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Patent as Promise

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For patent law to serve its purpose of encouraging innovation, would-be inventors must believe that the government will honor its promise to protect their right to exclude others from selling or using their novel, nonobvious, and useful inventions. But what makes the government's commitment to patent protection credible? Put another way, why is the government's "patent promise" anything more than cheap talk?

The puzzle of credible commitment in patent law is just that: a puzzle. Once an inventor has disclosed her discovery to the public, government officials—even benevolent government officials with society's best interests in mind—face powerful incentives to renege on their promise to protect the inventor's right to exclude. After all, the primary benefit of patent law is to incentivize innovations that occur prior to the patent's grant; a patent—once issued—generates deadweight loss in service of a goal already achieved. The patent promise is thus fundamentally time-inconsistent. And indeed, the long history of patent law reveals several instances in which governments—even in wealthy, liberal, democratic, and otherwise stable societies—have canceled large numbers of already granted patents without triggering serious reputational sanctions. If the patent promise is credible, it is not because patent law's track record is impeccable.

Although credible commitment is central to the patent system's operation, the subject has been relegated to the

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periphery of the patent literature. Leading patent scholars—to the extent that they address the problem of credible commitment at all—tend to assume that it has been solved without explaining how. The result is a credibility gap in patent scholarship that mirrors the credibility gap in the law itself: without an account of why the patent promise is believable, a cloud of doubt hangs over claims regarding patent law's innovation incentive effects.

This Article seeks to narrow—though not entirely close—the credibility gap in patent scholarship by building a ground-up account of credible commitment in patent law. It emphasizes three constellations of variables—institutions, ideas, and innovation—that undergird, or in some cases undermine, patent law's promise of protection. The tripartite institutions/ideas/innovation framework leads to several novel, nonobvious, and hopefully useful analytical insights. For example, the patent promise derives support both from institutional transparency and nontransparency: transparency with respect to judicial decisionmaking and nontransparency with respect to funding mechanisms. Non-welfarist justifications for patent law—such as the natural rights account—serve to sustain potentially welfare-enhancing policy trajectories even when welfarism on its own cannot. Perhaps most importantly, measures that lengthen and strengthen patent protection may weaken patent law's innovation incentive when those measures undermine the credibility of the patent promise. These insights bear important implications not only for patent law and policy but also for other areas across and beyond intellectual property that face fundamental time-inconsistency challenges of their own.

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Introduction

A patent is a promise.[1] To incentivize innovation, the government promises patentees that it will protect their right to exclude others from making, using, or selling their inventions for a limited time (under current U.S. law, twenty years). But what makes this "patent promise" credible? Once an innovator has disclosed her invention to the government and the public, why should we expect the government to follow through on its promise to protect the patentee's right to exclude?

The answer is not obvious. Patents impose significant costs on the judicial system, requiring time and resources to adjudicate complex, highly technical lawsuits. More importantly, patents impose a deadweight loss on society when patent holders use their temporary monopoly to raise prices, causing some consumers to drop out of the market and preventing mutually beneficial transactions from taking place.[2] If the government backtracks on its promise to enforce the patentee's right to exclude, society will retain the benefit of the patentee's invention but avoid the attendant costs of patent protection. The government would thus seem to have a very strong incentive to renege on its patent promise once patentees have fulfilled their end of the bargain.

To be sure, if the government announced that it would cease to enforce all patent rights going forward, then the prospect of patent protection would no longer operate as an incentive for potential inventors, and society would—at least according to standard economic logic—bear a cost in the form

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[1] This Article's title gestures toward the legal scholar Charles Fried's pathbreaking book, *Contract as Promise*, in which Fried argues that the "promise principle"—the principle "by which persons may impose on themselves obligations where none existed before"—supplies "the moral basis of contract law." CHARLES FRIED, CONTRACT AS PROMISE: A THEORY OF CONTRACTUAL OBLIGATION 1 (2d ed. 2015). The puzzle that this Article seeks to solve is how communities of persons impose on themselves obligations to honor patents. The perceived "moral basis" of patent law—discussed in Section II.B—offers an important but incomplete answer to that puzzle.

[2] *See* N. GREGORY MANKIW, PRINCIPLES OF ECONOMICS 311–13 (6th ed. 2011).

of reduced innovation.[3] But suppose the government announces that it will cancel all patents issued through yesterday while still honoring all new patents issued today and afterward? On the one hand, potential innovators might worry that if the government cancels patent rights once, it might do so again. On the other hand, even if the government continues to honor preexisting patents today, there remains the possibility that the government will cancel all patents tomorrow. After all, *not* canceling patents today doesn't make the problem of credible commitment go away—it simply pushes the problem forward in time. Indeed, the government's temptation to cancel all patents tomorrow might be stronger if it doesn't do so today because the social costs of patent protection—including the burdens on the judicial system and the deadweight loss from patent holders' market power—are higher when more patents are in force.

The problem of credible commitment strikes at the heart of patent law: unless the government can convince individuals and firms that it will honor its promise to protect patent rights, patent law cannot succeed as an innovation incentive. Yet despite the centrality of credible commitment to the patent law enterprise, patent literature has relegated the problem to its periphery. Peter Menell and the late Suzanne Scotchmer—luminaries in the law and economics of patents—reflected the general attitude of legal scholars and economists when they wrote in 2007 that patents "automatically avoid" the problem of credible commitment.[4] How patent law achieves this automaticity is left a mystery. Only a few law review articles mention credible commitment, and none have analyzed the question of credible commitment in patent law at any length or in any depth.[5] Economists, for their part, fare little better in this regard, typically assuming that the government's patent promise is credible without explaining why.[6]

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[3] *See* WILLIAM D. NORDHAUS, INVENTION, GROWTH, AND WELFARE: A THEORETICAL TREATMENT OF TECHNICAL CHANGE 76 (1969) (characterizing patent protection as a trade-off between innovation incentives and deadweight loss).

[4] Peter S. Menell & Suzanne Scotchmer, *Intellectual Property Law*, *in* 2 HANDBOOK OF LAW AND ECONOMICS 1473, 1531 (2007).

[5] *See infra* Section I.C.

[6] *See infra* notes 95–97 and accompanying text.

The patent literature thus suffers from a "credibility gap"[7] in two respects. First, there is a gap in the patent literature with respect to credible commitment—a hole in patent scholarship waiting to be plugged. Second, as long as the patent literature fails to grapple with the credible commitment challenge, claims about the incentive effects of patent law will not be completely credible. Without an explanation as to why the patent promise should be believed, we cannot really understand, from the bottom up, how patents incentivize innovation. Moreover, if we do not understand the relationship between patent protection and innovation from the ground up, we may pursue policy changes that seem like they should strengthen patent law's innovation incentive effect but that actually accomplish the opposite. Without an understanding of the sources and limits of credible commitment, patent policy will be flying blind.

This Article begins to fill the credibility gap in patent scholarship. Drawing insights from the study of credible commitment in other domains and tailoring those insights to the patent context, the Article identifies three constellations of variables—"institutions," "ideas," and "innovation"—that support, or in some cases undermine, patent law's promise of protection. The Article goes on to show that the study of patent law's credible commitment problem—while informed by the analysis of credible commitment elsewhere—also holds important lessons for scholars working on non-patent issues, including closely related areas of intellectual property such as copyright and trade secrecy as well as topics farther afield such as criminal law and tax.

All three accounts of the credibility of the patent promise—institutions, ideas, and innovation—are, ultimately, incomplete. The Article's primary claim is thus that patent law's credible commitment problem is indeed a problem. Patent policymakers must therefore remain attentive to the fragility of the patent promise. Yet the Article also identifies various ways in which institutions, ideas, and innovation can

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[7] *Cf.* OXFORD DICTIONARY OF ENGLISH 409 (Angus Stevenson ed., 3d ed. 2010) (attributing the phrase "credibility gap" to Sen. Kenneth Keating of New York, who defined the "credibility gap" as "the failure to convince Russia that the United States means what it says about defending its interests").

bridge patent law's credibility gap even while they cannot seal the hole shut. The story told here of how the patent promise achieved credibility is thus one of qualified success, with both the success and its qualifications bearing emphasis.

The story starts with the first "i"—institutions—including the judiciary, the legislature, and the administrative state. Judicial institutions cannot prevent a politically powerful coalition from canceling patent rights in one fell swoop. What courts can do—through public proceedings and written opinions—is bring transparency to the patent system's day-to-day workings. The judiciary thus serves less as a bulwark against a one-off abrogation of patent rights and more as a check on case-by-case deviation from the patent promise.

As for legislative institutions, the Article argues that formal legislative rules—for example, the U.S. Senate's supermajority requirement for cloture—provide only weak protection against patent cancellation. More important than these formal legislative rules are the unwritten budgetary norms that exempt the patent "shadow tax" from the accounting requirements applicable to explicit tax measures.[8] Patents—because they are not perceived as taxes, even though they operate much like taxes—are buffered from the paroxysms of anti-tax sentiment that periodically sweep over Capitol Hill and across the broader U.S. political landscape.[9] Said more sharply, the patent promise derives support both from transparency and nontransparency: transparency with respect to judicial proceedings and nontransparency with respect to funding mechanisms. Judicial institutions shine a light on the government's case-by-case consistency—or inconsistency—in honoring its patent commitments; legislative institutions allow the state to distribute the costs of patents in the dark.

Patent administrative institutions such as the U.S. Patent and Trademark Office (PTO) and its counterparts in other countries supplement the judicial and legislative safeguards of the patent promise by counteracting the patent equivalent of

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[8] Daniel J. Hemel & Lisa Larrimore Ouellette, *Beyond the Patents–Prizes Debate*, 92 TEX. L. REV. 303, 314–15 (2013).

[9] *Cf.* Marjorie E. Kornhauser, *Legitimacy and the Right of Revolution: The Role of Tax Protests and Anti-Tax Rhetoric in America*, 50 BUFF. L. REV. 819, 824 (2002) (noting "the centrality of tax rebellions in American history").

Gresham's law: the proposition that "bad money drives out good."[10] "Bad" patents—patents granted for inventions that do not satisfy the legal requisites for protection—undermine the credibility of "good" patents in two respects. First, when the government grants many bad patents that eventually will be invalidated by courts, holders of good patents that will ultimately survive judicial scrutiny nonetheless struggle to persuade potential infringers to respect patent rights. The higher cost of enforcing good patents will lead some inventors to forgo patent protection altogether (e.g., relying on trade secrecy instead) and may depress the overall rate of innovation. Second, and relatedly, a surfeit of bad patents will undermine public support for the patent bargain between inventors and society, thereby raising the risk of promise-breaking reforms. Indeed, according to one account, the dramatic decision by the Netherlands to abolish its patent system in 1869 stemmed in part from the Netherlands' failure to develop an administrative infrastructure that could distinguish bad patents from good patents ex ante.[11] Patent offices thus play an important role in sustaining the patent promise by separating the good-patent wheat from the bad-patent chaff at the pre-grant stage.

Hovering above the judicial, legislative, and administrative institutions of domestic patent law is an international infrastructure centered on the World Trade Organization (WTO) and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). International institutions potentially contribute to the credibility of the patent promise in two ways: first, through a "logic of consequences" that punishes states that deviate from the patent promise; and second, through a "logic of appropriateness" that characterizes respect for intellectual property as a requisite trait of a responsible modern nation-state. As we shall see, TRIPS aspires to entrench both of these logics. Yet TRIPS potentially backfires—both by legitimating

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[10] *See infra* Section II.A.3. On the history, applications, and criticisms of Gresham's law in the currency context, see generally George Selgin, *Gresham's Law*, *in* HANDBOOK OF THE HISTORY OF MONEY AND CURRENCY 199 (Stefano Battilossi, Youssef Cassis & Kazuhiko Yago eds., 2020).

[11] *See* Stef van Gompel, *Patent Abolition: A Real-Life Historical Case Study*, 34 AM. U. INT'L L. REV. 877, 915–16 (2019).

the suspension of IP rights as a form of cross-retaliation in trade disputes and by providing a forum in which opponents of strong IP protection can contest and complicate pro-patent norms.

As the TRIPS example illustrates, international institutions coexist with—and potentially complement—ideas about IP that shape the credibility of the patent promise domestically. The historically contingent idea of patents as property rights rather than government-granted privileges—an idea that TRIPS embraces and emphasizes—serves to link patent protection to a neoliberal economic agenda that achieved dominance in the United States and other advanced economies in the late twentieth century. Even more importantly, and possibly more durably,[12] the idea of patent entitlements as "natural rights" activates non-welfarist sentiments among the laity. As Gregory Mandel concludes from his empirical study of public perceptions of IP, "[w]hereas intellectual property is *designed* based on an incentive theory of intellectual property rights, lay people *understand* intellectual property law to be based on the natural entitlement of authors and inventors to their intellectual creations."[13]

This mismatch is in some ways salutary. The credible commitment problem arises in economic models of optimal policymaking precisely because policymakers are assumed to be welfarist.[14] If a critical mass of the population embraces a "natural rights" theory of patent law—according to which patentees are morally entitled to their intellectual property by virtue of the labor that they put into their inventions—deviation from the patent promise may no longer appear to be attractive. Framed differently, policymakers may be able to increase social welfare by inculcating non-welfarist values in

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[12] Patent law's association with neoliberalism—though perhaps an asset at the turn of the twenty-first century—now looks much more like a liability. *See* Louis Menand, *The Rise and Fall of Neoliberalism*, NEW YORKER (July 17, 2023), https://www.newyorker.com/magazine/2023/07/24/the-rise-and-fall-of-neoliberalism [https://perma.cc/7LEZ-Y5FS].

[13] Gregory N. Mandel, *The Public Perception of Intellectual Property*, 66 FLA. L. REV. 261, 263–64 (2014).

[14] *See* Stanley Fischer, *Dynamic Inconsistency, Cooperation, and the Benevolent Dissembling Government*, 2 J. ECON. DYNAMICS & CONTROL 93, 105–06 (1980).

their population. Nonwelfarism paves a pathway for potentially welfare-improving policies.

Yet even individuals who cite non-welfarist and nonconsequentialist justifications for IP in surveys may ultimately be influenced by the welfare consequences of patent law. Insofar as public opinion responds to these real-world consequences, the credibility of the patent promise will depend on whether the innovation benefits of patent law outweigh the substantial social costs. As long as the patent system produces a steady stream of useful, novel, and nonobvious inventions, then support for the patent promise is more likely to persist. But as the stock of deadweight loss-generating patents rises relative to the flow of new innovations, then the patent bargain may come to appear increasingly asymmetrical and for that reason may become increasingly unstable.

Innovation, the third element of the explanatory framework, functions both as a potential cause and potential consequence of credible commitment. According to this account, the patent promise—in order to be credible—must incentivize innovation, while in order for the patent promise to incentivize innovation, it must be credible. The relationship between the patent promise and innovation is characterized by at least two equilibria: one in which credibility and innovation are both high, and another in which credibility and innovation are both low.

The Article's tripartite framework—emphasizing institutions, ideas, and innovation—not only enriches our understanding of the sources and limits of credible commitment in patent law but also carries important implications for patent policy. Careful reflection on the credible commitment puzzle points us in the direction of epistemic modesty: unless and until we understand when and why the patent promise is credible, we should be wary of confident predictions regarding the incentive effects of patent reforms. More provocatively, the Article's analysis challenges the traditional framing of patent policy as a trade-off between the social benefit of incentivizing innovation and the social cost of deadweight loss.[15] Patent-strengthening reforms, insofar as

[15] *See* Bhaven Sampat & Heidi Williams, *How Do Patents Affect Follow-On*

they increase deadweight loss, may—in certain circumstances—*undermine* patent law's innovation incentive by rendering the patent bargain more lopsided and thus the patent promise less believable.

The tripartite framework offers further lessons for other areas of law and policy, including adjacent fields of innovation policy and intellectual property. The core insight that credibility is not an intrinsic feature of patents—that patent law's credibility had to be earned over centuries—points toward ways that other innovation incentives such as inducement prizes can overcome similar time-inconsistency challenges. For example, to the extent that patent law's credibility depends upon a tradition of judicial enforcement of patent rights, we can imagine prize systems that would similarly rely on judges or juries—rather than, say, legislators—to decide when rewards should be paid out. We can also see more clearly how the relentless expansion of intellectual property protection in other domains may prove counterproductive to credible commitment in those contexts. For instance, critics of Congress's 1998 extension of the copyright term argued that the longer term would do little to incentivize new creative works; this Article's framework sharpens that critique by showing how IP-extending efforts can not only miss their mark but, worse yet, boomerang.

The credible commitment problem in patent law is part of a broader time-inconsistency challenge in law and policy. Zooming out from IP, we can come to appreciate how some of the strategies of credible commitment in patent law—for example, the deployment of deontological ideas for consequentialist ends—mirror strategies in fields ranging from criminal law to tax. At the same time, the credible commitment challenge in patent law is sufficiently distinctive to justify its own focused analysis, as lessons from other areas do not always cross-apply to patents. For example, one takeaway from the study of credible commitment in tax law is that weaker administrative institutions strengthen the credibility of the

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Innovation? Evidence from the Human Genome, 109 AM. ECON. REV. 203, 204 (2019) (noting that for more than a half century, "optimal patent policy design has traditionally been framed as a trade-off between th[e] benefit of providing incentives for the development of new technologies and the cost of deadweight loss from higher prices during the life of the patent").

government's commitment not to expropriate wealth because—without a robust administrative apparatus—the state will struggle to value and seize assets.[16] In patent law, we witness the reverse: well-developed administrative institutions can bolster the credibility of the patent promise by weeding out bad patents before they are ever granted.

The balance of the Article develops each of these arguments and related claims in greater depth. Part I introduces patent law's credible commitment challenge and surveys the small literature on credibility in IP. Part II lays out the tripartite analytical framework and explores each category—institutions, ideas, and innovation—in further detail. Part III derives implications for policy in and beyond patent law.

I. Credible Commitment in Patent Law and Scholarship

A. The Challenge of Credible Commitment

Imagine that a benevolent government, at time zero, chooses its innovation policy with the goal of maximizing social welfare. One potential policy is patent law: the government might promise the originators of useful, novel, and nonobvious inventions that they will be able to exclude others from making, using, or selling those inventions for some period of time. The benefit to society of the patent promise is the increase in innovation—starting at time zero—that the promise will induce. The cost to society is the familiar deadweight loss of patent monopolies,[17] along with all the attendant costs of patent infringement litigation.

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[16] *See* Daniel J. Hemel, *Capital Taxation in the Middle of History*, 99 N.Y.U. L. REV. 1554, 1575–77 (2024); *see also* Barry R. Weingast, *The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development*, 11 J.L. ECON. & ORG. 1, 1 (1995) ("A government strong enough to protect property rights and enforce contracts is also strong enough to confiscate the wealth of its citizens.").

[17] *See* Nordhaus, *supra* note 3, at 76. While this discussion focuses on the familiar trade-off between innovation incentives and deadweight loss, it bears mention that patent law's incentive mechanism can—in theory and practice—be "matched" with non-IP allocation mechanisms to leverage the benefits of ex post, market-set rewards without the deadweight loss of IP monopolies. *See* Daniel J. Hemel & Lisa Larrimore Ouellette, *Innovation Policy Pluralism*, 128 YALE L.J. 544, 563–64 (2019).

Now, fast-forward to time one. The government must decide whether to maintain or revise its patent policy. One possibility is to cancel all patents issued before time one but to maintain the patent system on a going-forward basis. If the government at time one enjoys complete credibility—if everyone believes that the government will do exactly what it says—then one-off cancellation is optimal: canceling all existing patents will eliminate deadweight loss in the current period and reduce litigation costs while preserving the patent system's innovation incentive.[18] Likewise, if the government at time one lacks any credibility—if no one believes that the government will do what it says—then cancellation of existing patents is optimal: again, cancellation of existing patents eliminates deadweight loss and reduces litigation costs but does not negatively affect innovation incentives (because patents produce no innovation incentive anyway if no one expects that the government will keep its promises).

What if the government's capacity for credible commitment lies between the extremes of complete credibility and complete lack of credibility? Now, the government's choice at time one is more complicated. On the one hand, if the government

[18] To be sure, some scholars have proposed consequentialist justifications for patent law beyond the familiar innovation incentives argument. Perhaps most famously, Edmund Kitch argued that patent law encourages efficient investments in the commercialization of existing inventions and discourages socially excessive investments in secrecy. *See* Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 276–80 (1977); *see also* John F. Duffy, *Rethinking the Prospect Theory of Patents*, 71 U. CHI. L. REV. 439, 443–46 (2004) (revisiting and revising Kitch's "prospect theory"). For purposes of this Article, I will set aside the question of whether Kitch's "highly controversial" prospect theory could serve as an independent justification for patent protection. *Cf.* A. Samuel Oddi, *Un-Unified Economic Theories of Patents—The Not-Quite-Holy Grail*, 71 NOTRE DAME L. REV. 267, 269 & n.12 (1996) (noting objections). Uncontroversially, a benevolent social planner would face a strong temptation to cancel all existing patents if it could credibly commit to non-repetition, even if—as Kitch and others observe—the planner still might want to consider potential post-grant benefits of patent protection. *See generally* Mark A. Lemley, *Ex Ante versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129, 130 (2004) (cataloguing and critiquing "ex post justifications for intellectual property" that "defend intellectual property rights . . . on the basis of the incentives the right gives its owner to manage works that have already been created").

cancels all existing patents at time one, individuals and firms might doubt whether the government will honor its patent promise moving forward. On the other hand, if the government does *not* cancel all existing patents at time one, then the number of patents in force at time two will be larger, litigation costs will be higher, and the aggregate deadweight loss of patent monopolies will be greater. For all those reasons, the government's incentive to cancel patents at time two will be stronger if it doesn't cancel patents at time one than if it does. Sophisticated individuals and firms will understand, moreover, that non-cancellation at time one only strengthens the incentive to cancel at time two. When the government enjoys an intermediate level of credibility, cancellation of patents at time one has a clear effect on litigation costs and deadweight loss, reducing both, but has ambiguous implications for innovation incentives.

As time goes on, the problem of credible commitment compounds. Every time the government resists the temptation to cancel existing patents, the stock of patents increases, the costs of the patent system escalate, and the incentives for cancellation in the next period intensify. We might call this patent law's "credibility paradox": when the government keeps its promise, it increases its incentive to break the promise in the next period—at least as long as the stock of existing patents and the corresponding social costs of patent protection continue to grow.

A partial solution to the credibility paradox is for the government to set a time limit on patent protection. That time limit—twenty years under U.S. and international law[19]—ensures that the stock of existing patents does not grow ad infinitum. Counterintuitively, a twenty-year patent life may create stronger innovation incentives, compared with perpetual protection, because the finite term limits the patent system's costs and thereby makes the promise of protection more credible. Yet, this solution is only partial: even when patents are time-limited, the government faces a strong

[19] *See* 35 U.S.C. § 154(a)(2) (establishing a twenty-year patent term); *Agreement on Trade-Related Aspects of Intellectual Property Rights* art. 33, Apr. 15, 1994, *Marrakesh Agreement Establishing the World Trade Organization*, Annex 1C, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (committing countries to a minimum patent term of twenty years).

incentive to eliminate the deadweight loss and other social costs of the still-substantial patent stock.

Patent law's credibility paradox bears more than a passing resemblance to the "information paradox" identified by the future Nobel laureate economist Kenneth Arrow in 1962. Arrow famously observed that "there is a fundamental paradox in the determination of demand for information; its value for the purchaser is not known until he has the information, but then he has in effect acquired it without cost."[20] After stating the paradox, Arrow quickly added that "[o]f course, if the seller can retain property rights in the use of information, this would be no problem,"[21] and he went on to note that property rights in information may take the form of "patents and similar legal devices."[22] Consistent with that claim, IP scholars often describe patents as a solution to Arrow's information paradox because patents allow inventors to disclose information while retaining the right to prevent others from using that information without a license.[23]

But rather than resolving Arrow's information paradox, patent law reproduces Arrow's information paradox—this time with the government as the "purchaser" of information. Once a patent applicant has disclosed her invention to the patent authority, the government has in effect acquired it without cost. Granting the seller a property right (i.e., a patent) does not solve the paradox because the government can revoke—or decline to enforce—the seller's right. Not only that, but patent law prolongs the information paradox over the

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[20] Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, *in* THE RATE AND DIRECTION OF INVENTIVE ACTIVITY 609, 615 (1962).

[21] *Id.*

[22] *Id.* at 617.

[23] *See, e.g.*, Dan L. Burk & Brett H. McDonnell, *The Goldilocks Hypothesis: Balancing Intellectual Property Rights at the Boundary of the Firm*, 2007 U. ILL. L. REV. 575, 585 (2007) ("By publicly disclosing technical information, while protecting it by exclusivity, patents circumvent the Arrow paradox."); Peter Lee, *Transcending the Tacit Dimension: Patents, Relationships, and Organizational Integration in Technology Transfer*, 100 CAL. L. REV. 1503, 1543 (2012) ("Patents overcome Arrow's information paradox by establishing 'precontractual liability' for unauthorized exploitation of technical information."). For an early statement of the relationship between patent law and the information paradox, see Kitch, *supra* note 18, at 278.

length of the patent term. If the government provided inventors with a one-time reward—for example, a prize paid up front—the paradox would persist only from the time of disclosure to the time of payment. Patent law stretches the credibility challenge over a longer period: the government continuously faces the question of why it should pay—or make society pay—for information that it already has, and patent holders face ongoing doubts about the government's commitment.

B. Varieties of Deviation

The stylized description of patent law's credible commitment challenge in Section I.A envisioned the possibility of a drastic deviation from the patent promise: the cancellation of all existing patents. As explained below, only a few countries in history have ever eliminated all patent rights outright. More often, countries that deviate from the patent promise do so less abruptly. Identifying these forms of less dramatic deviation will illustrate the full scope of the credible commitment challenge while also shedding light on a wider range of strategies that countries can use to bind themselves to their patent promises.

1. Patent Abolition

The clearest cases of deviation from the patent promise are the handful of instances in which countries have abolished all patents at once. Most of these wide-scale cancellations have occurred under Communist leadership. For example, Russia effectively abolished patents in 1919 after the Bolsheviks took power, though the Soviet Union reenacted a patent law in 1924 and created a process whereby holders of pre-1919 patents could apply to restore their remaining terms.[24] Communist China abolished patent rights in 1963 under Mao Zedong and did not reinstate its patent system until 1984, when the economic reformer Deng Xiaoping led the implementation of a new patent law.[25] Communist North Vietnam abolished its

[24] *See* Karl Hall, *Patent Debates on Invention from Tsarist Russia to the Soviet Union*, *in* PATENT CULTURES: DIVERSITY AND HARMONIZATION IN HISTORICAL PERSPECTIVE 247, 257, 259 (Graeme Gooday & Steven Wilf eds., 2020).

[25] *See* Raymond M. Gabriel, Note, *The Patent Revolution: Proposed*

intellectual property regime in the 1950s,[26] and roughly four decades elapsed before Vietnam—with North and South now united—again recognized patent rights in conjunction with its application to join the World Trade Organization in 1995.[27]

The most notable example of a non-Communist country canceling all patents is the Netherlands, which abolished its patent system in 1869 and did not reinstate a patent regime until 1912.[28] Dutch legal scholar Stef van Gompel identifies several factors that motivated the Netherlands' dramatic action. First, most Dutch parliamentarians came to reject "natural rights" justifications for intellectual property and started to see the debate over patents primarily in utilitarian terms.[29] Second, Dutch policymakers began to believe that the country's patent laws did little to stimulate domestic innovation and primarily benefitted foreigners, who received 90% of all patents granted by the Netherlands in the 1850s and early 1860s.[30] Third, patent abolition fit into the "liberal-economic" agenda of Prime Minister Pieter Philip van Bosse and his deputy, Cornelis Fock—an agenda that also included the elimination of a stamp duty on printed material and the embrace of free trade.[31]

This last point—that Dutch leaders saw patent abolition as an outgrowth of their pro-free trade commitments—may sound dissonant to modern ears, given that protection of intellectual property rights today is often understood to be harmonious with a "neoliberal" economic agenda that supports free trade.[32]

Reforms in Chinese Intellectual Property Law, Policy, and Practice Are the Latest Step to Bolster Patent Protection in China, 9 ASIA-PAC. L. & POL'Y J. 323, 327, 329 (2008).

[26] Van Anh Lee, *Soviet Legacy of Vietnam's Intellectual Property Law: Big Brother Is (No Longer) Watching You*, 19 ASIAN J. COMPAR. L. 39, 45–46 (2024).

[27] *See id.* at 50.

[28] *See* van Gompel, *supra* note 11, at 879. For a discussion of the flaws in the pre-1869 Dutch patent system, see ERIC SCHIFF, INDUSTRIALIZATION WITHOUT NATIONAL PATENTS: THE NETHERLANDS, 1869–1912; SWITZERLAND, 1850–1907, at 19–21 (1971).

[29] *See* van Gompel, *supra* note 11, at 908–11.

[30] *See id.* at 912–13.

[31] *See id.* at 917, 921.

[32] *See, e.g.*, Susan K. Sell & Aseem Prakash, *Using Ideas Strategically: The*

One takeaway from the history of patent cancellations is that the ideological valence of IP rights is contingent: the same policy was embraced by market-oriented reformers in one century and by Communist revolutionaries in the next.[33] The Dutch case also shows us what can happen when justifications for intellectual property shift from a "natural rights" to "economic-utilitarian" register.[34] According to van Gompel, "[t]he fact that [Dutch lawmakers] did not accept . . . that inventors have pre-existing rights in their inventions was a critical first step" toward abolition, "without which the case for eliminating patents would have been much harder, if not impossible, to make."[35]

Finally, the Dutch episode underscores that the credibility of the patent promise depends, at least in part, on the relationship between the pace of innovation and patent-system costs. Mid-nineteenth-century Dutch policymakers believed that the patent bargain had become too lopsided—that the Netherlands was not getting enough innovation "bang" for its deadweight-loss "buck" [36] (or less anachronistically, its deadweight-loss guilder). The Netherlands' decision to abolish its patent system reminds us that innovation—though often framed as a result of patent law's incentive effect—is also

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Contest Between Business and NGO Networks in Intellectual Property Rights, 48 INT'L STUD. Q. 143, 144–45, 162 (2004) (explaining how business interests and international financial institutions successfully grafted intellectual property rights protection and free trade into a "neoliberal" agenda). It would not, however, have sounded dissonant elsewhere in Europe at the time. As Fritz Machlup notes, "[t]he free-trade idea had been the chief ideological support of the antipatent movement" until the 1870s. The economic crisis that ravaged Europe for much of that decade undermined support for free trade and, with it, the movement for patent abolition beyond the Netherlands. FRITZ MACHLUP, SUBCOMM. ON PATENTS, TRADEMARKS, AND COPYRIGHTS OF THE S. COMM. ON THE JUDICIARY, 85TH CONG., AN ECONOMIC REVIEW OF THE PATENT SYSTEM 5 (Comm. Print 1958) (Study No. 15).

[33] On the contingent relationship between IP rights and neoliberalism, see Quinn Slobodian, *Are Intellectual Property Rights Neoliberal? Yes and No*, PROMARKET (Apr. 18, 2021), https://www.promarket.org/2021/04/18/intellectual-property-rights-neoliberal-hayek-history [https://perma.cc/CKR9-EDX5].

[34] Van Gompel, *supra* note 11, at 904, 920.

[35] *Id.* at 920.

[36] *See id.* at 912–13, 920.

potentially a precondition for patent law's incentive effect.

2. Categorical Cancellation

The case of the Netherlands is, in one respect, unique: the only known example of a non-Communist country abolishing its patent system entirely. Yet the case of the Netherlands also can be understood as a particularly dramatic example of a much more common phenomenon: the cancellation of entire categories of patents by countries not otherwise undergoing revolution. These "categorical cancellations"—though narrower in scope than outright abolition—potentially pose an even greater challenge to the credibility of the patent promise precisely because they are less dramatic and therefore more difficult to distinguish from the normal operation of patent law.

Some categorical cancellations have occurred through legislation. For example, the Atomic Energy Act of 1946 revoked existing patents for inventions and discoveries used in the production of fissionable material or atomic weapons.[37] In other cases, categorical cancellations have resulted from judicial decisions. For example, the U.S. Supreme Court ruled in 2013 that naturally occurring DNA sequences are not patentable—a decision that effectively invalidated thousands of existing patents.[38] The next year, the U.S. Supreme Court held in *Alice Corp. v. CLS Bank International* that a computer implementation of an abstract idea is not patent-eligible[39]—a decision that led to the invalidation of hundreds of patents[40]

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[37] Atomic Energy Act of 1946, Pub. L. No. 79-585, § 11(a)(1), 60 Stat. 755, 768. The statute called for "just compensation" for revoked patents. *Id.*

[38] Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 569 U.S. 576, 580 (2013); *see* Richard Wolf, *Justices Rule Human Genes Cannot Be Patented*, USA TODAY (June 13, 2013), https://www.usatoday.com/story/news/nation/2013/06/13/supreme-court-gene-breast-ovarian-cancer-patent/2382053 [https://perma.cc/3G9H-QKC9]. In an earlier case, *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012), the Court arguably upended "settled expectations that had existed for 30 years" regarding the patent eligibility of medical diagnostic methods and called hundreds of those patents into question. *See* Athena Diagnostics v. Mayo Collaborative Servs., 927 F.3d 1333, 1349 (Fed. Cir. 2019) (Chen, J., concurring in the denial of reh'g en banc).

[39] *See* Alice Corp. v. CLS Bank Int'l, 573 U.S. 208, 212 (2014).

[40] *See Alice* Invalidation Rate Stands at 60% Overall Despite *Berkheimer*

(though not the "death of hundreds of thousands of patents" that one Federal Circuit judge predicted at the time[41]).

In theory, categorical cancellations could be used strategically to take advantage of sunk investments in areas where the stock of existing patents is large and the pace of innovation has slowed. But a categorical cancellation may also represent a "course correction"[42]—an action by the legislature or the judiciary to right-size an overly broad definition of patentable subject matter adopted by the patent office. Indeed, if the legislature and the judiciary never intervened to limit the scope of patentable subject matter but did step in when the patent office construed the definition of patentable subject matter too narrowly, then the result would be a one-way ratchet, with the sphere of patentable subject matter forever expanding. The consequent "patent inflation"[43]—with patent protection creeping into new areas of intellectual and economic life—could do as much to undermine the credibility of the patent promise as categorical cancellation: the more bloated the patent system becomes, the greater the risk of a backlash like the one that popped the patent bubble in the Netherlands in 1869.

In any given case of categorical cancellation, patent system actors and observers are likely to disagree about whether the relevant legislative or judicial intervention marks a break from the patent promise. Because of that disagreement—and because the underlying question is subjective—the opportunity

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Dip, RPX (Apr. 1, 2020), https://www.rpxcorp.com/data-byte/alice-invalidation-rate-stands-at-60-overall-despite-berkheimer-dip [https://perma.cc/B22T-AVJJ].

[41] *See* CLS Bank v. Alice Corp., 717 F.3d 1269, 1313 (Fed. Cir. 2013) (en banc) (Moore, J., dissenting in part) (predicting that the rejection of Alice Corp.'s patent claims on subject matter grounds would spell "the death of hundreds of thousands of patents"), *aff'd*, 573 U.S. 208 (2014).

[42] *See, e.g.*, U.S. PAT. & TRADEMARK OFF., PATENT ELIGIBLE SUBJECT MATTER: REPORT ON VIEWS AND RECOMMENDATIONS FROM THE PUBLIC 24 (July 2017), https://www.uspto.gov/sites/default/files/documents/101-Report_FINAL.pdf [https://perma.cc/V92Q-8NP4] ("[S]everal representatives from the software industry as well as public interest groups urged that *Alice* was a welcome course correction in patent eligibility for overly broad claims.").

[43] *Cf.* Jonathan Masur, *Patent Inflation*, 121 YALE L.J. 470, 473–74 (2011) (using the term "patent inflation" to describe the related phenomenon of patent bloat resulting from asymmetric appeal rights).

for categorical cancellation presents an especially grave threat to the credibility of the patent promise. Categorical cancellation—because it does not always reflect a deviation from the patent promise—creates the possibility for governments to backtrack on their patent commitments without leaving clear footsteps.[44]

3. Compulsory Licensing

Deviation from the patent promise need not involve formal cancellation of patent rights. Countries sometimes reduce patent rewards by compelling patent holders to license their inventions to third parties—typically at lower prices than those that patent holders had charged previously. One example from U.S. history is the compulsory licensing of German-owned chemical patents under the Trading with the Enemy Act at the end of World War I, which resulted in more than 700 patents being licensed to U.S. firms at below-market rates.[45] Several other federal statutes provide for compulsory licensing, including the Atomic Energy Act[46] and the Clean Air Act,[47] which require the government to ensure "reasonable"

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[44] One notable feature of "categorical cancellations" that distinguishes these actions from a one-time cancellation of *existing* patents is that categorical cancellations—at least when effectuated through judicial decision—apply retrospectively *and* prospectively. By contrast, the time-inconsistency concern emphasized in Section I.A is most acute with respect to retrospective-only cancellations. For an argument that courts should have the option of changing patent law on a prospective-only basis—thus protecting the reliance interests of existing patent holders—see Jonathan S. Masur & Adam K. Mortara, *Patents, Property, and Prospectivity*, 71 STAN. L. REV. 963, 968 (2019).

[45] *See* Petra Moser & Alessandra Voena, *Compulsory Licensing: Evidence from the Trading with the Enemy Act*, 102 AM. ECON. REV. 396, 399–401 (2012).

[46] *See* 42 U.S.C. § 2183(a) (authorizing the Atomic Energy Commission—now the Nuclear Regulatory Commission—to grant a compulsory license if "the invention or discovery covered by the patent is of primary importance in the production or utilization of special nuclear material or atomic energy"); *id.* § 2183(g) (providing that the patent owner "shall be entitled to a reasonable royalty fee from the licensee for any use of an invention or discovery licensed by this section").

[47] *See* 42 U.S.C. § 7608 (authorizing federal courts to grant compulsory licenses on "reasonable terms" when necessary to enable any person to comply with certain emissions standards).

compensation for patent holders.[48]

To be sure, these provisions have mostly lain dormant: the Congressional Research Service reports that it "has failed to discover even a single instance where any of these compulsory licenses has actually been invoked."[49] However, the federal government "routinely relies"[50] on a different statute, 28 U.S.C. § 1498, which allows it to use or manufacture any patented invention itself as long as it provides "reasonable and entire compensation" to the holder.[51] Since the mid-twentieth century, the Court of Federal Claims and its predecessors have adjudicated hundreds of cases in which patent holders have sought compensation under that statute,[52] underscoring how "ordinary" this form of compulsory licensing has become.[53] Moreover, several commentators have suggested that even when the federal government does not invoke any of these provisions, the mere threat of compulsory licensing may induce patent holders to grant voluntary licenses on reasonable terms.[54]

Beyond U.S. law, Article 31 of the TRIPS Agreement

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[48] The march-in provision of the Bayh-Dole Act similarly allows federal agencies to require nonprofit grantees and contractors to issue licenses "upon terms that are reasonable under the circumstances." 35 U.S.C. § 203(a).

[49] CONG. RSCH. SERV., R43266, COMPULSORY LICENSING OF PATENTED INVENTIONS 7 (Jan. 14, 2014).

[50] *See* Hannah Brennan, Amy Kapczynski, Christine H. Monahan & Zain Rizvi, *A Prescription for Excessive Drug Pricing: Leveraging Government Patent Use for Health*, 18 YALE J.L. & TECH. 275, 302 (2016).

[51] 28 U.S.C. § 1498(a). On that statute's origins, see Christopher J. Morten & Charles Duan, *Who's Afraid of Section 1498? A Case for Government Patent Use in Pandemics and Other National Crises*, 23 YALE J.L. & TECH. 1, 13–15 (2020).

[52] *See* Lionel Marks Lavenue, *Patent Infringement Against the United States and Government Contractors Under 28 U.S.C. § 1498 in the United States Court of Federal Claims*, 2 J. INTELL. PROP. L. 389, 496 n.563 (1995).

[53] *See* Morten & Duan, *supra* note 51, at 7.

[54] *See* Jack Kaufmann, *Afterword to Symposium: Antitrust and the Suppression of Technology in the United States and Europe: Is There a Remedy?*, 66 ANTITRUST L.J. 527, 529 n.19 (1998) (compiling sources); *see also Several March-In and Royalty Free Rights Cases, Under the Bayh-Dole Act*, KNOWLEDGE ECOLOGY INT'L, https://www.keionline.org/cl/march-in-royalty-free [https://perma.cc/GSV8-JW97] (last visited Jan. 9, 2026) (suggesting that the threat of march-in under the Bayh-Dole Act has exerted downward pressure on prices in certain cases).

allows member states to grant compulsory patent licenses if the state has first made efforts to obtain authorization "on reasonable commercial terms and conditions"[55] and if the state ensures "adequate remuneration in the circumstances of each case, taking into account the economic value of the authorization." [56] Several countries have invoked this provision, including Brazil (which issued a compulsory license for patents related to an AIDS drug in 2007), India (which issued a compulsory license for a chemotherapy drug in 2012), and Thailand (which issued compulsory licenses for patents related to seven different drugs from 2006 through 2008).[57] Early in the Covid-19 pandemic, Israel's Attorney General invoked a never-before-used provision of a 1967 law to issue a compulsory license allowing a generic version of AbbVie's patent-protected HIV drug Kaletra to be imported into the country when it appeared that Kaletra might be useful as a coronavirus treatment.[58] Later in the pandemic, the WTO approved a waiver of IP protections for Covid-19 vaccine-related patents, though by the time of the waiver (June 2022), more than 12 billion vaccine doses already had been administered, and the waiver "had minimal impact on overall vaccine access."[59]

Like categorical cancellation, compulsory licensing does not necessarily represent a deviation from the patent promise. Where compulsory licensing provisions are longstanding features of domestic and international law, compulsory licensing advocates can credibly argue that governments—when they invoke these provisions—are doing nothing different from what those governments have promised all

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[55] Agreement on Trade-Related Aspects of Intellectual Property Rights art. 31(b). A member state may waive this requirement "in the case of a national emergency or other circumstances of extreme urgency or in cases of public non-commercial use." *Id.*

[56] *Id.* art. 31(h).

[57] *See* CONG. RSCH. SERV., *supra* note 49, at 10–11.

[58] *See* Dani Kass, *Israel Defies AbbVie IP to Import Generic Drugs for COVID-19*, LAW360 (Mar. 19, 2020), https://www.law360.com/articles/1255079 [https://perma.cc/W83G-3PDX].

[59] *See* Chris Borges, *TRIPS Waivers and Pharmaceutical Innovation*, CTR. FOR STRATEGIC & INT'L STUD. (Mar. 15, 2023), https://www.csis.org/blogs/perspectives-innovation/trips-waivers-and-pharmaceutical-innovation [https://perma.cc/NS4C-MMKR].

along. According to this argument, compulsory licensing can be entirely consistent with a government's patent-related commitments—at least if the government ensures "adequate" or "reasonable" remuneration for patent holders.

Determining whether any given compulsory licensing arrangement satisfies this "adequate remuneration" condition will—like the evaluation of categorical cancellation—require subjective judgments. Complicating the analysis is the fact that market rates themselves are determined in the shadow of compulsory licensing. In an area where the law explicitly allows for compulsory licensing, patent holders may charge lower prices for patented products or lower royalty rates for patent licenses to reduce the risk that the government will invoke its compulsory licensing power. Thus, simply observing the difference between the prior market rate and the royalty rate prescribed by a compulsory license will not necessarily reveal the extent to which compulsory licensing reduces patent rewards.

Countries that grant compulsory licenses typically describe these arrangements as a "one-shot response to an emergency situation"[60] such as a world war or global pandemic.[61] As economist Petra Moser and her coauthors observe, "the benefits of compulsory licensing depend on the credibility with which national governments can commit to invoke it exclusively in cases of emergencies."[62] Moser and her coauthors find that compulsory licensing under the Trading with the Enemy Act did not discourage innovation in either the U.S. or German chemical industries in the 1920s—indicating that the U.S. policy was "perceived as a one-time event" rather than a precursor to future reductions in patent rewards.[63] This

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[60] *See* Moser & Voena, *supra* note 45, at 425.

[61] A notable exception is Thailand's compulsory licensing of drug patents from 2006 to 2008; five of the seven drugs covered by those compulsory licenses treated chronic, noninfectious illnesses—specifically, cancer and heart disease. *See* CONG. RSCH. SERV., *supra* note 49, at 11–12.

[62] Joerg Baten, Nicola Bianchi & Petra Moser, *Compulsory Licensing and Innovation—Historical Evidence from German Patents After WWI*, 126 J. DEV. ECON. 231, 241 (2017).

[63] *Id.* at 241. Indeed, Petra Moser and her coauthors find that the effect of compulsory licensing on chemical patent activity in both the United States and Germany was *positive*. Moser and Alessandra Voena suggest that

perception turned out to be incorrect: the United States reinstated compulsory licensing for German patents on an even wider scale some two decades later following U.S. entry into World War II.[64] Of course, U.S. and German chemical manufacturers in the 1920s presumably did not foresee that a second world war would come so soon, but that simply goes to show how difficult it will be for potential inventors and investors to determine—in any given case—whether compulsory licensing represents a one-shot event or the first in a series of deviations from the patent promise.

4. Microdeviations

Whereas patent abolition, categorical cancellation, and compulsory licensing all involve publicly announced policy changes or published judicial decisions, deviations from the patent promise are sometimes subtler and—for that reason—typically less likely to spark widespread protests from patent holders. For example, the patent office might deny an application even though the claims in that application meet all the legal criteria for patentability. Similarly, a court might decline to find that a patent has been infringed even though the patent holder's infringement claim rests on solid legal grounds. What differentiates these "microdeviations" from other examples of patent promise-breaking is that they are framed in case-specific terms and not as part of a broader change to patent policy.

Microdeviations—even more so than categorical cancellations and compulsory licenses—are difficult to

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compulsory licensing of German patents encouraged U.S. firms to develop their own manufacturing capabilities, which "create[d] opportunities for learning by doing" and led to an increase in U.S. chemical patent activity. *See* Moser & Voena, *supra* note 45, at 397–98. Moser and another set of coauthors suggest that "[t]his increased presence of US inventors may have increased the threat of competition, which . . . may have encouraged incumbent [German] patentees to invent more." *See* Baten et al., *supra* note 62, at 240.

[64] On the U.S. compulsory licensing regime for German patents during World War II, see Gabriel Galvez-Behar, Controlling IP at War: The U.S. Alien Property Custodian and the German Patents During WWII (July 30, 2018) (paper presented to the XVIII World Economic History Congress, Boston), https://lilloa.hal.science/hal-03682464v1/document [https://perma.cc/NX7K-N5TF].

distinguish from the day-to-day operation of the patent system. Inevitably, some patent examiners and judges will make mistakes in individual cases. They will make some number of type I errors, granting patents that do not meet the legal criteria or finding infringement even though the legal elements of infringement have not been satisfied. And they will make some number of type II errors, denying patents that should have been granted or failing to find infringement even though the elements of infringement are all present. Where errors are roughly symmetric—where the number of type I errors approximately equals the number of type II errors—then these errors do not raise serious concerns about deviation from the patent promise.[65] But a government that wanted to minimize the deadweight loss of patents might seek to "err" systematically in the type II direction without announcing its policy publicly. Through such a strategy, the government could reduce the stock of patents in force—and the corresponding deadweight loss—without necessarily alerting potential innovators that patent rewards had been scaled back.

To be sure, just as microdeviations may be difficult for the public to detect, a strategy of microdeviation may be difficult for the government to implement given the institutional structure of patent law. As we will see in Section II.A, the transparency of judicial decisions and the professional norms of patent examiners stand as obstacles to strategic microdeviation and thus as buttresses for the patent promise. The key point for now is that deviations from the patent promise need not be self-announcing—and thus that one important function performed by the institutions of patent law is to assure inventors that microdeviations will not escape the limelight.

5. Taxation

The four forms of deviation outlined above—patent abolition, categorical cancellation, compulsory licensing, and

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[65] Even when symmetrical, though, errors may raise other concerns—for example, the incentive effect of the patent system may be undermined if applicants can obtain patents for inventions that are non-novel or obvious. On the social costs of errors in adjudication, see generally Louis Kaplow, *The Value of Accuracy in Adjudication: An Economic Analysis*, 23 J. LEGAL STUD. 307 (1994).

microdeviation—are all "internal" to the patent system insofar as they directly affect the existence or enforcement of a patent holder's right to exclude. Governments also may use tools external to the patent system in order to reduce the social costs of the patent promise. One such tool is taxation: through tax policy, governments may seek to drive down the price of patented products and thereby reduce the deadweight loss generated by patent holders' market power.

One example of the government using tax policy to lower the price of patented products is section 5000D of the U.S. Internal Revenue Code, enacted as part of the Inflation Reduction Act of 2022 (IRA).[66] Section 5000D operates in tandem with the IRA's prescription drug pricing reforms, which require the Secretary of Health and Human Services (HHS) to "negotiate" prices for certain pharmaceutical and biologic products purchased through the Medicare Part B and Part D programs.[67] Section 5000D provides that if the HHS Secretary designates a drug for price negotiation and the manufacturer rejects the Secretary's final price offer, then the manufacturer must pay an excise tax on all U.S. sales of 95%, calculated on a tax-inclusive basis.[68] A manufacturer can qualify for an exemption from the tax if it does not sell any of its drugs to Medicare or Medicaid,[69] but given that Medicare and Medicaid constitute roughly 40% of all prescription drug spending in the United States,[70] the effect of section 5000D is to make it financially infeasible for any U.S. drugmaker to reject the Secretary's price offer.

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[66] Inflation Reduction Act of 2022, Pub. L. No. 117-169, tit. I, § 11003(a), 136 Stat. 1818, 1862 (2022) (codified at I.R.C. § 5000D).

[67] *Id.* tit. I, §§ 11001–11002, 136 Stat. at 1833–54 (to be codified at 42 U.S.C. §§ 1320f–1320f-7).

[68] I.R.C. § 5000D(a), (d)(4). A tax-inclusive basis means that out of every $100 in sales, $95 goes to the government and $5 to the manufacturer. Stated differently, the tax is 1900% when calculated on the tax-exclusive basis typically used for sales taxes ($95 divided by $5). *See* Bristol Myers Squibb Co. v. Sec'y, 155 F.4th 245, 271 & n.1 (3d Cir. 2025) (Hardiman, J., dissenting).

[69] I.R.C. § 5000D(c).

[70] U.S. DEP'T OF HEALTH & HUM. SERVS., OFF. OF INSPECTOR GEN., DRUG SPENDING: OVERVIEW (Aug. 9, 2024), https://oig.hhs.gov/reports-and-publications/featured-topics/drug-spending [https://perma.cc/K65P-AFM3].

Section 5000D does not, as a formal matter, abridge anyone's patent rights. Indeed, section 5000D never uses the word "patent,"[71] though—as a general matter—the IRA's prescription drug pricing provisions apply only to patent-protected "single source" drugs (i.e., not to off-patent drugs that face competition from generic or biosimilar alternatives).[72] Yet the example of section 5000D illustrates how governments can significantly reduce patent holders' rewards while formally leaving patent law untouched. This observation does not imply any normative judgment about section 5000D. It underscores, though, that the credibility of the patent promise will depend not only on patent policy but also on the government's capacity to commit to a future tax trajectory.[73]

6. Civil Procedure

Finally, Congress and the courts can change the content of the patent promise by reshaping the procedural environment in which patents are enforced. For example, prior to 2006, the "general rule" in patent infringement litigation—according to the Federal Circuit—was that "a permanent injunction will issue once infringement and validity have been adjudged."[74] In other words, a successful patent infringement suit usually resulted in a court order prohibiting the infringer from practicing the patented invention. In the 2006 case *eBay Inc. v. MercExchange, L.L.C.*, however, a unanimous Supreme Court upended that status quo, holding that a plaintiff seeking a permanent injunction in a patent infringement case must satisfy a more demanding four-part test.[75] To obtain a permanent injunction, a patent infringement plaintiff now must show (1) that it has suffered an "irreparable injury"; (2) that

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[71] I.R.C. § 5000D.

[72] *See* 42 U.S.C. § 1320f-1(d), (e).

[73] In addition to tax law, antitrust law also can be used to limit the rewards available to patentees without any formal change to patent law. For a discussion with specific examples, see Richard Gilbert & Carl Shapiro, *Antitrust Issues in the Licensing of Intellectual Property: The Nine No-No's Meet the Nineties*, 28 BROOKINGS PAPERS ON ECON. ACTIVITY 283, 318, 333–34 (1997).

[74] MercExchange, L.L.C. v. eBay, Inc., 401 F.3d 1323, 1338 (Fed. Cir. 2005), *vacated and remanded*, eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388 (2006).

[75] eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 393–94 (2006).

other remedies such as monetary damages are inadequate; (3) that the "balance of hardships" tips in the plaintiff's favor; and (4) "that the public interest would not be disserved by a permanent injunction."[76] The Supreme Court in *eBay* reasoned that this four-part test reflected "well-established principles of equity" that have long prevailed outside the patent context,[77] though some legal scholars have questioned the Court's claim of consistency with non-patent norms.[78]

While *eBay* appears to have reduced the rate of injunctive relief in successful patent infringement suits,[79] it is less clear whether *eBay* qualifies as a modification of the patent promise. On the one hand, *eBay* did not result in the revocation of any existing patents, nor did it change the substantive law of patents going forward. On the other hand, *eBay* arguably changed the *nature* of patent rights. Prior to *eBay*, a patent was a right protected by a "property rule," to use Guido Calabresi and Douglas Melamed's terminology.[80] "An entitlement is protected by a property rule," according to Calabresi and Melamed, "to the extent that someone who wishes to remove the entitlement from its holder must buy it from him in a voluntary transaction in which the value of the entitlement is

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[76] *See id.* at 391.

[77] *Id.*

[78] *See, e.g.,* Doug Rendleman, *The Trial Judge's Equitable Discretion Following* eBay v. MercExchange, 27 REV. LITIG. 63, 76 n.71 (2007) (observing that "[r]emedies specialists had never heard of the four-point test," and adding that the Court in *eBay* "appears to vindicate a 'traditional' standard for a *final* injunction that never existed, except perhaps for a *preliminary* injunction"); Douglas Laycock, *How Remedies Became a Field: A History*, 27 REV. LITIG. 161, 168 (2008) (writing that "the Supreme Court's decision in eBay Inc. v. MercExchange, L.L.C. is a spectacular example of the confusion that can result from litigating a remedies issue without a remedies specialist").

[79] *See* Kirti Gupta & Jay P. Kesan, *Studying the Impact of* eBay *on Injunctive Relief in Patent Cases* 37 (Univ. of Ill. Coll. of Law Legal Stud. Rsch. Paper No. 17-03, 2016), https://ssrn.com/abstract=2816701 [https://perma.cc/4RWZ-DQL6] (finding that "the eBay decision has reduced, rather dramatically, both the level at which injunctive relief is sought in patent cases and the rate at which they are granted").

[80] Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1092 (1972).

agreed upon by the seller."[81] A property rule stands in contrast to a "liability rule," which allows others to take or destroy an entitlement so long as they are "willing to pay an objectively determined value" to the owner.[82] As Christopher Seaman observes, the *eBay* decision marked "a significant shift away from property rules toward liability rules for the enforcement of patent rights."[83] In that respect, *eBay* was arguably much more than a modification of patent rights; it represented a revolution in what patent protection entails.

To be sure, the description of *eBay* as a patent rights revolution is contestable. For one thing, even after *eBay*, most plaintiffs who prevailed in patent infringement suits continued to secure injunctive relief; that still-sizable majority was simply less overwhelming than in the pre-*eBay* era.[84] Second, among practicing patent holders—those that use patents themselves rather than merely licensing patents to others—the injunctive relief rate after *eBay* was even higher than the overall average (80%, according to Seaman's analysis).[85] At least for practicing patent holders, post-*eBay* patent rights are protected by a hybrid property rule/liability rule regime that remains more the former than the latter.

The *eBay* decision is not the only change to civil procedure in recent years with significant ramifications for patent law. Prior to 2017, the Federal Circuit held that a plaintiff could bring a patent infringement suit against a corporation in any district with personal jurisdiction over the corporate defendant.[86] As a result, plaintiffs often had the option of suing

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[81] *Id.*

[82] *See id.*

[83] Christopher B. Seaman, *Permanent Injunctions in Patent Litigation After* eBay*: An Empirical Study*, 101 IOWA L. REV. 1949, 1962 (2016).

[84] Colleen V. Chien & Mark A. Lemley, *Patent Holdup, the ITC, and the Public Interest*, 98 CORNELL L. REV. 1, 9–10 (2012) ("Based on our review of district court decisions since *eBay*, courts have granted about 75% of requests for injunctions, down from an estimated 95% pre-*eBay*."); Seaman, *supra* note 83, at 1982–83 (finding that prevailing patent holders obtained permanent injunctions in 72.5% of cases during the seven-and-a-half-year period following *eBay*, down from around 95% before the decision).

[85] *See* Seaman, *supra* note 83, at 1988.

[86] *See* VE Holding Corp. v. Johnson Gas Appliance Co., 917 F.2d 1574, 1583

in the Eastern District of Texas, which garnered a reputation as an especially patent holder-friendly jurisdiction.[87] In the 2017 case *TC Heartland LLC v. Kraft Foods Group Brands LLC*, however, the Supreme Court held that for purposes of the patent venue statute, a domestic corporation "resides" only in its state of incorporation.[88] That decision made it more difficult for patent infringement plaintiffs to shop for a favorable forum, and the Eastern District of Texas's share of all patent infringement case filings plummeted from 36% in the year prior to *TC Heartland* to 13% in the year after.[89]

While *eBay* could perhaps be described as a change to the nature of the patent promise, it would be tendentious to characterize *TC Heartland* in the same terms. Whatever the content of the patent promise pre-*TC Heartland*, the promise did not entail a guarantee that patent holders would be able to enforce their claims in the federal district court of their choosing. Still, according to research by Federal Reserve economists, the *TC Heartland* decision had an immediate negative effect on the share prices of firms with large patent portfolios—indicating that access to a plaintiff-friendly forum was, indeed, baked into the value of patents.[90] *TC Heartland*

(Fed. Cir. 1990), *abrogated by TC Heartland LLC v. Kraft Foods Grp. Brands LLC*, 581 U.S. 258 (2017).

[87] *See* Daniel Klerman & Greg Reilly, *Forum Selling*, 89 S. CAL. L. REV. 241, 247–50 (2016).

[88] *TC Heartland*, 581 U.S. at 270.

[89] *See* Steve Brachmann, *Patent Litigation Shows Shift Towards Delaware, Decrease in High-Volume Plaintiff Filings*, IP WATCHDOG (June 13, 2018), https://ipwatchdog.com/2018/06/13/patent-litigation-shows-shift-towards-delaware/id=98060 [https://perma.cc/3A9R-UJ3S]. The Eastern District of Texas's share of patent suits has since rebounded, reaching 28% of the national total in 2024. *See* Ryan Davis, *New Patent Cases Rebound As EDTX Seals Top Venue Spot*, LAW360 (June 11, 2025), https://www.law360.com/articles/2349305/new-patent-cases-rebound-as-edtx-seals-top-venue-spot [https://perma.cc/M4UV-N6XR].

[90] *See* Andy Law, Buhui Qiu & Teng Wang, *Patent Enforcement, Shareholder Value, and Firm Innovations: Evidence from the Supreme Court Ruling in* TC Heartland *(2017)*, 11 HARV. BUS. L. REV. ONLINE 1, 4 (2021). *TC Heartland* also appears to have had an immediate positive effect on the share prices of firms that were highly vulnerable to patent infringement lawsuits from non-practicing entities—and in particular, firms incorporated in Delaware, indicating that investors perceive the District of Delaware to

thus illustrates that Congress and the courts can reduce the value of existing patents through myriad means without triggering the reputational consequences associated with outright cancellation. The point at which a reduction in the value of existing patents will be perceived as a deviation from the patent promise lies, ultimately, in the eye of the beholder.

C. The Credibility Gap in the Patent Literature

Notwithstanding the centrality of credible commitment to a well-functioning patent system, the patent literature has largely ignored the credible commitment challenge. There are, to be sure, scattered exceptions. For example, Rachel Sachs has noted—correctly—that "patent law suffers from its own commitment problems."[91] Meanwhile, Saurabh Vishnubhakat has raised concerns that the PTO—through practices such as "stacking" internal appeals panels with administrative patent judges whose views are in line with the PTO Director's—"has been trading away its already limited ability to make credible commitments to induce investments in innovation."[92] Yet no article in the vast IP literature has taken comprehensive stock of the sources and limits of credible commitment in patent law, nor in the adjacent areas of copyright law and trade secrecy.

Some IP scholars who do mention credible commitment assume that the patent promise is inherently credible. For example, Peter Menell and Suzanne Scotchmer—in analyzing the trade-off between patents and prizes—write that "prize authorities have two challenges that patents automatically avoid: the problem of choosing the value, and the problem of making it credible that they will, in fact, award the prize."[93] In a similar vein, Benjamin Roin writes that "[b]y providing innovators with intellectual property rights, the government limits its own ability to expropriate socially valuable

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be a defendant-friendly forum. *See* Ofer Eldar & Neel U. Sukhatme, *Will Delaware Be Different? An Empirical Study of* TC Heartland *and the Shift to Defendant Choice of Venue*, 104 CORNELL L. REV. 101, 105–07 (2018).

[91] Rachel E. Sachs, *Prizing Insurance: Prescription Drug Insurance as Innovation Incentive*, 30 HARV. J.L. & TECH. 153, 191 (2016).

[92] *See* Saurabh Vishnubhakat, *Disguised Patent Policymaking*, 76 WASH. & LEE L. REV. 1667, 1729 (2019).

[93] Menell & Scotchmer, *supra* note 4, at 1531.

innovations."[94] Yet Roin—like Menell and Scotchmer—does not explain how issuing a patent or other IP right substantially limits the government's ability to expropriate. The existence of IP rights did not, for example, prevent the United States from effectively seizing German-owned patents during World War I and World War II, nor has it prevented the United States from imposing confiscatory taxes on drugmakers who refuse to sell their products to Medicare on favorable terms.

Economist Alberto Galasso comes closest to tackling the credible commitment problem, proposing to "examine the performance of innovation policies in a model where the planner cannot commit to transferring resources to the innovator."[95] Yet Galasso goes on to state that "[t]he key assumption in our analysis will be that the planner lacks full commitment power on the payment of cash prizes, but can credibly commit to reward innovators with patent rights."[96] Galasso briefly seeks to justify this assumption, noting that "innovators compete with many more interest groups over public funds than over ownership of a specific technology."[97] Yet the fact that prize payouts are concentrated while fiscal costs are diffuse is—according to the standard public choice model[98]—a reason to predict that prize claimants will prevail in the hurly-burly of interest group politics, not a reason to believe that they will fail.[99] Overall, Galasso's argument is—at

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[94] Benjamin N. Roin, *Intellectual Property versus Prizes: Reframing the Debate*, 81 U. CHI. L. REV. 999, 1071 (2014).

[95] Alberto Galasso, *Rewards Versus Intellectual Property Rights When Commitment Is Limited*, 169 J. ECON. BEHAV. & ORG. 397, 397 (2020).

[96] *Id.* at 399.

[97] *Id.* at 400.

[98] *See* MAXWELL L. STEARNS & TODD J. ZYWICKI, PUBLIC CHOICE CONCEPTS AND APPLICATIONS IN LAW 69 tbl. 2-1 (2009). For canonical statements of this hypothesis, see JAMES Q. WILSON, POLITICAL ORGANIZATIONS 333–34 (1973); MICHAEL T. HAYES, LOBBYISTS AND LEGISLATORS: A THEORY OF POLITICAL MARKETS 65–66 (1981).

[99] Galasso also argues that "the political economy returns that the government can obtain by diverting cash resources toward lower taxes and other policies offering immediate political gains are likely to exceed those obtained reneging intellectual property protection." Galasso, *supra* note 95, at 400. But this—too—is not obvious. Reneging on patent protection effectuates a transfer from patent holders to consumers *and* a reduction in deadweight loss. Refusing to pay out a prize effectuates a transfer but does not reduce deadweight loss.

most—one reason why patents might have a credible commitment advantage over prizes, not a reason why credible commitment in patent law is airtight.

The perception that credible commitment poses a greater problem for prizes than for patents may stem in part from the story of the British longitude prize, popularized by Dava Sobel's bestselling 1995 book *Longitude: The True Story of a Lone Genius Who Solved the Greatest Scientific Problem of His Time*.[100] In 1714, the British Parliament offered a financial reward of £20,000 to the first inventor who could devise a practical way of determining longitude at sea and established a Board of Longitude to administer the prize.[101] Yorkshire clockmaker John Harrison presented his design for a watch that would solve the longitude problem to England's Astronomer Royal in 1730,[102] but he did not receive his final payment from the Longitude Board until 1773. Even then, the total prize payments to Harrison fell £1250 short of the Longitude Act's £20,000 promise.[103]

As Michael Burstein and Fiona Murray observe, "the primary lesson that many draw from the story of the British longitude prize" is that prize givers will have an incentive to "renege" once the prize conditions have been met.[104] Indeed, this is the lesson that Galasso draws, writing that "[t]he 1714 longitude prize, in which the winning inventor had to request the king's intervention and waited 47 years to receive the compensation, is probably the most well-known example" of a credible commitment problem with respect to prizes.[105] Nancy Gallini and Suzanne Scotchmer similarly cite the fact that "John Harrison's longitude prize was delayed for decades" when explaining why—in their view—prizes face a problem of enforcing the offeror's promise to pay.[106]

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[100] DAVA SOBEL, LONGITUDE: THE TRUE STORY OF A LONE GENIUS WHO SOLVED THE GREATEST SCIENTIFIC PROBLEM OF HIS TIME (1995).
[101] *See id.* at 53–55.
[102] *See id.* at 74–79.
[103] *See id.* at 149.
[104] *See* Michael J. Burstein & Fiona E. Murray, *Innovation Prizes in Practice and Theory*, 29 HARV. J.L. & TECH. 401, 413 (2016).
[105] Galasso, *supra* note 95, at 398.
[106] *See* Nancy Gallini & Suzanne Scotchmer, *Intellectual Property: When Is*

But the claim that Harrison's prize was "delayed for decades"[107]—or forty-seven years by Galasso's count[108]—ignores the fact that Harrison did not even submit a timepiece for testing until 1760.[109] Sobel—whose account of the quest for longitude is highly sympathetic to Harrison—concludes that the clockmaker should have received the prize in March 1762 after his sea watch, the H-4, returned from a voyage to Jamaica.[110] (That would mean the gap between when Harrison became entitled to the prize and when he received nearly full payment was eleven years, not forty-seven.) By contrast, Jonathan Siegel argues that the Board of Longitude had solid legal grounds for denying the prize to Harrison even after the Jamaica voyage.[111] In particular, Siegel notes that the Longitude Act stated that the prize would be awarded only for a method that had been "'tried and found practicable and useful at Sea.'"[112] Harrison, however, failed to duplicate his H-4 sea watch again in his lifetime.[113] "In the end," Siegel concludes, "Harrison never succeeded in producing even two duplicates of his watch, and his failure supports the Board's view that mass production of his watch was not practicable."[114]

Whichever side of the debate between Harrison and the Board one takes, it bears emphasis that Harrison ultimately received nearly the entire prize (£18,750 out of £20,000), along

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It the Best Incentive System?, 2 INNOVATION POL'Y & ECON. 51, 72 n.2 (2002); *see also id.* at 56 (noting that one of the problems with prizes is "how to ensure that prizes are actually given, when it is easy to manufacture reasons to withhold them").

[107] *See* Gallini & Scotchmer, *supra* note 106, at 72 n.2.

[108] *See* Galasso, *supra* note 95, at 398. It is unclear where the 47-year figure comes from. Even counting from Harrison's presentation of his design to Halley in 1730, the time span would be 43 years—not 47. One source notes that "47 years elapsed between Harrison's learning of the Prize and securing his award." J. C. Taylor & A. W. Wolfendale, *John Harrison: Clockmaker and Copley Medalist. A Public Memorial at Last*, 61 NOTES & RECS. ROYAL SOC'Y 53, 62 (2007). But no one—and certainly not Harrison himself—argued that he deserved the prize immediately upon learning of it.

[109] *See* Sobel, *supra* note 100, at 117.

[110] *See id.* at 120–21.

[111] *See* Jonathan R. Siegel, *Law and Longitude*, 84 TUL. L. REV. 1, 47–57 (2009).

[112] *See id.* at 9 (quoting Longitude Act 1714, 12 Ann., c. 15, § 1).

[113] *See id.* at 38.

[114] *See id.* at 45.

with £4000 in research grants from the Board.[115] To put this in perspective, the £18,750 in prize money plus the £4000 in research grants amount to more than £3 million in today's currency after adjusting for inflation, making Harrison—by the time of his death—a very rich man.[116] Moreover, comparing the eighteenth-century longitude prize to a twenty-first-century patent system is—in many ways—an exercise in anachronism. The prize system set up by the Longitude Act looks much more successful when one remembers that, at the time, the enforcement of patent rights was still an "uncertain and precarious business."[117]

Academic historians have written about the "Sobel effect," defined by David Philip Miller as the "proliferation of popular books (even bestsellers) drawing on topics from the history of science and technology" in the wake of Sobel's *Longitude*.[118] According to Miller, "the overall messages of this outpouring of popular and semi-popular literature are"—among others—"that science is the product of individual genius" and "that scientific discovery is an heroic process" in which outsiders like Harrison triumph over the "haughty and pig-headed" establishment.[119] Arguably, a second "Sobel effect" is the perception that prizes—when promised—are not paid or are long delayed, a perception that appears to be an overextrapolation from the Harrison case.[120] And yet the same scholars who recognize a credibility problem in the prize context have failed to apply the same skepticism toward the credibility of the government's patent commitments.

Fortunately, scholars of other areas of law—including

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[115] *See id.* at 32.

[116] *See* BANK OF ENGLAND, *Inflation Calculator*, https://www.bankofengland.co.uk/monetary-policy/inflation/inflation-calculator [https://perma.cc/DW5Q-XRVH] (last visited July 17, 2025).

[117] *See* CHRISTINE MACLEOD, INVENTING THE INDUSTRIAL REVOLUTION: THE ENGLISH PATENT SYSTEM, 1660–1800, at 60 (1988).

[118] *See* David Philip Miller, *The 'Sobel Effect,'* 11 METASCIENCE 185, 185 (2002).

[119] *Id.* at 189.

[120] Sobel herself does not deserve the bulk of the blame for this misperception. She never claimed that Harrison's prize was delayed for "decades," plural—much less for 47 years. *See supra* note 108.

constitutional law,[121] criminal law,[122] international law,[123] and beyond[124]—have engaged in serious and sustained analysis of credible commitment challenges that resemble the time inconsistency of the patent promise. The study of credible commitment is especially well-developed in the field of capital taxation, where the time inconsistency of tax policy is a major theme of economic analysis[125] (though only recently a primary subject of legal scholarship[126]). The next Part draws lessons from the study of credible commitment in these other areas as it begins to fill the credibility gap in the patent literature. As we will see, some of the mechanisms for generating credibility in other fields can be cross-applied to patent law. At the same time, the credible commitment problem in patent law is sufficiently distinct from commitment challenges elsewhere as to merit its own separate scrutiny.

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[121] *See* Daryl J. Levinson, *Parchment and Politics: The Positive Puzzle of Constitutional Commitment*, 124 HARV. L. REV. 657 (2011).

[122] *See* Matthew J. Baker & Thomas J. Miceli, *Crime, Credible Enforcement, and Multiple Equilibria*, 68 INT'L REV. L. & ECON. 106030 (2021).

[123] *See* Downs & Jones, *infra* note 293.

[124] *See, e.g.*, Anthony J. Casey & Eric A. Posner, *A Framework for Bailout Regulation*, 91 NOTRE DAME L. REV. 479, 494–95 (2015) (highlighting the problem of time inconsistency in bailout policy); Yehonatan Givati, *An Incomplete Contracting Approach to Administrative Law*, 18 AM. L. & ECON. REV. 176, 179 (2016) (analyzing time inconsistency in administrative law).

[125] *See, e.g.*, Fischer, *supra* note 14; Barry Eichengreen, *The Capital Levy in Theory and Practice*, *in* PUBLIC DEBT MANAGEMENT: THEORY AND HISTORY 191 (Rudiger Dornbusch & Mario Draghi eds., 1990); Alberto Bisin & Adriano A. Rampini, *Markets as Beneficial Constraints on the Government*, 90 J. PUB. ECON. 601 (2006); Emmanuel Farhi, Christopher Sleet, Iván Werning & Sevin Yeltekin, *Non-Linear Capital Taxation Without Commitment*, 79 REV. ECON. STUD. 1469 (2012); Florian Scheuer & Alexander Wolitzky, *Capital Taxation Under Political Constraints*, 106 AM. ECON. REV. 2304 (2016).

[126] *See* Daniel Hemel, *Taxing Wealth in an Uncertain World*, 72 NAT'L TAX J. 755, 768–69 (2019) (observing that an important distinction between realization-based and mark-to-market capital tax regimes is that realization-based regimes are more vulnerable to time-inconsistency problems); David Gamage & John R. Brooks, *Tax Now or Tax Never: Political Optionality and the Case for Current-Assessment Tax Reform*, 100 N.C. L. REV. 487, 494 (2022) (arguing that because of the time inconsistency of tax policy, "[w]e must tax now, or else risk taxing never"); Hemel, *supra* note 16, at 1559 (noting that the credible commitment problem "is endemic to capital tax policy").

II. Institutions, Ideas, and Innovation

The fact that several leading U.S. IP scholars take for granted the credibility of the patent promise is itself informative, as it suggests that the United States has succeeded in sustaining a credible commitment to patent protection—at least until now. This Part seeks to explain why the patent promise is widely considered to be credible and how that credibility could be lost. The analysis draws examples primarily from the United States, but a key takeaway is that U.S.-specific features—such as the U.S. Constitution and the American doctrine of judicial supremacy—cannot solve the credible commitment puzzle on their own.

This Part identifies three broad categories of variables—institutions, ideas, and innovation—that mediate the credibility of the patent promise. This "i-i-i" framework is a mnemonic and a means of organizing analysis, not a claim that every factor that influences the credibility of the patent promise fits neatly into one of these three categories. Indeed, as we will see, some explanatory factors transcend category lines: for example, international organizations—though they fall most naturally into the institutional category—affect the credibility of the patent promise in part through their impact on ideas. Domestic institutions of patent law, meanwhile, derive strength both from the ideas that citizens share and the innovations that patent law produces.

A. Institutions

As Geoffrey Hodgson observes, the use of the term "institution" is "widespread in the social sciences"—and has been for centuries—but "even today, there is no unanimity in the definition of the concept."[127] Hodgson proposes to define an "institution" as a system of "established and embedded social rules that structure social interactions," with "organizations" qualifying as a "special" form of institution.[128] This definition is itself controversial: for example, the Nobel Prize-winning economist Douglass North argued that organizations are distinct from—rather than a subset of—

[127] Geoffrey M. Hodgson, *What Are Institutions?*, 40 J. ECON. ISSUES 1, 1 (2006).
[128] *See id.* at 18.

institutions.[129] Yet as North noted, the appropriate definition of "institution" in any given case depends on "the kinds of questions" one is asking.[130] For our purposes, a capacious definition of "institutions"—one that includes formal organizations as well as the formal and informal rules by which those organizations operate—will serve to distinguish one broad category of credible commitment mechanisms from others that depend upon more abstract ideas or more tangible technological progress.

1. Judicial Institutions

In theory, a political community could seek to bolster the credibility of its patent promise by inscribing the protection of patent rights into its constitution and then vesting an independent judiciary with the power to enforce those rights. Whether this strategy would succeed is an open question. Judges—even if shielded from electoral accountability by life tenure—still might choose to renege on the patent promise for the same reason that other policymakers might do so: to alleviate the social costs of existing patents—including costs borne by the judicial system as well as deadweight loss—while retaining the benefits of patentees' inventions and discoveries. Furthermore, even if judges are motivated to protect patent rights, they typically cannot enforce their judgments without the assistance of other branches. Writing the patent promise into the constitution thus does not make the credible commitment problem go away. It simply shifts the credible commitment challenge from patent law to constitutional law. Instead of asking "what makes the patent promise credible?" our question would become "what makes a constitutional commitment credible?"

In any event, constitutionalization plays—at most—a minor role in bolstering the credibility of the patent promise in the United States. While the U.S. Constitution includes an Intellectual Property Clause, that provision is permissive rather than mandatory. The clause authorizes Congress "[t]o promote the Progress of Science and useful Arts, by securing

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[129] *See id.* at 19 app. A (reproducing extracts from correspondence between North and Hodgson).
[130] *Id.*

for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."[131] It does not, however, require Congress to protect patents or copyrights.

The Fifth Amendment's Due Process and Takings Clauses arguably provide greater protection for patents, but neither qualifies as an ironclad commitment to the patent promise. With respect to the former, the Supreme Court has said—albeit in dicta—that patents "are surely included within the 'property' of which no person may be deprived by a State without due process of law."[132] But to say that patents fall within the scope of the Due Process Clause is to say very little: Congress may regulate property rights—and even apply its regulations retroactively—as long as it has a "rational legislative purpose" for doing so.[133] As for the Takings Clause, the Supreme Court indicated in the 1882 case *James v. Campbell* that patents qualify as property that cannot be taken for public use without "just compensation,"[134] but at the time, the Court had not yet recognized the Takings Clause as self-executing,[135] so the only remedy for the taking of a patent "would be to apply to Congress itself."[136] Accordingly, the protection for patent holders provided by *James v. Campbell* was—as one commentator puts it—"toothless."[137] More recently, the Federal Circuit—the court with exclusive

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[131] U.S. CONST. art. I, § 8, cl. 8.

[132] Fla. Prepaid Postsecondary Educ. Expense Bd. v. Coll. Sav. Bank, 527 U.S. 627, 642 (1999). Technically, the statement in *Florida Prepaid* concerns the Fourteenth Amendment Due Process Clause, not the Fifth Amendment Due Process Clause, and thus does not apply directly to Congress. However, the two clauses are generally interpreted *in pari materia*. *See, e.g.*, Bryn Mawr Care v. Sebelius, 898 F. Supp. 2d 1009, 1017 (N.D. Ill. 2012), *aff'd*, 749 F.3d 592 (7th Cir. 2014).

[133] *See* Pension Benefit Guar. Corp. v. R.A. Gray & Co., 467 U.S. 717, 730 (1984); United States v. Carlton, 512 U.S. 26, 31 (1994).

[134] *See* James v. Campbell, 104 U.S. 356, 358 (1882).

[135] *Cf.* Jacobs v. United States, 290 U.S. 13, 16 (1933) (holding that the Fifth Amendment requires the federal government to provide just compensation for takings of private property independent of statutory authorization or an express promise).

[136] *See James*, 104 U.S. at 359.

[137] Davida H. Isaacs, *Not All Property Is Created Equal: Why Modern Courts Resist Applying the Takings Clause to Patents, and Why They Are Right to Do So*, 15 GEO. MASON L. REV. 1, 33 (2007).

jurisdiction over almost all patent-related appeals[138]—"has consistently rejected patent takings claims," and neither it nor the Supreme Court has settled the question of whether the Takings Clause offers any protection for patents.[139] As a practical matter, then, the Takings Clause provides an insecure hook on which to hang faith in the federal government's patent-related commitments.

The U.S. Constitution is not unusual in its approach to patents: many other industrialized democracies have constitutions that are either permissive in their patent-related provisions or do not address patents at all. For example, the French and German constitutions are silent on the subject of patents. The Australian and Canadian constitutions give Parliament legislative authority with respect to patents but do not mandate a minimal level of patent protection.[140] A handful of countries go slightly further—the South Korean constitution, for example, states that "[t]he rights of authors, inventors, scientists, engineers and artists *shall* be protected by law"[141]—but that statement falls far short of an unambiguous pledge to honor existing patents to their full extent.

Even though the U.S. Constitution does not render patents inviolate, U.S. judicial institutions still can bolster the credibility of the patent promise through *transparency* and *reason-giving*. Although transparency and reason-giving will not prevent a politically powerful coalition from radically revising or even eliminating the patent laws, transparency and reason-giving can—and do—place guardrails against microdeviations from the patent promise. With open access to court dockets and hearings, members of the public—if they can wade through the technical details—can assess for themselves whether a patent is valid and then can compare their independent evaluations to those of judges. The practice of judicial reason-giving operates in tandem with transparency by allowing third parties to match the rationales that judges offer

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[138] 28 U.S.C. § 1295(a)(1), (4)(A), (4)(C).

[139] Laura E. Dolbow, *The Public Franchise Tradition as a Limit on Patent Takings*, 111 CORNELL L. REV. 233, 235–36 (2026).

[140] *See Australian Constitution s* 51(xviii); *Constitution Act, 1867*, § 91(22) (rev. 2011) (Can.).

[141] DAEHANMINKUK HUNBEOB [HUNBEOB] [CONSTITUTION] art. 22, para. 2 (amended 1987) (emphasis added).

with the facts and legal arguments presented by litigants. Transparency and judicial reason-giving are thus complementary: with access to case filings and proceedings, and with insight into judges' thought processes, third parties can evaluate whether courts are upholding the legislature's patent-related commitments.

Both transparency and reason-giving are core values of the U.S. judicial system, but courts sometimes honor these values in the breach. With respect to transparency, the U.S. Supreme Court has recognized "a general right to inspect . . . judicial records and documents,"[142] but exercising this right is costly: the federal judiciary's PACER database puts a price of 10 cents per page on online access, which makes it prohibitively expensive for most citizens to examine anything but a small sample of case filings.[143] Even more problematically, some district courts allow parties to file a wide range of documents under seal in high-stakes patent cases.[144] While dockets are much more accessible in the United States than in some other common law countries—such as the United Kingdom, where non-parties must petition the court for docket access[145]—the U.S. system of patent litigation is clearly not as transparent as

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[142] *See* Nixon v. Warner Commc'ns, Inc., 435 U.S. 589, 597–98 (1978).

[143] See David L. Schwartz et al., *The SCALES Project: Making Federal Court Records Free*, 119 NW. U. L. REV. 23, 25 (2024).

[144] For example, Bernard Chao and Derigan Silver find that in one 2012 patent infringement suit in the Eastern District of Missouri, *Monsanto Co. v. E.I. DuPont De Nemours & Co.*, No. 4:09CV00686 ERW, 2012 WL 2979080 (E.D. Mo. July 20, 2012), more than one third of all docket entries in the case were filed under seal. *See* Bernard Chao & Derigan Silver, *A Case Study in Patent Litigation Transparency*, 2014 J. DISP. RESOL. 83, 98; Bernard Chao, *Not So Confidential: A Call for Restraint in Sealing Court Records*, 2011 PATENTLY-O PATENT L.J. 6, 10. More recently, Christopher Morten has documented a practice of "easy secrecy" in the Eastern District of Texas, the busiest district for patent litigation, in which judges encourage litigants to file broad protective orders that keep large swaths of the record in patent cases out of public view. *See* Christopher J. Morten, Easy Secrecy in the Eastern District (2026) (unpublished manuscript) (on file with author).

[145] *See* Cape Intermediate Holdings Ltd. v. Dring (for and on behalf of Asbestos Victims Support Groups Forum UK) [2019] UKSC 38, para. 45 (stating that a person seeking access to court records must "explain why he seeks it and how granting him access will advance the open justice principle").

it could be.

As for judicial reason-giving, Mathilde Cohen observes that although there is no constitutional reason-giving requirement in the United States, "federal judges at all levels of the judicial hierarchy are prolific reason-givers."[146] According to Cohen, "[r]eason-giving is so instinctive and commonplace in the U.S. judicial culture that the practice has hardly needed formalization." [147] Yet there are large islands of federal adjudication in which reason-giving is not the norm. At the Federal Circuit, which—as noted[148]—hears almost all patent-related appeals, Circuit Rule 36 allows the court to "enter a judgment of affirmance without opinion" when it determines that, among other criteria, "an opinion would have no precedential value."[149] These dispositions, which consist of one word ("AFFIRMED") and a citation to Rule 36, constitute a significant portion of the court's output. In 2015 and 2016, more than half of the Federal Circuit's merits decisions in patent cases were Rule 36 dispositions.[150] (That figure fell to 28% of all merits decisions in patent cases in 2023.[151])

Furthermore, the Federal Circuit's Rule 36 affirmances follow an unusual pattern: as Paul Gugliuzza and Mark Lemley find in their study of patentable subject matter cases, the court tends to invoke Rule 36 when deciding that a patent is invalid and to issue reasoned, precedential decisions when finding that a patent is valid.[152] That disparity could indicate that the court is "hiding" decisions that narrow patent protection. [153] Although the authors also suggest more innocuous explanations for the differential use of reasoned decisions and Rule 36 dispositions,[154] the pattern is precisely what one would

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[146] *See* Mathilde Cohen, *When Judges Have Reasons Not to Give Reasons: A Comparative Law Approach*, 72 WASH. & LEE L. REV. 483, 531–32 (2015).
[147] *Id.* at 531.
[148] *See supra* note 138 and accompanying text.
[149] FED. CIR. R. 36(a).
[150] *See* Jason Rantanen, *Federal Circuit Decisions – 2023 Stats and Datapack*, PATENTLY-O (Feb. 16, 2024), https://patentlyo.com/patent/2024/02/federal-decisions-datapack.html [https://perma.cc/3PF2-V37V].
[151] *See id.*
[152] Paul R. Gugliuzza & Mark A. Lemley, *Can a Court Case Change the Law by Saying Nothing?*, 71 VAND. L. REV. 765, 767 (2018).
[153] *Id.*
[154] *See id.* at 768–69.

expect if the Federal Circuit were pursuing a strategy of microdeviation by publicizing its pro-patentee opinions while narrowing patent protection in less salient cases.

To be sure, the fact that Rule 36 dispositions are posted on the Federal Circuit's website[155] suggests that the court is not trying very hard to "hide" patentee-unfavorable decisions. Yet the court's failure to explain its reasoning in these cases makes it difficult for third parties to verify for themselves that the court is enforcing the laws on the books. Other scholars have expressed concerns that overreliance on Rule 36 may lead the Federal Circuit toward "sloppy" or "inconsistent" decisionmaking.[156] The analysis here offers an additional argument against the frequent use of Rule 36 dispositions: judicial reason-giving—especially in cases finding a patent invalid—can play an important role in convincing potential inventors and the public at large that the court continues to abide by the patent promise.

Even if the Federal Circuit did away with Rule 36 dispositions entirely, though, one giant exception to the norm of reason-giving in patent adjudication would remain: juries. Indeed, some scholars have suggested that a lack of reason-giving is one of the most valuable elements of jury decisionmaking. For example, Guido Calabresi and Philip Bobbitt argue that juries—precisely because they need not give reasons for their decisions—are well suited to resolve cases where an explicit articulation of the ratio decidendi would be threatening to social cohesion.[157] Adds John Attanasio: "That the jury need not give reasons for its decision allows it to weigh equities that the letter of the law may ignore."[158]

Whatever the merits in other contexts of exempting juries from a reason-giving requirement, the power of juries to

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[155] *See* U.S. CT. APP. FOR THE FED. CIR., *Opinions & Orders*, https://cafc.uscourts.gov/home/case-information/opinions-orders [https://perma.cc/278T-HDDF] (last visited Dec. 17, 2024).

[156] *See* Dennis D. Crouch, *Wrongly Affirmed without Opinion*, 52 WAKE FOREST L. REV. 561, 584 (2017).

[157] GUIDO CALABRESI & PHILIP BOBBITT, TRAGIC CHOICES: THE CONFLICTS SOCIETY CONFRONTS IN THE ALLOCATION OF TRAGICALLY SCARCE RESOURCES 57 (1978).

[158] John B. Attanasio, *Foreword: Juries Rule*, 54 S.M.U. L. REV. 1681, 1682 (2001).

deliver unexplained verdicts in patent infringement cases would seem to create conditions ripe for microdeviation. Jurors—after all—are consumers of patented products who presumably would like to pay less for those goods. When jurors find against a patent holder on issues of validity or infringement, they facilitate product market competition and thereby push down prices.[159] One might expect, then, that jurors—free from any need to justify their decisions—would show a systematic bias against patent holders.

Interestingly, the available evidence suggests otherwise. As future Federal Circuit Judge Kimberly Moore found in her study of jury and bench trials in patent cases from 1983 to 1999, "juries are significantly more likely to find patents valid, infringed, and willfully infringed than judges."[160] According to Moore's study, the win rate for patentees in jury trials during that period was 68%, compared to a 51% patentee win rate in bench trials.[161] Concededly, these summary statistics do not allow us to say that juries are more pro-patentee. For example, cases tried before juries may differ systematically from cases tried before judges due to litigant selection effects. Still, the win-rate differential aligns with observations from practicing patent lawyers, who—according to a survey conducted by Moore—overwhelmingly believe that "juries are biased in favor of the patent holder."[162]

Whether and why juries might be "biased" in favor of patent holders are questions to which we will return in Section II.B, where we explore patent public opinion-making in greater detail. The key point for now is that as long as the overwhelming majority of patent trials are jury trials,[163] the

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[159] On the scope of jury decisionmaking in patent cases, see generally Paul R. Gugliuzza, *Law, Fact, and Patent Validity*, 106 IOWA L. REV. 607, 612, 617–18 (2021).

[160] Kimberly A. Moore, *Judges, Juries, and Patent Cases – An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365, 368, 380 (2000).

[161] *Id.* at 386 tbl. 2.

[162] *Id.* at 373. In Moore's survey of chief patent counsels of leading corporations, 85% of respondents said that juries were more likely to uphold the validity of a patent than judges, with the remaining 15% saying that there was an equal chance of validity before a jury or a judge. *See id.* at 373 n.35.

[163] *See* Peter S. Menell & Allison A. Schmitt, *United States of America*, *in*

credibility of the patent promise will continue to depend—in significant part—on public sentiment. The U.S. legal system places enormous pressure on the ideational substrates of patent protection insofar as it enables juries to "microdeviate" in the dark. The apparent fact that jurors do not use their powers to undercut the patent promise cannot be explained by institutions on their own.

2. Legislative Institutions

Our brief foray into U.S. constitutional law found that Congress enjoys wide leeway to modify the patent statutes, potentially including the power to abolish patents entirely. Still, Congress can—and sometimes does—fetter itself by adopting legislative procedures that limit its ability to revise certain laws. The most notable example of a self-imposed legislative limitation in the United States is the Senate's sixty-vote supermajority requirement for ending debate—the cloture rule[164]—which effectively allows forty-one or more Senators to block a bill by filibustering. The Senate's supermajority requirement, by making it much harder to enact statutory changes, potentially increases public confidence that the existing patent laws will remain in force.

The significance of the Senate's supermajority requirement to the credibility of the patent promise is, however, easy to overstate. First, the Senate can, by simple majority vote, eliminate the supermajority requirement for ending debate.[165] This does not mean that the supermajority requirement is bootless: Senators in the majority may be reluctant to lower the cloture threshold because they know that they will value the ability to filibuster if they are relegated to the minority in the future.[166] What it does mean is that the Senate's supermajority

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AN INTERNATIONAL GUIDE TO PATENT CASE MANAGEMENT FOR JUDGES 435, 448 (WIPO 2023) ("Since the mid-1990s, approximately 70 percent of [U.S.] patent cases have been tried to juries.").

[164] *Standing Rules of the Senate*, S. Doc. No. 119-1, S. Rule XXII, ¶ 2 (2025).

[165] *See* Jonathan S. Gould, Kenneth A. Shepsle & Matthew C. Stephenson, *Democratizing the Senate From Within*, 13 J. LEGAL ANAL. 502, 535–37 (2021) (explaining how a bare majority of Senators could modify the cloture rule through existing procedures).

[166] *See* Gregory J. Wawro & Eric Schickler, *Reid's Rules, Filibusters, the Nuclear Option, and Path Dependence in the U.S. Senate*, 43 LEGIS. STUD. Q. 619, 627 (2018).

requirement is, at most, a loose constraint on statutory change.

Second, and perhaps more importantly, the Senate's supermajority requirement does not apply to revenue-related legislation that moves through the budget reconciliation process.[167] That process probably could not be used to enact controversial changes to substantive patent law in light of the requirement—known as the Byrd rule—that any provision of a reconciliation bill must produce changes in federal outlays or revenues that are more than "merely incidental to the non-budgetary components of the provision."[168] Budget reconciliation can be used, though, to enact increases in patent maintenance fees,[169] and if those increases are large enough, they could effectively accomplish much the same thing as a one-time patent cancellation by forcing holders of many existing patents to relinquish their rights. Budget reconciliation likewise can be used to enact tax measures: it was through this process that Congress passed the Inflation Reduction Act of 2022, which, as noted above, imposes a steep excise tax on pharmaceutical and biotechnology firms unless they agree to sell certain drugs to Medicare plans at reduced rates.[170] Targeted taxes, much like maintenance fees, can have effects similar to one-time patent cancellations by capturing the bulk of patentees' profits from existing inventions. In short, the Senate's supermajority requirement does not prevent lawmakers from reducing patent rewards—even quite dramatically—by simple majority vote.

Although the budget reconciliation rules arguably undermine the patent promise, other aspects of the legislative process create a procedural and political environment conducive to credibility. Patent law resembles tax law in many ways—so much so that patents have been described as

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[167] For an overview of the budget reconciliation process, see generally Ellen P. Aprill & Daniel J. Hemel, *The Tax Legislative Process: A Byrd's Eye View*, 81 LAW & CONTEMP. PROBS. 99, 102–08 (2018).

[168] 2 U.S.C. § 644(b)(1)(D). On the Senate Parliamentarian's interpretations of the Byrd rule, see Aprill & Hemel, *supra* note 167, at 108–26.

[169] *See* Omnibus Budget Reconciliation Act of 1990, Pub. L. No. 101-508, § 10101, 104 Stat. 1388, 1388–391 (adding a temporary 69% surcharge—lasting five fiscal years—to patent fees authorized by 35 U.S.C. § 41(a)–(b)).

[170] *See supra* text accompanying notes 66–72. The Inflation Reduction Act, a budget reconciliation measure, passed the Senate by a 51–50 margin, with Vice President Kamala Harris casting the tiebreaking vote.

imposing a "shadow tax."[171] However, patents are exempt from the formal rules and informal norms that apply to tax legislation outside of the shadows. The upshot is that legislators typically have weaker incentives to roll back patent protection than to cut taxes—even though, economically, these two actions are often equivalent.

To see the economic equivalence of patents and taxes, suppose that there is a patented product—say, a pharmaceutical drug—that would cost $1 to purchase in a counterfactual competitive market but that costs $10 today because the monopoly power conferred by patent law allows the patentee to charge a higher price. From a consumer's perspective, paying $10 for the patented product is equivalent to paying $1 for the pill plus a $9 sales tax. Meanwhile, from the patentee's perspective, the arrangement is equivalent to a world without patents in which the pill sells for $1 and the government awards a $9-per-pill prize to the pill's inventor. It is for this reason that Lisa Ouellette and I wrote more than a dozen years ago that "[w]e can think of the higher price of patented products as a 'shadow' tax and the patent system as a 'shadow' government expenditure."[172]

When Congress makes changes to tax law outside the shadows (i.e., when it explicitly amends the Internal Revenue Code), a host of procedural rules and norms serve to clarify for voters how these changes will affect their pocketbooks. For example, when a House or Senate committee reports a tax-related measure to the full chamber, the report typically contains an estimate from the Joint Committee on Taxation of the effect—positive or negative—on overall tax burdens.[173] These Joint Committee estimates often include analyses of the tax measure's effects across the income distribution.[174] Indeed,

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[171] *See* Hemel & Ouellette, *supra* note 8, at 312; Masur & Mortara, *supra* note 44, at 986 n.108; W. Nicholson Price II, *Grants*, 34 BERKELEY TECH. L.J. 1, 4 (2019); Christopher Buccafusco, *Disability and Design*, 95 N.Y.U. L. REV. 952, 1005 n.345 (2020); Matthew B. Lawrence, *Disappropriation*, 120 COLUM. L. REV. 1, 21 (2020).

[172] *See* Hemel & Ouellette, *supra* note 8, at 312.

[173] *See* Jesse M. Cross & Abbe R. Gluck, *The Congressional Bureaucracy*, 168 U. PA. L. REV. 1541, 1580 (2020).

[174] On the importance of Joint Committee distributional estimates in tax lawmaking, see Michael J. Graetz, *Paint-by-Numbers Tax Lawmaking*, 95 COLUM. L. REV. 609, 612–15, 617 (1995).

before a tax-related measure can be brought to the House floor, the Internal Revenue Service Restructuring and Reform Act of 1998 and House Rule XIII explicitly require a Joint Committee estimate of the number of taxpayers affected, the income levels of those taxpayers, and the impact on recordkeeping and administrative burdens.[175] These rules and norms raise the political salience of tax changes: they make it harder for Congress to hide tax hikes, and they potentially increase the political rewards for tax cuts.[176]

When Congress makes changes to the patent system's "shadow tax," the effects on individual households, specific income groups, and consumers writ large are more opaque. When a change to patent law affects government revenues or outlays (e.g., by changing the amount that the PTO collects in fees or spends on examinations, or by changing the amount that Medicare and Medicaid pay for pharmaceuticals), the Congressional Budget Office typically provides a cost estimate.[177] But those cost estimates do not account for the effect of the patent system's shadow tax on consumers' pocketbooks, and they do not include distributional analyses. Thus, for example, when Congress passed the America Invents Act of 2011,[178] which "arguably made the most significant

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[175] *See* Internal Revenue Service Restructuring and Reform Act of 1998, Pub. L. No. 105-206, § 4022, 112 Stat. 685, 785–87; *Rules of the House of Representatives*, H.R. DOC. NO. 118-187, r. XIII, cl. 3(h) (2025).

[176] *Cf.* David Gamage & Darien Shanske, *Three Essays on Tax Salience: Market Salience and Political Salience*, 65 TAX L. REV. 19, 23–24 (2011) (defining "political salience" as "the extent to which taxpayers account for the costs imposed by taxation . . . with regard to political judgment formation"); Deborah H. Schenk, *Exploiting the Salience Bias in Designing Taxes*, 28 YALE J. ON REG. 253, 273 (2011) (defining "political salience" as "the political reaction from the electorate in response to the adoption of a tax or tax provision").

[177] *See, e.g.*, CONG. BUDGET OFF., COST ESTIMATE: H.R. 1249, AMERICA INVENTS ACT (May 26, 2011), https://www.cbo.gov/sites/default/files/112th-congress-2011-2012/costestimate/hr12490.pdf [https://perma.cc/XLT4-DSNZ]; CONG. BUDGET OFF., COST ESTIMATE: S. 150, AFFORDABLE PRESCRIPTIONS FOR PATIENTS ACT OF 2023 (June 13, 2024), https://www.cbo.gov/system/files/2024-06/s150.pdf [https://perma.cc/7ACG-NQPK].

[178] Leahy-Smith America Invents Act, Pub. L. No. 112–29, 125 Stat. 284 (2011).

changes to the U.S. patent statute since the 19th century,"[179] voters had little way to know—at least based on information from Congress itself—whether they stood to pay more or less for patented products as a result of the reforms.

The umbrous nature of the patent shadow tax has important implications for the political economy of patent law. First, lawmakers do not treat changes that increase the size of the patent shadow tax as implicating their various anti-tax pledges. Most Republicans in the U.S. House and Senate have signed a pledge to oppose "net tax increases." [180] But Americans for Tax Reform, the organization that administers this pledge, does not interpret the commitment as prohibiting lawmakers from supporting bills that increase the patent shadow tax. (To the contrary, Americans for Tax Reform lobbies for legislation that would strengthen patent protection.[181]) Democrats, for their part, have not typically treated patent legislation as implicating their pledges to protect households earning less than $400,000 from tax increases.[182]

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[179] CONG. RSCH. SERV., THE LEAHY-SMITH AMERICA INVENTS ACT: INNOVATION ISSUES, R42014, at 1 (Jan. 15, 2014), https://crsreports.congress.gov/product/pdf/R/R42014/9 [https://perma.cc/4DFA-QKU3].

[180] *2025 Pledge Non-Signers*, AMERICANS FOR TAX REFORM, https://atr.org/pledge-nonsigners [https://perma.cc/DB2V-X4GR] (last visited Feb. 7, 2025); *Federal Taxpayer Protection Pledge Questions and Answers*, AMERICANS FOR TAX REFORM (June 1, 2011), https://atr.org/federal-taxpayer-protection-questions-answers-a6204 [https://perma.cc/G42K-PLAQ].

[181] *See, e.g.*, Letter from Grover Norquist, President, Americans for Tax Reform, to Sens. Chris Coons & Thom Tillis (Sep. 26, 2024), https://atr.org/wp-content/uploads/2024/09/ATR-Letter-in-Support-of-PERA-and-PREVAIL-Acts.pdf [https://perma.cc/KVJ8-KWK7] (advocating for legislation that would—among other measures—establish a presumption of validity for existing patents in proceedings before the Patent Trial and Appeal Board).

[182] *Compare* Press Release, U.S. Sen. Chris Coons, *Sen. Coons Celebrates Historic Build Back Better Act Framework* (Oct. 28, 2021), https://www.coons.senate.gov/news/press-releases/sen-coons-celebrates-historic-build-back-better-act-framework [https://perma.cc/3LC6-ZXJZ] (reiterating President Biden's promise that "nobody earning less than $400,000 per year will pay more in taxes"), *with* Promoting and Respecting Economically Vital American Innovation Leadership Act, S. 2220, 118th Cong. (2023) (introduced by Sen. Coons) (proposing to strengthen patent protection).

Thus, patent-strengthening reforms—which increase the patent shadow tax—are generally easier to enact than measures that raise explicit taxes. Second, because lawmakers do not treat the patent shadow tax as a tax, the strong political incentives for lawmakers to cut explicit taxes do not extend to the patent shadow tax. For example, the Americans for Tax Reform pledge permits lawmakers to support legislation that includes some tax-increasing provisions "as long as the same piece of legislation contain[s] a reduction in taxes by the same amount or more."[183] But because the patent shadow tax does not "count" as a tax—at least in the minds of legislators and anti-tax advocates—a rollback of patent protection cannot be used to offset a tax increase elsewhere in a legislative package.

Thus, just as the transparency of judicial institutions operates as a check on microdeviations from the patent promise, the nontransparency of the patent shadow tax dampens the incentives for lawmakers to stray from the patent promise through legislative action. By treating the patent shadow tax as something other than a tax, Congress contributes to the perception that patent-strengthening reforms are not tax increases—and that deviations from the patent promise are not tax cuts—even though, in an economic sense, patents and taxes are equivalents. Put another way, institutional rules and norms contribute to the credibility of the patent promise through the critical intervening variable of ideas. Yet at the same time, the idea that patents are not taxes serves to justify the institutional rules and norms that exempt patents from the formal and informal constraints that apply to explicit taxes. The institutions and ideas that apply to patents are in this sense co-constitutive. We will see a similar co-constitutivity of institutions and ideas in Section II.A.4, when we raise our gaze from the level of the nation-state to the level of the international system.

3. Administrative Institutions

The administrative institutions of patent law—including the U.S. Patent and Trademark Office and its counterparts in other countries—operate simultaneously as gatekeepers of patent

[183] *See Federal Taxpayer Protection Pledge Questions and Answers*, *supra* note 180.

protection and as guardians of the patent bargain. These gatekeeper and guardian roles are intimately related. By conducting substantive pre-grant examinations of patent applications, the PTO and its counterparts ward off a Gresham's law-like phenomenon in which bad patents drive out the good. A lightning review of patent history can help us understand how patent offices came to play this dual gatekeeper/guardian role.

The first U.S. patent law, the Patent Act of 1790, established a three-member panel—composed of the Attorney General, the Secretary of State, and the Secretary of War—which was tasked with examining patent applications for novelty and usefulness.[184] That initial arrangement did not last long. As Andrew Morriss and Craig Allen Nard write, "[t]he examination process demanded considerable time to administer from three increasingly busy Cabinet officers and it soon came under heavy criticism by those responsible for its administration"—including from the first Secretary of State, Thomas Jefferson. [185] The landmark Patent Act of 1793 abolished pre-grant examination and switched to a "registration system akin to modern-day American copyright law"[186] under which potential patentees merely had to "allege" that their inventions were "new and useful."[187] If applicants submitted a proper petition and paid the requisite registration fees, the Secretary of State would issue a patent as a matter of course, with questions of validity to be adjudicated later by courts in infringement suits or post-grant repeal proceedings.[188] Early American patent law was thus almost entirely a judicially dominated field, with a very limited administrative role.[189]

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[184] Act of Apr. 10, 1790, ch. 7, 1 Stat. 109 (1790).

[185] Andrew P. Morriss & Craig Allen Nard, *Institutional Choice & Interest Groups in the Development of American Patent Law: 1790–1865*, 19 SUP. CT. ECON. REV. 143, 150–51 (2011).

[186] *See id.* at 151.

[187] Act of Feb. 21, 1793, ch. 11, 1 Stat. 318 (1793).

[188] *See* Christopher Beauchamp, *Repealing Patents*, 72 VAND. L. REV. 647, 662 (2019).

[189] Notwithstanding the abolition of substantive pre-grant review, William Thornton—who served as the State Department clerk in charge of processing patent applications from 1802 until his death in 1828—bristled at the notion that he should issue patents for "inventions" that were not novel.

The early nineteenth-century U.S. patent system bore similarities to the systems in Britain, which did not establish pre-grant examination until the 1880s,[190] and France, which abolished pre-grant examination in 1791 and did not formally reinstate the practice until 1968.[191] Like the British and French registration systems, early nineteenth-century U.S. patent law economized on pre-grant administrative costs but resulted in "widespread complaints about the poor quality of patents" issued without prior examination.[192] In Britain, France, and other European countries, dissatisfaction with the quality of granted patents led—by the middle of the nineteenth century—to the rise of anti-patent movements that "demanded not merely reform but abolition of the patent system."[193] In the United States, similar concerns caused Congress to reestablish a regime of pre-grant patent review[194]—this time delegating the task of examination to a Patent Office headed by a presidentially appointed Commissioner of Patents and supported by a full-time staff.[195]

In its early years, the U.S. Patent Office was largely an instrument of political patronage—hearkening back to Queen

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The Attorney General, however, repeatedly opined that Thornton lacked the authority to deny patents on substantive grounds. *See* Kara W. Swanson, *Making Patents: Patent Administration, 1790–1860*, 71 CASE W. RES. L. REV. 777, 796, 800 (2020). As Edward Walterscheid notes, "[i]f Thornton could not decline to issue patents . . . , he was not reticent about letting the public know when he was required to issue a patent which he believed to be invalid." Edward C. Walterscheid, *The Winged Gudgeon — An Early Patent Controversy*, 79 J. PAT. & TRADEMARK OFF. SOC'Y 533, 536–37 (1997).

[190] *See* Mark D. Janis, *Patent Abolitionism*, 17 BERKELEY TECH. L.J. 899, 903 (2002). As Sean Bottomley notes, Britain did have a system of "caveat opposition" that allowed holders of existing patents to challenge new patent petitions. SEAN BOTTOMLEY, THE BRITISH PATENT SYSTEM DURING THE INDUSTRIAL REVOLUTION 1700–1852, at 53–54 (2014). However, into the nineteenth century, most patents were awarded without oppositions. *See id.* at 56 tbl. 2.1.

[191] *See* Jérôme Baudry, *Examining Inventions, Shaping Property: The Savants and the French Patent System*, 57 HIST. SCI. 62, 67 (2019).

[192] Christopher Beauchamp, *The First Patent Litigation Explosion*, 125 YALE L.J. 848, 858 (2016).

[193] Fritz Machlup & Edith Penrose, *The Patent Controversy in the Nineteenth Century*, 10 J. ECON. HIST. 1, 1 (1950).

[194] *See* Swanson, *supra* note 189, at 804–07.

[195] Act of July 4, 1836, ch. 357, 5 Stat. 117 (1836).

Elizabeth I's use of letters patent to reward royal supporters.[196] Daniel Moskowitz and Jon Rogowski find that from 1837 to 1868, patenting rates were more than 30% higher in states that had supported the sitting President in the last election than in states that had voted for his opponent.[197] After the Patent Office instituted competitive written tests for examiners in 1869, however, Moskowitz and Rogowski find that partisan presidential politics ceased to exert a measurable effect on patenting rates across states.[198] Moskowitz and Rogowski's finding of nonpartisanship in the post-1869 patent examination process largely accords with a recent study by Joseph Raffiee, Florenta Teodoridis, and Daniel Fehder, who use voter registration records to identify the partisan affiliation of individual examiners and detect no evidence that an examiner's party registration affects patenting outcomes.[199]

How does a system of nonpartisan, pre-grant review affect the credibility of patent law? First, and most straightforwardly, pre-grant review bolsters the credibility of a patentee's assertion that she holds a valid patent. Writing about nineteenth-century British patent practice before the implementation of pre-grant review, Mark Janis observes that British patents provided "protection of dubious value, at best, because at no stage . . . did British patent authorities ever conduct a substantive examination of patentability."[200] Before the implementation of pre-grant review, patents signified only that holders had paid the requisite fees, checked the relevant

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[196] *Cf.* Adam Mossoff, *Rethinking the Development of Patents: An Intellectual History, 1550–1800*, 52 HASTINGS L.J. 1255, 1264, 1267 (2001) (describing the use of letters patent in Elizabethan England).

[197] *See* Daniel J. Moskowitz & Jon C. Rogowski, *Insulating Administration from Politics: Bureaucratic Selection and Patenting Activity in the U.S., 1837–2015*, at 2 (May 4, 2025) (unpublished manuscript), https://bpb-us-w2.wpmucdn.com/voices.uchicago.edu/dist/2/3167/files/2025/05/moskowitz-rogowski_CLARE.pdf [https://perma.cc/TB4R-TX2N].

[198] *See id.*

[199] *See* Joseph Raffiee, Florenta Teodoridis & Daniel Fehder, *Partisan Patent Examiners? Exploring the Link Between the Political Ideology of Patent Examiners and Patent Office Outcomes*, 52 RSCH. POL'Y 104853 (2023). The authors do, however, find some evidence that examiner ideology affects patenting outcomes in the limited context of software patents. *See id.* at 3.

[200] *See* Janis, *supra* note 190, at 906.

procedural boxes, and declared that their inventions met the criteria for patentability—declarations that might or might not be credited by a court in a subsequent suit. Substantive pre-grant examination allows a patentee to say to potential licensees that at least one government official with knowledge of the patent laws has considered the matter and agrees with her assertion of patent validity. As Morriss and Nard note, the shift from a registration system back to pre-grant review required "a greater effort to procure a patent" but "imbued patent validity with greater certainty, enhancing patents' value."[201]

Concededly, substantive pre-grant review does not ensure that a court will agree with the patent examiner's initial judgment. Moreover, even under a registration regime, procedural hurdles and filing fees may screen out some low-quality patents (i.e., patents that—if adjudicated by a court—would flunk the patentability test).[202] Still, substantive pre-grant review—even when patent examiners' judgments are imperfect, and even when other screening mechanisms such as filing fees are deployed—can serve to weed out weak patents, making it more likely that any granted patent will survive judicial scrutiny.[203]

Second, and relatedly, substantive pre-grant review—by increasing the ratio of high-quality to low-quality patents—can enhance the positive welfare effects of the patent system and thereby increase public support for the patent promise. Correlatively, a lack of substantive pre-grant review may undermine the credibility of that promise. Notably, patent abolitionists in the Netherlands cited the lack of pre-grant review as a reason to eliminate that country's patent system in 1869. As one abolitionist lawmaker asked his colleagues (rhetorically) during the abolition debate: "if a Government is not in a position to establish whether the claimant of a patent has a right to it, can it be sanctioned that it *blindly* grants a right

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[201] Morriss & Nard, *supra* note 185, at 159.

[202] *See* Jonathan S. Masur, *Costly Screens and Patent Examination*, 2 J. LEGAL ANALYSIS 687, 699–715 (2010).

[203] *See* Mark Schankerman & Florian Schuett, *Patent Screening, Innovation, and Welfare*, 89 REV. ECON. STUD. 2101, 2132–33 (2022).

that vests a temporary monopoly?"[204] Likewise, in the United Kingdom, where a movement to abolish the patent system gained traction in the 1860s and 1870s, patent abolitionists cited the proliferation of low-quality patents as a reason to eliminate patents altogether.[205] Unlike their Dutch counterparts, the British patent abolitionists ultimately failed to repeal their country's patent statutes. However, their critique of the British patent system set the stage for the United Kingdom's introduction of substantive pre-grant review in the 1880s.

Recent estimates by the economists Mark Schankerman and Florian Schuett support the argument of the nineteenth-century patent abolitionists that a patent system without substantive pre-grant review may not be worth keeping.[206] Schankerman and Schuett seek to estimate the welfare effects of the U.S. patent system and to simulate potential reforms. While they conclude that the current U.S. patent system generates a net-positive effect on welfare, their analysis indicates that the welfare effect would be negative in the absence of pre-grant review. "Thus, it is worse to have a registration system that gives temporary monopoly patent rights to all applicants than it is to have *no* patent rights at all," Schankerman and Schuett write.[207] Strikingly, Schankerman and Schuett arrive at this conclusion even though they estimate that the PTO successfully screens out only 48% of patent applications that should not be granted.[208] A little bit of pre-grant screening goes a long way toward justifying the patent system in welfarist terms.[209]

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[204] Van Gompel, *supra* note 11, at 916 (quoting the nineteenth-century Dutch politician Michael Godefroi).

[205] *See* Janis, *supra* note 190, at 936–37.

[206] *See* Schankerman & Schuett, *supra* note 203, at 2104.

[207] *Id*.

[208] *See id.* at 2103. To be clear, Schankerman and Schuett are not claiming that the PTO grants 52% of *legally* invalid patent applications. Their criterion for whether a patent should be granted is "economic." *Id.* That is, a patent should not be granted according to Schankerman and Schuett's definition if the invention would have been developed in the absence of patent protection. *See id.* at 2134. That is not the legal criterion for patentability. *Cf.* 35 U.S.C. §§ 101–103.

[209] For an argument that a little bit *more* pre-grant screening would have positive welfare consequences, see Michael D. Frakes & Melissa F.

Reasonable minds may disagree with Schankerman and Schuett's assertion that the current patent system is welfare-enhancing.[210] Schankerman and Schuett's study should be seen as suggestive, not conclusive. What the study suggests, though, is that a patent system without pre-grant review would be much more costly to society—and consequently, less stable. Insofar as administrative institutions increase the ratio of high-quality to low-quality patents, they not only enhance the credibility of individual patentees' assertions of validity but also bolster the credibility of the patent promise writ large.

4. International Institutions

Our analysis so far has centered on patent law at the domestic level in the United States. Yet patent law is not a purely domestic phenomenon. Since the Paris Convention of 1883, patent law has been governed by a set of international institutions that supplement—and potentially sustain—nation-states' commitments to the patent promise. A comprehensive analysis of credible commitment in patent law requires us to train our telescope, at least for a moment, on this nearly one-and-a-half-century-old international patent regime.

The Paris Convention of 1883—which came into force the following year with fourteen countries as member states—codified the rules of "national treatment" and "priority right" in international patent law.[211] The first of these two rules requires member states to treat nationals of other member states in the same manner as they treat their own citizens with regard to the protection of "industrial property."[212] The second

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Wasserman, *Irrational Ignorance at the Patent Office*, 72 VAND. L. REV. 975, 1021 (2019). Bolstering the credibility of the patent promise would be an additional benefit—beyond those considered by Frakes and Wasserman—of weeding out "bad" patents at the pre-grant stage.

[210] For a provocative argument against pre-grant review and in favor of returning to a registration regime, see F. Scott Kieff, *The Case for Registering Patents and the Law and Economics of Present Patent-Obtaining Rules*, 45 B.C. L. REV. 55 (2003).

[211] *See* Louise J. Duncan, *The Key Historical Influences Leading to the Paris Convention for the Protection of Industrial Property of 1883*, *in* INTELLECTUAL PROPERTY AND THE LAW OF NATIONS, 1860-1920 15, 49–50 (P. Sean Morris ed., 2022).

[212] Paris Convention for the Protection of Industrial Property art. 2, Mar. 20, 1883, *as revised* July 14, 1967, 828 U.N.T.S. 305, 313.

rule allows an inventor who files a patent application in any member state to claim priority over applications in other member states for a limited period (twelve months under the 1883 Convention and its successors).[213] As Louise Duncan observes, the national treatment and priority right provisions of the Paris Convention constituted "a remarkable advance in international law" and laid the groundwork for the modern international intellectual property regime.[214]

Today, the centerpiece of that regime is the Agreement on Trade-Related Aspects of Intellectual Property Rights, or TRIPS, signed in Marrakesh, Morocco, in 1994.[215] The TRIPS Agreement, which binds all WTO member states (166 as of this writing), incorporates the main provisions of the Paris Convention but also goes much further in specifying a minimum level of patent protection.[216] For example, the TRIPS Agreement provides, with limited exceptions, that "patents shall be available for any inventions . . . in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application."[217] TRIPS also obligates states to guarantee a minimum patent term of twenty years and to provide an "opportunity for judicial review"

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[213] *Id.* art. 4, 828 U.N.T.S. at 314–15.

[214] *See* Duncan, *supra* note 211, at 50. The fact that inventors in one Paris Convention member state can obtain patents in other Paris Convention member states affects the vulnerability of patent holders in two divergent ways. On the one hand, a jurisdictionally diverse patent portfolio reduces a patent holder's exposure to policy changes in any given country. For example, a French inventor might have more confidence that she will be able to capture a large patent reward—even if France reneges on its patent promise—because the inventor also can obtain patents in Germany, the United Kingdom, the United States, and so on. On the other hand, the fact that multiple jurisdictions will issue patents to the same inventor for the same invention increases the incentive for each jurisdiction to free-ride on the others' IP regimes. *See* Daniel J. Hemel & Lisa Larrimore Ouellette, *Knowledge Goods and Nation-States*, 101 MINN. L. REV. 167, 179–80 (2016). Thus, the effect of the Paris Convention on the credibility of countries' patent commitments is—at least as a theoretical matter—ambiguous.

[215] Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299 [*hereinafter* TRIPS Agreement].

[216] *See id.* art. 2 (incorporating provisions of the Paris Convention); *id.* art. 3 (providing for national treatment).

[217] *Id.* art. 27(1).

before any patent is revoked or forfeited.[218] TRIPS thus does much more than level the playing field between foreign and domestic patentees; it establishes a substantive floor for patent protection across all member states.

In further contrast to the Paris Convention, which lacked an enforcement mechanism, TRIPS incorporates an intricate set of WTO procedures known as the "Dispute Settlement Understanding" (DSU) for redressing violations. When one member state believes that another member state has violated the accord, the complaining country can seek redress through the DSU process and can request that the WTO establish a panel to adjudicate the dispute. If the respondent country fails to comply with the results of the DSU process, the WTO may authorize the complainant to take retaliatory countermeasures against the respondent (e.g., allowing the complainant to impose tariffs on the respondent's goods).[219] And apart from the DSU, TRIPS establishes a Council of all member states that is required to review the implementation of the agreement at two-year intervals.[220]

On its face, then, TRIPS might seem to offer a solution to patent law's credible commitment challenge: as TRIPS demonstrates, international institutions can deal out consequences to countries that break their patent-related commitments, thereby deterring deviations from the patent promise. On closer inspection, however, the TRIPS enforcement regime turns out to be wobblier than it initially appears. Although the WTO can authorize a complaining state to take retaliatory countermeasures against a violator, the WTO cannot enforce its judgments on its own. As lawyer Judith Hippler Bello notes, "[t]he WTO has no jailhouse, no bail bondsmen, no blue helmets, no truncheons or tear gas."[221] In other words, the WTO is not the world's trade policeman; the most it can do is to bless a complaining country's self-defense efforts. For the last several years, moreover, the WTO

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[218] *Id.* arts. 32, 33.

[219] For an overview of the WTO retaliatory structure, see Sarah R. Wasserman Rajec, *The Intellectual Property Hostage in Trade Retaliation*, 76 MD. L. REV. 169, 177–83 (2016).

[220] *See* TRIPS Agreement, *supra* note 215, art. 71.

[221] Judith Hippler Bello, *The WTO Dispute Settlement Understanding: Less Is More*, 90 AM. J. INT'L L. 416, 417 (1996).

has been hamstrung in fulfilling even this limited function because successive U.S. administrations—starting at the end of President Obama's second term—have vetoed every nomination to the WTO's Appellate Body, causing the world's "trade court" to lose its quorum.[222]

Even when the WTO authorizes a successful complainant to impose tariffs on imports from the respondent, the complainant may choose not to follow through because tariffs typically reduce national welfare for the tariff-imposing state as well as for the target state.[223] As Marco Bronckers and Freya Baetens write, complaining states that impose retaliatory countermeasures "may easily shoot themselves in the foot by making imports from the offending member more expensive" for their own consumers.[224] Or said differently, the prospect of retaliatory countermeasures may not solve patent law's credible commitment problem because a complaining country's threat to impose retaliatory countermeasures may not itself be credible. This is especially true when the offending member wields economic and geopolitical power and can respond to countermeasures by, for example, reducing foreign aid or military support to the complainant.[225]

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[222] *See* Manfred Elsig, Mark Pollack & Gregory Shaffer, *The U.S. Is Causing a Major Controversy in the World Trade Organization. Here's What's Happening*, WASH. POST: MONKEY CAGE (June 6, 2016), https://www.washingtonpost.com/news/monkey-cage/wp/2016/06/06/the-u-s-is-trying-to-block-the-reappointment-of-a-wto-judge-here-are-3-things-to-know [https://perma.cc/Y8H4-R7EF]; Maria Angelica Suarez, *The Appellate Body Impasse: How to Make the WTO Great Again?*, 56 N.Y.U. J. INT'L L. & POL. 965, 972 (2024).

[223] *See* Steve Charnovitz, *Rethinking WTO Trade Sanctions*, 95 AM. J. INT'L L. 792, 822 (2001); Hansel T. Pham, *Developing Countries and the WTO: The Need for More Mediation in the DSU*, 9 HARV. NEGOT. L. REV. 331, 352–53 (2004).

[224] Marco Bronckers & Freya Baetens, *Reconsidering Financial Remedies in WTO Dispute Settlement*, 16 J. INT'L ECON. L. 281, 282 (2013).

[225] *See* Andrew T. Guzman & Beth A. Simmons, *Power Plays and Capacity Constraints: The Selection of Defendants in World Trade Organization Disputes*, 34 J. LEGAL STUD. 557, 569–70 (2005). In their empirical study of WTO disputes, Guzman and Simmons find a negative correlation between a complainant's own income and the income of the defendant country—contrary to the theory that poorer countries avoid picking fights with richer states. *See id.* at 583. But the authors add that "[i]n the absence of a clear

Moreover, even when a complaining country's threat to impose retaliatory countermeasures *is* credible, that threat may—perversely—undermine confidence in the patent promise precisely because of its credibility. Under Article 22 of the WTO's Dispute Settlement Understanding—which applies to TRIPS as well as other WTO agreements such as those pertaining to agriculture and services—the "general principle" is that a successful complainant should target any retaliatory measures toward the same sector as the one in which the violation arose.[226] However, if the complainant "considers that it is not practicable or effective" to target countermeasures at that sector, the complainant may suspend obligations with respect to other sectors and under other WTO agreements.[227] Importantly for our purposes, IP rights are a favored subject for such "cross-retaliation"—a phenomenon that Sarah Wasserman Rajec describes as "the intellectual property hostage." [228] For example, WTO arbitrators authorized Ecuador to suspend EU firms' intellectual property rights in response to illegal EU tariffs on Ecuadorian bananas[229] and authorized Brazil to suspend U.S. firms' IP rights in response to illegal U.S. cotton subsidies. [230] Although both cases ultimately settled without the complainant ever executing its IP hostage threat, [231] these IP hostage cases show how

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sense of how many cases developing countries 'ought to' have initiated, we really do not know if these filed cases represent equal access or not." *Id.* at 591.

[226] Understanding on Rules and Procedures Governing the Settlement of Disputes art. 22(3)(a), Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 2, 1869 U.N.T.S. 401 [hereinafter DSU].

[227] *Id.* art. 22(3)(b)–(c).

[228] *See* Rajec, *supra* note 219, at 172–73.

[229] Decision by the Arbitrators, *European Communities—Regime for the Importation, Sale and Distribution of Bananas*, ¶¶ 157–164, WTO Doc. WT/DS27/ARB/ECU (Mar. 24, 2000).

[230] *See* Arb. Dec., *United States—Subsidies on Upland Cotton*, ¶ 5.230 & n.468, WTO Doc. WT/DS267/ARB/2 (adopted Aug. 31, 2009). A WTO arbitrator also authorized Antigua to suspend U.S. firms' IP rights in retaliation for illegal U.S. restrictions on cross-border gambling. Arb. Dec., *United States—Measures Affecting the Cross-Border Supply of Gambling and Betting Services*, ¶¶ 5.6–5.7, WTO Doc. WT/DS285/ARB (Dec. 21, 2007).

[231] *See* Rajec, *supra* note 219, at 203, 207–08.

international institutions can encourage—or at least legitimate—deviations from the patent promise.

The contribution of international institutions to the credibility of the patent promise cannot, then, be explained purely in terms of incentives. TRIPS generates relatively weak incentives for countries to abide by the patent promise and in some cases may motivate countries to deviate from the patent promise in order to retaliate against trading partners for violations of non-IP-related WTO rules. Yet as the political scientist Martha Finnemore notes, international institutions can shape the behavior of nation-states not only by structuring their incentives but also by constituting their identities—by "teaching" them what it means to be a state.[232] International institutions can, in other words, cultivate a norm that holds that respect for intellectual property rights is a defining feature of statehood—much like having a rectangular flag or fielding an Olympic team.

Finnemore's pathbreaking work on international institutions and norm elaboration began with a focus on state science bureaucracies. According to Finnemore, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) successfully promoted a norm that "coordination and direction of science are necessary tasks of the modern state" and that all countries—even the poorest ones—should establish science policy organizations to promote scientific research.[233] Thus, for example, Sudan set up a new science policy body at UNESCO's urging in the late 1960s at a time when Sudan scarcely had "enough qualified scientists even to draft a proposal for the new science policy body, let alone staff it once it was created."[234] More than a dozen other low-income countries did the same at roughly the same time.[235] As Finnemore observes, "from a functional standpoint, it is not obvious why all states suddenly 'needed' a science policy

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[232] *See* MARTHA FINNEMORE, NATIONAL INTERESTS IN INTERNATIONAL SOCIETY 11 (1996).

[233] Martha Finnemore, *International Organizations as Teachers of Norms: The United Nations Educational, Scientific, and Cultural Organization and Science Policy*, 47 INT'L ORG. 565, 566, 583 (1993).

[234] *Id.* at 591.

[235] *See id.* at 586 n.58.

bureaucracy."[236] Rather, states established science policy bureaucracies because UNESCO and other international actors successfully framed science as a proper concern for all governments.[237] There as elsewhere, international institutions shaped state behavior through a "logic of appropriateness," not a "logic of consequences."[238]

Scholars following in the footsteps of Finnemore have examined whether TRIPS engendered a similar "logic of appropriateness" with respect to intellectual property protection. "Historically," writes Susan Sell, a wide range of deviations from IP protection "were absolutely legal" under international law.[239] Starting in the 1980s, however, U.S. business interests consciously pursued a discursive strategy that framed intellectual property infringement as a form of "piracy."[240] The "piracy" framing packed particular rhetorical punch because of the special status of pirates in international law as "hostis humani generis," or enemies of humankind.[241] TRIPS represents the apogee of this discursive strategy, embracing the "piracy" analogy to describe some forms of IP infringement and encoding that analogy into international law.[242]

TRIPS represents a rhetorical achievement in a second respect: as Sell observes, the U.S. business interests that promoted TRIPS "effectively cast IP rights as equivalent to

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[236] *Id.* at 583.

[237] *See* Finnemore, *supra* note 232, at 55.

[238] *See id.*

[239] SUSAN K. SELL, PRIVATE POWER, PUBLIC LAW: THE GLOBALIZATION OF INTELLECTUAL PROPERTY RIGHTS 51 (2003).

[240] *See id.* at 48–51.

[241] *See* Mickey Zar, *Piracy: A Treasure Box of Otherness*, 31 EUR. J. INT'L L. 1401, 1407 (2020).

[242] As the TRIPS text itself reveals, the piracy analogy would prove to be more successful in the copyright context than in the patent context. *See* TRIPS Agreement, supra note 215, art. 51 (addressing the customs treatment of "pirated copyright goods"); *id.* art. 61 (stating that "[m]embers shall provide for criminal procedures and penalties to be applied at least in cases of willful trademark counterfeiting or copyright piracy on a commercial scale"); *id.* art. 69 (stating that members "shall, in particular, promote the exchange of information and cooperation between customs authorities with regard to trade in counterfeit trademark goods and pirated copyright goods").

general property rights" and "hence essential to free trade."[243] The linkage between IP rights and free trade is not necessarily a natural one. In nineteenth-century Europe, according to Fritz Machlup and Edith Penrose, it was the free traders who tended to support patent abolition and the protectionists who pushed back.[244] And well into the twentieth century, observes Sell, "US courts regarded patent 'rights' as 'monopolies,'" with the "negative connotation" that monopoly has long entailed in U.S. culture. [245] This association between patents and monopoly, according to Sell, was "almost automatic" given that patents operate, quite literally, as restraints of trade in patented goods.[246]

TRIPS advances a counternarrative.[247] "It is ironic," notes Sell, that "extending monopoly privileges could be marketed as 'freer trade,'"[248] but that is exactly the marketing strategy that TRIPS pursues. The agreement's declared purpose—per its preamble—is "to reduce distortions and impediments to international trade." [249] The preamble goes on to state that "intellectual property rights are private rights," [250] thus challenging the historically rooted notion of patents as state-conferred privileges. Indeed, one can understand TRIPS as not only asserting but institutionalizing a linkage between patents and free trade: to be a member of the World Trade Organization—to be included within the international free trade order—a state *must* incorporate TRIPS's patent

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[243] *See* Sell, *supra* note 239, at 45.
[244] Machlup & Penrose, *supra* note 193, at 6.
[245] *See* Sell, *supra* note 239, at 52.
[246] *See id.*
[247] F. M. Scherer observes that even before TRIPS, international organizations—in particular, the World Intellectual Property Organization, founded in 1967—played an important role in popularizing the notion that patents are a form of "property" rather than a state-conferred privilege. *See* F. M. Scherer, *The Political Economy of Patent Policy Reform in the United States*, 7 J. ON TELECOMM. & HIGH TECH. L. 167, 209 (2009); *see also About WIPO*, WORLD INTELL. PROP. ORG., https://www.wipo.int/en/web/about-wipo [https://perma.cc/R2HP-HDWL] (last visited Jan. 29, 2026).
[248] *See* Susan K. Sell, *Structures, Agents and Institutions: Private Corporate Power and the Globalisation of Intellectual Property Rights*, *in* NON-STATE ACTORS AND AUTHORITY IN THE GLOBAL SYSTEM 91, 100 (Andreas Bieler, Richard Higgott & Geoffrey Underhill eds., 2000).
[249] TRIPS Agreement, *supra* note 215, preamble.
[250] *Id.*

protections into domestic law.[251]

Yet even as proponents of robust patent protection have institutionalized pro-IP norms through TRIPS, developing countries that are net importers of patent-protected products have used the institutions of TRIPS and the WTO to contest those same norms. At a TRIPS Council meeting in April 2001, developing countries pushed the council to convene a special session on the interactions between patent protection and access to medicine.[252] When that special session convened in Geneva in June 2001, a coalition of countries from Africa, the Caribbean, South America, and South and Southeast Asia demanded that the TRIPS Council recognize their right to grant compulsory licenses of patented medicines when necessary to protect public health.[253] Their timing proved to be impeccable, albeit for tragic reasons.

The September 11 attacks on the World Trade Center and the Pentagon put the United States on high alert for terrorist threats, and a series of mysterious mailings containing powdered anthrax spores sparked fears of a larger-scale biological attack in North America.[254] Canada responded in October 2001 by overriding Bayer's patent on ciprofloxacin, an antibiotic used to prevent and treat anthrax infection, and granting a compulsory license to a generics manufacturer. U.S. Health and Human Services Secretary Tommy Thompson threatened to follow Canada's lead if Bayer did not cut the price of ciprofloxacin.[255] As Frederick Abbott observes, "the double standard was glaring": the United States—after fighting efforts by developing countries to override patent protection for HIV/AIDS drugs—"had within weeks of the onset of a disease outbreak threatened to grant compulsory licenses" itself.[256] Although Bayer acceded to Secretary Thompson's demands and halved the price of ciprofloxacin to forestall the

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[251] *See id.* art. 1.

[252] *See* Frederick M. Abbott, *The Doha Declaration on the TRIPS Agreement and Public Health: Lighting a Dark Corner at the WTO*, 5 J. INT'L ECON. L. 469, 481 (2002) (explaining that developing countries pushed the WTO to convene a special session).

[253] *See id.* at 481–84.

[254] *See id.* at 486–87.

[255] *See id.* at 487.

[256] *Id.* at 487–88.

United States' compulsory license threat, the United States had fatally undermined its own IP maximalist position at TRIPS.

At a November 2001 WTO ministerial meeting in Doha, Qatar, the United States and other IP-exporting countries acceded to the developing countries' demands for a declaration recognizing the right of members to grant compulsory licenses when necessary to protect public health.[257] The Doha Declaration was, as Rachel Thrasher notes, "a landmark moment" in the evolution of the international intellectual property regime,[258] though only a handful of compulsory licenses have been issued in the quarter century since the Doha meeting.[259] What is perhaps most remarkable about the Doha Declaration is that the TRIPS Council—an institution whose raison d'être was to cultivate pro-IP norms—could be commandeered by some of the world's poorest countries to advance a counter-norm that legitimates deviations from the patent promise. The TRIPS Council, rather than serving as a forum in which members would periodically pledge their allegiance to the patent promise, morphed into an intergovernmental agora for norm contestation and revision.

To recap: International institutions potentially bolster the credibility of the patent promise by delineating a "logic of consequences" whereby promise breakers face retaliatory trade sanctions. Yet international agreements—like domestic constitutions—are, at the end of the day, parchment promises, with limited capacity to constrain the most powerful states.[260] The constructivist account redirects our focus from incentives to norms. Yet as the TRIPS example illustrates, the designers of international institutions cannot necessarily maintain a monopoly over norm elaboration in the fora that they create. International institutions, then, are at most a small piece of

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[257] *Declaration on the TRIPS Agreement and Public Health* (Nov. 14, 2001), https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_trips_e.htm [https://perma.cc/H8HX-RSEC].

[258] *See* Rachel Thrasher, *Reigniting the Spirit of the Doha Declaration: Why a TRIPS Waiver Extension Is Key to the Legitimacy of the World Trade Organization* 1 (Bos. Univ. Glob. Dev. Pol'y Ctr., Policy Brief, Feb. 2024).

[259] *See id.* at 5 (stating that there is only one pre-Covid-19 example and three examples during the Covid-19 pandemic of countries taking full advantage of the flexibility to grant compulsory licenses on essential medicines).

[260] DARYL J. LEVINSON, LAW FOR LEVIATHAN: CONSTITUTIONAL LAW, INTERNATIONAL LAW, AND THE STATE 58 (2024).

patent law's credible commitment puzzle. Perhaps the most important takeaway from our analysis of international institutions is a reminder that the effects of institutions on outcomes often operate through the medium of ideas.

B. Ideas

Ideas about intellectual property—defined broadly to encompass the set of values and beliefs that condition attitudes toward IP—have entered our account of credible commitment already at several junctures. We saw, for example, how the idea that patents are something other than taxes serves to shield patents from the procedural requirements and political pathologies of tax lawmaking.[261] And most recently, we saw how business interests sought to use TRIPS to project their ideas about IP onto the international trade system, though in that case, the effort arguably boomeranged.[262] Yet so far, our analytical ventures into the ideational realm have been mostly scattershot. Here, we center our attention on ideas about IP and ask how the mental conceptions of policymakers and laypeople affect the credibility of the patent promise.

1. Utilitarianism vs. Natural Rights Theories

As Mala Chatterjee observes, "the dominant view among legal scholars" is that patents, along with copyrights, rest on a "wholly economic justification"—an account that sounds in the register of utilitarian ethical theory.[263] Or as Robert Merges puts it, the "[c]urrent convention" among legal scholars is to assume that IP law seeks "the greatest good for the greatest number" by "striking the right balance" between the social benefits of innovation and the social costs of deadweight loss.[264] According to Alan Devlin and Neel Sukhatme, "[a]lmost all commentators and judges agree that utilitarian considerations enjoy hegemonic status in patent jurisprudence" as in patent

[261] *See supra* text accompanying notes 171–83.
[262] *See supra* text accompanying notes 239–59.
[263] *See* Mala Chatterjee, *Intellectual Property, Independent Creation, and the Lockean Commons*, 12 U.C. IRVINE L. REV. 747, 750 (2022) (emphasis omitted).
[264] ROBERT P. MERGES, JUSTIFYING INTELLECTUAL PROPERTY 2 (2011).

scholarship.[265] Utilitarianism is not the only show in town, but it surely is the main event in the patent realm.

This "hegemonic" utilitarian account of patent protection faces unique challenges, however, when the entity responsible for patent protection is itself a hegemon. As we saw in Section I.A, a benevolent social planner who is truly hegemonic—who is so powerful that it cannot be constrained, even by itself—will face a temptation to cancel all existing patents and promise not to do it again.[266] Utilitarianism, moreover, lacks a strong argument as to why the benevolent planner *shouldn't* wipe away the existing patent stock. Utilitarianism gives us a reason to believe that a commitment to patent protection is optimal, but it fails to explain why a commitment to patent protection is credible.

Even as the utilitarian account of patent protection has dominated discussions among patent scholars and policymakers since at least the nineteenth century, a second normative account of patent protection—rooted in the natural rights of inventors—has long played a role in shaping patent law.[267] Born out of the political theory of seventeenth-century English Enlightenment philosopher John Locke, the natural rights account asserts that individuals, through their inventive effort, acquire a moral claim to control and benefit from the fruits of their intellectual labor. Notably, as Adam Mossoff reminds us, Locke himself "never specifically addresses the subject of patent monopolies in any of his published philosophical tracts or political writing."[268] Yet out of Locke's labor theory of property came the claim—articulated more clearly by subsequent scholars and jurists—that intellectual property is based on something beyond utility or positive law. German jurist Josef Kohler summed up this perspective when he wrote, in 1908, that the "philosophical foundation of . . . intellectual property is based on labor; or to be more precise, on the creation of an object; he who creates something new, has

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[265] Alan Devlin & Neel Sukhatme, *Self-Realizing Inventions and the Utilitarian Foundation of Patent Law*, 51 WM. & MARY L. REV. 897, 901 (2009).
[266] *See supra* Section I.A.
[267] *See* Mossoff, *supra* note 196, at 1256–58.
[268] *Id.* at 1284.

a natural right to it."[269]

A full analysis and critique of the natural rights theory of intellectual property lies well beyond this Article's already wide scope. From a credible commitment perspective, the natural rights account is noteworthy not because it can be defended on the basis of first principles—perhaps it can, perhaps it cannot—but because it reflects widespread, whether or not well-grounded, popular beliefs. In a series of survey experiments, legal scholar Gregory Mandel and coauthors find that lay individuals in the United States are at least as likely to cite natural rights-based justifications as to cite incentives-based justifications for intellectual property,[270] even as American IP attorneys are ten times more likely to cite incentives-based justifications than to cite natural rights rationales.[271] Moreover, Mandel finds that respondents who perceive a natural rights basis for IP are more likely to favor the enforcement of IP protections than respondents who cite an incentives-based rationale.[272] The natural rights account—though often relegated to the periphery of legal academic debates—looms large in the public mind and goes some way toward explaining popular support for the existing intellectual property regime.

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[269] Frederick Mostert, *The Development of the Natural-Law Principle as One of the Principles Underlying the Recognition of Intellectual Property*, 104 S. AFR. L.J. 480, 495 (1987) (quoting and translating JOSEF KOHLER, LEHRBUCH DER RECHTSPHILOSOPHIE 98 (1908)).

[270] *See* Mandel, *supra* note 13, at 287 ("Overall, respondents were substantially more likely to identify a natural rights entitlement basis for intellectual property rights (60%) than either an incentive (23%) or expressive (17%) basis."); Gregory N. Mandel, Anne A. Fast & Kristina R. Olson, *Intellectual Property Law's Plagiarism Fallacy*, 2015 BYU L. REV. 915, 931 tbl. 1 (2015) (finding—in a differently worded survey experiment—that 26% of lay respondents cited natural rights as the primary basis for intellectual property rights; 26% cited incentives; 11% cited an expressive rationale; and the remainder cited an interest in preventing plagiarism).

[271] *See* Maggie Wittlin, Lisa Larrimore Ouellette & Gregory N. Mandel, *What Causes Polarization on IP Policy?*, 52 U.C. DAVIS L. REV. 1193, 1230–33 (2018). For further discussion of lay individuals' and lawyers' perceptions of IP, see Gregory N. Mandel, *How People Understand Intellectual Property, Creativity, and Reward*, *in* RESEARCH HANDBOOK ON INTELLECTUAL PROPERTY AND CREATIVE INDUSTRIES 294, 296–99 (Abbe E.L. Brown & Charlotte Waelde eds., 2018).

[272] *See* Mandel, *supra* note 13, at 289.

What makes the natural rights account especially significant from a credible commitment perspective is that—unlike utilitarian justifications—the natural rights account does not suffer from a time-inconsistency problem. Recall from Section I.A that a purely utilitarian theory of intellectual property lacks a crisp answer to the question of why—at time one—the government should not cancel all patents issued at time zero. For natural rights theorists, the answer to that question is obvious: if one believes that patents justly reward inventors for their past effort and ingenuity, then the opportunity to increase social welfare by canceling existing patents is not attractive. From a natural rights perspective, social welfare maximization is not the point of patent protection. Rather, the point of patent protection is to give inventors their due.

One potential implication of this analysis is that for utilitarian theorists of intellectual property, the battle between utilitarian and natural rights justifications for IP is not necessarily a battle that utilitarians themselves should want to win—or at least, not a battle that utilitarians should want to win in the court of public opinion. Maintaining a critical mass of natural-rights true believers serves a utilitarian function insofar as it ensures that patent cancellation will provoke political pushback. So while the incentives and natural rights rationales are often characterized as competing normative theories of IP protection, the incentives rationale arguably needs—or at a minimum, benefits from—widespread acceptance of the natural rights view.[273]

2. Patent Populism

Natural rights theory is not—of course—the only force shaping public opinion about patents in the United States. Judge Moore, attempting to explain why patent holders tend to

[273] This Article's argument regarding the utilitarian benefits of the natural rights view of patents runs parallel to Jeanne Fromer's argument that "[m]oral-rights interests, if employed intelligently in the form of expressive incentives, can enhance the utilitarian incentive to create copyrightable or patentable works at minimal cost to society." Jeanne C. Fromer, *Expressive Incentives in Intellectual Property*, 98 VA. L. REV. 1745, 1823 (2012). Fromer shows that—for reasons apart from credible commitment—consequentialist benefits can arise when a significant share of the population understands intellectual property protection in nonconsequentialist terms.

fare better before juries than in bench trials, attributes the phenomenon not to Lockean liberalism but to what she calls "patent populism." She quotes mid-twentieth-century author Roger Burlingame, who wrote in 1947 that "[w]hen you say the word inventor to most Americans," they "see Samuel Morse with his great white beard" and "Eli Whitney grinding away at his cotton."[274] And while Steve Jobs and Elon Musk may have replaced Samuel Morse and Eli Whitney as individual exemplars of genius and effort, the "canonical story of the lone genius inventor" survives in these modern adapted forms.[275] The subtitle of Sobel's bestselling book on John Harrison—"*The True Story of a Lone Genius Who Solved the Greatest Scientific Problem of His Time*"[276]—captures this solo-inventor narrative at its zenith.

That canonical story is—alas—largely apocryphal. Morse was not the first to develop a working telegraph;[277] Whitney was not the first to invent a mechanical cotton gin;[278] a group of Apple engineers working independently from Steve Jobs built the prototype for the iPhone (which Jobs initially rebuffed);[279] and Tesla engineers developed the pathbreaking Roadster before Elon Musk became the company's CEO.[280] As Mark Lemley writes, "[t]he history of significant innovation in this country is, contrary to popular myth, a history of incremental improvements generally made by a number of different inventors at roughly the same time."[281] Lemley argues that

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[274] *See* Kimberly A. Moore, *Populism and Patents*, 82 N.Y.U. L. REV. 69, 105–06 (2007) (quoting ROGER BURLINGAME, THE INVENTORS BEHIND THE INVENTOR 3 (1947) (internal quotation marks omitted)).

[275] *See* Mark A. Lemley, *The Myth of the Sole Inventor*, 110 MICH. L. REV. 709, 710 (2012).

[276] Sobel, *supra* note 100.

[277] See Lemley, *supra* note 275, at 719–20.

[278] *See id.* at 718–19.

[279] *See* BRIAN MERCHANT, THE ONE DEVICE: THE SECRET HISTORY OF THE IPHONE (2017).

[280] *See* Andrew Greiner et al., *The History of Tesla and Elon Musk: A Radical Vision for the Future of Autos*, CNN BUS. (Mar. 22, 2019), https://www.cnn.com/interactive/2019/03/business/tesla-history-timeline/index.html [https://perma.cc/7JBH-6ER5].

[281] *See* Lemley, *supra* note 275, at 760. One could make a similar argument in the longitude context. *See* F. G. MAJOR, QUO VADIS: EVOLUTION OF MODERN NAVIGATION 120 (2014) ("The case can be made that,

when the myth infects the minds of patent policymakers, it stands as an obstacle to clear thinking about patent reform.[282] Yet at the same time, the mythification of inventors may be a useful fiction insofar as it sustains support for the patent promise among the laypeople who constitute both the jury pool and the voting public. Patent populism—much like Lockean liberalism—carries instrumental value whether or not it holds any truth value.

The emphasis on Lockean liberalism and patent populism in this Section should not be read to imply that the utilitarian justification for patents lacks any real-world relevance. For one thing, surveys by Mandel and coauthors consistently find that roughly a quarter of the population believes that the incentives rationale provides the primary justification for IP protection.[283] For another, even Lockean liberals and patent populists may be sensitive to real-world consequences: their enthusiasm for rewarding inventors may ebb if they perceive that society is receiving little in return. Lockean liberalism and patent populism are possibly luxuries of an era defined by rapid technological advances. Or put another way, the patent promise arguably rests not on "ideas all the way down"[284] but

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notwithstanding John Harrison's skill and inspiring story, [French clockmaker Pierre] Le Roy was in fact the most influential in the development of the modern marine chronometer."); *id.* at 127–28 ("It was inevitable that we should be drawn to the human story of John Harrison and his son, but of course there were many other clockmakers working in Britain and on the continent who have contributed to the ultimate development of exquisitely precise timekeepers."); Jim Bennett, *The Historian and the Longitude*, OXFORD UNIV. PRESS: OUPBLOG (Mar. 24, 2017), https://blog.oup.com/2017/03/historian-longitude-john-harrison-navigation [https://perma.cc/K9NX-5F6F] (observing that Harrison's difficult-to-reproduce watch was not a "practical solution" to the longitude problem; "two English makers, John Arnold and Thomas Earnshaw, brought the chronometer to a manageable and successful format" based on a design "quite different from [Harrison's] work"; and "[i]n the broad sweep of the history of navigation, Harrison was not a major contributor").

[282] *See* Lemley, *supra* note 275, at 712.

[283] *See* Mandel, *supra* note 13, at 287 (23%); Mandel et al., *supra* note 270, at 931 tbl. 1 (26%).

[284] *Cf.* ALEXANDER WENDT, SOCIAL THEORY OF INTERNATIONAL POLITICS 96 (1999) (distinguishing between an "ideas all the way down" approach to social theory and Wendt's own view that "brute material forces have some effects on the constitution of power and interest").

on ideas undergirded by a material foundation formed by our third "i": innovation.

3. The Idea of Reputation

A final idea—less an idea about IP, and more an idea about human behavior—potentially buttresses both the patent promise and a range of other individual and collective commitments: the idea of reputation. "Reputation," as defined by Rachel Brewster, is the belief that "past behavior can be used to predict future behavior."[285] C.C. von Weizsäcker calls this the "extrapolation principle"—the notion that observers can extrapolate from an actor's behavior at earlier moments to predict that actor's behavior at later moments.[286] According to this view, nation-states that honor their commitments stock up "reputational capital," which—in turn—incentivizes them to continue to honor their commitments for fear of sacrificing the reputational capital that they have already accumulated.[287]

This reputational-capital account of credible commitment raises as many questions as it answers. For one, the idea that high-reputation actors face a higher cost of deviating from their commitments seems not to hold true across all settings. As the social psychologist E. P. Hollander famously observed, some communities operate on the basis of "idiosyncrasy credit": individuals who have a long record of abiding by community norms "may be thought of as having a degree of group-awarded credits such as to permit idiosyncratic behavior in certain dimensions before group sanctions are applied."[288] For example, a student with a long record of punctuality—and thus a large store of idiosyncrasy credits—may arrive late one morning and escape any sanction, while her chronically tardy classmate may face punishment for the exact same offense. In much the same way, a state with a long record of abiding by its

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[285] Rachel Brewster, *Unpacking the State's Reputation*, 50 HARV. INT'L L.J. 231, 235 n.4 (2009).

[286] C.C. von Weizsäcker, *A Welfare Analysis of Barriers to Entry*, 11 BELL J. ECON. 399, 412 (1980).

[287] *Cf.* Jana Grittersová, *Foreign Banks and Sovereign Credit Ratings: Reputational Capital in Sovereign Debt Markets*, 26 EUR. J. INT'L RELATIONS 33, 34 (2020) (offering an account of how countries accumulate "reputational capital" by repaying their sovereign debt).

[288] E. P. Hollander, *Conformity, Status, and Idiosyncrasy Credit*, 65 PSYCHOL. REV. 117, 120 (1958) (emphasis omitted).

commitments may accumulate "idiosyncrasy credits" within the international community, thereby enabling it to "get away" with occasional deviations.

Hollander's "idiosyncrasy credit" theory dovetails with what international relations theorists call "the paradox of reputation."[289] As Robert Jervis observes, "reputations are so important that states must rebuild them when they are damaged," which means that states that have recently reneged now have stronger reputational incentives to follow through on their commitments.[290] But that stronger incentive to follow through creates a paradox: a recent breach of commitments may increase, rather than diminish, confidence that an actor will honor its commitments in the near future. As Jervis continues:

> If you have been caught bluffing in poker, are others likely to call you in the next round in the belief that you bluff a lot or are they unlikely to do so because they think that you know it is no longer safe to bluff? To the extent that the latter is the case, perceptions of credibility are influenced by the state's recent behavior, but in a way which produces equilibrating negative feedback . . . .[291]

Translating Jervis's observation into the terms of statecraft: A nation-state that recently reneged on its commitments now has an extra-strong incentive to convince the world that it will follow through on its promises. But if everyone knows this, then reputation loses much of its force as a disciplining device, because a state that reneges in one period potentially leads others to believe with *greater* confidence that the state will be true to its word in the next.[292]

Furthermore, as George Downs and Michael Jones

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[289] *See* Gregory D. Miller, *Hypotheses on Reputation: Alliance Choices and the Shadow of the Past*, 12 SEC. STUD. 40, 44 (2003).
[290] Robert Jervis, *Deterrence and Perception*, *in* STRATEGY AND NUCLEAR DETERRENCE 57, 67 (Steven E. Miller ed., 1984).
[291] *Id.* at 67.
[292] *Cf.* Jonathan Mercer, *Emotion and Strategy in the Korean War*, 67 INT'L ORG. 221, 224 (2013) (making a similar observation in a non-patent context).

observe, "the power of reputation to enforce compliance is usually modest" because nation-states have "multiple reputations."[293] Counterparties typically understand that a state may deviate from its commitments in one domain yet honor them in another. The Netherlands' abolition of patents did not, for example, stoke concerns that it would renege on its debts. Indeed, long-term interest rates on Dutch government bonds—an inverse measure of a government's perceived credibility—declined from 1869 onwards,[294] the opposite of what one would expect if patent abolition had negative reputational ramifications that rippled trans-substantively.

Nonetheless, it is possible that within a given community—including the international community—actors will behave as though a long and unbroken track record of promise-keeping increases the probability of promise-keeping in the next period. In that case, states with a longer track record of promise-keeping may have an extra-strong incentive to abide by their commitments because they have more stored-up reputational capital to lose. In other words, the idea of reputation—the notion that a consistent pattern of past behavior predicts future behavior—can become a self-fulfilling prophecy. Elsewhere, I have described this phenomenon as the "Tinker Bell" theory of reputation because—like the fairy Tinker Bell in J. M. Barrie's children's play—it ultimately depends upon the persistence of beliefs.[295] As Peter Pan tells Wendy, "every time a child says 'I don't believe in fairies' there is a fairy somewhere that falls down dead."[296] In much the same way, if the members of a community stopped believing in the idea of reputation, then reputation would lose its vitality as a motivation for

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[293] *See* George W. Downs & Michael A. Jones, *Reputation, Compliance, and International Law*, 31 J. LEGAL STUD. S95, S113 (2002).

[294] *See* Jan Willem van den End, *Statistical Evidence on the Mean Reversion of Interest Rates* 16 fig.1 (De Nederlandsche Bank N.V., Working Paper No. 284, 2011), https://ssrn.com/abstract=1950596 [https://perma.cc/9A2Y-GGYR].

[295] *See* Hemel, *supra* note 16, at 1611. Cameron Stewart has similarly described the "rule of law" as a concept "much like Tinkerbell": its vitality depends upon whether citizens believe in it. *See* Cameron Stewart, *The Rule of Law and the Tinkerbell Effect: Theoretical Considerations, Criticisms and Justifications for the Rule of Law*, 4 MACQUARIE L.J. 135, 135 (2004).

[296] J.M. Barrie, *Peter Pan, or the Boy Who Would Not Grow Up*, *in* THE PLAYS OF J. M. BARRIE 1, 32 (1930).

promise-keeping.

To describe reputation in Tinker Bell terms is not to dismiss it as a fantasy. As long as potential innovators believe in the extrapolation principle—and beyond that, as long as policymakers believe that potential innovators believe in the extrapolation principle—then fear of reputational consequences may dissuade states from breaking their patent-related commitments. Rather, the Tinker Bell theory places reputation in the realm of ideas: reputation is not a natural fact but a mental conception of the relationship between past behavior and future behavior—a mental conception that, when widely shared, can supply its own animating force. Yet reputation's contribution to credible commitment is unstable, for reputation, like Tinker Bell herself, requires continuous acts of collective belief to stay aloft.

C. Innovation

The patent promise is—as noted—one component of a larger patent bargain: the government offers the "quid" of a limited-time monopoly in exchange for the "quo" of useful, novel, nonobvious inventions. The social cost of honoring that promise is more tolerable, and the promise is thus more credible, when the pace of innovation is accelerating—in other words, when the "quo" of new inventions is rising relative to the "quid" of old monopolies. The Netherlands in the mid-1860s found itself in the opposite position: the country's economy was stuck in a state of "technological inertia," and labor productivity in manufacturing had declined over the previous quarter century.[297] Unsurprisingly, those conditions proved ripe for patent abolition.[298]

The United States today certainly does not feel like a society stuck in a condition of technological inertia. The emergence of generative AI, the rise of CRISPR gene editing, and the proliferation of GLP-1 receptor agonists all create an impression of rapid technological change—too rapid from the perspective of some observers in the former two cases. Insofar as the pace of innovation affects the credibility of the patent

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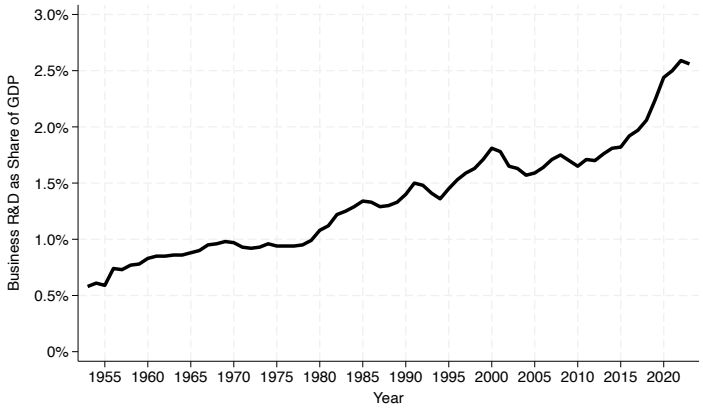
[297] *See* Jan-Pieter Smits, Herman de Jong & Bart van Ark, Three Phases of Dutch Economic Growth and Technological Change, 1815–1997, at 11 (Groningen Growth & Dev. Ctr., Rsch. Mem. GD-42, 1999).

[298] *See* van Gompel, *supra* note 11, at 912–13.

promise through the intervening variable of public opinion, the "vibes" arguably matter for law and policy as much as the facts themselves. Whether—as a matter of fact—the pace of patent-induced innovation is accelerating in the United States today is, like so much else, a matter of measurement. The quantitative evidence offers some support for the qualitative sense that innovation is accelerating, though the story told through numbers is less than clear-cut.

One way to measure the pace of innovation is to focus on inputs—for example, business research and development spending as a percentage of GDP. According to that measure, the inventive activity of U.S. firms has risen steadily since the mid-twentieth century—from 0.6% of GDP in the early 1950s to 2.6% in 2023 (see Figure 1).[299] While not all business R&D is in pursuit of patents, the upward trend might seem to suggest that the U.S. intellectual property regime is incentivizing more investment in innovation today than in decades past.

Figure 1. U.S. Business Research and Development Spending as a Percentage of GDP, 1953–2023



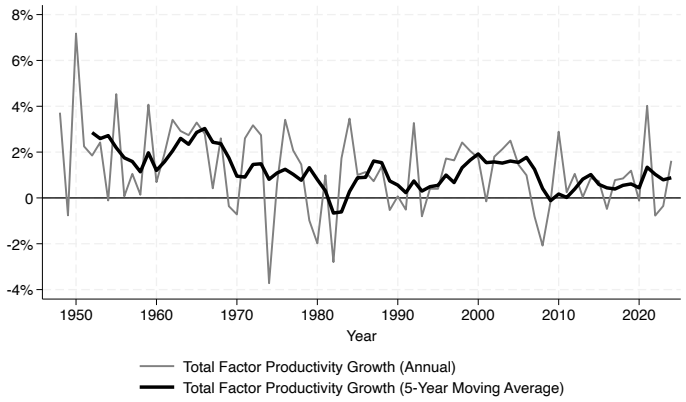
Source: National Center for Science & Engineering Statistics, Long-Term Trends Show Decline in Federally Funded R&D as a Share of GDP While Business-Funded R&D Increases as a Share of GDP, NSF 25-334 (2025),

[299] NAT'L CTR. FOR SCI. & ENG'G STATS., NAT'L SCI. FOUND., NSF 25-334, LONG-TERM TRENDS SHOW DECLINE IN FEDERALLY FUNDED R&D AS A SHARE OF GDP WHILE BUSINESS-FUNDED R&D INCREASES AS A SHARE OF GDP (2025), https://ncses.nsf.gov/pubs/nsf25334 [https://perma.cc/LV5G-HWUA].

https://ncses.nsf.gov/pubs/nsf25334 [https://perma.cc/LV5G-HWUA]

On the output side, a much-cited measure of innovation is the change in total factor productivity—the residual portion of economic output not explained by the amount of inputs (labor and capital) used in production.[300] In contrast to the rise in business R&D investment as a percentage of GDP, total factor productivity growth has slowed since the mid-twentieth century (see Figure 2). But the decline in total factor productivity growth has not followed a linear path. The five-year moving average of total factor productivity growth has inched upward since the Great Recession, though it remains below the level achieved during the turn-of-the-millennium "productivity boom."[301] The story told by total factor productivity growth in the United States in recent years is not one of an innovation dynamo, but nor is it a story of technological stasis.

Figure 2. U.S. Total Factor Productivity Growth (5-Year Moving Average), 1948–2024



Source: John G. Fernald, Federal Reserve Bank of San Francisco, A Quarterly, Utilization-Adjusted Series on Total

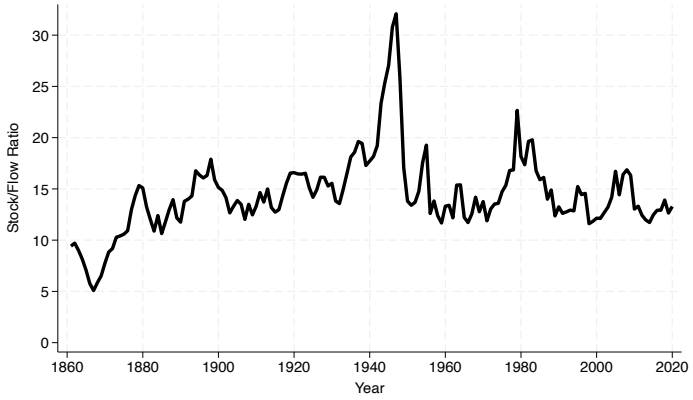
[300] *See* Diego Comin, *Total Factor Productivity*, *in* ECONOMIC GROWTH 260 (Steven N. Durlauf & Lawrence E. Blume eds., 2010).

[301] On the increase in total factor productivity growth in the late 1990s and early 2000s, see generally Robert J. Gordon, *Exploding Productivity Growth: Context, Causes, and Implications*, 2003 BROOKINGS PAPERS ON ECON. ACTIVITY, no. 2, at 20.

Factor Productivity (updated June 2025), https://www.frbsf.org/wp-content/uploads/quarterly_tfp.xlsx?2025-06-11 [https://perma.cc/95GL-NCJD].

Still another way to evaluate the evenness of the patent bargain is to compare the stock of existing patents to the flow of new ones (see Figure 3). A higher stock/flow ratio suggests that the cost of protecting existing patents is large relative to the trickle of new innovations. A stock/flow ratio that is substantially lower than the patent term indicates that the pace of patenting activity is quickening. Although the stock/flow ratio today is higher than in the immediate aftermath of the Civil War, the ratio remains relatively low by historical standards and does not suggest a system that is buckling under the weight of earlier patent grants.

Figure 3. U.S. Patent Stock/Flow Ratio, 1861–2020



Source: U.S. Patent & Trademark Office, U.S. Patent Activity Calendar Years 1790 to the Present, https://web.archive.org/web/20251228094448/https://www.uspto.gov/web/offices/ac/ido/oeip/taf/h_counts.htm [https://perma.cc/7BRJ-TSVY]; and author's calculations.

One factor affecting the stock/flow ratio is the length of the patent term. Some part of the ratio's rise in the mid-1870s may be attributable to the Patent Act of 1861, which extended the

term for new utility patents from fourteen to seventeen years.[302] (Since the law applied only to post-enactment patents, its mechanical effect on the stock of existing patents did not kick in until the middle of the next decade.) By contrast, the 1994 law extending the patent term from seventeen years to twenty years[303] had a barely perceptible effect on the stock/flow ratio. Two factors operated to suppress any major mid-1990s spike. First, the 1994 change—which took effect in June 1995—actually lengthened patent terms by much less than three years because the old seventeen-year term ran from the issuance of the patent while the new twenty-year term runs from the filing of the patent application.[304] Second, the number of utility patents granted each year rose rapidly in the 1990s—likely for reasons unrelated to any legal change—and that dramatic increase overshadowed the mechanical effect of a longer patent term on the stock/flow ratio. According to economists Samuel Kortum and Josh Lerner, the increase in patenting in the 1990s appears to have resulted from a "real burst of innovation" combined with a reallocation of R&D efforts toward applied activities.[305] As a consequence of those phenomena, the stock/flow ratio was lower at the end of the 1990s than at the decade's dawn notwithstanding the slight increase in average patent length.[306]

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[302] Act of Mar. 2, 1861, ch. 88, § 16, 12 Stat. 246, 249. The Patent Act of 1836 provided for the possibility of a seven-year extension if the inventor had not received a "reasonable remuneration" during the first fourteen years. *See* Patent Act of 1836, ch. 357, § 18, 5 Stat. 117, 124. Extensions were "rare": only seven extensions were granted in the statute's first eight years of operation. *See* Beauchamp, *supra* note 192, at 862.

[303] *See* Uruguay Round Agreements Act, Pub. L. No. 103-465, § 532(a)(1), 108 Stat. 4809, 4983 (1994).

[304] The average time from filing to final disposition exceeds two years. *See Patents Pendency Data*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/dashboard/patents/pendency.html [https://perma.cc/27S2-F7FG] (last visited June 12, 2025).

[305] *See* Samuel Kortum & Josh Lerner, *Stronger Protection or Technological Revolution: What Is Behind the Recent Surge in Patenting?*, 48 CARNEGIE-ROCHESTER CONF. SERIES ON PUB. POL'Y 247, 290 (1998).

[306] In some industries, such as pharmaceuticals, the nominal patent term matters less (both from an innovation incentive and deadweight loss perspective) than the "effective market life": the time between when a brand-name product comes on the market and when a generic competitor

To be sure, the number of new patents is an imperfect measure of innovation flows, just as the number of existing patents is an imperfect measure of deadweight loss.[307] Patents—unlike men—are not all created equal. As Maya Durvasula and Lisa Ouellette have documented, the number of patents per new FDA-approved drug increased from fewer than two in 1990 to more than ten by 2014[308]—suggesting that changes in patenting practice may have inflated the number of new patents and artificially depressed the stock/flow ratio. One should not, therefore, take away from this Section's analysis that the pace of innovation in the United States is accelerating. Reasonable minds may differ on that question. The larger point is that the credibility of the patent promise may depend—in important part—on whether the public believes that patent-induced innovation is speeding up or slowing down.[309] And if that is the case, then both innovation and inertia can be self-reinforcing. Rapid innovation bolsters the credibility of the patent promise, which strengthens patent law's innovation incentive. Technological inertia—insofar as it undermines the credibility of the patent promise—also weakens patent law's pull. In a sense, cause is effect. The challenge for policymakers—to which we will turn in a moment—is how to push society toward a self-sustaining equilibrium in which innovation begets itself.

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follows. Scott Hemphill and Bhaven Sampat find that for pharmaceuticals, "effective market life has remained fairly stable over time," notwithstanding extensions of the nominal patent term and the enactment of patent-like regulatory exclusivity periods for certain categories of new drugs. *See* C. Scott Hemphill & Bhaven N. Sampat, *Patents, Innovation, and Competition in Pharmaceuticals: The Hatch-Waxman Act After 40 Years*, 39 J. ECON. PERSP. 27, 38 (2025).

[307] On the limits of patent counts as a measure of innovation, see generally Nancy T. Gallini, *The Economics of Patents: Lessons from Recent U.S. Patent Reform*, 16 J. ECON. PERSPS. 131, 138 (2002).

[308] *See* Maya M. Durvasula & Lisa Larrimore Ouellette, *Beyond the Pharmaceutical Patent Arms Race*, 43 YALE J. ON REG. 703, 711 fig.1 (2026).

[309] It bears emphasis that here, public perceptions matter as much as material reality. Innovation bolsters faith in the credibility of the patent promise—which in turn incentivizes innovation—when members of the public believe that patents incentivize innovation. That, in turn, depends both on whether members of the public perceive the pace of innovation to be sufficiently celeritous and whether they attribute that innovation to patents.

III. Implications

A. Patents and Their Alternatives

How can a richer understanding of patent law's credible commitment challenge enlighten innovation policymaking? The analysis in Section II.A.1 suggested small-scale measures—such as greater docket transparency[310] and fewer Rule 36 dispositions[311]—that could reduce the risk, real or perceived, of microdeviations from the patent promise. But once one understands the sheer scope of patent law's credible commitment problem, the notion that tweaks to court procedure could suffice as solutions seems, plainly, not credible. Meanwhile, Section II.A.3 highlighted the risks to innovation of a "rubber stamp" patent office[312]—both because a lack of substantive pre-grant review undermines the credibility of a patent holder's assertion that her patent will hold up in court and because a proliferation of "bad patents" undermines the credibility of the patent promise.[313] But of course, credible commitment is just one of many reasons that the PTO should strive not to grant patents improperly, and it adds only marginally to the argument that the PTO should follow the law.

The larger implications of Part II operate at a higher level of generality. As economists Bhaven Sampat and Heidi Williams observe, "optimal patent policy design has traditionally been framed as a trade-off between th[e] benefit of providing incentives for the development of new technologies and the cost of deadweight loss from higher prices during the life of the patent."[314] Sampat and Williams trace this innovation-versus-deadweight loss framing at least as far back as a pathbreaking 1969 book by future Nobel laureate William Nordhaus, which presented a model of optimal patent life in which policymakers had to choose between longer patent

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[310] *See supra* notes 143–145 and accompanying text.
[311] *See supra* notes 149–156 and accompanying text.
[312] *See supra* notes 200–201 and accompanying text. On whether the U.S. Patent and Trademark Office is in fact a "rubber stamp," highlighting some evidence to the contrary, see generally Mark A. Lemley & Bhaven N. Sampat, *Is the Patent Office a Rubber Stamp?*, 58 EMORY L.J. 181 (2008).
[313] *See supra* Section II.A.3.
[314] Sampat & Williams, *supra* note 15, at 204.

terms (leading to stronger innovation incentives) and shorter patent terms (leading to greater allocative efficiency).[315] Sampat and Williams's own work reinforces Nordhaus's innovation-versus-deadweight loss framing by refuting the claim—at least in one technological context—that patents prevent follow-on innovators from iterating on the discoveries of first-comers.[316] Specifically, Sampat and Williams find that for U.S. patent applications claiming human genes, the quasi-random assignment of an application to a more lenient examiner did not have a discernible negative effect on follow-on scientific research or commercial investments with respect to that gene.[317] Sampat and Williams conclude from their analysis that "for the case of human genes, the traditional patent trade-off of ex ante incentives versus deadweight loss may be sufficient to analyze optimal patent policy design."[318]

The analysis in this Article provides a crucial caveat to the claim that the innovation-versus-deadweight loss trade-off is a sufficient statement of the dilemma facing patent policymakers. In the classic Nordhaus model, longer patent terms juice the rewards for new inventions and thus lead to more innovative activity. But as the previous Section highlights, longer patent terms also can increase the stock/flow ratio and thereby weaken the credibility of the patent promise, thus undermining incentives to innovate. Once we dispense with the unsupported assumption that the patent promise is automatically credible, choosing the optimal patent length (and, more generally, the optimal strength of patent protection) is not simply a trade-off between innovation and deadweight loss but—in some cases—a trade-off between innovation and innovation. Moreover, this potential for stronger IP rights to slow the pace of innovation arises for

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[315] *See* NORDHAUS, *supra* note 3, at 69–76.

[316] *Cf.* Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, 5 J. ECON. PERSP. 29, 34 (1991) (suggesting that the patent system "will on average give deficient incentives for outside firms to develop second generation products").

[317] Sampat & Williams, *supra* note 15, at 220–26.

[318] *See id.* at 232. Janet Freilich and Sepehr Shahshahan replicate Sampat and Williams's study and find that gene patents that are not expiring soon have a *positive* effect on follow-on innovation. *See* Janet Freilich & Sepehr Shahshahan, *Measuring Follow-On Innovation*, 52 RES. POL'Y 104854, at 2 (2023).

reasons different from the decades-old concern that patents may impede follow-on research and commercialization with respect to the patented technology. When stronger patent protection undermines the credibility of the patent promise, it negatively affects innovation incentives with respect to all potentially patentable technologies, not just those that rely on patented inventions.[319]

A focus on credible commitment not only adds a new dimension to the traditional innovation-versus-deadweight loss trade-off but also sheds new light on the centuries-old debate between patents and their alternatives. As noted above, scholars often assume that one advantage of patents over prizes is that patents, unlike prizes, somehow prevent the government from reneging on its promises to inventors.[320] Yet as the analysis in this Article emphasizes, credibility is not an intrinsic feature of patents. Rather, credible commitment in patent law rests on an institutional and ideational edifice constructed from a diverse range of building materials—including judicial procedures, legislative budgeting practices, and norms of administrative independence that are reinforced by international agreements and domestic public opinion. That structure cannot be carried over to the prize context like a house on wheels, but it can be recreated—over time—through conscious efforts. For example, a legislature could delegate the task of setting the size of prizes to judges, lay juries, or expert

[319] To be sure, it is possible that in a society riven by rent-seeking, stronger patent protections could be self-reinforcing. Existing patent holders who are enriched by the expansion of patent rights might be better positioned to purchase influence in the political market. *Cf.* Eli Dourado & Alex Tabarrok, *Public Choice Perspectives on Intellectual Property*, 163 PUB. CHOICE 129, 147 (2015) (predicting that "the biases of the political process, regulatory capture, and so forth would mostly push the political process to grant rights to private interests that are too strong rather than too weak"). But rent-seeking incentives also could run in the opposite direction. Existing patent holders might favor weaker patent protections—at least for new inventions—because they recognize that their market-incumbent positions could be threatened by innovative newcomers.

[320] *See supra* notes 93–95 and accompanying text. Michael Burstein and Fiona Murray review the literature on prizes and credibility, concluding that "[t]he existing literature does not really assess the likelihood of, or conditions for, credible commitment becoming a problem" and that "[m]ore work is needed to understand the dynamics of credible commitment." Burstein & Murray, *supra* note 104, at 414.

agencies, much like the U.S. Congress has bolstered the credibility of the patent promise through delegation to those bodies. Prizes could be financed from a dedicated funding stream—for example, a carbon tax—with revenues deposited into a trust fund that is exempted from the standard appropriations process. And countries could band together—through international agreements obligating signatory states to provide inducement prizes or through an intergovernmental prize-granting organization—to legitimate the "prize promise" from above.[321]

In addition to its implications for the patents-prizes debate, the analysis here can inform the choice between ex post innovation incentives (patents and prizes) and ex ante incentives such as tax credits, government grants, and intramural agency research.[322] As Rachel Glennerster, Michael Kremer, and Heidi Williams write, one advantage of ex post innovation incentives is that "money changes hands only after a successful product is developed—thus giving researchers strong incentives to self-select projects with the best prospects for success as useable products."[323] But there is also a cost from an incentives perspective to the delay between effort and payment when credibility of the payor is in doubt. An important advantage of ex ante incentives—in addition to the

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[321] The European Research Council provides one example of an intergovernmental prize-granting organization, though most of the council's funding is focused on ex ante innovation incentives (discussed below). *See* François Foret & Oriane Calligaro, *Governing by Prizes: How the European Union Uses Symbolic Distinctions in Its Search for Legitimacy*, 26 J. EUR. PUB. POL'Y 1335, 1349 (2019).

[322] On the distinction between ex ante innovation incentives (e.g., tax credits and government grants) and ex post innovation incentives (patents and prizes), see generally Hemel & Ouellette, *supra* note 8, at 333–45. Rochelle Dreyfuss highlights the fact that intramural government research—like tax credits and government grants—can operate as an important "ex ante" driver of innovation. *See* Rochelle Cooper Dreyfuss, *Tailoring Incentives: A Comment on Hemel and Ouellette's Beyond the Patents–Prizes Debate*, 92 TEX. L. REV. 131, 132–34 (2014). For a comprehensive analysis of intramural government research that builds upon and extends Dreyfuss's argument, see generally Dan Traficonte, *Government Research*, 135 YALE L.J. 110 (2025).

[323] Rachel Glennerster, Michael Kremer & Heidi Williams, *Creating Markets for Vaccines*, 1 INNOVATIONS: TECH., GOVERNANCE, GLOBALIZATION 67, 71 (2006).

fact that they allow capital-constrained researchers to overcome credit market frictions[324]—is that they bridge the temporal gap between effort and payment and thereby narrow the window in which the government can renege on its commitments.

Yet as recent events reveal, ex ante innovation incentives only mitigate—but do not eliminate—credible commitment concerns. For example, in the first months of the second Trump administration, the National Institutes of Health terminated $9.5 billion in grants that had already been approved.[325] For individuals, firms, and nonprofit organizations that made human capital investments or incurred project start-up costs with the expectation that these grants would be paid, the Trump administration's terminations have had much the same effect as a cancellation of patent rights—though a difference is that in the patent case, society still gets the benefit of an already disclosed innovation, whereas the Trump terminations cut off the discovery process midstream. For scholars of innovation policy, the terminations serve as a reminder that credible commitment challenges—though especially acute in the context of patents and prizes—are endemic to innovation incentives at all stages.

B. Intellectual Property Beyond Patents

Much of what we have said about patents applies, at least in modified form, to other types of intellectual property—copyrights, trade secrets, and trademarks. In all of those areas, policymakers seek to induce investments at time zero with the promise of legal protection at time one. And in all of those areas, the efficacy of incentives depends—in large part—on whether those promises are perceived to be credible. The

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[324] *See* Hemel & Ouellette, *supra* note 8, at 334–39.

[325] *See* Chad Terhune, *NIH Scientists Speak Out Over Estimated $12 Billion in Trump Funding Cuts*, REUTERS (June 9, 2025), https://www.reuters.com/business/healthcare-pharmaceuticals/nih-scientists-speak-out-over-estimated-12-billion-trump-funding-cuts-2025-06-09 [https://perma.cc/8GJY-DNBH]. For an overview of the second Trump administration's efforts to pare back federal support for science research, see Lisa Larrimore Ouellette, *The Trump Administration's Multi-Front Assault on Federal Research Funding*, JUST SECURITY (July 9, 2025), https://www.justsecurity.org/116486/trump-assault-federal-research-funding [https://perma.cc/CU48-2U6J].

analogy to patent law is strongest for copyright and weakest for trademark, but across all three areas, careful attention to the challenge of credible commitment can illuminate important issues in the design of intellectual property policy.

1. Copyright

The credibility gap in copyright law is, in two respects, even more gaping than in patents. First, because the copyright term is significantly longer than the patent term—the life of the author plus 70 years for individually authored works[326]—the temporal window over which the government might renege is even wider than the 20-year patent term. Second, the challenge of credible commitment garners even less attention in the copyright literature than in the patent literature. While thoughtful scholars of patent law have at least acknowledged the credible commitment problem,[327] scholars of copyright law have ignored it almost entirely.[328]

The short shrift given to credible commitment in the copyright law literature is especially striking in light of the secular trend toward longer copyright terms over the course of U.S. history. Whereas the patent term has increased only modestly since the Patent Act of 1793, which set the patent life at 14 years post-issuance, [329] copyrights have undergone Methuselah-like longevity extensions. Congress initially set the copyright term at 14 years, with the possibility of a 14-year renewal.[330] The maximum 28-year term increased to 42 years in 1831,[331] to 56 years in 1909,[332] and to the life of the author plus 50 years under the Copyright Act of 1976.[333] The Sonny Bono Copyright Term Extension Act of 1998—named for the performer-turned-politician who promoted the legislation

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[326] 17 U.S.C. § 302(a).
[327] *See* Sachs, *supra* note 91, at 191; Vishnubhakat, *supra* note 92, at 1729.
[328] For an exception, see *infra* note 339.
[329] Act of Feb. 21, 1793, ch. 11, 1 Stat. 318.
[330] Act of May 31, 1790, ch. 15, 1 Stat. 124 (1790).
[331] Act of Feb. 3, 1831, ch. 16, 4 Stat. 436.
[332] Act of Mar. 4, 1909, Pub. L. No. 60-349, 35 Stat. 1075.
[333] Copyright Act of 1976, Pub. L. No. 94-553, tit. I, § 101, 90 Stat. 2541, 2572 (codified as amended at 17 U.S.C. § 302). For anonymous works, pseudonymous works, and works made for hire, the 1976 Act set the copyright term at 75 years from first publication or 100 years from creation, whichever is shorter. *See id.*

before his untimely death in a ski accident—stretched the copyright term even further to the life of the author plus 70 years.[334] Most controversially, the legislation applied the life-plus-70-year term retroactively to existing copyrights, earning it the moniker "Mickey Mouse Protection Act" because of its implications for the Walt Disney Company's iconic rodent.[335]

Critics argued that the 1998 law exceeded Congress's authority under the Constitution's Intellectual Property Clause, which gives Congress the power to confer copyrights and patents for "limited" times—and specifically "[t]o promote the Progress of Science and useful Arts."[336] An unlikely coalition of publishers, librarians, film preservationists, and even a church choir director brought a constitutional challenge to the law, *Eldred v. Ashcroft*, that reached the Supreme Court in 2002. The petitioners argued in their brief to the Court that when an extension to the copyright term is granted retroactively, "there is no change in incentives to produce"—and thus no promotion of the useful arts.[337] The analysis here suggests that the petitioners may have understated their case. By increasing the stock of existing copyrights relative to the flow of new ones, a retroactive extension of the copyright term may generate a *negative* change in incentives to produce creative works insofar as it undermines the credibility of the copyright promise and raises the risk of retrenchment.[338]

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[334] Sonny Bono Copyright Term Extension Act, Pub. L. No. 105-298, § 102(b), 112 Stat. 2827, 2827 (1998) (amending 17 U.S.C. § 302). The 1998 law also increased the term for anonymous works, pseudonymous works, and works made for hire to 95 years from first publication or 120 years from creation, whichever is shorter. *See id.*

[335] *See* Brooks Barnes, *Mickey's Copyright Adventure: Early Disney Creation Will Soon Be Public Property*, N.Y. TIMES (Dec. 27, 2022), https://www.nytimes.com/2022/12/27/business/mickey-mouse-disney-public-domain.html [https://perma.cc/5TMJ-D8ZP].

[336] U.S. CONST. art. I, § 8, cl. 8.

[337] Brief for Petitioners, Eldred v. Ashcroft, 537 U.S. 186 (2003) (No. 01-618), 2002 WL 1041928, at *42.

[338] An amicus brief supporting the *Eldred* petitioners filed by seventeen economists—including five Nobel laureates—alluded to this possibility in a footnote, though without any explicit mention of credible commitment or time inconsistency. *See* Brief of George A. Akerlof et al. as Amici Curiae in Support of Petitioners, Eldred, 537 U.S. 186 (No. 01-618), at *8 n.13 ("Indeed, if the extension for existing works creates an expectation that the

The Court in *Eldred* ultimately upheld the Sonny Bono Act by a 7–2 margin.[339] In the two decades since, no major movement to narrow or shorten copyright protection has gained traction. Perhaps this indicates that the institutional and ideational substrates of the copyright promise were sufficiently strong at the turn of the millennium that the government's commitment to copyright protection could be sustained even as the copyright bargain became ever more slanted. Regardless, the question of credible commitment in copyright merits its own careful analysis—whether because focused scrutiny will reveal underappreciated fragility or because copyright's success story bears lessons for policymakers seeking to engender credible commitment in other domains.

2. Trade Secrets

Trade secrecy, like patent protection, is sometimes justified on innovation incentive grounds,[340] though trade secrecy also might be rationalized on grounds of "commercial morality"[341] or—alternatively—on the ground that legal protection discourages firms from making socially excessive investments in "fences" surrounding their secrets.[342] Insofar as trade secrecy serves as an innovation incentive, it presents potential innovators with an offer that differs markedly from the patent bargain. Rather than a fixed term, trade secrecy law offers a life of indeterminate length. Independent invention and reverse engineering—both of which are entirely lawful—

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future term could be adjusted downward as well as upward, this could have a negative effect on incentives.").

[339] *Eldred*, 537 U.S. at 186.

[340] *See* Mark A. Lemley, *The Surprising Virtues of Treating Trade Secrets as IP Rights*, 61 STAN. L. REV. 311, 329–32 (2008).

[341] *See* E.I. du Pont de Nemours & Co. v. Christopher, 431 F.2d 1012, 1016 (5th Cir. 1970); Lynda J. Oswald, *The Role of "Commercial Morality" in Trade Secret Doctrine*, 96 NOTRE DAME L. REV. 125, 129–30 (2020) (arguing that "commercial morality"—though ill-defined and undertheorized—"is an important concept in trade secret misappropriation" and "operates in practice as a shorthand mechanism allowing courts to exercise fairness between the parties").

[342] On the fencing cost rationale for trade secrecy, see generally Daniel J. Hemel & Michal S. Gal, *Trade Secrets, Good Fences, and Big Data*, *in* TRADE SECRECY IN DATA AND DATA INFRASTRUCTURE (Rochelle C. Dreyfuss, Katherine J. Strandburg & Christopher Morten eds., forthcoming 2026).

operate as natural limits on trade secrecy's duration.[343]

Because legislatures do not explicitly set the term of trade secret protection, trade secrecy law lacks a direct analogue to the Sonny Bono Copyright Term Extension Act. But as Jeanne Fromer observes, technological change can do to trade secrets what Sonny Bono's namesake law did to copyrights: it can extend the effective term of protection by leaps and bounds.[344] According to Fromer, the rise of cloud computing, big data, and artificial intelligence has had precisely this effect: cloud computing because it allows businesses to distribute applications to customers without revealing their source code;[345] big data and AI because they rely on information that requires vast resources to collect and because machine learning models are often invulnerable to reverse engineering.[346] As a result of these changes, the natural limits on trade secrecy's duration lie much farther out than before.

If the effects of technological change on trade secret protection are similar to the effects of the Sonny Bono Act for copyrights, then the risks to credible commitment are similar too: as the life of trade secrets grows longer, the implicit bargain between secret holders and society becomes more lopsided. At some point, potential innovators may come to believe that the "trade secret promise" is too lavish to last. From an innovation incentive perspective, increases in the strength and length of trade secret protection may prove self-defeating.

Concededly, one significant difference between copyrights and trade secrets is that trade secrecy's costs are less salient than copyright's. When we purchase copyrighted books on Amazon, we may be aware that we are paying more because of copyright protection. Few of us understand that when we purchase a Coca-Cola bottle from a vending machine, part of the price is attributable to trade secrecy. Opacity, moreover, can serve as a shield against backlash. In this respect, trade

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[343] *See* Robert G. Bone, *A New Look at Trade Secret Law: Doctrine in Search of Justification*, 86 CAL. L. REV. 241, 257 (1998).

[344] *See* Jeanne C. Fromer, *Machines as the New Oompa-Loompas: Trade Secrecy, the Cloud, Machine Learning, and Automation*, 94 N.Y.U. L. REV. 706, 726 (2019).

[345] *See id.* at 718–19.

[346] *See id.* at 720–24.

secrecy adds a new angle to the jagged relationship between transparency and credibility. Sometimes, as in the case of judicial procedures, transparency contributes to credibility. In other cases—as with the patent system's funding mechanisms, and perhaps with trade secrecy too—credibility flourishes in the shadows.

3. Trademarks

This Article's analysis of credible commitment in patent law potentially carries implications for a final area of intellectual property: trademarks. Trademarks arguably suffer from a "Gresham's law" problem similar to early nineteenth-century patents: as Rebecca Tushnet notes, "the current registration system is perplexing and nearly useless except as a (very) messy signal" of validity.[347] A surfeit of "bad" marks on the register creates a potential credibility gap in two respects. First, holders of "good" marks may find it difficult to ward off potential infringers without going to court because the fact of registration is only a weak signal of substantive rights. Second, the social costs of excessive trademarking may raise the risk of backlash and thereby undermine the credibility of the government's commitment to trademark enforcement.[348]

As with patents and copyrights, the overextension of trademark protection threatens to undermine important goals of trademark law. At least according to the now-standard "Chicago School" view, trademarks serve "two efficiency-enhancing functions": first, "to lessen consumer search costs" by making it easier for consumers to differentiate among products and producers; and second, to incentivize firms to invest in quality maintenance and innovation "by ensuring that they, and not their competitors, reap the reputation-related

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[347] Rebecca Tushnet, *Registering Disagreement: Registration in Modern American Trademark Law*, 130 HARV. L. REV. 867, 930 (2017).

[348] *See id.* at 951 (suggesting that without reform, the trademark registration system may "collapse under its own contradictions"). *Cf.* Barton Beebe & Jeanne C. Fromer, *Are We Running Out of Trademarks? An Empirical Study of Trademark Depletion and Congestion*, 131 HARV. L. REV. 945, 951 (2018) (concluding that "new trademark applicants are increasingly being forced to resort to second-best, less competitive marks, and the trademark system is growing increasingly—perhaps inordinately—crowded, noisy, and complex").

rewards of that investment."[349] The two goals are intimately related insofar as the reduction in consumer search costs encourages firms to invest in product quality.[350] And if firms expect the government to deviate from its commitment to trademark protection, then they will have weaker incentives to make long-term investments in quality maintenance and innovation. Thus, an emphasis on credible commitment might support measures to weed out "bad" trademarks—for example, through more rigorous pre-registration review or post-registration pruning—in an effort to bolster confidence in the "trademark promise."[351]

Still, there are important distinctions between patents and copyrights, on the one hand, and trademarks, on the other, that make the credible commitment problem more acute for the former. The "standard explanation" for patents and copyrights, as Mark Lemley observes, is that protection for existing inventions and works is a price we pay after the fact "to influence behavior that occurs before the right comes into being."[352] For that reason, patent law and copyright law are fundamentally time-inconsistent. Trademark law is different. "Unlike patents and copyrights," trademarks "do not exist to encourage the creation of new brand names."[353] Instead, they exist to facilitate differentiation among existing brand names. Thus, while the benevolent social planner would have an incentive to cancel existing patents and copyrights if she could credibly commit not to do it again, she would not have an incentive to cancel all existing trademarks. Society still has an interest in helping consumers differentiate Coca-Cola from Pepsi, McDonald's from Burger King, Nike from Adidas, and all of these brands from knockoffs, even though—indeed, especially because—the brands have been around for many decades.

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[349] *See* Barton Beebe, *The Semiotic Analysis of Trademark Law*, 51 UCLA L. REV. 621, 623–24 (2004).

[350] *See* Daniel J. Hemel & Lisa Larrimore Ouellette, *Trademark Law Pluralism*, 88 U. CHI. L. REV. 1025, 1040 (2021) ("Why develop a product that is top-notch and cutting-edge if consumers will not be able to distinguish it from the competitor?").

[351] *See* Tushnet, *supra* note 347, at 929–39.

[352] *See* Lemley, *supra* note 18, at 130.

[353] *Id.* at 143 n.50.

The trademark example serves to underscore that credible commitment challenges manifest in different ways in different fields. Thus, while some lessons from the patent context apply trans-substantively, each area of intellectual property presents its own distinct commitment problem that requires its own focused analysis. And if that is true within intellectual property, it is especially true—as the next Section seeks to show—for areas of law beyond intellectual property.

C. Credible Commitment Beyond Intellectual Property

Just as patents are not the only type of intellectual property vulnerable to time inconsistency, intellectual property is not the only area of law that confronts credible commitment challenges. Analysis of credible commitment in IP can cast light on fields that face their own time-inconsistency problems while also revealing distinctive aspects of IP's commitment challenge.

1. Criminal Law

Start with criminal law. Just as the utilitarian social planner faces an incentive to cancel all patents and promise not to do it again, the utilitarian social planner has an incentive to declare a one-time amnesty for nonviolent prisoners. Releasing prisoners today cannot cause them to commit crimes in the past (unless these prisoners also violate the laws of time). And freeing up space in prison by releasing inmates who committed crimes long ago potentially leaves more room to punish future offenders.

The prison population problem resembles the stock/flow relationship in patent law: a large prison population imposes significant costs on society—the average cost of housing a federal inmate in fiscal year 2023 was $121 per day, or $44,090 per year [354] —and those costs potentially undermine the credibility of the government's commitment to criminal punishment. Italy famously—or infamously—sought to manage incarceration costs in the post–World War II era through periodic prisoner releases until, by the early 1990s, these ostensibly one-time amnesties had become almost

[354] Annual Determination of Average Cost of Incarceration Fee (COIF), 89 Fed. Reg. 97,072 (Dec. 6, 2024).

routine.[355] In 1992, the Italian Parliament sought to strengthen the credibility of its commitment to incarceration by amending the country's constitution so that future releases would require a two-thirds vote. [356] But—illustrating the fragility of institutional solutions to commitment dilemmas—the two-thirds threshold proved to be superable: in 2006, legislation to release roughly 20,000 inmates cleared both houses of Parliament by the requisite margin.[357]

Greater appreciation of the problem of credible commitment in criminal law potentially reinforces the view that long prison terms tend to be terrible methods of social control. Criminal justice theorists from Beccaria and Bentham onwards have emphasized the benefits of "swift and certain" punishment as opposed to sanctions that are more severe but more delayed or prolonged.[358] Once the question of credible commitment enters the equation, the benefit of swift punishment is not only that immediacy of punishment forges a stronger association between crime and consequences in the minds of offenders; it is also that a shorter time lag narrows the window in which the government has an incentive to renege. Swiftness correlates with certainty when penal policy is time-inconsistent.

There is, however, another potential parallel between patent law and criminal law with implications of a different ideological valence. In patent law, we saw how non-welfarist beliefs (e.g., the natural rights theory of intellectual property) could advance instrumental values when they sustain public support for what would otherwise be time-inconsistent policies. In criminal law, retributivism potentially serves a function similar to Lockean liberalism in patent law: a widespread desire to see wrongdoers punished—like a widespread desire to see inventors rewarded—may motivate policymakers to stick to their commitments even when deviation could otherwise

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[355] *See* Paolo Buonanno & Steven Raphael, *Incarceration and Incapacitation: Evidence from the 2006 Italian Collective Pardon*, 103 AM. ECON. REV. 2437, 2441 n.3 (2013).

[356] *See id.* at 2441.

[357] *See* Elisabetta Povoledo, *Pardoning Convicts Stirs a Furor Among Italians*, INT'L HERALD TRIB. (Aug. 21, 2006).

[358] *See* Mark A. R. Kleiman, *Smart on Crime*, DEMOCRACY J., Spring 2013, at 51, 57.

generate welfare gains. Put another way, utilitarian deterrence theorists of criminal law might not want all of society to share in their utilitarian beliefs. For criminal law to deter, it must be credible, and for criminal law to be credible, governments must be able to resist the temptation to declare ostensibly one-time amnesties.

To be clear, the argument here is not that welfarists should promote retributivism in criminal law or that if retributivism is sufficiently widespread, the carceral state should be maintained. As I have written elsewhere, "the welfare-enhancing effects of non-welfarist beliefs will depend upon whether the existing legal structure is one that we think should be sustained or dismantled."[359] The point is, instead, that ideas can undergird societal commitments even when institutions on their own cannot constrain the government to stick to a particular policy path. That observation, of course, does not free members of the public or their representatives from judging whether the particular policy path is one that the just society ought to pursue.

2. Tax Law

In contrast to patent law, where questions of credible commitment have been relegated to the periphery of scholarship, the challenge of credible commitment is—as noted—central to the study of tax.[360] As economist Stanley Fischer observed in an influential 1980 article, the utilitarian social planner faces a temptation to impose a one-time capital tax and promise not to do it again. A capital tax today cannot change choices about labor and savings that were made in the past, and the one-time tax allows the planner to redistribute from rich to poor today (thereby increasing overall welfare) without generating future distortions.[361] A substantial literature in public finance seeks to explain how a government can convince capital owners that it will not succumb to this temptation.[362]

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[359] Hemel, *supra* note 16, at 1630.

[360] *See supra* note 125 and accompanying text.

[361] *See* Fischer, *supra* note 14, at 97–98.

[362] *See, e.g.*, Jess Benhabib & Aldo Rustichini, *Optimal Taxes Without Commitment*, 77 J. ECON. THEORY 231 (1997); Bisin & Rampini, *supra* note

Tax scholarship has made considerable progress on that topic, and this Article's institutions-ideas-innovation framework is a modification and extension of the institutions-inequality-ideas framework for analyzing credible commitment in the capital tax domain.[363] The middle "i" in the capital tax version—inequality—reflects the observation that governments are more likely to expropriate wealth when the gap between rich and poor is large. Just as patent-strengthening reforms can be self-defeating when they undermine the credibility of the patent promise, tax cuts can perversely discourage investment when they widen inequality and thereby place the government's nonexpropriation commitment into doubt.[364] Moreover, in capital taxation—parallel to the patent context—welfarist policymakers have reason to value Lockean liberalism among the general population for credible commitment purposes because Lockean liberals are likely to oppose one-time capital taxes even when those taxes would be ex post optimal.[365]

One striking difference between patents and taxes relates to the role of administrative institutions. In patent law, strong administrative institutions—patent offices staffed by expert examiners who operate independently from patronage politics—bolster the credibility of the patent promise by counteracting Gresham's law.[366] In capital taxation, strong administrative institutions potentially threaten the credibility of the nonexpropriation promise because without a competent tax authority, imposing confiscatory taxes on capital is practically impossible.[367] Illustratively, Congress—after it enacted an ostensibly one-time property tax in 1798 to finance an anticipated war with France—dismantled the administrative apparatus that it had just set up, evidently in an attempt to

125; Eichengreen, *supra* note 125; Farhi et al., *supra* note 125; Finn E. Kydland & Edward C. Prescott, *Rules Rather than Discretion: The Inconsistency of Optimal Plans*, 85 J. POL. ECON. 473 (1977); Scheuer & Wolitzky, *supra* note 125.

[363] *See* Hemel, *supra* note 16, at 1559.

[364] *See id.* at 1591–97.

[365] *See id.* at 1602–03.

[366] *See supra* Section II.A.3.

[367] *See* Hemel, *supra* note 16, at 1575.

disable itself from imposing another levy.[368] As it turned out, though, administrative institutions are not so easy to destroy: when Congress decided to reenact a federal property tax during the War of 1812, it could resurrect the 1798 structure—even though formally dismantled—as a model for what to do the second time around.[369]

Given the parallels between the patent and capital tax contexts as well as the lessons that each one holds for the other, it is ironic that one brick in patent law's credible commitment edifice is the fact that patents are *not* perceived as taxes. As noted, patents—though they operate as "shadow taxes" in their economic effects[370]—are formally exempt from the legislative procedures and functionally exempt from the political pathologies that apply to explicit taxes.[371] The legislative-procedure element makes it harder for Congress to amend the patent laws than the tax laws; the political element makes it less tempting for legislators to enact one-time patent cancellations than to enact temporary tax cuts (even though a one-time patent cancellation is, economically, a temporary tax cut). The use of tax law to inform patent policy with respect to credible commitment thus relies on a version of "acoustic separation,"[372] where patent policy elites can appreciate the parallels with tax while also appreciating the fact that the general public does not appreciate the parallels between patents and tax. This is one more way in which a divergence between the beliefs of patent policymakers and the public can—at least arguably—prove productive.[373]

Conclusion

The idea among IP scholars that patents "automatically

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[368] *See* Nicholas R. Parrillo, *A Critical Assessment of the Originalist Case Against Administrative Regulatory Power: New Evidence from the Federal Tax on Private Real Estate in the 1790s*, 130 YALE L.J. 1288, 1438–39 (2021); Hemel, *supra* note 16, at 1576–77.

[369] *See* Hemel, *supra* note 16, at 1577.

[370] *See supra* text accompanying notes 171–72.

[371] *See supra* text accompanying notes 173–83.

[372] *See* Meir Dan-Cohen, *Decision Rules and Conduct Rules: On Acoustic Separation in Criminal Law*, 97 HARV. L. REV. 625, 630 (1984).

[373] *Cf.* Mandel, *supra* note 13, at 263–64 (noting mismatch between elite and lay opinion regarding the justifications for intellectual property).

avoid"[374] the problem of credible commitment is—as this Article has shown—a myth. Like the myth of the lone genius inventor,[375] it can be a useful myth insofar as it lulls potential innovators into believing that the patent promise is rock solid. But also like the myth of the lone genius inventor, it is a dangerous myth insofar as it prevents scholars and decisionmakers from thinking critically about the sources of credible commitment in patent law, the menu of innovation policy options, and the possible unintended consequences of legal reforms.

Just as transformative inventions are typically the result of incremental advances rather than any single stroke of genius, the sources of credible commitment in patent law are cumulative. Judicial institutions reduce the risk of microdeviations by bringing the day-to-day workings of the patent system out of the shadows. Legislative budgeting practices bolster support for patent protection by concealing the extent to which patents are shadow taxes. Administrative institutions help to ensure that bad patents don't drive out the good. Non-welfarist ideas regarding the natural rights of inventors counteract the welfarist appeal of ostensibly one-time patent cancellations. The limited twenty-year life serves to ensure that the tower of existing patents doesn't topple under its own weight.

One could look at this list and marvel at how the United States has managed to construct what seems—at least for the moment—like a stable structure of credible commitment in patent law. Yet there is little reason to believe that the marvel is a one-hit wonder. If patent law has managed to achieve a measure of credibility, then other innovation policy regimes very likely can too. Polities that have crafted a framework of credible commitment around patents can potentially do the same for prizes and other non-patent incentives. Through close and careful examination of the patent system, we can identify points at which the infrastructure of credible commitment is frangible as well as elements of it that are replicable. We can—in sum—more fully appreciate patent law's successes, more precisely identify patent law's vulnerabilities, and more clearly

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[374] *See* Menell & Scotchmer, *supra* note 4, at 1531.
[375] *See* Lemley, *supra* note 275, at 710.

imagine patent law's alternatives.