

# LAW'S COST DISEASE

MICHAEL ABRAMOWICZ\*

## ABSTRACT

*Justice isn't free, but it might soon get much less expensive. Policies concerning issues such as arbitration, class actions, and plea bargaining depend on how much legal services cost, but the legal literature has generally ignored past and future cost trends and their implications. The result is a legal system that may change dramatically because of economic forces without active consideration of potential responses. Part of the reason for the lack of attention is that changes in legal productivity can be difficult to measure or forecast. Some commentators have concluded that the legal sector has become more expensive in recent decades, but they have missed both evidence that advances their case and arguments against it. The advent of AI introduces the possibility that lawyers' productivity will improve, reducing legal costs and ameliorating concerns about access to justice. The legal system can best prepare by more explicitly recognizing how procedure and doctrine depend on cost, thus smoothing the path for a possible productivity revolution rather than relying entirely on the political system to respond. For example, courts could explicitly incorporate a cost-benefit framework that already is implicit in much summary judgment case law, potentially enabling more cases to be tried to verdict if legal services become cheaper. Similarly, greater honesty that the criminal justice system ratchets up penalties to encourage plea-bargaining might help avoid an outcome in which cost efficiencies allow prosecutors to exact longer prison sentences than legislatures intended.*

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\*. Associate Dean and Oppenheim Professor of Law, George Washington University. For helpful comments, I thank participants in a workshop at George Washington University Law School, as well as John F. Duffy, David Fontana, David Simon, Daniel Schwarcz, Alicia Solow-Niederman, and Jessica Steinberg. I am grateful to Harrison Clanton, Bradley Neal, and Jennifer Price-Smith for research assistance. All errors are mine.

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## INTRODUCTION

The arrival of artificial intelligence, particularly large language models such as ChatGPT, has prompted speculation about the legal industry's future. Some have forecast that AI will make lawyers obsolete,<sup>1</sup> while others have been more circumspect,<sup>2</sup> with the technology's hallucination of sources serving as a cautionary tale.<sup>3</sup> Over the horizon of the next few decades, generative AI might prove to be a great force multiplier or a modest productivity enhancer,<sup>4</sup> affecting in turn the cost of justice. Whether the relative cost of legal services rises or falls, the legal system must adapt. More costly adjudication would reduce access to justice and thus prompt questions about whether to counter it with arbitration, aggregation, and assertive application of bright-

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1. See, e.g., Jenna Greene, *Will ChatGPT Make Lawyers Obsolete? (Hint: Be Afraid)*, REUTERS, Dec. 9, 2022, <https://www.reuters.com/legal/transactional/will-chatgpt-make-lawyers-obsolete-hint-be-afraid-2022-12-09/> [<https://perma.cc/M84F-AFQ3>]. For a balanced earlier assessment of the prospect that developing legal technology would displace legal jobs, see Dana Remus & Frank Levy, *Can Robots Be Lawyers? Computers, Lawyers, and the Practice of Law*, 30 GEO. J. LEGAL ETHICS 501 (2017).

2. See, e.g., Steve Lohr, *A.I. Is Coming for Lawyers, Again*, N.Y. TIMES, Apr. 10, 2023, <https://www.nytimes.com/2023/04/10/technology/ai-is-coming-for-lawyers-again.html> [<https://perma.cc/AHN3-S92B>].

3. See, e.g., *Mata v. Avianca, Inc.*, No. 1:22-cv-01461, Order to Show Cause at ECF No. 31 (S.D.N.Y. May 4, 2023) [hereinafter Order to Show Cause]; Benjamin Weiser, *Here's What Happens When Your Lawyer Uses ChatGPT*, N.Y. TIMES, May 27, 2023, <https://www.nytimes.com/2023/05/27/nyregion/avianca-airline-lawsuit-chatgpt.html> [<https://perma.cc/3ZNU-MJLF>].

4. See *infra* Part 0.

line boundaries. Less costly adjudication could increase access to justice and allow the trial to regain its central role in our legal system.<sup>5</sup>

The future direction of the law, as well as the welfare of lawyers, hinges on the interplay of technology, economics, and politics. The legal literature, while contemplating a brave new world of “robojudges,”<sup>6</sup> has had little to say about how productivity growth in the legal sector or its absence affects the law and legal institutions. Changes in productivity directly influence the cost of justice, the pivotal factor determining the ability of the legal system to achieve the aims of lawmakers. Yet it often recedes into background noise, with no attention to whether the volume is increasing or decreasing. This Article seeks not just to amplify this signal, but to intimately engage with it, casting a discerning ear to echoes from the past while actively listening for the possible beginnings of a future diminuendo. The retrospective analysis asks whether the relative cost of legal services has been increasing and, if so, whether that explains recent trends in legal costs and litigation resolution. The forward-looking challenge is to assess whether AI will transform the relative cost of legal services and, if so, how courts and lawyers can proactively prepare for such a shift, ensuring that adaptation does not depend solely on legislative action.

The canonical economic model for assessing the impact of productivity on markets is William Baumol’s “cost disease.”<sup>7</sup> Baumol observes that even in a robustly growing economy, productivity will increase faster in some markets than in others, and the markets with relatively less improvements in productivity will have prices that rise relative to those with greater improvements. For example, productivity has increased more in the market for televisions than in the market for handicrafts. The number of televisions per worker has increased more than the number of handicrafts per worker, and so televisions have become

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5. See *infra* Part (a).

6. See, e.g., CHIEF JUSTICE JOHN G. ROBERTS, JR., 2023 YEAR-END REPORT ON THE FEDERAL JUDICIARY 6 (2023), <https://www.supremecourt.gov/publicinfo/year-end/2023year-endreport.pdf> [<https://perma.cc/W9UQ-9LKN>] (predicting “that human judges will be around for a while,” but that “judicial work—particularly at the trial level—will be significantly affected by AI”); Aziz Z. Huq, *A Right to a Human Decision*, 106 VA. L. REV. 611 (2020) (arguing that any right against AI decisionmakers must be based on their technical limits, not free-standing constitutional obstacles); Richard M. Re, *Artificial Ownership and Judicial Opinions*, 92 GEO. WASH. L. REV. 1558 (2024) (assessing how generative AI might affect judicial opinions); Richard M. Re & Alicia Solow-Niederman, *Developing Artificially Intelligent Justice*, 22 STAN. TECH. L. REV. 242 (2019) (arguing that the impartiality of AI may lead it to being increasingly incorporated into judicial processes); Eugene Volokh, *Chief Justice Robots*, 68 DUKE L.J. 1135 (2019) (arguing that if sufficiently persuasive, AI judges should be accepted); Michael J. Hasday, *Accuracy and the Robot Judge* (2024) (unpublished manuscript, on file with author) (describing three paths by which robot judges might demonstrate superior accuracy relative to human judges).

7. See, e.g., WILLIAM J. BAUMOL, *THE COST DISEASE: WHY COMPUTERS GET CHEAPER AND HEALTH CARE DOESN'T* (2013).

cheaper relative to handicrafts.<sup>8</sup> The quality of televisions, meanwhile, has likely improved more than the quality of handicrafts, making the productivity gap even more stark. Markets in which productivity improvements come slowly are said to be stagnant or afflicted with the cost disease, given the relative increase in prices in these sectors. The generality that Baumol observed is that prices of labor-intensive services rise faster than prices of goods for which production has become increasingly automated.<sup>9</sup>

Because law is a service industry, it seems at first glance likely to be an unproductive or stagnant sector, and indeed Baumol has so classified legal services.<sup>10</sup> The small amount of legal commentary that has considered the cost disease has generally accepted Baumol's classification with minimal scrutiny. Perhaps the most thorough analysis is a blog post by Bill Henderson, documenting that indices of the costs of legal services have risen faster than the consumer price index.<sup>11</sup> Henderson does not, however, consider the possibility that the quality of legal services may have increased in ways that cost statistics do not reflect. The same critique applies to Emery Lee<sup>12</sup> and John Brooks,<sup>13</sup> who both quickly draw the stagnation inference directly from Bureau of Labor Statistics data. Others have assumed stagnation for theoretical reasons. Michael Stamp places legal services in the stagnant sector on the ground that it is impossible to standardize legal

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8. See, e.g., Televisions Inflation Calculator from 1950-2023, IN2013DOLLARS, <https://www.in2013dollars.com/Televisions/price-inflation> [<https://perma.cc/6TA9-YJLC>] (last visited Jan. 5, 2024) (reporting a 99.28% decline in prices for televisions from 1950). The Bureau of Labor Statistics does not separately track the prices of handmade goods.

9. See, e.g., ERIC HELLAND & ALEX TABARROK, WHY ARE THE PRICES SO D\*MN HIGH? 2 fig.1, 42-43 (2019).

10. BAUMOL, *supra* note 7, at 28 (“[T]he Bureau of Labor Statistics’ price index for legal services suggests that between 1986 and 2008 lawyers’ fees outpaced inflation by about 1.5 percent each year.”).

11. See Bill Henderson, *Legal Services and the Consumer Price Index (CPI)*, LEGAL EVOLUTION (Jan. 30, 2018), <https://www.legalevolution.org/2018/01/legal-services-consumer-price-index-cpi-cost-going-up-wallet-share-going-down-042/> [<https://perma.cc/W3WV-895V>].

12. Emery G. Lee III, *Law Without Lawyers: Access to Civil Justice and the Cost of Legal Services*, 69 U. MIA. L. REV. 499, 513 (2015).

13. See John R. Brooks, *Curing the Cost Disease*, 68 J. LEGAL EDUC. 521, 526 (2019).

production.<sup>14</sup> Bloggers<sup>15</sup> and a 1993 column in the *New York Times*<sup>16</sup> have reached similar conclusions.

Aside from the handful of sources focused directly on the cost disease,<sup>17</sup> the legal literature ignores it, making it appear to be a problem to be addressed by itself, rather than one interwoven with a wide range of legal phenomena. Thus, there has been no thorough examination of whether law suffers the cost disease, whether this is likely to change, and how the degree of cost in the legal system may affect a wide range of practices and doctrines.

Assessing whether the law is stagnant or productive is more challenging than the analogous inquiry in most industries. Changes in the quality of goods and services over time mean that productivity improvements are often difficult to measure.<sup>18</sup> But in law, it is especially tricky to define the appropriate unit of output for analysis and to assess whether more of this output is necessarily a social good. Law's goal is not to maximize cases or billable hours, but justice, broadly conceived. A legal system in which there are very few lawsuits for breach of contract might be one in which contracts are so well defined that there is little incentive to breach, or one in which breach is rampant and private parties cannot rely on contracts. The former might emerge from productivity gains in the formation of contracts or in contract law doctrine, while the latter might result from legal fees that make adjudication cost prohibitive. We cannot distinguish among these and other scenarios merely by glancing at published statistics on what lawyers charge per hour.

The strongest evidence for stagnation has been ignored in the literature yet hiding in plain sight, highlighting the possibility that the cost disease can produce dramatic changes that nonetheless may not

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14. Michael E. Stamp, Comment, *Are the Woolf Reforms an Antidote for the Cost Disease? The Problem of the Increasing Cost of Litigation and English Attempts at a Solution*, 22 U. PA. J. INT'L ECON. L. 349, 359 (2001).

15. See Gregory W. Bowman, *Baumol's Cost Disease and the Practice of Law*, L. CAREER BLOG (July 31, 2006), <http://law-career.blogspot.com/2006/07/baumols-cost-disease-and-practice-of.html> [https://perma.cc/774T-NDAY] (arguing that lawyers can combat cost disease by working to boost their own productivity); Gregory W. Bowman, *Baumol's Cost Disease and Lawyers, Part 2*, L. CAREER BLOG (August 3, 2006), <http://law-career.blogspot.com/2006/08/baumols-cost-disease-and-lawyers-part.html> [https://perma.cc/N56C-LEBS] (same); Jordan Couch, *We've Got a Bad Case of Baumol's Cost Disease*, LEGAL EVOLUTION (July 26, 2020), <https://www.legalevolution.org/2020/07/weve-got-a-bad-case-of-baumols-cost-disease-184/> [https://perma.cc/5W5B-EWYM] (diagnosing cost disease based on increases in legal fees); Casey Flaherty, *The Legal Cost Disease*, 3 GEEKS AND A LAW BLOG (December 28, 2015), <https://www.geeklawblog.com/2015/12/the-legal-cost-disease.html> [https://perma.cc/RR4M-PTW6] (concluding that legal technology has not saved the legal industry from stagnation).

16. Sam Roberts, *METRO MATTERS; Yanks Win! City Loses! Or, 1977 Repeats Itself*, N.Y. TIMES, Aug. 16, 1993, at B2.

17. A thoughtful additional piece, focusing solely on patent law, is John M. Golden, *Proliferating Patents and Patent Law's "Cost Disease"*, 51 HOUS. L. REV. 455, 500-01 (2013).

18. See *infra* Part 0.

be attributed to it, impeding effective response. Models of settlement straightforwardly predict that increases in legal costs will lead to decreases in trial rates.<sup>19</sup> The legal literature on the vanishing trial has sometimes connected parties' willingness to settle to the expense of litigation,<sup>20</sup> but it does not appear to have suggested that reduced legal productivity or increasing legal costs over time might be the or even a primary explanation for the dramatic historical decrease in trial rates. Admittedly, one cannot establish causality; trial rates could have decreased because of something other than the cost disease, and other candidates for the phenomenon have been offered. But the logic that the cost disease would be expected to lead both to more civil settlement and greater plea-bargaining suggests that attempts to counter these phenomena may be ignoring their cause.

Whatever the effect of productivity changes on today's legal world, the cost disease can allow for a contingent forecast. If productivity increases more in law than on average in other markets—that is, if the value that legal consumers obtain per dollar increases faster than in the rest of the economy—then litigation will be cheaper and thus more accessible to litigants. More plaintiffs will be able to defend their rights, and defendants with strong merits cases will be less inclined to pay nuisance settlements.<sup>21</sup> More cases will go to trial, particularly if judges' productivity improves as well. This forecast, however, hinges on AI's sufficiently improving legal productivity. Perhaps AI will prove no more potent than past technological changes. Although law's focus on the written word suggests that AI will have a larger impact on law than on many other markets,<sup>22</sup> related and independent technological changes (say, robotics) could translate into even higher productivity gains outside law. Some aspects of legal service delivery may not be particularly susceptible to replacement by AI. Trials with live witnesses are analogous to the in-person classroom instruction that

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19. See, e.g., Richard A. Posner, *An Economic Approach to Legal Procedure and Judicial Administration*, 2 J. LEGAL STUD. 399, 417-18 (1973).

20. See, e.g., Elizabeth Warren, *Vanishing Trials: The Bankruptcy Experience*, 1 J. EMPIRICAL LEGAL STUD. 913, 930-37 (2004). That litigation reduces trial, however, does not establish that it is too expensive. See Charles Silver, *Does Civil Justice Cost Too Much?*, 80 TEX. L. REV. 2073, 2073-75 (2002) (arguing that civil justice was not too expensive at the time).

21. See Randy J. Kozel & David Rosenberg, *Solving the Nuisance-Value Settlement Problem: Mandatory Summary Judgment*, 90 VA. L. REV. 1849, 1850 (2004) ("To employ a nuisance-value strategy, a litigant asserts a plainly meritless claim or defense in order to extract a payoff based on the cost the other party would incur to have the claim or defense dismissed by the court under a standard dispositive motion, like summary judgment.").

22. See Ed Felten et al., *How Will Language Modelers Like ChatGPT Affect Occupations and Industries?*, ARXIV 1, 3 (2023), <https://arxiv.org/ftp/arxiv/papers/2303/2303.01157.pdf> [<https://perma.cc/9ZE7-REHR>] (finding legal services to be the industry most "exposed to advances in language modeling")

makes education markets subject to the cost disease,<sup>23</sup> and there is no more guarantee that they will yield to virtual trials<sup>24</sup> than that YouTube will replace traditional educational delivery. And no matter how powerful generative AI becomes, society may still insist that cases be resolved by human judgment.<sup>25</sup>

If AI does make law an unambiguously productive sector, there remains significant uncertainty about what legal practice will be like. Although the cost disease model predicts that the relative price of a unit of a good or service in a productive sector will tend to fall, it makes no strong predictions regarding the wages of those who work in productive sectors. Indeed, a central assumption of the cost disease model is that productive and stagnant sectors compete for the same labor pool.<sup>26</sup> The critical factor will be whether the overall volume of cases increases commensurate with productivity. The more elastic demand for litigation, the better for lawyers. The uncertainty, however, depends not only on the shape of current supply and demand curves, but also on whether the law adapts to take advantage of the reduced cost of adjudication. In principle, if legal costs drop sufficiently, lawmakers could relax bright-line rules and rely increasingly on standards.<sup>27</sup> Though this would cause an outward shift in the demand for legal services that would benefit lawyers, that would not be its purpose. The aim would be to take advantage of more productive legal talent to create a more nuanced legal system.

In the long term, it may indeed be inevitable that lawmakers would rely more on the machinery of law when legal productivity makes it more efficient. After all, many current legal institutions—arbitration, class action aggregation, and summary judgment, for example—reflect the flip side, past responses to the high cost of litigation. A perception that law has become cheap could have the opposite effect. In some

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23. See, e.g., William J. Baumol, *Children of Performing Arts, the Economic Dilemma: The Climbing Costs of Health Care and Education*, 20 J. CULTURAL ECON. 183, 195-96 (1996); see also COMMONFUND INSTITUTE, COMMONFUND HIGHER EDUCATION PRICE INDEX at 3 & tbl.A (2019) (showing higher education price increases exceeding consumer price increases since 1961).

24. See Paul D. Carrington, *Virtual Civil Litigation: A Visit to John Bunyan's Celestial City*, 98 COLUM. L. REV. 1516, 1524-29 (1998) (arguing for virtual trials).

25. See Huq, *supra* note 6, at 686-88 (considering the possibility of a right to a human decision but arguing instead for a "right to a well-calibrated machine decision").

26. See William J. Baumol & William G. Bowen, *On the Performing Arts: The Anatomy of Their Economic Problems*, 55 AM. ECON. REV. 495, 499 (1965) ("For the moment let us assume that there is only one grade of labor, that labor is free to move back and forth between sectors . . .").

27. Cf. Anthony J. Casey & Anthony Niblett, *The Death of Rules and Standards*, 92 IND. L. J. 1401, 1403 (2017) (explaining how AI might produce microdirectives that provide clear instructions like rules but are tailored to context like standards); Frank Fagan & Saul Levmore, *The Impact of Artificial Intelligence on Rules, Standards, and Judicial Discretion*, 93 S. CAL. L. REV. 1, 31 (2019) (explaining that AI in effect can convert a rule into a set of more refined rules and categorizing this as a "more rule-oriented legal system").

respects, the legal system would automatically adjust in response to a change in productivity, because some doctrines explicitly take the cost of litigation into account—in the assessment of the reasonableness of discovery,<sup>28</sup> the certification of class actions for damages,<sup>29</sup> the admission of arguably duplicative evidence,<sup>30</sup> and the determination of how much process is due.<sup>31</sup> These doctrines take cost into account because it varies across cases at any given time, but their flexibility can allow the law better to adapt should the overall costliness of the legal system change.

There are, however, many other legal practices that seem less likely to adapt automatically to changes in costs, at least absent conscious recognition that productivity changes might necessitate policy change. For example, existing practices like openness to arbitration<sup>32</sup> and enforcement of boilerplate contracts of adhesion<sup>33</sup> are justified in part by appeal to the costliness of adjudication, and so a reduction would weaken their normative foundation. But there is no obvious legal outlet for retrenchment. Common law decisionmaking may be flexible enough to incorporate cost concerns into many doctrines, but evolution could be quite slow. There will inevitably exist residual normative disagreement about any given legal practice or doctrine, and even judges who ideologically might sympathize with an agenda, broadly conceived, of making the law more ambitious might believe movement in such a direction to be outside the scope of the judicial role.

This Article's suggestion is that judges and legal scholars help establish a foundation for whatever legal future may await by articulating more clearly how legal practices and doctrines may be predicated on assumptions about the level of adjudication costs. Although it would not be feasible to dictate explicit cost thresholds in advance, explicit incorporation of costs into doctrine could be useful if legal costs rise. Candid acknowledgments that some aspects of adversarial procedure may inhibit access to justice could, for example, facilitate transition to greater informality.<sup>34</sup> But this foundation may be especially important should there be a reduction in legal costs, especially a rapid one. It may be easier for judges to draw a connection between contracts of adhesion and legal costs for the first time when justifying enforcement of such contracts than when arguing for a change in the legal regime because of increased legal productivity.

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28. See FED. R. CIV. P. Rule 26(g)(1)(B)(iii); *infra* text accompanying notes 265-266.

29. See FED. R. CIV. P. Rule 23(b)(3); *infra* text accompanying notes 267-268.

30. See FED. R. EVID. Rule 403; *infra* text accompanying note 269.

31. See *Mathews v. Eldridge*, 424 U.S. 319, 347-49 (1976); *infra* text accompanying notes 270-273.

32. See *infra* text accompanying notes 315-16.

33. See *infra* text accompanying notes 310-314.

34. This has already occurred in some places, for example, in an experiment in a housing conditions court. See *infra* text accompanying notes 290-91.

Another example is in criminal law. Acceptance-of-responsibility discounts for criminal sentences, some scholars observe, serve as devices to accentuate prosecutors' leverage in plea bargaining.<sup>35</sup> Increased legal productivity, however, might mean that prosecutors would not need to rely on plea bargaining as much, leading to long sentences in cases they insisted on taking to trial and even greater leverage in other cases. Candid recognition of this today could increase the chance that this would be recognized effectively as a change in policy, to be evaluated on the merits, rather than as a continuation of the status quo. There is no guarantee that recognition of the law's contingency on legal productivity and costs will prompt legal reform, but a legal system that discusses and understands the cost disease and its inverse will be better positioned to adapt to changes.

The author's personal assessment is that the law has stagnated, and that AI will turn law into a productive sector, perhaps not in the next decade, but in the years to follow. But the purpose of this Article is preparation, not pondering the past or prognosticating the future. And so, while the author's viewpoint may influence the reader, the Article's aim is to identify the relevant arguments for stagnation and productivity, retrospectively and prospectively, without expounding on the weight that different considerations should receive. Indeed, part of the argument is that rigorous adjustment of legal productivity statistics to reflect quality changes is difficult and perhaps impossible. Futurists, meanwhile, have low success rates.<sup>36</sup> What matters is how legal costs provide significant challenges to access to justice today and how legal actors can appropriately prepare for a world in which legal productivity changes in one direction or the other.

The Article proceeds as follows: Part 0 reviews the cost disease model and then assesses the cases for and against stagnation. This includes an assessment of whether the vanishing trial might be attributed to stagnation, as well as arguments that even if legal costs have risen, there are offsetting considerations that are difficult to measure, including the accumulation of legal precedent. Part **Error! Reference source not found.** looks to the future, explaining both the bearish case that recent improvements in AI will not herald large productivity gains anytime soon and the bullish case that technological developments will have a profound impact on the legal sector. It then acknowledges considerable empirical uncertainty about what the effects of increased productivity would be, depending on such imponderables as the demand for litigation and the resistance of the bar to

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35. See Russell M. Gold et al., *Civilizing Criminal Settlements*, 97 B.U. L. REV. 1607, 1617 (2017).

36. See Dan Luu, *Futurist Prediction Methods and Accuracy* (last visited Jan. 4, 2024) (comprehensively grading futurists on predictions and finding low accuracy). *But see* PHILIP E. TETLOCK & DAN GARDNER, *SUPERFORECASTING: THE ART AND SCIENCE OF PREDICTION* (2016) (documenting that some individuals have strong track records at forecasting).

reductions in the human elements of lawyering. Finally, Part 0 argues that anticipation of the cost disease nevertheless can maximize the legal system's ability to adapt. Continued stagnation might require increased reliance on class action aggregation and institutional design that reduces formality while preserving access to justice to the extent possible. To take advantage of the spoils of technology-driven productivity, the legal system must lay the groundwork to take on a more expansive role, with more causes of action and a shift to standards from rules. Part 0 concludes.

## I. JUSTICE AND THE COST DISEASE

To consider whether law has become stagnant, Part 0 will review the cost disease model. Parts 0 and 0 will then consider, respectively, arguments for and against stagnation. Each of the arguments has limitations, and the range of considerations makes it difficult even to imagine a clear empirical test. The consensus of the few who have considered it may well be correct, even bolstered by new observations offered here, but the challenges of measuring legal productivity currently should humble us before we take on the challenge of anticipating how it and thus the level of legal costs might change.

### A. *The Cost Disease Model*

The article that initially introduced the concept of the cost disease, albeit without using the phrase "cost disease," developed the concept in the context of a particular industry, the performing arts. Writing with his Princeton colleague William G. Bowen,<sup>37</sup> Baumol offers a simple two-sector model not unlike that above, in which they assume that one sector enjoys productivity increases of four percent per year, while the other has no productivity increases at all.<sup>38</sup> The bad news that Baumol and Bowen have for consumers of the performing arts is that the performing arts is a stagnant sector. "The output per man-hour of the violinist playing a Schubert quartet in a standard concert hall is relatively fixed, and it is fairly difficult to reduce the number of actors necessary for a performance of *Henry IV*, Part II."<sup>39</sup> The example of the string quartet has become canonical in the literature, because performances today can be quite like performances hundreds of years ago.

And yet it should be clear that the selection could equally be viewed as controversial. One difficulty is that the example highlights the problem of market definition.<sup>40</sup> After all, even in 1959, technological change in the form of phonographs, radio, and television had revolutionized

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37. Baumol & Bowen, *supra* note 26.

38. *Id.* at 499-500.

39. *Id.*

40. See generally Sean P. Sullivan, *Modular Market Definition*, 55 U.C. DAVIS L. REV. 1091, 1098-1117 (2021) (describing challenges of defining market definition in antitrust).

the performing arts.<sup>41</sup> Individual artists could potentially reach a much larger audience, which could be viewed as a productivity increase. Indeed, performing arts are also given as examples of “winner-take-all” markets in which the possibility of zero marginal cost reproductions means that very few performers are needed.<sup>42</sup> Similarly, when we consider the legal profession, we will not limit our attention to trials, though data on trials is especially accessible.<sup>43</sup>

Baumol and Bowen use the performing arts example to highlight another complexity. For the two-sector model, Baumol and Bowen explicitly assume “that there is only one grade of labor, that labor is free to move back and forth between sectors[.]”<sup>44</sup> They acknowledge, however, that it is a simplification.<sup>45</sup> Price increases in the stagnant sector will cause loss of market share. This combination means that total expenditures could rise or fall. The equilibrium will depend on the elasticity of demand for the goods or services in the stagnant and productive sectors. If demand for the productive sector’s goods or services is inelastic, less labor will be needed in the productive sector. If laborers cannot change sectors without incurring costs in the short run, this would lead to lower wages for workers in the productive sector. With elastic demand, however, wages could rise. We will thus later focus on the elasticity of the demand for litigation.<sup>46</sup>

That the cost disease model does not make predictions about the wages of workers in the stagnant and productive sectors becomes manifest in a sequel to Baumol and Bowen’s original article. The cost disease is known as Baumol’s rather than Baumol and Bowen’s because Baumol wrote this sequel alone. In much the same way as Ronald Coase built on his earlier analysis of a single market<sup>47</sup> to generalize what became known as the Coase Theorem,<sup>48</sup> Baumol offers an analysis extending beyond the performing arts.<sup>49</sup> Baumol predicates his model “on several assumptions,” but he acknowledges that “only one .

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41. By that year, 90% of U.S. households had televisions. See William G. Mayer, *The Polls—Poll Trends: Trends in Media Usage*, 57 PUB. OP. Q. 593, 595 (1993).

42. See, e.g., ROBERT H. FRANK & PHILIP J. COOK, *THE WINNER-TAKE-ALL SOCIETY* 32-33 (1995).

43. See *infra* Part 0.

44. Baumol & Bowen, *supra* note 26, at 499.

45. An additional nuance is that performing artists may “sacrifice money income for the less material pleasures of their participation in the arts.” *Id.* at 501. A more robust assumption would be that income is the same across both sectors, once pecuniary and nonpecuniary components of income are taken into account.

46. See *infra* Part (a).

47. See Ronald H. Coase, *The Federal Communications Commission*, 2 J.L. & ECON. 1 (1959).

48. See Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

49. William J. Baumol, *Macroeconomics of Unbalanced Growth: The Anatomy of Urban Crisis*, 57 AM. ECON. REV. 415, 415 (1967).

. . . is really essential.”<sup>50</sup> That assumption is that some economic activities are technologically progressive (i.e., relatively productive) while others “permit only sporadic increases in productivity.”<sup>51</sup>

This assumption drives Baumol’s Proposition 1, the core cost disease observation that “[t]he cost per unit of output of [stagnant] sector 1,  $C_1$ , will rise without limit while  $C_2$ , the unit cost of [productive] sector 2, will remain constant.”<sup>52</sup> Then, explicitly making an assumption that consumer demand in both sectors is “not highly inelastic” (i.e., an assumption that consumers will purchase more of the good, the lower the price), Baumol offers Proposition 2, that “there is a tendency for the outputs of the ‘nonprogressive’ sector . . . to decline and perhaps, ultimately, to vanish.”<sup>53</sup> Offering an alternative assumption of demand inelasticity in the stagnant sector, or government regulation sufficient to allow “the relative outputs of the two sectors [to be] maintained,” Baumol derives Proposition 3, that in this case “more and more of the total labor force must be transferred to the non-progressive sector.”<sup>54</sup> Finally, Proposition 4 warns that any such attempt to avoid the cost disease would harm economic growth: “[I]f productivity in one sector and the total labor force remain constant the growth rate of the economy will asymptotically approach zero.”<sup>55</sup> Eventually, all labor will be stuck in the stagnant sector, and the economy will be unable to take advantage of the productivity improvements in the productive sector.

The literature on the cost disease might appear to suggest that law might be a stagnant industry. After all, it is a service industry, and service industries are generally more likely to be stagnant than productive sectors.<sup>56</sup> In contrast to the manufacturing industry, no inventions appear yet to have enabled lawyers to scale their productivity to a large multiple of what it was originally. In contrast to the computer industry, there is no Moore’s Law<sup>57</sup> that would result in lawyers’ rapidly increasing their skill. It is thus not surprising that this appears to

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50. *Id.*

51. *Id.* at 415-16.

52. *Id.* at 418.

53. *Id.*

54. *Id.* at 418-19.

55. *Id.* at 419.

56. Baumol, *supra* note 49, at 416.

57. See Gordon E. Moore, *Cramming More Components onto Integrated Circuits*, ELECTRONICS, Apr. 19, 1965, at 114, [http://www.monolithic3d.com/uploads/6/0/5/5/6055488/gordon\\_moore\\_1965\\_article.pdf](http://www.monolithic3d.com/uploads/6/0/5/5/6055488/gordon_moore_1965_article.pdf) [<https://perma.cc/3LTR-S824>] (predicting continued doubling of the number of transistors on an integrated circuit). For a discussion of other similar laws in computing, see *Tech Laws We Should All Know About*, 3G4G BLOG (Aug. 8, 2012), <https://blog.3g4g.co.uk/2012/07/tech-laws-we-should-all-know-about.html> [<https://perma.cc/DH6E-UUSK>] (including also Koomey’s Law for computational use of energy, Metcalfe’s Law for governing the value of a network, Gilder’s law regarding communications bandwidth, and Nielsen’s Law for network connection speeds). See also *infra* note 213 and accompanying text (discussing Huang’s Law for GPUs).

be the consensus view of those who have mentioned the applicability of the cost disease to the legal sector.<sup>58</sup> The prior literature has either simply assumed that law must be stagnant given that it is a service industry or has noted inflation statistics but without considering the limitations of such data.

### B. *The Case for Stagnation*

Cost statistics make a strong preliminary case for stagnation, but these statistics may be ineffective at measuring improvements in legal productivity. Caseload statistics solidify this case by casting doubt on the possibility that lawyers' productivity has increased. Finally, statistics on trial rates that are familiar to the literature on the vanishing trial may provide the best argument for stagnation, though in the absence of causal evidence, this case remains impressionistic.

#### 1. *Cost Statistics*

The most immediate prediction of the cost disease model is that prices will rise more quickly in a stagnant sector than in a productive sector, or than in the economy overall. The most obvious way to assess whether law is a productive or stagnant sector is thus to consider measures of inflation in the legal sector. The results seem to reinforce the claim that the legal industry has been stagnating, at least over the past two decades. For example, Figure 1 compares the price level reported by the Bureau of Labor Statistics for legal services<sup>59</sup> and for all items<sup>60</sup> in U.S. cities for all urban consumers. This data is the Consumer Price Index, focusing on purchases of legal services by consumers.<sup>61</sup> The data for January 2001,<sup>62</sup> are normalized to 100. By 2023, the price level for legal services was 22.1% higher than for all items. Figure 2, meanwhile, compares the price of legal services as documented in the Producer Price Index with the general consumer price level. Normalizing the January 1997, data to 100, the price level for legal

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58. See sources cited *supra* notes 11-15.

59. Bureau of Labor Statistics, U.S. Dep't of Labor, *Legal Services in U.S. City Average, All Urban Consumers, Seasonally Adjusted* (last visited Aug. 1, 2023), <https://beta.bls.gov/dataViewer/view/timeseries/CUSR0000SEGD01> [<https://perma.cc/749X-LE77>].

60. Bureau of Labor Statistics, U.S. Dep't of Labor, *All Items in U.S. City Average, All Urban Consumers, Seasonally Adjusted* (last visited Aug. 1, 2023), <https://beta.bls.gov/dataViewer/view/timeseries/CUSR0000SA0> [<https://perma.cc/KJ8W-B7G5>].

61. The legal services category “[i]ncludes the cost of personal, non-commercial legal services,” but excludes “[f]iling fees, court fees, and travel expenses if billed separately, and legal services related to business dealings.” U.S. BUREAU OF LABOR STATISTICS, CPI HANDBOOK OF METHODS app. 2, CONTENT OF CPI ENTRY LEVEL ITEMS, <https://www.bls.gov/cpi/additional-resources/entry-level-item-descriptions.htm> [<https://perma.cc/KS2V-SJQF>] (last visited June 23, 2023).

62. This is the first year included in the published data.

services was 44.7% higher than the general consumer price level by 2021.

Figure 1

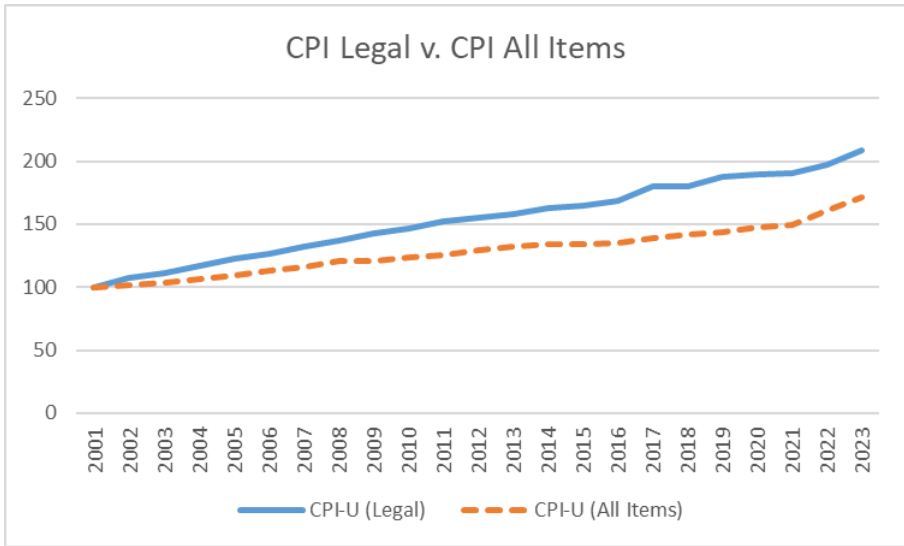
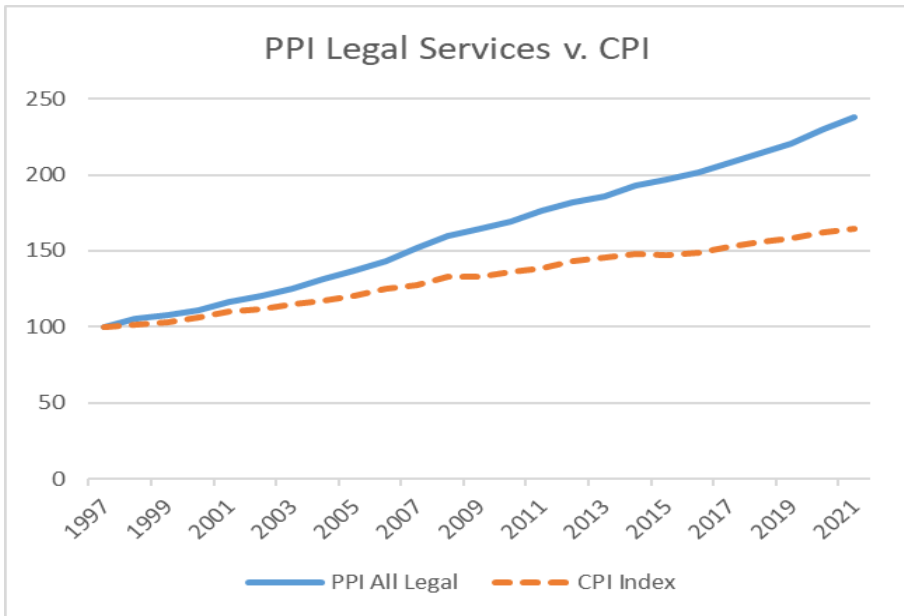


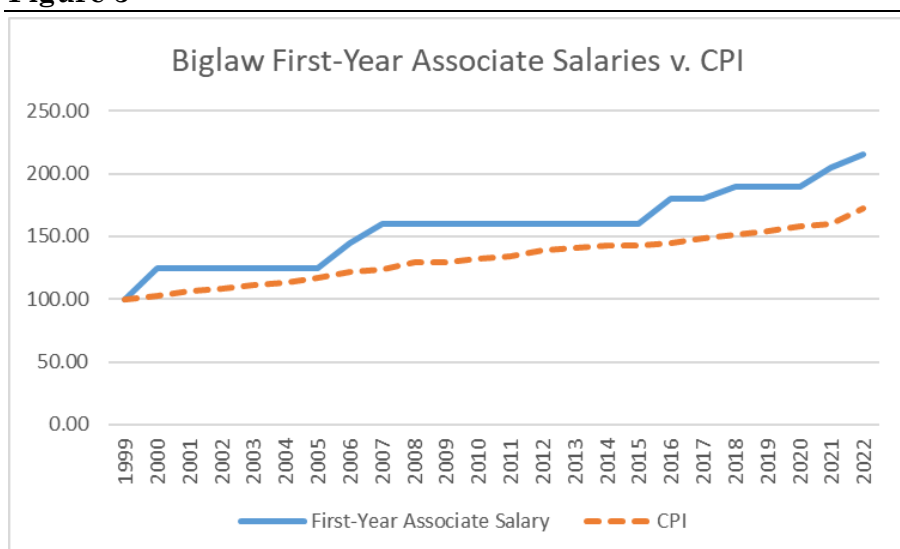
Figure 2



The most significant input to the price of legal services is, of course, the cost of lawyers, and additional data suggest that wages have risen steadily in recent decades. Figure 3, for example, shows that the salaries of first-year associates at leading large law firms have risen

considerably faster than inflation since 1999.<sup>63</sup> Though comprehensive data is difficult to obtain, the trend clearly goes back considerably further than that. In 1953, entry-level salary was \$4,000,<sup>64</sup> equal to just under \$44,000 in 2022 dollars. Although the cost disease hypothesis does not make unambiguous predictions as to wages,<sup>65</sup> this data suggests that at least for this elite market segment, wages have been increasing for some time. Median lawyer wages have also been increasing faster than consumer price inflation, as indicated in Figure 4, though not as dramatically.<sup>66</sup>

**Figure 3**

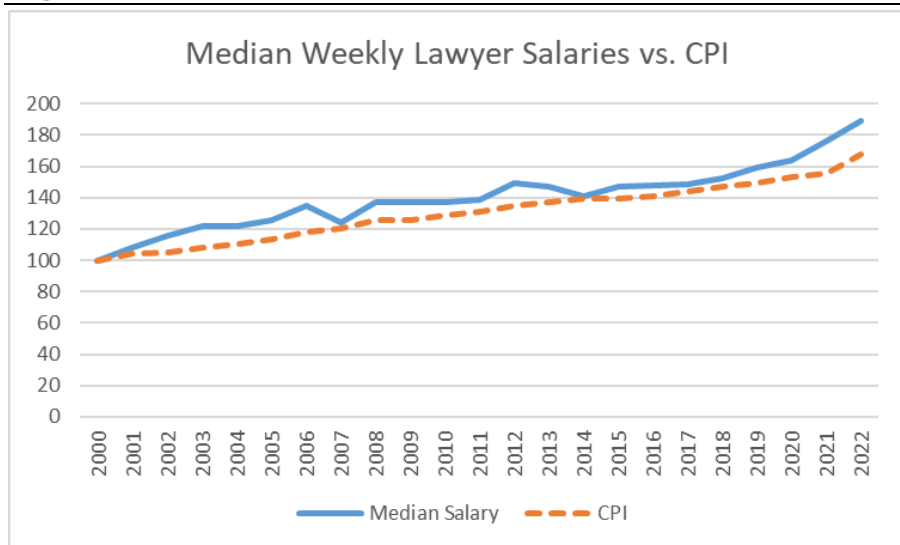


63. Biglaw Investor, *Biglaw Salary Scale*, <https://www.biglawinvestor.com/biglaw-salary-scale/> [<https://perma.cc/CVU6-VYLE>] (last visited June 23, 2023).

64. MARC GALANTER & THOMAS PALAY, *TOURNAMENT OF LAWYERS* 24 (1991). One reason for this low salary, however, may have been price fixing. *See id.* (describing an annual luncheon of managing partners at which the rate was set).

65. *See supra* text accompanying note 34

66. FRED ECONOMIC DATA, EMPLOYED FULL TIME: MEDIAN USUAL WEEKLY NOMINAL EARNINGS (SECOND QUANTILE): WAGE AND SALARY WORKERS: LAWYERS OCCUPATIONS: 16 YEARS AND OVER (Series LEU0254536800A), available at <https://fred.stlouisfed.org/series/LEU0254536800A> [<https://perma.cc/U7VU-GGUE>] (last visited June 23, 2023).

**Figure 4**

If this data accurately reflects the cost of a unit of legal services, then the cost disease for legal services can be diagnosed with confidence. The limitation of the data is that it may not adjust for quality changes. The Bureau of Labor Statistics notes that the PPI “is a constant quality fixed-input output price index.”<sup>67</sup> Thus, if the quality of a good or service sampled for the PPI increases, the Bureau seeks to make a corresponding adjustment in the index. For example, if “a piece of luggage has its vinyl trim replaced with leather,”<sup>68</sup> then what might otherwise appear to be an increase in price for the luggage may be illusory, and so the Bureau would adjust the price increase to reflect the quality increase. The challenge is that it may be quite difficult to identify changes in quality for some goods and services. The “preferred method of quality adjustment” is “explicit quality adjustment,”<sup>69</sup> where the Bureau measures production cost differences, as in the leather vs. vinyl example. There are alternatives—such as the “ratio method,” where a good has grown or shrunk, and the Bureau modifies “[t]he current month base price ... by the ratio of the new size to the old size.”<sup>70</sup>

The Bureau, however, acknowledges challenges, particularly for services. In discussing health costs, for example, the Bureau notes, “Improvements in medical technology, new procedures, or new drugs can impact treatments in terms of the length of hospital stay, the types

67. U.S. Bureau of Labor Statistics, *Quality Adjustment in the Producer Price Index*, <https://www.bls.gov/ppi/quality-adjustment/quality-adjustment-in-the-producer-price-index.pdf> [<https://perma.cc/FA5N-GF8Z>] (last visited Aug. 11, 2023).

68. *Id.*

69. *Id.* at 2 (second emphasis omitted).

70. *Id.* at 4.

or amounts of drugs administered, or treatment outcome. It is difficult to determine when such a change is a change in quality or a pure price change.”<sup>71</sup> At least for hospital expenses, the Bureau can consider data such as improvements in treatment outcomes over time, and indeed the Bureau exerts great effort to accomplish this.<sup>72</sup> But in law, it is more challenging to develop metrics for success. This is especially true in litigation, where one party’s success is the other party’s failure. In theory, the legal system might be more or less effective in effectuating the intent of lawmakers. Courts and administrative agencies arrive at answers that are authoritative, but there is no obvious way to determine systematically how often these answers are correct in some deeper sense.

Unsurprisingly, those who calculate price indices have not found perfect solutions to this problem. Although information on the precise methodology used in the United States to calculate the legal components of the Consumer Price Index and the Producer Price Index is scarce, a publication by Eurostat and the OECD outlines the general approach used across OECD countries.<sup>73</sup> The publication concedes, “[i]n the legal activity service sector it is difficult to find standard products or services that do not vary in quality over time and/or with the client.”<sup>74</sup> The publication then details how different types of fees are accounted for, for example, by describing survey questions about hourly fees,<sup>75</sup> but it does not appear to suggest any adjustment for the possibility that lawyers’ effectiveness improves over time. Finally, the publication explicitly concludes that “quality changes in the legal sector can hardly be revealed.”<sup>76</sup>

## 2. *Caseload Statistics*

Neither commentators nor Bureau of Labor Statistics statisticians appear to have sought to develop proxies for lawyers’ productivity. Different lawyers do many different things, and I have found no generally available measures of the number of contracts an average contracts

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71. *Id.* at 6.

72. *See, e.g.*, HOSPITAL QUALITY VALUATION TEAM, U.S. BUREAU OF LABOR STATISTICS, PROPOSAL FOR ADJUSTING THE GENERAL HOSPITAL PRODUCER PRICE INDEX FOR QUALITY CHANGE 8-11 (Feb. 15, 2008), <https://conference.nber.org/confer/2008/si2008/PRCR/murphy2.pdf> [<https://perma.cc/PLH2-WQWS>] (providing a detailed application of a proposed methodology to treatment of heart disease).

73. EUROPEAN COMM’N ET AL., METHODOLOGICAL GUIDE FOR DEVELOPING PRODUCER PRICE INDICES FOR SERVICES (2005), <https://ec.europa.eu/eurostat/documents/3859598/5896201/KS-BG-06-003-EN.PDF.pdf/bbad9ce4-efc3-42bb-adc1-a613e1eec60f?t=1414781313000> [<https://perma.cc/94H8-85HD>].

74. *Id.* at 98.

75. *Id.* at 99. Similarly, in referring to *ad valorem* prices (contingency fees), the publication notes, “[i]n practice, it is often difficult to define representative values of claim as legal cases differ from client to client and time to time.” *Id.*

76. *Id.* at 100.

lawyer drafts, divorces an average family lawyer processes, or torts an average torts lawyer litigates in a particular year. A crude proxy for the output of the legal sector, however, can be found in case filing statistics. If technology were making trial lawyers more productive, then one might expect the average lawyer to file (or defend) more cases.

Figure 5 and Figure 6 report federal district court and state court civil case filings. The district court filings, from 1999 through 2022, were published by the Administrative Office of the U.S. Courts,<sup>77</sup> and the state court information, aggregated from 2012 to 2021, was compiled by the Court Statistics Project.<sup>78</sup> Interestingly, they point in opposite directions, revealing a slight upward trend in federal court filings (ignoring an anomaly for years 2020 and 2021),<sup>79</sup> and a general downward trend in state court filings. In any event, aggregating both federal and state cases, and considering that there are fewer federal cases but that federal cases on average might be more complex, there does not appear to be any indication of a great increase in case filings that would reflect steady increases in lawyerly productivity. The period is short, however, and it followed a perceived caseload crisis in the federal courts,<sup>80</sup> which some argued justified an expansion in the size of the judiciary.<sup>81</sup> Still, especially when combined with the observation that the number of lawyers nationwide has steadily increased over the same period,<sup>82</sup> case filing statistics do not appear to suggest continuous productivity improvements on a per lawyer basis. Recognizing the caution that case filing statistics tell us nothing about whether lawyers

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77. See U.S. COURTS, CASELOAD STATISTICS DATA TABLES, <https://www.uscourts.gov/statistics-reports/caseload-statistics-data-tables> [<https://perma.cc/ZB2G-Q8DS>] (choose “U.S. District Courts – Civil Cases Filed, Terminated, and Pending,” table number “C”, “December 31, 2023”).

78. See NAT’L CTR. FOR STATE COURTS, COURT STATISTICS PROJECT, <https://www.court-statistics.org/court-statistics/interactive-caseload-data-displays/csp-stat-nav-cards-first-row/csp-stat-civil> [<https://perma.cc/3JFW-8EFZ>] (last visited June 23, 2023). The statistics exclude cases filed in courts of limited jurisdiction, but some jurisdictions have only one type of court, and all cases from those courts are included. Some states have missing data in some years.

79. This anomaly occurred not because of the pandemic, but because of a single case against 3M. See U.S. COURTS, U.S. DISTRICT COURTS—JUDICIAL BUSINESS 2020, <https://www.uscourts.gov/statistics-reports/us-district-courts-judicial-business-2020> [<https://perma.cc/NAR3-ZHHP>] (noting that filings would have been lower absent the more than 200,000 filings in the MDL case against 3M over Combat Arms earplugs).

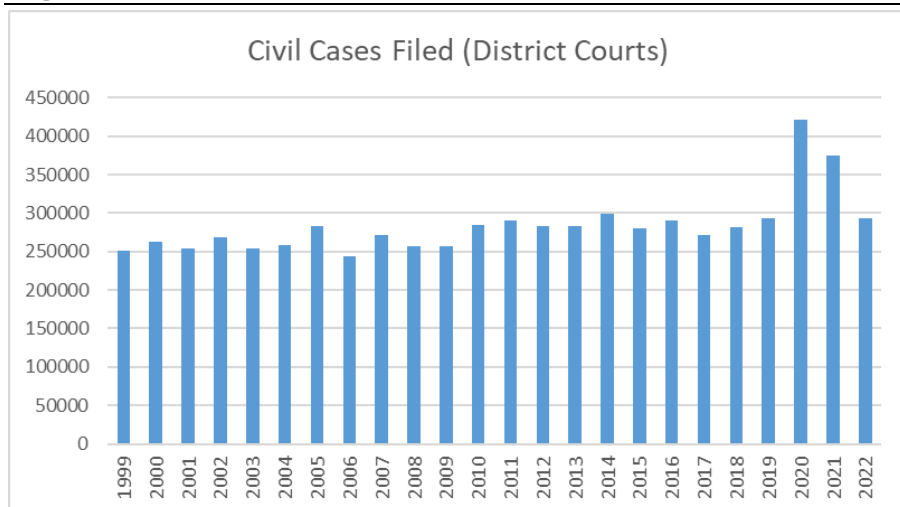
80. See, e.g., RICHARD A. POSNER, *THE FEDERAL COURTS: CHALLENGE AND REFORM* 53-192 (1985).

81. See, e.g., Charles W. Nihan & Harvey Rishikof, *Rethinking the Federal Court System: Thinking the Unthinkable*, 14 MISS. C. L. REV. 349 (1994).

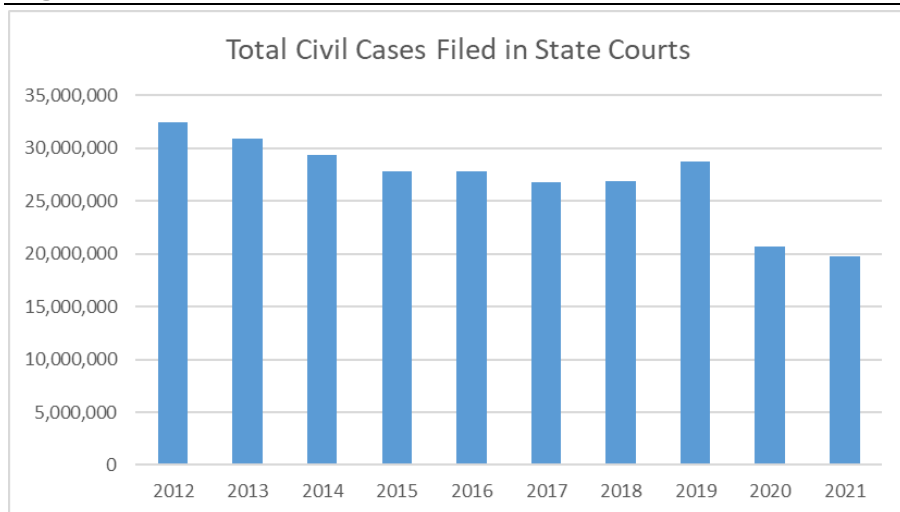
82. See AM. BAR ASS’N, *PROFILE OF THE LEGAL PROFESSION: DEMOGRAPHICS* 22 (2022), <https://www.americanbar.org/content/dam/aba/administrative/news/2022/07/profile-report-2022.pdf> [<https://perma.cc/U78Y-NBF2>] (“[T]he number of lawyers nationwide has grown roughly 1.4% a year since 2000 – from 1,022,462 in 2000 to 1,327,010 in 2022, an increase of 30%.”). The increase was considerably greater, approximately 8% per year, from 1900 to 2000. *Id.*

have increased their productivity by resolving more cases before filing; these data modestly strengthen the stagnation hypothesis.

**Figure 5**



**Figure 6**

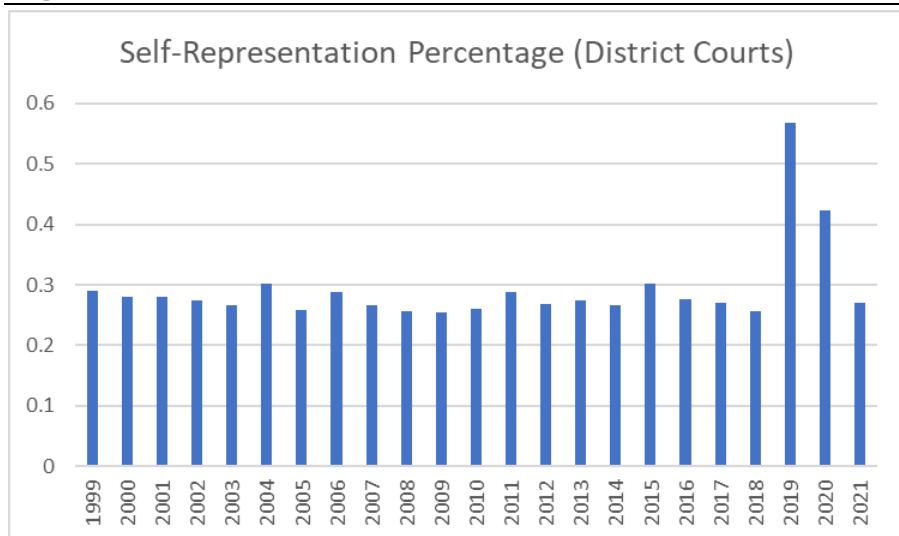


Finally, Figure 7 reports on the percentage of litigants in civil cases filed in the U.S. district courts who represented themselves pro se. Stagnation would seem likely to increase the proportion of litigants who were self-represented. (A caveat is that individuals might choose not to self-represent because their own jobs have become more productive, reducing the relative value of engaging in self-advocacy, but this seems unlikely at least to affect relatively impecunious litigants.) Once again, excluding the anomaly of 2020 and 2021,<sup>83</sup> the picture that

83. See *supra* note 79.

emerges is one of stasis.<sup>84</sup> The picture may be different in state courts, though this is contested. A 2015 study found a great increase in self-representation relative to an earlier publication in 1992.<sup>85</sup> But Dalié Jiménez has pointed out that the “report unfortunately misinterpreted a methodological quirk in the 1990s data” that excluded pro se litigants who defaulted.<sup>86</sup> At least, the self-representation data is not yet sufficient by itself to support a confident diagnosis of cost disease.

**Figure 7**



### 3. Trial Rate Statistics

Perhaps more important than filing is the fate of cases afterward. Indeed, a powerful though previously neglected line of evidence for the stagnation hypothesis comes in the form of statistics on the incidence of trial. The trial has been vanishing. Judge Patrick Higginbotham was one of the first to view the reduction in cases tried in federal district courts as a crisis.<sup>87</sup> Soon, the vanishing trial was the subject of a symposium in the first volume of the *Journal of Empirical Legal*

84. See generally Mark D. Gough & Emily S. Taylor Poppe, *(Un)Changing Rates of Pro Se Litigation in Federal Court*, 45 LAW & SOC. INQ. 567 (2020) (delving further into the pre-2020 statistics).

85. See CIVIL JUSTICE INITIATIVE, NATIONAL CENTER FOR STATE COURTS, THE LANDSCAPE OF CIVIL LITIGATION IN STATE COURTS 31-33 (2015).

86. See Dalié Jiménez, *Decreasing Supply to the Assembly Line of Debt Collection Litigation*, 135 HARV. L. REV. F. 374, 377 (2022).

87. See, e.g., Patrick E. Higginbotham, *Judge Robert A. Ainsworth, Jr. Memorial Lecture, Loyola University School of Law: So Why Do We Call Them Trial Courts?*, 55 S.M.U. L. REV. 1405 (2002). Judge Higginbotham further developed this theme in Patrick E. Higginbotham, *Mahon Lecture*, 12 TEX. WESLEYAN L. REV. 501 (2006); Patrick E. Higginbotham, *The Present Plight of the United States District Courts*, 60 DUKE L.J. 745 (2010).

*Studies*,<sup>88</sup> and in others as well.<sup>89</sup> In a magic trick, after the rabbit or dove disappears, the magician makes it reappear.<sup>90</sup> But to date, there has been no reappearance of the vanishing trial, and any reappearance will need magic, or least improved AI. As Figure 8 illustrates, trials have continued to disappear since that first symposium at a dramatic rate, far too great to be a random fluctuation.<sup>91</sup> A few observations highlight the size of the decrease. For example, while trials represented 12% of civil cases disposed in 1962, they were only approximately one percent of the total by 2017.<sup>92</sup> Or consider that the number of juries selected fell from 10,338 in 1996 to just 3,887 twenty years later.<sup>93</sup> Or that the number of jury trials fell by 55% and 56% in the Eastern District and Southern District of New York, respectively, from 1999 and 2015.<sup>94</sup> Or that “[w]here once 1 in 6 (16.5 percent) tort cases went to trial, this has dropped steadily so that now only 1 in 46 (2.2 percent) do.”<sup>95</sup>

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88. See Symposium, *The Vanishing Trial*, 1 J. EMPIRICAL LEGAL STUD. v (2004).

89. See, e.g., John M. Lande, *Introduction to Vanishing Trial Symposium*, 2006 J. DISP. RESOL. 1; Symposium, *The Vanishing Trial*, DISP. RESOL. MAG., Summer 2004, at 3.

90. A popular movie called this portion of the trick “the prestige.” See generally *THE PRESTIGE* (Touchstone Pictures 2006) (illustrating the importance of the portion of the trick in which the disappeared reappears).

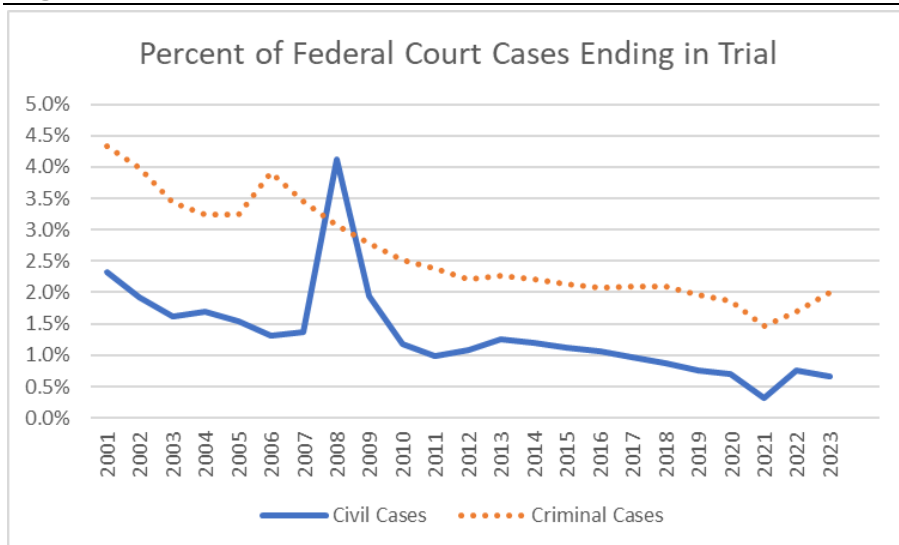
91. See U.S. COURTS, CASELOAD STATISTICS DATA TABLES, <https://www.uscourts.gov/statistics-reports/caseload-statistics-data-tables> [<https://perma.cc/LA7H-35DN>] (type “C-4” in “Search by table number” for civil cases; type “D-4” in “Search by table number” for criminal cases). The 2008 outlier may be a reporting error in the official statistics.

92. Jeffrey Q. Smith & Grant R. MacQueen, *Going, Going, but Not Quite Gone: Trials Continue to Decline in Federal and State Courts. Does It Matter?* 101 JUDICATURE 26, 28 (2017).

93. *Id.* at 29.

94. *Id.* at 30.

95. Marc Galanter, *The Vanishing Trial: An Examination of Trials and Related Matters in Federal and State Courts*, 1 J. EMPIRICAL LEGAL STUDIES 459, 466 (2004).

**Figure 8**

Several important points underscore the magnitude of the shift in the frequency of trials. First, as Figure 8 reflects, aside from an anomaly in 2008, the trial has been vanishing in both the civil and criminal spheres. The literatures on settlement and plea bargaining are almost entirely independent,<sup>96</sup> but the commonality of the vanishing trial in both contexts suggests that they might be linked. The increase in plea bargaining, though once blamed by some on the mandatory nature of the Sentencing Guidelines,<sup>97</sup> has proceeded apace<sup>98</sup> after the Supreme Court held that the Guidelines were merely advisory.<sup>99</sup> Second, the experience of the vanishing trial has not been limited to federal courts. Indeed, as Brian J. Ostrom et al. have documented, significant declines

96. *But see* Oren Bar-Gill & Omri Ben-Shahar, *The Prisoners' (Plea Bargain) Dilemma*, 1 J. LEGAL ANALYSIS 737, 744-50 (2009) (pointing out distinctions between plea bargaining and civil settlement); Gold, *supra* note 35 (arguing for procedural reforms to make plea bargaining more like civil settlements).

97. *See, e.g.*, John B. Meixner & Shari Seidman Diamond, *Does Criminal Diversion Contribute to the Vanishing Civil Trial?* 62 DEPAUL L. REV. 443, 453 (2013) (noting that plea bargaining increased after the Guidelines were found constitutional in *Mistretta v. United States*, 488 U.S. 361 (1989)).

98. *See* The Hon. Robert J. Conrad, Jr. & Katy L. Clements, *The Vanishing Criminal Jury Trial: From Trial Judges to Sentencing Judges*, 86 GEO. WASH. L. REV. 99, 133 (2019) (noting that after an initial two-year spike in jury trials post-*Booker* of 21%, “from 2006 to 2016, the percentage of defendants disposed of by jury trials declined by forty-seven percent”). Conrad and Clements argue that sentencing hearings have effectively replaced the trial, in part because “a typical trial produces disproportionate amounts of one-sided evidence adverse to the defendant.” *Id.* at 134.

99. *See* *United States v. Booker*, 543 U.S. 220 (2005) (finding advisory status to be necessary to avoid Sixth Amendment problems).

have been observed in almost all states in which data are available.<sup>100</sup> Third, the vanishing trial is not solely an American phenomenon. Robert Dingwall and Emilie Cloatre, for example, document a parallel phenomenon in the United Kingdom,<sup>101</sup> and Herbert Kritzer adds Ontario to the list of jurisdictions.<sup>102</sup> Fourth, the vanishing trial is not solely a phenomenon of the last two or three decades. A commentator in 1928 concluded that plea bargaining was causing the “vanishing” of the criminal trial.<sup>103</sup> Lawrence Friedman views the decline of the trial as dating to 1800.<sup>104</sup>

Curiously, no commentator appears to have linked the vanishing trial to the cost disease. But the vanishing trial is exactly a symptom that one would expect from the disease. The law-and-economics literature on civil adjudication features controversies about the effect of many variables, such as fee-shifting<sup>105</sup> and pleading rules,<sup>106</sup> on filing and settlement rates, but there is widespread agreement that when the cost of litigation increases, cases are more likely to settle. For example, the “mutual optimism” model of litigation, which predicts a greater likelihood of litigation when each party is relatively optimistic about its own chances in litigation,<sup>107</sup> identifies the key comparison as between the relative difference in estimates of the case’s value and the combined cost of litigation.<sup>108</sup> Other models, such as the asymmetric information model of settlement<sup>109</sup> and models focusing on

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100. See Brian J. Ostrom et al., *Examining Trial Trends in State Courts: 1976-2002*, 1 J. EMPIRICAL LEGAL STUD. 755 (2004). One startling statistic is the from 1976 to 2002, the felony jury trial rate declined over 80% in Puerto Rico, and over 70% in New Jersey, the District of Columbia, North Carolina, and Indiana. *Id.* at 766.

101. Robert Dingwall & Emilie Cloatre, *Vanishing Trials: An English Perspective*, 2006 J. DISP. RESOL. 51. A difference identified by Dingwall and Cloatre is that in the United Kingdom, the decline is driven more by a decrease in the number of claims filed. *Id.* at 69.

102. Herbert M. Kritzer, *Disappearing Trials? A Comparative Perspective*, 1 J. EMPIRICAL LEGAL STUD. 735 (2004).

103. Raymond Moley, *The Vanishing Jury*, 2 S. CAL. L. REV. 97 (1928).

104. Lawrence M. Friedman, *The Day Before Trials Vanished*, 1 J. EMPIRICAL LEGAL STUD. 689, 691 (2004).

105. See generally Avery Wiener Katz & Chris William Sanchirico, *Fee Shifting*, in PROCEDURAL LAW AND ECONOMICS 271, 271-307 (Chris William Sanchirico ed., 2012) (reviewing the literature).

106. Compare, e.g., William H.J. Hubbard, *A Fresh Look at Plausibility Pleading*, 83 U. CHI. L. REV. 693 (2016) (arguing that plausibility pleading does not deter filing of risky but plausible cases), with Jonah B. Gelbach, Note, *Locking the Doors to Discovery?*, 121 YALE L.J. 2270, 2270 (2012) (finding significant effects from changes in pleading rules).

107. See, e.g., J.J. Prescott et al., *Trial and Settlement: A Study of High-Low Agreements*, 57 J.L. & ECON. 699, 703 (2014) (providing an example of a mutual optimism model).

108. See Posner, *supra* note 19, at 419 & n.29.

109. See, e.g., Lucian Arye Bebchuk, *Litigation and Settlement Under Imperfect Information*, 15 RAND J. ECON. 404, 409 (1984) (finding that an increase in either party’s litigation costs makes settlement more likely).

psychological factors,<sup>110</sup> also acknowledge the critical role of litigation costs. And while the absence of controlled experiments makes it difficult to find strong empirical data, cross-country comparisons indicate that countries with higher litigation costs have lower filing rates and higher settlement rates among cases filed.<sup>111</sup> In short, the market for litigation is like virtually every other market in that demand curves slope down. When trial becomes more expensive, fewer cases are tried. While this reduction might manifest in part through reduced pursuit of legal remedies, increases in costs affect both parties to the litigation, and so an increase in voluntary resolutions, both pre-filing and in settlement, should be expected.

The cost disease explanation for the vanishing trial need not be seen as inconsistent with existing theories. The leading theory has been articulated most forcefully by John Langbein.<sup>112</sup> Langbein attributes the disappearing trials to changes in federal procedural rules. The Federal Rules of Civil Procedure, he notes, greatly increased the importance of discovery.<sup>113</sup> With more powerful discovery tools, parties can better learn about their opponents' perspective, lowering the chance that asymmetric estimates of the expected value of the litigation will be sufficiently great that trial will ensue.<sup>114</sup> Other Federal Rules, such as those creating the pretrial conference<sup>115</sup> and summary judgment,<sup>116</sup> have furthered the general direction toward resolving cases without trial. Other sources besides the Federal Rules have pushed in a similar direction. The Federal Judicial Center's *Manual for Complex Litigation*, for example, has encouraged greater settlement.<sup>117</sup> Indeed, it should not be surprising that a set of procedural rules designed to discourage "trial by ambush"<sup>118</sup> has resulted not only in fewer ambushes, but also fewer trials.

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110. Under the regret aversion theory, litigants seek to avoid the regret that they would experience if they ended up receiving less than they could have received. See Chris Guthrie, *Better Settle Than Sorry: The Regret Aversion Theory of Litigation Behavior*, 1 UNIV. ILL. L. REV. 43 (1999). The more expensive the trial is, the greater the potential regret from not accepting a settlement.

111. See Yun-chien Chang & Daniel Klerman, *Settlement Around the World: Settlement Rates in the Largest Economies*, 14 J. LEGAL ANALYSIS 80, 90-92 (2023).

112. John H. Langbein, *The Disappearance of Civil Trial in the United States*, 122 YALE L.J. 522 (2012).

113. *Id.*; See generally FED. R. CIV. P. 26-37.

114. See Langbein, *supra* note 112, at 551.

115. See *id.* at 553-55 (citing FED. R. CIV. P. 16.). Rule 16 was revised in 1983 to specify that "facilitating settlement of the case [was] an express objective of pretrial conferences." *Id.* at 559 n.187 (citing FED. R. CIV. P. 16(a)(5)).

116. See *id.* at 568-69.

117. *Id.* at 559 (citing FED. JUDICIAL CTR., *MANUAL FOR COMPLEX LITIGATION*, FOURTH §§ 13.1-.24, at 167-82 (2004)).

118. *E.g.*, William W. Schwarzer, *Slaying the Monsters of Cost and Delay: Would Disclosure Be More Effective Than Discovery?* 74 JUDICATURE 178, 178 (1991) ("Discovery was

Marc Galanter, however, has offered some reasons to conclude that the Federal Rules (and reforms in other countries<sup>119</sup>) are not the entire explanation for the vanishing trial.<sup>120</sup> “Why is the trial-suppressing effect of discovery continuing to increase after almost eighty years? How does it work in the majority of cases in which there is little or no discovery?” he asks.<sup>121</sup> “And why do automobile accidents remain the most trial-prone case type . . . in spite of the typical sharing of information?”<sup>122</sup> A similar question can be asked of those who blame the Supreme Court’s expansion of summary judgment for the vanishing trial.<sup>123</sup> The Supreme Court’s major holdings on summary judgment occurred in 1986.<sup>124</sup> So why has the trial disappeared gradually, rather than in large jumps around 1938, 1986, and perhaps a few other years?

A reconciliation lies in viewing the cost disease as leading both directly to the vanishing trial and indirectly through changes in practice. The indirect route is through concerns about the cost of litigation. Trial is expensive, and an animating reason for augmenting discovery was to make litigation less expensive.<sup>125</sup> Today, many believe that robust discovery in fact increased the amount of litigation, but it is not surprising that reforms would aim to respond to the most visible failures, cases that went to a trial that could have been resolved earlier with broader discovery. Meanwhile, the increased use of summary judgment, a “trial by paper,”<sup>126</sup> illustrates that a potential response to cost disease is for the system to save costs by reducing procedures and

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intended to provide each side with all relevant information about the case to help bring about settlement or, if not, avoid trial by ambush.”).

119. See, e.g., Stamp, *supra* note 14 (discussing the Woolf reforms in the United Kingdom).

120. Marc Galanter, *The Decline of Trials in a Legalizing Society*, 51 VAL. U. L. REV. 559 (2017). Galanter also considers and questions a number of other theories, without choosing an alternative. *Id.* at 573-76.

121. *Id.* at 573.

122. *Id.*

123. See Smith & MacQueen, *supra* note 92, at 33 n.82 (“Many commentators identify 1986 as a pivotal year, because that is when the Supreme Court issued three decisions signaling that disposition by summary judgment should be more available than in the past.”).

124. See *Celotex Corp. v. Catrett*, 477 U.S. 317 (1986); *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574 (1986); *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242 (1986).

125. See generally The Hon. Paul V. Niemeyer, *Revisiting the 1938 Rules Experiment*, 71 WASH. & LEE L. REV. 2157, 2158-69 (2014) (arguing that the goals of notice pleading and liberal discovery included inexpensive resolution of disputes, but that the end result was more expensive litigation).

126. Edward J. Brunet & Martin H. Redish, *Summary Judgment: Federal Law and Practice* § 8:1 at 206 (3d ed. 2006) (“Although the functions served by summary judgment and trial are of course different, the procedures used in assessing summary judgment so closely approximate a trial that in a certain sense the Rule 56 process might be appropriately described as a type of ‘mini-trial’ or a ‘trial by paper.’”) Sometimes, a court will deny summary judgment but with the parties’ permission decide the case on the papers. See generally Morton Denlow, *Trial on the Papers: An Alternative to Cross-Motions for Summary Judgment*, 46 FED. LAWYER 30, 31 (August 1999) (discussing this practice).

formality.<sup>127</sup> Summary judgment becomes more attractive to the parties when litigation becomes more expensive, and judges who recognize the high costs of trial therefore may be more liberal in granting it. The cost disease may not be the only explanation for the increase in summary judgment,<sup>128</sup> but it highlights that if stagnation is occurring and continues apace, there will be further pressures to decrease legal formality.<sup>129</sup>

Although high litigation costs have been recognized as a cause of settlement, previous commentators on the vanishing trial have neglected the cost disease theory. Yet the increase in litigation costs can be understood straightforwardly as a decrease in the productivity of the legal sector relative to the rest of the economy. This framing helps avoid two possible errors. The first error is that the vanishing trial is a conscious policy choice. Various policy choices may affect the cost of litigation, but the trial has been vanishing in many jurisdictions and in both civil and criminal cases, suggesting that a deeper force may be at work. Relative productivity changes are a powerful economic force, and the vanishing trial thus strengthens the case for legal stagnation. The second error is that the current situation is necessarily permanent. The legal system is dynamic, and it will evolve in response to current conditions.

Yet still, we must be cautious, because increase in both settlement and summary judgment can have other sources. Consider, for example, the possibility that legal productivity has been increasing roughly as fast as productivity in the remainder of the economy. That might enable lawyers, including advocates and judges, to be able to resolve cases more quickly. Legal fees on a per hour basis might increase even while the cost of adjudicating a dispute, closer to the measure of the productivity of law, falls. And there could be more complicated explanations, such as a combination of Langbein's with observation of other

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127. At least one scholar has argued that, once data are cleaned, increased summary judgment explains more of the vanishing trial than increased settlement. See Gillian K. Hadfield, *Where Have All the Trials Gone? Settlements, Nontrial Adjudications, and Statistical Artifacts in the Changing Disposition of Federal Civil Cases*, 1 J. EMPIRICAL LEGAL STUD. 705, 726-27 (2004).

128. One additional explanation is that summary judgment serves a function similar to discovery in encouraging each side to share information about its case. See Samuel Issacharoff & George Loewenstein, *Second Thoughts About Summary Judgment*, 100 YALE L.J. 73, 79 (1990).

129. Commentators have suggested that changes in case management practices might reverse the vanishing. See, e.g., Steven S. Gensler & Lee H. Rosenthal, *The Reappearing Judge*, 61 KAN. L. REV. 849 (2013) (arguing for active case management and reduction of discovery); Robert A. Patterson, *Reviving the Civil Jury Trial: Implementing Short, Summary, and Expedited Trial Programs*, 4 BYU L. REV. 951 (2015) (describing programs that seek to reduce discovery and expedite trial); Tom Melsheimer & Stephen Susman, *Trial by Agreement: A Professional Approach Improves Results and Saves the Jury System*, 78 TEX. BAR J. 716 (2015) (arguing for "pre-trial agreements" that would limit discovery).

phenomena. Thus, we must at least consider whether the evidence suggests the possibility that cases have become cheaper to resolve.

### C. *The Case Against Stagnation*

At least three arguments suggest the possibility that productivity has been improving in ways that cost indices would not capture and that may be consistent with the vanishing trial. Part 0 points out that lawyers have benefited from technological development. Part 0 considers the possibility that the explosion of legal precedent itself represents technological advance. Finally, Part 0 recognizes that increased legal costs produce increased settlement, which can itself increase the efficiency of the legal system, at least offsetting the effect of increased costs.

#### 1. *Existing Legal Technology*

Generative AI would not be the first boost to productivity the legal sector has enjoyed.<sup>130</sup> John Brooks, for example, has noted that labor-saving technology like email, word processing, online legal databases, and e-discovery software has allowed lawyers to work more quickly.<sup>131</sup> It is difficult to measure their productivity effects precisely of past technological improvements, and a quite plausible conclusion is that productivity improvements in law pale in comparison to, say, those in information technology. But there have been some technological improvements that would not necessarily change lawyers' per-hour billing and thus affect productivity statistics. These technology improvements thus can at least contribute to an argument against the stagnation hypothesis.

Word processing, Janet Ainsworth has noted, transformed the practice of drafting legal documents. "Before the word processor, legal documents were laboriously either drafted by hand or were dictated via the Dictaphone, and members of the law firm typing pool would then turn this input into written work product."<sup>132</sup> Word processing not only lowered the cost of producing legal briefs and memoranda, but also arguably raised the quality, because it made it possible for lawyers to

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130. Ryan Whalen points out that developments as old as writing and papermaking had critical impacts on the development of the law. See Ryan Whalen, *Defining Legal Technology and Its Implications*, 2022 INT'L J. L. & INFO. TECH. 30, 48-49 (2022).

131. Brooks, *supra* note 13, at 531.

132. Janet Ainsworth, *Killer Apps for the Practice of Law: Past, Present, and Future*, 49 CUMB. L. REV. 273, 274 (2019). As this history suggests, word processing was hardly the first legal technology, and the Dictaphone itself, invented in the 1950s, was itself a technological marvel. See generally Jay Reeves, *Is Your Dictaphone Dragging You Down?*, BYTE OF PREVENTION BLOG (Mar. 12, 2015), <https://www.lawyersmutualinc.com/blog/is-your-dictaphone-dragging-you-down> [<https://perma.cc/GEW8-ZYAN>] (discussing the rise and fall of the Dictaphone in legal practice).

create many drafts, some incorporating very few changes.<sup>133</sup> Critically, however, word processing does not primarily perform the work of lawyers, but the work of generally lower-paid secretaries. That places an approximate upper bound on how much of a difference word processing may have made economically. It also reinforces that the productivity improvements, though not instantaneous, did not build cumulatively year after year. Few would claim that typical iterations of Office 365 have been anywhere near as consequential for law practices as the initial development of WordStar, WordPerfect, or Word.

Word processing also served as an early means of technological storage of legal information. Lawyers at the dawn of the word processing era remarked on the ability of lawyers to create databases of form pleadings that could then easily be modified.<sup>134</sup> Full-text searching through comparatively massive databases like LEXIS and Westlaw emerged in the 1970s<sup>135</sup> and became widespread around the same time as word processing.<sup>136</sup> Such databases were not the first tool to help lawyers find applicable law, and indeed the database providers integrated them with earlier tools such as Shepard's Citator<sup>137</sup> and the West Digest System.<sup>138</sup> There do not appear to be any studies of the productivity effects of electronic database searching in the legal profession. The widespread adoption of such services suggests that they have provided some degree of productivity improvement.<sup>139</sup> As with word processing, casual empiricism suggests that incremental improvements to these tools have produced more marginal productivity gains than their initial introduction.

The most recent technological revolution in legal practice has been the e-discovery revolution, also known as "technology assisted

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133. The very laboriousness of retyping, however, may demand a confrontation with what one has previously written that will improve the product. See Lucia Ann Silecchia, *Of Painters, Sculptors, Quill Pens, and Microchips: Teaching Legal Writers in the Electronic Age*, 75 NEB. L. REV. 802, 827 (1996).

134. Robert G. Higginbotham et al., *Word Processing and Appellate Pleading*, 1980 ARMY LAW. 8, 11 (Mar. 1980).

135. See CHARLES P. BOURNE & TRUDI BELLARDO HAHN, *A HISTORY OF ONLINE INFORMATION SERVICES, 1963-1976*, at 229-246 (2003).

136. See Robert C. Berring, *Full-Text Databases and Legal Research: Backing into the Future*, 1 HIGH TECH. L.J. 27 (1986) (discussing, in the very first issue of the *High Technology Law Review*, the recent development of such databases).

137. Shepard's was launched in 1873 and was integrated into Lexis in 1998. *Shepard's Citation Guide Part 1: The History*, LEXISNEXIS (Sept. 16, 2022), <https://www.lexisnexis.com/community/insights/legal/b/product-features/posts/shepards-citation-guide-part-1-history> [<https://perma.cc/FHB3-BFRR>].

138. See Berring, *supra* note 136, at 31-37 (describing the innovations, strengths, and weaknesses of the West digest system).

139. There has, however, long been recognition that these systems have shortcomings that AI might address. See Richard E. Susskind, *Expert Systems in Law: A Jurisprudential Approach to Artificial Intelligence and Legal Reasoning*, 49 MOD. L. REV. 168, 169 (1986).

review.<sup>140</sup> Arguably,<sup>141</sup> the development of e-discovery technology contributed to the development of outsourcing of discovery functions and thus layoffs in law firms in 2009, suggesting that the productivity improvement was relatively sudden and significant.<sup>142</sup> This technology has improved over time; while early versions required repeated cycles in which lawyers would code some discovered documents as relevant and/or privileged, more recent versions have required less iteration.<sup>143</sup> Large language models seem likely to produce at least incremental improvements in e-discovery,<sup>144</sup> as vector databases<sup>145</sup> should allow more effective semantic searching than keywords or earlier generations of natural language searching technologies.

## 2. Precedent as Productivity

Another argument against the claim that the legal system has been mired in stagnation focuses on the increased production of precedent. Every year yields more published judicial opinions. Figure 9 illustrates the date at which the first case in every hundredth volume of the *Federal Reporter* series, featuring published opinions of the Courts of Appeal, was published.<sup>146</sup> The figure documents the steady accumulation of precedent, and the concavity of the curve suggests accelerated accumulation, albeit with less acceleration in recent decades. These opinions, of course, represent just a small portion of total judicial output, once state, administrative, and foreign courts are considered. The purpose of precedent is to provide guidance for future legal disputes,<sup>147</sup> and ever more guidance in the form of authoritative opinions is available. Perhaps this means that lawyers increasingly can resolve many disputes quickly, because they find controlling precedents on point.

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140. See Maura R. Grossman & Gordon V. Cormack, *Technology-Assisted Review in E-Discovery Can Be More Effective and More Efficient than Exhaustive Manual Review*, 17 RICH. J.L. & TECH. 1, 3-4 (2011).

141. An alternative account focused on changes in the market structure of large law firms. See Larry E. Ribstein, *The Death of Big Law*, 2010 WIS. L. REV. 749.

142. See Kathryn Rubino, *What the 2009 Legal Layoffs Were Really Like*, ABOVE THE LAW (Sept. 28, 2016, 2:00 PM), <https://abovethelaw.com/2016/09/what-the-2009-legal-layoffs-were-really-like/> [<https://perma.cc/TEE4-627J>].

143. Ainsworth, *supra* note 132, at 281-82.

144. See Victor Li, *How GPT and Other Large Language Models Could Change E-Discovery*, LEGAL REBELS PODCAST (July 19, 2023), <https://www.americanbar.org/groups/journal/podcast/how-gpt-and-other-large-language-models-could-change-e-discovery> [<https://perma.cc/W8Y9-Y59V>].

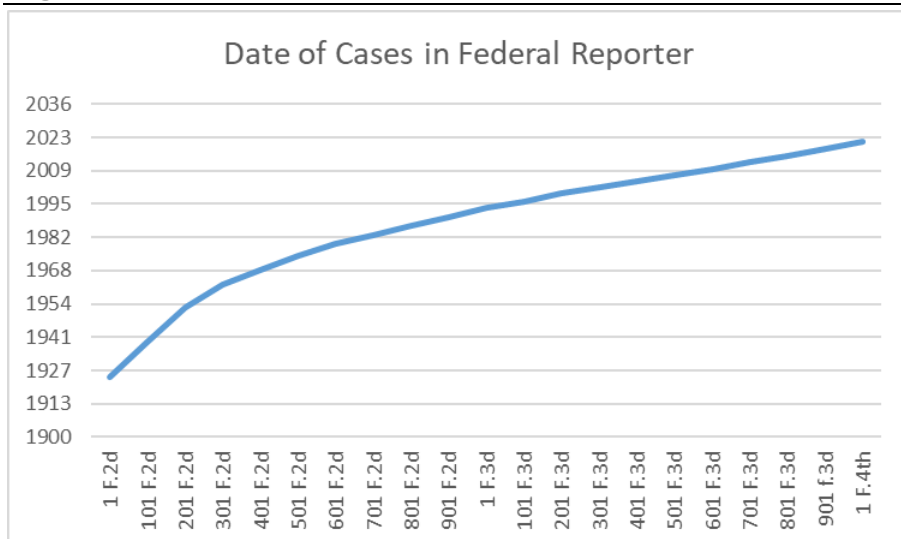
145. See Janakiram MSV, *How Large Language Models Fuel the Rise of Vector Databases*, THE NEW STACK (June 16, 2023, 8:33 AM), <https://thenewstack.io/how-large-language-models-fuel-the-rise-of-vector-databases/> [<https://perma.cc/B3ZU-XBVP>].

146. The data is available in print, as well as online through 491 F.3d from <https://law.justia.com/cases/federal/appellate-courts/> [<https://perma.cc/FJ2U-5RSY>] and for more recent cases on sources such as Westlaw.

147. See BENJAMIN N. CARDOZO, *THE NATURE OF THE JUDICIAL PROCESS* 50 (1921) (explaining how the goal of the system of precedent is to satisfy “yearning for consistency, for certainty, for uniformity of plan and structure”).

Similarly, contracts may cover an increasing number of important issues, reducing the number of disputes that arise in the first place. On this account, the legal system is becoming more productive by avoiding many disputes and resolving others quickly. The appearance of the cost disease then could be a mirage arising from our focus on hourly billing rates rather than on some hypothetical measure of the extent to which lawyering advances the aims of law.

**Figure 9**



The idea that the proliferation of law increases the quality of the law has a foundation in the economic literature on the efficiency of the common law. Judge Richard Posner argued that the common law tends toward efficiency.<sup>148</sup> Judges deciding cases wish to improve social welfare, and so they make distinctions among fact patterns that advance that goal. Paul Rubin offers a demand-side counterpart to this supply-side theory. He argues that repeat litigants have an incentive to invest in generating beneficial precedents, and they will have the most incentive to seek to change case law where rules are inefficient.<sup>149</sup> As long as both parties were repeat players, Rubin argued, the law would tend to evolve in the direction of efficiency.<sup>150</sup> George Priest similarly suggests that the more inefficient common law rules are, the greater the incentives that will exist to seek to displace them.<sup>151</sup> Whatever the causal chain, all of these scholars share a view that the law tends to evolve toward efficiency. And as distinctions are worked out and solidified, litigants may have a greater ability to assess how cases will be

148. See RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 321-27 (1972).

149. See Paul H. Rubin, *Why Is the Common Law Efficient?* 6 J. LEGAL STUD. 51 (1977).

150. *Id.* at 53-55.

151. See George L. Priest, *The Common Law Process and the Selection of Efficient Rules*, 6 J. LEGAL STUD. 65 (1977).

resolved. Both the increased quality of the law and the increased clarity of the law might be seen as productivity improvements.

Yet one might reasonably doubt that continued development of legal interpretation, at least by itself, has allowed legal productivity to keep up with the rest of the economy. Quite a few articles have been written on legal complexity,<sup>152</sup> and not one seems to conclude that the world has become simpler or clearer.<sup>153</sup> In his treatment of legal complexity, Peter Schuck defines “a legal system as complex to the extent that its rules, processes, institutions, and supporting culture possess four features: density, technicality, differentiation, and indeterminacy or uncertainty.”<sup>154</sup> In theory, our many dense and technical rules and different institutions that implement them could increase determinacy, and surely statutes, regulations and judicial opinions do sometimes resolve some questions. But it is not clear that judges and other lawmakers can plug holes faster than new ones are appearing. On the other hand, a system that progressively addresses new problems can be seen as productive, in much the same way as can industry that produces new consumer products to meet previously unobserved demand. At least, the accumulation of precedent stores highlights that measurements of productivity based on price indices miss important sources of complexity.

### 3. *Settlement as Productivity*

The phenomenon of the vanishing trial reflects that settlements will increase as litigation costs rise.<sup>155</sup> In all markets, higher costs reduce the quantity of goods or services demanded. The market for litigation, however, is special, in that when people are priced out of the market, they may still benefit from it. They still receive the service this market provides, dispute resolution, just more often in the form of settlements than in the form of judgments. Higher litigation costs on a per hour basis could even lead to lower litigation costs on a per case basis if the increase in settlement is sufficiently steep. If settlements allow us to arrive at the same resolutions but faster, then greater costs could mean *higher* productivity.

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152. See, e.g., J.B. Ruhl & Daniel Martin Katz, *Measuring, Monitoring, and Managing Legal Complexity*, 101 IOWA L. REV. 191 (2015); Jeffrey W. Stempel, *A More Complete Look at Complexity*, 40 ARIZ. L. REV. 781 (1998); R. George Wright, *The Illusion of Simplicity: An Explanation of Why the Law Can't Just Be Less Complex*, 27 FLA. ST. U. L. REV. 715 (2000).

153. There is also skepticism that existing automated tools have succeeded in simplifying the law. See Joshua D. Blank & Leigh Osofsky, *Automated Legal Guidance*, 106 CORNELL L. REV. 179 (2020) (arguing that these tools make complex law appear simple by ignoring many of the complexities).

154. Peter H. Schuck, *Legal Complexity: Some Causes, Consequences, and Cures*, 42 DUKE L.J. 1, 3 (1992).

155. See *supra* notes 107-110 and accompanying text.

A proponent of this theory might make two further points. First, each side in litigation fails to consider the effect of its decisions on its opponent (or worse, actively desires to hurt its opponent),<sup>156</sup> and so litigation decisions impose negative externalities. In most markets where there are uninternalized negative externalities, taxes are viewed as an appropriate corrective,<sup>157</sup> and an increase in the cost of litigation similarly could bring the volume of litigation closer to the optimum. Second, settlements may reflect compromise resolutions rather than all-or-nothing resolutions in court.<sup>158</sup> If the resolution in court depends on the happenstance of which decisionmaker one draws or what the decisionmaker ate for breakfast,<sup>159</sup> then a settlement may reflect a less arbitrary resolution.

Each of these arguments, however, prompts strong rebuttals. Parties in litigation impose negative externalities on each other, but litigation may also create positive externalities, particularly for nonlitigants. When tort victims sue, for example, potential tortfeasors are more likely to take precautions.<sup>160</sup> If many tort victims do not sue as a result of high litigation costs, or if they accept low settlements, the deterrent effect of tort law will be reduced, and potential tortfeasors are likely to take suboptimal levels of care.<sup>161</sup> The economic theory of tort law recognizes both the negative externality and positive externality inherent in a decision to file suit.<sup>162</sup> A similar argument can be applied to incentives to defend. While defending a suit imposes

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156. This might be because of spite. See generally Jeffrey L. Harrison, *Spite: Legal and Social Implications*, 22 LEWIS & CLARK L. REV. 991 (2018) (describing spite and its role in litigation). But harming one's opponent also may simply be good litigation strategy, because it increases the opponent's desire to settle. Bruce H. Kobayashi, *Law's Information Revolution as Procedural Reform: Predictive Search as a Solution to the In Terrorem Effect of Externalized Discovery Costs*, 2014 U. ILL. L. REV. 1473, 1495-98 (providing a model of how the allocation of discovery points affects settlement).

157. See A.C. PIGOU, *THE ECONOMICS OF WELFARE* (1920) (introducing the idea of what are now known as "Pigouvian taxes").

158. Courts generally do not discount verdicts based on uncertainty about facts such as causation, but litigants discount settlements based on uncertainty about whether courts will conclude that the defendant was more than likely responsible for the plaintiff's injuries. See Michael Abramowicz, *A Compromise Approach to Compromise Verdicts*, 89 CAL. L. REV. 231 (2001) (discussing the possibility of compromise verdicts).

159. See generally Dan Priel, *Law Is What the Judge Had for Breakfast: A Brief History of an Unpalatable Idea*, 68 BUFF. L. REV. 899 (2020) (discussing the critique of legal realism for equating law with what the judge had for breakfast).

160. Because tortfeasors sometimes might not be sued, some economists argue that punitive damages should be set so that total damages equal the inverse of the probability of successful suit. See A. Mitchell Polinsky & Steven Shavell, *Punitive Damages: An Economic Analysis*, 111 HARV. L. REV. 869, 941 (1998). But in the absence of such a mechanism, the extent to which defendants take precautions will depend on the probability of suit.

161. See, e.g., Keith N. Hylton, *The Influence of Litigation Costs on Deterrence Under Strict Liability and Under Negligence*, 10 INT'L REV. L. & ECON. 161 (1990).

162. See Steven Shavell, *The Level of Litigation: Private Versus Social Optimality of Suit and of Settlement*, 19 INT'L REV. L. & ECON. 99 (1999).

negative externalities on the plaintiff, it may provide positive externalities to those who might wrongly be targeted with frivolous litigation.<sup>163</sup>

If parties agree to settle meritorious claims (or abandon meritorious defenses) at a significant discount, then the settlement may not serve the aims of the legal system. Settlements are compromises, with the judgment falling somewhere in between the parties' preferred outcomes.<sup>164</sup> Settlements may serve an insurance function,<sup>165</sup> but they may produce inferior results to a judicial resolution. Trials and other formal procedures may uncover new information, and so if we postulate that there might be a correct answer in each dispute, or at least an answer that better achieves the aims of lawmakers under the particular facts, a judgment seems more likely than not to embody that correct answer. Moreover, the cases that go to trial will tend to be those where the parties' expectations are relatively far apart.<sup>166</sup> Divergent expectations are more likely when there is genuine disagreement about how a neutral person might view contested issues of law and fact, and formal procedures allow neutral judges to resolve such disagreement.

Another significant drawback of settlements is that they may reflect non-merits factors. One party, for example, may have lower expected legal costs than the other and thus have a bargaining advantage.<sup>167</sup> Or one party (typically the less wealthy one) may have greater risk aversion than another party,<sup>168</sup> or might be more vulnerable to nonmonetary costs, such as the psychological cost of litigation or the cost of continued publicity.<sup>169</sup> In addition, when there is asymmetric information, with one party possessing more of the relevant information than the other, settlements will tend to favor the party with

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163. Cf. David Rosenberg & Steven Shavell, *A Solution to the Problem of Nuisance Suits: The Option to Have the Court Bar Settlement*, 26 INT'L REV. L. & ECON. 42 (2006) (arguing that many frivolous lawsuits would not be filed if plaintiffs faced a high probability of expensive litigation).

164. See generally Peter Toll Hoffman, *Valuation of Cases for Settlement: Theory and Practice*, 1991 J. DISP. RESOL. 1.

165. See Abramowicz, *supra* note 158, at 239-46 (noting that compromise verdicts can serve a similar function).

166. See J.J. Prescott et al., *supra* note 107 and accompanying text.

167. See Jessica Erickson, *Heightened Procedure*, 102 IOWA L. REV. 61, 70-74 (2016) (discussing the effects of asymmetric costs).

168. See Uri Weiss, *The Regressive Effect of Legal Uncertainty*, 2019 J. DISP. RESOL. 149, 151 (2019).

169. Litigation, however, also may have reputational effects that defendants seek. See Kishanthi Parella, *Public Relations Litigation*, 72 VAND. L. REV. 1285, 1294-318 (2019) (explaining how a business might use litigation to deter employee flight, to affect consumers' opinions, or to rectify reputational harm from a crisis).

better information.<sup>170</sup> This is especially problematic if settlement occurs before discovery. All these concerns will be most salient for settlements on the margins; those that occur only because legal costs have risen. When a case settles in a low legal cost environment, it is likely that the parties have found common ground and have relatively similar expectations about the case. With high legal costs, litigation bears increasing resemblance to the game of “chicken,”<sup>171</sup> and the merits recede in importance.<sup>172</sup> Because all settlements are reached in the shadow of anticipated legal expenses, these non-merits-based factors affect not only the cases on the margin of settlement, but also those in which settlement would be achieved even in the absence of the progression of the cost disease.

My purpose is not to debunk the claim that the increase in settlements is sufficient, perhaps along with improvements in technology and precedent, to offset the facial appearance of stagnation suggested by cost, caseload, and trial resolution statistics. Indeed, my hunch is that law does not seem to be improving as fast as productive sectors like information technology and agriculture. For the purposes of the broader argument, however, the relevant point is that law is an unusual market, one in which it is exceptionally difficult to assess the degree of stagnation with confidence. Still, one can imagine a world in which law might become so productive or so stagnant that there would be little doubt. We should, thus, turn to consider the future effects of AI.

## II. THE FUTURE PATH OF JUSTICE

In the absence of recent developments in AI, the most natural prediction would be that past trends would continue, because they represent powerful economic forces. If the law has been stagnating, then access to justice would become a still greater problem, which the legal system might respond to in the long run by greater openness to class

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170. See, e.g., Bebchuk, *supra* note 109, at 409. An additional nuance is that some parties might have more skilled attorneys than other parties. See Bertrand Chopard et al., *Trial and Settlement Negotiations Between Asymmetrically Skilled Parties*, 30 INT'L REV. L. & ECON. 18 (2010) (exploring models in which the attorneys of different parties may have different skill).

171. See generally ERICH PRISNER, GAME THEORY THROUGH EXAMPLES 237 (2014) (introducing the game of chicken). For an analysis of a case in which the strategic dynamics in settlement negotiations may have been similar to chicken, see Robert H. Mnookin & Robert B. Wilson, *Rational Bargaining and Market Efficiency: Understanding Pennzoil v. Texaco*, 75 VA. L. REV. 295, 328 (1989).

172. One way to appreciate the point is to imagine a lawsuit for \$1, but with \$1 million of legal fees. That case is almost certain to settle, but one should have little confidence that the terms of the settlement reflect the probability that the plaintiff would prevail in court.

actions and other forms of lawsuit aggregation, for example.<sup>173</sup> But this assumes that legal services remain as difficult to scale as before. The economic forces are themselves dependent on still deeper technological forces. This Part assesses the effects of the rise of generative AI over the next few decades and what the implications of that are for the future of legal practice. Rather than justify my view that in a decade or so, law will become productive, Part 0 seeks to impartially devise arguments about whether AI will significantly boost legal productivity. Skeptics have identified limitations of current models that they maintain cannot easily be overcome. Others, however, either claim that solutions to these problems are already at hand or suggest that they might be developed soon.

Rather than adjudicate between these, Part 0 asks what the implications might be if it turns out that law becomes an unmistakably productive sector. A productive legal sector would likely mean more frequent trials, regardless of whether stagnation has in fact caused trials to vanish, and access to justice would improve. But significant empirical questions would remain. Because the cost disease model does not make firm predictions about wages and it is difficult to determine the elasticity of demand for litigation, the effect on wages is difficult to predict. Further, it is challenging to assess the extent to which the legal system would allow technological substitution of aspects of the legal system that seem to demand human involvement, even if technologically feasible. The combination of empirical uncertainties about whether law has been stagnant, whether productivity will markedly improve, and what productivity would mean for lawyers will present a challenge for Part 0's exploration of how legal actors can smooth a transition to what may or may not be a transformed legal marketplace.

#### A. *Two Possibilities for Law's Near-Term Future*

Large language models are already capable of performing aspects of lawyers' work that earlier generations of software could not perform, for example by answering how a particular jurisdiction's law might apply to various fact patterns<sup>174</sup> or by offering arguments for changing current law.<sup>175</sup> Law professors, meanwhile, report that generative

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173. For example, the Supreme Court might resurrect "trial by statistics," with claims randomly sampled for adjudication so that others can be resolved based on their similarity to the sampled claims. See Jay Tidmarsh, *Resurrecting Trial by Statistics*, 99 MINN. L. REV. 1459 (2015) (offering a detailed argument that courts might issue provisional judgments based on statistical models).

174. See, e.g., John J. Nay et al., *Large Language Models as Tax Attorneys: A Case Study in Legal Capabilities Emergence*, MINN. LEGAL STUDIES RESEARCH PAPER NO. 23-15 (May 31, 2023), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4476325](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4476325) [<https://perma.cc/M49G-EKTJ>].

175. See, e.g., ChatGPT query (Aug. 12, 2023) ("Argue against the U.S. tax treatment of carried interest.").

artificial intelligence can achieve at least passing grades on exams.<sup>176</sup> For law to be a productive sector, these and other productivity improvements must in combination allow for greater improvement than in the rest of the economy. The more other sectors benefit from AI and the more breakthroughs that occur in other research areas, such as the development of fusion power, the greater the challenge for law to be productive.

We start with Part 0, introducing the bearish case for AI in law and the principal obstacles to law becoming an unmistakably productive sector. Part 0 then offers possible answers to each of these in identifying the bullish case.

### 1. *No or Modest Productivity Improvements*

A casual extrapolation across versions of GPT, from the first version<sup>177</sup> in 2018 to GPT-4 in 2023,<sup>178</sup> would suggest technological acceleration, leading to the inference that superintelligence—an AI far smarter than any human—is just around the corner.<sup>179</sup> But critics have pointed out that the primary engine for these models' improvements will hit a “brick wall.”<sup>180</sup> In 2020, computer scientists at OpenAI empirically analyzed how three critical factors—“the number of model parameters  $N$  (excluding embeddings), the size of the dataset  $D$ , and the amount of compute  $C$  used for training”<sup>181</sup>—would affect the performance of large language models.<sup>182</sup> The paper finds that large

176. See, e.g., Jonathan H. Choi et al., *ChatGPT Goes to Law School*, 71 J. LEGAL ED. 387, 387 (2022) (reporting that ChatGPT 3.5, graded blindly, earned a low but passing grade in each of four exams at the University of Minnesota Law School); Jonathan H. Choi & Daniel Schwarcz, *AI Assistance in Legal Analysis: An Empirical Study*, 73 J. LEGAL EDUC. (forthcoming 2024) (finding that “grounded prompting,” where class notes were provided to the AI, produced particularly strong results).

177. See Alec Radford et al., *Improving Language Understanding by Generative Pre-Training*, OPENAI (June 11, 2018), <https://openai.com/research/language-unsupervised> [<https://perma.cc/FN9X-D7S4>] (documenting the release of the first GPT version).

178. For a history, see Fawad Ali, *GPT-1 to GPT-4: Each of OpenAI's GPT Models Explained and Compared*, MAKE USE OF (April 11, 2023), <https://www.makeuseof.com/gpt-models-explained-and-compared> [<https://perma.cc/P5P3-UESL>].

179. A simple benchmark of this technological acceleration is the performance of large language models on the bar exam. The most rigorous study, though more bearish than others, suggests that GPT-4 performs at the level of the median test-taker overall, though only the 15th percentile on the essay section. See Eric Martínez, *Re-Evaluating GPT-4's Bar Exam Performance*, MIT LawAI Working Paper No. 1-2023 (2024). Still, compared to models that could perform not much better than randomly a couple of years ago, this suggests strong technological acceleration.

180. Dylan Patel, *The AI Brick Wall—A Practical Limit for Scaling Dense Transformer Models, and How GPT 4 Will Break Past It*, SEMIANALYSIS (Jan. 24, 2023), <https://www.semianalysis.com/p/the-ai-brick-wall-a-practical-limit> [<https://perma.cc/DXS4-SQ3P>].

181. Jared Kaplan et al., *Scaling Laws for Neural Language Models*, ARXIV at 3 (Jan. 23, 2020), <https://arxiv.org/abs/2001.08361> [<https://perma.cc/L77T-MUJF>].

182. The measure of performance was cross-entropy loss. *Id.* at 1. The loss would be 0 if the large language model always correctly predicted the next word of the data on which it was trained.

improvements in any of these variables are needed for relatively small reductions in the loss measure.<sup>183</sup> This model, as well as more recent ones,<sup>184</sup> has made it possible to determine the optimal balance of these factors given a fixed budget for model training and to calculate the cost of various improvements. Improving a model by an order of magnitude in both size and dataset, as needed to create a large improvement in performance, increases the cost by more than an order of magnitude.<sup>185</sup>

Even if these economic barriers could be overcome, there might be insufficient material available to use to train new generations of AI models. Some AI researchers have concluded that machine learning datasets will be trained on all “high-quality language data,” including sources such as books, scientific papers, Wikipedia, and certain web content, by 2026.<sup>186</sup> Lower quality language data will be exhausted not long after.<sup>187</sup> Although neuroscientists believe that human brains use prediction for much of their cognitive work,<sup>188</sup> humans do not require nearly this much training data, perhaps because the brain is not tabula rasa but is primed to learn certain types of information. Computer scientists have long worked on the problem of learning from small numbers of samples,<sup>189</sup> but the current dominant paradigm requires enormous training data. A possible solution is data augmentation,<sup>190</sup> with large language models generating synthetic training data that could then be used in training.<sup>191</sup> But some early experiments with this technique have demonstrated “model collapse,” where the model-

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183. See *id.* at 5 (Figure 4 left shows small gains from increasing the number of tokens in the dataset by a factor of ten or the number of parameters of the model by a factor of two or more); *id.* (Figure 4 right shows similar leveling out of loss as the number of training steps increases).

184. See, e.g., Jordan Hoffmann et al., *Training Compute-Optimal Large Language Models*, ARXIV (Mar. 29, 2022), <https://arxiv.org/abs/2203.15556> [<https://perma.cc/W8M2-TEG5>].

185. For example, Patel estimates that a 1 trillion parameter model with approximately 21,000 tokens would cost approximately \$308,000,000 to train, within the budget of large players, but a 10 trillion parameter model with 216,000 tokens would cost approximately \$29,000,000,000, nearly 100 times more, and the training would take over two years. Patel concludes that this is “not practical” given the hardware currently available to the largest technology companies. See Patel, *supra* note 181.

186. See Pablo Villalobos et al., *Will We Run out of Data? Limits of LLM Scaling Based on Human-Generated Data*, ARXIV (June 4, 2024), <https://arxiv.org/pdf/2211.04325.pdf> [<https://perma.cc/XTL2-6SD7>].

187. See *id.* at 1.

188. See, e.g., Andy Clark, *Whatever Next? Predictive Brains, Situated Agents, and the Future of Cognitive Science*, 36 BEHAV. & BRAIN SCI. 181, 181 (2013).

189. See, e.g., LEARNING TO LEARN vii (Sebastian Thrun & Lorien Pratt eds., 1998).

190. For a recent applied overview, see DUC HABA, DATA AUGMENTATION WITH PYTHON (Sushma Reddy ed., 2023).

191. See, e.g., Ateret Anaby-Tavor et al., *Do Not Have Enough Data? Deep Learning to the Rescue!*, 34 AAAI CONFERENCE ON ARTIFICIAL INTELLIGENCE (2020), <https://ojs.aaai.org/index.php/AAAI/article/view/6233> [<https://perma.cc/YD3M-AWR2>]; Steven Y. Feng et al., *A Survey of Data Augmentation Approaches for NLP*, ARXIV (Dec. 1, 2021), <https://arxiv.org/abs/2105.03075> [<https://perma.cc/PM5F-LR2Y>].

generated content causes gradually accumulating defects that ultimately lead to loss of information in the original model.<sup>192</sup>

Thus, absent some new technique for general AI, we might be near the peak of performance for large language models. This peak does not allow the model to burrow into a matter as a lawyer would. A lawyer will gradually accumulate more information on a case, developing a comprehensive understanding of how different pieces of evidence and arguments fit together. Generative AI models apply the same pre-trained transformer parameters to predict every word they generate. A lawyer needs to provide the necessary background information about the case or the particular issue on which help is needed, and that information is effectively learned from scratch at each word prediction. Each large language model has a “context window” that includes a combination of the prompt and the answer as provided by the model so far, thus allowing it to successively generate additional words based on the context so far. ChatGPT’s largest context window allows 128,000 tokens (where on average, because of prefixes and suffixes, there are roughly 0.75 tokens per word).<sup>193</sup> Though longer than the typical brief, it is too short to encompass all the information that a lawyer must assimilate to create a legal brief or other document. Context may run up against fundamental limits, particularly that the size of the network needed to make connections within the context is quadratic in the size of the context window.<sup>194</sup>

Even if the context window is sufficiently large to enable a model to write a full-length brief, the large language model might not exercise good judgment in doing so. Large language models output what amounts to a stream of consciousness, rather than carefully planned text. A great novelist does not simply start typing. Even novels that purport to be written in a stream of consciousness style are, if worth reading, the output of careful planning by their authors.<sup>195</sup> Some legal briefs, unfortunately, do read like stream of consciousness, but great lawyers plan their arguments, assembling their evidence and organizing their thoughts. Large language models have many legal briefs and

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192. See Ilia Shumailov et al., *The Curse of Recursion: Training on Generated Data Makes Models Forget*, ARXIV 1, 2 (April 14, 2024), <https://arxiv.org/abs/2305.17493> [<https://perma.cc/NU5E-NW3U>].

193. See Maxim Saplin, *What’s New in OpenAI—Announcements at Nov’2023 DevDay*, DEV (Nov. 7, 2023), <https://dev.to/maximsaplin/whats-new-in-openai-announcements-at-nov2023-devday-1k7c> [<https://perma.cc/95Z4-C48G>].

194. For a review of mechanisms that seek to overcome this limitation, see Galina Alperovich, *The Secret Sauce Behind 100K Context Window in LLMs: All Tricks in One Place*, MEDIUM (May 15, 2023), <https://blog.gopenai.com/how-to-speed-up-llms-and-use-100k-context-window-all-tricks-in-one-place-ffd40577b4c> [<https://perma.cc/LYM5-A5GA>]. Some of these approaches, such as aggregating attention over short portions of the context, may compromise performance, particularly if many connections must be made around concepts in a brief area.

195. See, e.g., WILLIAM FAULKNER, *THE SOUND AND THE FURY* (1929).

opinions in their training data, but they lack the internal monologue of novelists and lawyers as they plan what they will write. Any planning is limited to the reasoning that can be developed within a single pass through the layers of the neural network.<sup>196</sup> One may be able to ameliorate this somewhat with careful prompting, instructing the AI to reason “step by step,”<sup>197</sup> and then asking it to produce a final product from the earlier product, but if extensive human control is required, that greatly diminishes the value of using artificial intelligence in the first place. The training data also lacks internal monologues of editing, and so while one can ask an AI to critique and revise an existing piece of work, it must do so based on training data that does not reflect the editing process itself.

The training data for ChatGPT or other large language models will, of course, include many books on legal writing and lawyering more generally. But one should not necessarily expect the principles in those works to affect writing, for the same reason that a law student will not become a good legal writer merely after receiving a list of the principles of good legal writing. Becoming a good legal writer requires practice, which ultimately develops the neuronal connections that lead the lawyer to make sound decisions at all stages of planning to produce a legal document. Analogously, a large language model requires training. Just because a large language model can regurgitate some principle of good writing does not necessarily mean that it will write in a way that follows that principle. Large language models seem likely to learn something approximating the “TREAT” style to the extent legal texts are written in this style.<sup>198</sup> But training data will include a great deal of poor legal writing, and merely instructing the model to apply principles of good legal writing will help only marginally.

ChatGPT can write books, but they are dull,<sup>199</sup> and though this is an admittedly subjective judgment, its legal writing is dull too. The core algorithm underlying generative language models makes this more likely. The next few words in any text are more likely to be cliché

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196. It is difficult to ascertain precisely what happens within each artificial neuron of the neural network and thus precisely how carefully the model considered any issue in choosing any given word. Some recent work has sought to explicate the choices made by large language models, but the state-of-the-art paper applies this only to GPT-2. See Steven Bills et al., *Language Models Can Explain Neurons in Language Models*, OPENAI (May 9, 2023), <https://openaipublic.blob.core.windows.net/neuron-explainer/paper/index.html> [<https://perma.cc/G7LU-MRF3>].

197. See, e.g., Mr. Newq, *ChatGPT Prompt Engineering, “Let’s Think Step by Step”, and Other Magic Phrases*, IN PLAIN ENGLISH (Feb. 10, 2023), <https://plainenglish.io/blog/chatgpt-prompt-engineering-lets-think-step-by-step-and-other-magic-phrases> [<https://perma.cc/4L6L-N4QA>].

198. See, e.g., MICHAEL D. MURRAY & CHRISTY H. DESANTIS, *LEGAL WRITING AND ANALYSIS* (2d ed. 2015) (breaking down legal writing into Thesis, Rule, Explanation, Application, and Thesis restated sections). Similar approaches are IRAC and CREAC.

199. See, e.g., BRETT SCHICKLER, *THE WISE LITTLE SQUIRREL: A TALE OF SAVING AND INVESTING* (2023).

than unexpected turns of phrase, because there are so many possible unexpected turns of phrase and not so many clichés applicable to a particular context. This can be mitigated in part by increasing the “temperature” of the model,<sup>200</sup> but that has an unfortunate side effect, making it more likely that the model will make an argument that is strange in substance. Good writing may be straightforward analytically but offer surprising word choice and sentence structure, a difficult combination to achieve with generative AI. Prompting could mitigate dull writing, with the inclusion of an instruction to keep the writing lively, just as a prompt can instruct a large language model to express itself in the form of a sonnet. But that may be less effective, because while ChatGPT has been deeply trained on labeled examples of sonnets, it may not have been deeply trained on labeled assessments of writing style.

An AI that could perform a lawyer’s task but with dull prose would still improve productivity. But similar problems lead to more troubling consequences. An AI is not likely to be highly accurate and systematic in applying the law. Andrew Blair-Stanek et al. found that GPT-3 performed poorly even when asked to analyze simple synthetic statutes that defined arbitrary terms and rules.<sup>201</sup> John Nay et al. find improved performance in GPT-4, but still concede that large language models cannot currently perform anywhere near the level of expert tax lawyers.<sup>202</sup> Relatedly, these models have been shown to engage in fallacious mathematical reasoning,<sup>203</sup> even though there are undoubtedly many math problems and solutions in its training data. The model does not generally stop to assess whether it might be making an error and then back up and correct itself, hardly surprising given that most math solutions in circulation do not initially follow dead ends. Legal briefs are similarly supremely self-confident, and a large language model seems unlikely to correct itself even when it has slipped into a fallacious argument.

Artificial self-confidence similarly forms part of the explanation for the problem with large language models that has received the most attention in law: the problem of “hallucinations.” In law, this often manifests itself as making up precedents, cites and all. Some lawyers have made the mistake of submitting briefs apparently written by

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200. See OPENAI PLATFORM, <https://platform.openai.com/docs/api-reference/chat> [<https://perma.cc/8HNC-H52F>] (last visited Aug. 12, 2023) (documenting the temperature parameter).

201. See Andrew Blair-Stanek et al., *Can GPT-3 Perform Statutory Reasoning?*, ARXIV (May 10, 2023), <https://paperswithcode.com/paper/can-gpt-3-perform-statutory-reasoning> [<https://perma.cc/T3ED-DN6U>].

202. See Nay et al., *supra* note 174, at 11.

203. See, e.g., Russell Lim, *GPT-4 Is Amazing But Still Struggles at High School Math Competitions*, MEDIUM (Mar. 24, 2023), <https://www.cantorsparadise.com/gpt-4-is-amazing-but-still-struggles-at-high-school-math-competitions-cbc2e73738e> [<https://perma.cc/7N75-M84T>].

ChatGPT without checking the citations.<sup>204</sup> The hallucination problem follows directly from the next-token-prediction approach. Legal documents have citations. ChatGPT knows this, and it knows what they look like. But even with all the training it has received on a large legal corpus, ChatGPT does not know the citation to every case.<sup>205</sup> Training does not ensure that a large language model retains all the information to which it is exposed. So, when ChatGPT knows of a case but does not know of a citation, it will guess, because its job is predictive. Worse, when ChatGPT announces what it argues or believes to be some principle of law but doesn't know a case, it will make one up, because discussions of legal principles usually include citations.

Problems like hallucination may provide justification for the bar to regulate generative AI. A minimal form of regulation might require disclosure of when a large language model was used to create legal materials and certification that a lawyer has checked all citations. Admitting to such use might be sufficiently embarrassing or sufficiently likely to bias a decisionmaker against one as to provide a disincentive to such use. Issues of privacy and security might furnish reasonable arguments besides technical capacity for regulation that might complicate and delay permissible use of generative AI. New ethical rules also could limit decisionmakers' use of AI tools, on the ground that use threatens the possibility of governance by AI rather than by humans,<sup>206</sup> and the same justification might more weakly be applied to machine-written legal submissions. Whatever the normative case for such limitations, given the possibility that a productive legal sector might be bad for lawyers,<sup>207</sup> the legal profession might have ample incentive to limit the use of generative AI.

## 2. *A Productivity Revolution*

The bullish case for legal productivity begins with a riposte to concerns that current AI scaling models have hit a brick wall. AI models might be able to continue scaling to larger numbers of parameters, at least for another order of magnitude or two, and if past scaling is prologue, these continued increases should lead to considerable improvements not just in cross-entropy loss but also in emergent

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204. See Order to Show Cause, *supra* note 3.

205. It does know the citations to many well-known cases. A query for the ten most important Supreme Court cases produced plausible candidates, complete with accurate citations. See ChatGPT query (Aug. 3, 2023) ("Can you provide me the names of the 10 most important Supreme Court cases, complete with full citations?"). But asked the citation to *Sprint Communications Co. v. APCC Services, Inc.*, 554 U.S. 269 (2008), it denied knowledge. *Id.* ("Can you provide me the full citation for *Sprint Communications Co. v. APCC Services, Inc.*?").

206. See generally Huq, *supra* note 6.

207. See *infra* Part (a).

capabilities.<sup>208</sup> There remains sufficient high-quality language data until 2026, so that should not be a bottleneck for next-level models.<sup>209</sup> Even if the next generation model were to cost \$29 billion and take two years to train,<sup>210</sup> if that were the only path forward, it would be in some firm's interest to undertake the investment.<sup>211</sup> After all, investment in generative AI increased eightfold from 2022 to 2023, to \$25.2 billion,<sup>212</sup> and owning the most powerful language model could provide a considerable competitive advantage. Moreover, the cost is likely to decrease, because the price performance of Graphics Processing Units (GPUs) continues to improve exponentially, tripling every two years according to an optimistic assessment known as Huang's Law,<sup>213</sup> or doubling every two years according to a more pessimistic analysis.<sup>214</sup> Should those trends continue, a decade would allow five doublings, lowering the cost to less than \$1 billion or alternatively increasing model capabilities.

Creating ever larger monolithic models, however, may not be necessary. Earlier versions of GPT were "dense" models, meaning that every parameter in the model is used in calculating the output. Neurons related to recognizing certain aspects of fourteenth century Romanian history thus will be triggered when a question asks about modern securities law. These neurons' outputs will be very small, giving them a negligible effect on the results, but they require calculations nonetheless. At least parts of the human brain appear to use a "sparse network" approach to solve problems.<sup>215</sup> For example, one can have large language models especially devoted to kinds of information.

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208. See generally Sébastien Bubeck et al., *Sparks of Artificial General Intelligence: Early Experiments with GPT-4*, ARXIV (Apr. 13, 2023), <https://arxiv.org/pdf/2303.12712.pdf> [<https://perma.cc/B7BT-DJP7>] (describing emergent capabilities in GPT-4, focusing particularly on skills that could not be explained merely as reflecting memorization).

209. See *supra* note 186 and accompanying text.

210. See Hoffmann et al., *supra* note 185.

211. As this issue was nearing publication, OpenAI and partners announced a \$100 billion investment. See Cecilia Kang & Cade Metz, *Trump Announces \$100 Billion A.I. Initiative*, N.Y. TIMES, Jan. 21, 2025, <https://www.nytimes.com/2025/01/21/technology/trump-openai-stargate-artificial-intelligence.html> [<https://perma.cc/F9K9-XXZL>].

212. See STANFORD UNIV., ARTIFICIAL INTELLIGENCE INDEX REPORT 2024 at 5 (2024), [https://aiindex.stanford.edu/wp-content/uploads/2024/05/HAI\\_AI-Index-Report-2024.pdf](https://aiindex.stanford.edu/wp-content/uploads/2024/05/HAI_AI-Index-Report-2024.pdf) [<https://perma.cc/GY4N-8EBX>].

213. See generally Christopher Mims, *Huang's Law Is the New Moore's Law, and Explains Why Nvidia Wants Arm*, WALL ST. J. (Sept. 19, 2020), <https://www.wsj.com/articles/huangs-law-is-the-new-moores-law-and-explains-why-nvidia-wants-arm-11600488001> [<https://perma.cc/H557-2KVP>].

214. See Marius Hobbhahn & Tamay Besiroglu, *Trends in GPU Price-Performance*, EPOCH (June 27, 2022), <https://epochai.org/blog/trends-in-gpu-price-performance> [<https://perma.cc/GR6V-5EFR>] (specifically finding doubling every 2.07 years for GPUs typically used in machine learning research).

215. See, e.g., William E. Vinje & Jack L. Gallant, *Sparse Coding and Decorrelation in Primary Visual Cortex During Natural Vision*, 287 SCIENCE 1273 (2000).

Bloomberg, for example, is developing a model focused especially on financial information and data.<sup>216</sup>

More importantly, there are neural network designs that seek to overcome the scaling problem by using a “mixture of experts” approach.<sup>217</sup> This approach allows for the creation of multiple smaller models rather than one larger model. The approach does not neatly divide the models according to topics that a human might, such as history, popular culture, science, and so on. It does, however, allow for neural networks to specialize in different aspects of the problem. With a recent design known as the “switch transformer,” Google reported that mixture of experts models can allow for trillion parameter models to be divided into more manageable pieces, all of which are trained simultaneously.<sup>218</sup> The switch transformer allows for an individual layer in a neural network to route individual tokens to relatively small subnetworks.<sup>219</sup> For each token, the switch layer predicts the expert that is likely to give the best result for that token, thus saving the trouble of making calculations on subnetworks of less potential relevance.<sup>220</sup> Another Google paper reports creating a sparse mixture-of-experts architecture that allows for a model seven times larger than GPT-3 but consuming only one-third the energy.<sup>221</sup> Computer scientists have modeled how neural networks scale with these and similar strategies and have concluded that these techniques improve performance.<sup>222</sup> Interestingly, although OpenAI has not revealed the specifications of GPT-4, analysts believe that the current version is a sparse mixture-of-experts model.<sup>223</sup>

The availability of additional high-quality data could greatly improve the quality of existing models. And if sufficient synthetic data

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216. See *Introducing BloombergGPT, Bloomberg’s 50-Billion Parameter Large Language Model, Purpose-Built from Scratch for Finance*, BLOOMBERG (Mar. 30, 2023), <https://www.bloomberg.com/company/press/bloomberggpt-50-billion-parameter-llm-tuned-finance/> [<https://perma.cc/2NJK-RJJ6>].

217. For a review on mixture of experts approaches in machine learning before the development of the GPT models, see Saeed Masoudnia & Reza Ebrahimpour, *Mixture of Experts: A Literature Survey*, ART. INTELLIG. REV. (August 2014), [https://www.researchgate.net/profile/Saeed-Masoudnia-2/publication/257513019\\_Mixture\\_of\\_experts\\_A\\_literature\\_survey/links/0046352871e2c9904b000000/Mixture-of-experts-A-literature-survey.pdf](https://www.researchgate.net/profile/Saeed-Masoudnia-2/publication/257513019_Mixture_of_experts_A_literature_survey/links/0046352871e2c9904b000000/Mixture-of-experts-A-literature-survey.pdf) [<https://perma.cc/L75T-WUSV>].

218. See William Fedus et al., *Switch Transformers: Scaling to Trillion Parameter Models with Simple and Efficient Sparsity*, 23 J. MACHINE LEARNING RES. 1, 4 (2022).

219. *Id.* at 5.

220. *Id.* at 6.

221. Nan Du et al., *GLaM: Efficient Scaling of Language Models with Mixture-of-Experts*, ARXIV (Aug. 1, 2022), <https://arxiv.org/abs/2112.06905> [<https://perma.cc/L3VH-USQ3>].

222. See Aidan Clark, *Unified Scaling Laws for Routed Language Models*, ARXIV (Feb. 9, 2022), <https://arxiv.org/abs/2202.01169> [<https://perma.cc/3HTP-7RCE>].

223. See, e.g., Dylan Patel & Gerald Wong, *GPT-4 Architecture, Infrastructure, Training Dataset, Costs, Vision, MoE*, SEMIANALYSIS (July 10, 2023), <https://www.semianalysis.com/p/gpt-4-architecture-infrastructure> [<https://perma.cc/A7W8-UZ86>].

could be produced, it may be feasible to create large language models that are especially attuned to particular specialty areas. The use of synthetic data has become commonplace in machine learning even outside of large language models, in particular as a way to preserve the privacy of participants in studies while still facilitating analysis of underlying patterns in the data.<sup>224</sup> With generative AI, naïve use of synthetic data could indeed lead to model degradation, but it may well be possible to create synthetic data that on average is *better* than real data, in the sense of representing high-quality, aligned, accurate analysis. The key is that instead of creating new data in a single shot, large language models can be repeatedly queried to improve upon answers, ultimately leading to a single answer that is likely to be better than what the model would initially produce.

A popular method for improving on the default output of large language models is to use “chain-of-thought prompting.”<sup>225</sup> The query provides inside the context window manually constructed examples of step-by-step reasoning for the model to emulate for the particular problem posed.<sup>226</sup> Large language models are more likely to answer math questions correctly when using chain-of-thought prompting than when stating answers and then explaining their reasoning.<sup>227</sup> A more sophisticated approach is known as “tree of thoughts,” and is designed to encourage a large language model to consider various possible alternative approaches at each step of the analysis.<sup>228</sup> Lawyers consider many approaches when drafting any part of a legal brief or other document. Judges sometimes say that an opinion “won’t write,” and they therefore make edits that allow the opinion to be improved.<sup>229</sup> Large language models have no delete button, but a tree of thoughts can similarly allow for revision. Yet another technique is “plan-and-solve” prompting, which leads the large language model to divide a task into

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224. See, e.g., Neil Savage, *Synthetic Data Could Be Better Than Real Data*, NATURE (Apr. 27, 2023), <https://www.nature.com/articles/d41586-023-01445-8> [<https://perma.cc/FTA7-N67X>].

225. See Jason Wei et al., *Chain-of-Thought Prompting Elicits Reasoning in Large Language Models*, ARXIV (Jan. 10, 2023), <https://arxiv.org/pdf/2201.11903.pdf> [<https://perma.cc/7QQH-8NKZ>]. As this Article neared publication, OpenAI announced that its newest model using chain of thought and related techniques had produced improvements as measured against various benchmarks. See Andrew Hoblitzell, *OpenAI Announces ‘o3’ Reasoning Model*, INFOQ, Dec. 25, 2024, <https://www.infoq.com/news/2024/12/openai-announces-o3/> [<https://perma.cc/LU88-8WN4>].

226. This is known as “few-shot prompting.” See generally Tom Brown et al., *Language Models Are Few-Shot Learners*, ARXIV (May 28, 2020), <https://arxiv.org/abs/2005.14165> [<https://perma.cc/E5JD-XGVX>].

227. See Wei et al., *supra* note 225, at 6.

228. See Shunyu Yao et al., *Tree of Thoughts: Deliberate Problem Solving with Large Language Models*, ARXIV (May 17, 2023), <https://arxiv.org/abs/2305.10601> [<https://perma.cc/7JJ3-L5V5>].

229. See Frederick Schauer, *Giving Reasons*, 47 STAN. L. REV. 633, 652 (1995).

subtasks before carrying these out according to the plan.<sup>230</sup> A single legal task might be broken up into ever smaller parts of the problem, perhaps requiring ultimately thousands of queries, with results ultimately reassembled into a single document.<sup>231</sup>

The use of such techniques matters for several reasons. First, by allowing generative AI to plan the writing of a legal document and to generate queries passed either to itself recursively, to third-party search engines, or to vector databases storing large volumes of case-specific information,<sup>232</sup> these techniques leverage the AI to deal with the manual work involved in breaking a legal problem down into manageable chunks, thus diminishing concerns about limited context windows.<sup>233</sup>

Second, this approach could generate two types of synthetic documents: both a final document that is higher quality than the single shot output of a large language model and documents representing an inner monologue at different stages of the creation process. By using both to pretrain a model or for fine tuning, one might give the large language model a deeper understanding of the type of reasoning that is required. Just as there is a difference between “thinking fast” and “thinking slow” in the human brain,<sup>234</sup> so too might a large language model be more effective when it is trained on a certain type of document than when it seeks to follow instructions provided only in the context window. The next model could then produce new synthetic documents that could be stronger than the first set and thus could be used instead of that first set in further training. If this technique can produce gradual improvements in the quality of synthetic reasoning, then model degradation might be avoided.

Third, such workflows should largely solve the problem of hallucinations. One key step in the workflow is to search for cases or other legal materials supporting or otherwise related to a legal proposition and then read these cases. Indeed, early legal research tools already

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230. See Lei Wang et al., *Plan-and-Solve Prompting: Improving Zero-Shot Chain-of-Thought Reasoning by Large Language Models* (2023).

231. See LANGCHAIN, <https://github.com/langchain-ai/langchain> [<https://perma.cc/7JJ3-L5V5>] (last visited Aug. 4, 2023) (providing software to facilitate such approaches).

232. See Janakiram MSV, *supra* note 145 and accompanying text. By storing all documents in a vector database, an AI can itself semantically query the information that it has assembled, thus enabling it to make connections among documents that it otherwise might not relate to each other and thus performing a function similar to a lawyer who recognizes connections through deep study.

233. See Iliia Shumailov et al., *supra* text accompanying note 193. There is also research on the design of large language models with much larger context windows. See, e.g., Jiayu Ding et al., *LongNet: Scaling Transformers to 1,000,000,000 Tokens*, ARXIV (July 19, 2023), <https://arxiv.org/pdf/2307.02486.pdf> [<https://perma.cc/5RC5-68V3>]. An automated process might well use different large language models for different parts of a problem or to generate alternative solutions.

234. See DANIEL KAHNEMAN, THINKING, FAST AND SLOW (2013) (providing a length but accessible treatment distinguishing the two types of thinking).

incorporate such functionality.<sup>235</sup> Similar functionality has been added to ChatGPT via “plugins.”<sup>236</sup> For example, if the Wolfram plugin is activated, then ChatGPT will recognize that it sometimes will be useful to use a tool for symbolic mathematics. The user is informed of this search but is spared the search results. These results, however, are analyzed in context to produce data that the user can see. Just as a large language model can be trained with “reinforcement learning from human feedback” to write in a particular style, such as that of a helpful chatbot,<sup>237</sup> so too can the same technique be used to train the AI to emit a particular token when it wishes to execute a search.

Fourth, this general argument highlights that generative AI may be useful for tasks other than writing legal briefs, cases, and other documents that appear in the training sets of AI models. A lawyer needs not only to craft pleadings but also to interview clients, communicate with opposing counsel, depose witnesses, defend depositions, generate recommendations to businesses on how to avoid problems that have emerged, identify possible settlements, and so on. Some of these tasks will initially be difficult for generative AI given the lack of training samples. Client interviews, for example, are not available in large quantities, in no small part because of privilege issues. But such documents could be created for further training, and synthetic data could be used to generate them more quickly.

If synthetic data is difficult to create for some legal tasks, hand-curated data may help. Recent papers suggest that even small quantities of high-quality, human-authored data can greatly improve training.<sup>238</sup> The potential efficiencies from automation of any task in which lawyers engage are sufficiently large as to justify tens of millions of dollars of investment in hand-curating documents that can then facilitate training. The existing history of human annotations, such as the West Digest System,<sup>239</sup> demonstrates that it could be economically

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235. Tyna Eloundou et al., *GPTs Are GPTs: An Early Look at the Labor Market Impact Potential of Large Language Models*, ARXIV (Aug. 22, 2023), <https://arxiv.org/abs/2303.10130> [<https://perma.cc/8CMF-4H7G>], at 4 (discussing CaseText).

236. See *ChatGPT Plugins*, OPENAI (March 23, 2023), <https://openai.com/index/chatgpt-plugins/> [<https://perma.cc/9JDR-AMNA>]. The ability to browse the Internet using the Bing search engine is included by default in the current paid version of ChatGPT.

237. See Long Ouyang et al., *Training Language Models to Follow Instructions with Human Feedback*, ARXIV (Oct. 31, 2022), <https://openreview.net/forum?id=TG8KACxEON> [<https://perma.cc/Y3EV-CVEF>] (detailing the algorithm that was used to create ChatGPT from the GPT models).

238. See, e.g., Suriya Gunasekar, *Textbooks Are All You Need*, ARXIV (Oct. 2, 2023), <https://arxiv.org/pdf/2306.11644.pdf> [<https://perma.cc/D8K9-D5K5>]; Chunting Zhou et al., *LIMA: Less Is More for Alignment*, ARXIV (May 18, 2023), <https://arxiv.org/pdf/2305.11206.pdf> [<https://perma.cc/HQG6-UP39>].

239. See *supra* note 138 and accompanying text.

feasible to hire many lawyers to improve the tools that lawyers use.<sup>240</sup> Humans also could generate documents corresponding to inner monologues for various stages of the writing process. A model pretrained or fine-tuned on such documents could then generate more synthetic data.

The economic stakes also provide answers to the argument that legal impediments will prevent lawyers from taking advantage of generative artificial intelligence technology. If the technology works sufficiently well, and if its output cannot easily be identified as computer-generated, there will be powerful economic incentives for lawyers to use it, whether they admit it or not. And companies developing generative AI for lawyers will have incentives to lobby to allow its use. Perhaps the bar will slow down adoption,<sup>241</sup> but it will have difficulty entirely stopping the use of any technology that succeeds in helping lawyers. The enormous economic incentives to create general AI technology and to apply such technology to legal reasoning, when considered along with the progress made to now and the many ideas for overcoming roadblocks, leads this author to be sympathetic to the view that the legal sector will eventually become productive. But this is a highly uncertain forecast, which should not be read either as a prediction that change is imminent or that improvements will be sufficiently large to eliminate the need for lawyers altogether. We will thus turn to anticipating what the legal system might look like in the medium term if AI makes law a productive sector.

### *B. The Effects of Increased Relative Legal Productivity*

Part 0's discussion of how the cost disease may currently be affecting legal practice provides at least a suggestion of what we might expect from unmistakable productivity. But past trends may not precisely reverse, both because existing trends may be partially a function of considerations besides the cost disease and because the effects of AI differ for different legal tasks. Part 0 assesses effects on caseload and settlement statistics, while Part 0 explains that effects on the legal profession are more speculative.

#### *1. Effects on Cases*

If an era of stagnation is one in which the tool of law is rationed, then litigants and lawmakers in an era of productivity might rely increasingly on ordinary adjudication. The challenge for access to justice

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240. For a discussion of the size of the market for machine intelligence in law, see John O. McGinnis & Russell G. Pearce, *The Great Disruption: How Machine Intelligence Will Transform the Role of Lawyers in the Delivery of Legal Services*, 82 *FORDHAM L. REV.* 3041, 3057-59 (2014).

241. Other forms of regulation also might affect the speed of AI adoption. See generally Roe Sarel, *Restraining ChatGPT*, 75 *U.C. L.J.* 115 (2023).

will be designing institutions that can assist clients especially where AI might be lacking.

(a) *The Reappearing Trial*

The argument potentially linking the vanishing trial to the cost disease was simple, and so too is the argument predicting the reappearance of the trial should the legal sector become relatively productive. If legal services become less expensive relative to other goods and services, litigants will take tougher negotiating positions. Lesser asymmetries in information or optimism should suffice to prevent settlement. Judges and their law clerks, meanwhile, should also enjoy increased productivity. If the high cost of litigation generally made judges more willing to grant summary judgment, then reduced workloads and greater efficiency could lead in time to greater judicial skepticism of summary judgment. Judicial time might still be a bottleneck, particularly because judges might want to ensure that they understand and agree with the orders and opinions that their chambers use AI to generate.<sup>242</sup> That could lead to greater queuing of cases for trial, but at the margin, trial would increase.<sup>243</sup>

Generative AI, however, will have different productivity effects on different legal tasks, potentially providing an argument for more summary judgment rather than less. While generative AI might make it easier to perform legal research, create legal pleadings, and respond to discovery requests, it should be expected to have much less of an effect on lawyer performance in person. Thus, in England, solicitors would become more productive, while the work of barristers would be less changed. The overall costs of litigation would still decline, and reduced settlement would lead to more trials. But judges might become more open to summary judgment because their views on the relative efficiency of pretrial litigation and trial advocacy could change. An era of improved legal productivity might thus not be a reversal of an era in which both in-person legal services and legal research arguably stagnated. More generally, because changes in legal productivity not only affect litigants, but also may affect judges, the future effects of increased productivity become more difficult to forecast.

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242. If the increase in case filings is so great that this becomes difficult, one can expect that judges may impose new procedural hurdles on litigants or modify the substantive law to reduce case volume. Yonathan Arbel has argued that judges will take advantage of “legal thermostats” in both procedural and substantive law that will allow them indirectly to control case volume. See Yonathan A. Arbel, *Judicial Economy in the Age of AI*, 6, 17-22 (2024) (unpublished manuscript, on file with author).

243. This suggests an analogy to the current legal system in India, where the ratio of judges to the population is among the lowest in the world. Each judge hears a large number of cases, sometimes over 30 per day, but the backlog for a trial is long. See Vidhi Doshi, *India’s Long Wait for Justice: 27m Court Cases Trapped in Legal Logjam*, GUARDIAN (May 5, 2016), <https://www.theguardian.com/world/2016/may/05/indias-long-wait-for-justice-27-million-court-cases-trapped-in-a-legal-logjam> [<https://perma.cc/J8ND-E4GY>].

(b) *Improved Access to Justice*

Though there is dispute as to whether more parties have been representing themselves, there remains considerable concern about access to justice, particularly by people of limited financial means and members of underrepresented minorities.<sup>244</sup> Reduction in the cost of litigation directly impacts access to justice. Potential litigants who otherwise might not have been able to afford attorneys may now be able to afford them. Meanwhile, AI models might be finetuned to address the problems of clients facing specific problems, such as eviction. These models might both help lawyers and allow some clients to represent themselves, especially for types of cases where large numbers of cases present similar issues. Clients still might hire lawyers for issues that the models issue spot but cannot resolve themselves.<sup>245</sup> These approaches will be especially powerful if generative AI is integrated with AI systems for speech recognition and text-to-speech capabilities. Market analysts expect chatbots to be a rapidly growing application of AI,<sup>246</sup> replacing customer service agents as a way of collecting and routing information, and thus could be helpful in legal practice as well.

Whether productivity would lead to more pro se representation or more fully lawyered representation is difficult to predict. Reduced cost of attorney-based representation could allow for greater reliance on lawyers and a stronger case for policing lawyers' monopoly. But while stagnation would affect only the productivity of lawyers and not that of their clients, AI improves both the ability of a pro se litigant and the ability of a lawyer to work with paid clients. The key issue is the value that lawyers add, over and above the value that clients can receive from AI directly. There may well be approaches between full representation by counsel and pro se representation. Lawyerless courts, for example, have judges and other personnel trained in the specialized subject matter of the court,<sup>247</sup> and these personnel might be better able to assist litigants if aided by AI. The challenge will be designing institutions well equipped to provide whatever AI cannot.

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244. See, e.g., Daniel Bonilla Maldonado, *The Right to Access to Justice: Its Conceptual Architecture*, 27 IND. J. GLOBAL LEGAL STUD. 15 (2020) (offering a theory explaining why the lack of access to justice is problematic); Katherine S. Wallat, *Reconceptualizing Access to Justice*, 103 MARQ. L. REV. 581 (2019) (considering the underlying rationales for the goal of improving access to justice). An important earlier article is Deborah L. Rhode, *Access to Justice*, 69 FORDHAM L. REV. 1785 (2001).

245. See *infra* note 289 (discussing unbundling).

246. See *Chatbot Market Size, Share, and Trends 2024 to 2034*, PRECEDENCE RESEARCH, CHATBOT MARKET (Jan. 2023), <https://www.precedenceresearch.com/chatbot-market> [<https://perma.cc/4CGY-C4JY>] (predicting 19.3% annual growth in the chatbot market).

247. See *infra* text accompanying notes 289-291.

## 2. *Effects on the Profession*

Although the cost disease has a direct implication for lawyers' productivity, the cost disease does not answer how a change in productivity might affect lawyers' income. This question is of intrinsic interest to lawyers and law students, but it also has significant implications for social welfare, because the wage level determines the number and ability of those drawn into the legal sector, and assuming that AI cannot entirely substitute for human inputs, these factors determine the ability of the legal system to deliver justice, however that may be defined by lawmakers. Part (a) explains that wages will depend on the elasticity of the demand for legal services. The difficulties that we have already seen in measuring legal outputs make this challenging to estimate, and this challenge is exacerbated by the complexities of settlement bargaining. There are reasons to infer, however, that increases in productivity overall would increase inequality in wages across lawyers. This is in part, as Part (b) explains, because productivity improvements would put a premium on judgment and experience. Lawyers might spend less of their time producing work product and more of their time absorbing work product.

### *(a) Effects on Lawyer Wages and Employment*

A fortune cookie aphorism insists that in a small town, a single lawyer will starve but two lawyers can both get rich.<sup>248</sup> This joke may suggest that lawyers can always find more cases to bring and, in each case, can find more factual and legal issues to develop. If so, then a productive legal sector would become one in which lawyers (and judges) remain as busy as ever. But if the aphorism is wrong, a productive legal sector might be one in which lawyers are so efficient that most of the time, they have nothing to do.

The key variable in forecasting how lawyers' livelihood would be affected by an era of productivity is thus the elasticity of demand for litigation.<sup>249</sup> With perfectly elastic demand, an increase in the supply curve increases revenue, and given that most of a lawyer's costs are fixed (real estate, computers, and so forth), this would translate into an increase in profit. Perfectly inelastic demand, however, would mean that the number of cases would remain the same when the supply curve shifts out, resulting in a much lower cost of litigation with no

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248. See, e.g., *If a Town has One Lawyer, He Starves; If it has Two Lawyers, they both get Rich*, ANVARI.ORG, [http://www.anvari.org/fortune/Miscellaneous\\_Collections/114064\\_if-a-town-has-one-lawyer-he-starves-if-it-has-two-lawyers-they-both-get-rich.html](http://www.anvari.org/fortune/Miscellaneous_Collections/114064_if-a-town-has-one-lawyer-he-starves-if-it-has-two-lawyers-they-both-get-rich.html) [<https://perma.cc/DR9S-NSCL>].

249. James Bessen has emphasized that demand elasticity is critical to assessing the impact of AI on jobs in general. See James Bessen, *AI and Jobs: The Role of Demand* (Nat'l Bureau of Econ. Rsch., Working Paper No. 24235, 2018), <https://www.nber.org/papers/w24235> [<https://perma.cc/R932-GRDJ>].

offsetting increase in quantity. Unemployment—lawyers without jobs and lawyers without enough to do—would greatly increase.

Neither of these extremes is plausible. Demand for litigation is downward sloping. The plaintiff and defendant may be conceived as disputing parties but joint consumers. The labels “plaintiff” and “defendant” obscure a symmetry. In a suit for money damages, there is a sum of money whose ownership is disputed, with both parties willing to litigate rather than abandon their claim. Two factors are likely to increase the demand for litigation services: the stakes and the closeness of the issues. If billions of dollars are at stake, then litigation is almost certain, assuming each side has a nonfrivolous position. And if only a few dollars are at stake, then litigation is highly unlikely, even if the plaintiff could almost surely prevail with litigation. These factors do not merely affect whether cases are brought, but also how intensively the cases will be litigated and whether they will eventually settle. George Priest and Benjamin Klein’s model suggests that the cases most likely to go to trial will be the ones at which the facts are closest to the burden of proof.<sup>250</sup> Differences of opinion about the facts will not make much of a difference if the facts are far from the burden of proof. Because litigation is in fact a multi-round game with many opportunities for settlement, the argument also suggests that close cases are relatively likely both to be filed and to be litigated vigorously.

Viewing litigating parties as joint consumers, however, does not nail down whether lawyer revenue would increase or decrease if lawyers became more productive. To see why that question is difficult, consider a simple model,<sup>251</sup> illustrated in Figure 10. Suppose that the universe of cases is divided into cases in which the defendant truly is liable and those in which the defendant is not. Different cases have different strengths, and we can assume that at trial plaintiffs would win cases with case strengths greater than 0.5. As the bands from the truly liable boxes to the case strength boxes reflect, the truly liable cases will tend to have high case strength. The litigants, though, do not know the strength of a case. Instead, each receives a noisy signal of the case strength. The bands at right show the probability of different signals for each case strength. A party that receives a particular signal can calculate the probability, given that signal, that the plaintiff would win the case and can thus estimate expected damages. In accordance with standard economic models of litigation, if the plaintiff’s estimate of its probability of winning exceeds the defendant’s estimate by more than the combined litigation costs, then the case will be

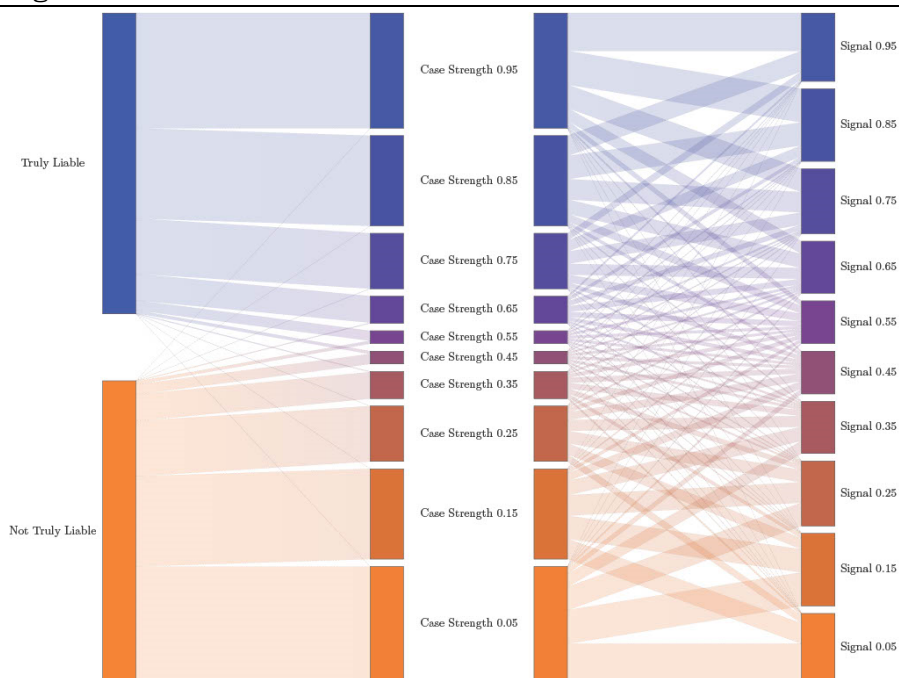
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250. See, e.g., George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1, 17 (1984) (“[D]isputes lying close to the decision standard are more likely to be litigated than disputes lying far from the decision standard.”).

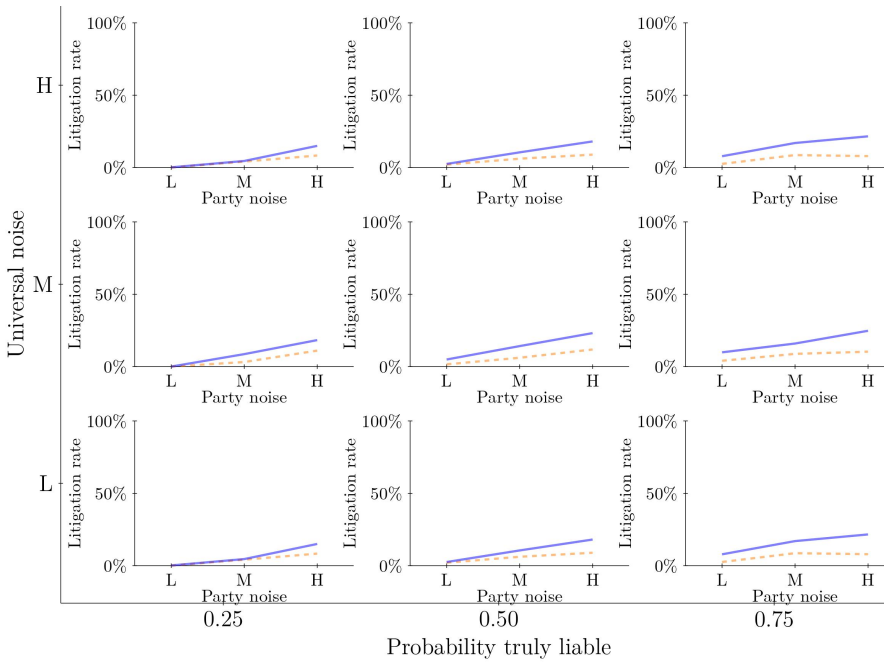
251. The code used to generate the diagrams produced by the model is available at <https://github.com/mbabramo/ACESim4/tree/costdisease> [<https://perma.cc/Q7CP-RGBL>] (last visited Aug. 8, 2023).

litigated. For example, given the parameters used to generate Figure 10, 6.2% of cases would be litigated.

**Figure 10**



This exact percentage, however, need not concern us for present purposes. The goal of this model is to assess how the volume of litigation changes if costs fall. More particularly, the goal is to see how that varies depending on parameters of the model. Thus, we can vary the model represented in Figure 10 in several ways. First, we vary the proportion of cases in which the defendant is truly liable, thus affecting the distribution of the case strength variable illustrated in the middle of Figure 10. Second, we vary the amount of “universal noise,” considering a low value and a high value, as well as the medium value illustrated in Figure 10. For example, higher universal noise increases the number of truly liable cases with relatively low case strength values. Third, we can vary the noise that determines each party’s signal, again testing a higher and lower value than illustrated in Figure 10. Higher party noise increases the probability that a party’s signal will be relatively far from the case strength.

**Figure 11**

**Error! Reference source not found.** illustrates the results. The dashed line represents the litigation rate corresponding to the level of costs in Figure 10, and the solid line represents the litigation rate corresponding to half that level. Consider the *relative* level of these two lines at different points. For example, at the baseline level corresponding to Figure 10, i.e., the points over the “M” (for “medium”) in the graph in the center, the litigation level is 2.3 times as large with the lower level of costs. This corresponds to a scenario in which a reduction in the cost of litigation would lead to a more than offsetting volume of litigation. And so, if lawyer productivity doubled, lawyers would be able to charge more than half what they do today and still double their work, meaning that lawyer revenue would rise. But this ratio varies enormously, from as low as 1.0 to as high as 3.4. And so, the fate of lawyers’ wages depends on which of these panels (or some other omitted panel) turns out to correspond most closely with actual litigation.

The summary of the model above does not even report parameter values.<sup>252</sup> The purpose of the analysis is not to select the panel most closely reflecting reality, but to highlight that these parameters are critical for understanding lawyers’ fate in a productive world. Perhaps a focused empirical analysis could allow for better estimation of these parameter values, but it would be extraordinarily difficult. We have, for example, no easy way to estimate the distribution of underlying

252. These are, however, available in the code repository. See *id.* at Runner.cs file.

disputes, as we can observe only the disputes that lead to litigation. Nor is there an obvious way to ascertain the correlation between whether the defendant is truly liable (even assuming such a concept to be meaningful) and the strength of the case. Even assessing how accurate litigants are in measuring case strength would be difficult. All these tasks are made far more complex by the reality that these distributions, correlations, and signal strengths will vary enormously across areas of litigation and between cases within a particular area of litigation. Meanwhile, this is a highly simplified model of litigation (ignoring, for example, that damages may be uncertain too and failing to distinguish between lack of filing and settlement). Perhaps progress could be made either with respect to some parameters or with respect to the realism of the model, but the science of litigation modeling is not at a level where confident predictions could be made.

Legal productivity might affect not only the average lawyer wage but also the distribution of wages. The legal profession today is among the most unequal of professions; according to one measure, lawyers at the 90<sup>th</sup> percentile earn 8.0 times what learns at the 10<sup>th</sup> percentile earn.<sup>253</sup> Inequality has also increased among recent law school graduates, with starting salaries today reflecting a bimodal distribution in which BigLaw increasingly outpaces the rest of the market.<sup>254</sup> With more cases litigated, the variance in the importance of cases will increase. The clients with the most important cases—cases that are close and have high stakes—may continue to demand the best lawyering talent available, and the lawyers perceived as best should now be equipped to take on a higher number of cases. The difference between the cases that these lawyers take on and those for lawyers in the next rung will thus be greater than before, with similar discrepancies moving down the lawyer prestige ladder.

Inequality, however, will depend not only on how the mix of cases changes, but also on what skills AI serves to substitute. One can imagine two very different scenarios. In one, AI narrows the gap in the skills that differentiate the highest performers from other lawyers. If, for example, the best lawyers are better writers, then a generative AI that improves writing might reduce the premium that clients are willing to pay the best lawyers, just as difficulties in spelling need not hold back lawyers today in the era of the spelling checker. In the opposite scenario, AI makes minimal inroads on the skills that differentiate the highest-paid lawyers but substitutes for the skills of lawyers at the

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253. See Martha Gimbel, *These Jobs Have the Most Unequal Pay*, HIRING LAB (May 2, 2019), <https://www.hiringlab.org/2019/05/02/unequal-pay-jobs-2019/> [<https://perma.cc/8527-DQGC>].

254. See *Lawyer Salaries Are Weird*, BIGLAW INVESTOR (Apr. 1, 2023), <https://www.biglawinvestor.com/bimodal-salary-distribution-curve/> [<https://perma.cc/DB8K-N4UN>] (providing data and showing increased inequality over time).

middle or bottom of the profession. This is the more familiar story of job displacement, in which new technologies generally have greater effect on those with lesser skills.

(b) *The Human Elements of Lawyering*

An assessment of which human elements of lawyering will be most resistant to displacement by AI matters not only in forecasting the legal profession, but also in understanding what bottlenecks to progress might exist and how some areas of law might be affected differently from others. A plausible answer is that AI will lack judgment. But what sort of judgment? While generative AI may excel at developing arguments on both sides of any legal issue, it may have difficulty assessing which arguments are most likely to appeal to decisionmakers, such as judges and administrative agency officials. If so, the work of lawyers at large will become more like judges' work. Lawyers will spend more of their time assimilating facts and arguments so that they can assess how other humans will respond to these facts and arguments.

One might argue, however, that judgment of this sort is overrated, or that AI's ability to exercise judgment is underrated. Human judgment, after all, is beset by heuristics and biases.<sup>255</sup> Generative AI, moreover, is a statistical engine, using linguistic context to predict the next word. A generative AI model could predict, after a statement of an appellate case, the probability that the next word will be "affirmed" or "reversed." A similar study has been used to assess the effectiveness of LLMs in contract interpretation,<sup>256</sup> and further studies may assess the robustness of this approach in predicting outcomes of future cases. But such a model seems unlikely to perform as well as a model, whether a neural network regression model or an old-fashioned logistic regression, built specifically to forecast case outcomes.<sup>257</sup> Such models, however, will demand human judgment to encode soft variables. A central skill of a lawyer is to engage reasoning by analogy and to determine which of competing cases a judge will determine to be controlling.<sup>258</sup> The lawyer must focus especially on the aspects of a new case that are unique and that have not been addressed by prior case law to assess whether a judge will apply or distinguish prior case law.

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255. See JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES (Daniel Kahneman et al. eds., 1982).

256. See Yonathan Arbel & David A. Hoffman, *Generative Interpretation*, 99 NYU L. REV. 451 (2024).

257. For discussions of the prospect that AI statistical models might predict litigation outcomes, see Daniel Martin Katz, *Quantitative Legal Prediction—or—How I Learned to Stop Worrying and Start Preparing for the Data-Driven Future of the Legal Services Industry*, 62 EMORY L.J. 909 (2013); McGinnis & Pearce, *supra* note 240, at 3052-53.

258. See, e.g., Frederick Schauer & Barbara A. Spellman, *Analogy, Expertise, and Experience*, 84 U. CHI. L. REV. 249 (2017) (defending analogical reasoning against the claim that it merely masks ideological decisionmaking).

Generative AI models, at least in their current form, are not built to make this sort of assessment. They can generate arguments for applying or distinguishing a case. And a large language model in general will likely prioritize a plainly good argument for a proposition over a bad one, reinforcing that the parameters within the model layers to some extent assess the quality of different types of arguments. A large language model, however, might identify textual patterns that lead it to predict a next word, such as “affirmed,” for reasons other than the underlying merits of the argument. There may, for example, be subtle differences in how courts summarize questions presented that give clues to their thinking, and even if a lawyer tries to frame a summary neutrally, the training on actual cases may lead to more emphasis on these subtleties.<sup>259</sup> Perhaps some of these problems will be overcome in time, but a skilled lawyer who has carefully studied a case may be able to reach a better judgment about how a court will assess it than a large language model completing a prompt.

Legal judgment also extends beyond analyses of what courts will do. Settlement negotiations might seem to require little more than prediction. A party contemplating settlement will start by estimating what the case is worth, considering each issue in the case, including issues of damages. Perhaps an AI might be able to do that, but it would be naïve to always make a settlement offer equal to that value. At the least, each party’s cost of engaging in litigation should be considered. But that is not enough. Settlement negotiation strategy is ultimately a challenge of applied game theory. Although there is a law-and-economics literature applying game theoretic concepts to litigation, theorists have generally found detailed game theory models of litigation infeasible.<sup>260</sup> As a result, that literature cannot be directly applied. Perhaps someday, AI might be used to refine the relevant game theory, but that form of AI is of an entirely different sort from large language models. In the meantime, there is little reason to believe that a large language model will be an effective settlement bargainer. ChatGPT has been shown not to be effective at tasks like playing poker,<sup>261</sup> a game for which there has been much more progress in applying AI.<sup>262</sup>

There are also aspects of litigation that require judgment that will likely resist at least early generations of AI technology. A lawyer must

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259. Arbel and Hoffman recognize this problem and therefore prompt the AI repeatedly with multiple variations of wording and different temperature settings on the model. See Arbel & Hoffman, *supra* note 256, at 490.

260. See, e.g., Kathryn E. Spier, *Pretrial Bargaining and the Design of Fee-Shifting Rules*, 25 RAND J. ECON. 197, 202-03 (1994).

261. See Mayank Kejriwal, *Don’t Play Poker with ChatGPT*, GIZMODO (Apr. 9, 2023), <https://gizmodo.com/chatgpt-ai-poker-online-betting-do-not-play-with-ai-1850313363> [<https://perma.cc/RS8P-RNHT>].

262. See, e.g., Keith Romer, *How A.I. Conquered Poker*, N.Y. TIMES MAG. (Jan. 18, 2022), <https://www.nytimes.com/2022/01/18/magazine/ai-technology-poker.html> [<https://perma.cc/W78T-UKCG>].

determine what narrative or theory of the case will be most effective. A lawyer must decide what approach to take in asking questions during a deposition, based in part on a psychological analysis of the deponent. A lawyer must be able to make decisions about which jurors to strike with peremptory challenges. A lawyer must make cost-benefit calculations about which dimensions of a case are worth further exploration. A lawyer must consider how the case may affect the client's reputation, whether the client is a person or an individual. A lawyer must know how current news events and controversies might weigh on a judge. In short, a lawyer must have sophistication not only in legal technique and doctrine (including on questions of legal ethics), but also in psychology, human behavior, economics, and so forth. For now, an AI seems unlikely to be able to conduct analyses in all these areas and integrate them into a coherent plan of action.

Clients will thus value judgment, but they may not have the knowledge to determine effectively which lawyers have judgment. It is hard to know how to hire a lawyer. But clients will find certain proxies, including sensible ones such as a lawyer's education, years of experience, record in prior cases, and recommendations from other clients. Overall, clients may seek out similar qualities in lawyers as before generative AI. Perhaps they might place less emphasis on legal research and writing skills if AI assists all lawyers in developing such skills, but clients may generally assume that successful partners have junior associates who will be competent to perform needed research. Thus, the partners that are most sought after by the most lucrative clients today, particularly corporate clients, will likely continue to succeed.

Judgment, of course, is not the only human attribute that matters to clients. A client might also select a lawyer based on attributes such as demeanor, confidence, clarity, communicativeness, and compassion. These may matter for the client-lawyer relationship. Some jobs, such as therapist, seem potentially relatively immune to AI because the human element is critical. This will not generally be so for law, though in some specialties, such as family law, lawyers play a not altogether different role.<sup>263</sup> The human element also may affect job performance in interactions with others, including opposing counsel, witnesses, judges, and juries. Lawyers may be prized not only for their skills, but also for their resumes and connections. Even if in principle technology developed to the point where a robot could give an opening statement, clients will likely be well advised to prefer humans. And so, in some elements of legal practice, humans seem likely to have a significant edge over AI. A productive legal sector might thus bear great similarity

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263. See, e.g., Riaz Tejani, *Little Black Boxes: Legal Anthropology and the Politics of Autonomy in Tort Law*, 11 U.N.H. L. Rev. 129, 149 (2013) ("Clients often see lawyers as therapists. . .").

to the legal market of today, but with technical skill receding in importance.

### III. PREPARATION FOR TWO ALTERNATIVE LEGAL FUTURES

The easiest approach to adapting to the future is to wait for it. After all, the progress of AI and of the legal profession should become clearer over time, and any changes to the legal system can be better adapted when variables such as the cost of legal services are known. But delaying consideration of reforms may make them more difficult to achieve once they are necessary. On virtually all of the issues to be discussed here, lawmakers and others who influence the legal system may have policy preferences independent of the relative productivity of the legal system, and such normative disagreement will likely survive even radical changes in costs. Thus, perhaps the best opportunity to ensure that the legal system adapts to whatever changes may come exists when issues' political salience is weak and when most stakeholders do not anticipate the possibility of significant changes in stagnation or productivity. Those who do recognize the possibility may have outsized influence on future legal developments, because they can plant seeds that will grow when the conditions are right.

To some extent, as Part 00 documents, doctrine explicitly incorporates cost factors, theoretically allowing for adaptation to changes in productivity without legal reform. Even here, though, explicit discussion of productivity changes might make judges more likely to change their practices with the economic environment. Other institutions and doctrines would require affirmative efforts to adapt. Part 0 considers adaptation to perceived stagnation, either now or in the future, focusing on problems of access to justice. Even if stagnation makes access problems more acute, it also may make reform more difficult. Consideration of stagnation can help explain why other reforms might be justified, even if they were not previously. Part 0 then considers adaptation to productivity. It identifies areas of doctrine that could develop in common law fashion to be sensitive to changes in productivity, allowing adaptation without independent legal reforms. It also explains how productivity can increase enforcement, potentially ameliorating conditions of underenforcement but also threatening perverse consequences of overenforcement, such as increasing jail sentences for criminal defendants above the level that legislators likely would choose.

#### A. *Automatic Stabilizers*

The legal system includes mechanisms that already allow some adjustment either to stagnation or productivity. These mechanisms

might be conceived, by analogy to the macroeconomic literature,<sup>264</sup> as automatic stabilizers that help the legal system adjust as conditions change, perhaps even at different times in different directions. Where automatic stabilizers exist already, no legal reform is needed, but explicit acknowledgment that these provisions allow for variability based on economic circumstances might help future judges adjust more easily. Let us consider several examples under U.S. law.

First, Rule 26 of the Federal Rules of Civil Procedure disallows discovery that is “unreasonable [or] unduly burdensome or expensive, considering the needs of the case.”<sup>265</sup> If progress in technology-assisted review continues,<sup>266</sup> courts should become more liberal in allowing discovery, while stagnation would suggest the opposite. Although such changes would require no legislative action, they are not inevitable in the short term. The word “expensive” explicitly focuses on cost, but judges’ mental models for what counts as costly may depend in part on their sense of what traditionally has been reasonable. Further, legal inflation might paradoxically cause judges to increase their standards of what counts as expensive. Any case law that specifically encourages judges to consider current economic conditions and trends in particular areas of practice may make it more likely that judges in the future will take advantage of this automatic stabilizer.

Second, under Rule 23, a court considering whether to certify a class action for damages must consider whether “a class action is superior to other available methods for fairly and efficiently adjudicating the controversy.”<sup>267</sup> The words “superior” and especially “efficiently” clearly allow for consideration of cost. To be sure, the rule is sufficiently vague that those who are generally skeptical or enthusiastic about class action aggregation may decide cases as they would have absent economic change, but case law explicitly recognizing that such decisions are time- and market-dependent again could at least at the margin allow for shifts in practices. Stagnation then might lead to greater use of the class action mechanism and productivity to greater use of individual adjudication than otherwise would be the case. More ambitiously, judges might seek to place greater emphasis on this automatic stabilizer provision than on the class action prerequisites of numerosity, commonality, typicality, and representativeness,<sup>268</sup> recognizing their greater flexibility to adapt to future conditions.

The third and fourth automatic stabilizers affect the cost of trials. The third is the assessment of whether evidence should be excluded as

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264. See generally YAIR LISTOKIN, LAW AND MACROECONOMICS: LEGAL REMEDIES TO RECESSIONS 41-53 (2019) (discussing “automatic fiscal policy”).

265. FED. R. CIV. P. 26(g)(1)(B)(iii); see also *id.* at Rule 26(b)(2)(C)(i).

266. See *supra* notes 140-144.

267. FED. R. CIV. P. 23(b)(3).

268. *Id.* at 23(a).

“needlessly . . . cumulative.”<sup>269</sup> The analysis is thus parallel to the question of how much discovery should be allowed, similarly presenting an accuracy-efficiency trade-off. Explicit recognition of this economic trade-off may avoid the concern that judges make such assessments solely based on their sense of what historically has been permitted. Greater stagnation could lead to tighter limits on presentation of evidence, and productivity might have the opposite effect.

The fourth automatic stabilizer is how much process is due to someone who might be deprived of life, liberty or property.<sup>270</sup> In *Mathews v. Eldridge*,<sup>271</sup> the Supreme Court famously announced a balancing test to determine how much process was due. The Court was explicit in indicating that financial cost of procedures was a relevant variable, though not the sole variable, in this test.<sup>272</sup> Jason Parkin has argued that due process is an adaptable doctrine, but that courts have not always recognized the importance of relevant changes.<sup>273</sup> This scholarly recognition of the potential for change is a first step toward allowing evolution to occur if AI improves productivity and greater due process becomes more affordable.

### B. *Adaptation to Stagnation*

Not all legal responses to changes in productivity can easily be embedded in automatic stabilizer doctrines. Greater stagnation might require changes in priorities and institutions. Part 0 notes that stagnation may make it more difficult to subsidize access to justice even if the need for such subsidies becomes more acute. Perhaps a more politically feasible reform, explored in Part 0, is to decrease the legal system’s reliance on formal representation. Awareness of cost disease concerns can potentially address the objection that there is no need to tinker with long-established legal institutions.

#### 1. *Subsidies for Legal Services*

Emery Lee, who assumes that law afflicts the legal sector,<sup>274</sup> briefly considers the adoption of a constitutional right to representation in civil litigation: a “civil *Gideon*.”<sup>275</sup> At some level of expense, legal services will become too expensive for poor people absent subsidy. The recognition of the cost disease can be used to make a case that the

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269. FED. R. EVID. 403.

270. See U.S. CONST. amend. V (requiring federal government to provide due process); see also *id.* amend. XIV, § 1 (requiring states).

271. 424 U.S. 319, 334-35 (1976).

272. *Id.* at 347-48.

273. See Jason Parkin, *Adaptable Due Process*, 160 U. PA. L. REV. 1309, 1334-36 (2012).

274. Lee, *supra* note 12.

275. Lee, *supra* note 12, at 516 (citing, e.g., Stan Keillor et al., *The Inevitable, if Untrumpeted, March Toward “Civil Gideon,”* 64 SYRACUSE L. REV. 469, 474 (2014)).

access-to-justice problem has become more severe and thus that some remedy is necessary even if it was not appropriate in the past. As society becomes wealthier from highly productive industries, we can allocate more of our scarce resources to services like lawyering to the poor. Others, however, might take the opposite view. As civil litigation becomes more expensive, the argument goes, we should buy less of it, and so the case for subsidy decreases with stagnation.<sup>276</sup> Neither view necessarily commits its proponents to any policy at any time. One might advocate expanding *Gideon* should stagnation worsen, while another might argue that greater subsidies of the Legal Services Corporation are appropriate now but that in the long run they could become a poor investment.

Which perspective one takes depends in part on the view that one has of the goal of access to justice. Some view it primarily as a means to an end, such as “allow[ing] resource distributions that improve the quality of lives.”<sup>277</sup> If one’s view is that society should invest in legal services for individuals facing eviction solely on the ground that the end result of keeping people in their homes is desirable, then one might, at some progression of the cost disease, prefer to allocate those social resources to, say, housing for the poor. If housing construction becomes a progressive sector<sup>278</sup> while law remains a stagnant sector, then at least at the margin, all else equal, the allocation of spending between construction of housing and lawyering for housing should over time shift in favor of construction.

Some, however, defend access to justice on the ground that “in a well-run society, law is an end in itself,”<sup>279</sup> with access critical to enabling individuals to participate as equal political citizens.<sup>280</sup> This perspective might be seen most clearly in the context of criminal *Gideon*. Few would argue that if the law stagnates, we should abandon our commitment to providing lawyers for criminal defendants who cannot afford them. Our commitment to providing counsel arises from the necessity of caution before denying liberty, even if that caution requires the increasingly expensive time of lawyers and judges. We do not shed foundational commitments because we think that we will need to give up too many trinkets or luxuries.

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276. Whatever the merits of this view, spending on legal aid has long been a target for budget savings. See Rhode, *supra* note 244, at 1786.

277. Colin Crawford, *Access to Justice for Four Billion: Urban and Environmental Options and Challenges*, 26 NYU ENVTL. L.J. 340, 347 (2018).

278. Currently, housing is considered to suffer from the cost disease as well. See Pietro Reichlin & Nicola Borri, *The Housing Cost Disease*, CEPR: VOXEU (Sept. 8, 2015), <https://cepr.org/voxeu/columns/housing-cost-disease> [<https://perma.cc/QU8L-GKLQ>].

279. Crawford, *supra* note 277.

280. See Matthew A. Shapiro, *The Indignities of Civil Litigation*, 100 B.U. L. REV. 501, 568-69 (2020) (discussing the importance of access-to-justice for dignity and equality of citizens).

Lee assumes that adoption of a civil *Gideon* is “extremely unlikely.”<sup>281</sup> This may represent an appraisal of current political possibilities or an anticipation of the political effects of stagnation. Politically, a right to counsel in civil cases seems less likely as civil litigation becomes more expensive, even as the access problem becomes more acute. Social justice advocates who expect stagnation would thus be well advised to pursue any variation of a civil *Gideon* sooner rather than later. Perhaps it might be easier to create entitlements when few people qualify for them than when many do. A statutory subsidization scheme based on the ratio of legal fees to income, for example, would pay out more should stagnation occur. This example illustrates how legislative changes could create new automatic stabilizers. But even if the foresighted observer of the cost disease has an advantage in shaping the future, any institutional change needed to adapt may be elusive.

## 2. Alternatives to Formal Lawyering

Another potential response to increasing relative costs of legal services would be to facilitate self-representation. More aggressive access-to-justice proposals suggest considerable deregulation of the legal profession as a means of reducing the power of what critics see as the law cartel.<sup>282</sup> But even within the existing professional responsibility framework, there has been a growth of alternatives to formal lawyering, including nonlawyer practice and outsourcing.<sup>283</sup>

This growth has occurred in a period in which occupational licensing rules have also received scrutiny outside law.<sup>284</sup> Although much of this attention has focused on relatively low-wage occupations such as cosmetology,<sup>285</sup> there has also been a focus on health professionals.<sup>286</sup>

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281. Lee, *supra* note 12, at 516.

282. See Benjamin Hoorn Barton, *Why Do We Regulate Lawyers?: An Economic Analysis of the Justifications for Entry and Conduct Regulation*, 33 ARIZ. ST. L.J. 429, 482-83 (2001) (arguing for the deregulation of the legal profession, excepting specific services, such as appearances in court).

283. See Benjamin H. Barton, *The Lawyer's Monopoly—What Goes and What Stays*, 82 FORDHAM L. REV. 3067, 3070 (2014).

284. See, e.g., THE WHITE HOUSE, OCCUPATIONAL LICENSING: A FRAMEWORK FOR POLICYMAKERS 3 (July 2015), [https://obamawhitehouse.archives.gov/sites/default/files/docs/licensing\\_report\\_final\\_nonembargo.pdf](https://obamawhitehouse.archives.gov/sites/default/files/docs/licensing_report_final_nonembargo.pdf) [<https://perma.cc/44LX-7AQZ>]; Mario Pagliero, *Occupational Licensing in the EU: Protecting Consumers or Limiting Competition?* 55 REV. INDUS. ORG. 137, 144-46 (2019).

285. See, e.g., *Occupational Licensing in Virginia*, INST. FOR JUSTICE, <https://ij.org/issues/economic-liberty/occupational-licensing/virginia/> [<https://perma.cc/82KW-GH3J>] (last visited Aug. 21, 2024) (criticizing cosmetology licensing requirements).

286. See, e.g., Shyloe Jones & Lynn Quincy, *Provider Scope of Practice: Expanding Non-Physician Providers' Responsibilities Can Benefit Consumers*, HEALTHCARE VALUE HUB (Altatum Inst., Wash., D.C.), Nov. 2017, at 1, 1; Benjamin J. McMichael, *The Demand for Healthcare Regulation: The Effect of Political Spending on Occupational Licensing Laws*, 84

Occupational licensing is often cited as a complementary explanation of increased prices in service sectors,<sup>287</sup> but a different linkage between these debates has escaped general recognition: The cost disease highlights that the case for or against occupational licensing regulation may be time-dependent. When the cost of professional services is relatively modest in comparison to other goods, extensive regulation of who may practice and how may be optimal.<sup>288</sup> But if the cost disease progresses inexorably, then there may come a time when relaxation of occupational licensing rules would better serve consumers. If, for example, some consumers simply cannot afford certain services, then it might be sensible to expand the scope of nonphysician practice or to allow lawyers to join the bar after only two years of law school. That time may or may not be now, either in medicine or in law. But appreciation of the cost disease suggests that appropriate public policy depends in part on relative prices.

If in some context it is no longer practical to maintain the gold standard of litigation in which parties are fully represented by law school graduates who have passed the bar examination, the legal system not only might relax its nonlawyer practice rules,<sup>289</sup> but also might reform institutions to enable resolution of certain types of legal problems without representation. Jessica Steinberg has described an experimental Housing Conditions Court that relies extensively on independent housing inspections conducted by nonlawyers, as well as hearings before a judge.<sup>290</sup> Although Steinberg emphasizes that the informality of the courts does not mean that judges are invested with broad remedies in the style of courts of equity, such courts might well be especially dependent on the legal knowledge and good faith of the judge.<sup>291</sup> Lawyer-less courts might improve justice even if the standard of justice is lower than what we previously sought.

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S. ECON. J. 297, 297 (2017); Edward J. Timmons & Anna Mills, *Bringing the Effects of Occupational Licensing into Focus: Optician Licensing in the United States*, 44 E. ECON. J. 69, 69 (2018).

287. See, e.g., Erik Torenberg, *On Cost Disease: A Primer on What It Is and How It Works*, ERIK TORENBORG SUBSTACK (Apr. 11, 2021), <https://eriktorenberg.substack.com/p/on-cost-disease> [<https://perma.cc/BMM9-LQD5>].

288. For a history of occupational licensing that acknowledges both the public-serving and protectionist elements of initial licensing, see Marc T. Law & Sukkoo Kim, *Specialization and Regulation: The Rise of Professionals and the Emergence of Occupational Licensing Regulation*, 65 J. ECON. HIST. 723, 723 (2005).

289. A modest form of relaxation is to allow partial unbundling of legal services, so that lawyers represent clients in certain aspects of their cases, while the clients proceed pro se on other facets of their work. See, e.g., Molly M. Jennings & D. James Greiner, *The Evolution of Unbundling in Litigation Matters: Three Case Studies and a Literature Review*, 89 DENV. U. L. REV. 825, 825-26 (2012).

290. Jessica K. Steinberg, *Informal, Inquisitorial, and Accurate: An Empirical Look at a Problem-Solving Housing Court*, 42 LAW & SOC. INQ'Y 1058, 1062-63 (2017).

291. There is a lower likelihood of appeals in lawyerless courts. See Colleen F. Shanahan et al., *Lawyerless Law Development*, 75 STAN. L. REV. ONLINE 64 (2023).

An important feature of the Housing Conditions Court is that it employed inquisitorial procedures. The debate over the relative merits of the inquisitorial and adversarial systems is not new.<sup>292</sup> This debate too, however, has generally been fought as if it were timeless, rather than dependent on the level of costs. The relative strength of the case for the inquisitorial system improves the worse the cost disease becomes. The adversarial system is championed for its ability to reduce the effect of bias and ensure that all evidence is considered,<sup>293</sup> but these virtues come at substantial costs. The Housing Conditions Court illustrates that a generally adversarial judicial system can offer inquisitorial proceedings in specific legal contexts in which costs are especially prohibitive. Increased recognition of the cost disease among scholars and lawyers could help boost the normative case for deviating from traditional adversarial procedures in the event of stagnation.

Stagnation could also justify increased reliance on administration relative to adjudication. For example, Daniel Wilf-Townsend has described problems with “assembly-line plaintiffs,” that is, repeat player corporate plaintiffs who have very large numbers of low-value claims.<sup>294</sup> While many such claims are valid, Wilf-Townsend shows that some claims may have weaknesses that defendants never identify.<sup>295</sup> The more expensive litigation becomes, the greater the danger that asymmetries in litigation costs will affect the outcome of litigation.<sup>296</sup> These plaintiffs have low costs per case because they have specialized expertise in these cases and can try many of them simultaneously.<sup>297</sup> Administrative adjudication, even if cheaper than court-based adjudication, may still be subject to the cost disease, but agencies may be able to innovate. For example, Wilf-Townsend suggests agencies use a random selection of cases to ensure that plaintiffs are not taking advantage of defendants’ practical inability to raise defenses.<sup>298</sup> Continued stagnation would require creativity in designing replacements for broken adjudicative schemes.

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292. See, e.g., John H. Langbein, *The German Advantage in Civil Procedure*, 52 U. CHI. L. REV. 823 (1985); Justin Sevier, *The Truth-Justice Tradeoff: Perceptions of Decisional Accuracy and Procedural Justice in Adversarial and Inquisitorial Legal Systems*, 20 PSYCHOL. PUB. POLY & L. 212 (2014); Franklin Strier, *What Can the American Adversary System Learn from an Inquisitorial System of Justice?* 76 JUDICATURE 109 (1992).

293. See John Thibaut et al., *Adversary Presentation and Bias in Legal Decisionmaking*, 86 HARV. L. REV. 386 (1972) (offering an experiment showing that adversary presentation combats bias).

294. Daniel Wilf-Townsend, *Assembly-Line Plaintiffs*, 135 HARV. L. REV. 1704 (2022).

295. See *id.* at 1745.

296. See *supra* notes 167-170 and accompanying text.

297. Wilf-Townsend, *supra* note 294 at 1718-21.

298. See *id.* at 1770-72 & 1771 n.274 (citing the proposal in Yonathan A. Arbel, *Admini- zation: Gatekeeping Consumer Contracts*, 71 VAND. L. REV. 121 (2018)).

### C. *Adaptation to Productivity*

Adaptation to a future of unmistakable legal productivity may be easier, because this is a scenario of legal plenty. Part 0 addresses legal policies that at some level of productivity improvement ideally would respond, including arbitration, contracts of adhesion, pleading standards, and the choice between rules and standards. With some of these doctrines, it may be more feasible to set a foundation for adaptation than with others. Part 0 addresses a challenge in a productive world, that of optimizing enforcement. The legal system may be built around implicit assumptions about the enforcement environment. Legislatures, for example, may allow for the possibility of draconian sentences on the assumption that prosecutors' time is so scarce that plea-bargaining will lead to more lenient punishments. In the civil context, meanwhile, causes of action that are underenforced because of cost may be much more vigorously pursued. Whether this advances the goals of the legal system depends on normative baselines and legislators' expectations of how aggressively statutes would be enforced.

#### 1. *Incorporating Costs into Doctrine*

The automatic stabilizers discussed in Part 0 explicitly take into account cost, but many other doctrines may implicitly evolve because of considerations of cost or explicitly allow for the introduction of cost-benefit reasoning. Consider, for example, the requirement in Rule 8 of the Federal Rules of Civil Procedure that a "claim for relief must contain . . . a short and plain statement of the claim showing that the pleader is entitled to relief."<sup>299</sup> For half a century, this was interpreted as a very low bar,<sup>300</sup> but in *Bell Atlantic Corp. v. Twombly*<sup>301</sup> and then in *Ashcroft v. Iqbal*,<sup>302</sup> the Supreme Court tightened the rules by requiring dismissal of claims that do not state plausible claims for relief.<sup>303</sup> The underlying policy goal that many commentators believed motivated the Supreme Court's majority was reduction in frivolous litigation,<sup>304</sup> a problem that becomes more severe with the cost disease. This example, however, further illustrates the challenges inherent in ascribing individual reforms to the cost disease. The majorities in *Twombly* and *Iqbal* did not attribute their decision to increases in

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299. FED. R. CIV. P. 8(a)(2).

300. See *Conley v. Gibson*, 355 U.S. 41, 45-46 (1957) (holding that "a complaint should not be dismissed for failure to state a claim unless it appears beyond doubt that the plaintiff can prove no set of facts in support of his claim which would entitle him to relief").

301. 550 U.S. 544 (2007).

302. 556 U.S. 662 (2009).

303. See, e.g., *id.* at 678.

304. See, e.g., Jeffrey J. Rachlinski, *Why Heightened Pleading—Why Now?* 114 PENN. ST. L. REV. 1247, 1250-51 (2010) (arguing that concerns about frivolous suits and costs may explain *Iqbal*, but only partly); Alexander A. Reinert, 89 IND. L.J. 1191, 1205-12 (2014) (viewing the cases as responsive to concerns about frivolous litigation).

litigation costs, which may or may not have been rising, but simply interpreted the Federal Rules. The dissenters, as well, did not defend their position by indicating that litigation was not yet sufficiently expensive to justify tougher pleading rules. In part, no doubt, jurists simply have different policy preferences. But it also may be that judges and justices are not inclined to admit when empirical facts like legal costs affect how they craft doctrine. Perhaps discussion of the cost disease could make them more comfortable in doing so, which would also make it easier for courts to shift course if an era of productivity came to replace the stagnation that they perceive.

Similar points might be raised on a wide range of procedural issues. The cost disease may change the calculus for so many issues because cost is a central factor in so many procedural doctrines. A concern in personal jurisdiction cases, from *International Shoe Co. v. Washington*<sup>305</sup> to its most recent exposition in *Mallory v. Norfolk Southern Railway*,<sup>306</sup> is the reasonableness of forcing the defendant to answer in the plaintiff's chosen forum. The debate over forum selection clauses reflects concerns about saving both defendants and plaintiffs from inconvenient fora.<sup>307</sup> Concerns about litigation costs help explain rules on joinder.<sup>308</sup> Claim and issue preclusion reflect concerns about unnecessary expenses from relitigating.<sup>309</sup> In all these cases, there exists sufficient reference to cost concerns already to allow the law to evolve so that costs are an explicit factor in the analysis. This would allow more liberal access to the legal system should adjudication become relatively cheaper.

Productivity also might justify legal changes outside procedure that would allow for greater access to justice. Substantive doctrines may reflect cost concerns as well. One example is courts' general adherence to the principle of freedom of contract, even for boilerplate consumer contracts.<sup>310</sup> The famous unconscionability case of *Williams v. Walker-*

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305. 326 U.S. 310, 316-17 (1945).

306. No. 21-1168, slip op. at 17-18 (U.S. June 27, 2023) (arguing that it is fair to make a company that has consent to jurisdiction answer there).

307. See, e.g., *Carnival Cruise Lines, Inc. v. Shute*, 499 U.S. 585, 594-95 (1991) (finding that the plaintiff did not meet the burden required to set aside such a clause on the basis of inconvenience).

308. See, e.g., Brooke D. Coleman, *The Efficiency Norm*, 56 B.C. L. REV. 1777, 1788 (2015).

309. See Bruce L. Hay, *Some Settlement Effects of Preclusion*, 1993 U. ILL. L. REV. 21, 29 (1993) ("Preclusion rules limit a party's litigation costs by guaranteeing that she will not have to incur them more than once.").

310. See, e.g., Colleen McCullough, *Unconscionability as a Coherent Legal Concept*, 164 U. PA. L. REV. 779, 779-801 (2016) (suggesting that contracts of adhesion may increase social welfare if the litigation costs avoided exceed "the value of the vindicated rights to the consumer-beneficiaries").

*Thomas Furniture Co.*<sup>311</sup> is the exception that proves the rule.<sup>312</sup> Courts will read ambiguities in contracts against the drafter,<sup>313</sup> but that rule tends to reduce ambiguity by providing a general approach to resolving ambiguity. Allowing courts free rein to strike down clear contract terms based on a lack of consent could increase litigation.<sup>314</sup> If litigation were considerably cheaper, perhaps the judiciary would have the ability to police unconscionability more aggressively. Even a judge refusing to find unconscionability today can smooth the path to such a transformation by explicitly identifying high litigation costs as justifying the conclusion by noting that a review for reasonableness would be an inefficient use of judicial resources given the stakes. Such cost-benefit reasoning could later then be used in support of findings of unconscionability.

A particularly important application of unconscionability concerns the enforcement of arbitration clauses. Under Supreme Court doctrine, arbitration provisions are subject to unconscionability review.<sup>315</sup> This thus provides at least a doctrinal thread that future courts might develop into a more nuanced, cost-dependent doctrine on arbitrability. As Matthew Shapiro has noted, whether arbitration improves access depends on just what aspects of access are most valued.<sup>316</sup> Arbitration may help achieve the goal of providing litigants with more affordable legal assistance, but if arbitrators are less fair or representative than judges,<sup>317</sup> arbitration may undermine the goal of allowing access to neutral decisionmakers.<sup>318</sup> Case law today does not include a candid

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311. 350 F.2d 445 (1965) (invalidating a contract term that apportioned payments on furniture installment contracts to all items purchased so far, thus avoiding the result that the furniture company would be able to repossess all furniture even when the total payments more than sufficed to cover most of the items).

312. See, e.g., Colleen McCullough, Comment, *Unconscionability as a Coherent Legal Concept*, 164 U. PA. L. REV. 779, 782 (2016) (“In general, however, contracts of adhesion are enforceable unless the substantive terms are also unconscionable.”).

313. See Michelle Boardman, *Penalty Default Rules in Insurance Law*, 40 FLA. ST. U. L. REV. 305, 306-07 (2013) (discussing the doctrine of *contra proferentem*).

314. See, e.g., Andrew Tutt, *On the Invalidation of Terms in Contracts of Adhesion*, 30 YALE J. ON REG. 439, 444 (2013) (arguing that case-by-case assessment of terms would lead to high litigation costs).

315. See, e.g., *AT&T Mobility LLC v. Concepcion*, 563 U.S. 333, 339 (2011). The primary doctrinal challenge has been determining when the Federal Arbitration Act pre-empts state law definitions of unconscionability. See *id.* at 340.

316. See Matthew A. Shapiro, *Distributing Civil Justice*, 109 GEO. L.J. 1473, 1503-09 (2021).

317. See generally Jill I. Gross & Barbara Black, *When Perception Changes Reality: An Empirical Study of Investors' Views of the Fairness of Securities Arbitration*, 2008 J. DISP. RESOL. 349, 389-91 (finding that investors generally find securities arbitrators to be unfair); Donald Wittman, *Lay Juries, Professional Arbitrators, and the Arbitrator Selection Hypothesis*, 5 AM. L. & ECON. REV. 61, 80-81 (2003) (finding that arbitrators and juries are broadly similar, but different in some respects).

318. The Supreme Court has set some limits on the partiality of arbitrators. See, e.g., *Commonwealth Coatings Corp. v. Continental Cas. Co.*, 393 U.S. 145, 150 (1968) (setting aside arbitration award).

acknowledgment of this trade-off. But even case law rejecting unconscionability could highlight this access-to-justice issue and bring legal cost directly into the unconscionability analysis. That might then allow judges in a more productive legal future to reach different decisions about when the cost-benefit assessment of arbitration is so asymmetric as to be unconscionable.

More generally, the issue of boilerplate is but one example of the more general debate concerning the choice between rules and standards. The conventional observation is that rules are both overinclusive and underinclusive relative to their purposes.<sup>319</sup> Although there are defenses of rules that are independent of costs,<sup>320</sup> one of the chief benefits for rules is that they may lead to less litigation and thus less expense.<sup>321</sup> Once again, the cost disease thus may be relevant to the future balance between rules and standards.<sup>322</sup> This is so not only in contexts where the choice between a rule or a standard is a matter of first impression, but also in administering existing standards, which can become more or less rule-like over time.<sup>323</sup> The more productive the legal system becomes, the stronger the case will be for standards.<sup>324</sup> The design of the substantive law reflects the institutional capacity of the judicial system to manage expensive litigation. But courts do not generally acknowledge how the trade-off depends implicitly on prevailing levels of litigation costs. Explicit judicial acknowledgement that the rules-standards choice depends in part on litigation costs could facilitate legal adaptation to productivity across many areas of law.

## 2. *Optimizing Enforcement*

By enabling increased access to litigation, increased productivity may help offset problems of underenforcement. Only a small percentage of those who believe they are victims of employment

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319. See FREDERICK SCHAUER, *PLAYING BY THE RULES: A PHILOSOPHICAL EXAMINATION OF RULE-BASED DECISION-MAKING IN LAW AND IN LIFE* 31-34 (1991).

320. See, e.g., Dale A. Nance, *Rules, Standards, and the Internal Point of View*, 75 *FORDHAM L. REV.* 1287, 1289 (2006) (defending rules on the basis that they “foster[] the internal point of view among the citizenry”).

321. See, e.g., Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 *DUKE L.J.* 557, 572 (1992) (“The difference . . . in enforcement costs favors rules.”).

322. Legal technology itself also may influence this choice. See Whalen, *supra* note 130, at 60 (describing how technology “could substantively change a jurisdiction’s traffic law by transforming a categorical rule to a more complex, technologically enabled, regulation system”).

323. See generally Michael Coenen, *Rules Against Rulification*, 124 *YALE L.J.* 644 (2014) (discussing how standards can become rule-like and how second-order rules may affect the degree to which that can occur).

324. For an argument that AI might lead to an increase in standards at the expense of rules, see Anthony J. Casey & Anthony Niblett, *The Death of Rules and Standards*, 92 *IND. L.J.* 1401 (2017).

discrimination pursue their claims,<sup>325</sup> in part because of the high costs associated with litigation. At least on the margin, cheaper litigation would allow more victims to sue. If the legislative intent is for all victims to find redress, then legal productivity will help to vindicate legislators' intent. Yet there may be other areas in which legislators are willing to grant broad rights in part because they do not anticipate robust enforcement. For example, it may not be practical for owners of intellectual property to enforce relatively minor violations of their rights. If legal productivity enabled far more lawsuits, there might be a normative case for contracting the scope of rights. While this might require legislative action, judges also may be able to expand defenses, such as the *de minimis* doctrine.<sup>326</sup>

Statutory damages in copyright illustrate that legislators also may compensate for an expectation of underenforcement is by increasing penalties.<sup>327</sup> Similarly, criminal statutes, Russell Gold et al. have argued, often “prescribe punishments that exceed what even the legislature thinks is necessary to achieve these goals. . . . so that prosecutors have leverage to induce guilty pleas.”<sup>328</sup> Indeed, Rachel Barkow notes that federal prosecutors have often urged high sentences for precisely this reason.<sup>329</sup> If litigation becomes more productive, then, while both sides may benefit from greater ability to assimilate evidence, prosecutors may especially benefit. Prosecutors offer plea bargains in part because they would not have enough time to litigate more cases.<sup>330</sup> Thus, if prosecutors can prosecute more cases, the result may be that they can obtain sentences above the levels that legislators would have chosen, absent an attempt to increase leverage. But at least in cases in which judges have sentencing discretion, the consequence of increased sentences might be averted. The more openly legal productivity trends are discussed, the more likely judges will be to adjust their

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325. See, e.g., John J. Donohue III & Peter Siegelman, *Law and Macroeconomics: Employment Discrimination Litigation over the Business Cycle*, 66 S. CAL. L. REV. 709, 711 (1993).

326. See, e.g., *VMG Salsoul, LLC v. Ciccone*, 824 F.3d 871, 874 (9th Cir. 2016) (providing a *de minimis* exception for sound recording sampling).

327. See 17 U.S.C. § 504(c) (providing for election of statutory damages rather than actual damages by copyright holder).

328. Russell M. Gold et al., *supra* note 35, at 1617.

329. See Rachel E. Barkow, *Institutional Design and the Policing of Prosecutors: Lessons from Administrative Law*, 61 STAN. L. REV. 869, 880 (2009).

330. Admittedly, this is not a full account of prosecutors' motivations, which may vary considerably. Albert Alschuler noted over 50 years ago that “[s]ome prosecutors declare without hesitation that one of their goals in bargaining is to nullify harsh, ‘unrealistic’ penalties that legislatures have prescribed for certain crimes.” Albert W. Alschuler, *The Prosecutor's Role in Plea Bargaining*, 36 U. CHI. L. REV. 50, 54-55 (1968). There is an empirical question as to whether prosecutors view bargains as discounts from or penalties added to the normative baseline. See generally Ben Grunwald, *Distinguishing Plea Discounts and Trial Penalties*, 37 GA. ST. U. L. REV. 261 (2021) (suggesting an empirical test).

decisionmaking based on changes in the economic environment of the legal profession.

### CONCLUSION

Magnetic north is often thought of as a constant, yet in reality, it slowly moves in the vicinity of the North Pole, and a dramatic change such as a geomagnetic reversal could reorient it to the South Pole.<sup>331</sup> If such a shift seemed potentially imminent, it would be prudent for designers of navigation systems with magnetic bearings to make adjustments so that their instruments could continue to function during the transition and beyond. The cost of justice similarly is a taken-for-granted assumption of the legal geosphere. Lawmakers implicitly may account for it when assessing the likelihood that a legal regime will achieve its aims or the transaction costs that it will require. But they generally do not allow for the possibility that the level of legal costs could change dramatically over time. Although a few legal scholars have concluded that tectonic shifts in costs may have occurred over time, our measurement apparatus is not sophisticated enough to confirm this with confidence, and our ability to anticipate future changes may be no better than geologists' ability to determine whether a geomagnetic reversal has begun. The legal system can adapt more smoothly to changes in productivity if it and thus cost are recognized as variable rather than constant. This Article's goal has been to encourage such recognition, to explain why this variable is difficult to measure or forecast, and to help facilitate any transition that AI may require.

If productivity changes relative to the economy are modest, then they may be difficult to detect, and few will change their normative positions on issues like arbitration or contracts of adhesion. On the other hand, those who are most bullish about AI anticipate a degree of transformation so great as to thwart any attempt to prepare for it.<sup>332</sup> If AI were in fact to reach superintelligence, that could have such profound implications for the design of our democratic institutions as to make any speculation about lawyers' role in access to justice speculative. Yet it is possible that the legal system could continue to work similarly in its fundamental outlines but with noticeably lower costs. Absent a conversation about the relationship between legal productivity and institutions, change will leave most legal actors continuing to advocate for their priors, and once partisan positions emerge following

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331. See, e.g., U.S. Geological Service, *Is It True That Earth's Magnetic Field Occasionally Reverses Its Polarity?*, <https://www.usgs.gov/faqs/it-true-earths-magnetic-field-occasionally-reverses-its-polarity> [<https://perma.cc/4FCV-574J>] (last visited Dec. 9, 2023) (noting, however, that this is likely to occur only very slowly).

332. See RAY KURZWEIL, *THE SINGULARITY IS NEAR: WHEN HUMANS TRANSCEND BIOLOGY* (2006) (borrowing the physics metaphor of a "singularity," referring to a point where predictions and models break down).

a new cost structure, they will be difficult to dislodge. We would then be dependent for adaptation not on common law evolution but on the slow and unpredictable process of legal reform.

