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REGULATING PATENTS

Imagine the following scenario: In 1972, instead of creating the Environmental Protection Agency,¹ Congress passes the Environmental Pollution Act, which states that “no person shall be permitted to emit any pollutant in a manner that unreasonably endangers human health” and provides for civil penalties and injunctive relief against violators. After the statute takes effect, eager plaintiffs begin filing cases against industries that they believe are breaking the law. The courts are then faced with the task of sorting out which suits are meritorious and which are not, a process that naturally involves interpreting what it means for a pollutant to “unreasonably” endanger human health.

Immediately, of course, the courts run into significant difficulties. A factory that is emitting significant amounts of mercury directly into a source of drinking water is obviously in violation, but what about a factory that emits smaller amounts of mercury into the ocean? What about a factory that emits substantial quantities of carbon monoxide, a known carcinogen, but has installed cutting-edge technology to mitigate these emissions as much as possible?

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¹ To be precise, President Nixon formed the EPA by reorganizing a number of different subagencies that Congress had created. See note 113.

Or consider a third factory that produces water bottles made with BPA, a chemical that may (or may not) cause adverse health effects in humans.² This factory could cease using BPA in its manufacturing processes, but that would mean inferior bottles, perhaps without any environmental benefit.

Not surprisingly, courts find themselves poorly equipped to evaluate the relevant scientific and economic questions. They cannot determine consistently or reliably how harmful a particular pollutant really is, and in what doses. They struggle with the inevitable economic trade-offs involved in banning environmental pollutants. If restricting the emission of a chemical will save one life but lead to the loss of 10,000 jobs, does that chemical pose an “unreasonable” threat to human health? The courts have no workable metric for deciding. The result is a patchwork of environmental prohibitions that may not do much to protect humans or the environment, and may involve counterproductive and costly economic trade-offs that few people would be willing to accept.

The institutional arrangement described in this scenario will likely strike most readers as inadvisable. It makes little sense to entrust generalist judges with a task as technically complicated as determining which environmental emissions are dangerous, and at what economic cost they should be regulated. The courts have limited technical expertise and little institutional ability to conduct the necessary studies and analyses. If it is necessary to regulate environmental pollutants, better to delegate regulatory authority to the Environmental Protection Agency than the courts. Congress has indeed taken this approach.

As ill-conceived as judge-driven environmental policy might seem, a similar arrangement prevails in the equally technocratic field of patent law. The Patent Act is written in broad terms, permitting patents on any “new and useful process, machine, manufacture, or composition of matter.” Congress has not significantly amended the Patent Act since 1952, and the Patent and Trademark Office (PTO) has never had substantive rule-making authority.³

² See Adam Hinterthuer, *Just How Harmful Are Bisphenol A Plastics?* Scientific American (Aug 26, 2008), online at <http://www.scientificamerican.com/article.cfm?id=just-how-harmful-are-bisphenol-a-plastics>.

³ See Clarisa Long, *The PTO and the Market for Influence in Patent Law*, 157 U Pa L Rev 1965, 1968 (2009); *Animal Legal Defense Fund v Quigg*, 932 F2d 920, 930 (Fed Cir 1991) (interpreting the Patent and Trademark Office’s rule-making authority as extending only to the procedures used in the course of examination).

Courts, therefore, have taken center stage. In particular, the Federal Circuit has assumed near-total authority over patent policy and doctrine, which is a position held by no other appellate court over any area of law. The result has not been felicitous. The Federal Circuit has been roundly criticized for promulgating overly formalistic doctrines that ignore pragmatic considerations, tolerating uncertainty and confusion on key points of law, enhancing the power of patent holders to the point of diminishing innovation, and failing to distinguish technological fields in which patents are necessary from those in which they are not.⁴

In recent years, the Supreme Court has intervened to address some of the Federal Circuit's more glaring faults. Since 2005, the Court has decided seven patent cases⁵—a startling number given the Court's traditional reluctance to involve itself in patent matters.⁶ The most recent and most important of these forays came during the October 2009 Term, in *Bilski v Kappos*.⁷ The case posed the question whether inventors could patent “business methods” (that is, processes for running a business that do not necessarily involve any physical product) or other similarly intangible processes. *Bilski* held potentially enormous economic significance. Thousands of patents on business methods and other intangible processes are granted each year, even though the Supreme Court had never before passed on their validity. Moreover, many scholars now believe that these types of patents are counterproductive: By increasing transaction costs and creating anticommons problems, they might well

⁴ See generally Dan L. Burk and Mark A. Lemley, *The Patent Crisis and How the Courts Can Solve It* 21 (Chicago, 2009); James Bessen and Michael J. Meurer, *Patent Failure* (Princeton, 2008); Adam B. Jaffe and Josh Lerner, *Innovation and Its Discontents: How Our Broken Patent System Is Endangering Innovation and Progress, and What to Do About It* (Princeton, 2004).

⁵ See *Bilski v Kappos*, 130 S Ct 3218, 3225 (2010); *Quanta Computer, Inc. v LG Electronics, Inc.*, 553 US 617, 625 (2008); *Microsoft Corp. v AT&T Corp.*, 550 US 437, 447 (2007); *KSR Intern Co. v Teleflex Inc.*, 550 US 398, 407 (2007); *MedImmune, Inc. v Genentech, Inc.*, 549 US 118, 122 (2007); *eBay Inc. v MercExchange, LLC*, 547 US 388, 391 (2006); *Merck KGaA v Integra Lifesciences I, Ltd.*, 545 US 193, 202 (2005). The Court has also granted certiorari in three more patent cases for the 2010 Term. See *Microsoft Corp. v i4i Limited Partnership, et al*, 2010 WL 3392402 (2010); *Board of Trustees of the Leland Stanford Junior University v Roche Molecular Systems, Inc.*, 131 S Ct 501 (2010); *Global-Tech Appliances, Inc. v SEB S.A.*, 131 S Ct 458 (2010).

⁶ See John M. Golden, *The Supreme Court as “Prime Percolator,”* 56 UCLA L Rev 657, 658 (2009) (“[T]he Supreme Court has, in the past six years, asserted its dominion over patent law with frequency and force.”).

⁷ 130 S Ct 3218 (2010).

discourage innovation more than they encourage it.⁸ Many commentators thus hoped that the Court would use *Bilski* to limit the sorts of intangible processes that can be patented.

As it turned out, the Supreme Court did no such thing. Rather, *Bilski* merely reaffirmed the well-known principle that “abstract ideas” cannot be patented, without providing guidance on whether business methods and software algorithms are abstract ideas, or even explaining how to define abstract ideas in the first instance.⁹ It is easy to view this outcome as a lost opportunity for the Court to correct the Federal Circuit’s excesses.

But it is worth pausing to consider more thoroughly what, precisely, the Supreme Court could or should have done. Whether to allow patents on business methods is a highly complex economic question, one that requires balancing the incentives for innovation provided by patents against the costs that monopoly rights impose upon innovators and market entrants. These issues are layered upon the technological complexity that surrounds patent law. To make sensible judgments, courts must first understand the technology and markets involved, and then parse the economic details.

These are tasks to which courts have never been well suited. Indeed, the courts themselves have implicitly recognized this fact—including prominently in *Bilski*. There, the Court acknowledged that questions of patentability should be resolved with reference to economics, with patents granted only where they will promote, rather than hinder, innovation.¹⁰ Yet the majority did not attempt any such analysis. Instead the Justices fell back on traditional tools of statutory interpretation: text, doctrine, and history. Perhaps likewise recognizing their own limitations, the judges on the Federal Circuit have appeared equally unwilling to engage the key economic issues at anything other than a doctrinal level, in *Bilski* or elsewhere.

These are not earthshaking revelations. In areas of regulation ranging from securities, to pharmaceutical drugs, to transportation, to the environment, policymakers have turned instead to expert administrative agencies, perhaps because they understood the institutional deficiencies of courts. This general trend toward agency policymaking in technical fields comes with good reason. Absent

⁸ See Burk and Lemley, *The Patent Crisis* at 31 (cited in note 4).

⁹ See *Bilski*, 130 S Ct at 3225.

¹⁰ See *id* at 3228–29.

input from an agency or the legislature, the federal courts have repeatedly proved inadequate to the task of setting sound patent policy. Yet the institutional design for patent law remains an outlier. Patent law is a highly technically complex regulatory field controlled entirely by the courts. Similarly, the PTO is one of the only federal administrative agencies to lack any semblance of substantive rule-making authority.

The time has come to consider reorienting patent law's institutional arrangements to bring them more into line with the rest of the administrative state. And the most straightforward means of achieving this would be for Congress to endow the PTO with substantive rule-making authority.

Such a change could produce significant benefits for patent law. A properly empowered PTO could bring expertise and institutional resources to bear on complex questions of patent policy to a degree unthinkable within the federal courts. In addition, the patent office currently produces enormous quantities of useful information but has no reliable mechanism for transmitting that information to the Federal Circuit, in part because the Federal Circuit does not have the proper incentives to accept and utilize that information. Substantive rule-making power would allow the PTO to utilize its substantial informational resources in crafting intelligent patent policy and would permit the agency to design rules that respond to particular technological developments in specific fields. Where Federal Circuit hegemony has failed to generate sensible patent policy, intervention by the PTO may yet succeed.

My argument is comparative, first and foremost. It may be that patent questions should be decided with respect to moral or deontological considerations, not economic ones. However, modern theories of patent law center almost entirely around economic considerations.¹¹ Economics plays as large a role in contemporary understandings of the shape and scope of patent law as it does in nearly any other field. Accordingly, I simply adopt an economic perspective here while recognizing that some observers may favor a different approach. Similarly, I do not argue that all or even most areas of regulation should be entrusted to agencies rather than

¹¹ See, for example, Burk and Lemley, *The Patent Crisis* at 66 (cited in note 4) ("It is true that there have been a few theories of patent law based in moral right, reward, or distributive justice, but to be blunt they are hard to take seriously as explanations for the actual scope of patent law.").

courts. Rather, the point is that the case for agency authority is at least as strong for patent law as it is in environmental law, securities law, food and drug law, or any other major area of regulation.¹² Agencies have long held primary substantive rule-making authority in those fields and many others. Unless one believes that the administrative state should be dismantled wholesale, there is no compelling reason to resist granting substantive rule-making authority to the PTO.

This article proceeds in three parts. Part I describes the *Bilski* decision and explains how it exposes courts' fundamental inability to solve the technically complex problems that surround patent law. Part II explores the reasons behind the courts' historical dominance of patent law in contrast to the power of agencies in other fields, and concludes that it is little more than a historical accident. Part III lays out the affirmative case for granting substantive rule-making authority to the PTO and addresses possible objections to that new institutional arrangement. There is no reason, modern or historical, for allowing the judiciary to continue as the sole steward of patent law and policy.

I. BILSKI AND THE FAILURE OF THE COURTS

At the most basic level, the objective of the patentability doctrines—those legal rules that govern which inventions can be patented and which cannot—is to allow patents on inventions that would not otherwise be created (or disseminated) without the incentive provided by a monopoly right.¹³ It is for this reason that an invention must be novel¹⁴ and nonobvious¹⁵ in order to be pat-

¹² See Part II.F.

¹³ See Robert Patrick Merges and John Fitzgerald Duffy, *Patent Law and Policy: Cases and Materials* 253–56 (LexisNexis, 3d ed 2007) (describing the incentive systems meant to drive the patent law); Donald S. Chisum et al, *Principles of Patent Law* 6 (West, 1998). There are other potential objectives behind the rules governing patentability, including reducing transaction costs for follow-on inventors, see Michael A. Heller and Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 *Science* 698, 700 (1998), avoiding rent-dissipating races, see Mark F. Grady and Jay I. Alexander, *Patent Races and Rent Dissipation*, 78 *Va L Rev* 305, 317 (1992), and avoiding duplicative research, see generally Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 *J L & Econ* 265 (1977). I do not pause to dwell on these additional goals because they are essentially aligned with the objective of dynamic efficiency: the production of the greatest amount of innovation at the lowest economic cost.

¹⁴ 35 USC § 102.

¹⁵ 35 USC § 103.

entable. It is not necessary to provide inventors with incentives to create or disclose an invention that is already in the public domain.¹⁶

In addition to these limitations, patent law also imposes the baseline requirement that an invention comprise “patentable subject matter.” That is, the invention must be a “process, machine, manufacture, or composition of matter.”¹⁷ Courts and commentators have understood this language to mean that there are some types of inventions (and perhaps even some fields of endeavor) that cannot be patented even if they are novel and nonobvious.¹⁸

What could be the purpose of barring patents on certain types of inventions, even if they are novel and not obvious? If there is a basis for doing so, it must be that certain types of patents will be more harmful than beneficial—that the inefficiencies caused by allowing patents on these inventions will exceed the benefits of providing additional inducement for their development.¹⁹ Indeed, it is now clear that patents function very differently in different industries.²⁰ In some industries they are almost certainly essential to incentivizing innovation; in others they likely inhibit research and development more than they promote it.²¹

The reasons are multiple. In industries where up-front innovation costs are high but copying costs are low, firms would lack the proper incentives to innovate without the ability to acquire patents.²² For instance, no pharmaceutical company will attempt to bring a drug to market without a patent for fear that a generic competitor will simply appropriate the idea.²³ On the other hand, in other industries first-mover advantage and other nonpatent business strategies can be enough to encourage firms to proceed with research and development, even where patent protection is uncertain.²⁴ In these

¹⁶ See Chisum et al, *Principles of Patent Law* at 335 (cited in note 13).

¹⁷ 35 USC § 101.

¹⁸ See Michael Abramowicz and John F. Duffy, *Intellectual Property for Market Experimentation*, 83 NYU L Rev 337, 344 (2008).

¹⁹ See Burk and Lemley, *The Patent Crisis* at 31 (cited in note 4).

²⁰ See id at 27–40.

²¹ See id at 40.

²² See, for example, id at 66–68; see also Mark A. Lemley, *The Economics of Improvement in Patent Law*, 75 Tex L Rev 989, 994–95 (1997); Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U Chi L Rev 1017, 1024–28 (1989).

²³ See Burk and Lemley, *The Patent Crisis* at 143–44 (cited in note 4).

²⁴ See, for example, Dennis D. Crouch, *The Patent Lottery: Exploiting Behavioral Economics*

industries, competition is the best catalyst of invention. The software, computer, and semiconductor industries appear to fit this mold.²⁵

At the same time, the proliferation of patents almost certainly threatens greater economic harm in some industries than in others.²⁶ For instance, some industries are characterized by patent thickets²⁷ and anticommons problems.²⁸ Firms that wish to innovate must negotiate licenses on large numbers of extant patents and consequently face high transaction costs.²⁹ The software and semiconductor industries are widely believed to suffer from these problems.³⁰ Conversely, the biotechnology industry may be much less susceptible to growth in transaction costs, as each pharmaceutical compound is typically covered by only one patent.³¹ Under these circumstances, a sensible patent policy would prohibit, or at least limit, patents within certain technological fields while allowing them in others.

A. JUDICIAL MANAGEMENT OF PATENT POLICY

It was within this context that *Bilski* reached the Supreme Court. The case concerned a patent on a method for hedging risk in the

for the Common Good, 16 Geo Mason L Rev 141, 145–46 (2008) (“Many non-patent factors drive innovation and can in some instances make patents irrelevant. These include the desire for a first-mover advantage. . . .”); Burk and Lemley, *The Patent Crisis* at 72–73 (cited in note 4).

²⁵ See Burk and Lemley, *The Patent Crisis* at 82–85 (cited in note 4).

²⁶ See Mark A. Lemley, *Industry-Specific Antitrust Policy for Innovation* (Stanford Law and Economics Olin Working Paper No 397, Sept 2010), online at http://www.ssrn.com/abstract_id=1670197.

²⁷ “Patent thickets” arise in industries in which multiple overlapping patents cover a single invention. See Burk and Lemley, *The Patent Crisis* at 77–78 (cited in note 4). For instance, there might be hundreds of patents that read on a single integrated circuit design, many of them on the same parts of the circuit.

²⁸ A patent anticommons is a situation in which multiple patents cover sequential parts of an invention. See Burk and Lemley, *The Patent Crisis* at 75–77 (cited in note 4). For instance, there might be a patent on a purified DNA sequence, a patent on the protein that this DNA sequence codes for, a patent on a process for artificially manufacturing this protein, a patent on a pharmaceutical compound incorporating this protein, and a patent on a means for delivering this compound to a patient (such as a pill). A pharmaceutical company that wished to manufacture this pill would be forced to license all of these patents. The threat of an anticommons is the explanation usually offered for the prohibition on patenting abstract ideas. See *Diamond v Diebr*, 450 US 175, 185 (1981).

²⁹ See Heller and Eisenberg, 280 Science at 700 (cited in note 13).

³⁰ See Burk and Lemley, *The Patent Crisis* at 86–92 (cited in note 4).

³¹ See Mark A. Lemley, *Ten Things to Do About Patent Holdup of Standards (and One Not to)*, 48 BC L Rev 148, 149 (2007).

movement of commodities prices, which is a prototypical method for doing business. Over the past several decades, business methods,³² tax methods,³³ software algorithms,³⁴ and other intangible processes have been patented in increasing numbers.³⁵ Yet the Court had never before considered whether these types of inventions were patentable. Meanwhile, some scholars have suggested that patents in many of these fields were unnecessary, or even counterproductive. Many observers believed that the Supreme Court agreed and would impose significant limits on patents in these fields.³⁶

In *Bilski*, the Court acknowledged the role that subject matter limitations should play in restricting patenting where it might be harmful. As Justice Kennedy explained for the Court, “[i]f a high enough bar is not set . . . patent examiners and courts could be flooded with claims that would put a chill on creative endeavor and dynamic change.”³⁷ For all intents and purposes, however, the Court stopped there. It resisted calls for categorical limitations on patents for business methods and similar inventions,³⁸ and it refused to provide guidance on how patent law should “strick[e] the balance between protecting inventors and not granting monopolies over procedures that others would discover. . . .”³⁹ The Court’s only instructions for the rest of us were a generic reaffirmation that abstract ideas cannot be patented and a declaration that Bernard Bilski’s particular patent was invalid on that ground. The Court’s opinion did not specify any helpful legal standard to

³² See *State Street Bank v Signature Financial Group*, 149 F3d 1368, 1375 (Fed Cir 1998).

³³ See, for example, *Transamerica Life Ins. Co. v Lincoln Nat. Life Ins. Co.*, 597 F Supp 2d 897 (ND Iowa 2009).

³⁴ See generally *In re Beauregard*, 53 F3d 1583 (Fed Cir 1995) (allowing software patent); *In re Alappat*, 33 F3d 1526, 1544 (Fed Cir 1994) (en banc) (same).

³⁵ See Justin M. Lee, *The Board Bites Back: Bilski and the B.P.A.I.*, 24 Berkeley Tech L J 49, 49 (2009) (describing the “period of considerable expansion in subject-matter eligibility”).

³⁶ See, for example, Joe Mullin, *Supreme Skepticism Over Bilski Claims Puts Method Patents on Shaky Ground*, AmLaw Daily (Nov 9, 2009), online at <http://amlawdaily.typepad.com/amlawdaily/2009/11/bilski.html>; Tony Mauro, *Bilski Case Provokes Patent Skepticism from Justices*, BLT: The Blog of Legal Times (Nov 9, 2009), online at <http://legaltimes.typepad.com/blt/2009/11/bilski-case-provokes-patent-skepticism-from-justices.html>.

³⁷ *Bilski*, 130 S Ct at 3229.

³⁸ See *id* at 3227.

³⁹ *Id* at 3229.

employ when determining whether an invention constitutes an abstract idea.⁴⁰

Justice Stevens's concurrence fared slightly better. The majority of the concurrence is a lengthy analysis of text, precedent, and history—the standard tools of statutory interpretation.⁴¹ However, at the end of his opinion Justice Stevens explained that patents should be granted only when “a patent monopoly is necessary to motivate the invention” and attempted to determine whether business methods qualify under that standard.⁴² After canvassing some of the scholarly literature on business method patents, Stevens concluded that they did not.⁴³

This is an improvement on the majority, but it demonstrates the limitations of judicial analysis. Stevens cites many leading patent scholars,⁴⁴ but he does not so much as mention any of the scholars who support business method patents.⁴⁵ The concurrence does not grapple with the competing positions; the case against business methods is stated in conclusory fashion.⁴⁶ Accordingly, it is difficult to have much confidence in Justice Stevens's analysis, even if one were inclined to credit the Supreme Court for an approach that could not garner five votes.⁴⁷

1. *Patent economics in the courts.* To some, the Court's general unwillingness to analyze came as a disappointment. But it is easy to understand the Supreme Court's reticence. Suppose that the Court was willing to consider the possibility that patents should

⁴⁰ See *id.* at 3226–27.

⁴¹ See *id.* at 3231–52 (Stevens, J, concurring in the judgment).

⁴² *Id.* at 3253 (Stevens, J, concurring in the judgment) (quotation marks omitted).

⁴³ See *id.* at 3252–56.

⁴⁴ See *id.*

⁴⁵ See, for example, Richard A. Epstein, *The Disintegration of Intellectual Property? A Classical Liberal Response to a Premature Obituary*, 62 *Stan L Rev* 455, 484 (2010); Brief of Dr. Ananda Chakrabarty as Amicus Curiae in Support of Petitioners, *Bilski v Kappos*, No 08-964, at *15–*23 (filed Aug 6, 2009) (available on Westlaw at 2009 WL 2481328) (written by Richard A. Epstein and F. Scott Kieff).

⁴⁶ Notably, the only concession Justice Stevens makes to countervailing argument is one sentence buried in a footnote: “Concededly, there may be some methods of doing business that do not confer sufficient first-mover advantages.” *Bilski*, 130 S Ct at 3254 n 51 (Stevens, J, concurring in the judgment), citing Abramowicz and Duffy, 83 *NYU L Rev* at 337, 340–42 (cited in note 18).

⁴⁷ I mean to take no position on the underlying question of whether business methods should be patentable. But I hasten to add that if I were forced to choose a side I would most likely agree with Justice Stevens. My criticism of his analysis has nothing to do with my view of his ultimate conclusion.

not be allowed in certain technological fields, or at least that the bar to them should be raised substantially. How was the Court to judge whether it should reduce patenting of business methods, or tax strategies, or software, or any number of other possible fields of endeavor? These are complicated economic questions with difficult empirical dimensions, precisely the type of questions that courts are not well positioned to answer. Courts have no resources to conduct economic studies and no staff qualified to interpret them.⁴⁸ Typically, a court is limited to perusing the amicus briefs filed by outside parties, most of whom have a vested interest in the outcome of the case.⁴⁹ These are not reliable, neutral sources of information, much less comprehensive examinations of such complicated issues. Nor do courts have the capacity to compare and evaluate competing technical arguments, which the two sides to an issue will inevitably provide.⁵⁰ The shortcomings of even the *Bilski* concurrence lay bare these limitations. Not surprisingly, then, evidence indicates that the Federal Circuit is not significantly influenced by amicus briefs.⁵¹ This may very well be for the best.

This issue is not limited to business method patents. For instance, a district court recently declared that isolated and purified gene sequences are unpatentable as “products of nature.”⁵² This would be a momentous ruling were it to stand. Molecular genetics is a multi-billion-dollar industry in the United States alone, and many firms have business models dependent largely on obtaining patents on gene sequences. Eliminating gene patents might dampen important innovation. On the other hand, doing so might reduce the transaction costs involved in developing pharmaceuticals and gene therapies.⁵³ Not surprisingly, the district court

⁴⁸ See Peter Lee, *Patent Law and the Two Cultures*, 120 Yale L J 2, 20–25 (2010).

⁴⁹ In some cases a court could retain a special master to evaluate the economic issues presented by a particular case. This might well be an improvement on typical judicial decision making. At the limit, however, it reduces to ad hoc expert decision making—a less desirable version of typical agency action. I discuss this point further below.

⁵⁰ See Richard Posner, *The Law and Economics of the Economic Expert Witness*, 13 J Econ Persp 91, 96 (1999).

⁵¹ See Colleen V. Chien, *Patent Amicus Briefs: What the Courts' Friends Can Teach Us About the Patent System*, U Cal Irvine L Rev (forthcoming) (manuscript at 25–28) (finding that amicus briefs exert very little influence on the Federal Circuit), online at http://www.ssrn.com/abstract_id=1608111.

⁵² See *Association for Molecular Pathology v U.S. Patent and Trademark Office*, 702 F Supp 2d 181, 222 (SDNY 2010).

⁵³ See Heller and Eisenberg, 280 Science at 700 (cited in note 13).

opinion mentioned none of these possible economic consequences. Instead the judge presented a straightforward doctrinal analysis of whether “purification” was enough to transform a natural product into a patentable invention.⁵⁴

The result of *Bilski* is to return the issue to the Federal Circuit and allow that body to develop the law further. But it is hard to imagine that court faring much better. With the same lack of resources and absence of staff expertise, the Federal Circuit is no better equipped to make difficult economic judgments than the Supreme Court. The Circuit decides a large number of patent cases every year, but those cases only represent a small fraction of the economic activity involving patents in any given industry. While any court will struggle with complex economic issues, it is particularly difficult for a court to ascertain the answer to questions such as whether patents are harmful or beneficial within a given field. The problem is that the vast majority of the relevant economic action takes place outside of the courtroom. Patents will be harmful where they create thickets or anticommons and raise transaction costs for new innovators;⁵⁵ they will be beneficial where they incentivize invention that would not otherwise occur. Courts cannot observe either activity.

It is certainly not news that courts struggle with difficult economic questions. Scholars have recognized this issue most prominently within the field of antitrust—the other area of federal law in which judges are the primary policymakers.⁵⁶ Yet this criticism has largely been confined to antitrust law. The likely explanation is that the Sherman Antitrust Act explicitly calls for an economic judgment: any contract “in restraint of trade” is illegal.⁵⁷ Patent law, by contrast, embeds its economic judgments within doctrine. An invention is only patentable if it is novel, nonobvious, and

⁵⁴ See *Association for Molecular Pathology*, 702 F Supp 2d at 226–27.

⁵⁵ See Ian Ayres and Paul Klempere, *Limiting Patentees' Market Power Without Reducing Innovation Incentives: The Perverse Benefits of Uncertainty and Non-Injunctive Remedies*, 97 Mich L Rev 985, 1018–20 (1999); Heller and Eisenberg, 280 Science at 698–99 (cited in note 13).

⁵⁶ See Richard Posner, *Economic Analysis of Law* 249 (Aspen, 7th ed 2007); Michael R. Baye and Joshua D. Wright, *Is Antitrust Too Complicated for Generalist Judges?* J L & Econ (forthcoming 2010), online at http://www.ssrn.com/abstract_id=1319888; William Kovacic and Carl Shapiro, *Antitrust Policy: A Century of Economic and Legal Thinking* (U of Cal–Berkeley, Center for Competition Policy Working Paper No CPC99-09, October 1999), online at http://www.ssrn.com/abstract_id=506284.

⁵⁷ 15 USC § 1.

involves a “process, machine, manufacture, or composition of matter,” and none of these doctrinal elements overtly demands an economic analysis. Patent judges have thus clung tenaciously to the legal language of patent law, refusing to engage directly with the economic issues at hand.

This arrangement would be suitable if there were reason to believe that the Patent Act already incorporated sound economic judgment on the part of Congress. While such a claim might have been sustainable fifty years ago, it no longer appears plausible. The Patent Act was last amended in 1952, a time that precedes almost all business method, software, and tax patents, and even the modern computer and semiconductor industries.⁵⁸ These industries may very well have different market structures than other major areas of patenting such as machinery and pharmaceuticals, and those different market structures may dictate divergent reactions to the availability of patents. If patents diminish innovation and social welfare in some of these fields more than they increase it, as critics of expansive patent rights maintain, then the patent system ought to adjust accordingly. It makes no sense to pretend that Congress somehow managed to embed the proper rules into the act’s terse language in 1952 (and before), and that the courts need merely divine Congress’s intent. If courts are not well equipped to make economic judgments, there is no reason to believe that decades-old verbal formulations provide the answers.

2. *The particular problems with subject matter distinctions.* These problems are endemic to any situation involving complex empirical questions. But the difficulties the Supreme Court would face in formulating a sensible doctrine of patentable subject matter run even deeper. Suppose that the Court wished to wall off business methods as unpatentable. Consider the various verbal formulations that the Court might have adopted. The Federal Circuit’s original test asked whether an invention created a “useful, concrete, and tangible result.”⁵⁹ This is far too permissive. Nearly any type of business method—a method of sale, a means of organizing a business, or a strategy for structuring taxable income—creates a tangible result of one type or another, if only indirectly, simply by altering the way in which people exchange goods or services.

⁵⁸ See Long, 157 U Pa L Rev at 1968 (cited in note 3).

⁵⁹ *In re Alappat*, 33 F3d 1526, 1544 (Fed Cir 1994) (en banc).

In *Bilski*, the Federal Circuit settled on what is known as the “machine-or-transformation test”: an invention is patentable if it involves a machine or transforms matter.⁶⁰ But this test might itself be dramatically under- or overinclusive, depending upon how capaciously it is understood. The principal issue is whether a general-purpose computer, appended to a claim, would constitute a machine for purposes of the test. If it did not, the test would likely exclude a host of inventions not commonly thought of as business methods, including software. This may be undesirable. And if the machine-or-transformation test *did* permit the patenting of abstract process claims to which a general-purpose computer had been attached, it would likely have little or no force. A large proportion of modern business methods require a computer to run. (Consider Amazon.com’s archetypal “one-click” patent.⁶¹) Requiring a computer as an element would not greatly limit the scope of patent claims.

Finally, the Court could have declared as a matter of doctrine that “business methods cannot be patented.” But precisely defining “business method” is not a trivial exercise. After all, most inventions—from farm machinery to pharmaceuticals to industrial processes—are “methods of running a business” in the most general sense. Business methods are defined most prominently by what they are *not*, namely, tangible objects. Similar problems of definition will plague attempts to flesh out the Supreme Court’s prohibition on “abstract ideas” as well, especially considering that the Court rejected the machine-and-transformation test as the sole guide for determining whether a patent was merely an abstract idea.⁶²

The courts could commence the laborious process of drawing a boundary around the concept of business methods, but they would face a patent bar working to find new ways to draft patents to evade the courts’ rules. The result would be a flood of litigation on the issue and a substantial degree of uncertainty regarding what is patentable. While the Federal Circuit is in the process of deciding which inventions are business methods and which are not, the PTO might well be making its own errors of under- and

⁶⁰ See *In re Bilski*, 545 F3d 943, 957 (Fed Cir 2008) (en banc).

⁶¹ See *Amazon.com, Inc. v Barnesandnoble.com, Inc.*, 239 F3d 1343 (Fed Cir 2001).

⁶² *Bilski*, 130 S Ct at 3226.

overinclusion—issuing patents that are later understood to be invalid, or refusing to grant patents that it should. These errors create significant social costs.⁶³

Eventually, the courts likely would settle upon a workable understanding of business methods and the number of difficult cases would diminish. Yet this would only return to the earlier problem: in the course of finding a common-law solution to the question of what constitutes a business method patent, there is no reason to believe that the Federal Circuit would have the ability or the inclination to evaluate the difficult economic issues involved. Indeed, there is evidence that the Federal Circuit relies even more heavily on doctrine and is even more reticent than the Supreme Court to address patent questions in economic terms.⁶⁴

B. OTHER PATENT DOCTRINES

Bilski lays bare the courts' ultimate unsuitability in deciding the complex economic questions that underlie patent law. But the issue of patentable subject matter is hardly the only area in which the courts' shortcomings are manifest. In a number of areas, courts struggle badly with the trade-off between allowing too few patents and too many.

There are more optimistic views. In their recent book, *The Patent Crisis and How the Courts Can Solve It*, Dan Burk and Mark Lemley offer the most sustained and cogent defense to date of the role of courts in managing the patent system. Burk and Lemley advance and defend the idea, described earlier, that patents function differently across industries. Certain industries will benefit from broader patents and others from narrower ones; some from compulsory licensing and others from stronger patent remedies; some from higher barriers to patenting (utility, nonobviousness, or written description⁶⁵) and others from lower. Burk and Lemley argue that courts already possess the tools to fine-tune the rules governing patents in various industries. They point to a variety of doctrines—"patent levers"—that courts can employ to adjust

⁶³ See Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 *Nw U L Rev* 1495, 1503–08 (2001); Christopher R. Leslie, *The Anticompetitive Effects of Unenforced Invalid Patents*, 91 *Minn L Rev* 101 (2006).

⁶⁴ See Lee, 120 *Yale L J* at 25–35 (cited in note 48).

⁶⁵ The more demanding the requirements of utility and nonobviousness, the fewer the patents, and the later they will be granted in the life cycle of an invention.

the power or scope of patents from industry to industry, and they argue that the federal courts have in effect already created different patent rules for different types of technology.⁶⁶

Although Burk and Lemley's argument is nuanced and thorough, and they leave little doubt that these patent levers exist,⁶⁷ their analysis does not indicate that courts are using them properly in most circumstances. To the contrary, Burk and Lemley describe industry after industry in which the Federal Circuit has failed to select what the authors believe to be the proper rule, leading to patents that may do more harm than good.⁶⁸ After all, their book is titled *The Patent Crisis*. They obviously agree with the broad consensus that the patent system is functioning very poorly.⁶⁹

Burk and Lemley are also forthright in admitting that scholars may disagree about the rules that should govern each of these industries.⁷⁰ They characterize the outstanding questions as difficult economic issues that remain to be resolved by experts, and quite rightly so.⁷¹ Yet there is no reason to believe—and every reason to doubt—that courts could play that expert role. A number of recent cases have grappled with the doctrines of utility and nonobviousness in ways that could significantly alter the numbers and timing of patent grants.⁷² But courts deciding those cases have little idea whether they are balancing properly between these competing concerns. In general, they hardly appear to be trying. The cases are largely bereft of any indication that economic concerns played a role in the judges' decision making; their decisions are driven by text, precedent, and other traditional legal tools.

This sketch of some of the economic questions that courts have

⁶⁶ See Dan L. Burk and Mark A. Lemley, *Policy Levers in Patent Law*, 89 Va L Rev 1575, 1674–75 (2003).

⁶⁷ See Burk and Lemley, *The Patent Crisis* at 109–30 (cited in note 4).

⁶⁸ See, for example, *id.* at 116 (describing Federal Circuit misuse of person having ordinary skill in the art); *id.* at 148–49 (describing numerous ways in which the courts have formulated poor patent policy to govern the biotechnology industry); *id.* at 159 (stating, with respect to software patents, “[u]nfortunately, the Federal Circuit’s current standard seems to be precisely backwards”); *id.* at 160 (criticizing courts’ awards of excessive damages in software cases).

⁶⁹ See generally Jaffe and Lerner, *Innovation and Its Discontents* (cited in note 4) (describing the ways in which the patent system is functioning poorly); Bessen and Meurer, *Patent Failure* (cited in note 4) (same).

⁷⁰ See Burk and Lemley, *The Patent Crisis* at 169 (cited in note 4).

⁷¹ See *id.*

⁷² See, for example, *KSR Intern Co. v Teleflex Inc.*, 550 US 398 (2007) (revising the standard for obviousness).

left unanswered does not even touch upon the technical and scientific issues that judges are asked to decide in the course of nearly every patent case, issues that they are equally poorly prepared to handle. In the regular course of litigation, generalist judges must determine whether a patent describes a technically complex invention sufficiently well that a person skilled in the relevant technology could recreate it, or whether an invention is obvious in light of two or more prior inventions in related fields. It is almost to state the obvious to observe that untrained judges cannot perform these tasks well. Even the Federal Circuit is little better off: of the twelve active judges on the court, only five of them had practiced or taught patent law before joining the court, only six have even undergraduate degrees in technical fields, and none has an advanced degree in economics.⁷³ It is thus puzzling that the Federal Circuit has managed to acquire a reputation as an expert court.

Of course, it is possible that even after sustained examination some of these patent questions will not yield economic answers. The economics of innovation are hardly straightforward. But if any institutional actor is capable of providing such answers, it is not likely to be the federal courts.

C. OBJECTIONS AND CAVEATS

1. *The judicial role.* Some scholars and judges—indeed, many members of the current Supreme Court—might sidestep the foregoing critique on the ground that it misunderstands the judicial role. On one view, deciding which inventions represent “patentable subject matter” simply involves interpreting section 101 of the Patent Act. Judges, on this account, are meant to decide questions of statutory interpretation with reference only to traditional legal materials (such as statutory text, structure, judicial precedent, and legislative history), and not economic theory or empirics.⁷⁴

⁷³ See *Federal Circuit—Judicial Biographies*, available online at <http://www.cafc.uscourts.gov/judgbios.html>.

⁷⁴ See, for example, Anthony J. Bellia, *State Courts and the Interpretation of Federal Statutes*, 59 Vand L Rev 1501, 1513 (2006), quoting 1 William Blackstone, *Commentaries on the Laws of England* 59 (1765) (“The fairest and most rational method to interpret the will of the legislator, is by exploring his intentions at the time when the law was made, by signs the most natural and probable. And these signs are either the words, the context, the subject matter, the effects and consequence, or the spirit and reason of the law.”); William N. Eskridge, *All About Words: Early Understandings of the “Judicial Power” in Statutory Interpretation, 1776–1806*, 101 Colum L Rev 990, 1000 (2001).

Accordingly, this story goes, a critique of judges as incapable of addressing such complex economic or technical issues misses the mark.

It may be precisely *because* courts are ill-equipped to delve into complicated economic matters that they are best advised to adhere closely to traditional legal materials when interpreting statutes. This is only a possibility; a full theory of statutory interpretation is well beyond the scope of this article. Regardless of the proper theory, however, the point is the same: there is no reason to have a patent system that does not structure incentives to promote innovation. If courts, as a matter of institutional role, should not be taking such considerations into account, then responsibility for setting baseline patent rules should be transferred to an institution that can address such questions.

2. *The uniqueness of patent law?* If the foregoing argument regarding the comparative disadvantage of courts is correct, it raises a separate issue: why should it apply only to patent law? Many if not all common-law doctrines—such as the judge-made elements of contract and tort law—produce significant economic consequences. Courts may be unable to address competently the economic issues presented by, for instance, the choice between negligence and strict liability in tort, or various treatments of liquidated damages clauses in contract. Early law and economics scholarship maintained that the common law would naturally evolve toward efficient rules,⁷⁵ but that theory remains unsupported.⁷⁶

Some readers might recoil against any argument suggesting that classic common-law fields are better handled by institutions other than courts. Even if that reaction turns out to be correct, however, it would not necessarily defeat the argument presented here. There are several reasons to believe that judges are especially ill-suited to setting the rules of patent law.

First of all, the existing rules of patent law have been roundly criticized, and to a degree currently unequaled within the common

⁷⁵ See Posner, *Economic Analysis of the Law* at 249–50 (cited in note 56).

⁷⁶ See Paul H. Rubin, *Why Is the Common Law Efficient?* 6 J Legal Stud 51, 61–63 (1977) (criticizing the notion that the common law necessarily evolves toward efficiency and offering a more realistic account of legal change); Nicola Gennaioli and Andrei Shleifer, *Overruling and the Instability of the Law*, 35 J Comp Econ 309, 323–25 (2007) (arguing that overruling precedent leads to instability and prevents the common law from evolving toward efficiency).

law.⁷⁷ If judges appear to be performing adequately, there seems little reason to reallocate responsibilities. The indictment of judges as stewards of the patent law is driven by the fact that patent law seems to have strayed far from its optimal course.

Second, the economic questions underlying patent law may simply be more difficult for judges than those involved in typical common-law rules. According to Richard Posner, “Many common law doctrines are economically sensible but not economically subtle. . . . Their articulation in economic terms is beyond the capacity of most judges and lawyers, but their intuition is not.”⁷⁸ (Posner contrasts common-law doctrines with antitrust law, which he argues has been handled inadequately by judges.⁷⁹) In addition, patent law requires navigating an additional layer of technical complexity above and beyond the selection of an economically efficient rule. Even if it is equally difficult for a court to judge the economic consequences of allowing patents on gene sequences and deciding tort liability on a negligence standard, a court must attempt the former while simultaneously grappling with the technical specifics of gene sequences and the question of how they are different from other types of biotechnology.⁸⁰

Another possible reason lies with the objectives embodied in these areas of law. While contract and tort law may seek to balance a variety of consequentialist and deontological considerations—welfare maximization, efficiency, fairness, distributive justice, and so on⁸¹—the objectives of patent law are potentially more straight-

⁷⁷ See, for example, Burk and Lemley, *The Patent Crisis* at 21 (cited in note 4) (cataloging the various criticisms directed at patent law); Jaffe and Lerner, *Innovation and Its Discontents* (cited in note 4) (same); Bessen and Meurer, *Patent Failure* (cited in note 4) (same).

⁷⁸ Posner, *Economic Analysis of Law* at 252 (cited in note 56).

⁷⁹ See *id.* at 300 (stating that the courts’ “touch has been less sure in antitrust cases than in common law cases”).

⁸⁰ Of course, some tort cases might also involve technical questions that are difficult for nonexperts. The point here is again comparative: patent cases will raise these types of issues on a much more frequent basis than typical common-law cases.

⁸¹ See, for example, Eyal Zamir and Barak Medina, *Law, Morality, and Economics: Integrating Moral Constraints with Economic Analysis of Law*, 96 Cal L Rev 323, 388 (2008) (“The extent to which existing contract law deviates from the efficient breach doctrine by ‘excessively’ deterring breaches may reflect a deontological constraint against promise breaking.”); Jody S. Kraus, *Transparency and Determinacy in Common Law Adjudication: A Philosophical Defense of Explanatory Economic Analysis*, 93 Va L Rev 287, 322–23 (2007) (“[T]ort law in fact cognizes claims in corrective justice for the violation of a type of individual duty which cannot be reconstructed in consequentialist terms and so cannot be accounted for by the economic analysis of tort law. These duties are ones that are necessarily correlative to individual rights and so allow a plaintiff to claim compensation only

forward. As I note above, patent law appears to involve only consequentialist, economic considerations.⁸² If courts are particularly adept at achieving fairness or justice, that may be a reason to continue delegating contract and tort cases to them irrespective of their economic shortcomings. But if those types of deontological considerations are not present in patent law, the argument for vesting the power to make rules with a more expert technocratic body is strengthened.

Finally, institutions other than the judiciary have already intervened significantly in typical common-law fields. State legislatures frequently pass laws governing contracts, torts, and property.⁸³ A substantial number of states have adopted the Uniform Commercial Code, a model law drafted by a panel of experts, though not precisely an administrative agency.⁸⁴ States have also borrowed liberally from the Uniform Electronic Transaction Act and other similar model codes drafted by expert institutions.⁸⁵ An even more extreme example is criminal law, frequently thought of as a com-

from the individual who violated the plaintiff's right."); Kenneth W. Simons, *The Hand Formula in the Draft Restatement (Third) of Torts: Encompassing Fairness as Well as Efficiency Values*, 54 Vand L Rev 901, 908 (2001) ("A balancing approach to negligence that explicitly considers tradeoffs can indeed accommodate an economic efficiency approach. As we shall see, however, it can also accommodate broader social welfare and nonutilitarian approaches, though these other approaches will trade off different competing interests and values, or will trade them off differently.").

⁸² See Burk and Lemley, *The Patent Crisis* at 66 (cited in note 4); Michael Abramowicz, *The Uneasy Case for Patent Races Over Auctions*, 60 Stan L Rev 803, 809–10 (2007) ("This trade-off between static and dynamic efficiency is familiar to patent scholarship."); Note, *Limiting the Anticompetitive Prerogative of Patent Owners: Predatory Standards in Patent Licensing*, 92 Yale L J 831, 836 (1983) ("The patent system that Congress created reflects a tradeoff between dynamic and static efficiency."); Chisum et al, *Principles of Patent Law* at 6 (cited in note 13); Merges and Duffy, *Patent Law and Policy* at 253–56 (cited in note 13) (describing the incentive systems meant to drive the patent law).

⁸³ See, for example, 735 Ill Ann Stat § 2-1207 (Smith-Hurd) (allowing judges to apportion punitive damages to the Department of Human Services); NY Pers Prop Law § 252(1) (McKinney) (creating a duty to return found property valued above twenty dollars to the police); Or Rev Stat § 646.557 (West) (requiring specific disclosures by telephonic sellers in Oregon).

⁸⁴ See, for example, Ariz Rev Stat Ann § 47-9315 (West) (UCC § 9-315 (ALI 1999)); Ohio Rev Code Ann § 1302.10 (Baldwin) (UCC § 2-207 (ALI 1961)). All fifty states have adopted some form of the UCC. See Richard B. Amandes, *The Uniform Land Transactions Act and the Uniform Simplification of Land Transfers Act Twenty Years Later: Why Have There Been No Adoptions?* 20 Nova L Rev 1033, 1034 (1996).

⁸⁵ The Uniform Electronic Transaction Act (NCCUSL 1999) has been adopted in forty-seven states. A complete list is posted online at <http://www.ncsl.org/IssuesResearch/TelecommunicationsInformationTechnology/UniformElectronicTransactionsActs/tabid/13484/Default.aspx>. The Uniform Trade Secrets Act (NCCUSL 1986) has been adopted by forty-six states. See, for example, The Uniform Trade Secrets Act, Cal Civil Code § 3426 et seq (Deering); 12 Pa Cons Stat Ann § 5301 et seq (Purdon).

mon-law field but actually dominated by statutes and administrative rules. Nearly every crime is delineated by a statute.⁸⁶ In many states those statutes are based in whole or in part upon the Model Penal Code, another model statute drafted by a panel of criminal law experts. Sentencing decisions, long the province of the judiciary, had been placed largely under the control of administrative sentencing commissions at both the federal and state levels until the Supreme Court struck down the arrangement.⁸⁷ Even so, sentencing statutes still matter and sentencing guidelines can still be used for guidance.

Patent law is thus striking for the confluence of an overmatched judiciary and an absent legislature. It has been more than fifty years since Congress substantially revised the Patent Act, and the types of patents granted now bear little resemblance to those that existed in 1952. There are few areas of law, traditional common-law fields included, that have involved less extrajudicial management in the past half century. Patent law has suffered as a result.

II. EXPLAINING THE PTO'S PUZZLING LACK OF AUTHORITY

If judges are ill-equipped to manage patent policy, why has Congress not delegated substantive rule-making authority to the PTO, as it has to so many other administrative agencies? Patent law is one of the few areas of federal law that receives no meaningful input from an administrative agency. With the exception of the length of the patent term, a single core issue over which Congress has maintained authority, Congress has effectively handed full control over the patent system to the Federal Circuit. Congress has, on occasion, considered vesting the PTO with the power to make substantive patent rules, but authorizing legislation has never made it out of either House. In this part, I consider several possible explanations. The objective is both positive and normative. If Congress has refrained from delegating authority to the PTO for some intelligible reason, that might cast doubt on the wisdom or likelihood of future action. However, I conclude that the most likely

⁸⁶ Most states do not allow courts to create new crimes, see, for example, 18 Pa Cons Stat Ann § 107(b) (Purdon), though a few still do, see Fla Stat § 775.01. Similarly, federal judges are not permitted to create new federal crimes via common law. See *U.S. v Hudson & Goodwin*, 1 US (7 Cranch) 32 (1812).

⁸⁷ See *Blakely v Washington*, 542 US 296, 305 (2004); *U.S. v Booker*, 543 US 220, 226 (2005).

explanation is the least satisfying one: the PTO's lack of authority is likely a historical accident.

A. RENT-SEEKING

It is conceivable that Congress has failed to grant the PTO substantive rule-making authority due to a desire to continue collecting rents from interest groups concerned with changes in patent law.⁸⁸ On this theory, these interest groups would direct their lobbying efforts at the PTO if that body possessed substantive authority, and hence campaign contributions to Congress would diminish.

As an initial matter, theory seems to have very little general explanatory power, regardless of context. One could ask why Congress ever delegates authority, if delegating means sacrificing the opportunity to collect rents. Equally and oppositely, one could ask why Congress would be sacrificing any opportunity by delegating if it could simply threaten to change the law or reclaim power at a moment's notice. There is little indication that a theory of rent-seeking could explain Congress's pattern of delegation or non-delegation in any set of contexts, much less this one in particular. The theory is essentially nonfalsifiable.

Here, moreover, the evidence against the rent-seeking explanation is even stronger. In the context of patent law, Congress has evinced comparatively little interest in collecting rents. Congress adjusts the patent law very rarely—the only significant amendment to the Patent Act since 1952 was the Hatch-Waxman Act.⁸⁹ Nor has Congress shown any particular interest in “rattling the cages” of its patent constituencies: patent reform bills rarely make it out of committee. It is thus hard to imagine that Congress has refrained from granting rule-making authority to the PTO in order

⁸⁸ See Richard L. Hasen, *Clipping Coupons for Democracy: An Egalitarian/Public Choice Defense of Campaign Finance Vouchers*, 84 Cal L Rev 1, 10 (1996); Nathaniel O. Keohane, Richard L. Revesz, and Robert N. Stavins, *The Choice of Regulatory Instruments in Environmental Policy*, 22 Harv Envir L Rev 313, 323 (1998), citing Jose Edgardo L. Campos, *Legislative Institutions, Lobbying, and the Endogenous Choice of Regulatory Instruments: A Political Economy Approach to Instrument Choice*, 5 J L Econ & Org 333, 348–49 (1989) (“[T]he choice of regulatory instrument is the equilibrium of a game between interest groups (who choose how much to allocate to lobbying in support of their preferred instrument) and legislators (who vote for the instrument that maximizes their support, taking into account the contributions from the interest groups.”).

⁸⁹ Drug Price Competition and Patent Term Restoration Act, Pub L No 98-417, 98 Stat 1585 (1984).

to maximize its rent-seeking opportunities. Of course, this would not be a normatively defensible rationale for withholding rule-making power, anyway, even if it were a descriptively accurate one.

B. PROPERTY RIGHTS

Another potential explanation for congressional inaction is the nature of the rights that the PTO confers. Congress might believe that the patent system should be governed by a different set of rules than other regulatory areas because patents are property rights, and thus potentially more valuable or harmful than the standard subjects of regulation.⁹⁰

Yet there is nothing talismanic about the notion of property. Whether or not patents are in fact “property” in the traditional sense—and there is considerable debate on this point⁹¹—does not change the set of rights and entitlements they convey. Patents are alienable, tradable rights to exclude other parties from making, using, or selling a particular invention—nothing more and nothing less. In a variety of other contexts, Congress has delegated authority to administrative agencies to issue permits or award rights that may be equally valuable (or equally harmful). For instance, the Environmental Protection Agency (EPA) issues permits that authorize firms to pollute, and the FCC awards broadcast licenses to firms that allow them to operate radio and television stations (to name just two of many possible examples). These permits are not necessarily property rights or rights to exclude per se, but they have many of the same effects. They convey private benefits and (in many cases) negative externalities, and they offer business advantages to the firms that possess them.⁹² Under some conditions these types of permits can be as valuable as formal property rights to the firms that possess them, and equally socially wasteful if they are allocated improperly.

⁹⁰ For a sample of scholars who believe patent rights are property in the classical sense, see Adam Mossoff, *The Use and Abuse of IP at the Birth of the Administrative State*, 157 U Pa L Rev 2001, 2014 (2009) (describing patents as property rights); Epstein, 62 Stan L Rev at 455, 520–21 (cited in note 45) (same).

⁹¹ Burk and Lemley, *The Patent Crisis* at viii (cited in note 4).

⁹² In some cases, these permits do function as rights to exclude. For instance, if pollution is an essential by-product of a particular business, and if a limited number of pollution permits are available, a permit to pollute may function effectively as a right to exclude. Similarly, if there are only a limited number of broadcast licenses available in a particular market, a broadcast license is effectively a right to exclude.

Moreover, administrative agencies frequently make rules governing classical property rights of other types. For instance, in many localities zoning boards have extensive authority to determine how private parties may use real property. Environmental laws also often have substantial effects on property usage.⁹³ It would be peculiar to argue that zoning boards should be abolished simply because property rules should never be determined by administrative agencies. At bottom, there is very little that differentiates regulation of property (if that is indeed what patents are) from the regulation of any other area of private behavior. As in any area, the institution charged with regulating should be the one best positioned to create productive incentives and minimize externalities and social costs. There is no reason to believe that the label of “property” is determinative of which institution that is.

C. STATUTORY VAGUENESS

The Patent Act sets the boundaries of what inventions are patentable in very general terms. Any “new and useful process, machine, manufacture, or composition of matter” can be patented, provided that no other inventor has beaten the patentee to the invention.⁹⁴ This lack of specificity affords an interpreter a variety of possibilities for including or excluding various classes of inventions or discoveries that are not obviously addressed by the plain terms of the act itself. Perhaps Congress has shied away from granting substantive rule-making authority to the PTO because it fears that the agency will take undue liberties with such a vague statutory grant—and for some reason this fear is less serious with respect to the Federal Circuit.⁹⁵

At the outset, it is difficult to understand as a policy matter why Congress would be reluctant to delegate a broad swath of authority to an agency (rather than the Federal Circuit) absent some independent substantive or procedural concern about how the agency might use that authority. If an agency is superior to a court

⁹³ See, for example, Lior Jacob Strahilevitz, *Informational Asymmetries and the Rights to Exclude*, 104 Mich L Rev 1835, 1843 (2006) (describing “zoning laws and environmental regulations” as typical land use governance mechanisms).

⁹⁴ 35 USC §§ 101 & 102.

⁹⁵ Compare *Industrial Union Department, AFL-CIO v American Petroleum Institute*, 448 US 607 (1980).

at managing smaller regulatory responsibilities, it is not clear why the agency would not be similarly superior at handling larger responsibilities. In fact, the broader the grant of authority from Congress, the more that the exercise of delegated power will resemble genuine policymaking, as opposed to mere implementation of the law. The procedural and structural advantages (described below) that agencies possess in comparison to courts are most significant when deployed in the formulation of policy, rather than the mere execution of it.

Moreover, the Patent Act is no broader or less well defined than a panoply of administrative statutes under which agencies currently regulate. For instance, the Occupational Health and Safety Act instructs the Occupational Safety and Health Administration (OSHA) to adopt regulations of all potential workplace hazards “which most adequately assure[], to the extent feasible . . . that no employee will suffer material impairment of health or functional capacity.”⁹⁶ The regulations adopted must be “reasonably necessary or appropriate to provide safe or healthful employment and places of employment.”⁹⁷ The Clean Air Act authorizes the EPA to regulate “any air pollutant.”⁹⁸ And the Endangered Species Act makes it illegal to “harass [or] harm” any endangered animal.⁹⁹ Based on this language the Secretary of the Interior successfully asserted authority to prohibit modifications to those animals’ habitats.¹⁰⁰ The notion that statutory vagueness could provide a rationale for refusing to delegate to an agency fails not only as a matter of logic, but as a matter of historical practice as well.

D. PTO EXPERTISE

A number of scholars have suggested that the PTO cannot be trusted to employ substantive rule-making authority competently, even if Congress were to repose it in the agency.¹⁰¹ These scholars

⁹⁶ 29 USC § 655(b)(5).

⁹⁷ 29 USC § 652(8).

⁹⁸ 42 USC § 7521(a)(1).

⁹⁹ 16 USC § 1532(19).

¹⁰⁰ See *Babbitt v Sweet Home Chapter of Communities for a Great Oregon*, 515 US 687, 700 (1995).

¹⁰¹ See Rochelle Dreyfuss, *Patological Patenting: The PTO as Cause or Cure*, 104 Mich L Rev 1559, 1575–78 (2004); Arti Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 Colum L Rev 1035, 1132–33 (2003); John R.

point out that the PTO has been roundly criticized for lackluster performance of its current task of examining patents. They note as well that the PTO traditionally has had no policy or economic staff, though it has recently hired a chief economist.¹⁰² By these measures, the PTO appears far from prepared to assume any sort of meaningful substantive authority.

But this argument does not account for the fact that the PTO is a creature of its circumstances. In any administrative agency—indeed, in any organization—form follows function. The PTO can hardly be expected to assemble an economic staff if that staff would play no meaningful role, limited to releasing guidance documents to which the Federal Circuit would not defer. The PTO operates under conditions of limited resources; it would be folly for the organization to expend resources on extraneous staff and activities at the expense of its core mission of examination. This is not to say that it would be costless for the PTO to assemble a full policymaking staff and transform itself into a regulatory entity along the lines of EPA or OSHA. There would be significant transition costs, among them the hiring of staff and the restructuring of the office to emphasize the collection and transmission of information from patent examination. But this cost should be no greater than the costs borne by any other administrative agency, costs which hardly hindered their creation.¹⁰³

Furthermore, the current system supplies the PTO with ample incentives to deliberately grant too many invalid patents. The PTO is funded entirely by the fees that it generates from examining patents,¹⁰⁴ and thus the organization benefits when it can induce private actors to file for patents in ever greater numbers. In addition, only applicants who have been denied patents can ever appeal to the Federal Circuit; if the PTO grants a patent, the matter is over. Accordingly, the PTO has an incentive to err on the side of granting too many patents in order to avoid appeals and reversals.¹⁰⁵ Yet these problems are hardly of the PTO's own

Thomas, *The Responsibility of the Rulemaker: Comparative Approaches to Patent Administration Reform*, 17 Berkeley Tech L J 727, 742 (2002).

¹⁰² See Arti K. Rai, *Growing Pains in the Administrative State: The Patent Office's Troubled Quest for Managerial Control*, 157 U Pa L Rev 2051, 2054 (2009).

¹⁰³ See Part III.

¹⁰⁴ See Rai, 157 U Pa L Rev at 2057 & n 24 (cited in note 102).

¹⁰⁵ See generally Jonathan S. Masur, *Patent Inflation* (U of Chicago, Public Law Working Paper No 316, U of Chicago Law & Economics, Olin Working Paper No 529), online at http://www.ssrn.com/abstract_id=1623929.

making. It is Congress that sets the agency's funding, and Congress that created one-way incentives for the agency to grant patents. Endowing the PTO with substantive authority would likely alleviate these shortcomings, not exacerbate them.¹⁰⁶

There is little wrong with the patent office as a regulatory body that time and resources cannot cure.¹⁰⁷ The relatively minor investments necessary provide no rationale for eschewing the institutional and structural advantages that a regulatory agency could supply.

E. PTO CAPTURE

Finally, it is possible that Congress has shied away from granting substantive rule-making authority to the PTO for fear that the agency will be captured by private interests. A number of scholars have voiced similar concerns, in some cases claiming that the PTO has already been captured, despite its currently limited role.¹⁰⁸ Courts are generally thought to be more resistant to capture,¹⁰⁹ and Congress might have delegated primary policymaking authority to the Federal Circuit (rather than the PTO) for this reason.

This is a reasonable argument in favor of trusting courts, rather than an agency, but it is no stronger in the context of the PTO and patent law than it is with respect to the EPA and environmental law, or the Department of Labor and workplace safety law, or any of the other myriad areas of regulation that have come to be dominated by agency rule making.¹¹⁰ There is no reason to believe that the PTO is particularly susceptible to capture or likely to cause particular harm if captured. Indeed, even critics of the PTO have suggested that it may be *less* vulnerable to capture than the

¹⁰⁶ See Part III.B.1.

¹⁰⁷ It is worth noting that the Federal Circuit has failed to develop meaningful expertise despite being endowed with resources typical to an appellate court since 1982.

¹⁰⁸ See Burk and Lemley, *The Patent Crisis* at 106–07 (cited in note 4) (arguing that the PTO is subject to capture); Michael J. Meurer, *Patent Examination Priorities*, 51 *Wm & Mary L Rev* 675, 686 (2009) (same); Long, 157 *U Pa L Rev* at 1984 (cited in note 3) (suggesting that the PTO has invited capture in order to increase its own stature); R. Polk Wagner, *Understanding Patent Quality Mechanisms* 25 (Jan 6, 2009), online at <http://www.ftc.gov/bc/workshops/ipmarketplace/apr17/docs/rwagner2.pdf> (suggesting the influence that repeat players can have on PTO behavior).

¹⁰⁹ See Burk and Lemley, *The Patent Crisis* at 106–07 (cited in note 4).

¹¹⁰ See Part III.

typical administrative agency.¹¹¹ At the same time, other scholars have argued that the Federal Circuit itself may have been captured by private interests.¹¹² As with the issue of agency expertise, I develop the capture analysis further in Part III.

The foregoing discussion was principally normative, but there is a related positive possibility that is worth considering. It is entirely possible that Congress has refrained from delegating substantive authority to the PTO because of various interest-group forces (or a lack thereof). It may be that powerful patent interest groups are united in preferring the status quo to a shift in regulatory authority even though they disagree about the substantive content of patent law. Or it may be that Congress has had little incentive to change the law absent strong private preferences. It is impossible to rule out these possibilities, though there is no particular evidence in support. But it is worth noting that they are not normative arguments against vesting regulatory authority in the PTO. If interest-group dynamics have prevented Congress from reallocating powers, that might indicate that any proposal for reform is unlikely to succeed. (I return to this point in greater detail below.) But it is not a reason for disfavoring that reform.

F. PATH DEPENDENCE

What then is left to explain the patent office's puzzling deficiency of substantive authority? The most likely remaining possibility is the least satisfying if the objective is crafting sound patent policy. The fact that Congress has never vested the PTO with substantive rule-making power may be nothing more than a historical accident—a path-dependent relic of early American government.

The vast majority of administrative agencies that possess regulatory authority were created during the New Deal era or later. For instance, Congress created the EPA and OSHA in 1970;¹¹³ the Securities and Exchange Commission (SEC) and National La-

¹¹¹ See Burk and Lemley, 89 Va L Rev at 1640 and n 226 (cited in note 66).

¹¹² See John R. Thomas, *Formalism at the Federal Circuit*, 52 Am U L Rev 771, 792–94 (2003).

¹¹³ See Occupational Safety and Health Act of 1970, Pub L No 91-596, 84 Stat 1590 (1970); Jack Lewis, *The Birth of EPA*, EPA J (1985), online at <http://www.epa.gov/history/topics/epa/15c.htm>. The so-called EPA Reorganization Plan Number 3, dated July 9, 1970, can be found in the *Congressional Record*, Vol 116, H 6523, 91st Cong, 2d Sess.

bor Relations Board (NLRB) in 1934,¹¹⁴ and the Food and Drug Administration (FDA) in 1930, though it only assumed its modern form in 1938.¹¹⁵ These agencies were born during the modern era of technocratic bureaucracy. The rapid growth of the American economy, coupled with increasing faith in the scientific and policy judgments of experts, led Congress to assign vast swaths of regulatory authority to executive-branch agencies as it came to realize that it could not adequately manage the economy on its own accord.¹¹⁶ The powers held by these agencies are very much a product of the time they came into existence.

By contrast, the first Patent Act was passed in 1790,¹¹⁷ and the Patent and Trademark Office was created in 1836.¹¹⁸ In the much smaller and economically less complex United States of that period, regulatory agencies (as we understand them today) were essentially unknown.¹¹⁹ Congress and the courts were then the major engines of national policymaking, and an extensive federal common law of patents has developed in the two centuries since. Accordingly, in the modern era there has never been a moment at which patent law was in need of wholesale development. Patent law, however flawed it may be, has always existed in common-law form. This is unlike, for instance, environmental law and food and drug law, which sprang into existence at the federal level nearly coextensively with the EPA and FDA, respectively.

Of course, Congress could have later recognized the inadequacies of the Federal Circuit and redistributed authority to the PTO. But this type of reallocation of institutional control is extremely rare. Congress's creation of the United States Sentencing Commission may be the only significant instance in which Congress has delegated power previously held by the judiciary to an administrative agency.¹²⁰ Where judicially made rules already exist,

¹¹⁴ Securities Exchange Act of 1934, Pub L No 73-291, 48 Stat 881 (enacted June 6, 1934), codified at 15 USC § 78a et seq.

¹¹⁵ Food, Drug and Cosmetic Act, 21 USC § 301 et seq.

¹¹⁶ See generally Stephen G. Breyer et al, *Administrative Law and Regulatory Policy* 14–29 (Aspen, 6th ed 2006).

¹¹⁷ Act of April 10, 1790, 1 Stat 109. A pdf is available online at http://www.ipmall.info/hosted_resources/lipa/patents/Patent_Act_of_1790.pdf.

¹¹⁸ Patent Act of 1836, ch 357, 5 Stat 117, online at http://www.ipmall.info/hosted_resources/lipa/patents/Patent_Act_of_1836.pdf.

¹¹⁹ See generally Breyer et al, *Administrative Law* at 14–15 (cited in note 116).

¹²⁰ See Sentencing Reform Act of 1984, Pub L No 98-473 § 212, 98 Stat 1987 (1984).

Congress very rarely revisits delegations of authority.¹²¹ With the federal courts firmly ensconced as the expositors of patent law, Congress may not have understood the need for another institutional actor to play a role in the formation of patent policy.

It is beyond the scope of this article to conduct a full analysis of the relationship between regulatory authority and the year an agency was formed, and the examples proffered here are by no means conclusive proof of that relationship. But they suggest a strong role for happenstance and inertia in the institutional assignment of policy responsibilities, one that may have been determinative in the case of the PTO. At the same time, this might indicate that Congress is unlikely to take action in the future if it did not do so in the past. This is a problem for all proposals for legal reform, and one that I address below.

III. ADMINISTRATIVE AUTHORITY

In light of the courts' failings, this part suggests that Congress should consider delegating substantive rule-making authority to the PTO.¹²² That is not to suggest that the federal courts would

¹²¹ Congress frequently provides existing agencies with additional authority. And on some occasions Congress will bestow substantive rule-making power on an agency that did not previously possess it, but only with respect to newly created federal law. For instance, in 1991 the Americans with Disabilities Act granted the Equal Employment Opportunity Commission rule-making authority regarding discrimination on the basis of disability. See 42 USC § 12117 (West 2011). But it did not give the EEOC rule-making authority over previously existing federal law. Other than the creation of the Sentencing Commission, I have not been able to locate an instance in which Congress granted an agency power to make rules concerning an extant body of federal law that had previously been controlled by the courts, but it is possible that one or more exists. (For that matter, I was also unable to find any area of law in which Congress has dissolved an agency with substantive rule-making authority and returned the federal courts to a position of singular authority over the law.)

¹²² I mean to distinguish this from the thoughtful suggestion, offered by some commentators, that the PTO be afforded *Chevron* deference when it examines patents. See, for example, Stuart Minor Benjamin and Arti K. Rai, *Who's Afraid of the APA? What the Patent System Can Learn from Administrative Law*, 95 Georgetown L J 269, 297–98 (2007); Dreyfuss, 104 Mich L Rev at 1577 (cited in note 101) (“Congress should expressly instruct courts to afford the PTO the deference given to federal agencies generally.”). This kind of *Chevron* deference is probably a good idea, but it would be largely limited to protecting PTO examination decisions and according its ad hoc views some modicum of respect. It would not make the PTO into the primary patent policymaker. Accordingly, it is notable that proponents of *Chevron* deference oppose—or at least stop short of supporting—delegating substantive rule-making power to the PTO. See Rai, 103 Colum L Rev at 1132–33 (cited in note 101) (“Moreover, there are reasons to be wary about granting the PTO substantive rulemaking authority.”); Dreyfuss, 104 Mich L Rev at 1577 (cited in note 101) (treating the PTO’s “absence of explicit rulemaking authority” as fixed). Rai and Dreyfuss’s work is impressive and important, but it does not go as far as the argument advanced here.

have no role in patent policy. They would still be involved in overseeing the PTO's regulatory actions, adjudicating infringement actions and appeals from the PTO, and making policy where the PTO has not yet acted. In short, they would play the same role as the federal courts currently do in environmental law, securities law, and many other areas of federal regulation.

The literature on congressional delegation is replete with analyses of the strengths and weaknesses of courts and agencies as potential recipients of legal and policy authority.¹²³ Indeed, this question encapsulates the *Chevron* inquiry—to what extent courts should defer to an agency's statutory interpretation—and all of its attendant intellectual baggage.¹²⁴ Arguments regarding the choice of institutional actor have coalesced around the following finite set of issues: comparative expertise,¹²⁵ responsiveness to public opinion,¹²⁶

¹²³ See generally Matthew C. Stephenson, *Legislative Allocation of Delegated Power: Uncertainty, Risk, and the Choice Between Agencies and Courts*, 119 Harv L Rev 1036 (2006); Frank B. Cross, *Shattering the Fragile Case for Judicial Review of Rulemaking*, 85 Va L Rev 1243 (1999) (arguing for the complete abandonment of judicial review of agency rule making); Cynthia R. Farina, *Statutory Interpretation and the Balance of Power in the Administrative State*, 89 Colum L Rev 452 (1989) (arguing that judicial deference to agencies is unconstitutional); Cass R. Sunstein, *On the Costs and Benefits of Aggressive Judicial Review of Agency Action*, 1989 Duke L J 522 (1989) (evaluating the costs and benefits of courts as legal authority); Colin S. Diver, *Statutory Interpretation in the Administrative State*, 133 U Pa L Rev 549 (1985) (concluding that courts should defer to agencies where Congress has endowed the agency with significant policymaking responsibility); F. Scott Kieff, *The Case for Preferring Patent-Validity Litigation Over Second-Window Review and Gold-Plated Patents: When One Size Doesn't Fit All, How Could Two Do the Trick?* 157 U Pa L Rev 1937, 1943–45 (2009) (cataloging the strengths and weaknesses of agencies with particular reference to the patent context).

¹²⁴ *Chevron USA, Inc. v Natural Res. Def. Council, Inc.*, 467 US 837 (1984). See generally Linda Jellum, *Chevron's Demise: A Survey of Chevron from Infancy to Senescence*, 59 Admin L Rev 725 (2007) (analyzing the first prong of the *Chevron* test); Evan J. Criddle, *Chevron's Consensus*, 88 BU L Rev 1271 (2008) (synthesizing the various *Chevron* rationales and proposing a new rationale); Cass R. Sunstein, *Law and Administration after Chevron*, 90 Colum L Rev 2071 (1990) (examining the rationale and reach of *Chevron*); Thomas W. Merrill and Kristin E. Hickman, *Chevron's Domain*, 89 Georgetown L J 833 (2001) (analyzing the scope of the *Chevron* doctrine).

¹²⁵ See, for example, Ronald J. Krotoszynski, Jr., *Why Deference? Implied Delegations, Agency Expertise, and the Mislplaced Legacy of Skidmore*, 54 Admin L Rev 735, 737 (2002) (arguing that administrative expertise provides the best rationale for judicial deference to administrative agencies). See also Einer Elhauge, *Preference-Estimating Statutory Default Rules*, 102 Colum L Rev 2027, 2135 (2002) (“The legal realists’ hope that legal ambiguities could be resolved by objective policy expertise has long ago grown quaint. . . . In practice, it is rare to find a field of social policy where there are not experts on opposing sides of an issue, . . . undermining any claim to an objective expert resolution.”).

¹²⁶ See, for example, William N. Eskridge, Jr. and Kevin S. Schwartz, *Chevron and Agency Norm-Entrepreneurship*, 115 Yale L J 2623, 2626 (2006) (arguing that agencies are more democratically accountable than judges); Cass R. Sunstein, *Beyond Marbury: The Executive's Power to Say What the Law Is*, 115 Yale L J 2580, 2587 (2006) (noting the executive branch's

procedural advantages,¹²⁷ and political insulation and susceptibility to capture.¹²⁸ However, these various arguments have hardly produced agreement. Perhaps the most that can be said is that there are some circumstances under which delegations to agencies will be superior, and others under which delegations to courts will produce better outcomes.

I endeavor here to avoid wading into that analytical mire. Rather, this part aims to demonstrate that the affirmative case for delegating substantive rule-making authority over the law of patents to the PTO is at least as strong, if not stronger, than the typical case for administrative delegation; and that the drawbacks to delegating rule-making authority to the PTO are no more significant, and likely less so, than in the typical administrative case.

My point is not that the current allocation of powers between courts, Congress, the president, and federal agencies (other than the PTO) is ideal. It may be that some agencies should be stripped of their authority with the power returned to the courts; it may be that agencies should be afforded even greater power. One can easily name administrative agencies that most likely should be disbanded immediately.¹²⁹ It is well beyond the scope of this article to defend the status quo fully. Rather, I mean to argue that if one accepts the status quo as reasonably approximating when delegation is appropriate or desirable, the case for delegation to the PTO is compelling.

This part proceeds in two sections. The first section analyzes the PTO's capacity to effectively implement substantive regulations according to standard administrative law metrics. The second section describes a set of particular advantages that rule-making authority would provide for the patent system. The patent system faces a

political responsiveness and accountability); Charles H. Koch, Jr., *Judicial Review of Administrative Discretion*, 54 *Geo Wash L Rev* 469, 485 (1986) (arguing that agencies are better than courts at distilling public opinion).

¹²⁷ See, for example, Richard J. Pierce, Jr., *Reconciling Chevron and Stare Decisis*, 85 *Georgetown L J* 2225, 2239 (1997) (noting the superiority of the notice and comment procedure over judicial decision-making procedures); Diver, 133 *U Pa L Rev* at 575 (cited in note 123) (noting that agency members are often involved in creating legislation, and therefore have a better understanding of legislative intent).

¹²⁸ See, for example, Jonathon T. Molot, *Reexamining Marbury in the Administrative State: A Structural and Institutional Defense of Judicial Power over Statutory Interpretation*, 96 *Nw U L Rev* 1239, 1276 (2002) (arguing that judicial power is superior for its political insulation); Thomas W. Merrill, *Capture Theory and the Courts*, 72 *Chi Kent L Rev* 1039, 1054 (1997) (discussing the role of public choice in deciding between institutional actors).

¹²⁹ See, for example, Ian Urbina, *Inspector General's Inquiry Faults Regulators*, *NY Times* (May 24, 2010), online at <http://www.nytimes.com/2010/05/25/us/25mms.html> (describing the failings of the Minerals Management Service).

unique set of institutional problems, but the solution lies with a familiar tool of administrative policymaking.

A. COMPARATIVE INSTITUTIONAL COMPETENCE

1. *Expertise.* That agencies possess greater technical expertise than courts and are better positioned to address scientifically complex questions is by now a shibboleth of administrative theory. Judges are legal generalists, unskilled in the policy nuances of the cases that come before them;¹³⁰ agencies are staffed by economists and experts in the substantive field¹³¹ who have the benefit of years of education, training, and experience.¹³² Moreover, agencies have substantial budgets with which they can research particular problems in depth,¹³³ while courts must rely upon amicus briefs and the rare appointment of a special master.¹³⁴

This is the conventional wisdom, and it holds true for the PTO as much as for the typical agency. Even low-level employees in the PTO are experts in their technical fields. Patent examiners are divided by technical specialty (certain examiners scrutinize only

¹³⁰ See Sheila Jasanoff, *Science at the Bar: Law, Science, and Technology in America* 43 (1997) (“[L]egal institutions and procedures for dealing with technical evidence have remained remarkably static. Most U.S. judges are still generalists, without any special schooling in the sciences, and practices such as random assignment of cases prevent judicial specialization in areas requiring technical knowledge.”); David L. Schwartz, *Practice Makes Perfect: An Empirical Study of Claim Construction Reversal Rates in Patent Cases*, 107 Mich L Rev 223 (2008) (describing the problems that district judges face in performing claim construction).

¹³¹ Along with deadwood, incompetents, zealots, turf warriors, cronies, sycophants, and overconfident experts. See William N. Eskridge, Jr., *No Frills Textualism*, 119 Harv L Rev 2041, 2058–61 (2006). The point is not that agencies are models for ideal governance, but that they include *at least some* technical experts, to a greater extent than courts. I thank Adam Samaha for this point.

¹³² See Rai, 103 Colum L Rev at 1069 (cited in note 101) (noting the abundant resources of the PTO as compared to the district courts and Federal Circuit; in biotechnology, for example, the PTO employs 150 people with Ph.D.’s); Benjamin and Rai, 95 Georgetown L J at 310 (cited in note 122) (discussing the institutional advantages of administrative agencies over courts, including abundant resources).

¹³³ For instance, the budget for all federal agencies combined was \$1.174 trillion in 2010. See Office of Mgmt and Budget, *Budget of the U.S. Government: Fiscal Year 2010* at 28, online at <http://www.whitehouse.gov/omb/budget/fy2010/assets/summary.pdf>.

¹³⁴ See Paul R. Michel, *Introduction—The Challenge Ahead: Increasing Predictability in Federal Circuit Jurisprudence for the New Century*, 43 Am U L Rev 1231, 1244 (1994) (discussing the limited resources of the court); Adrian Vermeule, *Should We Have Lay Justices?* 59 Stan L Rev 1569, 1601 (2007) (same); see also Michael Rustad and Thomas Koenig, *The Supreme Court and Junk Social Science: Selective Distortion in Amicus Briefs*, 72 NC L Rev 91, 128 (1993) (examining the distorted nature of Supreme Court amicus briefs).

biotechnology patents, certain work only on semiconductor patents, and so forth), and each examiner must have at least a bachelor's degree in the relevant field.¹³⁵ In the course of her training and employment, each examiner also becomes proficient in the details of patent law. In addition, PTO examiners benefit from the sheer volume of applications. The typical examiner reviews dozens of patent applications in a typical year, all falling within the same technological field.¹³⁶ Consequently, the examiner is afforded a representative snapshot of both developments in technology and developments in patenting practices; the lowly examiner is most likely expert in contemporary trends in patent writing and prosecuting.¹³⁷ And these are merely the lowest rung of employees at the PTO; higher-ups possess even greater experience.

What the PTO currently lacks are staffs of economists¹³⁸ who would be indispensable in formulating broader patent and competition policy, as well as disposable funds that could be used to conduct broader research. However, as I noted above, these shortcomings are endogenous to the fact that the PTO has no need for such staff members or such resources because it lacks substantive authority over the law. Were Congress to endow the Patent Office with greater regulatory power, it would be a comparatively trivial matter for it to provide it with the funds to hire professional staff and conduct research at the same moment. Indeed, the PTO has already hired a chief economist,¹³⁹ and more staff need not be far behind.

Compare the Federal Circuit. Because it was created as a specialized court, the Federal Circuit is usually credited with greater

¹³⁵ See *General Requirements Bulletin to the Examination for Admission for Registration to Practice in Patent Cases before the United States Patent and Trademark Office* 4–9, online at <http://www.uspto.gov/web/offices/dcom/olia/oed/grb.pdf> (detailing the degrees or extent of scientific background necessary to sit for the examination).

¹³⁶ There are 6,242 patent examiners, see online at http://www.uspto.gov/web/offices/com/annual/2009/oai_05_wlt_28.html, and 485,500 patents were filed in 2009, see online at http://www.uspto.gov/web/offices/com/annual/2009/oai_05_wlt_02.html. Each examiner is thus charged with examining approximately seventy-eight patents per year.

¹³⁷ “Patent prosecution” is the process of applying for a patent and seeing that application through examination to the granting of the patent. The lawyers who shepherd patents through PTO examination are known as “patent prosecutors.”

¹³⁸ See Rai, 103 Colum L Rev at 1113 (cited in note 101) (noting that until very recently the PTO employed no economists).

¹³⁹ See Rai, 157 U Pa L Rev at 2054 (cited in note 102).

expertise than the typical judicial body. Judges on the Federal Circuit are fed a steady diet of patent cases and have ample opportunity to develop a detailed understanding of patent law, unlike a judge on a typical circuit who may see one or fewer of many types of cases each year.

But this regularly accepted perception of expertise is misleading. The Federal Circuit has great experience with patent *law*—not patent *policy*, much less patent *economics*. Judges on the Circuit possess a detailed understanding of the workings of patent doctrine and the interrelation of various pieces of the patent law,¹⁴⁰ but this is far from equivalent to the ability to design a sensible patent system that provides the correct incentives for inventors and market participants. In fact, it is not even clear that the Federal Circuit is trying. Patent law is now notoriously formalistic¹⁴¹—precisely what one might expect when a court attempts to establish judicially manageable rules in the absence of expertise or agency input.¹⁴² Not surprisingly, many extant doctrines seem significantly flawed from the perspective of economic theory. And because every patent

¹⁴⁰ Nevertheless, they manage to err in formulating doctrine at an alarming rate. The Federal Circuit could not coalesce around a single methodology for interpreting claims for decades, until *Phillips v AWH Corp.*, 415 F3d 1303 (Fed Cir 2005). Even now it does not adhere to its own doctrinal prescriptions. See R. Polk Wagner and Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U Pa L Rev 1105, 1179 (2004) (finding that the Federal Circuit has been only mildly successful in promulgating a coherent and predictable doctrine of claim construction). The Federal Circuit has also become notorious for resurrecting old doctrines and applying them in novel, unnecessary ways. See Merges and Duffy, *Patent Law and Policy* at 299–327 (cited in note 13) (describing this phenomenon with respect to the written description requirement); Mark D. Janis, *On Courts Herding Cats: Contending with the “Written Description” Requirement (and Other Unruly Patent Disclosure Doctrines)*, 2 Wash U J L & Pol 55, 60–61 (2000) (same); *Lizardtech, Inc. v Earth Resource Mapping, Inc.*, 424 F3d 1336 (Fed Cir 2005) (developing the doctrine). To say that the Federal Circuit is adept even with patent law doctrine is to afford it the benefit of the doubt.

¹⁴¹ See, for example, Thomas, 52 Am U L Rev at 792 (cited in note 112) (describing a trend of formalism in five areas of patent law jurisprudence); Timothy R. Holbrook, *The Supreme Court’s Complicity in Federal Circuit Formalism*, 20 Santa Clara Computer & High Tech L J 1, 1 (2003) (noting that the Federal Circuit has recently formulated rules to promote predictability and certainty at the expense of fairness, specifically in the areas of patent claim construction and the doctrine of equivalents). This formalism may be due in part to the Federal Circuit’s early reliance on the decisions of one of its predecessor courts, the Court of Customs and Patent Appeals. See generally Jeffrey A. Lefstin, *The Constitution of Patent Law: The Court of Customs and Patent Appeals and the Shape of the Federal Circuit’s Jurisprudence*, 43 Loyola LA L Rev 843 (2010).

¹⁴² See Lee, 120 Yale L Rev at 25–30 (cited in note 48); Thomas, 52 Am U L Rev at 793 (cited in note 112) (attributing the formalistic trend to a preference for rules over standards); Rai, 103 Colum L Rev at 1115 (cited in note 101) (noting the decrease in decision-making costs and the increase in predictability from the use of formalistic rules).

case must be appealed to the Federal Circuit, there is no jurisdictional competition and thus no mechanism that might induce patent doctrine to evolve in beneficial directions.¹⁴³

The Federal Circuit suffers from many of the same limitations as any court. As a group, Federal Circuit judges had insignificant relevant experience, either with patent law or with the technical disciplines that surround it, before they were elevated to the court. Of the twelve active judges on the court, only five of them practiced or taught patent law before joining the court, only six have even undergraduate degrees in technical fields, and none has an advanced degree in economics.¹⁴⁴ The court may be “expert” in some limited, legalistic sense, but that expertise is a poor substitute for genuine administrative competence. It goes almost without saying that the district courts and the Supreme Court are no better off.¹⁴⁵

In place of true expertise, courts have expert witnesses. The reliability and usefulness of expert witnesses is of course limited by the fact that they are paid advocates for a position, not disinterested observers.¹⁴⁶ This disadvantage is exacerbated when the expert witness must be relied upon to opine on an issue well outside of the judge’s area of competence. The large-scale economic questions involved in patent law are precisely those sorts of issues. Determining whether the benefits of patents on business methods outweigh the costs, or how stringent the utility requirement should be for gene patents, will inevitably require extensive empirical analysis. Promising research is already under way.¹⁴⁷ But it is unrealistic to believe that judges will ever be able to accurately comprehend expert testimony on these points. As one economically proficient federal judge put it, “econometrics is such a difficult subject that it is unrealistic to expect the average judge or

¹⁴³ Consider notes 75–78 and accompanying text.

¹⁴⁴ See *Federal Circuit—Judicial Biographies*, available online at <http://www.cafc.uscourts.gov/judgbios.html>.

¹⁴⁵ The Supreme Court can attempt to mitigate its inadequacies by only granting certiorari in cases that do not involve difficult technology. However, that would mean forgoing any opportunity to pass on issues involving genetics, pharmaceuticals, semiconductors, or any other innovation at the forefront of modern technology. Because these types of technology raise particular, and particularly important, questions, this would be a significant detriment to the Court’s proper functioning.

¹⁴⁶ See Lee, 120 Yale L J at 18 (cited in note 48).

¹⁴⁷ See, for example, David S. Abrams, *Did TRIPS Spur Innovation? An Analysis of Patent Duration and Incentives to Innovate*, 157 U Pa L Rev 1613 (2009).

juror to be able to understand all the criticisms of an econometric study, no matter how skillful the econometrician is in explaining the study to a lay audience.”¹⁴⁸

2. *Procedural advantages.* Agencies are commonly understood to possess a variety of “procedural” advantages over courts—particularly Article III federal courts—stemming from the manner in which they may engage with questions of policy. Agencies can initiate regulatory action when they choose, on the subjects they select. They need not wait for private parties to bring a case appropriate for policymaking, as would a court. Notice-and-comment rule-making authority also permits agencies to solicit opinions from a broad spectrum of interested parties, and to test preliminary regulatory proposals against outside objections.¹⁴⁹ Courts, by contrast, must rely predominantly upon the parties’ and amici’s briefs and reports, supplemented only occasionally by special masters and outside experts. Here again the supposedly expert Federal Circuit possesses no special advantages; it functions like any other federal appellate court. The tools that accompany typical administrative rule making are thus more adaptable, and more comprehensive, than the typical ad hoc systems upon which courts are forced to rely. A reformed PTO, imbued with substantive rule-making authority, would possess this range of procedural tools.

This discussion illustrates a more general point regarding the PTO’s procedural capabilities and patent policy. Over the past several centuries, patent lawmaking has proceeded incrementally, as might be expected from a common-law system.¹⁵⁰ This might have been adequate in some contexts and as applied to some doctrines, but just as surely it must be suboptimal or ill-suited in others.¹⁵¹ It makes little sense to consign an entire field of law to

¹⁴⁸ Posner, 13 J Econ Persp at 96 (cited in note 50).

¹⁴⁹ See 5 USC § 553 (2008) (setting forth the procedural requirements for notice-and-comment or “informal” rule making).

¹⁵⁰ Compare David A. Strauss, *Common Law Constitutional Interpretation*, 63 U Chi L Rev 877 (1996) (analyzing the process of common-law rule making in constitutional law).

¹⁵¹ Indeed, it is conceivable that the present shape of patent law has been determined in part by the procedural shortcomings of the federal courts as patent policymakers. Even if the Federal Circuit (for instance) were to believe a putative change in the law beneficial, it might nonetheless shy away from initiating such a change if it believed its own institutional tools inadequate to the task of legal reform. Compare *Warner-Jenkinson Co., Inc. v Hilton Davis Chemical Co.*, 520 US 17, 28 (1997) (“Congress can legislate the doctrine of equivalents out of existence any time it chooses. The various policy arguments now

one mode of development and reform when others are available.¹⁵²

3. *Political responsiveness and agency capture.* The final two canonical institutional design considerations—an agency’s responsiveness to public opinion, and the extent to which an agency is subject to outside “capture” and therefore biased decision making—are essentially two sides of the same coin. On the one hand, an advantage typically ascribed to agencies over courts is the political nature of the former: their connection to the elected branches of government.¹⁵³ If regulation involves political considerations or trade-offs, then they are best delegated to an institutional actor, such as an agency, over which the political branches can exercise authority.¹⁵⁴ It is difficult to hold judges accountable if their decisions cease to serve the public interest. *Chevron* deference is frequently defended on these terms. Because regulatory choices are, at their core, discretionary matters of policy and politics, silences and ambiguities in statutes are best read as invitations for agencies, not courts, to make law.¹⁵⁵

At the same time, a court’s insulation from ordinary political processes and from the actors who might seek to influence it can provide certain advantages. Like any politically influenced organ of government, administrative agencies are subject to inducements and pressures from private outside actors who may have preferences that diverge widely from the best interests of society at large.¹⁵⁶ This problem can be exacerbated for agencies, which deal repeatedly with the same industries and often the same firms in the course of regulating a single field or area of the economy. The fear is that repeated lobbying, along with the movement of staff members between the private and public sector, will leave agencies beholden to the industries they are meant to regulate or inculcated

made by both sides are thus best addressed to Congress, not this Court.”); Owen M. Fiss, *Foreword: The Forms of Justice*, 93 Harv L Rev 1 (1979) (analyzing courts’ suitability as venues for “structural” litigation in pursuit of broad and ongoing social reform).

¹⁵² Compare Rai, 103 Colum L Rev 1035 (cited in note 101) (suggesting collaboration between Congress, the courts, and the PTO).

¹⁵³ See Mark Seidenfeld, *The Psychology of Accountability and Political Review of Agency Rules*, 51 Duke LJ 1059, 1068–93 (2001) (describing and assessing executive and legislative oversight of agency rule making).

¹⁵⁴ See Matthew C. Stephenson, *Optimal Political Control of the Bureaucracy*, 107 Mich L Rev 53 (2008) (arguing that the optimal arrangement may be some type of power sharing between agencies and the President); Jonathan S. Masur and Jonathan Remy Nash, *The Institutional Dynamics of Transition Relief*, 85 NYU L Rev 391, 435–440 (2010).

¹⁵⁵ See *Chevron*, 467 US at 843–44.

¹⁵⁶ Masur and Nash, 85 NYU L Rev at 445–47 (cited in note 154).

with those industries' own preferences and priorities.¹⁵⁷

Courts are not entirely immune from capture, however. Judges operate within an elite legal community and seek reputational benefits and status within that community,¹⁵⁸ and most judges are former lawyers drawn from that community. Occasionally judges retire and resume careers as lawyers.¹⁵⁹ Conceivably, then, courts are subject to a similar type of capture by actors within the legal community. This possibility grows as the size of the relevant community shrinks and the frequency of judges' interactions with the same attorneys increases.¹⁶⁰

This is the terrain on which the battles over choice of institutional actor are fought, and thus far these arguments have neither dissuaded Congress from vesting agencies with tremendous regulatory power nor convinced proponents of agency capture theories. On this ground, at least, the PTO fares no worse than the typical administrative agency. There is no reason to believe that it is less politically responsive or more subject to capture than the EPA, FDA, or any other of its peers. On the usual administrative law terms, the PTO can make out at minimum a *prima facie* case for regulatory authority commensurate with similarly situated agencies.

In fact, however, the case for the PTO is stronger than even this first-order picture would indicate. Structural features of the market for patents should render the PTO less susceptible to capture than many other typical agencies, and better situated vis-à-vis the federal courts than most agencies. The regulated community that must deal with the PTO is larger than for nearly any other administrative agency. The PTO's ambit includes every private entity that engages in any sort of research or development, a larger cohort than the class of firms that release pollutants (EPA), or produce consumables (FDA), or engage in collective bargaining

¹⁵⁷ See generally Nicholas Bagley and Richard L. Revesz, *Centralized Oversight of the Regulatory State*, 106 *Colum L Rev* 1260, 1284–92 (2006); Kieff, 157 *U Pa L Rev* at 1949–50 (cited in note 123).

¹⁵⁸ See Richard A. Posner, *What Do Judges and Justices Maximize? (The Same Thing Everybody Else Does)*, 3 *Sup Ct Econ Rev* 1, 13 (1993).

¹⁵⁹ See, for example, Jerry Markon, *Appeals Court Judge Leaves Life Appointment for Boeing*, *Wash Post* (May 1, 2006), online at <http://www.washingtonpost.com/wp-dyn/content/article/2006/05/10/AR2006051000929.html> (describing the resignation of Judge Michael Luttig, formerly of the Court of Appeals for the Fourth Circuit).

¹⁶⁰ See Thomas, 52 *Am U L Rev* at 792–94 (cited in note 112) (suggesting that the Federal Circuit has been captured).

(NLRB). Because the PTO interacts with a broader and more diverse regulated community, it will be more difficult for any single firm or industry to gain sway over the agency.

Moreover, many of the parties that interact with the PTO lack strong interests either for or against stringent patent protection. Most high-technology firms both hold patents and face competitors with their own overlapping patent portfolios. Accordingly, it is uncertain whether these firms would benefit or be harmed if patents were strengthened or weakened.¹⁶¹ In any event, without decisive lobbying objectives, these parties should have little interest in even attempting to capture the PTO.

Of course, as with any agency, there are firms with divergent private interests before the PTO. In particular, the brand-name pharmaceutical industry is viewed as the primary modern beneficiary of powerful patent protection and the industry most likely to invest resources in lobbying for greater patent rights.¹⁶² There has been movement toward extending patent rights for drug companies,¹⁶³ but those trends are, by and large, neither significant nor contemporary. The explanation for the pharmaceutical industry's general failure to secure most extensive patent rights is likely found in the fact that it is opposed by powerful interests as well: consumer groups—including such dominant national orga-

¹⁶¹ See Burk and Lemley, *The Patent Crisis* at 160–64 (cited in note 4) (arguing that the software industry's patent crisis is due to the ill-defined scope of software patents and the lax standards with which they are issued); Leon Radomsky, *Sixteen Years After the Passage of the U.S. Semiconductor Chip Protection Act: Is International Protection Working?* 15 *Berkeley Tech L J* 1049, 1054 (2000) (asserting that patents are not useful in the semiconductor industry because the complexity of the technology makes obtaining a patent impractical); Robert L. Risberg, Jr., Comment, *Five Years Without Infringement Litigation Under the Semiconductor Chip Protection Act: Unmasking the Spectre of Chip Piracy in an Era of Diverse and Incompatible Process Technologies*, 1990 *Wis L Rev* 241, 252 (“[T]he design that makes one chip's layout better than another's is generally not patentable.”); Clarisa Long, *Institutions and Interest Groups in Patent and Copyright Law* 10 (unpublished manuscript, 2007). Long ascribes the lack of congressional attention to patents, as a historical matter, to this phenomenon.

¹⁶² See Bessen and Meurer, *Patent Failure* at 88–89 (cited in note 4) (noting the high value of patent protection to the pharmaceutical industry compared to most other industries); Jaffe and Lerner, *Innovation and Its Discontents* at 39–41 (cited in note 4) (asserting that patent protection provides incentives for drug development that would otherwise be uneconomical).

¹⁶³ The Hatch-Waxman Act is an example of this movement, though it involved trade-offs and was not entirely beneficial to the prescription drug industry. See generally Henry Grabowski, *Patents and New Product Development in the Pharmaceutical and Biotechnology Industries*, 8 *Georgetown Pub Pol Rev* 7 (2003) (describing the trade-offs involved in that legislation); Scott Hemphill, *Paying for Delay: Pharmaceutical Patent Settlement as a Regulatory Design Problem*, 81 *NYU L Rev* 1553 (2006) (same).

nizations as the AARP, which is concerned about rising prices of drugs for senior citizens—and generic pharmaceutical companies.¹⁶⁴ The presence of these countervailing forces places the PTO in a situation far different from, for instance, the EPA. That agency regulates vast numbers of businesses, all of whom would likely prefer a slackening in regulation, counterbalanced only by a handful of comparatively weaker environmental groups.¹⁶⁵ There is little reason to suspect that the PTO will have as much difficulty evading improper outside influence as the canonical administrative body.

B. THE ADVANTAGES OF PTO INVOLVEMENT

As the previous section argued, there seems little reason to favor administrative involvement in highly technical regulatory fields such as environmental and securities law while simultaneously disfavoring it for patent law. Yet there are advantages to bestowing substantive rule-making authority upon the PTO that transcend that meager justification. This section sketches out two of the most important.

1. *Substantive rules and information gathering.* One of the principal goals of any organized system is to ensure that information flows to the decision makers most in need of it, or best positioned to make use of it. Achieving this goal is a matter of bureaucratic structure and incentives. The parties with the capacity to gather information must have the proper incentives to invest in obtaining it and passing it along to the higher-value users, and they must have the capacity to do so. This problem is difficult enough to solve within a government bureaucracy that lacks any market pricing mechanism that could set incentives. But the problem becomes even more difficult when the institution positioned to gather information and the institution in need of that information are housed under separate organizational roofs.

This is the state of play in patent law. The PTO grants approximately 200,000 patents per year, and in doing so accumulates vast amounts of information on a variety of topics integral to the patent law. To name just a few examples, the PTO is positioned

¹⁶⁴ Long, *Institutions and Interest Groups* at 10 (cited in note 161).

¹⁶⁵ Nonetheless, over the EPA's lifetime, a period of intense industry lobbying, the agency's trend has been toward more extensive and stricter regulation of pollutants, not a loosening of its grip.

to learn what the state of the art is in any given industry, and thus what sorts of inventions would be truly novel and nonobvious; the level of technical expertise of a person of ordinary skill in a given field, which is the standard upon which much of the patent law is based; and the ways in which patent drafters in various fields employ particular terms of art and describe particular types of inventions. Yet the PTO cannot make use of this information directly because it lacks control over the substantive patent law.

The Federal Circuit, by contrast, sees only a very small fraction of all patents—it decided fewer than 300 patent cases in 2008,¹⁶⁶ for instance—and nothing approaching a representative sample. In addition, whereas patent applications come into the PTO's hands immediately upon filing, the Federal Circuit typically sees a patent only years after it was filed. The patent must first wend its way through the PTO, be allegedly infringed by another party, and then progress through lengthy litigation at the district court level. This process takes more than twelve years on average.¹⁶⁷ Accordingly, the Federal Circuit possesses very little information regarding the current state of technology in any field, and its level of knowledge is particularly lacking in the quickly developing technological fields where it might be most useful.

This lack of information hampers the Federal Circuit's efforts at formulating sound policy. As an initial matter, the Federal Circuit undoubtedly makes significant errors when deciding difficult technical questions. Without a current, ongoing understanding of the state of a given technological field, the Federal Circuit can hardly be expected to ascertain how a person of ordinary skill in the art would understand a patent, or whether that person would have found a particular invention obvious. And these deficiencies do not touch on even more complex questions involving the doctrines of utility and obviousness, for example.

This is not to say that the Federal Circuit has no means of obtaining information from the patent office. The PTO regularly produces nonbinding guidelines for its examiners, to which the Federal Circuit could defer if it so chose. Or the court could simply solicit information and guidance from the PTO in particular cases

¹⁶⁶ This is based on a search of the Westlaw database using the word "patent." The results were then culled to remove any cases that did not involve the decision of any patent-related issue.

¹⁶⁷ Burk and Lemley, *The Patent Crisis* at 57 (cited in note 4).

or in the course of formulating particular doctrines. Generally speaking, however, the Federal Circuit has done neither of these things. It grants no deference to PTO guidelines, and it does not ask for the PTO's advice or guidance. *In re Fisher*¹⁶⁸ is illustrative of this attitude. In that case, the PTO rejected a patent filing pursuant to its own examination guidelines, and the patentee appealed to the Federal Circuit. The court eventually upheld the PTO's decision and validated the agency's approach in the guidelines, but it granted no particular deference to the patent office—not even weak *Skidmore* deference, much less genuine *Chevron* deference.¹⁶⁹ The Federal Circuit treated the PTO as merely another litigant.

It is worth pausing to note that there is one respect in which courts would seem better institutionally situated than agencies in this field. The federal courts adjudicate issues related to both patent validity and patent infringement, while the PTO encounters only questions of patent validity.¹⁷⁰ This might seem to provide the courts with at least one informational advantage.¹⁷¹ But again, the PTO's singular focus on validity is an artifact of the PTO having never been delegated any authority over issues of infringement. Moreover, the issues surrounding infringement—determining when injunctions are appropriate,¹⁷² calculating reasonable royalties,¹⁷³ etc.—are no less technically complex than other patent questions.¹⁷⁴ If the PTO were tasked with setting rules to govern

¹⁶⁸ 421 F3d 1365 (Fed Cir 2005).

¹⁶⁹ See *id.* at 1372 (noting only that “[t]he PTO’s standards for assessing whether a claimed invention has a specific and substantial utility comport with this court’s interpretation of the utility requirement of § 101”). Under the *Chevron* line of cases, agency actions that are not entitled to *Chevron* deference frequently receive deference “according to [their] persuasiveness,” which is known as *Skidmore* deference. *U.S. v Mead Corp.*, 533 US 218, 221 (2001).

¹⁷⁰ Burk and Lemley, *The Patent Crisis* at 107 (cited in note 4).

¹⁷¹ Nonetheless, it is worth noting that the most important infringement doctrines have direct analogues in doctrines of patent validity: literal infringement parallels novelty, while the doctrine of equivalents is very similar to obviousness. See Merges and Duffy, *Patent Law and Policy* at 781–877 (cited in note 13).

¹⁷² 35 USC § 283.

¹⁷³ 35 USC § 284.

¹⁷⁴ Burk and Lemley, *The Patent Crisis* at 129 (cited in note 4) (suggesting that a reasonable royalty should be determined by “the profit margin that a company might expect and the royalty rate common in licenses in that industry”); *id.* at 160 (suggesting that the likelihood of holdup problems should drive decisions regarding injunctions).

infringement, there is similar reason to believe that it would outperform the courts.¹⁷⁵

It is something of a puzzle that the Federal Circuit has not made better use of the PTO as an informational resource. Why, after all, should it not avail itself of all available means of improving its jurisprudence? The answer likely lies with the political economy of patent law, and in particular the institutional rivalry between the Federal Circuit and the PTO. The Federal Circuit is, first and foremost, a patent court. The remainder of its docket is comparatively insignificant. It was created to function as an expert overseer of the patent law, and undoubtedly its judges continue to understand their roles very much in those terms.¹⁷⁶ Consequently, the Federal Circuit has been loath to cede any authority or even any hint of primacy to the PTO, its main institutional competitor.¹⁷⁷ In addition to refusing to afford any deference to the PTO's view of the law, the Federal Circuit notably declined to review even the PTO's findings of fact with the level of deference mandated by the Administrative Procedure Act,¹⁷⁸ until the Supreme Court finally forced it to do so.¹⁷⁹

For its part, the PTO has little incentive to invest in information. It has nothing to gain from plying the Federal Circuit

¹⁷⁵ It is possible that the PTO should also be granted the authority to hear suits for patent infringement in the first instance, just as administrative law judges currently adjudicate regulatory cases across a wide variety of federal agencies (with parties holding rights of appeal to the federal courts). See the Federal Administrative Law Judges Conference, *FALJC's Mission, Constitution, and Bylaws*, online at <http://005754d.netsolhost.com/faljc1.html>. Full consideration of this possibility is both beyond the scope of this article and somewhat to the side of it; the argument here principally concerns which institution will determine substantive patent law rules, and the PTO need not have adjudicative authority to fulfill that role. I pause only to note that a shift to agency adjudication is not inconsistent with the approach advocated here.

¹⁷⁶ See the Federal Courts Improvement Act of 1982, Pub L No 97-164, 96 Stat 25 (1982) (codified in various sections of Title 28) (establishing the Federal Circuit); Harry F. Manbeck Jr., *The Federal Circuit—First Ten Years of Patentability Decisions*, 14 Geo Mason U L Rev 499, 499 (1992) (“It was expected that the Federal Circuit would provide uniform application and interpretation of the patent law.”); Robert L. Harmon, *Patents and the Federal Circuit* 1162 (BNA Books, 8th ed 2007) (“The Federal Circuit was created, in part, for the purpose of achieving uniformity in the exposition and application of substantive patent law.”).

¹⁷⁷ See Jonathan Masur et al, *Who Defines the Law? USPTO Rulemaking Authority*, 8 Nw U J Tech & Intell Prop 410 (2010), online at <http://www.law.northwestern.edu/journals/njtip/v8/n3/5>.

¹⁷⁸ 5 USC § 706(2)(A).

¹⁷⁹ See *Dickinson v Zurko*, 527 US 150, 163 (1999) (holding that the Federal Circuit must review PTO findings of fact with deference).

with knowledge that the court will not use. Even if the Federal Circuit were to make use of the information, it surely would not credit the PTO with having provided it. Nor can the PTO realize any advantage by challenging the Federal Circuit directly. Absent intervention from Congress or the Supreme Court, two parties that rarely engage with the patent law, the PTO holds no playable cards. The PTO typically behaves accordingly: nearly all of its guidance documents merely parrot Federal Circuit caselaw.¹⁸⁰ Independent PTO efforts to shape the law are extremely rare and nearly always unsuccessful. By consequence, the large quantities of information generated in the PTO sit uncollected and unutilized.

If the PTO disagrees with the courts as to the appropriate content of patent law, it is almost certainly best for the patent system and for society if the PTO simply states (and acts upon) its preferences directly. This would allow information to reach the public. The PTO has strong incentives not to pursue this course, however, because to do so would invite reversal and its attendant costs.¹⁸¹

Accordingly, the PTO might well attempt to accomplish effectively the same substantive ends through more *sub rosa* means. In particular, the PTO may attempt to use its control over patent examinations to enforce a *de facto* substantive law that is opaque and effectively unreviewable.

Imagine, for example, that the PTO does not believe that strands of the human genome should be patentable. The patent office can raise the costs of obtaining a patent on this type of invention in a variety of ways. It can allocate resources away from the relevant technological field and reduce the number of working examiners, causing applications to pile up and lengthening the time it takes for them to be granted. It can instruct its examiners to search more diligently for prior art, raising the probability that an application will be rejected and an inventor will be forced to redraft claims. And it can use what little discretionary authority it has in extending deadlines or granting additional leave to file to discrim-

¹⁸⁰ See Megan E. Lyman, *Judicial Fitness for Review of Complex Biotechnology Issues in Patent Litigation: Technical Claim Interpretation*, 23 J NAALJ 503, 509 (2003) (noting that PTO guidelines incorporate Federal Circuit opinions and do little else).

¹⁸¹ See Masur, *Patent Inflation* at 17–18 (cited in note 105).

inate among technological fields.¹⁸² These mechanisms will increase the transaction costs of getting a patent, and in some cases they may even serve to block a patent from issuing. Even where the patent eventually issues and where the transaction costs are insignificant,¹⁸³ the delay itself can be extremely costly for a patentee. Delay reduces the effective length of the patent term because the twenty-year term begins running when the application is first filed, and it can result in millions or billions of dollars in lost revenues for patentees.¹⁸⁴

These sorts of pathologies are neither unique to the PTO nor necessarily rare within the administrative state. Nearly any executive-branch organization possessing enforcement power but not lawmaking power may use its enforcement discretion to affect the de facto content of the substantive law. This phenomenon has been observed most notably in the criminal law,¹⁸⁵ and it may exist in a variety of other legal fields as well.¹⁸⁶ Yet its operation in patent law is different for one important reason: unlike other fields of law, there is no explicit element of discretion vested in the PTO. Unlike any prosecutor, the PTO must accept every filed application and is *obligated* to grant every patent that is valid under the Patent Act. The PTO is expected to function, ideally, as an automaton. Accordingly, the PTO possesses no official policymaking space; there is no sense in which the patent office's ability to promote or delay certain applications could be understood or justified as a purposeful, systemic means of agenda setting. When the PTO subverts the Federal Circuit's intentions regarding the

¹⁸² The PTO's recent efforts to limit the number of continuation applications that a patentee can file *as a matter of right* can be understood in this vein. Under the PTO's final rules, the office retained discretion to allow parties leave to file additional continuation applications under certain sets of circumstances. The PTO may well have envisioned this additional discretion as another mechanism for selecting among types of technology and fields of potentially patentable subject matter.

¹⁸³ See Jonathan S. Masur, *Costly Screens and Patent Examination*, 687 J Legal Analysis (2011), online at http://www.ssrn.com/abstract_id=1105184 (comparing the low cost of obtaining a patent with the value of a profitable invention).

¹⁸⁴ This is a particularly pressing issue for pharmaceutical companies, which frequently reap substantial income throughout the life of a patent and depend upon a lengthy patent term to fund the expensive clinical trials required to bring a patent to market. See Benjamin N. Roin, *Unpatentable Drugs and the Standards of Patentability*, 87 Tex L Rev 503, 504–05 (2009); see also note 162.

¹⁸⁵ See William J. Stuntz, *The Pathological Politics of Criminal Law*, 100 Mich L Rev 505, 506 (2001).

¹⁸⁶ See Adam B. Cox and Cristina M. Rodriguez, *The President and Immigration Law*, 119 Yale L J 458, 520 (2009).

patent law, it is acting beyond the contemplated boundaries of the patent system.

By contrast, a PTO imbued with the authority to make substantive legal rules would possess both the ability and the incentive to draw upon the information it is positioned to gather. The PTO could collect information from both outsiders and its own examiners. It could conduct studies analyzing the types of patents filed and the state of the art in various technological fields. And it could even enlist economists in performing larger-scale studies to determine the economic value of particular doctrines.

Importantly, these PTO policy innovations would be substantially resistant to Federal Circuit intervention. If the PTO were to employ notice-and-comment rule making, like any other similarly situated administrative agency, it would be entitled to *Chevron* deference in its interpretations of the Patent Act. Because the act is phrased in such general, ambiguous terms,¹⁸⁷ in most cases this deference should be decisive. This is not to say that the Federal Circuit would have no oversight role; PTO regulations would still undergo arbitrary and capricious review in the Circuit. But for the most part the PTO would be able to implement policy without fear of being summarily overturned by the Federal Circuit. Accordingly, the PTO would have the proper motivation to challenge the Federal Circuit where appropriate.

2. *Particularized patent advantages.* Armed with this information, the PTO could conceivably adjust a variety of patent doctrines with greater precision than an inexperienced court can achieve. Patent law differs importantly from other legal fields because of the scope and specificity of the technologies involved. One case may require detailed scrutiny of semiconductor designs; another may demand an analysis of gene sequencing. In response to this great variety of technological issues, and because judges are not skilled in the relevant technologies, patent law has officially embraced a doctrine of technological neutrality: patent doctrines should not differentiate between technologies. Accordingly, courts have constructed

¹⁸⁷ See, for example, 35 USC § 101 (2009) (“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”). The statute does not define “new,” “useful,” “composition of matter,” or any of its other relevant terms.

a number of general rules that operate across technological fields.¹⁸⁸

Yet this is despite the fact that there is little reason to believe that all fields should be treated equivalently. Moreover, each new patent case demands that the courts reapply this general standard to the relevant technology, which is a difficult and time-consuming exercise. Some scholars believe that the courts have already attempted to design field-specific patent rules, though frequently without success.¹⁸⁹ The PTO could improve upon these doctrines by drafting technology-specific rules that more accurately reflect the state of the art and reduce the decision costs of courts that must comb through the technologies. This section highlights three particular areas in which PTO rule making could lead to marked improvements.

First, consider the role of the “person having ordinary skill in the art” (the “PHOSITA”) in patent law. Much like the “reasonable person” in tort law, the PHOSITA is a construct used to define a variety of patent doctrines. An invention is obvious if a PHOSITA would find it obvious;¹⁹⁰ a patent sufficiently enables the underlying invention (per section 112 of the Patent Act) if it would teach a PHOSITA how to create the invention.¹⁹¹ The PHOSITA allows courts to decide patent cases without assembling any systematic understanding of the state of the art in any technological field—they need only decide what a PHOSITA would have understood regarding the technology at issue.¹⁹² A consequence of this approach is that no case creates meaningful precedent regarding skill in the art. Courts’ conclusions as to how a given PHOSITA would treat a particular technology are of essentially no use beyond the four corners of the opinions in which they are issued. Far preferable would be particular legal findings regarding the state of the art or the level of available knowledge in a given field, findings that could govern future cases and allow private

¹⁸⁸ See Burk and Lemley, 89 Va L Rev at 1630–75 (cited in note 66).

¹⁸⁹ See Burk and Lemley, *The Patent Crisis* at 109–30 (cited in note 4).

¹⁹⁰ See, for example, *Geo M. Martin Co. v Alliance Machine Systems Intern LLC*, 618 F3d 1294, 1302–03 (Fed Cir 2010).

¹⁹¹ See, for example, *Forest Laboratories, Inc. v Ivax Pharmaceuticals, Inc.*, 501 F3d 1263, 1266 (Fed Cir 2007).

¹⁹² It is worth noting that the PHOSITA must be defined not just by technological field but by time: a person with ordinary skill in the art would know more about computers in 2010 than in 1960.

parties to adjust their patenting behavior accordingly. For reasons likely related to its lack of information, the Federal Circuit has shied away from this course.

By contrast, the PTO could employ the expertise of its examiners directly to determine the level of ability and knowledge of a person having ordinary skill in the art in any number of technical fields. It could then incorporate this information into a set of regulations, updated regularly, which would govern the many PHOSITA-related questions arising in patent cases in those fields.¹⁹³ Note that the PTO already is forced to ascertain the level of skill of the PHOSITA in the course of assessing essentially every patent application for obviousness. It seems absurd to waste the enormous amounts of information generated through this process, rather than standardizing it and applying it to both examinations and court cases. Moreover, a consistently updated set of regulations would create a permanent record of the changing level of skill in the art over time. Courts could draw upon this database when adjudicating infringement actions that arise years after a patent has issued, rather than having to rely upon experts and guesswork to ascertain the appropriate level of skill in the art in a bygone era.

Second, the PTO could issue a set of rules for construing patent claims. These rules could take into account the specifications, prosecution history, and available extrinsic evidence based on the PTO's broad-based knowledge, acquired in the course of examining hundreds of thousands of patents, regarding how patent drafters commonly employ language and structure. The Federal Circuit's efforts in this area have been halting and uncertain. Current law is little more than an admonition to consider a variety of factors in turn, and to an unspecified extent.¹⁹⁴ Not surprisingly, the Federal Circuit's jurisprudence is viewed as largely unsus-

¹⁹³ If this seems too rigid, these regulations could be structured instead as rebuttable presumptions. The PHOSITA would be presumed to have the knowledge and skill embodied in the relevant PTO regulation unless a litigant demonstrated otherwise with expert testimony. The PTO could even select the proper evidentiary standard: a preponderance of the evidence, clear and convincing evidence, or something in between.

¹⁹⁴ See *Phillips v AWH Corp.*, 415 F3d 1303, 1314–18 (Fed Cir 2005) (en banc) (explaining that district court judges should consider the language of the claims themselves, the specifications, the prosecution history, and also extrinsic evidence when construing patent claims).

cessful.¹⁹⁵ The rate of reversal of district court opinions is very high, and district court judges do not appear to improve with experience.¹⁹⁶ It would not be difficult for the PTO to improve upon this record.

Third, at the outer reaches of possibility, a properly empowered patent office could consider varying the length of the patent term among different industries.¹⁹⁷ It is entirely likely that the standard twenty-year term is inappropriate for all patents in all fields; it persists in part because Congress and the courts lack the resources and skill necessary to adjust it. The PTO could combine the expertise of its examiners in understanding how research is conducted in various fields with the analysis of economists to determine whether deviations from the standard term are warranted.

C. PROSPECTS FOR REFORM

Irrespective of the wisdom of delegating substantive rule-making authority to the PTO, it might appear unlikely that Congress will act simply because it has not done so thus far. The very fact that the allocation of institutional authority remains unchanged, despite the Federal Circuit's documented failings, might be taken as evidence that Congress will not alter it in the future. In addition, if Congress does grant the PTO rule-making authority and the agency misuses that power, it might be advisable for Congress to strip the PTO of authority and return to the status quo ante. Yet

¹⁹⁵ See Wagner and Petherbridge, 152 U Pa L Rev (cited in note 140) (illustrating the failings of Federal Circuit claim construction doctrine and the Federal Circuit's own treatment of that doctrine).

¹⁹⁶ See Schwartz, 107 Mich L Rev (cited in note 130) (noting the low rate at which the Federal Circuit affirms claim construction judgments and the fact that district judges do not appear to improve their success rates with experience). This is not even to speak of the mind-bending contradictions inherent to Federal Circuit doctrine, such as the mutually contradictory notions that claims "must be read in view of the specification, of which they are a part," *Markman*, 52 F3d at 978, on the one hand, and that the courts "should not import limitations from the specifications into the claims." *ICU Medical, Inc. v Alaris Medical Systems, Inc.*, 558 F3d 1368, 1375 (Fed Cir 2009). Not to mention the fact that the written description requirement demands that the specification "describe the manner and process of making and using . . . the full scope of the invention," *Lizardtech, Inc. v Earth Resources Mapping, Inc.*, 424 F3d 1336, 1344-45 (Fed Cir 2005), which also seems inconsistent with the admonition against reading limitations from the specification into the claims.

¹⁹⁷ This might run afoul of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) and might thus be unworkable absent an internationally negotiated amendment to that treaty. See Burk and Lemley, *The Patent Crisis* at 20 (cited in note 4). It is in that sense in particular that this option is especially far-fetched.

if it is difficult to persuade Congress to make one change, it might be impossible to convince it to make a second.

This is a type of objection that might be raised against any proposal for legislative reform—if the idea is so beneficial, why has Congress not acted upon it already? But it is strengthened somewhat in the context of patent law, where Congress has not enacted *any* significant legal change in more than fifty years. It is possible that a powerful coalition of patent interest groups favor the status quo, or that interest in legal change is simply too minimal to spur congressional action.¹⁹⁸ This may also be a particularly difficult type of reform to enact. As I note above, Congress very rarely (if ever) grants an agency authority to make rules concerning a judge-made body of law.¹⁹⁹

At the same time, there has never been any serious attempt to transfer substantive rule-making authority to the PTO or any strong advocate for such a move. It may simply be an idea whose time has not yet arrived. A transfer of institutional authority also involves different political dynamics than a substantive change in the law. It is clearer who the winners and losers will be from a substantive change than from a reallocation of decisional authority, and thus perhaps easier to reallocate authority when private parties have entrenched interests. Congress is also likelier to grant power to an agency when it is uncertain as to the proper policy course.²⁰⁰ If Congress is dissatisfied with the Federal Circuit but lacks the information necessary to make sound substantive patent judgments, it might turn instead to the PTO.

In the end, it may well be that the prospects for institutional change are slim. But given the failings of the current system, there is little reason not to try.

IV. CONCLUSION

For years, federal judges have decided patent cases pursuant to doctrine and precedent without any clear indication as to the wisdom of the policies they were attempting to promote. The

¹⁹⁸ See Part II.E.

¹⁹⁹ See Part II.F.

²⁰⁰ See generally David Epstein and Sharyn O'Halloran, *Delegating Powers: A Transaction Cost Politics Approach to Policy Making Under Separate Powers* 34–38 (Cambridge, 1999) (describing Congress as facing a decision whether to “make” policy through substantive legislation or “buy” it through delegation).

result is a set of patent rules that in many contexts appears broken. Yet the courts can hardly be blamed for the mess; they were never meant to manage policy in an area as fraught with technological and economic complexity as patent law. *Bilski* lays bare this fundamental institutional weakness. Faced with a crucial issue of patentability that might affect the shape of several major areas of economic activity, the Supreme Court had no choice but to fall back upon doctrine and precedent, legal tools that have proven entirely inadequate to the task at hand. For its part, Congress has played no meaningful role in managing the patent system for more than half a century.

Because the courts have appeared incapable—and the legislature uninterested—it is time to consider other institutional arrangements. Rather than continuing to rely upon the federal courts to fumble toward a workable patent policy, Congress should authorize the Patent and Trademark Office to make rules with the force of law. The case for vesting substantive regulatory authority in the PTO is perhaps even stronger than for the typical administrative agency. Unlike the Federal Circuit, the PTO would be able to muster resources and expertise in addressing the crucial economic and technical issues that underlay patent law. The PTO could even innovate further, creating field-specific rules of patent scope, interpretation, or even duration. There is no principled justification for the arrangement that has left patent law governed by the courts while other similarly technical areas such as environmental law or securities law are run by agencies. It is merely a historical accident—and one that Congress should rectify.