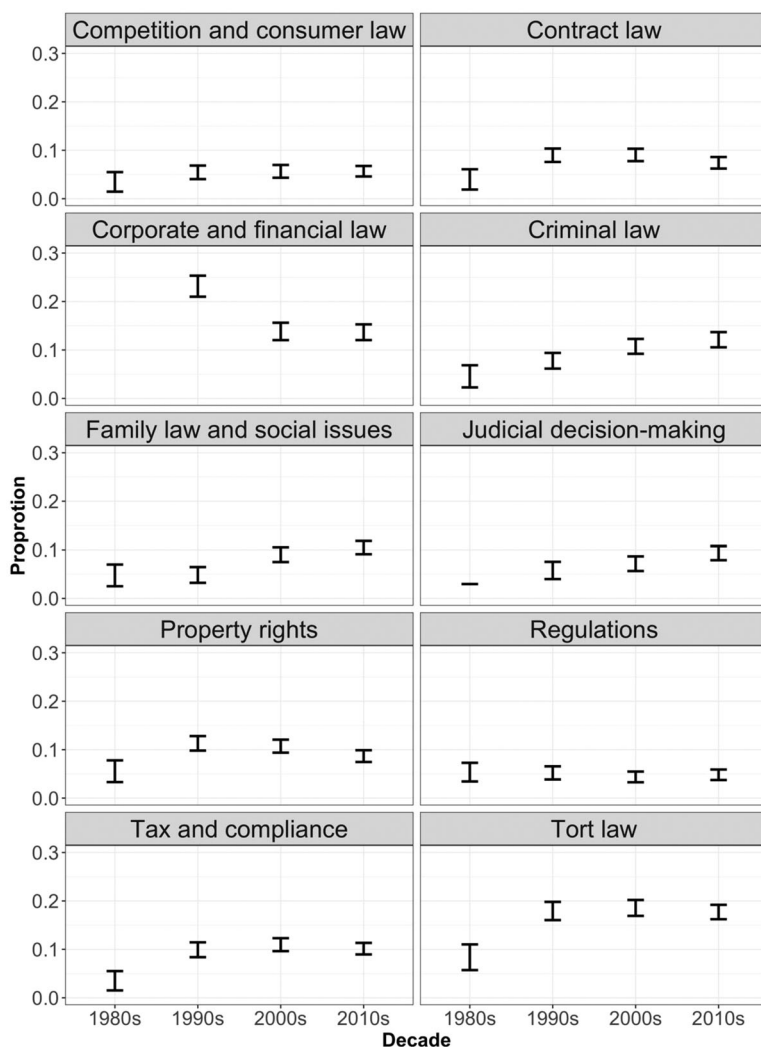


FIGURE 3 Evolution of topics over time. Note: Full sample, excluding articles which do not contain abstracts. The estimate of topic proportion is not reported for the corporate and financial law in the 1980s. The proportion was estimated to roughly 0.60, clearly an outlying value.

might assume that the topical, as well as the methodological development of L&E, is a result of a spillover of the empirical turn in economics. This point is further elaborated upon in the next section.

The development of the topics did not occur in a uniform manner for all journals (see Figure 4). This should not come as a surprise, given the somewhat different focus and approaches of the different journals, as have been briefly explained in the historical overview section.

For instance, JELS only publishes empirical work. We clearly see that judicial decision-making, as well as family and social matters topics are very prominent in this journal. The topics that receive the least attention in this journal are, in turn, property rights, contract law, and competition and consumer law. This topical focus is further confirmed in the section “What methods are used”, where we look at the topics covered by the articles in our entire corpus, excluding JELS,

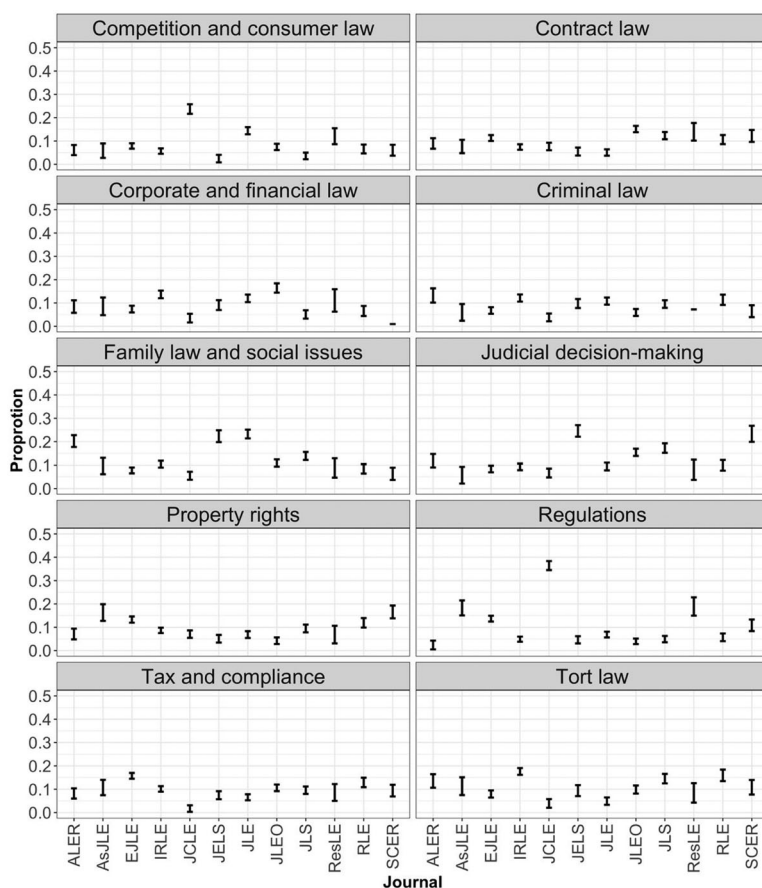


FIGURE 4 Distribution of topics per journal. Note: Full sample net of articles which do not contain abstracts.

per methodology used. Also there, we observe the underrepresentation of empirical work in the mentioned topics (see Figure 6). One potential reason for this might be a somewhat more difficult access to data in areas such as property and tort law. But we cannot verify this conjecture using our dataset.

JLE may also be mentioned as giving more attention to the family and social matters topic, as well as competition and consumer law. This increased attention to the topic might be the result of the spillovers from the empirical turn in economics which included the increase in policy and social matters articles as described above. It can be conjectured that some (or many) economists who submit their work on social issues to top economics journals, see JLE as well as a suitable outlet.

4.3 | Which methods are used?

The methods chosen by the L&E scholars seem to be evolving as well. Based on the observation of the leading scholars, in the 21st century the field has become more technical, formal and mathematical. This may suggest divergence between the lawyers and the economists (Harris,

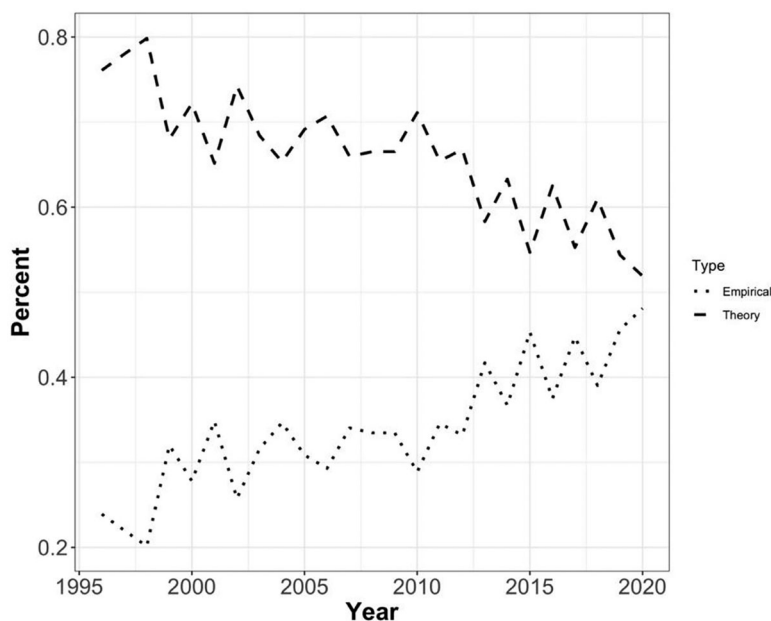


FIGURE 5 Evolution of L&E approaches.

2018). Furthermore, the requirement for specific specialization is also expected to increase co-authorships (Ginsburg & Miles, 2011). Using the machine learning techniques, we are able to test these observations and expectations in a more systematic manner.

In order to identify whether a paper is theoretical or empirical, we first manually coded 880 randomly selected articles in our pool (around 12% of articles from the full sample).⁶ In the next step and based on the manual coding, we trained a support vector machines model, which allowed us to assign labels to all remaining articles in our dataset. We excluded from the analysis JELS given that, by definition, it publishes only empirical papers. Therefore, the analysis included the remaining 11 journals.

Our results are presented in Figure 5. We can clearly see that over the years pure theory has lost its prominence in the L&E literature, as published in the designated journals. At the same time, empirical methods gained popularity. While only around 20% of papers were empirical in the mid-1990s, the share has significantly increased to 50% by the year 2020. This finding confirms earlier observations of prominent scholars in the field. Landes (2003) for example, explained that before 2000s, very few L&E scholars in the law schools conducted empirical research. Landes attributed this to the costs of investing in acquiring empirical skills on the one hand, and the incentives provided by the legal market on the other hand (emphasizing verbal eloquence and mastery in legal doctrines). The introduction of empirical methods in this field was argued to turn L&E to “normal science”. Economic methods of making and testing hypotheses entered the field of law and replaced (or supplemented) intuitions with respect to the effect of laws (Cooter, 2011).

It seems that the empirical turn in L&E was driven by the earlier similar empirical turn in economics (Angrist et al., 2017). Hamermesh (2013) examined the used methods in top three economic journals in the period of 1963–2011. He found that in the 1990s the percentage of papers using pure theory sharply dropped and was replaced by empirical work. Subsequently, the 21st century is considered the “age of applied economics” where top journals publish less and less

work of exclusive theory and more empirical work which includes large numbers of observations or different experiments. The focus of the discipline became more on policy relevant issues. Such issues needed to be grounded in data and could not be the subject of pure theory which had limited applicability in the real world (Backhouse & Cherrier, 2017). In addition, the improvement in technologies and the creation of experimental labs enabled such empirical research to grow (Backhouse & Cherrier, 2017; Hamermesh, 2013). Economics as a field also went through the “credibility revolution” where quasi-experimental research designs were developed to offer more reliable causality claims with observational data. This was a necessary step to provide credible policy recommendations, as the previously used methods were too sensitive to design (Angrist & Pischke, 2010; Panhans & Singleton, 2017). The focus on identifying causal effects also reduced the importance of theory, as research questions were chosen, and hypotheses were put forward, based on conjectures and discussed ideas rather than formal models (Biddle & Hamermesh, 2017).

Empirical methods have also become more prominent in the field of law (Cane & Kritzer, 2010), yet this development was slower, and is still ongoing if looking from the outside-U.S. perspective.⁷ Heise (2011) examined the amount of empirical work in American law reviews and found a steady increase between the 1990s and 2004. Between 2005–2009 there was a sharper increase in empirical work. This coincides with the establishment of a designated journal (JELS) in 2004 and a society (SELS) (Eisenberg, 2011), which came to meet the need of the increased demand for empirical legal work.

As we have conjectured on the connection between policy questions and the need for empirical methods, we have also examined the methods applied in particular areas of research. In Figure 6, we can observe some interesting developments. For example, empirical methods became more important in particular areas, which might be driving the general results presented in the previous figure. Those areas are judicial decision-making, family law and social matters, and to a lesser extent in the area of corporate and financial law. The number of theoretical papers in these areas remained relatively stable over the years. On the other hand, the number of purely theoretical papers has increased over the years in the research fields on regulations, and tort law. The role which empirical methods played in these fields remained stable over the years. In the other journals, the usage of pure theory and empirics is more stable over the years, apart from occasional picks.

Besides the development of topics and methods in the field of L&E, a question also arises whether the educational background of L&E scholars has changed over the years, and whether this is correlated with the methods they are using. Landes (2003) has suggested that one of the reasons why scholars with mainly legal background did not conduct empirical work was the high investment in acquiring the necessary skills. Furthermore, the convergence of the topics of interest in the L&E field and in economics, might suggest more scholars with economic background might have started publishing in the main L&E journals.

To examine this question, we first hand-coded a randomly selected subsample of our data.⁸ Using mainly institutional biographies of scholars, we have identified the educational background of the authors. We have classified economists as those who obtained a degree in economics at a bachelor, masters or PhD level.⁹ Likewise, we have classified lawyers as scholars who obtained a bachelor, master, PhD or JD degree in law. In Figure 7, we look at the articles and their (co)authors. Articles either written by lawyers and economists, or by scholars who have degrees in both fields, are classified as “lawyers and economists”. We have combined this data with the methodology data to examine whether there is the expected divergence in the chosen methods.

Looking at Figure 7, we first see that the number of scholars with only a legal education background, is much smaller than economists, and people with a mixed background or papers

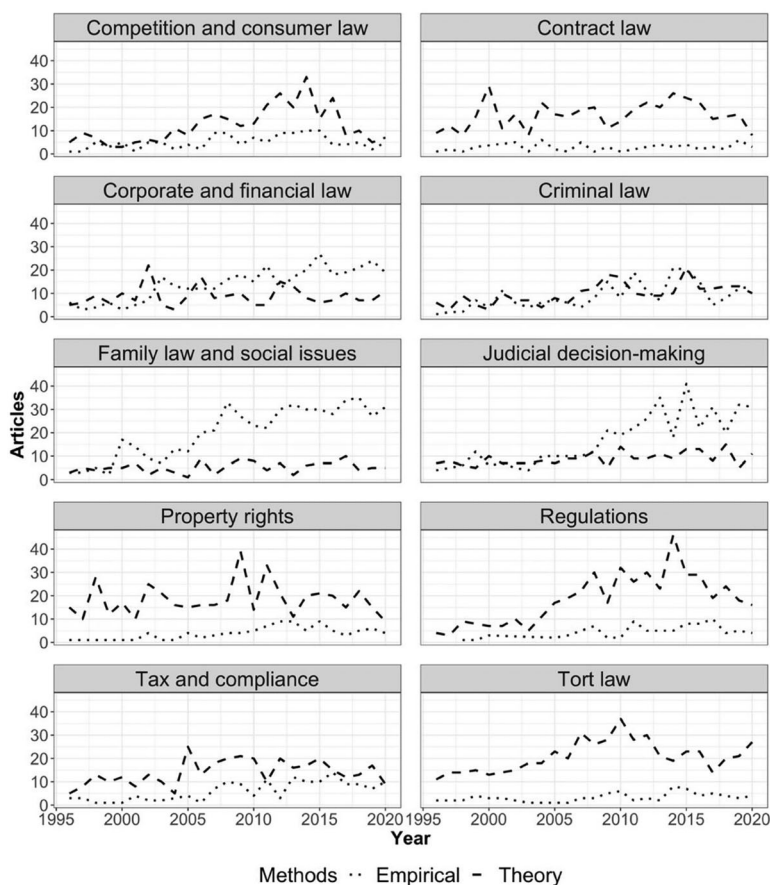


FIGURE 6 Methods in different fields.

co-authored by legal and economics scholars. When looking at the methods, even though authors from all groups use pure theory more than empirics, lawyers in particular seem to write theoretical papers (which also include conceptual papers) and use much fewer empirical methods. On the other hand, the gap between articles applying pure theory and empirical articles is the smallest among the mixed group. This suggests that pluralism in background also leads to a larger pluralism in methods. It likewise provides supporting evidence that the empirical turn in the L&E field have been driven by the empirical turn in economics as such methods are used more by scholars with background in economics.

We have also examined the differences statistically. We find that the visual difference is not statistically significant ($\chi^2 = 0.720$, p -value = .396). We nonetheless recognize that this analysis was performed with relatively low samples, as in particular we were able to identify only 23 papers written by “pure” lawyers.

Another manner in which it is possible to examine whether there was a methodological spillover from the “credibility revolution” in economics, is to look at the specific empirical methods used in the L&E as compared to the economics field. In economics, quasi-experimental research designs were developed to enable more credible causality claims with observational data (Angrist & Pischke, 2010; Panhans & Singleton, 2017). If the empirical turn in L&E was strongly

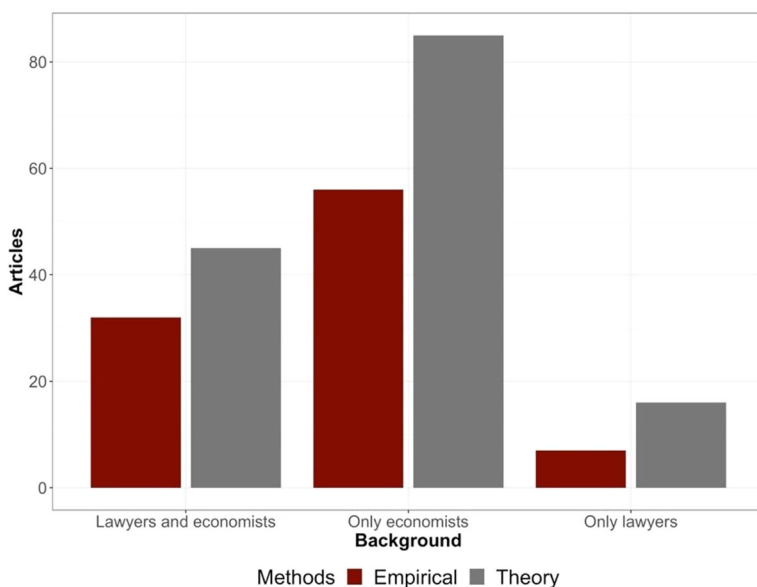


FIGURE 7 The L&E scholars and the preferred methods. [Colour figure can be viewed at wileyonlinelibrary.com]

driven by the development in economics, we would expect to see similar research designs applied in both fields.

For the economics field, we have looked at the commonly defined top five journals, which are: American Economic Review, Journal of Political Economy, Review of Economic Studies, Econometrica and Quarterly Journal of Economics (Heckman & Moktan, 2020). For more details on the corpus we used, see section six on the parent fields. To track the change in application of various empirical methods, we have used a simple dictionary method whereby we searched for particular keywords in abstracts of the articles. These were: (1) panel data, difference-in-differences, dd, and fixed effects, (2) experiment*, randomized controlled trial, RCT, (3) regression disc*, RDD, and (4) machine learn*, big data, NLP, natural language processing.

In Figure 8, we see that the most prevalent research design, both in L&E and in economics, are experiments and RCTs. Nowadays, in approximately 15%–20% of the papers this method is used. The usage of this method is increasing over time and is more prevalent in economics than in L&E. Panel data and Difference-in-Difference design (D-in-D) were already used by economists but found their place in the L&E literature only towards the 2000s. Since then, there has been an increasing application of this design, even beyond its utilization in economics journals. Regression discontinuity design (RDD) also came later into the L&E field than in economics and has mildly increased since then. Finally, the novel application of computation methods, and in particular, machine learning emerged in the L&E field approximately at the same time as in economics, and this method is increasing in its application. The increase of quasi-experimental designs is also found in other economics journals as shown by Panhans and Singleton (2017), thus it is not limited to the top journals as demonstrated here. Therefore, we find additional evidence for the spillover of the empirical turn from economics to the L&E field.

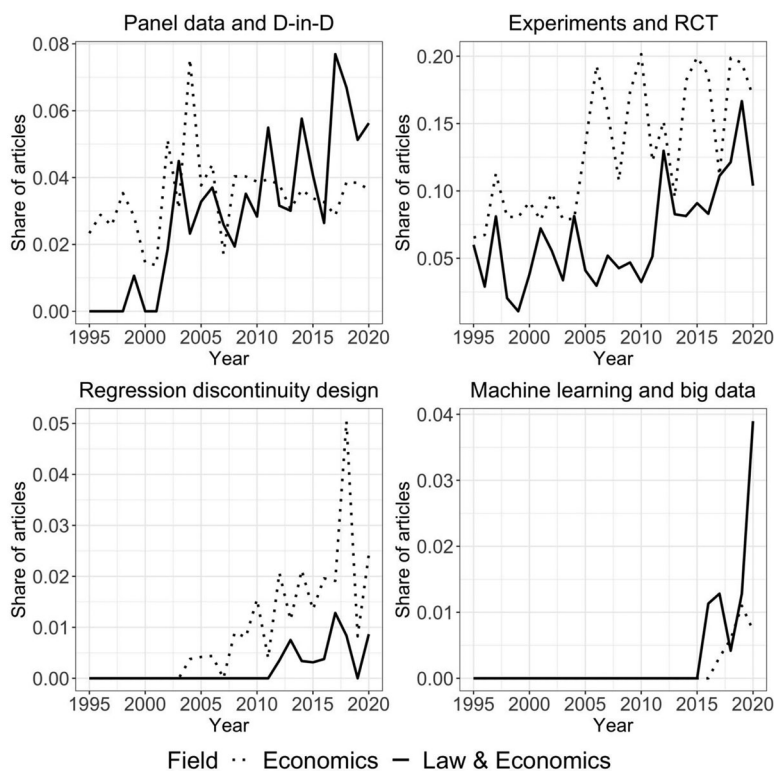


FIGURE 8 Empirical methods in L&E and in economics.

5 | RESULTS: INPUTS

5.1 | Who produces the “knowledge”?

In the historical overview we have focused on the founder fathers of the field. In this section we examine quantitatively their contribution to the field of modern L&E, as well as the emergence of additional scholars who shaped the field.

In terms of who produces the knowledge we looked at the 25 (co)authors with the largest number of published articles in the designated L&E journals (see Table S3 in the Supplementary Materials). We found that Steven Shavell, Richard Posner and Thomas Miceli publish most manuscripts in the analyzed journals. All three authors published more than 50 papers. Nuno Garoupa, Tim Friehe and Francesco Parisi also score high with more than 30 publications. While the number of publications is an important input indicator, the overall impact of authors can be measured by the total number of citations and the number of citations per year (sum of normalized citations). These indicators are presented in Table 1.¹⁰ Particularly when examining the total number of citations, it is clear (and unsurprising) that Coase himself is the most influential author in the field of L&E, and he is followed by Michael Jensen and Eugene Fama, who are co-authors of one of the most influential papers published in L&E as discussed below.

To better understand the development of the L&E field, we should not only look at the people who shaped it, but the specific papers which contributed to this development. The impact of papers is measured via the total number of citations the papers obtained or by the number of

TABLE 1 Citations per author.

| | Author | Total citations | Author | Sum of normalized citations |
|----|--------------------|------------------------|--------------------|------------------------------------|
| 1 | COASE R | 10563 | JENSEN M | 226.0 |
| 2 | JENSEN M | 8587 | FAMA E | 225.7 |
| 3 | FAMA E | 8577 | COASE R | 192.8 |
| 4 | WILLIAMSON O | 5885 | WILLIAMSON O | 167.2 |
| 5 | SHAVELL S | 4386 | SHLEIFER A | 165.3 |
| 6 | DEMSETZ H | 4081 | SHAVELL S | 161.8 |
| 7 | LANDES W | 3605 | LA P R | 119.7 |
| 8 | PELTZMAN S | 3484 | LOPEZ-DE-SILANES F | 119.7 |
| 9 | SHLEIFER A | 3408 | VISHNY R | 119.7 |
| 10 | LA PORTA R | 2633 | DEMSETZ H | 95.0 |
| 11 | LOPEZ-DE-SILANES F | 2633 | LANDES W | 94.8 |
| 12 | VISHNY R | 2633 | HOLMSTROM B | 89.8 |
| 13 | HOLMSTROM B | 2618 | PELTZMAN S | 83.5 |
| 14 | CRAWFORD R | 2555 | MILGROM P | 75.6 |
| 15 | STIGLER G | 2297 | AGRAWAL A | 69.8 |
| 16 | MILGROM P | 2269 | CRAWFORD R | 59.4 |
| 17 | DARBY M | 1642 | REES D | 58.0 |
| 18 | KARNI E | 1634 | LOTT J | 57.6 |
| 19 | MCCUBBINS M | 1581 | LOEWENSTEIN G | 54.6 |
| 20 | NOLL R | 1559 | LIEBOWITZ S | 51.0 |
| 21 | JOSKOW P | 1325 | CHOI S | 50.7 |
| 22 | LOTT J | 1309 | RAPHAEL S | 49.4 |
| 23 | LIEBOWITZ S | 1232 | STIGLER G | 48.8 |
| 24 | AGRAWAL A | 1200 | TYLER T | 48.7 |
| 25 | SPILLER P | 1190 | MCCUBBINS M | 48.4 |

Note: Full sample, excluding articles from SCER.

citations per year. When measured by the former, not surprisingly, the most impactful manuscript is the starting point of this mapping project—“Problem of Social Cost” by Ronald Coase (see Table 2). It is clear that the four papers which have the most impact in terms of the total number of citations are those published in the *Journal of Law & Economics*. This does not come as a surprise given the initial role this journal played in the inception of the field of modern L&E.

The classification of the most influential publications changes somewhat if the impact is measured by the number of citations per year (normalized citation). It is important to look at this measure as well since the number of citations is also a function of time. Therefore, a paper might have a large number of citations not because it still has a large impact but because it was published much earlier than the other papers. According to this measure, the most impactful work is “Separation of Ownership and Control” by Eugene Fama and Michael Jensen. This work played an important role in the debate on corporate freedoms versus stronger governmental regulations (Gane, 2023).

TABLE 2 Most cited papers published in 11 designated Law & Economics journals.

| | Paper | Total citations | Normalized citations |
|----|-------------------------------------|------------------------|-----------------------------|
| 1 | COASE R, 1960, J LAW ECON | 7719 | 122.5 |
| 2 | FAMA E, 1983, J LAW ECON-a | 6491 | 162.3 |
| 3 | WILLIAMSON O, 1979, J LAW ECON | 3788 | 86.1 |
| 4 | LA P R, 1999, J LAW ECON ORGAN | 2633 | 109.7 |
| 5 | KLEIN B, 1978, J LAW ECON | 2555 | 56.8 |
| 6 | HOLMSTROM B, 1991, J LAW ECON ORGAN | 2269 | 70.9 |
| 7 | PELTZMAN S, 1976, J LAW ECON | 2234 | 47.5 |
| 8 | FAMA E, 1983, J LAW ECON-b | 2086 | 52.1 |
| 9 | DARBY M, 1973, J LAW ECON | 1634 | 32.7 |
| 10 | MCCUBBINS M, 1987, J LAW ECON ORGAN | 1452 | 40.3 |
| 11 | WILLIAMSON O, 1993, J LAW ECON | 1198 | 39.9 |
| 12 | WEINGAST B, 1995, J LAW ECON ORGAN | 1180 | 42.1 |
| 13 | PRIEST G, 1984, J LEGAL STUD | 1063 | 27.3 |
| 14 | GROSSMAN S, 1981, J LAW ECON | 973 | 23.2 |
| 15 | DEMSETZ H, 1973, J LAW ECON | 948 | 19.0 |
| 16 | GNEEZY U, 2000, J LEGAL STUD | 877 | 38.1 |
| 17 | GATIGNON H, 1988, J LAW ECON ORGAN | 863 | 24.7 |
| 18 | BECKER G, 1974, J LEGAL STUD | 859 | 17.5 |
| 19 | DEMSETZ H, 1983, J LAW ECON | 815 | 20.4 |
| 20 | COASE R, 1972, J LAW ECON | 743 | 14.6 |
| 21 | LIEBOWITZ S, 1995, J LAW ECON ORGAN | 706 | 25.2 |
| 22 | HENISZ W, 2000, J LAW ECON ORGAN | 689 | 30.0 |
| 23 | TIROLE J, 1986, J LAW ECON ORGAN | 667 | 18.0 |
| 24 | DEMSETZ H, 1968, J LAW ECON | 661 | 12.0 |
| 25 | BERNSTEIN L, 1992, J LEGAL STUD | 647 | 20.9 |

Note: Full sample, excluding articles from SCER.

It is evident from our analysis that the authors with the largest number of publications in the designated L&E journals and the most cited tend to be mostly economists. Nevertheless, as we have discussed in the historical overview section, initially the law field was more open to the L&E movement as compared to economics. Furthermore, especially in the U.S., scholars with a background in economics hold professorship positions at law schools. Therefore, one might expect that law schools are driving the L&E scholarship. On the other hand, as have been demonstrated in the previous sections, due to the stronger emphasize on social policy issues and the empirical turn, the field of L&E and economics started to converge. Therefore, it is interesting to examine whether the L&E scholarship is driven by law schools or economics schools. To shed some light on this question, we look at whether the affiliation of the authors publishing in the designated L&E journals is a law school or an economics department.

In Figure 9, we see that in the early years of L&E there was a slightly higher chance that authors were affiliated to law schools rather than economics departments. This trend confirms the larger initial openness of law schools to the field of L&E. But the difference for the time period 1958–1980 is not statistically significant ($|t| = 1.153$, p -value = .259). This trend has changed in recent years

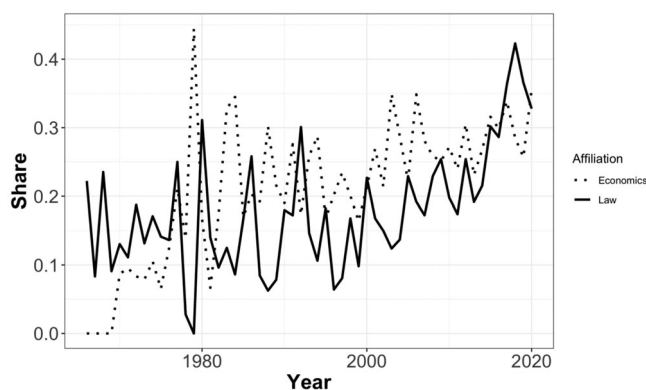


FIGURE 9 Share of scholars affiliated to law schools and economics departments.

where the field has started to be dominated by scholars affiliated with economics departments. The difference between the average number of scholars affiliated to an economics department as compared to law schools turns out to be statistically significant in the period from 2000 onwards ($|t| = 2.068$, p -value = .047).

This trend can be explained by the empirical turn in L&E, which requires more specialized skills. In economics, it was demonstrated that empirical papers led to larger collaborations (due to more complex research) (Hamermesh, 2013). Thus, it is not a surprise that with this turn in methodology, economics departments became more dominant in the field (at least as capture by the designated L&E journals). As will also be demonstrated in Section 6, once the field of L&E became broader, it has entered more the mainstream economics, with similar papers appearing in economics journals as in L&E journals.

We further examine whether this trend of affiliation is the same in all journals or differs per journal. In particular, an interesting question is whether the journals which were, at least initially, established to attract more European focused papers and authors, differ from the other journals in this respect. Evidently the clearest example of such a journal is the EJLE. However, the IRLE, which was established in England, also had an initial purpose of attracting European contributors. In 1988, the journal moved to Berkley (Harris, 2018).

In Figure 10, we see that EJLE is quite an outlier in terms of share of authors affiliated with law schools and economics departments. Most of the journals seem to have changing trends over time but with a mix of contributors affiliated with law schools and economics schools. On the contrary, through the entire period of EJLE's existence, economics schools were more dominant in terms of affiliation of contributors, than law schools. This seems to be consistent with the evolution of the L&E field. As has been mentioned before, there was a very active approach in the U.S. to bring L&E approach into the law schools. This is evident not only by the training programs for law scholars, but the programs for practicing judges. Such a strong movement did not take place in Europe. Furthermore, until today, even though not entirely missing, it is not common to hire academic staff in a law school with double degrees (e.g., having a degree in economics in addition to a law degree). Therefore, despite the evolution of the L&E field in Europe, it is not necessarily unexpected that many of the contributors in the designated L&E journals are affiliated with the economics schools. One should keep in mind, as we will demonstrate in Section 6, that L&E knowledge is also produced in journals outside the main corpus of the L&E journals. The trend there might be somewhat different.

The trend of contributions affiliated to IRLE also seems to confirm the impression that with European contributors, the economics schools might play a larger role than the law schools. In

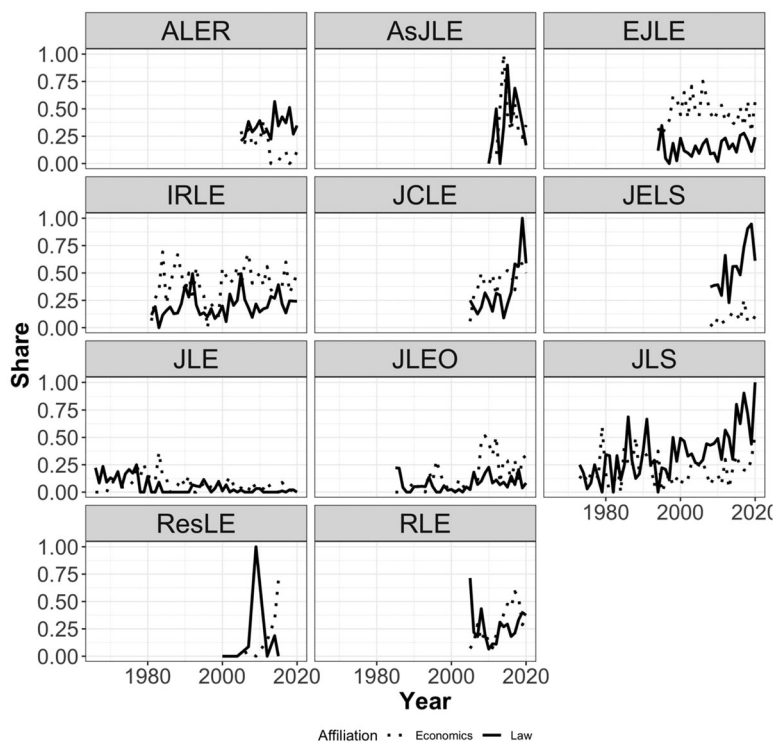


FIGURE 10 Share of scholars affiliated with law schools and economic departments broken down by journals. *Source:* Full sample, excluding the SCER.

the initial period, from its establishment and until it moved to Berkley, the majority of authors seem to come from economics schools. However, in the period after its move to the U.S. there seems to be more convergence and both schools are represented, even though the law schools never became more dominant in this journal.

Another interesting observation relates to the affiliation of authors publishing in JELS. Law schools play a clear dominant role through the entire period. Most of contributors to this journal come from law schools rather than economics schools. This might be due to the fact that this journal was established by a legal scholar (Teodore Eisenberg) in a law school (Cornell Law School) with the idea of making law schools more prominent in this field. Empirical work related to law was already conducted before, but by scholars mainly outside the law schools (Eisenberg, 2011). Most of the articles in this journal are produced using quantitative methods (Eisenberg, 2011), and look at the effect of legal rules, thus closely related in nature to the L&E field. However, from an earlier analysis of Eisenberg (2011), not only did the authors in this journal come from the law faculty, but the largest portion of them also have a PhD in law.

As L&E is an inter-disciplinary field, one might expect that co-authored papers by scholars from law schools and economics departments, scholars with a mixed educational degree, or collaborations between lawyers and economists have a larger impact. While we find support for this conjecture when looking only at authors' affiliation, we cannot confirm it when looking more closely at the educational background of the authors. For more details on the analysis we performed and the results, see the Supplementary Materials.

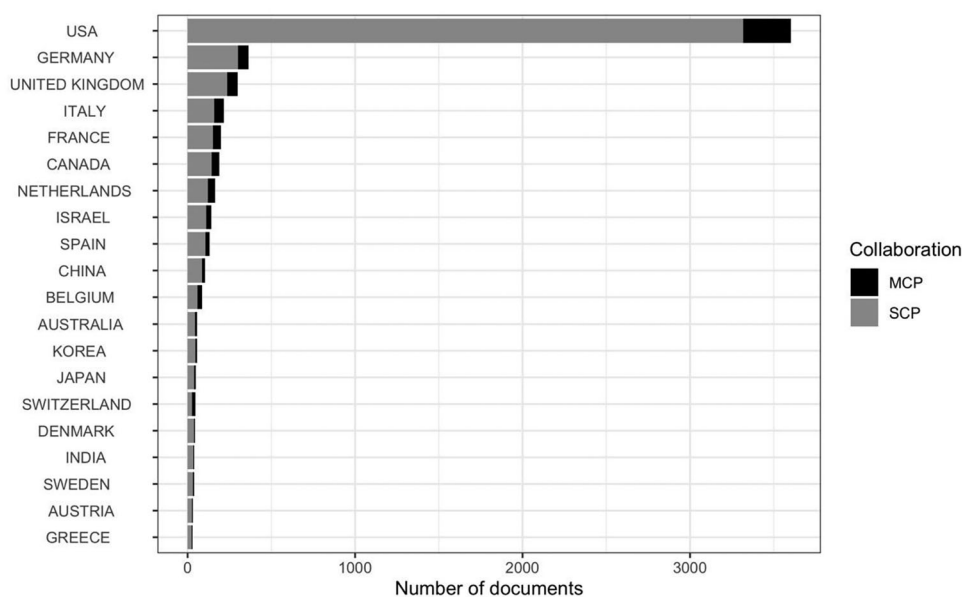


FIGURE 11 Country affiliations of authors. Note: MCP—multiple country publications; SCP—single country publications.

5.2 | Where is the knowledge produced?

The L&E field originates in the U.S., but does it mean that the knowledge is predominantly produced in the U.S. or, to be more precise, by authors affiliated to U.S. institutions? Figure 11¹¹ and Table 3 demonstrate that the U.S. based authors indeed dominate the field of L&E. Roughly 61% of papers published in the examined journals have U.S. based corresponding authors. The second most represented country—Germany—produced only 6% of the papers in the examined journals.

By investigating intra-country (single country publications; SCP) and inter-country (multiple country publications; MCP) collaboration indices (see relevant columns in Table 3), we show that articles published by corresponding authors from the U.S. have a lower tendency to be a result of international collaboration. Of all the articles with a corresponding author from the U.S. only 8.5% (MCP/SCP) are the outcome of international cooperation. For most countries, this share is above 20%.

Finally, to account for countries' different sizes of population, we looked also at relative numbers. In particular, we looked at the number of published articles in the designated L&E journals per million of population¹² (last column in Table 3). The most striking change we have observed when using a relative measure is that the country with the highest number of publications per million people in population is Israel (15.8). U.S. is then in the second place with 10 articles per million people in population. This confirms the findings of Gazal (2006). With this measure also in European countries the gap between the number of their published papers and those of scholars from the U.S. is minimized. For example, whereas the total number of articles published in Germany is around 10 times less than in the U.S., this difference is reduced to three times when accounting for the size of the population. Furthermore, The Netherlands becomes much more prominent with the relative measure with seven articles per million people in population, thus

TABLE 3 The countries with the largest number of publications.

| | Country | Articles | Freq | SCP | MCP | MCP Ratio | Articles per mln of population |
|----|----------------|----------|----------|------|-----|-----------|--------------------------------|
| 1 | USA | 3301 | 0.604911 | 3020 | 281 | 0.0851 | 10.0 |
| 2 | GERMANY | 306 | 0.056075 | 244 | 62 | 0.2026 | 3.7 |
| 3 | UNITED KINGDOM | 217 | 0.039765 | 154 | 63 | 0.2903 | 3.2 |
| 4 | ITALY | 194 | 0.035551 | 136 | 58 | 0.2990 | 3.2 |
| 5 | FRANCE | 179 | 0.032802 | 132 | 47 | 0.2626 | 2.8 |
| 6 | CANADA | 164 | 0.030053 | 119 | 45 | 0.2744 | 4.4 |
| 7 | ISRAEL | 126 | 0.023090 | 96 | 30 | 0.2381 | 15.8 |
| 8 | NETHERLANDS | 119 | 0.021807 | 76 | 43 | 0.3613 | 7.0 |
| 9 | SPAIN | 108 | 0.019791 | 84 | 24 | 0.2222 | 2.3 |
| 10 | CHINA | 97 | 0.017775 | 78 | 19 | 0.1959 | 0.1 |
| 11 | BELGIUM | 74 | 0.013561 | 45 | 29 | 0.3919 | 6.7 |
| 12 | KOREA | 54 | 0.009896 | 45 | 9 | 0.1667 | 1.1 |
| 13 | AUSTRALIA | 47 | 0.008613 | 35 | 12 | 0.2553 | 1.9 |
| 14 | JAPAN | 45 | 0.008246 | 36 | 9 | 0.2000 | 0.4 |
| 15 | SWITZERLAND | 39 | 0.007147 | 19 | 20 | 0.5128 | 4.9 |
| 16 | INDIA | 36 | 0.006597 | 32 | 4 | 0.1111 | 0.03 |
| 17 | DENMARK | 34 | 0.006231 | 27 | 7 | 0.2059 | 6.8 |
| 18 | SWEDEN | 25 | 0.004581 | 18 | 7 | 0.2800 | 2.5 |
| 19 | AUSTRIA | 24 | 0.004398 | 18 | 6 | 0.2500 | 2.7 |
| 20 | GREECE | 23 | 0.004215 | 18 | 5 | 0.2174 | 2.3 |
| 21 | TURKEY | 23 | 0.004215 | 17 | 6 | 0.2609 | 0.3 |
| 22 | NORWAY | 19 | 0.003482 | 14 | 5 | 0.2632 | 3.8 |
| 23 | SINGAPORE | 19 | 0.003482 | 14 | 5 | 0.2632 | 3.8 |
| 24 | CHILE | 15 | 0.002749 | 10 | 5 | 0.3333 | 0.8 |
| 25 | NEW ZEALAND | 15 | 0.002749 | 13 | 2 | 0.1333 | 3.8 |

Note: Full sample, excluding the SCER.

being in the third place out of the 25 countries with the highest number of publications in the designated L&E journals.

In the Supplementary Materials (Table S4) we also show the most dominant research institutes in the field, where we see that U.S. universities are at the top. Overall, the findings in this section indicate that even though the modern L&E movement was born in the U.S., it has since spread to other countries.

To get a better sense of cross-country collaborations, we can look at it as a network (Figure 12). Given the central position of the U.S. in the network, it is evident that many international collaborations imply that at least one of the co-authors is from the U.S. Some local clustering also emerges for countries such as Germany, France and Italy, which indicates substantial collaboration across these three European countries. While many countries have quite a diversified portfolio of cross-country collaborations, for Canada, China and Israel, the vast majority of the collaboration is with U.S. based co-authors.

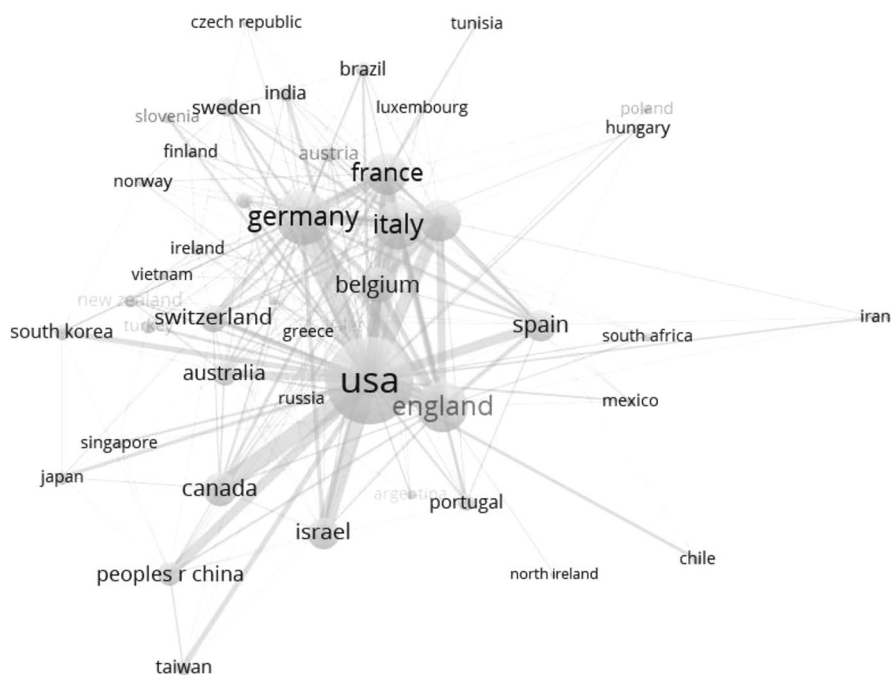


FIGURE 12 Country collaboration network. Note: Links capture country collaborations on articles. Vertices are proportional to total link strength.

International collaborations might provide richness of approaches and knowledge of substantive legal and policy areas. Furthermore, papers produced by such collaborations might also speak to a wider audience. If this is the case, we would expect cross-country collaborations to be more influential (in terms of number of citations) than intra-country collaborations. This is indeed what we find in our sample, where the average number of citations of papers resulting from cross-countries collaborations are almost as twice as intra-country collaborations (33.6 vs. 18.9, $t = 3.748$, p -value $< .001$).

5.3 | What are the intellectual origins of the knowledge produced?

In this section, we examine more systematically what are the most influential papers in the field in terms of their number of citations in the designated journals (Table 4). The ‘Crime and Punishment: An Economic Approach’ paper published by Gary Becker in *Journal of Political Economy* in 1968 turned out to be the most intellectually influential paper in the field. This paper is followed by Ronald Coase’s paper ‘The Problem of Social Cost’ published in *JLE* in 1960 and ‘The Selection of Disputes for Litigation’ by George Priest and Benjamin Klein published in *JLS* in 1984. In line with the core novelty of the modern L&E movement, all these papers cross the boundaries of the (formerly) traditional topics of economic analysis.

This expansion is also captured by the most cited authors, whose work is known to cover a wide variety of legal and policy fields such as criminal law, tort law, litigations, etc. (see Table 5).

TABLE 4 Most cited papers by Law & Economics manuscripts.

| Most cited papers | Number of local citations |
|---|---------------------------|
| BECKER GS, 1968, J POLIT ECON | 460 |
| COASE RH, 1960, J LAW ECON | 299 ^a |
| POSNER RA, 1972, EC ANAL LAW | 216 ^b |
| PRIEST GL, 1984, J LEGAL STUD | 200 |
| LANDES WM, 1971, J LAW ECON | 161 |
| STIGLER GJ, 1971, BELL J ECON | 157 |
| BEBCHUK LA, 1984, RAND J ECON | 155 |
| JENSEN MC, 1976, J FINANC ECON | 144 |
| COASE RH, 1937, ECONOMICA-NEW SER | 136 |
| SHAVELL S., 1987, EC ANAL ACCIDENT LAW | 136 |
| LA PORTA R, 1998, J POLIT ECON | 133 |
| PELTZMAN S, 1976, J LAW ECON | 132 |
| CALABRESI G, 1972, HARVARD LAW REV | 125 |
| KLEIN B, 1978, J LAW ECON | 123 |
| POSNER RA, 1973, J LEGAL STUD | 123 |
| GROSSMAN SJ, 1986, J POLIT ECON | 118 |
| BROWN JP, 1973, J LEGAL STUD | 113 |
| WILLIAMSON OLIVER E., 1985, EC I CAPITALISM | 105 |
| BERTRAND M, 2004, Q J ECON | 102 |
| ALCHIAN AA, 1972, AM ECON REV | 101 |
| KLEIN B, 1981, J POLIT ECON | 101 |
| POLINSKY AM, 2000, J ECON LIT | 100 |
| DEMSETZ H, 1967, AM ECON REV | 94 |
| SHAVELL S, 1980, J LEGAL STUD | 94 |
| WILLIAMSON O.E., 1975, MARKETS HIERARCHIES | 94 |

^aCombined citation count to the main journal publication and a reprint published in *The Firm, the Market and the Law* (The University of Chicago Press, 1988).

^bCombined citation count to all editions of the book *Economic Analysis of Law* (Little, Brown and Company, 1972).

Given the different policy fields as well as approaches taken by the most cited authors, we can expect that the field was developing in a fragmented manner. To depict this, we use the co-citation network (Figure 13).

In the author co-citation network, a link between two nodes (authors) implies that they are both cited in the same article. The network reaffirms that the L&E field is built on scholarship clustered around Steven Shavell (purple cluster), Richard Posner (light blue cluster), Gary Becker (red cluster), Coase and Stigler (green cluster), and Williamson and Bebchuk (dark blue). A separate cluster was identified for behavioral L&E (yellow cluster) with Daniel Kahneman and Cass Sunstein as the most prominent authors within it.

These clusters also effectively capture the distinctive characters of the “law and economics” and the “economic analysis of law” approaches. To remind, the former approach, which is associated with Coase, places an economic problem at the center and legal rules are analyzed only as they relate to this economic problem. This type of research seems to be captured by the green and dark

TABLE 5 Most cited authors.

| Authors | Number of local citations |
|----------------|---------------------------|
| SHAVELL S | 1322 |
| POSNER RA | 1232 |
| BECKER GS | 833 |
| POLINSKY AM | 744 |
| LANDES WM | 742 |
| STIGLER GJ | 655 |
| COASE RH | 643 |
| BEBCHUK LA | 545 |
| KAPLOW L | 506 |
| KLEIN B | 439 |
| EPSTEIN RA | 422 |
| PRIEST GL | 419 |
| LA PORTA R | 411 |
| COOTER R | 387 |
| DEMSETZ H | 371 |
| WILLIAMSON OE | 356 |
| CALABRESI G | 340 |
| EISENBERG T | 330 |
| EHRlich I | 313 |
| EASTERBROOK FH | 312 |
| PELTZMAN S | 309 |
| SCHWARTZ A | 309 |
| KAHNEMAN D | 286 |
| AGHION P | 285 |
| JENSEN MC | 275 |

blue clusters. On the other hand, the “economic analysis of law” which is associated with the work of Posner and Calabresi, focuses on legal problems and uses economic tools to analyze them. Such research seems to be reflected in the other clusters.

Given the discussion in this article of the convergence of the L&E field with economics (see previous sections), it might be also expected that the L&E field is mostly intellectually embedded in economics. To investigate this, we look at which journals are cited in articles from our corpus. In particular, we examine the co-citation network of sources, where a link between the two sources captures if they are both cited in the same article.

Figure 14 demonstrates the network and seems to confirm the expectation. The clustering algorithm detected several groups of sources, of which the largest is the cluster predominantly populated by economics journals (red cluster) and to some lesser extent law journals (dark blue cluster). There are two other distinct clusters which give a further weight to the economics journals: finance journals (embedded within a purple cluster) and labor economics journals (grouped with criminology journals within a green cluster). It is of note that the L&E field also draws on the political science journals (light blue cluster), but to a much lesser extent than on economics and law journals. Also here the distinction between “law and economics” approach and “economic

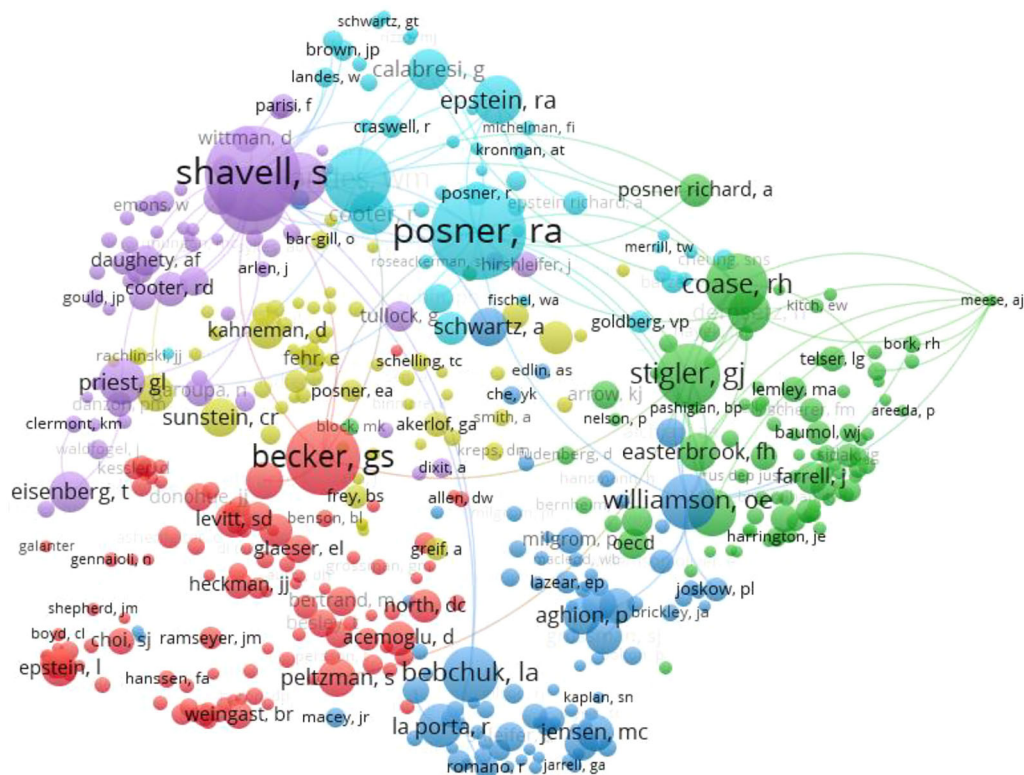


FIGURE 13 Co-citation network of authors. Note: Vertices are proportional to total link strength. [Colour figure can be viewed at wileyonlinelibrary.com]

analysis of law” seem to be reflected. For instance, JLS is clustered with American Law Reviews which are based in law schools and focus on legal issues.

6 | LAW & ECONOMICS AND ITS PARENT FIELDS

A central finding in this paper seems to be that while the legal field was initially more open to the movement of modern L&E, as the scope and the methods of this field expanded, it began converging with the economics scholarship. To examine this more directly, we focus in this section on the parent fields.

We examine two issues. First, we look at the diffusion of L&E in the parent fields as reflected in the journals outside the designated journals of the L&E field. Second, we investigate to which of the parent fields—law or economics—the L&E field resembles.

6.1 | Was there a diffusion of L&E beyond its designated outlets?

L&E knowledge is not solely produced in the main L&E journals. Such work can also be found in other, legal or economics journals. In this section we examine this work. Therefore, besides the core data on 12 designated journals extracted from the Web of Science, Scopus and web scrapping

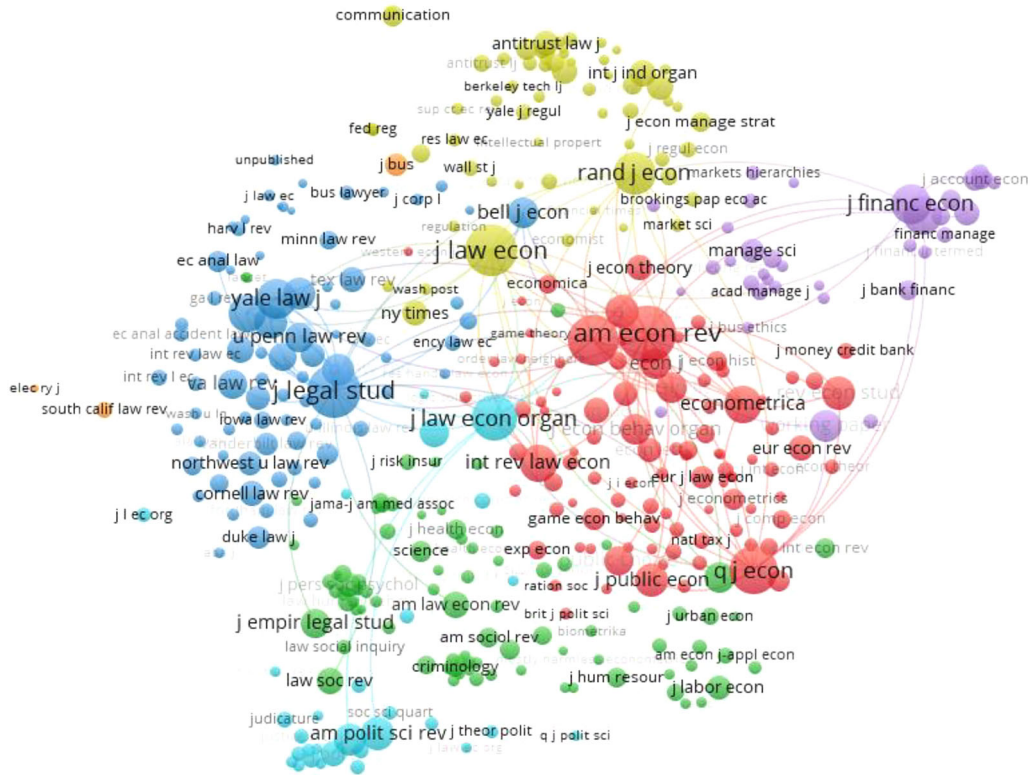


FIGURE 14 Co-citation network of sources. Note: Vertices are proportional to total link strength. [Colour figure can be viewed at wileyonlinelibrary.com]

(for the SCER), we also extract data on articles dealing with L&E but published outside the main outlets. The sample of the additional 33,630 articles was extracted from the Web of Science based on a Boolean search for specific terms in titles, abstracts or keywords. For law journals we chose common economic concepts which often appear in the L&E research based on Cooter and Ulen's (2016) textbook. Such concepts include, for example, “efficiency”, “market failure”, “equilibrium”. For economic journals we could not use the same concepts since they are also prevalent in “pure” economics research which is unrelated to law. Therefore, for this group of journals we have used the classifications of the L&E field as expressed in the relevant JEL codes (K). These classifications include words such as “property law”, “product liability”, “common/civil law”. For the full list of concepts, see the Supplementary Materials.

First, we look at the journals in which L&E-related research appears most frequently. Table 6 presents the top 25 journals in terms of frequency of publishing such work. We see that such work is published in both parent fields—economic journals, as well as in law journals. Energy Policy has the highest number of publications with the key words we have determined. However, the other journals do not seem to have much lower number of publications.

The prevalence of research which can be considered L&E in the economics journals is in particularly interesting. As we have discussed in the history section, the L&E movement had a large impact on the legal field in terms of becoming a new discipline. In economics, law remained more as an additional subject to analyze from economic perspective. This might suggest that without

TABLE 6 L&E work outside the main journals—Sources.

| | SO | Freq |
|----|---|-------------|
| 1 | ENERGY POLICY | 982 |
| 2 | JOURNAL OF REGULATORY ECONOMICS | 456 |
| 3 | JOURNAL OF BANKING & FINANCE | 427 |
| 4 | JOURNAL OF TAXATION | 330 |
| 5 | ECOLOGICAL ECONOMICS | 309 |
| 6 | JOURNAL OF WORLD TRADE | 300 |
| 7 | JOURNAL OF ENVIRONMENTAL ECONOMICS AND MANAGEMENT | 285 |
| 8 | ENERGY ECONOMICS | 260 |
| 9 | BALTIC JOURNAL OF ECONOMIC STUDIES | 250 |
| 10 | ENVIRONMENTAL & RESOURCE ECONOMICS | 241 |
| 11 | APPLIED ECONOMICS | 219 |
| 12 | WORLD DEVELOPMENT | 217 |
| 13 | JOURNAL OF PUBLIC ECONOMICS | 187 |
| 14 | UNIVERSITY OF ILLINOIS LAW REVIEW | 186 |
| 15 | PUBLIC CHOICE | 179 |
| 16 | FOOD POLICY | 176 |
| 17 | REVIEW OF INDUSTRIAL ORGANIZATION | 176 |
| 18 | TERRA ECONOMICUS | 175 |
| 19 | YALE LAW JOURNAL | 163 |
| 20 | NEW YORK UNIVERSITY LAW REVIEW | 162 |
| 21 | AMERICAN JOURNAL OF AGRICULTURAL ECONOMICS | 159 |
| 22 | RAND JOURNAL OF ECONOMICS | 156 |
| 23 | ACTUAL PROBLEMS OF ECONOMICS | 154 |
| 24 | JOURNAL OF FINANCIAL ECONOMICS | 152 |
| 25 | NATURAL RESOURCES JOURNAL | 152 |

explicitly treating this type of research as L&E it has been expanding. Research related to public policy and social issues has grown in economics over the years, and this is also reflected in the type of journals where such scholarship grows. But this is also the type of research which lies at the core of the L&E field. Therefore, one might suggest that the boundaries of what counts as “L&E” might have been expanding.

To examine the pace of the diffusion of L&E in the parent field we examine the number of articles over time. We first look at time trends in our entire corpus. Figure 15 confirms the diffusion of the L&E field in the parent fields. It is no longer a niche area of research which can only be found in the designated journals. The sharp growth in economics starts in the 1990s, which seems to coincide with the empirical turn. As we have suggested above, the empirical turn in economics is connected to a larger focus on policy research topics. Such topics are also common in the L&E field. Therefore, this time trend might not be surprising and may confirm the other findings that connect the development in the L&E field with the developments in economics.

The growth of L&E work in law journals also started in the 1990s, but somewhat slower. The sharp change is visible at the beginning of 2000s. The slower growth in law than in economics might be explained by the fact that L&E became a separate discipline. Therefore, initially it was

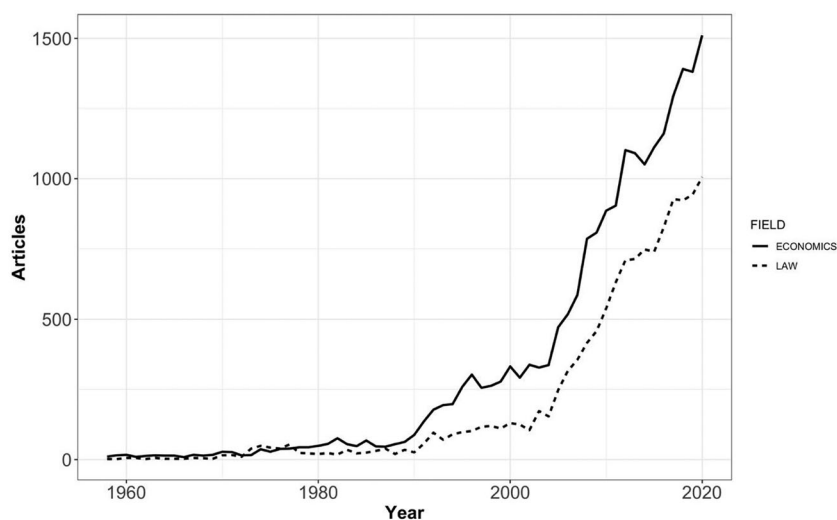


FIGURE 15 L&E diffusion over time (all journals identified).

only growing in the top law schools as described in the history section. Then slowly the new discipline found its way to other law schools and the number of contributions grew. In economics, on the other hand, it does not seem to be a separate discipline, but simply a larger focus on policy and social issues, which might better fit L&E.

To see further the diffusion of L&E we have zoomed in to the top journals in the two parent fields. The four leading general law journals are (based on JCR ranking 2020): Harvard Law Review, Stanford Law Review, Columbia Law Review and Yale Law Journal. We then add the Oxford Journal of Legal Studies, even though it is not ranked as a top journal, since it can serve as a proxy to general European law journals (Garoupa & Ulen, 2007). Given also that in the L&E journals we only have one European journal, versus American journals, the journals we use for the comparative analysis of the legal field reflect well the same distribution. The commonly defined top five journals in the field of economics are: American Economic Review, Journal of Political Economy, Review of Economic Studies, Econometrica and Quarterly Journal of Economics (Heckman & Moktan, 2020). For the purpose of this analysis, we have extracted data from the WoS and the whole corpus contains 10,632 articles from the legal domain and 22,207 articles from the field of economics.

As Figure 16 demonstrates, the trend is somewhat reverted in the leading journals. In other words, the growth of L&E-relevant articles in these journals are more prominent in law than in economics. This might suggest that such research did not gain popularity in economics as it did in law. Such finding confirms what we have discussed in the history section about the place L&E took in the field of law as compared to economics. In the former it became its own discipline. The fact that the growth of L&E research began already in the 1990s in the top law journals but somewhat later in the other legal journals suggests the leading role played by these journals to introduce the new discipline into law.

In economics on the other hand, law remains as one subject out of many economists deal with, rather than its own separate discipline. This is also confirmed by looking at the JEL codes. Web of science does not provide information on the JEL codes; therefore, we manually coded the number of articles in the top journals that explicitly indicated the L&E relevant codes (K). We found

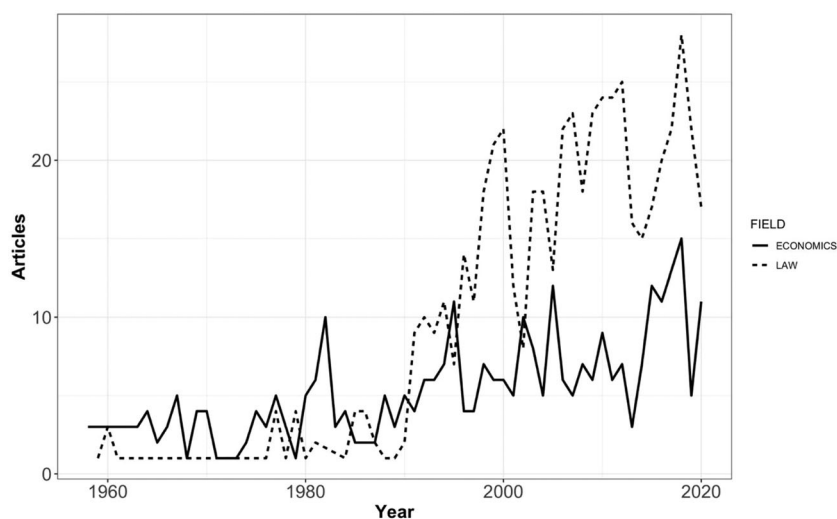


FIGURE 16 L&E diffusion over time (top five journals in each of the parent fields).

this information only for three out of the five journals (AER, RoES, and QJE) and not for all years. Based on our coding, since 1999 there were 220 articles that specified one of the L&E codes, and the vast majority of the articles (202) are found in AER. An interesting observation is the prevalence of research related to criminal law and enforcement (K42). This might be explained by the prominence of Gary Becker's (1968) paper on crime which was one of the contributions that opened up economics to non-traditional fields of analysis.

However, our results might be underestimating the number of relevant articles published in the top economics journals. We have used the official terms of JEL codes. But over the years, the work related to L&E in economic journals might have gone beyond these narrow terms. It includes social policy topics, which nowadays can be considered also L&E scholarship, but do not refer to specific legal areas, as JEL codes mostly do. Therefore, it is not unreasonable to assume that the number of articles which can be at this stage considered as L&E topics in the top economics journals is much larger than is depicted by our method.

Given the different meaning of the “law and economics” and the “economic analysis of law” approaches, and their different developments, we conjecture that there should be a connection between the parent field journals and the designated journals related to each of these approaches. In other words, we estimate that law journals should be mainly co-cited with JLS, and the economics journals should be mainly co-cited with articles from JLE. To test this conjecture, we created a co-citation network of the articles outside the designated journals.

Figure 17 partially confirms this conjecture. JLS is closer to the cluster of the legal journals (yellow and red). JLE on the other hand, seems to be somewhere in the middle, being heavily co-cited with economics journals (blue and green clusters) but also not entirely detached from the legal journals. This finding suggests that the diffusion of both approaches occurred in the parent fields.

In the Supplementary Materials we provide additional analyses related to the diffusion of the L&E field. In particular we look at the most influential work in the journals outside the designated L&E journals (Table S5); the country affiliation of the authors (Table S6); and the co-citation of different authors in the field (Figure S3).

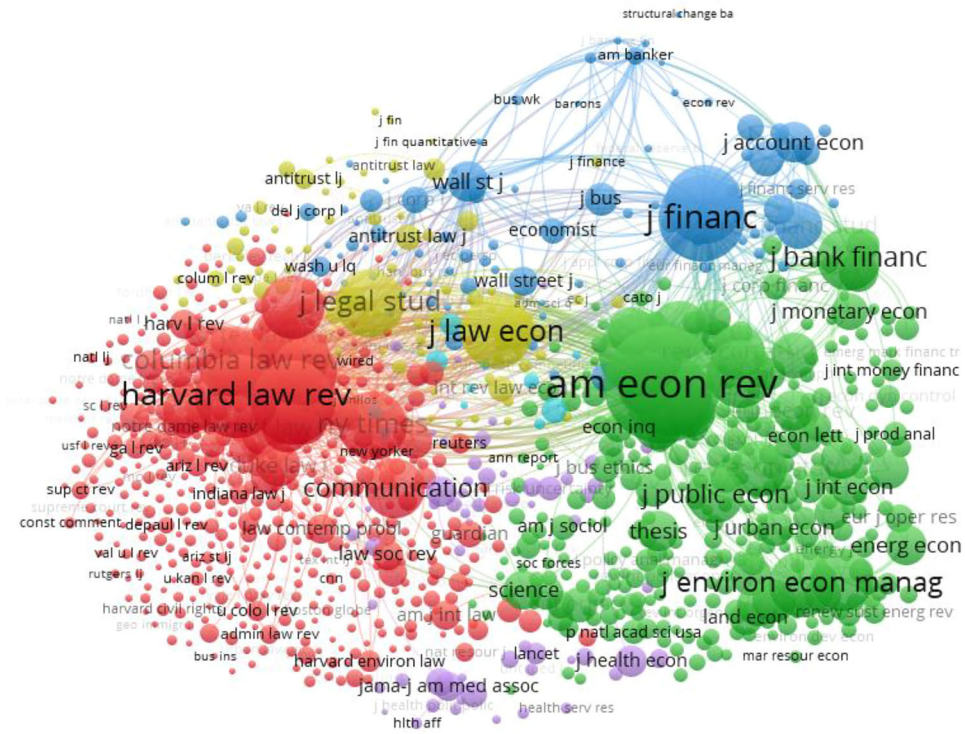


FIGURE 17 Co-citation network of sources. [Colour figure can be viewed at wileyonlinelibrary.com]

6.2 | Does the L&E field resemble any of the parent fields?

To examine the resemblance between the fields, we look at the co-authorship practices, citations papers, length of articles, funding practices, and open-access standards. In order to capture the parent fields, we looked at the top five journals in economics and the top five journals in law as explained above.

In terms of patterns of co-authorship (Figure 18), we see that L&E papers tend to follow the practice of economics papers, although the average number of co-authors is somewhat lower for L&E articles than for economics articles. The co-authorship of law articles is not common, and this pattern seems to be quite persistent. The trend of increased co-authorship in the L&E literature might be explained by the increase in the application of empirical methods. Such methods require specialization, thus enhancing the value of collaborations. Our results also confirm earlier indications of the link between the increase in the usage of empirical methods and increased co-authorships (Ginsburg & Miles, 2011). Also in economics, the increasing complexity of research and the specialized skills required to publish in leading economic journals is provided as an explanation for the trend (Hamermesh, 2013).

Co-authorship in the field of L&E can be in particularly beneficial, given that this field can be enriched by institutional details on the one hand, and proficiency in the economic approach on the other hand. Therefore, combining complementary skills while using comparative advantages might be valuable in this filed.

The similarity between economics and the L&E field is further confirmed by examining the average number of cited references (Figure 19). The patterns here are almost identical in the fields

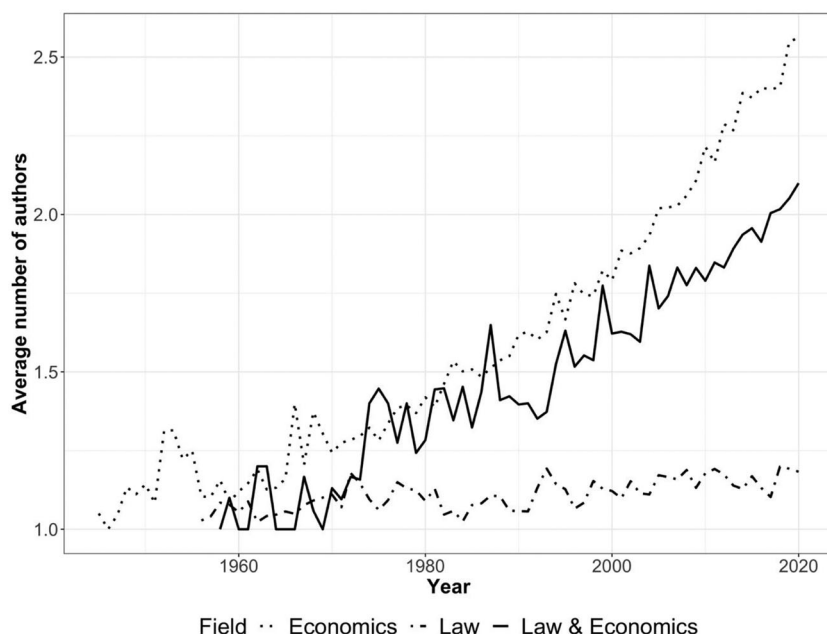


FIGURE 18 Average number of co-authors per article.

of economics and L&E. In both cases, the average number of cited references is growing reaching roughly 50 in 2018. In legal articles the average number of cited references fluctuates but is overall much higher than in the two other fields.

The convergence between economics and L&E fields of literature is also visible when comparing them in terms of the size of articles, that is, the average number of pages (Figure 20). Although, it has to be noted that this convergence occurred only in recent years. The average length of economics and L&E papers oscillates around 25 pages. The law articles tend to be much lengthier. This seems to confirm the general perception of these fields. While American law reviews' articles tend to be very lengthy (sometimes even setting a required minimum number of words/pages which is relatively high), many, if not most of economics and L&E journals set quite strict upper limitations on the number of words.

Interestingly, some differences emerge between economics and L&E fields if one looks at the average number of normalized citations (citations per year) that articles in each field receive (Figure 21), the share of articles acknowledging funding (Figure 22) and the share of articles published with an open access status (Figure 23). While in terms of the average number of normalized citations the L&E field resembles more closely legal scholarship, in terms of funding and open access publications the L&E field is located in-between the law and economics fields.

We have also examined whether specific journals are more associated with one of the parent fields. For example, as has been discussed in the brief history section, the field of L&E was established quite distinctively by the economists (Director, Coase, Becker) and the legal scholars (Calabresi and Posner). The former used an abstract analysis, looking more at how legal rules interact with the economy and the market. The founding legal scholars looked more carefully at the legal rules themselves and used economic criteria to evaluate the efficiency of these rules (Marciano, 2012; Mercurio & Medema, 2006). The JLS was established by Posner to give room for

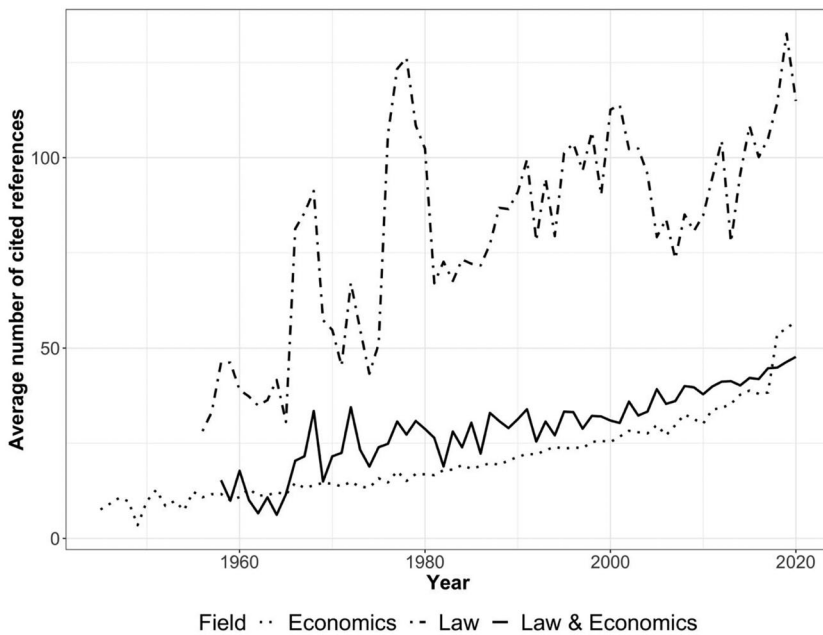


FIGURE 19 Average number of cited references.

the latter type of analysis (Posner, 1972). Therefore, in the first step, we investigate whether these historical roots are reflected in the citation network. In particular, we examine whether legal journals cite more frequently papers from JLS and vice-versa, and whether economic journals cite more frequently papers from JLE.

By looking at the citation network of law, economics and L&E journals in Figure 24, we first see that the L&E journals play a bridging role between economics and law journals, thus it confirms the inter-disciplinary nature of the field. Furthermore, when looking more carefully at the dominating L&E journals in the citation network of the parent fields, we see that indeed in terms of citation patterns JLS is situated much closer to the grouping of legal journals. And as predicted, JLE is located closer to the economics literature.

It is clear by now that L&E, over the years, also entered more the mainstream scholarship in economics. This section demonstrated the convergences between the two fields in multiple ways. An increasing number of L&E-related papers are published in economic journals, and the scholarship becomes more resemblant to economics (e.g., the practice of co-authorship, the length of the papers and number of citations). The convergence can be attributed to the expansion of L&E and its turn to a broader area of research than what it traditionally was. Before the empirical turn, many of the L&E papers focused on insights into legal doctrines (Landes, 2003). Such topics were not of interest for economists and did not appear in their top journals. The empirical turn has led the L&E field to expand to more general policy questions, in different legal fields. As those are also of interest for economists, the two fields intersected to a larger extent. Nowadays, similar work can be found in L&E journals as in economics journals.

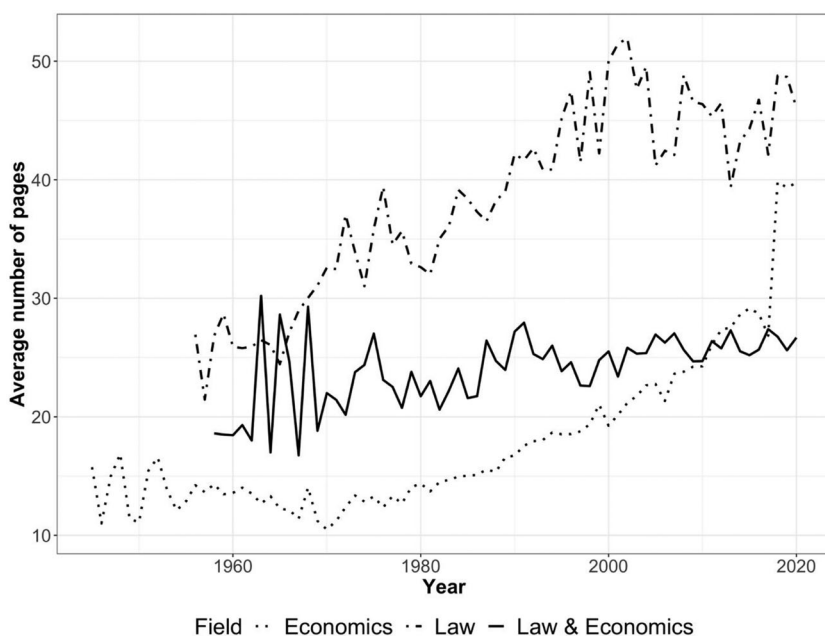


FIGURE 20 Average number of pages.

7 | THE LAW & ECONOMICS FIELD AND DIVERSITY

7.1 | Did “she” become more present?

The L&E field was clearly founded by men. There is not a single woman mentioned as a significant figure who promoted the field at its inception. But did women become more prominent in the field over the years?

The question of gender diversity is understudied in the field of L&E. However, it was extensively studied in the field of economics, and to a lesser extent in law. Historically, women were underrepresented in the scientific field of economics. In the U.S., in the mid-20th century, the explanation was the differing preferences of men and women. However, soon after, the disparities in this profession were attributed to bias and discrimination against women (Lundberg & Stearns, 2019). This realization provoked a debate and actions, which resulted in some increase during the 1970s and the 1980s. The growth in the representation of women in economics academia then slowed down (Lundberg & Stearns, 2019). When looking at top economics and business research institutes around the globe in recent years it is clear women are still underrepresented with only 25% of senior academic positions, and 37% of junior academic positions, are held by women. However, the situation is somewhat better in Europe (27% and 38%, respectively) than in the U.S. (20% and 32%, respectively) (Auriol et al., 2022).

In terms of publications in economics, women are publishing less (e.g., Ghosh & Liu, 2020), yet the rate of female publications in general, and in the top five economics journals in particular, grew (Hamermesh, 2013) from less than 5% to almost 30% over the period of 1970–2017 (Ductor et al., 2023). There are different explanations for the gender gap, such as smaller networks, different career choices and constraints, as well as being held to tougher standards (Hengel, 2022). In terms of citation patterns, Maddi and Gingras (2021) find that in economics and management

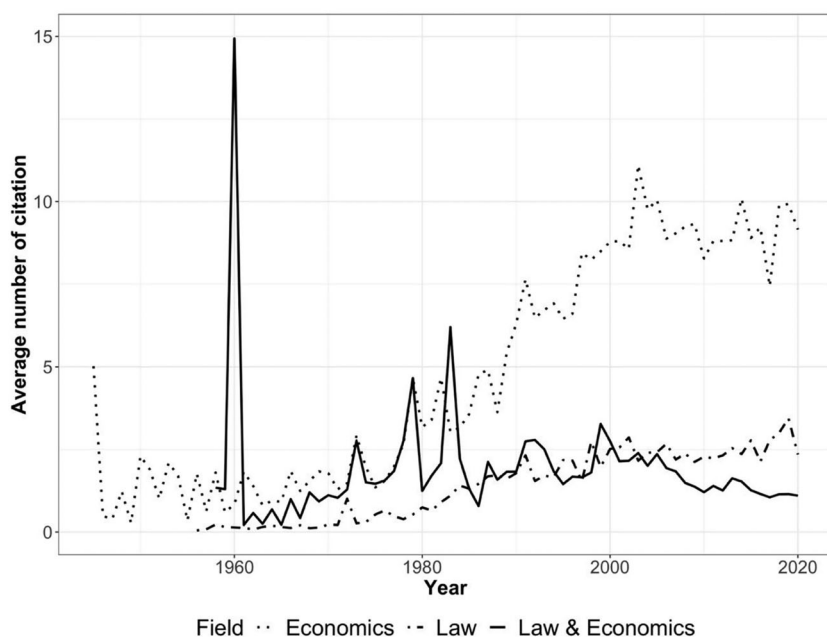


FIGURE 21 Average number of normalized citations.

mixed collaborations (females and males) lead to a higher number of citations as compared to sole-authored or non-diversified publications.

In the American legal academia, the growth in female representation was significantly faster. The share of women in the law schools' faculties went from a few women per school in the 1980s to 45% by 2021. Furthermore, currently around 42% of the law schools' deans are female (Katz et al., 2022). Similar rates can be found outside the U.S. For instance, in Australian law schools by 2018 already half of the academic staff were females (Melville & Barrow, 2022). In terms of publications, Kotkin (2009) looked at the top American law reviews in the period of 2005–2008 and found that nearly 26% of the authors who published there were women. A similar analysis was done by Pant (2020) for the period of 2013–2018 (covering American law reviews of the top 20 law schools). This author found that there was an increase in the share of female scholars publishing in the top journals as their rate increased to almost 32%. Scholars also investigated whether there is a gender gap in terms of scholarship impact as measured by citations. Cotropia and Petherbridge (2017), for instance, analyzed articles published between 1990 and 2010 in top 100 law reviews and found that against common belief, papers (co)authored by women were significantly more cited.

To capture the prevalence of female authors in the field of L&E (or more accurately in the designated journals of L&E), we first identified the gender of authors by applying the Gender API detector on the first names of authors, which have been systematically captured by the WoS only since 2006. Before that, the information on the first names of authors was quite patchy. The Gender API assigns the gender label based on the probability score that the name is either associated with female or male. We assume the algorithm is correct in assigning the gender label if the score is above 0.50. In cases in which the score amounts to 0.50, the gender remains unidentified. We subsequently select only those articles for which the gender of all authors could be identified and compute the shares of female authors. For a single authored publication by a female, the score

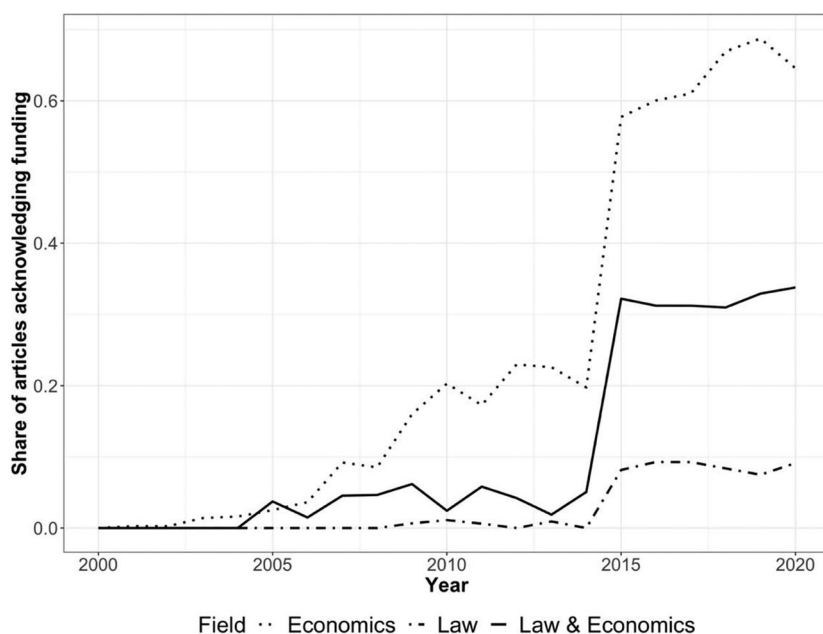


FIGURE 22 Share of articles acknowledging funding organizations.

equals 1, the same for the multi-authored publications where all co-authors are females. In the same vein, a paper with two co-authors where one is a female and the other a male, the share of female authors equals 0.5.

Looking at Figure 25, we clearly see that the share of female authors publishing in the designated L&E journals increases over time. While the average share of female authors per article was less than 10% in 2006, this share increased to more than 20% in recent years.

We have also looked at earlier years by manually coding all the articles which were published in the years 1985 and 1995 (in total $N = 131$ articles). In 1985, the share of female authors was 8.2% and after 10 years it increased only to 8.6%. Thus, it seems that starting from 2000s the increase in the share of female authors has accelerated. This trend seems to closely resemble the increase in the share of publications by women in economics as has been described above (increasing from less than 5% in the 1970s to nearly 30% in 2017).

Concentrating on the specific journals, we see that the average share of female authors per article is not the same in all journals of interest (Figure 26).¹³ The highest share of female authors seems to be in JELS with almost 25%. The share is also high in EJLE, with around 22% female authors. On the other hand, JCLE has the lowest share of female authors. Given that the latter is a journal mainly publishing competition law and economics papers, one might say that this low proportion of female authors relates to the focus fields (voluntary or driven by external factors) of female L&E authors. In other words, female authors might also simply publish less on the topic of competition law. Looking at the general L&E journals we see that the average share of female authors per article is still very low, being less than 20% (with the exception of AsJLE where the share is 20%).

Going beyond quantity, we also examine the quality of publications by female authors. To capture the quality, we have measured the number of citations of papers (co)authored by female

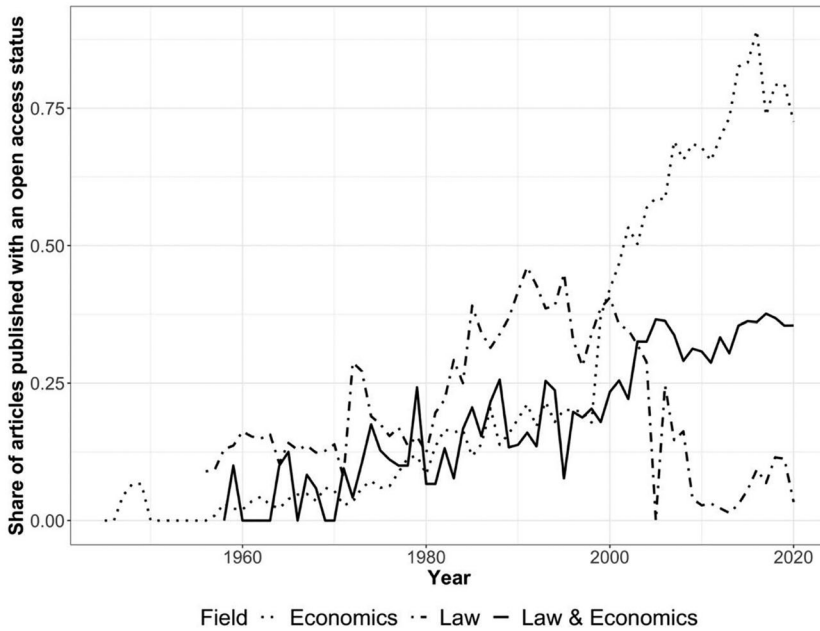


FIGURE 23 Share of articles published with an open access status.

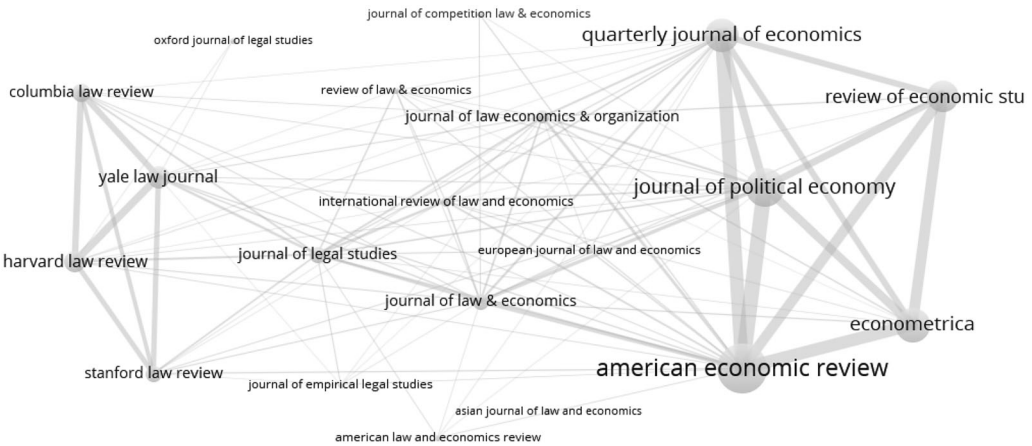


FIGURE 24 Citation network between top law, top economics and designated Law & Economics journals.

scholars.¹⁴ In Figure 27, we see that the most cited papers are written by a mix of female and male authors (almost 1.6). This pattern resembles the field of economics where a similar result was demonstrated (Maddi & Gingras, 2021). The least cited articles are those written by a single male author. Single female authors perform as well as female co-authors, with an average of 1.3 citations. Therefore, we see that despite the low number of articles in the designated L&E journals, articles written by female authors do have an impact.

FIGURE 25 The average share of female authors per article in the designated L&E journals over the years. Note: Gender identified based on a first name of authors captured by the WoS sample.

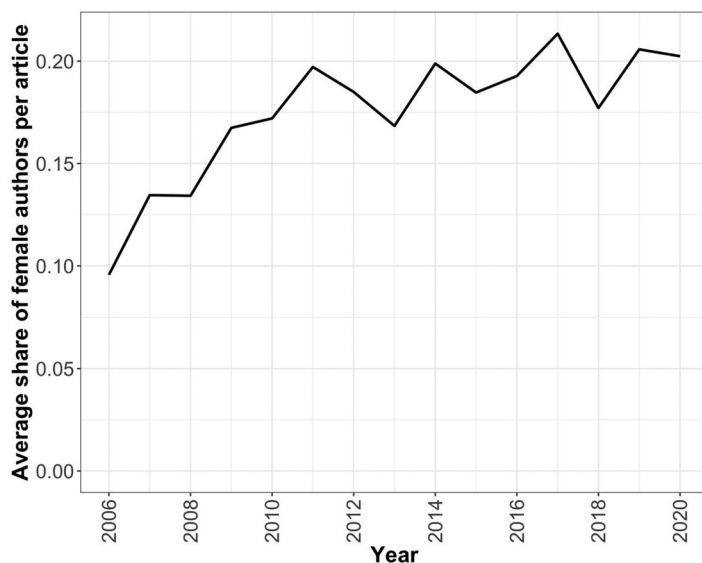
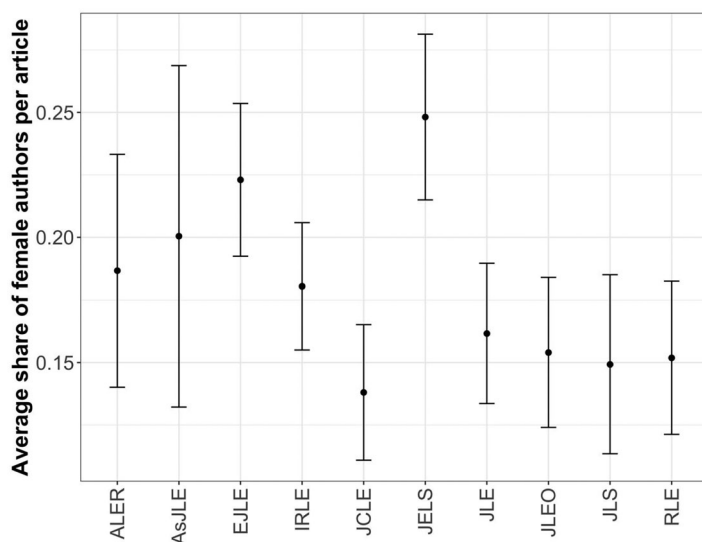


FIGURE 26 Share of female authors across 10 journals in the years 2006–2020. Note: The WoS sample.



7.2 | What do the L&E female scholars focus on?

Another noteworthy question is whether the topic preferences diverge between male and female L&E scholars. The choice of a field may be important for publication rates, and the venue of the publications. In turn, it is expected to affect promotion. This is in particular true for the economics field (Lundberg & Stearns, 2019). Because authors publishing in the L&E journals come (mostly) from a law school or an economics faculty, it is hard to indicate which fields would be beneficial for promotion. Moreover, if there are general entry barriers to female scholars in academia, their choices of topics may be driven by other factors. Nevertheless, it is still interesting to examine whether female authors tend to focus on particular areas of law.

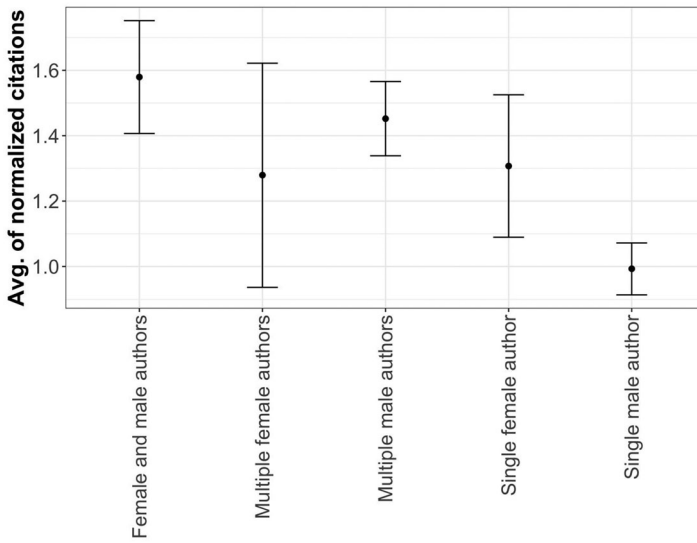


FIGURE 27 Average number of citations and the gender of authors (2006–2020). Note: The Wos sample.

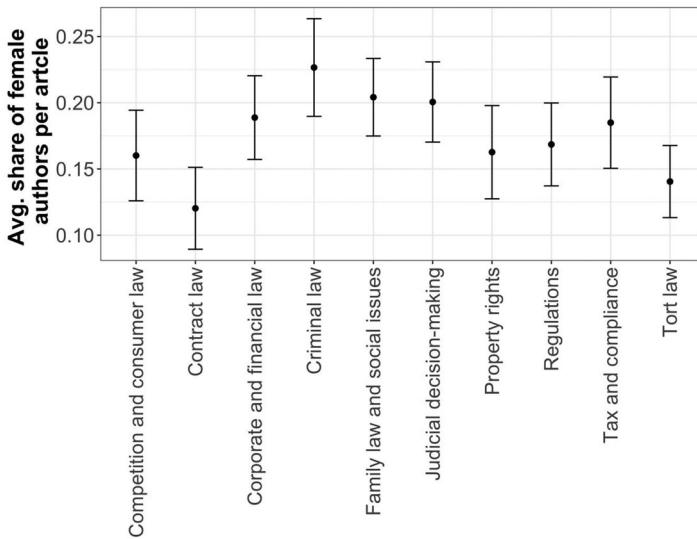
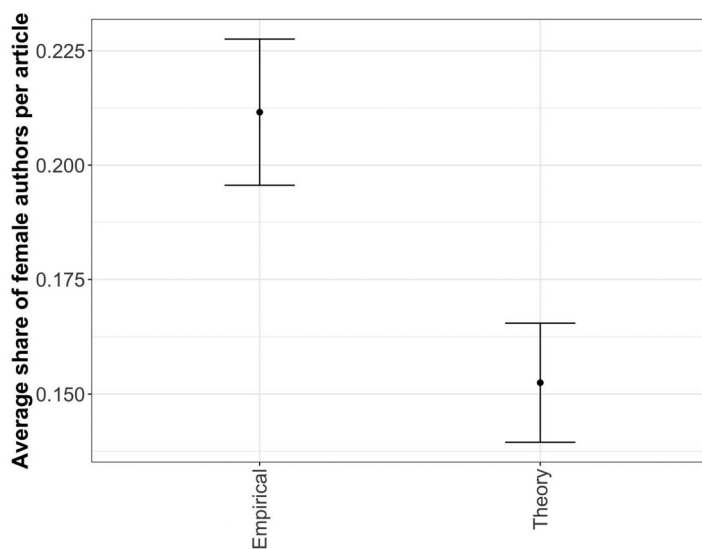


FIGURE 28 Focus topics by female authors (2006–2020).

A standard way to estimate the focus on the different fields is to look at JEL codes (Lundberg & Stearns, 2019). However, this information was not systematically available in our data corpus. Therefore, we have merged the data on the share of female authors per article with the data stemming from the STM, which uncovered ten coherent topics of interest within the field of L&E (see section about the type of knowledge produced). We identified an article as belonging to a certain topic area depending on the highest topic scores. Thus, if an article obtained a highest topic score for ‘judicial decision-making’, we classify this article as belonging to this topic.

In Figure 28, we see that the criminal law topic (23%) seems to be the most “popular” among female scholars, as compared to other topics. However, family and social matters as well as judicial decision making are not statistically different from criminal law, thus making all the three topics as the main focus of female scholars. On the other hand, female authors seem to focus the least on contract and tort law topics. Interestingly, family and social matters, as well as judicial decision

FIGURE 29 Focus methods by female authors.



making, are also the topics where empirical methods are often used. This finding aligns with the above-mentioned findings that the higher representation of female scholars is in JELS.

Given the indication from the previous analyses that female seem to publish most in JELS, and focus on topics which are often investigated empirically, we also examine whether female scholars more often use empirical as compared to theoretical approaches. For this purpose, we have merged the data on methodology (as described in Section 4) and the data on gender. Figure 29 provides a clear answer to this question. Female authors constitute on average 21% of authors on the empirical papers. This contrasts with around 15% of female authors, on average, on the papers using pure theory. This difference is statistically significant.

8 | DISCUSSION

The year 2020 marked the 60th anniversary of the seminal paper by Ronald Coase—*The Problem of Social Cost*. Such an occasion is a good opportunity to look back and see how the field of L&E has developed starting from its inception.

Over the past 60 years the field of L&E has clearly expanded. From being a niche topic in the 1960s, it has become more mainstream, both in law and in economics. However, from its inception it took different paths. The economists followed the “law and economics approach”. In this sense they investigate economic questions while also including legal rules to the extent they are relevant to these questions. They have also expanded economic analysis to non-traditional areas such as criminal law. In the legal scholarship, on the other hand, “economic analysis of law” became a new discipline as a response to dissatisfaction with the former approaches. In this discipline the scholars analyze traditional legal questions from a new perspective and using new set of tools.

When analyzing the main topics covered in the field, we see that the founders of the field have succeeded in their goal to expand the economic approach beyond the initial and traditional topics such as markets and taxation. Nowadays, a wide range of topics is covered, and it is hard to think of any area of law which has not received the attention of L&E scholars. Even topics such as family and social matters, and judicial decision making are prominent in the L&E scholarship.

Consequently, what counts as “L&E” has broadened to include different areas of policy, which made L&-related scholarship attractive also to leading general journals.

We also looked at the input in the field, and in particular by who, and where, the knowledge is produced, as well as the seminal works which this knowledge is built on. Not surprisingly that North American academic institutes as well as scholars who are based in the U.S. dominate the field in the designated journals. However, our findings demonstrate that even with a conservative analysis, other countries are also present. Especially when accounting for the size of the population we also see that scholars based in countries such as Israel and the Netherlands publish significantly in the designated L&E journals.

Going beyond the more traditional questions of how a field develops we also looked at the methods. Our findings suggest a spillover effect from the empirical turn and the credibility revolution which occurred in the field of economics since the 1990s. Similarly to economics, the L&E scholarship became less focused on pure theory, and increasingly applying different empirical methods. The methods themselves also resemble the developments in economics, where quasi-experimental designs were used to increase the credibility of causal claims. Such methods are in particularly important when investigating policy questions and providing insights to policy makers. Furthermore, the emerging methods required more specialized skills, and led to increased collaborations both in economics, and in L&E. The field of law did not stay behind, and the empirical turn has also occurred in that field (Ho & Kramer, 2013).

When looking forward on the field of L&E it seems that the empirical approach will become more and more prominent in the field. Furthermore, new methods will be introduced and used to answer the questions of interest, as illustrated by the recent increase in the application of computational methods. These are generally not new methods, as they have been applied in other fields, but they are new to the field of L&E and their potential in utilizing the increasingly available data is significant. In particular since the object of analysis in L&E is often legal text, we predict that text-as-data and natural language processing techniques will gain further traction in the field.

The observation by leading scholars in the field that L&E is becoming more technical (Harris, 2018), combined with our own findings might suggest some divergence in the field. Our citation network demonstrated that the designated L&E journals are closer to economics journals. The leading scholars in the field, as reflected in these journals are often economists. On the other hand, when looking at the L&E work outside those journals we see a somewhat different trend. A similar network citation shows closer links of those articles with legal journals. These publications are also not dominated by economists, as there are more legal scholars who are publishing and more legal scholars who are cited. This may suggest a divergence in the audience of the law and economics scholarship, where the designated L&E journals would attract to a larger extent scholars from economics, and other (legal) journals which are open to the L&E approach will be more attractive for lawyers and practitioners.

The conjecture above might be supported to some extent by our analysis of the diffusion of L&E into the parent fields, that is, law and economics. When comparing the development of scholarship in the parent fields to the one in the designated L&E journals, we see that the latter resembles economics more than law. This is true with respect to aspects such as co-authorship, citations, paper length, etc.

Finally, we have also investigated the question as related to diversity in L&E, with an emphasis on gender diversity. Especially in recent years the question of diversity in academia is coming to the forefront. However, while the gender diversity topic has been investigated extensively in economics, and to some extent in law, it is almost entirely missing in L&E. Therefore, we also decided to look at the presence of female scholars in the field which is the focus of this manuscript.

From its inception, the field of L&E has been dominated by white male scholars. There is not a single female who was part of founding the designated journals of L&E. In 1985, the share of female scholars publishing in those journals was 8%. Nevertheless, this trend is changing and 60 years after the seminal paper by Coase, the share of female authors in the designated L&E journals stands at 20%. Despite being low, there is a clear trend of an increased share of women in the field. We have also looked at the quality indicators and have found that articles co-authored by a mix of female and male authors are the most cited. This might suggest, as has been raised in other contexts (e.g., Erhardt et al., 2003), that diversity may increase quality. It is also consistent with similar findings in the field of economics.

In this work we have attempted to provide an analysis of the field's development in the last 60 years. We have focused on specific points of development, providing depiction of some of the major shifts in the field. Nevertheless, there is undoubtedly scope for future research. For example, as the computational tools are rapidly developing, in the future it might be possible to conduct a more comprehensive analysis of the field, going beyond the English written literature. We are confident that such an investigation will uncover a much larger impact which the economic approach had on the legal field. Additionally, the diversity question may be further investigated by examining the composition of editorial boards over the years, as well as presenters in the different L&E conferences.

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CONFLICT OF INTEREST STATEMENT

There is no conflict of interests to report.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the Web of Science and Scopus. Restrictions apply to the availability of these data, which were used under license for this study. Data are available from the authors with the permission of the Web of Science and Scopus.

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ENDNOTES

- ¹The abbreviation of the journal's name, the founder(s), and the year of establishment are included in parentheses.
- ²For a comprehensive account of the path Henry Manne made in the promotion of the Law and Economics field, see Gindis (2020).
- ³We limit our analysis to only citable documents (articles) and review essays, thus we exclude notes, book reviews, commentaries and errata.
- ⁴For the results containing the words and the topics see Table S2 in the Supplementary materials.
- ⁵One should note that older articles often do not contain abstracts.

- ⁶Based on the abstracts, we classified whether the paper used empirical methods, or based their arguments purely on a theoretical analysis be it a formal theory model or conceptual approach. Theory in our analysis includes papers using formal models to support their arguments, or articles using the economic approach in a more conceptual manner, without formal equations. With respect to the empirical approach, it should be noted that often the empirical analysis is preceded by a theoretical part. However, for the purpose of our analysis, any paper which uses an empirical approach, is classified as empirical. This way we can distinguish between the papers that are purely theoretical, and those using an evidence-based approach. Therefore, theoretical papers are termed “purely theoretical”, to distinguish them from papers that include both approaches.
- ⁷See, for instance, the most recent development in the form of establishing the first European Society of Empirical Legal Studies (ESELS) <https://esels.eu>, and the European Journal of Empirical Legal Studies <https://publicera.kb.se/ejels/>.
- ⁸The coding exercise took place at the early stages of the project, when two of the twelve journals were not yet included. Therefore, these specific results are derived for ten L&E journals, excluding JELS and AsJLE.
- ⁹This classification might be challenged asserting that only someone with a master or a higher degree in economics can be considered as an economist. However, due to the different educational structures in different countries, it is difficult to set one justifiable classification. Therefore, in the Supplementary Materials (Figure S2) we analyze the results when we reclassify economists as only those with a master’s degree in economics or higher. The results remain generally unchanged.
- ¹⁰Our measure of citations is the number of times the paper was cited in our corpus. It does not count the times it is cited in other journals, outside our corpus. However, since our data contains the main sources of the field, this measure is a good illustration of the level of impact of the papers and authors in the field. We use citation counts as reported by the WoS as Google Scholar does not offer the possibility to easily extract this data in an automated fashion. It has to be noted, however, that the citation counts reported by the WoS are much more conservative than those reported by Google Scholar.
- ¹¹We acknowledge that our analysis provides only a partial picture of the input. As has been mentioned in the history part, in many European countries local scholars publish L&E articles in their national languages. This is of course not captured in this work.
- ¹²An optimal denominator would be the relevant scholars. However, while the size of the population has comparable data across countries, no such comparable data exists for the number of scholars per field.
- ¹³One should be careful in interpreting quantity and quality results related to diversity given the potential publication bias against women. The findings on this point are mixed (Lundberg & Stearns, 2019), but caution is rendered. For example, Card et al. (2020) find that papers authored by female scholars have a lower probability of being given the offer of revising and resubmitting their articles in economics journals, relative to an objective citation-maximizing benchmark. Thus, generally female scholars might be facing a higher threshold for publishing in leading journals.
- ¹⁴Another way to measure “quality” is to look at the number of publications in the top journals, as often done in economics (Lundberg & Stearns, 2019). However, unlike in economics where the top five journals are clear and known to all, such a hierarchy is somewhat harder to define in the L&E. It can differ depending on the ranking source.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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