

# **Behavioral Law and Economics: A Complementary Approach to the Standard Perspective\*\***

## **Derecho y Economía Conductual: un enfoque complementario a la perspectiva estándar**

### ABSTRACT

There is a debate regarding the relationship between standard and behavioral perspectives of Law and Economics. On the one hand, Behavioral Economics could broaden economic theory by explaining the real world of law, as in the case of legal structures of merit goods and altruism<sup>1</sup>. On the other hand, Behavioral Economics may not be needed to explain legal structures that do not maximize wealth, since standard economic theory is well able to do so<sup>2</sup>. Nevertheless, a comparison of two scientific approaches does not necessarily have to imply selecting one theory over the other; rather, it allows the use of both theories in a complementary manner. This research conceptualizes Law and Economics as a Lakatos research programme and analyzes the relationship between Behavioral Law and Economics and the standard approach. The results reveal that, first, Behavioral Law and Economics explains anomalies that are undetected by standard Law and Economics. The behavioral approach is thus not a substitute for the standard perspective, but rather, the two approaches may be complementary. Second, these two theories of Law and Economics examine different, but complementary, aspects of regulation. This article uses the regulation of transportation network companies to illustrate this issue.

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1 Calabresi, G. *The future of law and economics: Essays in reform and recollection*. New Haven: Yale University Press. 2016.

2 Leeson, P. T. "Do we need behavioral Economics to explain law?" In *European Journal of Law and Economics*. No. 48, 2019, 1-14.

## KEYWORDS

Public law, economics, regulation, behavioral sciences.

## RESUMEN

Existe un debate sobre la relación entre las perspectivas estándar y conductual del Derecho y la Economía. Por un lado, la Economía Conductual podría ampliar la teoría económica al explicar el mundo real del Derecho, como en el caso de las estructuras jurídicas de los bienes de mérito y el altruismo<sup>3</sup>. Por otro lado, es posible que la Economía Conductual no sea necesaria para explicar las estructuras jurídicas que no maximizan la riqueza, ya que la teoría económica estándar es capaz de hacerlo<sup>4</sup>. No obstante, la comparación de dos enfoques científicos no tiene por qué implicar la selección de una teoría sobre la otra, sino que permite el uso de ambas de forma complementaria. Esta investigación conceptualiza el Derecho y la Economía como un programa de investigación de Lakatos y analiza la relación entre la Economía Conductual del Derecho y el enfoque estándar. Los resultados revelan que, en primer lugar, el enfoque conductual explica anomalías que no son detectadas por la perspectiva estándar del Derecho y la Economía. Por tanto, el enfoque conductual no sustituye a la perspectiva estándar, sino que ambos enfoques pueden ser complementarios. En segundo lugar, estas dos teorías del Derecho y la Economía examinan aspectos diferentes, pero complementarios, de la regulación. Este artículo utiliza la regulación de las empresas de redes de transporte para ilustrar esta cuestión.

## PALABRAS CLAVE

Derecho público, economía, regulación, ciencias del comportamiento.

## SUMMARY

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3 Calabresi, G. *The future of law and economics: Essays in reform and recollection*, cit.

4 Leeson, P. T. *Do we need behavioral Economics to explain law?*, cit.

Economics. 3.1.1. The negative heuristic of Law and Economics. 3.1.2 The positive heuristic of Law and Economics. 3.2. Behavioral Law and Economics and the research programme. 3.2.1. The crucial experiment of Kahneman, Knetsch and Thaler. 3.2.2. The complementarity of the standard and behavioral perspectives. 3.3. The regulation of Transportation Network Companies. 4. Discussion. Conclusions. References.

## INTRODUCTION

Behavioral Economics has transformed standard Economics, with the economics research agenda increasingly including this view of limited rationality. The approach has also influenced other disciplines, such as the study of law and public policy. In this regard, legal studies have covered general aspects of Behavioral Economics as applied to public law<sup>5</sup>, as well as specific legal areas, such as tort law<sup>6</sup>, property law<sup>7</sup>, criminal law<sup>8</sup>, administrative law<sup>9</sup>, tax law<sup>10</sup>, and other fields of law. However, to date, the relationship between Behavioral Law and Economics and the standard approach has been scarcely studied<sup>11</sup>.

In “The future of law and economics”<sup>12</sup>, Calabresi suggests that it is necessary to turn to Behavioral Economics to explain legal structures that do not maximize wealth, given that Law and Economics are unlikely to be able to analyze laws that target altruism or merit goods. On the contrary, Leeson<sup>13</sup> indicates that it is not necessary to appeal to new models, as the traditional rent-seeking model can explain legal structures, using the agency problem to explain the content of laws that do not maximize wealth.

5 Jolls, C.; Sunstein, C. R., & Thaler, R. *A behavioral approach to law and economics*. In *Stanford Law Review*. No. 50, 1997, 1471-1550; Amir, O. & Lobel, O. *Stumble, predict, nudge: How behavioral Economics informs law and policy*. In *Columbia Law Review*. 2008, 2098-2137; Zamir, E., & Teichman, D. *Behavioral law and economics*. New York: Oxford University Press, 2018.

6 Halbersberg, Y., & Guttel, E. *Behavioral Economics and tort law*. In *The Oxford Handbook of Behavioral Economics and the Law*. New York: Oxford University Press, 2014.

7 Lewinsohn-Zamir, D. *Behavioral Law and Economics of Property Law*. In *The Oxford Handbook of Behavioral Economics and the Law*. New York: Oxford University Press, 2014.

8 Garoupa, N. *Behavioral economic analysis of crime: A critical review*. In *European Journal of Law and Economics*. No. 15, 2003, 5-15; Van Winden, F. A., & Ash, E. *On the behavioral Economics of crime*. In *Review of Law & Economics*. No. 8, 2012, 181-213.

9 Ip, E. C. *Debiasing regulators: the behavioral Economics of US administrative law*. In *Common Law World Review*. No. 46, 2017, 171-197.

10 McCaffery, E. J. *Behavioral Economics and the law: tax*. In *The Oxford Handbook of Behavioral Economics and the Law*. New York: Oxford University Press, 2014.

11 Stojanović, A., & Silvestri, P. *The Road Not Taken—Reading Calabresi’s “The Future of Law and Economics”*. In *Global Jurist*. No. 19, 2019, 1-8.

12 Calabresi, G. *The future of law and economics: Essays in reform and recollection*, cit.

13 Leeson, P. T. *Do we need behavioral Economics to explain law?*, cit.

Leeson<sup>14</sup> argues that Behavioral Law and Economics does not improve explanations of traditional models. In reaching these conclusions, this author explains that legal structures that do not maximize wealth are the result of rent-seeking interest groups rather than of cognitive biases. The prohibition of human organ sales, the Minneapolis five-percent tradition, and the military draft are examples of regulations driven by interest groups such as clinics specializing in dialysis treatment, established firms interested in market entry barriers, and unions seeking to increase the cost of unskilled labor.

Similarly, O'Reilly<sup>15</sup> studies the case of retirement savings in the United Kingdom and the United States of America to argue that Behavioral Law and Economics do not offer clear policy implications. This author also claims that the behavioral approach has critical limitations: a list of incompatible models, an indefinite stash of potential explanatory variables, and the lack of reliability of its published research<sup>16</sup>. In contrast, Nissioti<sup>17</sup> analyzes international mediation rules to identify cognitive biases that inhibit dispute resolution. Her article uses "...insights from the Behavioral Law and Economics literature to explain why amicable settlements are not that frequent and negotiation impasses may occur"<sup>18</sup>.

Nevertheless, these studies move from specific to general legal phenomena and compare the approaches in a theoretical way. Inductive reasoning may be limited for understanding the bigger picture of standard and behavioral perspectives of Law and Economics. Furthermore, their conclusions are not generalizable as they are limited to particular legal structures. Therefore, the literature has yet to identify the legal areas in which the behavioral approach has a better explanatory and predictive capacity than the standard perspective.

To this end, this article analyzes the relationship between the behavioral approach and the standard approach, using deductive reasoning. The research compares the approaches by analyzing the scientific assumptions of both, and conceptualizing Law and Economics as a Lakatos research programme, in line with Posner and Becker who identify the discipline as progressive research programme<sup>19</sup>. Thus, the research problem is the comparison of scientific theories/disciplines of human behavior under legal frameworks. As evidence, the experiment on the "endowment effect" is reviewed, as it

14 *Ibid.*

15 O'Reilly, T. *Illusory Policy Implications of Behavioral Law & Economics*. In *Marquette Law Review*. No. 106, 2023, 269.

16 *Ibid.*, 230.

17 Nissioti, E. *It Takes Three to Tango: A Behavioral Analysis of the Benefits of Having a Mediator in International Disputes*. In *German Law Journal*. No. 23, 2022, 376-394.

18 *Ibid.*, 378.

19 Posner, R. A., & Becker, G. *The future of Law and Economics*. In *Review of Law & Economics*. No. 10, 2014, 235-240.

contributed to a progressive theoretical change in the discipline<sup>20</sup>. The experiment successfully resolved a series of anomalies seen in relation to market exchanges that the Coase Theorem could not explain.

The results clarify the relationship between Behavioral Law and Economics and the standard perspective and its implications for regulation. The two approaches may be complementary as the traditional approach does not deal with the biases found and studied by the behavioral perspective. The study of law is thereby improved with the combined use of the two approaches to Law and Economics. This could lead to the discovery and corroboration of new events not predicted by standard explanations in law and the legal system. The regulation of Transportation Network Companies is addressed to illustrate this complementarity.

Finally, the article does not analyze whether Behavioral Law and Economics better frame the irrational behavior of agents under legal frameworks, that is, the “realistic” behavior of agents. Instead, the research focuses on the explanatory and predictive capacity of the behavioral perspective. This perspective is similar to O’Reilly’s<sup>21</sup>, who claims “...there is no presumption favoring greater realism in assessing scientific theories.” The methodology is useful because it explains how to improve legal studies with the behavioral approach, and thus this research study may impact the Law and Economics research agenda<sup>22</sup>.

The next section presents traditional categorizations of the field and introduces a novel formulation. Section 3 covers the methodology for comparing the standard and behavioral approaches. In section 4, the results of formulating Law and Economics as a research programme are presented. Section 5 discusses the implications for the research agenda of Behavioral Law and Economics. In the last section, conclusions are presented.

## 1. TRADITIONAL CATEGORIZATIONS OF LAW AND ECONOMICS

### *1.1. The Chicago and Yale Schools*

The first formulation of the field is a historical view rooted in universities in the United States, whose researchers have contributed to the establishment and development of the agenda of Law and Economics and is described by

20 Kahneman, D.; Knetsch, J. L., & Thaler, R. H. *Experimental tests of the endowment effect and the Coase theorem*. In *Journal of political Economy*. No. 98, 1990, 1325-1348.

21 O’Reilly, T. *Illusory Policy Implications of Behavioral Law & Economics*, cit., 269.

22 Calabresi, G. *The future of Law and Economics: Essays in reform and recollection*, cit.; Stojanović, A., & Silvestri, P. *The Road Not Taken—Reading Calabresi’s “The Future of Law and Economics”*, cit.

Sunstein<sup>23</sup>, who posits that there are two schools of thought in this area: the Chicago School and the Yale School.

The Chicago School is focused on the economic consequences of regulations and court rulings, "...rejecting as irrational whatever aspects of law or life do not fit its approach"<sup>24</sup>. The Yale School also studies the economic consequences of law but emphasizes that Economics can incorporate values of equality and other boundaries to the creation of markets, via laws. Parisi defines the Chicago and Yale Schools as positive and normative schools respectively<sup>25</sup>.

The first difference is that the Chicago School prefers to use the term "Economic Analysis of Law"<sup>26</sup> and the Yale School uses the name "Law and Economics"<sup>27</sup> to underscore the difference between them. A second difference between the Chicago and Yale Schools is the conception proposed by Calabresi<sup>28</sup>, who assumes that the law can mold the behavior and values of individuals. For its part, the Chicago school takes preferences to be fixed, and as such there are no variations in the behavior of individuals when observing legal norms<sup>29</sup>.

### *1.2. The old and new eras of Law and Economics*

The second formulation used to analyze the field of Law and Economics is the division of its chronological evolution into two eras<sup>30</sup>. The old era is focused on traditional economic issues such as monopolies, anti-trust regulation, public utilities, and corporate law. The new era begins with the work of Ronald Coase in "The Problem of Social Cost"<sup>31</sup> and of Guido Calabresi on the distribution of risk in accidents and tort law<sup>32</sup>.

23 Sunstein, C. R. *Listen, Economists!* In *The New York Review of Books*. 2016. Available at from: <https://www.nybooks.com/articles/2016/11/10/listen-economists/> [Accessed 7 April 2023]

24 Bix, B.H. *Law and Economics and the role of explanation: A comment of Guido Calabresi, The Future of Law and Economics*. In *European Journal of Law and Economics*. No. 48, 2019, 113–123.

25 Parisi, F. *Positive, normative and functional schools in Law and Economics*. In *European journal of law and economics*. No. 18, 2004, 259-272.

26 Posner, R. A. *Economic Analysis of Law*. Amsterdam: Wolters Kluwer Law & Business, 1986; Marciano, A., & Battista Ramello, G. *Law, Economics and Calabresi on the future of law and economics*. In *European Journal of Law and Economics*, No. 48, 2019, 65-76.

27 Calabresi, G. *The future of law and economics: Essays in reform and recollection*, cit.

28 *Ibid.*

29 Sunstein, C. R. *Listen, Economists!*, cit.

30 Posner, R. A. *Economic Analysis of Law*, cit., 19; Van Overtveldt, J. *The Chicago School: how the University of Chicago assembled the thinkers who revolutionized Economics and business*. Evanston: Agate Publishing, 2007, 289; Posner, R. A., & Becker, G. *The future of law and economics*, cit., 235.

31 Coase, R. H. *The problem of social cost*. In *Classic papers in natural resource economics*. London: Palgrave Macmillan, 1960.

32 Calabresi, G. *The cost of accidents: A legal and economic analysis*. New Haven: Yale University Press, 1961.

In the old era, studies on Law and Economics were centered on anti-trust regulation in the United States and university courses on these subjects in law schools were taught by economists: the first professor on this subject was Henry Simons in 1934, in the School of Law at the University of Chicago<sup>33</sup>.

In the new era, the works of Coase<sup>34</sup> and Calabresi<sup>35</sup> were fundamental in developing the importance of the discipline for public policy. The Coase Theorem, as summarized by Stigler<sup>36</sup>, explains the relationship of law with Economics by revealing the existence of transaction costs in the markets, something that was until then missed by economists. Given high transaction costs, the substitution of private contracts by public regulations in areas of civil responsibility has grown gradually in importance, in this and other government matters<sup>37</sup>. The design of a regulatory public policy must take these legal costs into account if it aspires to fulfill its objectives.

### *1.3. An alternative formulation of Law and Economics*

A different categorization of Law and Economics is to consider this field as research programme<sup>38</sup>, to show the complementarity of the approach with Behavioral Law and Economics. This categorization arises from a positivist conception of science that encompasses the development and advancement of scientific theories as the progression of human knowledge. The principal ideas of this positivist conceptualization have been laid out and condensed as paradigms<sup>39</sup>, conjectures and refutations,<sup>40</sup> and research programmes<sup>41</sup>.

However, there are two important objections to this proposal of comparing theories based on the scientific method of positivism. Both critiques have a strong epistemological base. The first objection stems from the philosophy of science and questions the possibility of a comparison between different general theories or “paradigms.” This derives from the history of scientific progress and the accumulation of knowledge over time, which has occurred due to the substitution of new paradigms over previous conceptual schemes.

33 Van Overtveldt, J. *The Chicago School: how the University of Chicago assembled the thinkers who revolutionized Economics and business*, cit., 291.

34 Coase, R. H. *The problem of social cost*, cit.

35 Calabresi, G. *The cost of accidents: A legal and economic analysis*, cit.

36 Van Overtveldt, J. *The Chicago School: how the University of Chicago assembled the thinkers who revolutionized Economics and business*, cit., 299.

37 Stigler, G. J. *The and Economics of public policy: A plea to the scholars*. In *The Journal of Legal Studies*. No. 1, 1972, 9 and 11.

38 Posner, R. A., & Becker, G. *The future of law and economics*, cit., 237.

39 Kuhn, T. S. *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press, 1962.

40 Popper, K. *Conjeturas y refutaciones*. Barcelona: Paidós, 1972.

41 Lakatos, I. *The Methodology of Scientific Research Programmes: Philosophical Papers. Volume I*. New York: Cambridge University Press, 1978.

Without the new theories being authentic improvements over previous ones - they are merely replacements<sup>42</sup>.

For this reason, comparisons between theories could be impossible, as they would need to be formulated in the same way to be comparable and there is loss in the translation of one theory to the conceptual scheme of another. This incommensurability is interpreted as if the theories were “poems, [which have] meaning in one language but never adequately translated into another”<sup>43</sup>. As a result, their comparison is impossible, as each must be examined through their own perspectives.

The second objection is a critique from the post-positivist perspective which states that the logic of positivist scientific explanation is based on erroneous epistemological assumptions, which have led to ineffective solutions to social problems and have little predictive capacity, leading to the need for a post-positivist epistemology<sup>44</sup>. The objective study of a phenomenon is not possible outside of its social context: “... as social order emerges from the sense-making of human beings, that it will be largely contingent upon value-perspectives, and it is problematic to describe a single truth concerning the nature of the social world”<sup>45</sup>. Without an objective scientific standard, comparisons between theories also could be impossible.

Despite these epistemological objections, the use of research programme methodology is possibly the only way to compare scientific theories and study their complementarity.

## 2. THE EPISTEMOLOGY OF SCIENTIFIC RESEARCH PROGRAMMES

This section presents the methodology of the “research programmes” of Lakatos<sup>46</sup> with the purpose of reaching an epistemological comparison between both approaches of Law and Economics with a scientific standard and showing their complementarity. This form of conceptualizing theories allows us to define the limits and show the relationship between the two perspectives in Law and Economics. This methodology is called “sophisticated falsificationism” and is part of the positivist logic of scientific explanation.

42 Kuhn, T. S. *The Structure of Scientific Revolutions*, cit.

43 Rosenberg, A. *Philosophy of science: A contemporary introduction*. London: Routledge, 2016, 23.

44 Fischer, F. *Beyond empiricism: policy inquiry in post positivist perspective*. In *Policy Studies Journal*. No. 26, 1998, 129-146; Fox, N. J. *Post-positivism*. In *The Sage encyclopedia of qualitative research methods*. Thousand Oaks: Sage publications, 2008.

45 *Ibid.*, 660.

46 Lakatos, I. *The Methodology of Scientific Research Programmes: Philosophical Papers. Volume I*, cit.

### 2.1. *The positivist approach to the development of science*

The positivist approach to the philosophy of science originates in the problem of the demarcation between science and pseudoscience within knowledge. A first criterion developed by Wittgenstein posits that a theory is true and scientific to the extent that it is testable<sup>47</sup>. For Popper<sup>48</sup>, this criterion is insufficient, given that it does not exclude astrology from science, since the statements and predictions of this subject are so vague that any event may be seen to fulfill them. For him, the repetition and similarity of events do not produce true theories, as they suffer from problems of induction. There is no logical path to repeatedly obtain inferences that build scientific knowledge about unobserved events.

Popper's counterproposal<sup>49</sup> to the formulation of a criterion to demarcate the line between science and pseudoscience is the possibility of falsifying a theory via observation statements that, as they are tested and disproven, allow for the elimination of theories that do not survive the test of empirical evidence. Those theories that cannot be falsified in this manner are considered to be pseudoscientific. The best falsifiable theories will survive and will add, parsimoniously, to knowledge<sup>50</sup>. This normative conception of active refutation, to prove the falsity of theories, is reflected in the name of this strain of thought within epistemology: Falsificationism.

For Kuhn<sup>51</sup>, the idea of scientific progress through paradigmatic revolutions consists of the substitution of paradigms in a discontinuous manner and not through smoothly accumulated knowledge, as Popper postulates through falsificationism. This abrupt change stems from a crisis of confidence of the defenders of a theory, meaning that the explanation of the development of scientific theories comes largely from psychological aspects of the researchers themselves.

In the face of conceptions of scientific progress as coming either via the substitution of paradigms that explain scientific revolutions or via refutations in crucial experiments, Lakatos proposes "scientific research programmes" as an alternative explanation to those of Kuhn and Popper, but still within falsificationism. This conception of scientific progress draws on key aspects of falsificationism and tries to avoid its pitfalls. The first version of falsificationism has been known as a naïve version, and the epistemological current set forth by Lakatos has been known as sophisticated falsificationism<sup>52</sup>.

47 Wittgenstein, L. *Tractatus logico-philosophicus*. London: Humanities Press, 1974.

48 Popper, K. *Conjeturas y refutaciones*, cit., 65.

49 *Ibid.*, 13.

50 *Ibid.*, 79.

51 Kuhn, T. S. *The Structure of Scientific Revolutions*, cit.

52 Lakatos, I. *The Methodology of Scientific Research Programmes: Philosophical Papers. Volume 1*, cit., 31.

## 2.2. *Research Programmes and sophisticated falsificationism*

Scientific achievements are not isolated hypotheses but rather a program of research. This rationale of scientific explanation is differentiated from naïve falsificationism in two ways: the rule of acceptance or criterion of demarcation and the rule of falsification or elimination within programs<sup>53</sup>.

The rule of acceptance or criterion of demarcation is that a group of theories considered to be scientific if “each new theory has some excess empirical content over its predecessor, that is, if it predicts some novel, hitherto unexpected fact”<sup>54</sup>. While for naïve falsificationism, a theory is scientific because it is potentially falsifiable, for sophisticated falsificationism, theories are scientific when they predict new events not anticipated by previous theories<sup>55</sup>. This “excess empirical content” in light of rival theories is considered to be scientific progress if the theory is capable of predicting new events that are discovered in real life<sup>56</sup>.

The rule of falsification or elimination considers that a theory is falsified when another with greater corroborated empirical content has supplanted it<sup>57</sup>. For the naïve falsificationists, scientific progress is linear and materializes within a series of conjectures and refutations that advance sequentially: a theory is tested and if it is falsified by a refuting case then this theory is eliminated. In contrast, for sophisticated falsificationism, theories are eliminated if others supplant them with greater corroborated empirical content: these later theories represent a theoretical and empirical advance in knowledge<sup>58</sup>.

### 2.2.1. The heuristics of programs: the hard core and the protective belt

Research programmes are characterized by two fundamental properties: the negative heuristic or “hard core” of the programme and the positive heuristic or the “protective belt”. The negative heuristic establishes “what paths of research to avoid”. The positive heuristic establishes “what paths to pursue” in the research agenda of a scientific program<sup>59</sup>.

The set of ideas, models, or theories that comprise the hard core are irrefutable due to a “methodological decision of the defenders” with the goal of being a solid foundation that leads to new discoveries. If the hard core

53 *Ibid.*

54 *Ibid.*, 33.

55 *Ibid.*, 5.

56 *Ibid.*, 33.

57 *Ibid.*, 32.

58 *Ibid.*, 42.

59 *Ibid.*, 47.

does not achieve this goal, it may be abandoned<sup>60</sup>. The negative heuristic establishes the boundaries of the research programme. An investigation that does not share this hard core lies outside the programme and falls within another programme.

The auxiliary hypotheses developed from the hard core of the research programme are its “protective belt” and seek to explain anomalies that the hard core cannot decipher, to convert them into positive evidence. These auxiliary hypotheses are continually substituted through refutations and are developed by the positive heuristic, which is “a partially articulated set of suggestions or hints on how to change, develop the ‘refutable variants’ of the research-programme, how to modify, and sophisticate, the ‘refutable’ protective belt”<sup>61</sup>.

### 2.2.2. Puzzles, refutations, and anomalies in scientific research

The anomalies encountered in the search for evidence are treated differently in each version of scientific explanation. For Kuhn<sup>62</sup>, they are puzzles that the paradigms offer to researchers to be solved without a specific order. For Popper<sup>63</sup> they are refutations that falsify the conjectures that researchers summon.

Meanwhile, for Lakatos, the anomalies are considered to be part of the research programmes, their existence is expected but left aside: “The anomalies are listed but shoved aside in the hope that they will turn, in due course, into corroborations of the programme”<sup>64</sup>. The negative heuristic keeps the programs from discussing only the anomalies while the positive heuristic orients the research toward the prediction of new events and their provisional corroboration.

In the following section, we will conceptualize the field of Law and Economics as a research programme in line with sophisticated falsificationism. This formulation establishes the negative and positive heuristics of the programme and its relationship with the theory of the Behavioral Economic Analysis of Law as an auxiliary hypothesis of the standard Law and Economics.

## 3. LAW AND ECONOMICS AS A RESEARCH PROGRAMME

### 3.1. *The standard concept of Law and Economics*

Robert Cooter and Thomas Ulen conceptualized this discipline as the application of scientific economic theory to “predict the effects of legal sanc-

60 *Ibid.*, 49.

61 *Ibid.*, 50.

62 Kuhn, T. S. *The Structure of Scientific Revolutions*, cit.

63 Popper, K. *Conjeturas y refutaciones*, cit.

64 Lakatos, I. *The Methodology of Scientific Research Programmes: Philosophical Papers. Volume 1*, cit., 52.

tions on behavior”<sup>65</sup>. Richard Posner defined this approach toward law as “the application of the theories and empirical methods of Economics to the central institutions of the legal system, including the common law doctrines of negligence, contract, and property; the theory and practice of punishment; civil, criminal, and administrative procedure; the theory of legislation and of rulemaking; and law enforcement and judicial administration”<sup>66</sup>.

These coincidences in the definition of the Law and Economics also consider the ideas or basic assumptions of economic theory as it applies to law. These assumptions come from standard<sup>67</sup> or conventional<sup>68</sup> economic theory and are summarized and laid out by Gary Becker<sup>69</sup> to understand human behavior in situations and contexts beyond that of the market. These basic principles explain human behavior, such as:

1. The maximization of utility;
2. A given, stable set of preferences; and
3. A quantity of accumulated and optimal information about a large variety of markets.

Based on these principles, the goal of Law and Economics is to assess the rational, maximizing behavior of individuals outside the market, and its legal implications for this and other institutions<sup>70</sup>. Using these principles, it is possible to sketch out the hard core and protective belt of the discipline.

### 3.1.1. The negative heuristic of Law and Economics

The first component of the hard core or negative heuristic is the use of standard economic theory to explain behavior in response to legal norms and the application of its methodology, such as mathematical and statistical tools, to the law.

The second central component is “Methodological Individualism,” which is the logic of standard economics, which sees social results as coming from aggregated individual decisions among agents in the market. This is the traditional scientific explanation of the economy, where “the behavior described and the policies proposed are explained in individual terms and not by other social categories”<sup>71</sup>. This explanation of social results as a consequence of

65 Cooter, R., & Ulen, T. *Law and Economics*. Boston: Addison-Wesley, 2016, 3.

66 Posner, R. A. *The Economic Approach to Law*. In *Texas Law Review*. No. 53, 1975, 759.

67 Sunstein, C. R. *Behavioral Law and Economics*. New York: Cambridge University Press, 2007, 14.

68 Ariely, D., & Jones, S. *Predictably Irrational*. New York: HarperCollins, 2008, 20.

69 Becker, G. S. *The Economic Approach to Human Behavior*. Chicago: University of Chicago Press Economics Books, 1978.

70 Sunstein, C. R. *Behavioral Law and Economics*, cit., 14.

71 Arrow, J. K. *Methodological Individualism and Social Knowledge*. In *The American Economic Review*, No. 84, 1994, 1.

individual behaviors is included in the foundational articles of Coase<sup>72</sup> and Calabresi<sup>73</sup>.

In the case of the article “The Problem of Social Costs”<sup>74</sup>, Ronald Coase explains the existence of transaction costs between a farmer whose herd affects a neighboring farmer and questions which of the two is the individual that should reduce their activity, something that will affect aggregate economic production in terms of market efficiency. The legal cases that the author uses to justify his argument (*Sturges vs Bridgman*, *Cooke vs. Forbes*, *Bryant vs. Lefever*) also discuss specific individuals. The cases examine the activity of one person when it affects the work of another and explains the resulting inefficiencies in society as derived from the transaction costs of the law and the actions of these persons, whose principal basis for their behavior is to maximize their utility.

Positivism is the third aspect of the hard core of Law and Economics. This characteristic consists of identifying and analyzing legal rules and judicial rulings, and describing the economic effects that these will have<sup>75</sup>. The founding text in the field, called “The Costs of Accidents: A Legal and Economic Analysis” by Guido Calabresi<sup>76</sup>, is an analysis that looks at judicial rules of responsibility for wrongful guilt in U.S. law (*tort law*) and discusses how to optimize the cost of safety levels and compensation for victims. Calabresi’s work<sup>77</sup> illustrates the principle of positivism in Law and Economics as part of the hard core. This is because the author explains the rules and legal precedents that determine who is responsible for paying damages for an accident. Then, he analyzes the economic effects that various rules would have over individual decisions to buy insurance or to take other actions to reduce the occurrence of accidents.

Calabresi’s explanation of the social costs of accidents offers clearly defined concepts of the types of legal responsibilities, which are based on behaviors that are logically consistent with the principle of the maximization of utility and give rise to empirically falsifiable hypotheses, since he predicts the effect that various regulatory changes, having varying degrees of caution or responsibility or negligence for the victim, will have on individual behavior. In summary, Calabresi uses the assumption of utility-maximizing behavior of the offender and the victim in accidents to explain the way in which individuals choose different levels of caution and prevention before an accident materializes, to minimize the expected cost of accidental losses.

72 Coase, R. H. *The problem of social cost*, cit.

73 Calabresi, G. *The cost of accidents: A legal and economic analysis*, cit.

74 Coase, R. H. *The problem of social cost*, cit., 83.

75 Hovenkamp, H. *Positivism in Law and Economics*. In *California Law Review*. No. 78, 1990, 821.

76 Calabresi, G. *The cost of accidents: A legal and economic analysis*, cit.

77 *Ibid.*

In this way, the negative heuristic of the research programme of Law and Economics is synthesized in the following points:

1. The law and legal systems have economic consequences in the markets.
2. Economics and its behavioral assumptions can explain the law and legal systems.
3. The logic of explanation is based on the rational behavior of individuals and explains social results as a product of these behaviors.
4. The methodology used to carry out empirical research on regulation is taken from economics: mathematics, statistics, and experiments to examine the effects of laws.
5. The discipline falls within the basic tenets of science.
6. The Coase Theorem on transaction costs in contracts and the explanation of laws regarding accidents (*tort law*) by Calabresi are the studies that originated the field.

Due to the methodological decisions made by the researchers in the field, these principles make up the hard core of the discipline. The role of this hard core is to be a solid base from which to support new discoveries guided by the “positive heuristic” and make up its protective belt.

### 3.1.2. The positive heuristic of Law and Economics

The protective belt is comprised of research subsequent to Coase and Calabresi, which used the hard core presented as a base for the research, but without seeking its refutation or falsification, taking its irrefutability as a “methodological decision” to expand the agenda of the research programme<sup>78</sup>.

The study of the behavior of criminals and the odds of being punished under penal laws by Gary Becker<sup>79</sup>, the economic analysis of property rights and contractual law by Cooter and Ulen<sup>80</sup>, intellectual property rights by Hovenkamp<sup>81</sup> and a range of other subjects, until then considered strictly legalistic in nature, comprise the protective belt that is subject to refutation. According to its negative heuristic, the hard core of Law and Economics inhibits work in alternative theories that do not share the key central assumptions of the hard core.

For example, from the rational point of view<sup>82</sup>, crime is conceived as the sum of criminal acts carried out by rational individuals in particular times

78 Lakatos, I. *The Methodology of Scientific Research Programmes: Philosophical Papers. Volume 1*, cit., 50.

79 Becker, G. S. *Crime and punishment: An economic approach*. In *The economic dimensions of crime*. London: Palgrave Macmillan, 1968.

80 Cooter, R., & Ulen, T. *Law and Economics*, cit.

81 Hovenkamp, H. *Positivism in Law and Economics*, cit.

82 Becker, G. S. *Crime and punishment: An economic approach*, cit.

and places, and whose marginal benefit in committing a crime is greater than that of the legal penalties. Crime is not a collective phenomenon with causes and characteristics beyond those of the individual: social inequality, structural economic factors like unemployment or poverty<sup>83</sup>. This does not mean discarding the usefulness of any alternative theory about crime, rather that other explanations fall outside the research programme of Law and Economics, given that they are incompatible with its foundations. This is the function of the negative heuristic in the research programme.

For its part, the positive heuristic of Law and Economics supports work in auxiliary hypotheses that may save it from apparently contradictory evidence. For example, the "...conception of well-being has a *distributive* content that is simply not captured by the economic theory of revealed preference" and that in law has an importance for issues such as discrimination and equal treatment before the law<sup>84</sup> or the systematic and expected biases in consumers about their consumption decisions which are not taken into account in consumer regulation<sup>85</sup>. As a result, the auxiliary hypotheses originate in the hard core and cannot be explained without referring to the study of the basic principles of the standard perspective of Law and Economics.

### *3.2. Behavioral Law and Economics and the research programme*

Behavioral Law and Economics takes on some of the anomalies found in the field of standard perspective and has offered an explanation consistent with the heuristics that define it as a research programme. Unlike naïve falsificationism, sophisticated falsificationism does not consider that researchers should abandon a theory or research programme simply because of one event that refutes it. In each case, scientists study the evidence and take it to be an anomaly that remains to be explained<sup>86</sup>.

This deliberate exclusion of certain anomalies is not due to an incapacity of the research programmes to perceive the phenomenon. It is a necessary condition to work on the development of a research programme on law and economics. An enrichment of the explanation, thanks to the help of "...ingenious and lucky content-increasing auxiliary hypotheses turn a chain of defeats - with hindsight - into a resounding success story, either by revising some false 'facts' or by adding novel auxiliary hypotheses"<sup>87</sup>.

83 Sampson, R. J., & Laub, J. H. *Crime in the making: Pathways and turning points through life*. Harvard University Press, 1995.

84 Hovenkamp, H. *Positivism in Law and Economics*, cit., 837.

85 Ariely, D., & Jones, S. *Predictably irrational*, cit.

86 Lakatos, I. *The Methodology of Scientific Research Programmes: Philosophical Papers. Volume I*, cit., 52.

87 *Ibid.*, 49.

In research programmes, the existence of anomalies is to be expected, but they are set aside so that a later hypothesis may assimilate them, and they are converted into positive evidence<sup>88</sup>. In this sea of counterevidence, the positive heuristic serves as a guide for researchers to build more complex models, with the goal of expanding the empirical content of the program<sup>89</sup>.

### 3.2.1. The crucial experiment of Kahneman, Knetsch and Thaler

Lakatos studied the physics research programmes by Bohr and Prout in the 20<sup>th</sup> century to understand the application of their methodologies in the scientific development of physics, and he concluded that “one of the most important points one learns from studying research programmes is that relatively few experiments are really important.”<sup>90</sup> For Law and Economics, the most decisive experiment in recent years was conducted by Kahneman, Knetsch, and Thaler in the 1990s. The paper “Experimental Tests of the Endowment Effect and the Coase Theorem”<sup>91</sup> contributed to a progressive theoretical change in the discipline of law and economics. The experiment successfully resolved a series of anomalies seen in relation to market exchanges that the Coase Theorem could not explain.

In the first round of experiments, the researchers used the Coase theorem as a base and the number of exchanges that occurred was in accordance with what standard theory would have predicted. The test used tokens that represented money in cash, therefore being imbued with an “induced” value<sup>92</sup>. The traditional understanding of the Coase Theorem<sup>93</sup> is that the final assignation of resources is independent of the initial assignation of property rights, as long as the transaction costs are close to zero for exchanges between individuals. In a market with negligible transaction costs, exchanges will lead goods to eventually be with those who most value them in the market.

In the second round of the experiment, to test for the existence of an anomaly, the researchers gave out coffee cups to measure the number of exchanges. In this round, the number of exchanges was lower than what the Coase Theorem would have predicted. Thaler<sup>94</sup> and Knetsch<sup>95</sup> identified how in previous experiments, individuals assigned a greater value to a good that

88 *Ibid.*, 50.

89 *Ibid.*, 49.

90 *Ibid.*, 65.

91 Kahneman, D.; Knetsch, J. L., & Thaler, R. H. *Experimental tests of the endowment effect and the Coase theorem*, cit.

92 *Ibid.*, 1329.

93 Coase, R. H. *The problem of social cost*, cit.

94 Thaler, R. *Toward a positive theory of consumer choice*. In *Journal of Economic Behavior & Organization*. No. 1, 1980, 39-60.

95 Knetsch, J. L. *The endowment effect and evidence of nonreversible indifference curves*. In *American Economic Review*. No. 79, 1989, 1277-1284.

was assigned to them at the outset of an experiment, given that this good became part of each person's "individual endowment."

The added value was named the "endowment effect" and comes from the initial assignment, or endowment, of property rights<sup>96</sup>. The theoretical analysis of the experiment came from this auxiliary hypothesis, which explains anomalies in a way that is consistent with the hard core. The "endowment effect" stems from the assumptions of the economic analysis of law, explaining social outcomes as a result of individual behaviors; using economic experiments to carry out research; and forming a part of the positivist logic of scientific explanation.

The "endowment effect" reveals a particular manifestation of the concept of "loss aversion," which posits that losses are valued in a way that is weighted substantially higher than gains or earnings in the evaluations made by individuals when considering economic exchanges<sup>97</sup>. The presence of this bias means that owners of a good assign it a greater economic value than they would if they were to pay to acquire it, and therefore the resulting market equilibrium will be below the Pareto optimum<sup>98</sup>.

In terms of being an anomaly, "the endowment effect" only appears in certain cases. Kahneman, Knetsch and Thaler<sup>99</sup> identify the presence of this effect in those experiments on bilateral exchanges where participants themselves attribute their own value to the goods they will exchange, and where the value is not induced by the researchers, by either showing a price or assigning a value to the market good. In these types of experiments, researchers systematically found that the number of exchanges was below what had been predicted by the theory of supply and demand and by the Coase Theorem.

### 3.2.2. The complementarity of the standard and behavioral perspectives

The theorization of the results of the above experiment incorporates the advances of behavioral economics, specifically, the prospective theory into Law and Economics. The hypothesis of the "endowment effect" broadened the research programme of Law and Economics without modifying the hard core of the standard perspective. The theoretical explanation provided greater empirical content to the program, expanding its protective belt or positive

96 Kahneman, D., Knetsch, J. L., & Thaler, R. H. *Experimental tests of the endowment effect and the Coase theorem*, cit., 1326.

97 Kahneman, D., & Tversky, A *Prospect theory: An analysis of decision under risk*. In *Handbook of the fundamentals of financial decision making: Part I*. Singapore: World Scientific, 2013.

98 Kahneman, D., Knetsch, J. L., & Thaler, R. H. *Experimental tests of the endowment effect and the Coase theorem*, cit., 1328.

99 Kahneman, D., Knetsch, J. L., & Thaler, R. H. *Anomalies: The endowment effect, loss aversion, and status quo bias*. In *Journal of Economic Perspectives*, No. 5, 1991, 193-206.

heuristic. Without an explanation that theorized the results of the experiment in a manner consistent with the hard core, the results of the experiment would have been filed away as anomalies.

The anomaly was converted into positive evidence in line with the hard core of the research programme of Law and Economics. The theoretical explanation expanded the protective belt and deepened the traditional study of optimal consumer decision-making, where the marginal rate of substitution is equal to the relative price of goods, and adds as an auxiliary hypothesis, the idea of an “endowment effect,” which alters the marginal rate of substitution and the resulting decision, where an individual who possesses an object tends to seek to keep it<sup>100</sup>. In this way, the experiments and the auxiliary hypothesis add theoretically progressive content to the research programme of Law and Economics and resolve the anomaly<sup>101</sup>.

The research agenda developed by Behavioral Law and Economics is consistent with the protective belt of law and economics. The investigations are inscribed within their own positive tradition of the hard core and provide numerous falsifiable hypotheses that may improve the design of regulations in a complementary fashion. The proliferation of these hypotheses is in and of itself a sign of a progressive research programme as conceptualized in the concept of sophisticated falsificationism<sup>102</sup>.

### 3.3. *The regulation of transportation network companies*

The formulation of Law and Economics as a research programme allows us to test the complementarity between the standard and behavioral approaches with respect to the discipline. The standard perspective analyzes legal systems with the assumptions of the hard core. The behavioral Economics perspective as applied to law explains the anomalies that have been detected but not resolved, by the traditional approach.

For example, in the market created by transportation network companies, businesses such as Uber, Cabify and Didi offer the service of private transportation for passengers similar to that of traditional taxis<sup>103</sup>. The use of the standard perspective of Law and Economics would seek to ensure

100 Kahneman, D., Knetsch, J. L., & Thaler, R. H. *Experimental tests of the endowment effect and the Coase theorem*, cit., 1339.

101 Lakatos, I. *The Methodology of Scientific Research Programmes: Philosophical Papers. Volume 1*, cit., 49.

102 *Ibid.*, 37.

103 Dudley, G., Banister, D., & Schwanen, T. *The rise of Uber and regulating the disruptive innovator*. In *The Political Quarterly*. No. 88, 2017, 492-499; Flores, O., & Rayle, L. *How cities use regulation for innovation: the case of Uber, Lyft and Sidecar in San Francisco*. In *Transportation research procedia*. No. 25, 2017, 3756-3768; Thelen, K. *Regulating Uber: The politics of the platform economy in Europe and the United States*. In *Perspectives on Politics*. No. 16, 2018, 938-953.

conditions of perfect competition and low transaction costs so that the price of the service was efficient in the newly created regulated markets<sup>104</sup>. In Latin America, the study of regulations has a similar focus on competitive transportation markets<sup>105</sup>.

However, the companies have been able to take advantage of a bias toward the status quo to adopt monopolistic practices. Similar to the “endowment effect,” the “status quo bias” identifies an asymmetry in which consumers choose their options by default and do not modify previously established parameters<sup>106</sup>. The companies may offer price information in their apps in such a way that consumers do not change the preset value and pay more at the moment they engage the transportation service, similar to pricing based on users’ willingness to pay rather than on the cost of travel<sup>107</sup>. As a result, the regulatory policy will also need to establish the way in which the transportation companies present prices, to avoid anti-competitive conditions<sup>108</sup>.

In this manner, a regulatory policy will need to analyze the competitive structure of the market and the presence of consumer biases, so that there are efficient prices within the markets of transportation network companies and other digital markets<sup>109</sup>. The use of both Law and Economics perspectives allows us to analyze factors that cannot be detected by just one approach. However, the complementarity between the two theories requires that regulators consider different evidence in the analysis of the transportation market. The standard approach of Law and Economics suggests looking for evidence

104 Harding, S., Kandlikar, M., & Gulati, S. *Taxi apps, regulation, and the market for taxi journeys*. In *Transportation Research Part A: Policy and Practice*. No. 88, 2016, 15-25; Pelzer, P., Frenken, K., & Boon, W. *Institutional entrepreneurship in the platform economy: How Uber tried (and failed) to change the Dutch taxi law*. In *Environmental Innovation and Societal Transitions*. No. 33, 2019, 1-12; Tzur, A. *Uber Über regulation? Regulatory change following the emergence of new technologies in the taxi market*. In *Regulation & Governance*. No. 13, 2019, 340-361.

105 García-Tejeda, E. *La regulación de Uber en la Ciudad de México, la ganancia de los consumidores y el problema público de la movilidad*. In *The Latin American and Iberian Journal of Law and Economics*. No. 2, 2016, 39 -63; Puche, M. L. *Regulation of TNCs in Latin America: The case of uber regulation in Mexico City and Bogota*. In *The governance of smart transportation systems*. Cham: Springer, 2019; Goletz, M., & Bahamonde-Birke, F. J. *The ride-sourcing industry: status-quo and outlook*. In *Transportation Planning and Technology*. No. 44, 2021, 561-576; Fielbaum, A., & Tirachini, A. *The sharing economy and the job market: the case of ride-hailing drivers in Chile*. In *Transportation*. No. 48, 2021, 2235-2261.

106 Samuelson, W., & Zeckhauser, R. *Status quo bias in decision making*. In *Journal of Risk and Uncertainty*, No. 1, 1988, 7-59; Zamir, E., & Teichman, D. *Behavioral Law and Economics*, cit.

107 Bar-Gill, O.; Sunstein, C. R., & Talgam-Cohen, I. *Algorithmic Harm in Consumer Markets*. In *Journal of Legal Analysis*. 2023, 18. Available from <https://dx.doi.org/10.2139/ssrn.4321763> [Accessed 7 April 2023]

108 *Ibid.*

109 García-Tejeda, E. *¿Alguien quiere una rebanada de pizza? Los sesgos cognitivos en la contratación de servicios digitales: el punto ciego de la regulación en México*. In *The Latin American Law Review*. No. 6, 2021, 175-194; Bar-Gill, O.; Sunstein, C. R., & Talgam-Cohen, I. *Algorithmic Harm in Consumer Markets*, cit.

in the average prices for transportation services<sup>110</sup>. If the arrival of new companies has lowered taxi prices and the prices charged by companies, it is possible that this means conditions of low transaction costs and free competition<sup>111</sup>. If taxi prices do not go down, this could be evidence of the need for government intervention via a regulatory policy, to ensure economically competitive conditions to reach efficient prices in the sector.

The presence of a bias toward the status quo leads us to look for evidence related to the loss aversion hypothesis of behavioral Economics when it is applied to the law<sup>112</sup>. The presentation of prices to the consumer via apps may influence consumer decision-making, to their detriment<sup>113</sup>. The analysis of regulation would look for evidence regarding the presentation of prices to make choices about transportation services and the existence of a status quo bias. A bias could be detected through economic experiments by presenting app screens to groups of consumers or with data on average prices for contracting a transportation company. In any case, the complementarity of the behavioral Economics analysis of law proposes various ways to seek evidence that is complementary to the standard perspective.

#### 4. DISCUSSION

The comparison of the standard and behavioral perspectives of Law and Economics does not lead to a rejection of one of the two approaches. Contrasting them allows us to show their complementarity. Both approaches belong to the same research programme.

The use of Behavioral Law and Economics depends upon the analysis of the standard approach in two consecutive moments. In the first, the standard perspective studies public problems analyzed by models from the hard core. In the second, the behavioral perspective examines the evidence that is not consistent with the standard approach, as detected in the first moment. In this second analysis, the research seeks out the presence of biases in the phenomena being studied and its impact on social outcomes. The use of the behavioral perspective is linked to the previous use of the standard approach.

The use of both perspectives allows us to find different but complementary evidence for the design of public policy. This is the case in a market where the initial assignment of rights does not have an induced value compatible with

110 García-Tejeda, E. *La regulación de Uber en la Ciudad de México, la ganancia de los consumidores y el problema público de la movilidad*, cit.

111 Song, S. *Rise, fall, and implications of the New York city medallion market*. In *Advances in Data Mining. Applications and Theoretical Aspects: 18th Industrial Conference*. No. 18, 2018, 88-103.

112 Kahneman, D., Knetsch, J. L., & Thaler, R. H. *Anomalies: The endowment effect, loss aversion, and status quo bias*, cit.

113 Sunstein, C. R., & Talgam-Cohen, I. *Algorithmic Harm in Consumer Markets*, cit.

the Coase Theorem. For example, housing markets may reveal an endowment effect for certain original owners who are averse to the loss of that property. While there may be regulatory improvements to bring transaction costs closer to zero, as indicated by a traditional approach, where the “endowment effect” may still impede efficient exchanges, shrinking the size of the market.

A regulatory policy intervention by the government, which seeks to grow markets, will not achieve its goals if it only follows the recommendations from a standard perspective and does not analyze the potential existence of biases in market agents. This may be the case in a country where property rights are not clear and due to a change in political regime, property rights are defined to create a market. If in this dystopian society people are averse to loss, the legal change will not lead to the desired impact and the market will not reach the size predicted by traditional theory.

The research has some limitations. The content of the hard core and its protective belt places the programme of Law and Economics in the sights of epistemic objections formulated about Economics itself as a science.

It is true that in terms of those objections that argue a lack of reality, or the existence of empirical evidence which counters the hard core, “One can find numerous phenomena that seem quite inconsistent with the profit-maximization hypothesis”<sup>114</sup>. Other authors indicate a flawed connection between the model of physics in the 19<sup>th</sup> and 20<sup>th</sup> centuries: “Economics, or the physics that never was” was set forth by Toulmin<sup>115</sup> and lists some of the calamitous results of using the rational model of decision-making without considering the relevant context<sup>116</sup>. There have also been post-positivist criticisms that decry the use of positivism to explain the rationale of public policies<sup>117</sup>.

These critiques are based on the model of rational decision-making in Economics and its application and are part of the debate about the status of this field of study as a true science. However, there is a general consensus among those that study Law and Economics about the usefulness of economic models and their explanatory power in law. This is the case of the model of perfect competition in markets - though it is difficult to find in reality - it allows us to understand anti-trust regulation and the consequences of these laws<sup>118</sup>.

Finally, this formulation could substitute for the traditional classifications, such as the old and new Law and Economics or the distinction between the Chicago and Yale Schools. These categorizations may hide epistemic connections and the degree of complementarity between the standard and behavioral approaches of the discipline. For example, applications of Behavioral

114 Hovenkamp, H. *Positivism in Law and Economics*, cit., 829.

115 Toulmin, S. *Regreso a la razón*. Barcelona: Ediciones Península, 2003, 80.

116 *Ibid.*, 101.

117 Fischer, F. *Beyond empiricism: policy inquiry in post positivist perspective*, cit., 136.

118 Hovenkamp, H. *Positivism in Law and Economics*, cit., 832.

Economics in both the old and new eras of Law and Economics may exist. On the other hand, it is not clear if either the Chicago or Yale Schools study the principal contributions of Behavioral Economics as it is applied to the law, since the hard core of the discipline is a shared construction.

## CONCLUSIONS

The formulation of Law and Economics as a scientific research programme allows us to test the complementarity between the standard and behavioral approaches to the discipline. The standard perspective analyzes legal systems with the assumptions of the hard core. The Behavioral Economics perspective as applied to law explains the anomalies that have been detected but not resolved, by the traditional approach. This is the case of the “endowment effect” in the Coase Theorem, as found and theorized by Kahneman, Knetsch and Thaler<sup>119</sup>. Markets with induced prices, on average, arrive at the results of the Coase Theorem and those with reference prices present an “endowment effect” which lowers the number of efficient exchanges. The analysis of regulations would be incomplete if it only used one perspective of law and economics.

The formulation also could have the following consequences for the development of the discipline and for analyzing the complementarity of the behavioral model. First, the conceptualization of Law and Economics clarifies the relationship of complementarity between the behavioral economic analysis of law and the standard perspective and its implications for regulation. The traditional approach does not take on the biases found and studied through the behavioral perspective; therefore, the study of law is improved with the use of the two approaches to Law and Economics. Second, it may lead to the discovery and corroboration of new events not predicted by other explanations in law and the legal system. In line with Posner and Becker: “The search for new worlds to conquer that is a hallmark of a progressive research programme has already paid off”<sup>120</sup>. Thus, the conceptualization may create other, future scenarios based on the results of legal reforms that affect various aspects of legal jurisdiction. This “excess of empirical content” is consistent with Lakatos’ criterion of demarcation between science and pseudoscience<sup>121</sup>. Finally, these findings could have an impact on the Behavioral Law and Economics research agenda.

119 Kahneman, D.; Knetsch, J. L., & Thaler, R. H. *Experimental tests of the endowment effect and the Coase theorem*, cit.

120 Posner, R. A., & Becker, G. *The future of Law and Economics*, cit., 237.

121 Lakatos, I. *The Methodology of Scientific Research Programmes: Philosophical Papers. Volume 1*, cit., 33.

REFERENCES

- Amir, O., & Lobel, O. “Stumble, predict, nudge: How behavioral Economics informs law and policy”. In *Columbia Law Review*. 2008, 2098-2137.
- Ariely, D., & Jones, S. *Predictably irrational*. New York: HarperCollins, 2008.
- Arrow, J. K. *Methodological Individualism and Social Knowledge*. In *The American Economic Review*, No. 84, 1994, 1-9.
- Bar-Gill, O.; Sunstein, C. R., & Talgam-Cohen, I. “Algorithmic Harm in Consumer Markets”. In *Journal of Legal Analysis*. Forthcoming, Available from <https://dx.doi.org/10.2139/ssrn.4321763> [Accessed 7 April 2023]
- Becker, G. S. “Crime and punishment: An economic approach”. In *The economic dimensions of crime*. London: Palgrave Macmillan, 1974, 14..
- Becker, G. S. *The Economic Approach to Human Behavior*. Chicago: University of Chicago Press Economics Books, 1978.
- Bix, B.H. “Law and Economics and the role of explanation: A comment of Guido Calabresi, The Future of Law and Economics”. In *European Journal of Law and Economics*. No. 48, 2019, 113–123.
- Calabresi, G. *The cost of accidents: A legal and economic analysis*. New Haven: Yale University Press, 1961.
- Calabresi, G. *The future of Law and Economics: Essays in reform and recollection*. New Haven: Yale University Press. 2016.
- Coase, R. H. *The problem of social cost*. In *Classic papers in natural resource economics*. London: Palgrave Macmillan, 1960.
- Cooter, R., & Ulen, T. *Law and Economics*. Boston: Addison-Wesley, 2016.
- Dudley, G., Banister, D., & Schwanen, T. “The rise of Uber and regulating the disruptive innovator”. In *The Political Quarterly*. No. 88, 2017, 492-499.
- Fielbaum, A., & Tirachini, A. “The sharing economy and the job market: the case of ride-hailing drivers in Chile”. In *Transportation*. No. 48, 2021, 2235-2261.
- Fischer, F. “Beyond empiricism: policy inquiry in post positivist perspective”. In *Policy Studies Journal*. No. 26, 1998, 129-146.
- Flores, O., & Rayle, L. “How cities use regulation for innovation: the case of Uber, Lyft and Sidecar in San Francisco”. In *Transportation Research Procedia*. No. 25, 2017, 3756-3768.
- Fox, N. J. “Post-positivism”. In *The Sage Encyclopedia of Qualitative Research Methods*. Thousand Oaks: Sage Publications, 2008.
- García-Tejeda, E. “La regulación de Uber en la Ciudad de México, la ganancia de los consumidores y el problema público de la movilidad”. In *The Latin American and Iberian Journal of Law and Economics*. No. 2, 2016, 39-63.

- García-Tejeda, E. “¿Alguien quiere una rebanada de pizza? Los sesgos cognitivos en la contratación de servicios digitales: el punto ciego de la regulación en México”. In *The Latin American Law Review*. No. 6, 2021, 175-194.
- Garoupa, N. “Behavioral economic analysis of crime: A critical review”. In *European Journal of Law and Economics*. No. 15, 2003, 5-15.
- Goletz, M., & Bahamonde-Birke, F. J. “The ride-sourcing industry: status-quo and outlook”. In *Transportation Planning and Technology*. No. 44, 2021, 561-576.
- Halbersberg, Y., & Guttel, E. “Behavioral Economics and tort law”. In *The Oxford Handbook of Behavioral Economics and the Law*. New York: Oxford University Press, 2014.
- Harding, S.; Kandlikar, M., & Gulati, S. “Taxi apps, regulation, and the market for taxi journeys”. In *Transportation Research Part A: Policy and Practice*. No. 88, 2016, 15-25.
- Hovenkamp, H. “Positivism in Law and Economics”. In *California Law Review*. No. 78, 1990, 815.
- Ip, E. C. “Debiasing regulators: the Behavioral Economics of US administrative law”. In *Common Law World Review*. No. 46, 2017, 171-197.
- Jolls, C.; Sunstein, C. R., & Thaler, R. “A behavioral approach to Law and Economics”. In *Stanford Law Review*. No. 50, 1997, 1471-1550.
- Kahneman, D., & Tversky, A. “*Prospect theory: An analysis of decision under risk*”. In *Handbook of the Fundamentals of Financial Decision Making: Part I*. Singapore: World Scientific, 2013.
- Kahneman, D.; Knetsch, J. L., & Thaler, R. H. “Experimental tests of the endowment effect and the Coase theorem”. In *Journal of Political Economy*. No. 98, 1990, 1325-1348.
- Kahneman, D., Knetsch, J. L., & Thaler, R. H. “*Anomalies: The endowment effect, loss aversion, and status quo bias*”. In *Journal of Economic Perspectives*, No. 5, 1991, 193-206.
- Knetsch, J. L. “*The endowment effect and evidence of nonreversible indifference curves*”. In *American Economic Review*. No. 79, 1989, 1277-1284.
- Kuhn, T. S. *The structure of scientific revolutions*. Chicago: University of Chicago Press, 1962.
- Lakatos, I. *The methodology of scientific research programmes: Philosophical papers. Volume I*. New York: Cambridge University Press, 1978.
- Leeson, P. T. “*Do we need Behavioral Economics to explain law?*” In *European Journal of Law and Economics*. No. 48, 2019, 1-14.
- Lewinsohn-Zamir, D. “*Behavioral Law and Economics of property law*”. In *The Oxford Handbook of Behavioral Economics and the Law*. New York: Oxford University Press, 2014.
- Marciano, A., & Battista Ramello, G. “*Law, Economics and Calabresi on the future of Law and Economics*”. In *European Journal of Law and Economics*, No. 48, 2019, 65-76.

- McCaffery, E. J. "Behavioral Economics and the law: tax". In *The Oxford Handbook of Behavioral Economics and the Law*. New York: Oxford University Press, 2014.
- Nissioti, E. "It takes three to tango: A behavioral analysis of the benefits of having a mediator in international disputes". In *German Law Journal*. No. 23, 2022, 376-394.
- O'Reilly, T. "Illusory policy implications of behavioral Law & Economics". In *Marquette Law Review*. No. 106, 2023, 269.
- Parisi, F. "Positive, normative and functional schools in law and economics". In *European Journal of Law and Economics*. No. 18, 2004, 259-272.
- Pelzer, P.; Frenken, K., & Boon, W. "Institutional entrepreneurship in the platform economy: How Uber tried (and failed) to change the Dutch taxi law". In *Environmental Innovation and Societal Transitions*. No. 33, 2019, 1-12.
- Popper, K. *Conjeturas y refutaciones*. Barcelona: Paidós, 1972.
- Posner, R. A. *Economic analysis of law*. Amsterdam: Wolters Kluwer Law & Business, 1986.
- Posner, R. A. "The economic approach to law". In *Texas Law Review*. No. 53, 1975, 757-782.
- Posner, R. A., & Becker, G. "The future of law and economics". In *Review of Law & Economics*. No. 10, 2014, 235-240.
- Puche, M. L. "Regulation of TNCs in Latin America: The case of uber regulation in Mexico City and Bogota". In *The governance of smart transportation systems*. Cham: Springer, 2019.
- Rosenberg, A. *Philosophy of science: A contemporary introduction*. London: Routledge, 2016.
- Samuelson, W., & Zeckhauser, R. "Status quo bias in decision making". In *Journal of risk and Uncertainty*, No. 1, 1988, 7-59.
- Sampson, R. J., & Laub, J. H. *Crime in the making: Pathways and turning points through life*. Harvard University Press, 1995.
- Stigler, G. J. "The Law and Economics of public policy: A plea to the scholars". In *The Journal of Legal Studies*. No. 1, 1972, 1-12.
- Song, S. "Rise, fall, and implications of the New York city medallion market". In *Advances in Data Mining. Applications and Theoretical Aspects: 18th Industrial Conference*. No. 18, 2018, 88-103.
- Stojanović, A., & Silvestri, P. "The road not taken—Reading Calabresi's "The future of Law and Economics". In *Global Jurist*. No. 19, 2019, 1-8.
- Sunstein, C. R. *Behavioral Law and Economics*. New York: Cambridge University Press, 2007.
- Sunstein, C. R. "Listen, economists!" In *The New York Review of Books*. 2016. Available from: <https://www.nybooks.com/articles/2016/11/10/listen-economists/> [Accessed 7 April 2023]

- Thaler, R. "Toward a positive theory of consumer choice". In *Journal of Economic Behavior & Organization*. No. 1, 1980, 39-60.
- Thelen, K. "Regulating Uber: The politics of the platform economy in Europe and the United States". In *Perspectives on Politics*. No. 16, 2018, 938-953.
- Toulmin, S. *Regreso a la razón*. Barcelona: Ediciones Península, 2003.
- Tzur, A. "Uber: Über regulation? Regulatory change following the emergence of new technologies in the taxi market". In *Regulation & Governance*. No. 13, 2019, 340-361.
- Van Overtveldt, J. *The Chicago School: how the University of Chicago assembled the thinkers who revolutionized Economics and business*. Evanston: Agate Publishing, 2007.
- Van Winden, F. A., & Ash, E. "On the Behavioral Economics of crime". In *Review of Law & Economics*. No. 8, 2012, 181-213.
- Wittgenstein, L. *Tractatus logico-philosophicus*. London: Humanities Press, 1974.
- Zamir, E., & Teichman, D. *Behavioral Law and Economics*. New York: Oxford University Press, 2018.