

The Cost of Price: Why and How to Get Beyond Intellectual Property Internalism

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ABSTRACT

The field of intellectual property (IP) law today is focused, as the name itself advertises, on one particular institutional approach to scientific and cultural production: IP. When legal scholars explain this focus, they typically do so with reference to the virtues of price. Because price gives us a decentralized way to link social welfare to the production of information, IP is alleged to be more efficient than other approaches. The dominant mode of IP scholarship begins here and then addresses questions internal to IP law—for example, how broad or narrow should exceptions to IP rights be? But the internalism that characterizes the field of IP cannot, as I show, be justified by the value of efficiency. Economics offers us no a priori reason to assume that IP is more efficient than other possible approaches, most prominently government procurement and commons-based production. If we take the invitation that economists offer us to think external to IP, we also gain new insights about the implications of values other than efficiency for the choice between different institutional approaches to scientific and cultural production. We see, as I argue, that using price to guide scientific and cultural production—which is to say, using IP—may have costs not only for efficiency, but also for distributive justice and informational privacy. The IP approach is in tension with the value of distributive justice because reliance upon price may yield not only unjust distribution of existing information resources but also unjust production of future information resources. The IP approach is in tension with the value of information privacy because relying on price to generate information facilitates the desire, the demand, and perhaps the capacity for price discrimination. That, in turn, generates an impulse for the extensive collection of personal information. Both government procurement and commons-based production plausibly offer more promise than does IP in both distributive justice and privacy terms, and they may be no less efficient than IP. Giving full scope to all three of these values thus requires us to telescope out from the internalism that characterizes the field, and to countenance a broader role for commons-based production and government procurement. In the field of IP, I conclude, we should pay less attention to IP and more to the alternatives.

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INTRODUCTION

Imagine that instead of a field called “environmental law” we had a field called “cap-and-trade law.” We would, I think, find that odd. Yet this is a fair approximation of where we find ourselves in the field of intellectual property (IP) law today. The field is constructed around one particular institutional approach to sustaining the production of scientific and cultural goods: exclusive rights. Yet it is not at all obvious that IP is categorically superior to other institutional approaches.

Other approaches not only are possible, but also, in many cases, already play an important role in our creative ecosystem. Consider a brief example from the scientific arena. In the United States, about one-third of all research and development (R&D), including more than 80 percent of basic R&D, is funded by government and nonprofit sectors.¹ The results are often disseminated not under property rules, but under norms of open scientific exchange.² This institutional approach,³ which we can call government contracting, is both ubiquitous and familiar. It is employed when government agencies make grants or contract for research, in the manner commonly done by the U.S. National Institutes of Health (NIH) or by the U.S. Department of Defense.

In the cultural arena, the explosion of user-generated content on the internet has fundamentally changed our leisure and entertainment culture. One way to mark this phenomenon is to track the exponential growth of user-generated content sites. Today, more than three billion videos are viewed each day on YouTube, and more video is uploaded to the site in thirty days than was created by the top three U.S. television networks in sixty years.⁴ While some YouTube content is generated by the old-fashioned content industry and is monetized, a substantial portion of it—from parkour performances to mashups to the ubiquitous toddler videos—is generated and shared without any expectation of direct

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1. MARK BOROUSH, NAT'L SCI. FOUND., NEW NSF ESTIMATES INDICATE THAT U.S. R&D SPENDING CONTINUED TO GROW IN 2008, at 6 tbl.3 (2010) (2008 data), available at <http://www.nsf.gov/statistics/infbrief/nsf10312/nsf10312.pdf>.
 2. See, e.g., J.H. Reichman & Paul F. Uhler, *A Contractually Reconstructed Research Commons for Scientific Data in a Highly Protectionist Intellectual Property Environment*, 66 LAW & CONTEMP. PROBS. 315, 331–32 (2003) (discussing federal policy regarding the open sharing of data stemming from publicly funded research).
 3. I call these different “institutional approaches” rather than, say, “alternative mechanisms” because they are not always alternatives but rather are at times complementary and because the word “institution” invokes a thicker and richer field than does the concept of a mechanism.
 4. See *Statistics*, YOUTUBE, http://www.youtube.com/t/press_statistics (last visited Feb. 27, 2012).

profit.⁵ We can call this the “commons-based approach” to cultural production, one exemplified by phenomena such as Wikipedia and free software, and one that we can loosely think of as being characterized by nonproprietary norms and by a collaborative, self-organized production process.⁶

A third approach involves financial inducement prizes. Here, a government offers a financial reward to anyone who creates a desired invention—say, a vaccine. The inventor enjoys the benefit of the reward, and the government puts the information it has purchased in the public domain.⁷ This approach is relatively uncommon today, but it has successful historical antecedents, the most famous perhaps being the eighteenth-century British longitude prize.⁸ The prize approach has also generated substantial—and growing—interest in the field of information economics today.⁹

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5. YouTube does not offer precise breakdowns of the makeup of its content, but a simple perusal of the site shows that much of the content on YouTube is homegrown. A rough sense of the importance of content on YouTube that is produced without commercial motivation can perhaps be discerned from YouTube’s publicly available figures on monetization. Through its ContentID system, YouTube allows copyright owners to monetize works posted on YouTube, and the site reports monetizing over three billion video views weekly. *Id.* That is just one-seventh of the overall video views, which amount to three billion daily. *Id.* Even assuming that much content-industry material is not monetized, this suggests that a substantial portion—perhaps the majority—of the content viewed on YouTube is not produced through conventional copyright incentives.
 6. In the IP literature, the term “commons” is used to refer to a family of approaches that do not always align neatly under a single definition. I discuss this, and offer a more elaborate characterization of the approach, in Part I.
 7. Many prize proposals today are structured as supplements to IP incentives and so do not require that the resulting information be put immediately into the public domain. They may, however, impose constraints on pricing or require open licensing under certain conditions. *See, e.g.,* Owen Barder, Michael Kremer & Heidi Williams, *Advance Market Commitments: A Policy to Stimulate Investment in Vaccines for Neglected Diseases*, *ECONOMISTS’ VOICE*, Feb. 2006, at 3, 4 (describing an Advanced Market Commitment (AMC) prize proposal, which obligates medicine manufacturers to sell their products at “low, affordable price[s] in the long-term, or to license their technology to other manufacturers” after sponsors of the AMC have purchased an initial, predetermined number of treatments at higher prices). The classic form of a prize, however, as discussed in Brian Wright’s foundational work, conceives of the prize as a reward in lieu of exclusive rights, thus avoiding the deadweight loss associated with pricing information. Brian D. Wright, *The Economics of Invention Incentives: Patents, Prizes, and Research Contracts*, 73 *AM. ECON. REV.* 691, 691, 697–98, 701 (1983). Prizes of this sort can be structured as IP “buyouts” in particular cases and thus may not disturb the IP system as a whole.
 8. *See, e.g.,* DAVA SOBEL, *LONGITUDE* 51–60 (1995).
 9. For evidence of the renewed interest in prizes, see Michael Kremer & Heidi Williams, *Incentivizing Innovation: Adding to the Tool Kit*, 10 *INNOVATION POL’Y & ECON.* 1 (2010); *And the Winner Is . . . Offering a Cash Prize to Encourage Innovation Is All the Rage*, *ECONOMIST*, Aug. 5, 2010, <http://www.economist.com/node/16740639>; Joseph E. Stiglitz, *Prizes, Not Patents*, *PROJECT SYNDICATE* (Mar. 6, 2007), <http://www.project-syndicate.org/commentary/stiglitz/81/English>.

In fact, since the 1960s, economists have debated the relative costs and benefits of a variety of approaches other than IP, most commonly government contracts and financial prizes (which I refer to together as modes of government procurement). In a foundational piece, Kenneth Arrow argued that the most efficient means of producing information likely relied not on property but rather on government.¹⁰ His argument was driven by his analysis—now widely accepted—of the necessary inefficiencies that accompany exclusive rights in information.

Because information is nonrival, as Arrow explained, it has a marginal cost of zero. IP as a strategy works by putting a positive price on information: Creators create, then they charge others to use the information they have produced, thus pricing it above marginal cost. The result is deadweight loss.¹¹ (It is important to note here that economists use the term “information” to refer to an extremely broad range of immaterial resources, from scientific formulas to improvements in production processes to musical compositions to the sequence of words in a novel. These are all products of human minds, and insofar as they are immaterial, they can be shared infinitely without reducing the amount available to others.¹² I follow this usage here since it is common and corresponds to the economic analysis that is central to the field. But I also use the concept of “scientific and cultural production,” in part to invoke a focus on the processes of production rather than their reified result, and in part because the phrase calls forth a wider range of institutional settings than the concept of information production may do.)

A few years later, Harold Demsetz offered an influential response to Arrow. He suggested that despite the deadweight loss that accompanies pricing, property rights in information may be more efficient than government production, largely because of the way that exclusive rights in information guide decisions about the allocation of inventive resources.¹³ Instead of relying on government officials to guide inventive effort, property rights harness the power

10. Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, in *THE RATE AND DIRECTION OF INVENTIVE ACTIVITY: ECONOMIC AND SOCIAL FACTORS* 609, 623 (Richard Nelson ed., 1962). I discuss the argument in more detail in Part I.

11. One can think of it colloquially in this way: Once a song is produced, you and I and everyone we know can listen to it as many times as we like, with no depletion of the resource. So, ideally, the song would be costless, because any positive price will reduce the access we have to the song and thus reduce welfare. *See also infra* Part I.

12. Transmission could have a positive marginal cost, as will the material goods in which these intangible objects are embedded (such as machines, CDs, books, and the like). But the informational component is nonrival, and economists analyze this informational component separately.

13. Harold Demsetz, *Information and Efficiency: Another Viewpoint*, 12 *J.L. & ECON.* 1, 14 (1969).

of price to transmit information between consumers and decentralized creators.¹⁴ Price links the production of information to consumer demand, and, by extension, to social welfare.

This argument has been so deeply internalized in the field of IP law that it is typically taken for granted.¹⁵ For example, the introduction of the leading IP casebook, coauthored by Robert Merges, Peter Menell, and Mark Lemley, states decisively that “[i]ntellectual property protection is necessary to encourage inventors, authors, and artists to invest in the process of creation.”¹⁶ It justifies the institutional preference for IP only briefly, with a reference to the virtues of decentralized market-based systems over “central planning on a mass scale.”¹⁷ This reflects the dominant view in the field of IP law today, which—as is advertised in the name—focuses on intellectual property rights as the privileged means of promoting scientific and cultural production. The choice is justified, if at all, with reference to Demsetzian arguments that are said to establish IP as more efficient than the alternatives. The core of the field of IP law today thus focuses on questions “internal” to IP—for example, on questions about the effects or interpretation of a particular doctrine of copyright or patent law, about how broad or narrow the scope of exclusive rights or their exceptions should be, or about the administration of the IP system and how it can be improved. The effect is to focus our attention on questions about tradeoffs within IP law, and to suggest that the stakes of these questions are more important than the stakes of questions about the trade-offs between IP and other institutional approaches to cultural and scientific production.

There is also a long and important tradition of dissent from the dominant internalism of the legal field.¹⁸ Over the past few years, that dissent has gained

14. *Id.* at 12–13. By “price” here, I simply mean payment voluntarily exchanged in private markets. Information is priced, in the sense I mean here, when it is treated as a commodity using a property rule.

15. For examples, see *infra* note 40.

16. ROBERT P. MERGES, PETER S. MENELL & MARK A. LEMLEY, *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE* 14 (5th ed. 2010).

17. *Id.* at 18. The authors go on to note that the case for IP is based “more on a generalized perception of institutional choice than on strong direct evidence of the superiority of intellectual property rights relative to the alternatives.” *Id.* But they offer no further discussion of the potential tradeoffs between different institutional choices, or of the robust economics literature that calls into question a generalized preference for IP.

18. For an early and prominent dissent to the assumption that IP is necessary for economic efficiency, see Stephen Breyer, *The Uneasy Case for Copyright: The Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281, 283–84, 293–308 (1970) (concluding that the economic case for copyright in books “is not a strong one,” arguing that market forces such as lead time may be sufficient). For a later work that considers a broader range of alternatives to IP,

in prominence. A small but growing number of legal scholars have begun to argue for the potential of prizes and other modes of government procurement as alternatives or complements to an IP-based approach.¹⁹ There has also been a surge of interest among legal scholars in commons-based production of scientific and cultural goods.²⁰ There is also a notable policy

see Steve P. Calandrillo, *Economic Analysis of Property Rights in Information: Justifications and Problems of Exclusive Rights, Incentives to Generate Information, and the Alternative of a Government-Run Reward System*, 9 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 301 (1998). Early work by Rebecca Eisenberg and Arti Rai focused attention on academic and government-supported scientific research, for example, by analyzing the relationship between the norms that govern that realm and IP norms. See, e.g., Rebecca S. Eisenberg, *Proprietary Rights and the Norms of Science in Biotechnology Research*, 97 YALE L.J. 177 (1987); Arti Kaur Rai, *Regulating Scientific Research: Intellectual Property Rights and the Norms of Science*, 94 NW. U.L. REV. 77 (1999). William Fisher has sought to bring alternatives to IP more firmly to the center of IP conversations, both through theoretical arguments, see William W. Fisher, *Intellectual Property and Innovation: Theoretical, Empirical and Historical Perspectives*, in INDUSTRIAL PROPERTY, INNOVATION, AND THE KNOWLEDGE-BASED ECONOMY *2-4 (A. Arundel ed., 2002), available at <http://cyber.law.harvard.edu/people/tfisher/Innovation.pdf>, and through detailed policy proposals, see WILLIAM W. FISHER III, PROMISES TO KEEP: TECHNOLOGY, LAW, AND THE FUTURE OF ENTERTAINMENT (2004). Yochai Benkler has made similarly important contributions, particularly with his book on the phenomenon of commons-based peer production, YOCHAI BENKLER, THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM (2006). The rich literature on the public domain also has helped map the “outside” of IP, although not always with a specific focus on the viability of other institutional approaches to scientific and cultural production. For key contributions on the public domain, see JAMES BOYLE, THE PUBLIC DOMAIN: ENCLOSING THE COMMONS OF THE MIND (2008); David Lange, *Recognizing the Public Domain*, 44 LAW & CONTEMP. PROBS. 147 (1981); Jessica Litman, *The Public Domain*, 39 EMORY L.J. 965 (1990); Pamela Samuelson, *Enriching Discourse on Public Domains*, 55 DUKE L.J. 783 (2006).

19. For recent legal scholarship on the potential of prizes, see, for example, FISHER, *supra* note 18; Michael Abramowicz, *Perfecting Patent Prizes*, 56 VAND. L. REV. 115 (2003); Jonathan H. Adler, *Eyes on a Climate Prize: Rewarding Energy Innovation to Achieve Climate Stabilization*, 35 HARV. ENVTL. L. REV. 1 (2011); Steven Shavell & Tanguy van Ypersele, *Rewards Versus Intellectual Property Rights*, 44 J.L. & ECON. 525 (2001); see also Neil Weinstock Netanel, *Impose a Noncommercial Use Levy to Allow Free Peer-to-Peer File Sharing*, 17 HARV. J.L. & TECH. 1 (2003) (promoting a variant of a prize proposal). The potential of government contracting has received less attention, but has been treated as promising by some legal scholars. See Jerome H. Reichman, *Rethinking the Role of Clinical Trial Data in International Intellectual Property Law: The Case for a Public Goods Approach*, 13 MARQ. INTELL. PROP. L. REV. 1 (2009).
20. See, e.g., BOYLE, *supra* note 18; Yochai Benkler, *Freedom in the Commons: Towards a Political Economy of Information*, 52 DUKE L.J. 1245 (2003); Jorge L. Contreras, *Data Sharing, Latency Variables, and Science Commons*, 25 BERKELEY TECH. L.J. 1601 (2010); Peter Lee, *Toward a Distributed Commons in Patent Law*, 2009 WIS. L. REV. 917; Michael J. Madison, Brett M. Frischmann & Katherine J. Strandburg, *Constructing Commons in the Cultural Environment*, 95 CORNELL L. REV. 657 (2010); Stephen M. Maurer, Arti Rai & Andrej Sali, *Finding Cures for Tropical Diseases: Is Open Source an Answer?*, 6 MINN. J.L. SCI. & TECH. 169 (2004); Yochai Benkler, *The Commons as a Neglected Factor of Information Policy* (Working Draft Presented at Telecomms. Poly Research Conference, 1998), available at <http://www.benkler.org/commons.pdf>. See also the many commentaries on the Madison, Frischmann, and Strandburg article in the

interest in alternatives to IP approaches today, particularly in the potential of prizes.²¹

I seek here to build on this dissent, by showing first that IP internalism cannot, as a general matter, be justified by appeals to efficiency. That is because, as Part I shows, the contemporary field of information economics itself offers no clear endorsement of IP. That literature has moved beyond Demsetz's response to Arrow and has developed a complex conversation about the comparative costs and benefits of prizes, contracts, and IP—a conversation that has produced no definitive resolution in favor of any of these approaches. This is well understood by those in the IP field who reject the internalist impulse.²² Scholars have also called attention to commons-based production as another approach that may be as or more efficient than IP. The existing legal and economic literature teaches us, then, the question of which institutional approach to information production is most efficient must be examined in context, and in any case it may be difficult to determine with any certainty.

If concerns about efficiency do not dictate a preference for IP, might other fundamental values have something to say about the matter? As IP scholars have pointed out, the choices we make about information governance implicate a range of fundamental values, including values of privacy and distributive justice.²³ Discussions about these two values have also tended to follow an internalist frame, asking, for example, whether distributive values generate arguments for

Cornell Law Review, volume 95. This literature is still in its infancy, and the definition of “commons-based production” is contested (and is discussed further in Part I). But one measure of its importance is the fact that a critical counter-literature has begun to emerge. See, e.g., Jonathan M. Barnett, *The Illusion of the Commons*, 25 *BERKELEY TECH. L.J.* 1751 (2010).

21. See, e.g., COMMITTEE ON THE DESIGN OF AN NSF INNOVATION PRIZE, NAT'L RESEARCH COUNCIL, INNOVATION INDUCEMENT PRIZES AT THE NATIONAL SCIENCE FOUNDATION (2007); *Centennial Challenges*, NASA, http://www.nasa.gov/offices/oct/early_stage_innovation/centennial_challenges/index.html (last visited Feb. 27, 2012).
22. Benkler and Fisher have done particularly important work to elucidate this point. See BENKLER, *supra* note 18; FISHER, *supra* note 18.
23. See, e.g., Margaret Chon, *Intellectual Property and the Development Divide*, 27 *CARDOZO L. REV.* 2821, 2907 (2006) (describing the potential conflicts between IP law and distributive justice, particularly in relation to development); Julie E. Cohen, *DRM and Privacy*, 18 *BERKELEY TECH L.J.* 575 (2003) [hereinafter Cohen, *DRM and Privacy*] (discussing the conflicts between digital rights management (DRM) technologies, which are part of the enforcement infrastructure for copyright, and privacy values). Scholars invoke a range of other values as well, of course, such as democracy, authorship, creativity, freedom of thought or cultural engagement, free speech, and the like. No single article could analyze the implications of all such values for the choice of institutional approaches to scientific and cultural production. I have focused on the values of distributive justice and privacy here to illustrate the implications of the externalist approach, and because they offer us an entry point to important new arguments about the tradeoffs between different institutional approaches to innovation.

exceptions to existing IP law. If we adopt an externalist perspective, instead, we bring into view something otherwise obscured. Using price to guide scientific and cultural production—which is to say, using IP—may itself generate costs from the perspective not only of efficiency, but also of distributive justice and privacy.

In Part II, I show that the institutional approach of IP is in significant tension with distributive values. The most obvious reason, which is in some sense well known and visible even from an internalist perspective, is that IP uses price to ration access to information goods. Price can be a problematic way of distributing goods that are important to justice because the existing distribution of resources may be unjust. While this concern also exists outside the domain of information, it is particularly meaningful here, because here we know that price is not necessarily a more efficient means of production than are other institutional approaches. The usual response to distributive concerns about price, which suggests that we should use price to maximize efficiency and redistribute afterwards, therefore has little purchase in the context of information.

The more pertinent and common objection to distributive impulses internal to IP law is that yielding to such impulses will undermine their own aim. In other words, limiting the reach of IP will undermine the production of the very information that must be fairly distributed due to its importance to justice. When scholars debate the implications of distributive justice for international patent law from an internalist perspective, for example, they risk being caught in an eddy: The desire to make sophisticated medicines available to the poor around the world seems to require not only thin patent law (so that affordable generic drugs are available) but also robust patent law (so that new medicines for the poor are created).²⁴ From inside of IP, it is difficult to dissolve this apparent paradox. As I show, it can be dissolved because sometimes we can make modifications to IP law that will have effects that are more beneficial than harmful for the poor. But the results in distributive terms will be modest, leaving a substantial domain of inequality that cannot be addressed from within an internalist paradigm.

If we adopt an externalist view, distributive justice arguments have a much broader scope. As I show, from a distributive perspective, IP is not just a problematic way to distribute cultural and scientific goods that are important to justice, but it is also a problematic way to produce them. In an IP system, price influences not only who has access to such goods, but also which goods are produced in the first place. As long as the rich and the poor sometimes have different needs,

24. For an example, see *infra* text accompanying notes 93–94.

as they demonstrably do, a system based on price will prioritize the needs of the wealthy. Moreover, some information goods may be of such foundational importance to human freedoms and capabilities that all should have them regardless of their preferences. Because price necessarily tracks preferences, it is a particularly problematic way to develop and distribute these kinds of basic information goods. Commons-based production and particularly government procurement plausibly have advantages over IP in distributive terms because they yield information goods that are made available for free, and are better suited to attempts to direct production in ways that are divorced from preferences and from the existing allocation of resources.

Part III addresses the implications of our choice of institutional approach for informational privacy. As I argue, and as an externalist view allows us to see, choosing IP as the mode for producing and distributing information sets up a constitutive tension with information privacy. When we produce and distribute information through price we have the problem of deadweight loss. The solution proffered is price discrimination, in which a producer charges a user a specifically tailored price, matched to her individual willingness and ability to pay.²⁵ Price discrimination is generally thought to enhance efficiency in the presence of price.²⁶ Moreover, when we rely on price, we generate a decentralized impulse to price discriminate because price discrimination will enhance the profits of producers. But price discrimination and privacy are in tension with one another because personal information is critical to the ability to cheaply and accurately price discriminate. While government procurement and commons-based schemes may also trigger privacy concerns, there are reasons to think that these concerns may be less acute than those that accompany price—and thus IP.

In this Article, I thus offer two primary contributions to the existing literature. First, I identify the tendency toward IP internalism that characterizes the field today and demonstrate that it is not justified by efficiency arguments. Giving full scope to efficiency values would require us instead to adopt an externalist approach—to telescope out from a singular focus on IP as the privileged way to promote scientific and cultural production and to bring other institutional approaches from the periphery to the center of our inquiry. Second, I

25. A more formal definition of price discrimination is the state of affairs “when the prices of similar products sold by the same firm show variation that cannot be attributed to cost variation.” Frank Verboven, *Price Discrimination (Empirical Studies)*, in *THE NEW PALGRAVE DICTIONARY OF ECONOMICS* (Steven N. Durlauf & Lawrence E. Blum eds., 2d ed. 2008).

26. This argument is described in detail below. *See infra* note 39.

argue that we also cannot give full scope to values beyond efficiency without adopting an externalist viewpoint. More specifically, I offer new arguments about the tension between the institutional approach of IP and values of distributive justice and informational privacy, and seek to show that both government procurement and commons-based approaches plausibly may generate less tension with both values.

My aim is not to argue that a particular institutional approach or mix of institutional approaches is always best. Indeed, my sense is that the contexts and resources involved are too diverse to admit to resolution in any such general way. Rather, I contend that we should systematically expand our field of vision so that the tradeoffs and complementarities between IP and other approaches become a central subject of the field, and so that we can more clearly debate the implications of our choice of approach not only for values of efficiency, but also for values such as distributive justice and privacy. Notably, an external approach not only gives more scope to our normative inquiries, but also better corresponds to the fundamentally mixed nature of our existing information ecology.

Renaming the field to encompass something broader than IP as an approach would facilitate the kind of analysis called for in this Article. It is worth noting in this regard that the term “intellectual property” only recently came into prominence.²⁷ But in calling for IP externalism, I mean also to suggest that we do not need to rename the field in order to give it a new geography. Property law has been reinvented many times, all under the same name. We can telescope out and adopt a broader frame of reference for our inquiries, regardless of what we call our efforts. Indeed, this move is already underway. If we embrace it as a priority, a new field of analysis opens up.

27. For a review of the evidence about the emergence of the term, see Amy Kapczynski, *The Access to Knowledge Mobilization and the New Politics of Intellectual Property*, 117 YALE L.J. 804, 843, 846–47 (2008). For an influential account of the rise of the term, see Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031, 1033–34 (2005) (charting an “exponential” rise in the use of the term “intellectual property” in federal court opinions, with the inflection point in the 1980s). What is new is less the propretization of IP than its intellectualization—that is, the grouping of different doctrinal and statutory regimes under this collective rubric. See, e.g., Peter K. Yu, *Intellectual Property and the Information Ecosystem*, 2005 MICH. ST. L. REV. 1, 4.

I. AN EXTERNALIST VIEW OF EFFICIENCY AND THE AMBIVALENT IMPLICATIONS OF PRICE

IP scholarship today responds primarily to the value of efficiency, and it generally conceives of IP as a means to generate incentives for the production of information.²⁸ Although copyright, patent, trade secret, and trademark were not always thought of as conjoined areas of law, the rubric of information has been used to unite them by relying on a common analysis of the peculiar economic qualities of information.²⁹

Information is understood, in economic terms, as a nonrival good because one person's consumption of it does not limit another person's consumption.³⁰ As a result, information only needs to be produced once for many people to enjoy it; in other words, its marginal cost of production is zero. As such, as Kenneth Arrow put it in a foundational article in 1962, "any information obtained, say a new method of production, should, from the welfare point of view, be available free of charge (apart from the cost of transmitting information). This insures optimal utilization of the information but, of course, provides no incentive for investment in research."³¹ One solution to the investment problem is commodification

28. See, e.g., MERGES, MENELL & LEMLEY, *supra* note 16, at 14; William Fisher, *Theories of Intellectual Property*, in NEW ESSAYS IN THE LEGAL AND POLITICAL THEORY OF PROPERTY 168, 169 (Stephen R. Munzer ed., 2001); Lemley, *supra* note 27, at 1031; Peter S. Menell & Suzanne Scotchmer, *Intellectual Property Law*, in 2 HANDBOOK OF LAW AND ECONOMICS 1471, 1476–82 (A. Mitchell Polinsky & Steven Shavell eds., 2007). For a good example of arguments that operate in this mode, see WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* (2003). The normative appeal of the efficiency approach is usually understood to be welfarist in nature, with welfare being defined according to either wealth maximization or the Kaldor-Hicks criterion. See Fisher, *supra*, at 177. In practice, the latter shades into the former. See DOUGLAS A. KYSAR, *REGULATING FROM NOWHERE* 104 (2010) ("[T]he Kaldor-Hicks standard tends to prompt a shift from welfare maximization to wealth maximization, given that the dollar-weighted valuation of welfare impacts provides the most obvious and tractable method for operationalizing the hypothetical compensation test."); cf. Ronald H. Coase, *Economics and Contiguous Disciplines*, 7 J. LEGAL STUD. 201, 209 (1978) (arguing that economics as a discipline has a substantial advantage in that "economists are able to use the 'measuring rod of money'"). Kitchians also see the purpose of IP as being the generation of incentives for the production of information, though they focus particularly on incentives that exist after the grant of a patent. See Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265 (1977).

29. See, e.g., MERGES, MENELL & LEMLEY, *supra* note 16, at 12 (referring to "[i]deas and information" as the subject of IP law); THOMAS W. MERRILL & HENRY E. SMITH, *PROPERTY: PRINCIPLES AND POLICIES* 134 (2007) (offering an introduction to the concept of IP that uses the rubric of information, and explaining that "[t]he primary reason for creating property rights in information is to provide incentives for producing more of it").

30. See, e.g., Arrow, *supra* note 10, at 616–17.

31. *Id.*

of information through property rights. But a property system funds the production of information by allowing creators to put a positive price on its use, and “precisely to the extent that it is successful, there is an underutilization of the information.”³²

Because information should ideally be priced at zero, any positive price generates static (short term) inefficiency, which economists refer to as deadweight loss. This kind of net loss of social welfare “occurs when people are excluded from using the good even though their willingnesses to pay are higher than the marginal cost.”³³ Positive price compromises not only static but also dynamic efficiency because information is an input and output of its own production process.³⁴ Arrow concluded from this analysis that government financing of R&D is likely to produce information in a more optimal way than do property rights.³⁵ As he also noted, “In fact, of course, this has always happened to a certain extent. The bulk of basic research has been carried on outside the industrial system, in universities, in the government, and by private individuals.”³⁶

Arrow’s article and analysis were extremely influential and were the subject of a well-known reply by Harold Demsetz in 1969. Demsetz accused Arrow of turning naïvely to government after concluding that markets had inefficiencies, when government itself is subject to various influences that generate inefficiency—such as the rent-seeking pressures that today are often referred to under the rubric of capture.³⁷ But the most influential legacy of his article has been the substantive suggestions he offered to counter Arrow’s conclusion that government financing was likely preferable to exclusive rights regimes. He focused particularly on the informational problem that a government faces when seeking to separate the production of information goods from price. While this might be optimal from the perspective of consumption, he asked, how was the government supposed to “produce information on the desired directions of investment and on the quantities of resources that should be committed to invention?”³⁸ Demsetz suggested that property rights had a fundamental advantage in guiding the efficient production of information because they harness market signals to provide

32. *Id.* at 617.

33. SUZANNE SCOTCHMER, INNOVATION AND INCENTIVES 36 (2004).

34. See Arrow, *supra* note 10, at 618; Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, 5 J. ECON. PERSP. 29 (1991); see also BENKLER, *supra* note 18, at 37–38.

35. Arrow, *supra* note 10, at 623.

36. *Id.*

37. Demsetz, *supra* note 13, at 9.

38. *Id.* at 12.

creators with information about how to direct and allocate the resources that they invest in producing information. The key benefit that Demsetz claimed for property rights in information, then, derived from the signaling function of price. Notably, Demsetz also pointed out that the inefficiencies of price could be diminished if transaction costs were low—an early version of the now common argument that perfect price discrimination can eliminate deadweight loss and thus the inefficiencies of pricing information.³⁹

IP scholarship has been deeply influenced by Demsetz's argument (and behind it, the lurking shadow of Friedrich Hayek).⁴⁰ His argument has also been influential in economics,⁴¹ but unlike in the legal literature, in economics his argument has not been treated as proof of the superior virtues of IP. Modern information economics instead continues to debate the comparative virtues of three institutional approaches: IP, financial prizes, and government contracts.⁴²

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39. *Id.* For a more recent articulation of the price discrimination point, see SCOTCHMER, *supra* note 33, at 37. In theory, if a rights holder can price discriminate perfectly, charging consumers precisely their reservation price, he can extract the entire consumer surplus and at the same time eliminate deadweight loss because he now “has an incentive to serve the whole market.” *Id.*; see also Harold Demsetz, *The Private Production of Public Goods*, 13 J.L. & ECON. 293, 296, 300–04 (1970) (offering a more extensive version of the argument).
40. See, e.g., PAUL GOLDSTEIN, *COPYRIGHT'S HIGHWAY: FROM GUTENBERG TO THE CELESTIAL JUKEBOX* 146 (rev. ed. 2003) (stating that prices “have the salutary effort [sic] of signaling consumer preference and channeling private investment in the right directions”); LANDES & POSNER, *supra* note 28, at 24 (arguing that government financing of information is inferior to IP because it “substitut[es] a governmental determination of the value of particular types of intellectual property for a market determination”); MERGES, MENELL & LEMLEY, *supra* note 16, at 18 (“[IP] rights have the advantage of limiting the government's role in allocating resources to a finite set of decentralized decisions: whether particular inventions are worthy of a fixed period of protection. The market then serves as the principle engine of progress.”); Fisher, *supra* note 28, at 178–79 (describing the role of the argument that private markets can best guide investment decisions in the IP literature); Wendy J. Gordon, *Fair Use as Market Failure: A Structural and Economic Analysis of the Betamax Case and Its Predecessors*, 82 COLUM. L. REV. 1600, 1611–12 (1982) (“Though taxation and centralized purchasing might provide a satisfactory solution for some public goods problems . . . for works of expression, the public goods problem is addressed by another method. . . . [T]he law provides a means for excluding non-purchasers. Copyright law therefore allows a market for intellectual property to function.”); Menell & Scotchmer, *supra* note 28, at 1499 (“In the context of stand-alone inventions or creations, intellectual property rewards reflect the social value of the contribution, since the profit is determined by demand.”). For a version of the Hayekian argument about private information that shows its influence here, see, for example, F.A. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519 (1945).
41. See, e.g., SCOTCHMER, *supra* note 33, at 56 (stating that one of the virtues of IP is that “[t]he reward is linked to the social value of the invention, so that firms will, to some degree, compare social value and social cost when deciding whether to invest”).
42. See Wright, *supra* note 7, at 703. The government can also conduct research itself, rather than contracting it out, although this possibility has received little focus in the economics literature. Its benefits might be understood via literature on the nature of the firm, see R.H. Coase, *The Nature*

One reason why the debate has continued is the articulation, in the economic literature, of an additional possible inefficiency associated with using the price system in the context of information—one that draws on the work of economists such as Yoram Barzel and Glenn Loury.⁴³ The problem is referred to as one of racing because it depends upon rewards being distributed through a contest structured like a race. For example, patent law awards exclusive rights to an invention to the first inventor to meet the requirements of the law. Racing is likely to be a problem when the rewards for information are high, and when the costs and risks of developing it are relatively low. The expected result will be wasted inventive effort: Too many players will chase the same reward and dissipate resources in the process.⁴⁴

The problem is akin to that elaborated in the literature on common pool resources. Assume that X amount of fish has a market value of one thousand dollars and can be caught at a cost of one hundred dollars. If companies have an equal chance of catching the fish and any company may enter, up to ten of them will be willing to race for their chance at the reward of one thousand dollars. Their competition with one another will result in wasted resources: One thousand dollars will be spent to catch fish that could have been captured for one hundred dollars. A similar problem applies to the creation of information goods. Imagine that two companies have an equal probability of creating an invention, but only the one that does so first will get the reward. If the social reward of the patent is large compared to the investment that each company must commit to enter the race, both may enter, which inefficiently duplicates costs.⁴⁵ The problem can be described more abstractly as a problem of asymmetries of information and of the difficulties in aggregating information in private markets.⁴⁶ As they make their decisions about whether to invest in a project,

of the Firm, 4 *ECONOMICA* 386 (1937), and its costs via some of the differences between governments and firms in, for example, their relationships to competition.

43. See Yoram Barzel, *Optimal Timing of Innovations*, 50 *REV. ECON. & STAT.* 348 (1968); Glenn C. Loury, *Market Structure and Innovation*, 93 *Q.J. ECON.* 395 (1979).

44. John Duffy has pointed out that in the context of a patent system, in which earlier invention also leads to earlier expiry of a patent, speeding up invention also speeds up the dedication of the invention to the public domain. See, e.g., John F. Duffy, *Rethinking the Prospect Theory of Patents*, 71 *U. CHI. L. REV.* 439, 444 (2004). But he does not argue, nor can one conclude a priori, that this benefit exceeds the cost of patent races in terms of effort duplication and of excessive invention speed.

45. SCOTCHMER, *supra* note 33, at 46.

46. See Nancy Gallini & Suzanne Scotchmer, *Intellectual Property: When Is It the Best Incentive System?*, in 2 *INNOVATION POLICY AND THE ECONOMY* 51, 57 (Adam B. Jaffe, Josh Lerner & Scott Stern eds., 2002).

firms are unlikely to know one another's cost or value estimates. Thus, they will be unable to make efficient decisions about whether to enter the race.⁴⁷ Racing may also lead research to proceed at a rate that is faster than socially optimal, again leading to waste.⁴⁸ It may be difficult to distinguish in practice between a wasteful patent race, and a race that produces worthwhile shifts in the speed or quality of invention. But insofar as racing is thought to be a risk, it can be remedied by either limiting entry or downwardly adjusting the price paid to inventors.⁴⁹

In the 1980s, Brian Wright drew on the racing literature and on the different relationships that prizes and contracts have to private information, to establish an important new account of the tradeoffs between the three main institutional approaches to information production debated in economics. He concluded that no one of these schemes has absolute efficiency advantages over the others. Each has benefits and drawbacks, and judgments between them in turn depend upon assessments of a wide variety of variables. IP and prizes, for example, both generate the risk of racing.⁵⁰ Government contracts limit the number of entrants, so they may be superior whenever racing is a major concern. That, in turn, is a function of a variety of considerations, such as the competitiveness of the market and the ease of market entry,⁵¹ the ratio of reward to cost, and the relative riskiness of the investment.⁵²

Insofar as government contracts delegate the responsibility to undertake research to a limited number of parties, they avoid the problem of racing. But,

47. *Id.*

48. See, e.g., Partha Dasgupta & Joseph Stiglitz, *Uncertainty, Industrial Structure, and the Speed of R&D*, 11 *BELL J. ECON.* 1 (1980).

49. Wright, *supra* note 7, at 694. A third source of suboptimal allocation that some identify with the price mechanism is the problem of suboptimal allocation of resources to invention, which results from the fact that innovations invariably generate spillovers that cannot be fully internalized. See, e.g., Michael Kremer, *Patent Buyouts: A Mechanism for Encouraging Innovation*, 113 *Q. J. ECON.* 1137, 1140–41 (1998). This is, however, simply the flip side of the racing problem; when returns do match social welfare, there is a risk of too much investment if multiple entrants are possible. Moreover, if inventive efforts did lead to full returns, the allocation between creative and noncreative endeavors likely would be distorted since noncreative endeavors will not yield rewards equivalent to social value if we assume that markets are reasonably competitive. See Glynn S. Lunney, Jr., *Reexamining Copyright's Incentives–Access Paradigm*, 49 *VAND. L. REV.* 483, 576–77 (1996).

50. Racing seems more likely to be a concern in patent law than in copyright law, though, because a copyright for a book, for example, does not really have the form of a prize available to whichever party writes it first. See SCOTCHMER, *supra* note 33, at 98.

51. See Eric A.A. de Laat, *Patents or Prizes: Monopolistic R&D and Asymmetric Information*, 15 *INT'L J. INDUS. ORG.* 369, 370 (1996) (noting that Wright's analysis "assumes perfect competition and free entry in the R&D process").

52. See Wright, *supra* note 7, at 703; see also Menell & Scotchmer, *supra* note 28, at 1489.

they invite another problem understood by Demsetz: the risk that the government will make poor decisions about whom to hire. IP can make better use of private information about the comparative efficiency of entrants than can government contracts—but prizes have the same advantage because individuals also self-select to compete for them.⁵³ Because ex ante contracts pay for effort rather than for results, the possibility of shirking also arises. Thus, one parameter that influences the efficiency of government contracting is the observability of effort.⁵⁴ Later work has pointed out that some of the drawbacks of government contracting can be mitigated if the government employs mechanisms to gather decentralized information about the best creator, such as auctioning off the right to the contract.⁵⁵ The problem of shirking may also be mitigated, for example, by awarding grants to communities of repeat players.⁵⁶

The most serious problem for government contracts is likewise the most serious problem for prizes: The government must determine what to pay for and how much to pay.⁵⁷ Too small a reward relative to social value will lead to too little invention; too large a reward, in turn, will lead to wasted inventive effort. On the other hand, patents only clearly have benefits over the other two systems if innovators have important information about the value of the desired invention or creation.⁵⁸ This advantage may be substantial if we assume that governments often will be less likely than private investors to know of the existence of possible creations or inventions, much less of their value.

Recent work on prize design, however, shows that the informational advantage of patents may be less substantial than once thought. The key insight is that the size of a prize need not be established ex ante. It can also be determined ex post—when there is better and more widely distributed information about value. For example, Michael Kremer has suggested an ex post patent buyout mechanism that uses an auction to elicit private information about the value of the

53. See Wright, *supra* note 7, at 703.

54. Kremer, *supra* note 49, at 1143; Wright, *supra* note 7, at 703.

55. See Gallini & Scotchmer, *supra* note 46, at 58.

56. See, e.g., SCOTCHMER, *supra* note 33, at 248–50.

57. See Gallini & Scotchmer, *supra* note 46, at 58–59. Although the conventional account does not emphasize this, it is important to recognize that IP systems have this problem too, insofar as the government must establish the length and breadth of exclusive rights. This practically sets the size of the market that will act as the inducement. I thank Lisa Larrimore Ouellette for this point.

58. See Wright, *supra* note 7, at 703. It is possible that a government with good information about costs could induce firms to reveal their information about value. See de Laat, *supra* note 51. But this level of knowledge about costs may be unlikely, and problems of verification would still exist. See Gallini & Scotchmer, *supra* note 46, at 60.

invention.⁵⁹ Steven Shavell and Tanguy Van Ypersele subsequently brought attention to the possibility that prize amounts could be set on the basis of market sales.⁶⁰ The latter model has been the subject of important recent proposals for innovative incentive mechanisms, most prominently in the areas of pharmaceutical research and music. These incentive mechanisms would reward creators according to a measure of the uptake of their creations, and at the same time, would address deadweight loss by suspending price in lieu of a prize.⁶¹ While these models would require funding, presumably through taxation (which also generates deadweight loss), price is equivalent to a tax on a single market, “which is generally thought to impose greater deadweight loss than the broad-based taxation that generates general revenue.”⁶²

The main drawback with such models is likely the expense of administration, which increases with prize complexity.⁶³ But IP, prizes, and government contracts all have costs of implementation, so the matter is really one of comparative cost. Commentators have also emphasized the potential problem of capture when innovation is induced through prizes and contracts.⁶⁴ But insofar as IP systems generate rents, they also attract rent seeking—as they clearly have in recent years.⁶⁵ Commentators have additionally worried that prizes carry a risk that the government may renege on its promise to pay after costs have been sunk.⁶⁶ This problem is minimized with contracts because contracts pay up front. But IP mechanisms may have their own problems of uncertainty because, for example,

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59. Kremer, *supra* note 49, at 1146–48. In order to increase the accuracy of the information elicited, in some small percentage of cases the highest bidder would be awarded the invention.
 60. Shavell & van Ypersele, *supra* note 19, at 542. The authors suggest that optional prizes will be superior to the patent system alone, but they also allow that mandatory prizes may be preferable to the extent that we expect large deadweight loss problems. *See id.* at 540.
 61. *See* FISHER, *supra* note 18, at 202; James Love & Tim Hubbard, *Prizes for Innovation in New Medicines and Vaccines*, 18 *ANNALS HEALTH L.* 155, 159–60 (2009).
 62. Gallini & Scotchmer, *supra* note 46, at 54; *see also* Joseph E. Stiglitz, *Knowledge as a Global Public Good*, in *GLOBAL PUBLIC GOODS: INTERNATIONAL COOPERATION IN THE 21ST CENTURY* 308, 312–13 (Inge Kaul, Isabelle Grunberg & Marc. A. Stern eds., 1999).
 63. *See* Gallini & Scotchmer, *supra* note 46, at 56. If private investment markets for innovation work poorly, these kinds of prizes may also have a disadvantage as compared to government contracts because they assume that private financing will drive early stages of research in advance of the prize.
 64. *See* Kremer, *supra* note 49, at 1143.
 65. *See, e.g.*, LANDES & POSNER, *supra* note 28, at 220; William W. Fisher & Talha Syed, *A Prize System as a Partial Solution to the Health Crisis in the Developing World* 14–15 (unpublished draft), available at <http://www.tfisher.org/Prizes5.2.pdf>.
 66. These variables are central to Brian Wright’s account, and they have been further developed in subsequent literature. *See* Wright, *supra* note 7, at 703–04; *see also* SCOTCHMER, *supra* note 33, at 31–59; Stephen M. Maurer & Suzanne Scotchmer, *Procuring Knowledge*, in 15 *ADVANCES IN THE STUDY OF ENTREPRENEURSHIP, INNOVATION & ECONOMIC GROWTH* 1 (Gary D. Libecap ed., 2004).

the value of investments may be subject to stochastic, black-swan events.⁶⁷ IP systems, like prize systems, are also subject to ex post changes that can diminish the benefits that were expected ex ante, such as compulsory licensing schemes or even simple shifts to doctrinal rules about the scope of protection or remedies.

As described, then, the post-Demsetzian economics literature has proliferated a series of parameters that influence the comparative efficiency of these different systems, including, most importantly, the competitiveness of the research environment; the cost of research as compared to the value of the reward; the riskiness of research or creativity; the importance of private information about the cost or value of creation; the costs of overseeing effort in the context of contracts; and the comparative costs of rent seeking, uncertainty, and the administration of each system. The information economics literature thus offers no general endorsement of any mechanism, much less a clear endorsement of IP.

A more recent focus in the legal literature on transaction costs, anti-commons problems, and externalities has amplified the set of concerns expressed in the foundational economic literature about the efficiency of the price mechanism. If IP is to do a good job of aligning private reward and social value, transacting between those who created the good and those who benefit from it must be fairly easy. But transactions over information instead are likely to be particularly costly. For example, Brett Frischmann and Mark Lemley have pointed to the greater uncertainty about the bounds of information goods (for example, what a patent covers) and the bounds of associated legal entitlements (for example, what fair use permits).⁶⁸ Robert Merges has argued that strategic bargaining problems may be especially common in the context of patent law because advances in technology are particularly hard to value.⁶⁹ Christopher Buccafusco and Christopher Sprigman have used experiments to show that the endowment effect operates in the context of creative works, concluding that

67. See, e.g., NASSIM NICHOLAS TALEB, *THE BLACK SWAN: THE IMPACT OF THE HIGHLY IMPROBABLE* 28–29 (2007) (arguing that information markets are particularly prone to fat-tails and black-swan effects).

68. Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 274–75 (2007). Mark Lemley also points out that IP rights can be assigned partially, and that they may require especially expensive monitoring to enforce. Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1053 (1997); cf. Gordon, *supra* note 40, at 1628 (discussing the difficulty of identifying many uses of copyrighted works).

69. Robert Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 75, 83–84 (1994).

“private transactions in creative goods may face significant transaction costs arising from cognitive biases.”⁷⁰

Moreover, while Demsetz and many after him have argued that low transaction costs, and in particular perfect price discrimination, can diminish or even eliminate the deadweight loss associated with pricing information, Yochai Benkler has shown that perfect price discrimination is not expected even in theory because it is costly, and because it becomes more costly as it becomes more perfect.⁷¹ At best, we can expect imperfect price discrimination, meaning that the problem of deadweight loss that is associated with price in the context of information is persistent.⁷² To illustrate the potential difficulties of price discrimination, consider the scientist who values the use of a particular research tool at one thousand dollars, or the patient who values the use of a diagnostic test at one thousand dollars. Assume that the cost of the tangible aspect of this tool or test is negligible, so that we can focus on the cost of the information good itself. If the price charged for each use of the tool or test is two thousand dollars, these individuals will forego the use, resulting in deadweight loss: the lost social utility represented by the difference between the value of this information good to these users and its marginal cost of zero. If the firm could determine and charge each party their precise willingness to pay, the inefficiency would disappear (although with distributive implications because the surplus goes into the pocket of the producer). But it will be costly and perhaps impossible to gather the information needed to price discriminate in this way and to prevent higher-valuing consumers from taking advantage of the prices paid by lower-valuing consumers. So price discrimination will invariably be imperfect at best.

Persistent externalities may also be especially common where information is concerned. Economists have long predicted that the price mechanism will

70. Christopher Buccafusco & Christopher Sprigman, *Valuing Intellectual Property: An Experiment*, 96 CORNELL L. REV. 1, 4 (2010). The experiments in question did not indicate that the endowment effect was larger with respect to created works than to other forms of property, but the authors hypothesize that this is so and claim to have demonstrated it in follow-up experiments. *Id.* at 29.

71. See Yochai Benkler, *An Unburied View of Private Ordering in Information Transactions*, 53 VAND. L. REV. 2063, 2072 (2000) (arguing that because price discriminators must, for example, determine the appropriate price and prevent arbitrage, “[t]he product is never sold to each and every consumer at his or her valuation, but is instead sold in categories the size of which is determined by the costs of identifying and implementing price discrimination for that group of consumers”).

72. See *id.* at 2075–76; see also SCOTCHMER, *supra* note 33, at 37 (noting that price discrimination is “hard to implement” because of problems like arbitrage). Suzanne Scotchmer’s point is the practical version of Benkler’s objection: Because, in practice, perfect price discrimination is difficult (that is, expensive), monopolists will not undertake it. Price discrimination, of course, also has distributional effects, which may be relevant to the considerations in Part II, *infra*.

produce insufficient investment in basic science because such efforts are relatively risky and distant from market applications.⁷³ Legal commentators have more recently brought attention to the externality problem in the context of expressive works. For example, access to copyrighted works can help develop “human capital” as well as educate and socialize individuals—benefits that are unlikely to be reflected in the price an individual party to a transaction is willing to pay for a good.⁷⁴ The problem of externalities is likely to be particularly acute in the context of information because future innovators build on existing information goods.⁷⁵ Transaction cost and externality concerns are important components of the recent debates about the potential for an anticommons in information goods.⁷⁶ If information is subject to especially high transaction costs, then in this context, price is also particularly problematic.

More recently, legal scholars have also brought attention to the prevalence of another mode of producing information goods that exists alongside IP and government procurement: commons-based production. This literature is in its infancy and has yet to produce a single, universally-accepted definition of a commons-based approach.⁷⁷ A definition can be approximated by considering

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73. See Richard R. Nelson, *The Simple Economics of Basic Scientific Research*, 67 J. POL. ECON. 297, 301 (1959).
74. Brett M. Frischmann, *Evaluating the Demsetzian Trend in Copyright Law*, 3 REV. L. & ECON. 649, 660 (2007). For further arguments about the disconnect between social and private benefits in the context of information, see LAWRENCE LESSIG, REMIX: MAKING ART AND COMMERCE THRIVE IN THE HYBRID ECONOMY 81–82 (2008); C. Edwin Baker, *Giving the Audience What It Wants*, 58 OHIO ST. L.J. 311, 326 (1997); Gordon, *supra* note 40, at 1630.
75. Frischmann & Lemley, *supra* note 68, at 268–69; see also Brett M. Frischmann, *An Economic Theory of Infrastructure and Commons Management*, 89 MINN. L. REV. 917 (2005); Menell & Scotchmer, *supra* note 28, at 1499 (noting the problem of cumulative innovation, in which “the most important social benefit of an innovation may be the boost given to later innovators, and this may make the benefits harder to appropriate”).
76. See, e.g., Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCIENCE 698 (1998). For the debates about the extent to which anticommons effects exist today, see, for example, Zhen Lei, Rakhi Juneja & Brian Wright, *Patents Versus Patenting: Implications of Intellectual Property Protection for Biological Research*, 27 NATURE BIOTECHNOLOGY 36 (2009); Fiona Murray & Scott Stern, *Do Formal Intellectual Property Rights Hinder the Free Flow of Scientific Knowledge? An Empirical Test of the Anti-Commons Hypothesis*, 63 J. ECON. BEHAVIOR & ORG. 648 (2007); John P. Walsh, Ashish Arora & Wesley M. Cohen, *Effects of Research Tool Patents and Licensing on Biomedical Innovation*, in PATENTS IN THE KNOWLEDGE-BASED ECONOMY 285 (Wesley M. Cohen & Stephen A. Merrill eds., 2003); Fiona Murray et al., *Of Mice and Academics: Examining the Effect of Openness on Innovation* (NBER Working Paper No. 14819, 2009), available at <http://www.nber.org/papers/w14819>; Heidi L. Williams, *Intellectual Property Rights and Innovation: Evidence From the Human Genome* (NBER Working Paper No. 16213, 2010), available at <http://www.nber.org/papers/w16213>.
77. See, e.g., Madison, Frischmann & Strandburg, *supra* note 20 (setting out an approach for studying what they call the “constructed cultural commons,” but without specifically defining the term);

the family resemblance between the examples frequently cited by those who invoke the knowledge commons—examples such as free- and open-source software, Wikipedia, university-based science, and the informal cultural production exemplified by multiplayer online games and jam band fan communities.⁷⁸

Drawing on these examples and on the nascent literature, we can treat the commons as a distinct institutional approach to scientific and cultural production that can be distinguished from property approaches along three parameters: (1) rules of access, (2) sources of support, and (3) modes of governance. Prototypically, IP systems are based on norms of exclusion, support the development of information by revenues associated with its sale, and concentrate governance into a single decisionmaker (who may then delegate to others). In contrast, a commons-based approach is characterized by the voluntary sharing of information assets, either without preconditions or with conditions that apply reciprocally to all; by the fact that it sustains the production of information by means other than price (for example, through intrinsically motivated contributions of effort or resources from creators, or through public support); and by disaggregated governance, with groups rather than individuals being entitled to contribute to decisions about resource use and about the norms governing the community.

Commons-based production is an important part of our system of information production, perhaps especially today.⁷⁹ Advances in computing technology and the vast digital networks that have followed have lowered the cost of participating as a producer, not merely as a consumer, of information online. As is evident to anyone who has spent time on YouTube, MySpace, or popular websites like awkwardfamilyphotos.com, the internet today plays host to a “newly invigorated folk culture—created by and among individuals and groups,

BENKLER, *supra* note 18, at 61–62 (defining a commons as a domain in which “no single person has exclusive control over the use and disposition of any particular resource in the commons” and stating that “commons based” means that “the inputs and outputs of the process are shared, freely or conditionally, in an institutional form that leaves them equally available for all”). Benkler’s definition incorporates what many would call the “public domain” into the commons, while others distinguish the two, defining the commons as a stunted domain of active and communal governance, and defining the public domain as more simply free to exploitation from all comers. See Amy Kapczynski, *Access to Knowledge: A Conceptual Genealogy*, in *ACCESS TO KNOWLEDGE IN THE AGE OF INTELLECTUAL PROPERTY* 17, 32 (Gaëlle Krikorian & Amy Kapczynski eds., 2010).

78. See, e.g., BENKLER *supra* note 18, at 63–67, 70–74 (discussing free- and open-source software, Wikipedia, and multiplayer online games); Madison, Frischmann & Strandburg, *supra* note 20, at 661–63, 690 (discussing the examples of open-source software, Wikipedia, and jam band fan communities—for example, those that followed the Grateful Dead).

79. BENKLER, *supra* note 18, at 35.

rather than by professionals for passive consumption.⁸⁰ Perhaps more surprisingly, the digital networked age has also produced sophisticated, industrial-scale commons-based production, as exemplified by the domain of free- and open-source software.⁸¹

Moreover, commons-based production may have efficiency advantages over the alternatives in at least some circumstances. Commons-based production does not rely on price. That means it avoids the deadweight loss problem associated with exclusive rights, so it will be superior to IP except when it is substantially less efficient in an allocative sense.⁸² Benkler makes the case that commons-based production may be more efficient than market-based production at allocating both creative effort and excess computational capacity, largely because of the diminished transaction costs associated with allowing people to self-select into projects, as well as the avoidance of fine-grained pricing and evaluation of inputs and outputs.⁸³

Commons-based production can at times rival price and government procurement in efficiency terms. This is not to say that it is definitively more efficient than the alternatives. Perhaps the most salient potential efficiency problem with the commons as a mode of production is the possibility that it will underproduce information goods as compared to what is optimal. This is, in effect, a Demsetzian worry: Commons-based production generates substantial external benefits that are not internalized by producers.⁸⁴ It is therefore quite possible that if we were to rely solely on the commons to produce our music, for example, we would allocate too few resources to the creation of music. But to know whether this is the case, we would have to know what the optimal allocation would be.⁸⁵ While a Demsetzian might suggest that price mechanisms will lead to optimal investment in information production, it is not obviously the case, for example,

80. *Id.* at 466; see also LESSIG, *supra* note 74. For evolving attempts to capture and filter some of the memes emerging from this domain, see, for example, KNOW YOUR MEME, <http://knowyourmeme.com> (last visited Feb. 27, 2012).

81. See Yochai Benkler, *Intellectual Property and the Organization of Information Production*, 22 INT'L REV. L. & ECON. 81, 85 (2002); Stephen M. Maurer & Suzanne Scotchmer, *Open Source Software: The New Intellectual Property Paradigm*, in HANDBOOK OF ECONOMICS AND INFORMATION SYSTEMS 285 (Terrence Hendershott ed., 2006).

82. See BENKLER, *supra* note 18, at 107.

83. *Id.* at 115.

84. Cf. Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 348 (1967).

85. See George L. Priest, *What Economists Can Tell Lawyers About Intellectual Property*, 8 RES. L. & ECON. 19, 23 (1986).

because of the problems of transaction costs, externalities, and racing.⁸⁶ Additionally, the price mechanism can distort allocation away from the optimum if it provides more than competitive returns in an environment in which normal commodities only produce competitive returns.⁸⁷

In sum, there are many modes of producing information. As old debates and recent developments in the field of information economics show, no general case can be made that the price mechanism is the most efficient means of producing and disseminating information. The seriousness of transaction cost problems in the context of information, as well as the existence of commons-based strategies of information production, provide further challenges to any assumption that price is the best way to efficiently produce information goods. Whether price, and thus IP, will serve as a better or worse form of inducement than will the many other possibilities depends on a multitude of factors that, at a minimum, must be assessed in context, and that may be difficult to assess with a high degree of confidence.

Paradoxically, then, although IP law is typically defended with reference to values of efficiency, information economics teaches us that there is no reason to treat IP as clearly more efficient than the alternatives. This is readily apparent if we begin not from an internalist perspective, but rather from an externalist perspective and from the broader frame of reference that it permits.

II. EXTERNALISM, PRICE, AND DISTRIBUTIVE JUSTICE

Although IP scholars typically reason in the idiom of efficiency, a small but growing number of them have begun to suggest that distributive justice values should also influence information policy. But almost invariably, they do so from an internalist perspective. An externalist perspective gives far more scope to distributive concerns. It also allows us to see new dimensions of the

86. These are not the only objections to this argument. Also important are possible dynamics of crowding out of inventive effort when payment is deployed. *See infra* note 198. The distributive problems of markets are also relevant here because they suggest that price may systematically diverge from social welfare when the poor are limited not by their willingness but rather by their ability to pay. *See infra* Part II.

87. *See* Calandrillo, *supra* note 18, at 330; Lunney, *supra* note 49, at 577 (“If copyright expands its protection too much in an attempt to ‘award’ an author the ‘value’ of her work when the rest of our economy operates on a ‘cost’ basis, it will generate both inefficiency and unfairness.”). Moreover, if the IP mechanisms used to harness the price mechanism are also incomplete, in the sense that they do not encompass all forms of valuable information, this will yield another kind of allocative distortion. *See* Amy Kapczynski & Talha Syed, Nonexcludability and the Limits of Patents (Feb. 10, 2012) (unpublished manuscript) (on file with author).

problem that IP can pose for distributive justice, and the concomitant potential of government procurement and commons-based approaches from a distributive perspective.⁸⁸

Molly Van Houweling's analysis of the implications of copyright law's design for poor creators is one of the best developed distributive justice arguments in IP scholarship, and it offers a good example of the internalist approach.⁸⁹ She is concerned with the distribution of creative opportunity, and she therefore focuses on the burdens that copyright law may impose upon creators who have little money.⁹⁰ She argues that the problems copyright may pose from a distributive perspective have become more acute as new digital technologies have democratized creation and have made amateurs more visible to those who want to extract revenues from the copyrighted works that amateurs may draw upon.⁹¹ She then proposes a shift in copyright law so that those who are not profiting from their creations could qualify more easily for the fair use defense.⁹²

Another substantial attempt to introduce distributive values to IP, this time in the context of international IP law, comes from Margaret Chon. Her analysis also proceeds from an internalist perspective, focusing on the constraints that international treaties impose on the distribution of human capabilities around the world, as well as offering policy solutions internal to that law (for example, the

88. Others have called attention to parts of this proverbial elephant, and I draw on their work below. Benkler has argued for the potential distributive benefits of the commons. See *infra* text accompanying note 114. Fisher's argument that a prize system is structurally better suited than the copyright system to promote semiotic democracy seems to embody a distributive concern, and it depends on insights about the nature of exclusive rights systems that are similar to those discussed below. See FISHER, *supra* note 18, at 28–31. Fisher and Syed have argued that prizes are better suited than patents to address the problem of neglected diseases in developing countries, apparently with distributive concerns in mind. See Fisher & Syed, *supra* note 65, at 9. Although not a legal scholar, James Love's work in the area of neglected diseases has distributive concerns at its core and has been important to the thinking of many legal scholars on distributive questions in IP, including myself. For examples of his work, see James Love, *Prizes to Stimulate Innovation*, KNOWLEDGE ECOLOGY INT'L (Aug. 12, 2009, 10:12 AM), <http://keionline.org/prizes>.

89. See Molly Shaffer Van Houweling, *Distributive Values in Copyright*, 83 TEX. L. REV. 1535 (2005).

90. *Id.* at 1537.

91. *Id.* at 1539.

92. *Id.* at 1567. Fair use doctrine permits unauthorized copying of some or all of a copyrighted work, and depends on considerations such as whether the copying is transformative and the effect that the copying might have on the market for the original work. For insightful analysis of how fair use is applied by courts, see Barton Beebe, *An Empirical Study of U.S. Copyright Fair Use Opinions, 1978–2005*, 156 U. PA. L. REV. 549 (2008); Pamela Samuelson, *Unbundling Fair Uses*, 77 FORDHAM L. REV. 2537 (2009).

expansion of the exceptions and limitations in IP treaties).⁹³ The common rejoinder to such proposals is that increasing flexibilities in international law will undermine incentives to innovate.⁹⁴ To this, Chon says that “equality tilts the balance towards static efficiency and away from dynamic efficiency arguments, at least for resource-poor areas of the world.”⁹⁵ As this statement exemplifies, from an internalist perspective, those concerned with distributive justice appear to be caught in a paradox that requires them to choose between access to information and the creation of information. This is in fact not strictly so, but it is the case that for debates about information policy, taking an internalist viewpoint truncates the implications of a distributive justice perspective.

The literature on distributive justice in the IP field is meager enough that it is worth beginning by clarifying just what such an approach implies. Theories of distributive justice address the just allocation of resources in a society.⁹⁶ While theorists of distributive justice rarely make reference to information itself as a resource of concern,⁹⁷ it is without doubt that information is of substantial importance to distributive justice today. For example, textbooks, newspapers, and medicines are all informational goods (by which I mean goods whose value is in important part constituted by their information content). Art, literature, and music are also encompassed under the broad rubric of information, and they are of clear importance to community and political life.

93. See, e.g., Chon, *supra* note 23, at 2907. Chon draws upon the capabilities framework of Amartya Sen, which is described later in this Part. Other notable arguments in the distributive justice vein include one offered by Syed, who focuses on the temporal problem that IP systems will generate innovations for which the poor must wait to access. See Talba Syed's Remarks at the A2K4 Conference on Access to Knowledge and Human Rights at Yale Law School (Feb. 12, 2010, 11:06 AM), <http://www.ustream.tv/recorded/4670860>. But this, too, remains within an internalist frame.

94. See, e.g., Richard A. Epstein & F. Scott Kieff, *Questioning the Frequency and Wisdom of Compulsory Licensing for Pharmaceutical Patents*, 78 U. CHI. L. REV. 71, 80 (2011); Alan O. Sykes, *TRIPS, Pharmaceuticals, Developing Countries, and the Doha "Solution"*, 3 CHI. J. INT'L L. 47, 49 (2002).

95. Chon, *supra* note 23, at 2891.

96. See, e.g., G.A. Cohen, *Where the Action Is: On the Site of Distributive Justice*, 26 PHIL. & PUB. AFF. 3, 3 (1997) (stating that distributive justice refers to the “just distribution of benefits and burdens in society”); see also Serge-Christophe Kolm, *Distributive Justice*, in A COMPANION TO CONTEMPORARY POLITICAL PHILOSOPHY 438, 438–39 (Robert E. Goodin & Philip Pettit eds., 1995) (defining distributive justice and noting that theories of distributive justice differ according to the “ethically relevant variables” that they deem to be important to the just allocation of resources).

97. There are exceptions to this statement, although, to my knowledge, references to information itself as a resource of concern tend to be episodic. Sen, for example, specifically cites “the reform of patent laws to make well-established and cheaply producible drugs more easily available to needy but poor patients (for example, those who are suffering from AIDS)” as a question of justice that a capabilities approach can address, but he does not explain exactly how the capabilities approach applies to this context. AMARTYA SEN, *THE IDEA OF JUSTICE* 24–25 (2009).

The intensity of informational goods' importance to well-being is perhaps easiest to illustrate in the domain of health. Since the 1950s, global average life expectancy has increased by almost twenty years.⁹⁸ According to the World Health Organization, these gains are largely attributable to "[t]he application of knowledge from health research"⁹⁹ to improve, for example, sanitation and access to vaccines. These gains are, of course, unevenly distributed, and up to ten million lives per year could be saved simply by providing better access to existing informational goods such as medicines and vaccines.¹⁰⁰ More research aimed at developing new vaccines and medicines for diseases that particularly affect the poor in developing countries could save many more lives still.¹⁰¹

IP is problematic, from a distributive justice perspective, for reasons that in some sense are well known: IP rations access via the price mechanism, and so it distributes resources in a way that is sensitive to the background allocation of resources. Yet the background allocation of resources may be unjust.¹⁰² This is the implicit basis of the internalist arguments made by both Chon and Van Houweling, for example: Copyright and patent law both disadvantage the virtuous poor because they make price a ticket for entry. Conversely, the poor will benefit disproportionately, in terms of access, when information goods are available without price or at a low price.

This basic tension between price and access to goods that are important to justice is familiar, and it is not limited to the domain of information. The usual response from those who favor price is that efficiency should be maximized first, and that distributive issues should be attended to thereafter.¹⁰³ The argument

98. WORLD HEALTH ORG., THE WORLD HEALTH REPORT 2003: SHAPING THE FUTURE 1 (2003).

99. WORLD HEALTH ORG., WORLD REPORT ON KNOWLEDGE FOR BETTER HEALTH: STRENGTHENING HEALTH SYSTEMS 1 (2004).

100. See WORLD HEALTH ORG., EQUITABLE ACCESS TO ESSENTIAL MEDICINES: A FRAMEWORK FOR COLLECTIVE ACTION 1 (2004) (concluding that ten million lives could be saved each year by increasing access to existing medicines).

101. See, e.g., William W. Fisher & Talha Syed, *Global Justice in Healthcare: Developing Drugs for the Developing World*, 40 U.C. DAVIS L. REV. 581, 612 (2007) (arguing that expenditures for research on neglected diseases should be increased from the current 2 to 3 percent of global medical research expenditures to reflect the fact that neglected diseases account for 16.4 percent of the global disease burden).

102. Many theorists of distributive justice make this point, of course. For one argument that an initial just allocation of minimum resources is a condition of distributive justice in the liberal state, see BRUCE ACKERMAN & ANNE ALSTOTT, THE STAKEHOLDER SOCIETY (1999).

103. For the foundational elaboration of this argument, see Louis Kaplow & Steven Shavell, *Why the Legal System Is Less Efficient Than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667, 674–75 (1994).

has intuitive appeal; if one wants to redistribute resources, one must have resources to redistribute. This argument is not without its detractors,¹⁰⁴ and in particular it applies poorly beyond the nation-state, where no post hoc tax and transfer mechanisms exist. But whatever the general merits of this argument may be, it has little purchase in the context of information goods. As described above, in the context of information, the effects of price on efficiency are uncertain. If we can get the same or similar results in terms of efficiency, but intrinsically better distributive results (avoiding, for example, both the cost and the political uncertainty of post hoc redistribution), then there is no reason to accept the cost (in distributive terms) that price requires.

The problem with distributive justice arguments that favor IP exceptions is less this familiar argument that we should prioritize efficiency than it is the apparently self-defeating nature of these exceptions. Because IP both helps to create and constrains access to the goods that we want, we have the appearance of a paradox: If we make IP more flexible so that the poor have more access, the poor will also have less access—because the information that we want the poor to access is less likely to be created. This dilemma causes Chon, for example, to assert that static concerns (namely, access today) must be prioritized over dynamic ones (namely, future scientific and cultural production).

There is in fact no true paradox here, because sometimes we can give the poor access to information goods without substantially undermining innovation. This is best illustrated by arguments developed in the transnational context showing that developing countries are best off if they make liberal use of their right under international IP law to override patents on medicines.¹⁰⁵ While this move reduces returns to innovators, developing countries make up a very small portion of innovator markets; all of Africa, for example, makes up just

104. See, e.g., Jules L. Coleman, *The Rational Choice Approach to Legal Rules*, 65 CHL-KENT L. REV. 177, 179 (1989); Christine Jolls, *Behavioral Economics Analysis of Redistributive Legal Rules*, 51 VAND. L. REV. 1653 (1998); Duncan Kennedy, *Law-and-Economics From the Perspective of Critical Legal Studies*, in 2 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 465, 470–71 (1998); Duncan Kennedy, *Cost-Benefit Analysis of Entitlement Problems: A Critique*, 33 STAN. L. REV. 387, 401 (1981); Richard S. Markovits, *On the Relevance of Economic Efficiency Conclusions*, 29 FLA. ST. U. L. REV. 1, 37–40 (2001).

105. See, e.g., Agreement on Trade-Related Aspects of Intellectual Property Rights art. 31, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299, 333; World Trade Organization, Ministerial Declaration of 14 November 2001, WT/MIN(01)/DEC/2, 41 I.L.M. 755 (2002).

1 percent of the global market for innovator pharmaceutical companies.¹⁰⁶ Even when considering all developing countries together and looking at their share of gross domestic product, rather than looking at the existing state of pharmaceutical markets (which are affected by patent regimes), the marginal incentive that could be created by market demand in these jurisdictions is relatively small, while the barrier to access that patents may pose to local consumers is large.¹⁰⁷ It is thus possible to make exceptions to IP law that will disproportionately benefit the poor, despite the potential dynamic effects. The use of so-called compulsory licenses in poor countries to promote access to medicines represents precisely this kind of move.

This point can be generalized: Often the poor (and especially the very poor) are so poor that they make up very little of an expected market for an innovation. Giving them access to goods by exempting them from exclusion rights can thus yield more in access than it would compromise in terms of innovation. Even from an efficiency perspective, and certainly from a distributive perspective, such users should ride for free if the scheme can be administered with reasonable accuracy and without excessive expense.¹⁰⁸

But the free-riding strategy has clear limitations. It may be difficult or costly to identify the poor. And, at some point, access for the poor will undercut incentives substantially enough to undermine incentives to generate information. Again, we can illustrate with an example in the medicines context. It is no accident that the global access to medicines campaign and its focus on addressing patent barriers to medicines arose out of the HIV/AIDS movement. A large enough community of people living with HIV in wealthy countries existed to attract investment into new medicines to treat HIV. No similar interest exists

106. WORLD HEALTH ORG., COMM'N ON INTELLECTUAL PROP. RIGHTS, INNOVATION AND PUB. HEALTH, PUBLIC HEALTH, INNOVATION AND INTELLECTUAL PROPERTY RIGHTS 15 tbl. 1.4 (2006) (2005 data provided by IMS health).

107. Frederick Scherer shows that if extending patents to all low-income nations increased rents by these nations' share of global gross domestic product (20 percent), the innovative effect would be far less than what would be required to offset the projected deadweight loss. F.M. Scherer, *A Note on Global Welfare in Pharmaceutical Patenting*, 27 *WORLD ECON.* 1127, 1128–29 (2004).

108. The main costs to such a system would be the cost of accurately identifying the poor and the risk of arbitrage. But implementing a norm in favor of free riding by the poor might not be as expensive or difficult as it might seem to be. Reasonably effective and moderately leaky ways to segment rich and poor markets may exist, including targeting institutions that disproportionately serve the poor (such as public schools and public libraries in low-income areas), linking the benefit of free riding to existing means-testing schemes (such as federal student assistance or Medicaid), or using national borders as a rough measure of poverty. We could also imagine less centralized schemes that give information industries tax incentives or that impose regulatory requirements to encourage industry to identify and serve low-income users themselves.

in developing treatments for conditions such as extensively drug-resistant tuberculosis (TB)—the largest impact of which is felt in South Africa.¹⁰⁹ No patent exception can give patients with this form of TB better access to simple and fast-acting medicines, because such medicines do not exist.

Fundamentally, the point is this: From an internalist perspective, it is possible to locate areas in which exceptions to IP law will yield distributive advantages because they will give the poor much more access and will do little to undermine innovation. But whether this is so will be a function of the state of the relevant markets, and it will be orthogonal to the importance of the issue from a distributive justice perspective. From an external perspective, it becomes clear that while such exceptions may not undermine information production, they can also do little to support it.

In other words, using IP to generate innovation will undersupply not just access for the poor but also production for the poor. Yet distributive justice plausibly demands not only fair distribution of information goods but also equitable production of information goods.¹¹⁰ Suspending price alone can help to achieve fairer distribution but not equitable production. The same pattern will be reproduced by all distributive exemptions in IP law whether they come under the guise of fair use in the copyright context, the research exemption in patent law, or exceptions that deliberately target the poor. For example, if justice demands that we allocate equal or similar resources to the development of medical treatments for both rich and poor people, then using price to drive production will misfire: Under conditions of limited ability to pay, price will signal that the lives of the wealthy are more important than are the lives of the poor.

The problem will appear to be the most acute when the rich and the poor have different information needs, because here the information goods that the

109. See Sheela Shenoi et al., *Multidrug-Resistant and Extensively Drug-Resistant Tuberculosis: Consequences for the Global HIV Community*, 22 *CURRENT OPINIONS INFECTIOUS DISEASES* 11, 16 n.7 (2009); *Why New TB Drugs? MDR-TB, XDR-TB*, TB ALLIANCE, <http://www.tballiance.org/why/mdr-xdr.php> (last visited Feb. 27, 2012). Because of the very limited ability of the poor in developing countries to pay, very few medicines are developed for diseases that particularly affect them. For example, a recent study revealed that only 1 percent of medications introduced between 1975 and 1999 targeted tuberculosis and tropical diseases. Patrice Trouiller et al., *Drug Development for Neglected Diseases: A Deficient Market and a Public-Health Policy Failure*, 359 *LANCET* 2188, 2189–90 (2002).

110. This is not to discount possible arguments that we should give some kind of priority to access to existing information, even at the expense of future production. Such arguments invoke difficult questions of interpersonal and intergenerational justice, which are beyond the scope of this project. But it is certainly plausible that the production of information is as much an issue of distributive justice as is access to existing information, which is all that I mean to suggest here.

poor need will not be developed at all. This is an evident problem in health, in which the global poor disproportionately suffer from communicable diseases that have little or no impact in the global North.¹¹¹ But it could also be an issue in the cultural domain if, for example, the poor have needs for distinct educational goods or political literatures.¹¹² There is also a less visible cost even in those areas where the rich and the poor share a need, such as in the area of medicines for noncommunicable diseases. There, relevant information may be produced (say, medicines or techniques to reduce blood pressure), but produced more slowly or in a smaller supply than it would be if the poor had the same ability as do the rich to make their demands felt in the marketplace.¹¹³

Internalism sets a trap for those concerned with distributive justice in information policy, requiring the distributive impulse to stay within narrow bounds or to become self-defeating. An externalist approach allows us to look more broadly and to see that commons-based and government procurement mechanisms may have constitutive advantages over IP from a distributive perspective.

As Benkler has argued with regard to the commons, justice provides an argument for organizing “a substantial component of our communications and information environment as a commons, in which nonmarket production can take on a more important role.”¹¹⁴ This is because the commons may be as efficient as the market at producing information goods (such as encyclopedias),¹¹⁵ and because it seems to have inherent distributive advantages. It will have allocative advantages for the poor because goods produced in the commons

111. This point is well made in Fisher & Syed, *supra* note 65, at 8–10.

112. One can imagine a range of reasons why this might be so. For example, the poor might have educational disadvantages that require tailored informational products, or they might have especially acute needs for information about the distribution of wealth or the functioning of the social welfare state. The poor might also have a special interest in the production of class analysis about, for example, the structure of education or the possibilities of political mobilization. See, e.g., PAULO FREIRE, *PEDAGOGY OF THE OPPRESSED* (Myra Bergman Ramos trans., Continuum Pub. Co. 1990) (1968); FRANCES FOX PIVEN & RICHARD A. CLOWARD, *POOR PEOPLE'S MOVEMENTS: WHY THEY SUCCEED, HOW THEY FAIL* (1979).

113. This does not contradict the internalist point made earlier, that sometimes the poor have more to gain in access than they have to lose in innovation. Precisely because the poor do not have the same ability to pay as the rich, large numbers of the global poor can be given access to, say, HIV medicines, without substantially undermining the potential private market for treatments for HIV.

114. Yochai Benkler, *Freedom in the Commons: Towards a Political Economy of Information*, 52 DUKE L.J. 1245, 1269 (2003); see also BENKLER, *supra* note 18, at 303–06 (arguing, in relatively brief form, that distributive values should lead us to sometimes prefer commons-based schemes of information protection).

115. Benkler, *supra* note 114, at 1270; cf. Jim Giles, *Internet Encyclopaedias Go Head to Head*, 438 NATURE 900 (2005) (finding that peer reviewers identified almost as many errors in science entries in the *Encyclopedia Britannica* as they identified in Wikipedia).

are made available freely to others. It may also have relative advantages with respect to dynamic production because it allocates and produces resources via signals that are not closely tied to existing distributions of wealth.¹¹⁶

Open and collaborative systems also require resource inputs, but they mobilize these resources in a different fashion than does the IP approach. Some such systems, like Wikipedia or Seti@home, are sustained by voluntary contributions of time or resources, and are indirectly subsidized by income that such participants glean from elsewhere in their lives.¹¹⁷ Others, such as open-source software projects that emerge from universities, are sustained by salaries paid by the public.¹¹⁸ Because these motivations are not systematically related to consumers' willingness and ability to pay, we may expect them to produce information in a way that is more aligned with what distributive justice requires. I say "may" because whether this will be so depends on what in fact motivates such collaborative projects—a subject about which there is debate.¹¹⁹ If, for example, volunteer-based projects like Wikipedia are motivated by ingroup solidarity, they may do little to provide information goods needed particularly by the poor insofar as the poor are less likely to have the time and resources to participate actively in the communities that generate these goods. If these volunteer-based projects are motivated by attempts to benefit from reputational advantages, then their dynamic implications in distributive terms are still less clear. Examples of successful open and collaborative innovation projects are also somewhat limited. It may be possible to create a volunteer-driven encyclopedia online, but more difficult to develop new medicines in peer-to-peer fashion.

In distributive terms, the most promising of the alternatives or supplements to the price mechanism is the approach of government procurement. Government-sponsored prizes and government contracting facilitate access for

116. Benkler, *supra* note 114, at 1271.

117. For a description of Seti@home, see BENKLER, *supra* note 18, at 81–83.

118. See generally STEVEN WEBER, THE SUCCESS OF OPEN SOURCE (2004) (providing a history of the open-source software movement).

119. Compare BENKLER, *supra* note 18, at 92–127 (arguing that collaborative projects arise from networked communities whose motivations often fall outside of rational economic behaviors), and Scott Stern, *Do Scientists Pay to Be Scientists?*, 50 MGMT. SCI. 835, 836 (2004) (analyzing empirical data about wages of scientists with multiple job offers, and concluding that scientists have a "taste" for the scientific ethos that they are willing to pay for with lesser compensation), with Josh Lerner & Jean Tirole, *Some Simple Economics of Open Source*, 50 J. INDUS. ECON. 197, 218 (2002) (emphasizing the role of reputational benefits and concluding that "while some of [the] benefits conferred from participation in open source projects may be less concrete in nature, there also appear [to] be quite tangible—if delayed—rewards").

the poor because the information goods that these approaches produce are classically not priced. In dynamic terms, these approaches also can be directly organized to meet distributive goals and can be funded through progressive taxation.¹²⁰ While one could also address the distributive costs of price by redistributing resources until an equitable allocation is achieved and by allowing IP to do its work thereafter, this is not a simple process, nor would it obviously be more efficient than simply using mechanisms like prizes. In the transnational domain, there is no mechanism for taxes and transfers of this sort, which helps to explain why prizes have been such a dominant part of the conversation about how to allocate more resources toward diseases that disproportionately impact the global poor.¹²¹ In fact, one of the virtues of prizes is that one can implement them without correcting the market for a good first. This may be particularly important in areas with intractable externalities and dim political prospects of market reform, such as climate change.¹²²

It may be easier to see government's possible role in the effective production of science than of culture.¹²³ Yet one of the leading proposals to reorganize the production and distribution of music in light of the new potential for cheap distribution and reuse via digital networks, offered by William Fisher, recommends that we stimulate production not with price but rather with general taxation funds distributed to creators according to their share in online music consumption—music which in turn would be free to users.¹²⁴ This is an inducement prize, in which the size of the prize is determined by measuring the distribution of the good *ex post*. Fisher makes a strong case that such a scheme would be superior in efficiency terms to one that uses price as a signal, and a scheme such as this would also clearly have salutary distributive effects as long as the government tax operated more progressively than price.¹²⁵

Moreover, some information goods are of such foundational importance to human freedoms and capabilities that we believe that everyone should have them regardless of whether they would express a preference for them in market

120. While government taxes also imply some deadweight loss, the deadweight loss associated with IP is expected to be greater. *See supra* note 62.

121. *See* Love & Hubbard, *supra* note 61; Arjun Jayadev & Joseph Stiglitz, *Two Ideas to Increase Innovation and Reduce Pharmaceutical Costs and Prices*, 28 HEALTH AFFAIRS w165 (2008).

122. *See, e.g.*, Adler, *supra* note 19, at 4, 41–42 (explaining that prizes are an important tool to promote innovation particularly in the context of the failures of attempts to properly price carbon).

123. After all, government already provides substantial support for the development of science and technology. *See, e.g.*, BOROUSH, *supra* note 1.

124. FISHER, *supra* note 18, at 202.

125. *See id.* at 216 (describing the operation of such a system, and assuming it would be based upon the existing progressive tax system).

settings. Justice may demand that individuals are provided with education or healthcare, for example, whether or not they would choose to purchase these goods in a market setting. Similarly, distributive justice may provide grounds to supply a person with access to news channels even if, in a market context, they would demonstrate a preference for reality television. We can call information goods that correspond to these capabilities or freedoms “basic” information goods.

Many prominent theories of distributive justice conclude that individuals have entitlements that are independent of what they prefer. Amartya Sen, for example, developed his capabilities-based theory of justice largely through a critique of preference satisfaction as an appropriate measure of justice.¹²⁶ As Sen points out, preferences may be endogenous, or maladaptive, responding more to a history of depredation than to any properly moral account of what individuals deserve in a just society.¹²⁷ John Rawls’s theory of justice similarly addresses itself not to individual preferences, but to “primary goods,” which he argues should be allocated in such a way as to advance the lot of the worst off.¹²⁸ Moreover, our societal judgment about the importance of free primary and secondary education, or, for example, our unwillingness to let people sell themselves or parts of their bodies, suggest that we believe that individuals have entitlements to certain basic goods irrespective of their preferences.¹²⁹

Even in a world with no morally significant distinctions in wealth, then, we might conclude that all individuals should have access to certain basic information goods. When this is the case, IP is a problematic way of producing information not only because price rations access but, more fundamentally,

126. See Amartya Sen, *Equality of What?*, in 1 THE TANNER LECTURES ON HUMAN VALUES 195, 218 (Sterling McMurrin ed., 1980) [hereinafter Sen, *Equality of What?*]; SEN, *supra* note 97.

127. Sen, *Equality of What?*, *supra* note 126, at 203. Sen famously invokes the example of people with disabilities: “[I]f person A as a cripple gets half the utility that the pleasure-wizard person B does from any given level of income,” he notes, “then in the pure distribution problem between A and B the utilitarian would end up giving the pleasure-wizard B more income than the cripple A.” *Id.* The argument that we must affirmatively support the production and distribution of particularly important informational goods could also be made on market failure grounds, cf. C. EDWIN BAKER, MEDIA, MARKETS, AND DEMOCRACY 3–95 (2002), but because this argument can be collapsed into an efficiency account, I leave it aside here.

128. JOHN RAWLS, A THEORY OF JUSTICE 75–76 (1971). For John Rawls, “primary goods” are goods that no rational person would want to do without, such as liberties, income, and self-respect. *Id.* at 62, 90–95.

129. Molly Van Houweling effectively suggests that creative expression itself should be treated as a foundational human capability, and thus it should not be allocated via preferences expressed in markets. See Van Houweling, *supra* note 89, at 1577–78 (“[W]e do not value speech and creativity merely for the utility they generate for willing buyers; so it is not ideal to allocate speech opportunities via the market and would not be ideal even if everyone had equal purchasing power.”).

because price links production to the expression of preferences in markets. From a Demsetzian perspective, IP is preferable to government procurement because entrepreneurs, interpreting market signals, are able to best approximate the social value of a product. But by definition, with basic information goods we want to sever the relationship between market preferences and production. So here, the central virtue of IP is no virtue at all.

The price mechanism could be retrofitted to address this tension that it creates with justice in the production of basic information goods. For example, we might seek to subsidize purchases, and thus the production of basic information goods for the poor, by providing means-tested vouchers for the purchase of particular information goods.¹³⁰ Douglas Lichtman has made such a proposal in the area of medicines, suggesting that the government provide the poor not with income (which could be used to satisfy a variety of preferences), but rather with vouchers to supplement the market demand that the poor can manifest for medicines.¹³¹

However, there are two substantial difficulties with this approach. First, the government would have to determine how large the vouchers should be—that is, it would have to somehow discern the true demand function of each poor person for drugs like Prozac (for depression) or Advair (for asthma). To call such calculations difficult is to understate the matter. Second, precisely because the voucher system requires this judgment, it compromises the degree to which price can serve as a signal that rationalizes and optimizes production and distribution, as it does in the conventional account. Individuals, in disaggregated fashion, do not drive demand. Rather, the decision is made by the size of the vouchers, which is determined by the government. To the extent that we modify price to compensate for the fact that it measures the wrong things from the perspective of distributive justice, we undermine the accorded virtue of price as a signal. It is not at all obvious why we would want to continue to use price when we have already conceded that we must use means other than the market to establish the value of the good in question. In that case, we incur the efficiency costs of price—including both deadweight loss and the risk of racing—but not

130. As noted earlier, we could also simply provide means-tested redistribution of resources, so that the rich and the poor no longer experience morally relevant differences in their ability to pay. That would make price a far more attractive mechanism from a distributive point of view, but it would not sever the relationship between price and preferences, and so it would fail to address the fact that we might want to subsidize particular informational goods. Vouchers can address this, but they run into the problems discussed next in this Part.

131. Douglas Gary Lichtman, *Pricing Prozac: Why the Government Should Subsidize the Purchase of Patented Pharmaceuticals*, 11 HARV. J.L. & TECH. 123 (1997).

its main efficiency benefit. Vouchers might address the distributive concern, but in a manner less efficient than would more direct modes of government procurement. Because efficiency can have distributive implications—for example, it can reduce the resources available to serve the needs of the poor—this is both a distributive and an efficiency concern.

Price cannot both achieve its promise as a signal and meet the demands of distributive justice where basic information goods are concerned. Price may also be distributively problematic where nonbasic information goods are concerned if the background distribution of resources is unjust. Assume, for example, that popular music is a nonbasic information good. It does not follow that there is no distributive problem with directing its production and distribution through the price mechanism. If music is a good—even if it is a nonbasic good—a case can be made on distributive grounds that we should direct its production and distribution in a way that is not systematically sensitive to the underlying distribution of wealth, when that distribution is itself unjust, and when alternative systems exact no toll in efficiency terms.¹³² A prize system of the sort that Fisher has proposed thus has distributive appeal, even if we do not consider music to be a basic information good and even though it directs the production of music through the decentralized expression of preferences.¹³³

An externalist perspective allows distributive justice inquiries a far greater scope than does an internalist perspective. It allows us to see that government procurement and the commons (and especially the former) are institutional approaches with inherent distributive advantages because they sever the links both between ability to pay and production, and when they concern basic information goods, between preference and production. This is not to say that there is one ideal framework for information production from the perspective of distributive justice, or that price could never be the best system from this perspective. But only once we adopt an externalist perspective can we begin to examine the tradeoffs in particular cases. In some areas, government sponsorship

132. Scotchmer and Nancy Gallini seem to come to the opposite conclusion, arguing that price is a mechanism that precisely serves distributive ends, because it puts the costs of innovation on users, instead of on taxpayers who “might rightfully revolt if asked to bear the costs of developing, say, computer games.” Gallini & Scotchmer, *supra* note 46, at 55. But this intuition may be funded by the sense that video games are not goods at all, but rather are “bads.” If we can address underlying unjust inequities in access to resources with a more just system of developing and distributing information—without compromising efficiency—then distributive justice may provide a general argument for doing so.

133. Because Fisher’s scheme would track digital music consumption, it would be sensitive to preference. But it would prevent preference from being systematically influenced by price because the music would be free. FISHER, *supra* note 18, at 202.

of information production may be in tension with other goods that are important from a distributive perspective, such as other “primary” goods in the Rawlsian scheme or goods important to capabilities according to Sen. For example, government provisioning of political news is plausibly in tension with values of free speech. Whether and when this will be the case and how we should make tradeoffs between, say, the risk of government interference and the possibility of better meeting the informational needs of the poor are complex questions that require contextual analysis. My aim here is not to adjudicate the debate between mechanisms in distributive terms, but rather to make clear that this debate is one very much worth having. And it can only be had if we first broaden our perspective to bring approaches beyond IP more centrally into view.

III. INTELLECTUAL PROPERTY EXTERNALISM AND THE COST OF PRICE TO INFORMATIONAL PRIVACY

An externalist view can also yield new insights into the relationship between different institutional approaches to cultural and scientific production and informational privacy—insights that are not visible from within an internalist account. Taking an externalist view allows us to ask not only whether we should adjust IP law in some way to accommodate privacy interests,¹³⁴ but also whether some approaches to scientific and cultural production are constitutively more likely than others to conflict with the desire to protect informational privacy.

Asking the question this way makes it possible to see that IP, as a strategy, imposes a cost on privacy—a cost that other institutional approaches do not impose. As I show in this Part, choosing IP as a means to produce information sets up a certain logic: The imposition of price triggers the problem of deadweight loss, and in response we call for price discrimination—that is, for sellers of information goods not just to set one or a few price tiers, but to charge each individual user according to her willingness and ability to pay. We want

134. For important work in this vein, see, for example, Julie E. Cohen, *Copyright and the Jurisprudence of Self-Help*, 13 BERKELEY TECH. L.J. 1089 (1998) (invoking privacy values, among others, in justifying a “right to hack,” that is, to breach digital fences to exercise entitlements granted by copyright law); Julie E. Cohen, *A Right to Read Anonymously: A Closer Look at “Copyright Management” in Cyberspace*, 28 CONN. L. REV. 981 (1996) [hereinafter Cohen, *Right to Read*] (describing conflicts between privacy values and digital rights management, and arguing that the First Amendment should be read to create limits on the scope of digital rights management); Sonia K. Katyal, *Privacy v. Piracy*, 7 YALE J.L. & TECH. 222 (2004–2005) (drawing attention to conflicts between online copyright enforcement efforts and privacy, and arguing for, among other things, changes to the Digital Millennium Copyright Act’s enforcement provisions to accommodate privacy interests).

price discrimination on efficiency grounds once we commit to IP as a strategy, and because information often has a high fixed cost but invariably has zero marginal cost, producers are also likely to be motivated to price discriminate. Exclusive rights may also give producers a measure of market power that facilitates price discrimination. The impulse toward price discrimination is in tension with informational privacy for a simple reason: Personal information is critical to the ability to cheaply and accurately price discriminate. Price is more attractive if we have less informational privacy; conversely, the more we value privacy, the less attractive price is as a strategy for producing and distributing information. There is reason to think, moreover, that government procurement and commons-based strategies are less in structural tension with privacy values, as I explain below.

Again, we should begin with an account of the value of informational privacy. There are two main competing conceptions of informational privacy in the legal literature today. The first depicts informational privacy as an autonomy or dignity right to control the exchange and processing of information about oneself.¹³⁵ To illustrate the importance of that control, scholars point out that losing it can increase vulnerability to discrimination,¹³⁶ to harassment and stalking,¹³⁷ to embarrassment,¹³⁸ and to identify theft.¹³⁹

The second main conception, associated most closely with scholars such as Robert Post, Paul Schwartz, and Julie Cohen, sees privacy not as an individual right of control, but rather as a collective entitlement that protects a range of social and political values.¹⁴⁰ Those that reason in this constitutive vein point

135. See, e.g., Jerry Kang, *Information Privacy in Cyberspace Transactions*, 50 STAN. L. REV. 1193, 1203 (1998); see also ALAN F. WESTIN, *PRIVACY AND FREEDOM* 7 (1967) (defining privacy generally as “the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others”).

136. See, e.g., Daniel J. Solove, *Privacy and Power: Computer Databases and Metaphors for Information Privacy*, 53 STAN. L. REV. 1393, 1424 (2001) (noting that decisions about loans, jobs, and licenses can be based on information collected in databases).

137. See *id.* at 1428–29 (recounting instances in which database retailers processed or sold information in ways that jeopardized individual safety); Helen Nissenbaum, *Privacy as Contextual Integrity*, 79 WASH. L. REV. 119, 147 (2004) (describing this problem, and recalling the case of a woman who was murdered by someone who located her address through DMV records).

138. See, e.g., Kang, *supra* note 135, at 1212.

139. *Id.* at 1215; Nissenbaum, *supra* note 137, at 147.

140. See, e.g., Julie E. Cohen, *Examined Lives: Informational Privacy and the Subject as Object*, 52 STAN. L. REV. 1373, 1426–27 (2000) [hereinafter Cohen, *Examined Lives*]; Cohen, *Right to Read*, *supra* note 134, at 982; Robert C. Post, *The Social Foundations of Property: Community and Self in the Common Law Tort*, 77 CALIF. L. REV. 957, 959 (1989); Paul M. Schwartz, *Privacy and Democracy in Cyberspace*, 52 VAND. L. REV. 1609, 1664–66 (1999).

out, for example, that privacy norms facilitate robust public debate, because when “surveillance becomes the norm, the act of speaking or listening takes on a different social meaning.”¹⁴¹ As Neil Richards puts it:

Surveillance or interference can warp the integrity of our freedom of thought and can skew the way we think, with clear repercussions for the content of our subsequent speech or writing. The ability to freely make up our minds and to develop new ideas thus depends upon a substantial measure of intellectual privacy.¹⁴²

Proponents of a constitutive understanding of information privacy also argue that privacy norms construct, rather than simply reflect, individual preferences and choices. For example, they note that when personal information is used to profile individuals online and then to target particular content or advertising back to a person, this has the result of reflecting back to the individual an image of him or herself. This generates the worry that the facts selected may become disproportionately salient to the person herself or himself as well as to others.¹⁴³ The implication is that we cannot simply defer to individual

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141. Schwartz, *supra* note 140, at 1651; *see also* Cohen, *Examined Lives*, *supra* note 140, at 1426 (noting that the “autonomy fostered by informational privacy . . . is an indispensable condition for reasoned participation in the governance of the community and its constituent institutions”); Ruth Gavison, *Privacy and the Limits of Law*, 89 YALE L.J. 421, 423 (1980) (noting that privacy promotes “liberty, autonomy, selfhood, and human relations, and further[s] the existence of a free society”); Nissenbaum, *supra* note 137, at 150 (“[P]rivacy is essential to nourishing and promoting the values of a liberal, democratic, political, and social order [because] the vitality of democracy depends not only on an autonomous and thoughtful citizenry—bolstered through privacy—but on the concrete protection against public scrutiny of certain spheres of decision-making . . .”).
142. Neil M. Richards, *Intellectual Privacy*, 87 TEX. L. REV. 387, 389 (2008); *see also* Cohen, *DRM and Privacy*, *supra* note 23, at 577–80 (similarly defending a view of intellectual privacy related to rights to integrity and self-definition); Cohen, *Right to Read*, *supra* note 134, at 982 (“A fundamental assumption underlying our discourse about the activities of reading, thinking, and speech is that individuals in our society are guaranteed the freedom to form their thoughts and opinions in privacy, free from intrusive oversight from governmental or private entities.”); Kang, *supra* note 135, at 1260 (stating that surveillance can lead to alienation and self-censorship); Nissenbaum, *supra* note 137, at 148–49 (“[F]reedom from scrutiny and zones of ‘relative insularity’ are necessary conditions for formulating goals, values, conceptions of self, and principles of action because they provide venues in which people are free to experiment, act, and decide without giving account to others or being fearful of retribution.”); Solove, *supra* note 136, at 1418 (“The mere knowledge that one’s behavior is being monitored and recorded certainly can lead to self-censorship and inhibition.”).
143. *See* Kenneth L. Karst, *The Files: Legal Controls Over the Accuracy and Accessibility of Stored Personal Data*, 31 LAW & CONTEMP. PROBS. 342, 361 (1966); *see also* Oscar H. Gandy, Jr., *Exploring Identity and Identification in Cyberspace*, 14 NOTRE DAME J.L. ETHICS & PUB. POLY 1085, 1100–01 (2000) (arguing that profiling “reinforce[s] assessments and decisions made in the past,” and seeks to reduce individuals to a set of “measurable characteristics”); Solove, *supra* note 136, at 1425 (“[I]nformation in databases often fails to capture the texture of our lives. Rather than provide

preferences because those preferences are shaped by, rather than separable from, the environment in which they are formed.

These two conceptions of the value of privacy have evident and important differences. For example, the consent view seems to suggest that we should allow people freely to choose surveillance, and thus to sell their right to privacy in the marketplace.¹⁴⁴ The constitutive view instead requires us to construct a social and political vision of the subjects we want to call forth, and then design privacy protections accordingly.¹⁴⁵ But given the evident imperfections in the market for informational privacy, in practice both views suggest that protecting informational privacy requires more than relying on formal individual consent. As many have now recognized, transaction costs and information asymmetries clearly bedevil markets for private information. For example, websites have a myriad of different privacy policies, meaning that individuals who value privacy may have a difficult time understanding what they are giving up by using certain sites.¹⁴⁶ Recent survey data confirms that fact, showing that most individuals have little understanding of what companies' privacy policies in fact mean.¹⁴⁷ Privacy policies could be clarified and standardized, thus lowering the cost of understanding them. But individuals will still face very substantial information requirements prior to making an informed choice to give up private information, and many of these requirements will be difficult to eliminate. For example, people need to understand the variety of ways in which their personal information could be used, as well as what implications such uses carry, in a fast-moving context in which new uses and markets are constantly emerging. Today, much of the value of an individual bit of information depends upon whether and how it is aggregated with other information, which thereby compounds the problem.¹⁴⁸ Finally, individual choices also have social implications, as the constitutive view makes clear. These effects can be modeled as externalities that individuals

a nuanced portrait of our personalities, they capture the stereotypes and the brute facts of what we do without the reasons.”)

144. See, e.g., Kang, *supra* note 135; see also Solove, *supra* note 136, at 1446 (arguing that there is a strong association between the consent conception and the idea that private information is a form of property that can be alienated in markets).
145. See, e.g., Schwartz, *supra* note 140, at 1614–15 (arguing for the importance of legally established “fair information practices” that would provide “defined obligations that limit the use of personal data” as well as procedural and substantive rights, transparency requirements, and accountability mechanisms).
146. See LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE 160 (1999).
147. See Chris Jay Hoofnagle & Jennifer King, What Californians Understand About Privacy Online (2008) (unpublished manuscript), available at <http://ssrn.com/abstract=1262130>.
148. See Cohen, *Examined Lives*, *supra* note 140, at 1397–98; Solove, *supra* note 136, at 1452.

are unlikely to take into account when making a decision to yield privacy, thus yielding a conventional argument for third-party intervention by government, for example.¹⁴⁹

It is plain that the networked digital age has brought with it substantial new challenges to information privacy, whether that value is conceived in terms of control or in a more constitutive fashion. Recent years have seen unprecedented advances in the tracking, compiling, and exchanging of personal data. Everything that we do on digital networks—using a search engine, perusing a website, reading a few pages on Google Books, plugging an appliance into a smart grid, making a phone call, watching television—can be readily tracked.¹⁵⁰ As importantly, advances in computing power mean that it is increasingly easy to archive, search, exchange, integrate, and compile such data into dossiers with ever more comprehensive information about individuals.¹⁵¹ These new capabilities have generated enormous new business opportunities for data mining and data profiling companies.¹⁵² Recently, computer scientists have undermined confidence in

149. Ronald Coase's famous argument about the possibility of bargaining around legal rules is notwithstanding, because here transaction costs would surely be high, given (for example) the numerosity of consumers and their aforementioned informational deficits.

150. On search engine tracking, see, for example, James Grimmelmann, *The Structure of Search Engine Law*, 93 IOWA L. REV. 1, 17–20 (2007); *Search Engine Privacy*, ELECTRONIC PRIVACY INFO. CTR., http://epic.org/privacy/search_engine (last visited Feb. 28, 2012). On clickstream tracking, see, for example, Solove, *supra* note 136, at 1411–12. On potential privacy issues related to Google Books, see, for example, Jonathan Band, *The Long and Winding Road to the Google Books Settlement*, 8 J. MARSHALL REV. INTELL. PROP. L. 227, 306–11 (2009); Letter on Reader Privacy and Google Book Search From Cindy Cohn, Legal Dir., Elec. Frontier Found., Nicole A. Ozer, Tech. & Civil Liberties Dir., ACLU of N. Cal. & Jennifer Lynch, Lecturer in Residence & Supervising Attorney, Samuelson Law, Tech. & Pub. Policy Clinic, to Eric Schmidt, Chairman and CEO, Google Inc. (July 23, 2009), *available at* http://www.eff.org/files/gbs_privacy_schmidt_letter.pdf. On privacy issues related to smart grids (electrical grids that use two-way digital connections to monitor and control appliances in homes to conserve energy), see Joint Comments of the Center for Democracy & Technology and the Electronic Frontier Foundation on Proposed Policies and Findings Pertaining to the Smart Grid (Dec. 18, 2008), *available at* http://www.cdt.org/files/pdfs/20100309_smartgrid_cpuc_comments.pdf. Transactional data about phone calls have long been tracked by phone companies, but digitalization has made call-related information much easier to track. See Ira S. Rubinstein et al., *Data Mining and Internet Profiling: Emerging Regulatory and Technological Approaches*, 75 U. CHI. L. REV. 261, 281 (2008). Finally, on the privacy implications of digital networked television technologies such as TiVo, see Paul M. Schwartz, *Property, Privacy, and Personal Data*, 117 HARV. L. REV. 2055, 2127–28 (2004).

151. See DANIEL J. SOLOVE, *THE DIGITAL PERSON: TECHNOLOGY AND PRIVACY IN THE INFORMATION AGE* 1–2 (2004); Cohen, *Examined Lives*, *supra* note 140, at 1374.

152. See Solove, *supra* note 136, at 1404–09 (describing the development of the direct marketing industry and the importance of voluminous data collection about individual patterns, demographics, and “psychographic” information to that industry).

our ability to protect privacy in these databases while also exchanging and making use of such databases, demonstrating that it is much easier than was previously assumed to produce identifiable information from databases presumed to be anonymous.¹⁵³ The result is a “growing disparity between what individuals know about the organizations whose actions influence their lives and what these organizations know about them.”¹⁵⁴

What does all of this mean for information policy? Adopting an externalist perspective, we can begin by investigating the structural implications of relying on the institutional approach of IP for informational privacy. When we do, it becomes clear that price in the context of information generates a tension with informational privacy—one that stems from the relationship that exists between price, price discrimination, and privacy.¹⁵⁵ As described in Part I, using price as a mechanism to generate and distribute information goods generates the problem of deadweight loss. Perfect price discrimination can eliminate deadweight loss, and in so doing, can enhance efficiency. In reality, price discrimination can only

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153. See, e.g., Arvind Narayanan & Vitaly Shmatikov, *Robust De-anonymization of Large Sparse Datasets*, in PROCEEDINGS OF THE 2008 IEEE SYMPOSIUM ON SECURITY AND PRIVACY 111 (2008); Paul Ohm, *Broken Promises of Privacy: Responding to the Surprising Failure of Anonymization*, 57 UCLA L. REV. 1701 (2010). As Paul Ohm describes, “How many other people in the United States share your specific combination of ZIP code, birth date (including year), and sex? According to a landmark study, for 87 percent of the American population, the answer is zero; these three pieces of information uniquely identify each of them.” *Id.* at 1705. Thus, if a database were stripped of traditional personally identifiable information, such as names and social security numbers, but included these three kinds of information, a person who knew these things would be able to access whatever other information the database revealed for the vast majority of people. They could also associate this data with a personal name if they happen to know the name of the person with these three characteristics (for example, if they are looking up a friend), or if—as has happened—they are able to obtain a personal name from some other source, such as voter rolls. *Id.* at 1719–20.
154. Oscar H. Gandy, Jr., *Legitimate Business Interest: No End in Sight? An Inquiry Into the Status of Privacy in Cyberspace*, 1996 U. CHI. LEGAL F. 77, 77–78.
155. Andrew Odlyzko makes a broader argument that has been helpful to my thinking here. He contends that “the powerful movement to reduce privacy [on the Internet] that is coming from the private sector is motivated by the incentives to price discriminate.” Andrew Odlyzko, *Privacy, Economics, and Price Discrimination on the Internet*, in PROCEEDINGS OF THE 5TH INTERNATIONAL CONFERENCE ON ELECTRONIC COMMERCE 355, 356 (2003), available at <http://portal.acm.org/citation.cfm?id=948051>. Odlyzko does not focus on information, but focuses on other domains with high fixed and low marginal costs, primarily nineteenth century railroads. *Id.* My contribution is to draw on the broader arguments offered by Odlyzko, as well the work of scholars such as Hal Varian, see *infra* note 156, to connect these insights to the IP literature and to make the point (novel, to my knowledge) that other institutional approaches to information production may generate less tension with privacy values.

be imperfect, but even imperfect price discrimination is predicted often to enhance efficiency.¹⁵⁶

Moreover, to provide information through the price mechanism is to generate a decentralized impulse toward price discrimination on the part of information providers. Information goods may often have high fixed cost and will invariably have zero marginal cost. As such, “price discrimination may be an especially attractive tactic in information markets.”¹⁵⁷ In general, producers have an incentive to price discriminate when marginal willingness to pay is higher than marginal cost, because this will increase profits.¹⁵⁸ When marginal cost is zero, this scenario will always occur. Moreover, when fixed costs are high but marginal costs are low, firms may need to price discriminate in order to sustain their business models.¹⁵⁹

Price in the context of information requires exclusive rights, so it also may give firms a measure of market power that helps them to successfully price discriminate. While it is commonly said that market power is necessary for price discrimination, today there is a substantial literature showing that price discrimination is also possible in imperfectly competitive markets.¹⁶⁰ Many examples of

156. See, e.g., Lars A. Stole, *Price Discrimination in Competitive Environments*, in 3 HANDBOOK OF INDUSTRIAL ORGANIZATION 2221 (Mark Armstrong & Robert H. Porter eds., 2007) (reviewing the efficiency implications of price discrimination); Hal R. Varian, *Price Discrimination and Social Welfare*, 75 AM. ECON. REV. 870 (1985) (arguing that third-degree price discrimination will increase efficiency when it leads to an increase in output); see also William W. Fisher III, *When Should We Permit Differential Pricing of Information?*, 55 UCLA L. REV. 1, 22–27 (2007) (explaining Hal Varian’s point, and noting that this insight, as well as further considerations of externalities and legal prohibitions, requires us to consider the efficiency of price discrimination in particularized context). Note that insofar as we are ambivalent about the effects of imperfect, and particularly third-degree, price discrimination, this simply makes first-degree price discrimination—which is the most information-intensive form—more attractive.

157. HAL R. VARIAN, JOSEPH FARRELL & CARL SHAPIRO, *THE ECONOMICS OF INFORMATION TECHNOLOGY: AN INTRODUCTION* 73 (2004); see also Hal R. Varian, *Differential Pricing and Efficiency*, FIRST MONDAY, Aug. 9, 1996, <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/473/829> [hereinafter Varian, *Differential Pricing*].

158. Varian, *Differential Pricing*, *supra* note 157, at 4.

159. *Id.*

160. See, e.g., Stole, *supra* note 156, at 2224. Interestingly, some have argued that in imperfectly competitive markets, price discrimination may in fact benefit consumers and harm producers, because price discrimination has not only the effect of capturing more consumer welfare, but also of increasing competition. See, e.g., Rosa Brance Esteves, *A Survey on the Economics of Behaviour-Based Price Discrimination* 4–5 (NIPE Working Paper 5, 2009), available at http://www3.eeg.uminho.pt/economia/nipe/docs/2009/NIPE_WP_5_2009.pdf; Jacques-François Thisse & Xavier Vives, *On the Strategic Choice of Spatial Price Policy*, 78 AM. ECON. REV. 122, 124 (1988). If that were the case, we would not expect firms to have an incentive to price discriminate. But this same literature also shows that firms may be locked into a prisoner’s

price discrimination can in fact be identified in industries that are thought to have reasonably competitive markets, such as air travel.¹⁶¹ Moreover, examples from informational markets are often used to illustrate the practice of price discrimination, such as the sale of hardcover and paperback versions of books, as well as what is called “windowing” in the movie industry, both of which exact higher prices from individuals who are more impatient and thus who appear to value a good more highly.¹⁶²

In the area of information, then, when we use price we are particularly likely (1) to want price discrimination because it is expected to increase efficiency; (2) to trigger decentralized efforts on the part of firms to price discriminate; and (3) to give firms some degree of market power that will facilitate price discrimination. Two more things are necessary, though, before firms can effectively price discriminate: (1) information about consumers’ willingness and ability to pay, and (2) the ability to prevent arbitrage between consumers.¹⁶³ This is where conflicts with informational privacy arise.

The need to determine willingness to pay inherently is in tension with informational privacy because personal information is critical to the ability to cheaply and accurately price discriminate.¹⁶⁴ Economists identify three broad strategies for price discrimination: (1) first-degree price discrimination, in which a firm seeks to charge each customer according to her willingness to pay; (2) second-degree price discrimination, in which a firm does not directly observe consumer heterogeneity but rather uses strategies such as versioning to allow consumers to self-select into the relevant groups; and (3) third-degree price discrimination, in which a firm charges customers based on some observable fact that is associated with consumer valuation (such as student status).¹⁶⁵

Each of these techniques has privacy implications. The privacy implications are more serious with first- and third-degree price discrimination strategies

dilemma, engaging in price discrimination because they anticipate that other firms will do the same. *See id.*

161. *See, e.g.,* Varian, *Differential Pricing*, *supra* note 157, at 7.

162. *Id.* (discussing publishing); Fisher, *supra* note 156, at 5 (describing windowing, in which studios release movies sequentially in theaters, on pay-per-view, on DVD, and finally on network and then local television, with price paid per viewing decreasing along the way).

163. *See* Fisher, *supra* note 156, at 3–4.

164. *See* Odlyzko, *supra* note 155, at 356.

165. *See* ROBERT S. PINDYCK & DANIEL L. RUBINFELD, *MICROECONOMICS* 364–73 (3d ed. 1995); *see also* Esteves, *supra* note 160, at 2 (describing some of the variations in how second-degree price discrimination is described). Versioning is common, for example, in the software industry: Software is released in slightly different editions that are sold for different prices, in order to induce consumers to sort themselves according to the value they place on the good. *See id.*

because these strategies are based on direct observations of individual characteristics. Only with substantial access to personal information can companies approach first-degree price discrimination, the most profitable and efficient of the three forms of price discrimination.¹⁶⁶ Much of the information that firms would want in order to estimate willingness to pay will implicate informational privacy—information like “incomes, wealth, tastes, purchasing habits, and credit histories.”¹⁶⁷ While first-degree price discrimination was long treated in the economics literature as unrealistic, there is growing evidence that new technological capabilities have led companies to use specific, personal information about purchases to condition their pricing strategies.¹⁶⁸ Some observers of the digital environment have concluded that “[e]rosion of privacy and improved IT systems will enable a close approximation” of first-degree price discrimination to be achieved.¹⁶⁹

Third-degree price discrimination also requires personal information, such as information about student status, age, or other characteristics that locate one in the relevant price cohort. Second-degree price discrimination does not depend upon firms directly observing qualities of consumers, and so it does not require firms to gather the same kind of private information. It may generate private information, though, such as the information that might be collected through a two-part tariff system that offers consumers a fixed rate to sign up for a service (say, to watch movies online), as well as a per-use rate for each unit of the good consumed.

The digital age has also dramatically increased the possibility of gathering, exchanging, and processing certain forms of personal information, as is described above. Many providers of information goods will be in no better a position to gather the needed data than are providers of more conventional commod-

166. See Odlyzko, *supra* note 155, at 357.

167. Fisher, *supra* note 156, at 37 (also noting that first-degree price discrimination may foster invasions of privacy). An alternative strategy to reach first-degree price discrimination would be an auction, in which individual willingness to pay is measured not via proxies, but rather directly, through offers to purchase. Auctions have fewer privacy implications than do the more common efforts to approximate willingness to pay by amassing personal information about people. All that an auctioneer learns is how much you value the good, not how much you earn, where you went to college, which movies you watched this month, and so forth. But auctions are rarely a realistic option, in part because they are costly to effectively arrange. See Odlyzko, *supra* note 155, at 357 (noting that auction mechanisms are hard to set up, and that “[i]t is easier and more productive to just charge more to those able to pay more, if one can”); cf. Charles Noussair, Stephane Robin & Bernard Ruffieux, *The Effect of Transaction Costs on Double Auction Markets*, 36 J. ECON. BEHAV. & ORG. 221, 222–23 (1998) (showing theoretically that where continuous double auctions are affected by transaction costs, efficiency will be compromised).

168. See, e.g., Alessandro Acquisti & Hal R. Varian, *Conditioning Prices on Purchase History*, 24 MARKETING SCI. 367, 367 (2005).

169. Odlyzko, *supra* note 155, at 357.

ities. For example, pharmaceutical companies and band-aid companies may face similar (though in both cases possibly declining) barriers to obtaining accurate information about individual health status and income. But to the extent that information providers have more rents to gain than do providers of goods in competitive commodity markets, and to the extent that information providers enjoy the kind of market power that might allow them to negotiate with consumers for personal information (as pharmaceutical companies do with their patient assistance programs),¹⁷⁰ they will have more incentive and ability to seek such information than do producers of ordinary commodities.

Some providers of information goods also have a special advantage in tracking customer behavior: those whose wares are distributed via the same digital networked environment that has allowed the recent revolution in the intimate tracking of consumer behavior. A drug or band-aid company might want to know exactly how consumers use their products once they have taken them home, but a company that sells real-time streaming video may have the technological capability to find out.

To successfully price discriminate, firms must also be able to limit arbitrage. Especially when information goods are concerned, efforts to do this may be in tension with privacy. One common strategy to prevent arbitrage in the information context is to deploy technological restrictions referred to as “digital rights management” (DRM) techniques.¹⁷¹ DRM comes in many forms, some of which facilitate direct technological surveillance of individuals by allowing firms to track how individuals use information goods—which has evident implications for privacy.¹⁷² Other kinds of DRM, like the content scramble system code that prevents DVD watchers from copying or fast-forwarding through copyright notices, simply prevent users from doing certain things with

170. These programs require individuals to divulge detailed personal information about income and household size, and sometimes also about assets and medical history, in exchange for possible discounts. For a sampling of some programs and their requirements, see *Participating Patient Assistance Programs*, PARTNERSHIP FOR PRESCRIPTION ASSISTANCE, http://www.pparx.org/en/prescription_assistance_programs/list_of_participating_programs (last visited Feb. 28, 2012).

171. See Odlyzko, *supra* note 155, at 358 (associating the desire to price discriminate with new motives to impose DRM, as well as with “the spread of licensing as opposed to outright sales, and in tying arrangements”).

172. Cohen, *DRM and Privacy*, *supra* note 23, at 585 (“Gathering information about intellectual consumption renders intellectual preferences accessible, both to the information provider and to third parties that might purchase it or invoke legal process to compel its production.”).

information goods.¹⁷³ These have less straightforward privacy implications, but they nonetheless raise concerns that can be expressed in the rubric of privacy.¹⁷⁴

Finally, we might expect the desire to control arbitrage in the context of information goods to lead producers to shift from a commodity model of information distribution toward a services model. Services are more difficult to resell or exchange with others than are commodities. So, “haircuts, physical examinations, or legal advice, are likely examples of goods for which price discrimination is possible because of the obvious difficulty in reselling them or in making multiple purchases.”¹⁷⁵ This provides a new perspective on the recent interest among information providers in moving to service-based models, like the Netflix streaming model for providing access to video content, or the cloud-computing model of providing software services.¹⁷⁶ If these shifts permit more effective price discrimination, they may enhance efficiency. At the same time, in the digital networked age, service-based models yield unprecedented possibilities for surveillance because they give information providers a much more direct ability to track individual behavior than do more material forms of distribution.

Some might suspect that this relationship between price, price discrimination, and privacy will be short-circuited by the impracticality of price discrimination. Consumers famously react strongly to some kinds of price discrimination—a commonly cited example is the revolt that followed when Amazon sought to use its vast trove of customer data to engage in dynamic pricing, apparently charging repeat users higher prices than new customers.¹⁷⁷ But price discrimination can be done in many less transparent ways, such as “bundling and loyalty programs, which tend to disguise the actual price that is charged.”¹⁷⁸ Versioning is a tactic of this sort, as occurs when publishers

173. *Id.* at 580.

174. As Julie Cohen puts it, “Technologies that constrain user behavior narrow the zone of freedom traditionally enjoyed for activities in private spaces, and in particular for activities relating to intellectual consumption within those spaces.” *Id.* This conception of privacy implies a “zone of noninterference with individual choice” that Cohen argues applies to intellectual goods, at least in private spaces. *Id.* at 582–83.

175. Kathleen Carroll & Dennis Coates, *Teaching Price Discrimination: Some Clarification*, 66 S. ECON. J. 466, 471 (1999).

176. This is not to suggest that information services are impermeable to attempts to capture and exchange the implicated information, of course. But they may increase the costs of reselling information.

177. See Fisher, *supra* note 156, at 11–12 (describing the Amazon experiment and the fierce consumer reaction to it). As Fisher also recounts, “In 2005, the Annenberg Center surveyed 1500 adult Internet users concerning their views of online marketing practices. Eighty-seven percent disagreed with the proposition that ‘it’s OK if an online store I use charges different people different prices for the same products during the same hour’” *Id.* at 12.

178. Odlyzko, *supra* note 155, at 358.

sell hardcover and paperback editions of books, or when software companies sell versions of software with different capabilities (for example, professional and student versions).¹⁷⁹ Sellers can also offer discounts rather than surcharges—offering consumers specific-to-them lower prices, rather than specific-to-them higher prices.¹⁸⁰ Although consumers respond more favorably to the discounts, they ultimately have the same effect as do the surcharges, because those who are not offered discounts are charged a higher baseline price.

Once price is adopted as an organizing principle, if we are to render the distribution and production of information goods efficient, we must countenance tracking of individual preferences and behaviors, as well as strong forms of encryption and other systems to control information goods once they reach consumers. Thus, substantial implications for privacy are bundled into the bargain that proposes price as the best means to generate information goods. The more we rely on price and seek to gain its benefits, the more pressure we put on values of informational privacy.

Note that we cannot resolve the tension between privacy and price from a perspective that is internal to the design of IP law. Some exceptions in IP law do serve purposes related to privacy, such as personal use exceptions in copyright.¹⁸¹ Exempted personal uses can include time-shifting (for example, recording a television show to watch at a different time) and private displays; they are sometimes defended explicitly as means of protecting privacy.¹⁸² But even a very robust personal use exemption can, at best, address only one small part of the potential conflict between price and privacy. It can do little to alter the basic incentive structure that price sets up for the gathering of information relevant to price discrimination. If we conceive of DRM as implicating privacy interests, we might give individuals a right to hack it, or we might urge or require technology companies to design DRM that is minimally privacy invasive.¹⁸³ But again, this is at best a partial remediation of a more systemic tension.

A comprehensive privacy law imposed by statute could provide a more robust solution to the tension, and it certainly could create an external check on

179. See Carl Shapiro & Hal R. Varian, *Versioning: The Smart Way to Sell Information*, HARV. BUS. REV., Nov.–Dec. 1998, at 106.

180. See Acquisti & Varian, *supra* note 168, at 367.

181. See 2 PAUL GOLDSTEIN, GOLDSTEIN ON COPYRIGHT § 5.0 (2d ed. 1996) (describing exempted personal uses in U.S. law).

182. See, e.g., Adolph Dietz, *Germany*, in 2 INTERNATIONAL COPYRIGHT LAW AND PRACTICE § 8[2][a], 8[2][f] (Paul Edward Geller ed., 2009).

183. See Cohen, *Right to Read*, *supra* note 134, at 1037–38; Cohen, *DRM and Privacy*, *supra* note 23, 611–12.

the dynamic identified above. Just how much of an impact such a law would have would depend upon the nature of the law. The dynamics established by the institutional approach of IP would also create substantial incentives to circumvent the law. Even in the presence of such a law, therefore, the implications of the IP approach might nonetheless raise concerns for privacy. The point here, as above, is to make the issue visible so that more fine-grained analysis is possible, not to resolve in favor of one approach to scientific and cultural production in the abstract.

Is there reason to think that alternatives to the price mechanism could generate less tension with informational privacy, however? Yes, although the case is more qualified than in the domain of distributive justice, and it requires close attention to design questions.

Consider first the privacy implications of government provisioning: When setting up a system of prizes or contracts, government agents must determine which information goods to produce and how much to spend. Insofar as they seek to do this through some measure of what people want or need, this, too, will have implications for informational privacy. For example, Fisher's prize scheme for music would make use of sampling techniques like those developed by Nielsen Media Research to sample digital plays of songs and to compensate artists accordingly.¹⁸⁴ Such systems would give government actors detailed information about music consumption of some sample of people, and they would thus implicate privacy concerns. Fisher suggests that the system be designed to minimize these concerns—for example, by ensuring that the government receives only aggregate data.¹⁸⁵ Notably, this form of a prize (which is more intensive in its surveillance than are more conventional prizes) also requires information only about music demand and does not require the kind of wide-ranging personal information necessary to price discriminate. The IP system encourages more pervasive consumer surveillance than does a system like Fisher's because it creates a demand for information not just about the popularity of information goods, but also about individual willingness and ability to pay. Price thus plausibly incentivizes a different and more intrusive kind of gathering of personal information than does government procurement.

In the context of medicines, government valuations for prizes might be based on an *ex post* measure of consumption that is analogous to the Fisher proposal. Again, this requires some government access to personal information,

184. See FISHER, *supra* note 18, at 226–28.

185. *Id.* at 228.

but that information need not be personally identifiable. Prizes for vaccines or antibiotics could also instead be based upon public health statistics about morbidity and mortality, as well as upon estimations of the costs of R&D. These would require less personal information from consumers than would the kind of efforts that a pharmaceutical company might invest in when seeking to implement a robust plan of price discrimination.

Finally, government provisioning is undertaken by a centralized and formally accountable public actor, whereas price discrimination occurs in a more decentralized and private fashion. A centralized government scheme for collecting information might be easier to observe and to render accountable. The data-gathering and exchange practices of private firms are notoriously diverse and complex, making policing and accountability perhaps more difficult than they would be if governmental data collection were involved. Thus, there are reasons to think that government procurement schemes have advantages over price from a privacy perspective.

The practices that fall under the rubric of commons-based production are also diverse, and therefore they are difficult to assess in the abstract. But if we consider the structure of commons-based production, there seems to be no obvious relationship between this mode of production and informational privacy. Hobbyists and user-driven innovators are motivated by their own aims and interests, rather than through an other-regarding assessment of demand for information goods. Some commons-based producers, whether they are open-source software programmers or aspiring musicians and artists, may wish to track how their work is being taken up; however, they are likely to have relatively limited tools and resources at their disposal to engage in extensive surveillance. There are sophisticated players in the commons-based production space, such as Wikipedia, but there is also some reason to think that they are likely to be more sensitive to privacy concerns than are conventional firms. For example, their production model may be exceptionally sensitive to their public reputation and to user goodwill. Perhaps it is no accident, then, that when the *Wall Street Journal* examined the privacy practices of the fifty most popular websites in the United States, the website with the most favorable privacy practices was Wikipedia.¹⁸⁶ It was the only site examined that did not put tracking files on users' computers to gather information about their browsing activity, and it was the only one to receive a "0" score on the privacy exposure

186. *What They Know*, WALL ST. J. BLOGS—WHAT THEY KNOW, <http://blogs.wsj.com/wtk> (last visited Feb. 28, 2012).

index developed by the newspaper, which evaluated practices like usage of cookies and sharing and retention of data.¹⁸⁷

The two websites with the most aggressive practices with respect to privacy were dictionary.com and merriam-webster.com.¹⁸⁸ Each website put more than two hundred separate tracking files on users' computers to gather information about their browsing activity, and each sold or shared this information with at least fifty other companies.¹⁸⁹ This suggests that there is yet another mode of information production besides those we have discussed so far, and that the commons, government procurement, and even IP may have advantages over this mode of production from a privacy perspective. Websites such as dictionary.com, in effect, use a market nonexclusion strategy to fund the production of information goods.¹⁹⁰ That is, they produce information goods and make them freely available without exclusion. But unlike in a commons, these producers are driven by market motives. In a sense, this is the world of information production that the standard economic story discounts, in which neither exclusivity nor some other direct subsidy is needed to sustain the production of information. Rather, information is produced by market mechanisms without exclusion because some ancillary good or service that is attached to the information can be sold. Dictionary.com, in fact, follows a popular online business model: It makes information available for free, and it monetizes its production and provision indirectly by gathering and selling the personal information of users.¹⁹¹ This strategy produces evident pressure on informational privacy—a pressure that appears more acute than that produced by government procurement, commons-based approaches, and possibly IP too.

Again, my aim is not to show that one of the possible mechanisms will invariably have advantages over the others with respect to privacy. There might be reason to conclude that even minimal government collection and processing

187. *Tracking the Trackers: Our Method*, WALL ST. J. BLOGS—WHAT THEY KNOW (July 31, 2010), <http://online.wsj.com/article/SB10001424052748703977004575393121635952084.html>; see also *What They Know*, *supra* note 186. The sites with high-rated exposure were sites like dictionary.com and comcast.net, which used 254 and 151 trackers, respectively. *Id.*

188. See *What They Know*, *supra* note 186.

189. See *id.* For a more detailed description of the method of the study, see *Tracking the Trackers*, *supra* note 187.

190. See BENKLER, *supra* note 18, at 43.

191. See Solove, *supra* note 136, at 1448 (“Many web sites require people to supply personal information in order to gain access to information on the web site. . . . In short, useful information and services are being exchanged for personal information, and this represents the going ‘price’ of privacy.”).

of data about demand for information goods is more troubling than more intensive collection of personal information by private actors. We might also argue about whether private sector actors are likely to be more accountable to the privacy concerns of consumers than would be the government; or we may take the view that the fact that consumers often willingly share their information in private markets but may have less choice to opt out of government schemes is important, if not decisive, from a privacy perspective. But to engage in this debate, we must take an externalist view and consider the costs that the price approach imposes on informational privacy, as well as the possible advantages of other institutional approaches in this same register.

CONCLUSION

The field of IP law today, as the name suggests, focuses predominantly on one modality of legal regulation of information: exclusive rights. The central concern of the field is the optimal functioning of exclusive rights in information—including, for example, their proper length and breadth, their proper administration, and their appropriate exceptions. Arguments about the proper scope of IP law are generally arguments about the most efficient scope of IP law; efficiency is the dominant value to which the field responds.

Yet efficiency analysis provides us with no general reason to favor IP over the many alternative means of sustaining the production of information goods. As shown in Part I, it is not possible to conclude a priori that IP is more efficient than alternatives such as government procurement or commons-based production. Economists have identified a range of influences that will affect the tradeoffs between IP and these other approaches. At a minimum, these variables need to be assessed in context. They may also be difficult to assess with certainty, leaving a substantial number of cases in which efficiency analysis cannot provide criteria for choosing between different innovation mechanisms. Paradoxically, while efficiency is the touchstone of IP law, it provides no justification for making IP the centerpiece of conversations about information policy.

This is not visible under the internalist viewpoint that prevails in the field. But by telescoping out to bring institutional approaches other than IP into view, we give broader scope not only to conversations about efficiency, but also to conversations about fundamental values such as privacy and distributive justice. If economic arguments will often be indeterminate when comparing different institutional approaches to scientific and cultural production, then we would do

well to better develop our understanding of the implication of other values for such choices.

Using exclusive rights to govern the production and distribution of information is in tension with values of distributive justice and privacy because of the primary role that it accords to price. When information is priced, it will be disproportionately difficult for the poor to access. Where information is involved, the central objection to this argument is not the usual one, which is that price may ultimately be beneficial because it is more efficient than are the alternatives (as we have seen, this is not clearly so). Rather, it is the internalist argument that exemptions for the poor ultimately will not only promote but will also undermine access for the poor, because they will compromise the production of new informational goods. As Part II shows, this argument is flawed, because it will sometimes be possible to give the poor access to information without substantially disrupting the market for innovation. But the flaw in this argument also shows its strength: Ultimately, to give real scope to distributive concerns, we must countenance not just exceptions internal to IP, but alternatives to IP that may be better situated to meet distributive aims.

Government procurement and commons-based approaches do not depend on price to drive investment in information, so they can be more easily directed at the needs of the poor. They can also be more progressively funded than IP in situations in which the rich and poor have the same needs. There are some basic informational goods—goods like medicines or textbooks—that are so important that we may conclude that everyone should have them, whether or not they would choose to purchase them in a market setting. The key virtue of price is said to be its ability to induce production of informational goods in accordance with what we value, because it links production to preferences in a decentralized fashion. But when what we value is not the same as what people may prefer in markets, price can only misfire.

An externalist view also allows us to see the tension between the IP approach and informational privacy that stems from the relationship between price, price discrimination, and privacy. Choosing price as a means of producing and distributing information means that we want firms to price discriminate, because price discrimination will likely enhance efficiency. Firms that price information will also find price discrimination very attractive as a strategy, and they may have the measure of market power needed to implement it. But price discrimination requires copious personal information. It also requires the ability to prevent arbitrage, and measures to prevent arbitrage may also undermine privacy. Price and privacy are thus in structural tension in the context of

information. The more we value privacy, the less attractive price is as a strategy for producing and distributing information.

Other modes of information production plausibly generate less tension with privacy values. While governments may wish to track demand when creating a contract or prize, they need not obtain the kind of information about individual willingness and ability to pay that is essential to price discrimination. Government data gathering may also be more transparent and accountable than is private data gathering. Commons-based producers, in turn, may have no interest in external demand, much less individualized information about willingness and ability to pay. When such producers do want information about how their works are being used, they may have limited resources to obtain it. More sophisticated commons-based producers such as Wikipedia may protect user privacy to safeguard the norms or goodwill upon which their mode of production relies.

Once we recognize the problems that price poses for distributive justice and privacy, it also becomes clear that we cannot solve these problems from a perspective internal to IP law. Compulsory licensing of patents, for example, may improve access to existing informational goods for the poor. But it cannot make up for the demand failure that attends the mechanism of price, or for the fact that price tracks preferences while distributive justice requirements may not. Exceptions and limitations to IP also fail to redress the broader implications that price has for privacy. While we can exempt certain personal uses from the reach of copyright law, for example, this will not address the broader implications that pricing information has for the widespread surveillance of consumer characteristics and behaviors.

The field of IP law should thus have a considerably broader frame of reference than it has today. We should not treat IP as presumptively the right way to induce information production, and we should direct more effort toward understanding and developing approaches such as government procurement and commons-based production. These approaches are already important to our systems of scientific and cultural production. As importantly, we have some distance to go before attaining a comprehensive understanding of how law shapes and might reshape these different realms—much less of the normative and institutional forces that help these approaches succeed or fail. For example, as Part I discusses, one key to the effectiveness of the government contracting approach is the government's ability to select sound research projects and to control the risks of capture. A literature exists outside of law assessing, for example, the quality

of the peer review process at government agencies,¹⁹² as well as the influence of congressional committees and lobbying on the allocation of government grants.¹⁹³ Both peer review and congressional intervention in government funding decisions may be governed in part by legal frameworks,¹⁹⁴ and, of course, also by norms. If we want to understand our system of scientific production and to improve its effectiveness, its fairness, and the like, then studying and critiquing these systems should be of importance to IP scholars, too. The small legal literature addressing both government contracting and prizes as institutional approaches provides an important foundation for the development of this domain of work.¹⁹⁵

The new literature on the information or cultural commons has begun to explore the normative and institutional conditions that can help make such a commons function. But more is needed to develop these early forays into a robust field of analysis.¹⁹⁶ More, as well as more systematically structured, examples of functioning commons systems—and of failure in the commons—are needed. We also require more sophisticated accounts of how the IP system interacts with commons-based production, as well as systems based on government funding of science or culture.¹⁹⁷ The question of where commons-based, government procurement, and IP approaches are complementary to one another, and where they may detract from or interfere with one another, is particularly important to

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192. See, e.g., Theodore A. Kotchen et al., *NIH Peer Review of Grant Applications for Clinical Research*, 291 JAMA 836, 842–43 (2004) (offering evidence that the NIH peer review process favors grant applications for laboratory research over clinical research); Rustom Roy, *Funding Science: The Real Defects of Peer Review and an Alternative to It*, 10 SCI. TECH. & HUMAN VALUES 73 (1985) (summarizing criticisms of the peer review process at agencies such as NIH and NSF and offering alternatives). For a description of the NIH peer review process, see Office of Extramural Research, *Peer Review Process*, NIH, http://grants.nih.gov/grants/peer_review_process.htm (last visited Feb. 28, 2012).
 193. See, e.g., Deepak Hegde & David C. Mowery, *Politics and Funding in the U.S. Biomedical R&D System*, 322 SCIENCE 1797 (2008).
 194. See, e.g., 42 U.S.C. § 289A (2006) (circumscribing the NIH peer review process); see also Deepak Hegde & David C. Mowery, *Supporting Online Material for Politics and Funding in the U.S. Biomedical R&D System*, SCIENCE (Dec. 19, 2008), <http://www.sciencemag.org/content/suppl/2008/12/18/322.5909.1797.DC1/Hegde.SOM.pdf> (describing how congressional appropriations bills and committee reports affect NIH grantmaking, including by allocating funding among NIH institutes and by urging the NIH to direct resources toward particular diseases).
 195. Though it does not pretend to be comprehensive, a list of some important examples can be found in note 19, *supra*.
 196. Michael Madison, Brett Frischmann, and Katherine Strandburg offer one path forward here, in their important recent article urging more systematic investigation of the “constructed cultural commons.” Madison, Frischmann & Strandburg, *supra* note 20, at 657.
 197. See Eisenberg, *supra* note 18; Amy Kapczynski et al., *Addressing Global Health Inequities: An Open Licensing Approach for University Innovations*, 20 BERKELEY TECH. L.J. 1031 (2005); Rai, *supra* note 18.

our understanding of our fundamentally mixed ecology of scientific and cultural production. The task is particularly pressing and complex given the recent questions raised about the potential of market-based norms to “crowd out” the more intrinsic norms that may motivate some commons-based creation.¹⁹⁸

Because efficiency analysis will often be indeterminate when asking externalist questions about the choice between innovation schemes, we should also develop our understanding of the implication of other values on the choice between approaches to innovation. As I have argued, if we reason from values of distributive justice and privacy, we see that the commons and government procurement may have constitutive advantages over IP approaches, providing ample reason to consider the implication of such arguments in more detail in particular cases.

A broader frame for the field would likely facilitate the kind of analysis called for in this Article.¹⁹⁹ There is something incongruous about studying or teaching about the process of scientific peer review or innovation by online gamers under the rubric of intellectual property. The question of the best frame for the field is an interesting and important one,²⁰⁰ but in calling for IP externalism,

198. Yochai Benkler and Wendy Gordon have both recently brought attention to the rich economic and psychological literature on crowding out, and to its possible implications for IP law. BENKLER, *supra* note 18, at 115; Wendy J. Gordon, *Discipline and Nourish: On Constructing Commons*, 95 CORNELL L. REV. 733, 749 (2010); Wendy J. Gordon, *Render Copyright Unto Caesar: On Taking Incentives Seriously*, 71 U. CHI. L. REV. 75, 88 (2004). For a discussion of intrinsic and extrinsic rewards and some of the potential pathways of crowding out, see, for example, Bruno S. Frey & Felix Oberholzer-Gee, *The Cost of Price Incentives: An Empirical Analysis of Motivation Crowding-Out*, 87 AM. ECON. REV. 746, 746 (1997) (defining extrinsic motivation as “activated from the outside” and intrinsic motivation as relating to “activities one simply undertakes because one likes to do them or because the individual derives some satisfaction from doing his or her duty”); see also Bruno S. Frey & Reto Jegen, *Motivation Crowding Theory*, 15 J. ECON. SURVS. 589, 591 (2001). Also relevant here is recent empirical work, based on more conventional rational-actor models, that suggests that the introduction of IP into academic science may have led academics to shift their research toward questions of more commercial significance. See Pierre Azoulay, Waverly Ding & Toby Stuart, *The Impact of Academic Patenting on the Rate, Quality and Direction of (Public) Research Output*, 57 J. INDUS. ECON. 637 (2009).

199. A robust literature in sociology and psychology suggests that conceptual frameworks matter to how people understand issues. For a brief review of the underlying literature, as well as an explanation of frame analysis, and an exploration of the role of framing related to the IP industries and the recent countermobilization, see Kapczynski, *supra* note 27. The sense that the name of a field matters is reflected in recent arguments that the recasting of the distinct fields of “copyright,” “patent law,” and “trade secret law” under the more rarefied rubric of intellectual property has influenced the substantive contours of this area of law. See, e.g., Lemley, *supra* note 27, at 1033.

200. For example, we might consider frames such as “information law,” “innovation law,” or “the law of scientific and cultural production.” The stakes of particular frames are worth investigating at greater length, but I note a few possible consequences of these three. Using information as the central frame would likely reinforce the prominence of economic logic in the field, and focus our

I do not mean to suggest that we need to rename the field in order to give it a new geography. We can adopt a broader frame of reference for our inquiries regardless of what we call the field. Indeed, this move is already underway.

The stakes of how we manage our information ecology today are broader than can be addressed inside the frame of IP law, or than can be encompassed under the rubric of efficiency alone. If we are to have a field of legal inquiry that is adequate to the stakes of scientific and cultural production today, we should rethink the contours of the field of IP. We should consider ourselves scholars of something more encompassing, whatever we call the field. This will give more scope to our debates about how to efficiently produce immaterial resources, but as importantly, also give more scope to our discussions of how law in this area can promote values such as distributive justice and information privacy. In the field of IP, then, we should pay less attention to IP and more to the alternatives.

attention on the reified result of innovative or creative activity. The latter two tend to call to the fore the human activities that produce scientific and cultural knowledge, rather than their result. In part for that reason, they might be more amenable to attempts to pluralize the values and institutions that we address in the field.