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Volume 92

Response

Reply—Commercialization Without Exchange

Michael J. Burstein*

In his thoughtful and generous response to my article *Exchanging Information Without Intellectual Property*,¹ Professor Ted Sichelman acknowledges that my argument casts significant doubt on theories of intellectual property that justify exclusive rights by their ability to make a market in information.² But he argues that I have not cast similar doubt on the larger project of justifying intellectual property by the incentives it may provide to commercialize intellectual works.³ In this reply, I elaborate on my argument—laid out only briefly in the article⁴—that such a theory is not economically distinguishable from the more traditional incentives-based justification for intellectual property, which focuses on incentives to create.

Innovation is a process, not an event. It unfolds over time and involves multiple players and skills, from the initial spark of invention through design and testing, marketing, manufacturing, and distribution. Innovators may find that their efforts are freely appropriable by others throughout this process. Exclusive rights may be invoked to prevent misappropriation, and thereby create *ex ante* incentives for economic activity, at any point. Similarly, however, there is reason at each stage of the innovation process to believe that exclusive rights are socially suboptimal. At each step, one must ask whether the additional incentive, if any, provided by exclusive rights

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1. Michael J. Burstein, *Exchanging Information Without Intellectual Property*, 91 *TEXAS L. REV.* 227 (2012).

2. Ted Sichelman, *Commercializing Information With Intellectual Property*, 92 *TEXAS L. REV. SEE ALSO* 35, 39–40 (2014).

3. See *id.* at 40–44.

4. See Burstein, *supra* note 1, at 241.

outweighs both the static cost of reduced access to the protected good and the dynamic cost of inhibiting future innovation. Similarly, it remains an open empirical question whether exclusive rights are needed to encourage either invention or the broader process of innovation.

“Commercialization theory” adds much-needed nuance to the traditional theory of intellectual property but does not stand alone as a separate justification for exclusive rights. To the extent that it focuses on incentives to commercialize, those incentives are part and parcel of the broader incentives-based theory of intellectual property and subject to that theory’s well-developed critiques. Part of my project in *Exchanging Information* was therefore to isolate the economically distinct function of exclusive rights that proponents of exchange-based theories of intellectual property rely upon and to question whether and in what circumstances that function can justify exclusive rights.

I conclude this reply by noting that commercialization is a complex and multifaceted enterprise in which exclusive rights may play multiple roles simultaneously. I echo Professor Sichelman’s call for further empirical work to disentangle those multiple and potentially competing functions and to develop a comprehensive understanding of the commercialization process, its pitfalls, and mechanisms to improve it.⁵

I. Incentives to Invent, Incentives to Commercialize

The classic justification for intellectual property is that it provides incentives to invent or to create, to bring a new intellectual product into the world.⁶ The typical account posits that intellectual goods are both nonrivalrous and nonexcludable.⁷ Because of these economic characteristics, would-be inventors or creators have little assurance *ex ante* that they, rather than others, will be able to appropriate the fruits of their investments in invention or creation.⁸ As a result, their private incentives to engage in intellectual work will be suboptimally low from the perspective of social welfare.⁹ Intellectual property is a solution to this underproduction problem.¹⁰ An exclusive right to make, use, or sell an invention creates legal

5. See Sichelman, *supra* note 2, at 37, 44.

6. See SUZANNE SCOTCHMER, *INNOVATION AND INCENTIVES* 38–39 (2004).

7. See e.g., Peter S. Menell & Suzanne Scotchmer, *Intellectual Property Law*, in 2 *HANDBOOK OF LAW AND ECONOMICS* 1473, 1477 (A. Mitchell Polinsky & Steven Shavell eds., 2007).

8. See *id.* at 1476.

9. *Id.*; see also 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, 616–17 (Nat’l Bureau of Econ. Research ed., 1962).

10. It is not the only or the best solution. Government procurement and prizes may theoretically offer the same incentive at less social cost. For comparative economic analyses, see, for example, Brian D. Wright, *The Economics of Invention Incentives: Patents, Prizes, and Research Contracts*, 73 *AM. ECON. REV.* 691 (1983), or Nancy Gallini & Suzanne Scotchmer,

appropriability. That in turn provides needed assurance at the time costly investments are made that a reasonable return can be secured. I refer to this account as the “incentive-to-invent” theory.

Of course, “invention” is not the end of the story. Invention is distinct from innovation.¹¹ The latter, which Professor Sichelman and others describe in vivid detail,¹² is a multistep process that involves bringing additional resources and capital to bear to bring a new product into the world. It requires not only the formation of an idea or the development of a prototype but also market testing, marketing, distribution, and follow-on improvements. Those activities may themselves be costly and risky. Indeed, sometimes they are far costlier and riskier than the mere act of invention. In pharmaceuticals, for example, the invention is the drug molecule. But it costs far more to go through the clinical testing required to secure FDA approval than it does to identify the promising molecule in the first place.¹³

There are two ways in which the fruits of these investments, no less than the original investment in “invention,” might be difficult to appropriate and therefore be subject to underproduction. The first has to do with timing. If the invention is highly self-revealing in its marketed form, then even if it may be kept secret while postinvention commercialization investments are made, it may be subject to copying by others after those investments are complete.¹⁴ Exclusive rights may protect postinvention investments, but only so long as they remain in effect through the period in which those investments are made and into the marketing of the product. Michael Abramowicz, Christopher Cotropia, and others have argued that undercommercialization results, for example, when patents expire before their inventors can earn a return on their investment in the full range of commercialization activities.¹⁵ Second, investments in commercialization might be difficult to appropriate because they themselves have the characteristics of public goods. Abramowicz and John Duffy ascribe these

Intellectual Property: When Is It the Best Incentive System?, in 2 *INNOVATION POLICY AND THE ECONOMY* 51 (Adam B. Jaffe et al. eds., 2002). Other government policies such as tax incentives may also change the calculus. See generally Daniel J. Hemel & Lisa Larrimore Ouellette, *Beyond the Patents-Prizes Debate*, 92 *TEXAS L. REV.* 303 (2013); Joshua D. Sarnoff, *Government Choices in Innovation Funding (With Reference to Climate Change)*, 62 *EMORY L.J.* 1087 (2013).

11. Burstein, *supra* note 1, at 237–38.

12. See Ted Sichelman, *Commercializing Patents*, 62 *STAN. L. REV.* 341, 348–54 (2010).

13. See Benjamin N. Roin, *Unpatentable Drugs and the Standards of Patentability*, 87 *TEXAS L. REV.* 503, 510–11 (2009); Sichelman, *supra* note 12, at 371–72.

14. See Katherine J. Strandburg, *What Does the Public Get? Experimental Use and the Patent Bargain*, 2004 *WIS. L. REV.* 81, 105.

15. See Michael Abramowicz, *The Danger of Underdeveloped Patent Prospects*, 92 *CORNELL L. REV.* 1065, 1068–70 (2007); Christopher A. Cotropia, *The Folly of Early Filing in Patent Law*, 61 *HASTINGS L.J.* 65, 107–13 (2009); see also Benjamin N. Roin, *The Case for Tailoring Patent Awards Based on the Time-to-Market of Inventions*, 61 *UCLA L. REV.* (forthcoming 2014); Sichelman, *supra* note 12, at 371–74.

characteristics to information about the markets for finished products.¹⁶ If that is true, then exclusive rights can prevent misappropriation of commercialization investments just as they can protect the initial investments in invention. I refer to these related arguments as the “incentive-to-commercialize” theory.

In an influential article, Mark Lemley drew a distinction between *ex ante* justifications for intellectual property, the goal of which is “to influence behavior that occurs before the [exclusive] right comes into being,”¹⁷ and *ex post* justifications that focus on “the incentives the right gives its owner to manage works that have already been created.”¹⁸ But the relevant distinction is not between *ex ante* and *ex post*.¹⁹ It is instead between those theories that justify intellectual property as a solution to the problems associated with public goods and those that justify it because of its ability to facilitate market exchange. As I describe in *Exchanging Information*, these are two different economic functions.²⁰

With respect to the incentive function, moreover, there is no economic basis for drawing a line between *ex ante* and *ex post*.²¹ Think of the innovation process as a supply chain, running from problem identification through the conception of an idea and then all of the activities associated with commercialization described above and elsewhere.²² Public goods problems can occur up and down the supply chain. The initial invention may be freely appropriable by others at any or many stages of the chain, or the activities at any stage of the chain may themselves generate public goods that are subject to misappropriation. In all events, the economic function of exclusive rights is the same. They may prevent free appropriation and therefore provide an incentive to undertake productive activities. Incentive-

16. Michael Abramowicz & John F. Duffy, *Intellectual Property for Market Experimentation*, 83 N.Y.U. L. REV. 337, 339–40 (2008); see also F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697, 707–08 (2001); Sichelman, *supra* note 12, at 373–76.

17. Mark A. Lemley, *Ex Ante versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129, 130 (2004).

18. *Id.*

19. A word on nomenclature is appropriate here. In drawing this distinction, Lemley groups together both the incentive-to-commercialize theory that I describe above and the exchange-based theories that I critique in *Exchanging Information*. See *id.* at 131–32. Some of the subsequent literature has, in turn, equated these *ex post* theories with “commercialization theory.” See, e.g., Mark A. Lemley, *The Myth of the Sole Inventor*, 110 MICH. L. REV. 709, 738 (2012) (equating “commercialization” with *ex post* justifications and describing “two different strands” of the theory); Jason Rantanen, *Peripheral Disclosure*, 74 U. PITT. L. REV. 1, 9 n.24 (2012); cf. Adam Mossoff, *Exclusion and Exclusive Use in Patent Law*, 22 HARV. J.L. & TECH. 321, 323 n.10 (2009).

20. See Burstein, *supra* note 1, at 241–43.

21. Professor Sichelman has previously criticized Lemley for arbitrarily drawing the line between the theories at “the product.” Sichelman, *supra* note 12, at 359–60.

22. See, e.g., BRETT M. FRISCHMANN, *INFRASTRUCTURE: THE SOCIAL VALUE OF SHARED RESOURCES* 270–71 (2012); Jonathan M. Barnett, *Intellectual Property as a Law of Organization*, 84 S. CAL. L. REV. 785, 795–96, 797 fig.1 (2011).

to-invent and incentive-to-commercialize theories of intellectual property choose different points of intervention in the innovation supply chain. They differ not in function, but in timing.

Indeed, it is difficult even to draw a coherent line between “invention” and “commercialization” along the supply chain described above. Patent law appears to draw the line at inventions that have been actually or constructively “reduced to practice.”²³ But commentators often speak more colloquially of the goal of encouraging “innovation” without being specific about what that means. It could mean that we want to increase the store of ideas, or of workable product concepts, or of finished marketable products. In all events, there is no a priori reason to think that workable product concepts ought to be the object of intellectual property. The choice of policy intervention must ultimately depend on empirical analysis of the innovation supply chain and identification of the points in that chain where market failures can be solved through exclusive rights.

II. Two Common Objections

The objections to the incentive-to-invent theory and the incentive-to-commercialize theory are also structurally identical. Depending on one’s priors, they may apply with more intuitive force to commercialization, but they again are not economically distinct. I highlight the two most salient objections below.

The first is that the social welfare costs of exclusive rights exceed their social welfare benefits. The classic story about the social welfare effects of intellectual property posits a tradeoff between static and dynamic costs and benefits. Exclusive rights place limitations on access to intellectual works, and those limitations result in deadweight loss.²⁴ This static inefficiency is justified so long as it is exceeded by the dynamic benefits of improved innovation incentives. There is, however, a further dynamic cost because intellectual goods are inputs into their own production.²⁵ Since innovation may often be cumulative, access limitations may interfere with follow-on inventors’ ability to create new works.

The social welfare tradeoffs of intellectual property are the same regardless of where in the supply chain intellectual property is applied. At least, they are no different in kind. Exclusive rights in inventions or in the commercialization of those inventions both promise the benefits of incentives (to invent or to commercialize) at the cost of reduced access and the potential

23. A patent will not issue unless it is accompanied by an enabling disclosure. See 35 U.S.C. § 112 ¶ 1 (2006).

24. See SCOTCHMER, *supra* note 6, at 36–37; Menell & Scotchmer, *supra* note 7; see also Arrow, *supra* note 9, at 617.

25. See Arrow, *supra* note 9, at 618; Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, 5 J. ECON. PERSP. 29, 29–30 (1991).

inhibition of downstream research. The objections based on social welfare may be different in degree, at least insofar as incentive-to-commercialize theories lead to calls for broader or stronger intellectual property.²⁶ To be sure, scholars who support the incentive-to-commercialize theory are cognizant of these costs and propose a variety of mechanisms by which they may be minimized.²⁷ Professor Abramowicz, for example, proposes an auction mechanism to ensure that patent extensions go only to those goods that actually are suffering from undercommercialization.²⁸ Professor Sichelman proposes “commercialization patents” that are tailored to achieve the specific goal of incentivizing commercialization while minimizing social costs.²⁹ My point here is not to engage in the debate over whether specific protections for commercialization activities yield a net social benefit but instead to point out that the structure of the social welfare tradeoff, if not, perhaps, its ultimate resolution, is the same whether we are talking about exclusive rights in invention or in commercialization.

The second objection to the incentive-to-commercialize theory is that exclusive rights are not necessary to achieve commercialization. In other words, there may be no market failure in commercialization as opposed to invention. Lemley, for example, writes that “we don’t normally need supracompetitive returns or the prospect of exclusivity just to encourage someone to take an existing invention to market”³⁰ and calls commercialization theories “strikingly anti-market.”³¹ More specifically, the argument is that “[o]rdinary economic rents, coupled with nonpatent advantages such as first-mover benefits and brand reputation, have long proved sufficient to encourage entry into new markets even in the absence of patent protection.”³² This argument, too, is not structurally unique to incentive-to-commercialize theories. Instead, it parallels a long running debate in the incentive-to-invent literature over the extent to which sources of appropriability other than exclusive rights provide sufficient innovation incentives.³³ Our intuition is that exclusive rights are less necessary in the

26. The canonical objection to Edmud Kitch’s initial call for broader intellectual property for the purpose of commercialization is Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839 (1990). Merges and Nelson focus on the social welfare tradeoffs of broad patents, arguing that broadening patents to facilitate commercialization poses higher costs that do not justify the additional incentive benefits. See *id.* at 871–75, 877. For criticism of more recent incentive-to-commercialize proposals along these same lines, see Lemley, *supra* note 19, at 740–41.

27. These proposals also are responsive to the objection that patents are too imprecise a mechanism to address the underlying market failure. See, e.g., Lemley, *supra* note 19, at 740.

28. Abramowicz, *supra* note 15, at 1108–19.

29. Sichelman, *supra* note 12, at 400–11.

30. Lemley, *supra* note 19, at 739.

31. Lemley, *supra* note 17, at 132.

32. Lemley, *supra* note 19, at 740.

33. For theoretical support for the proposition that first-mover advantages or the ownership of complementary assets may substitute for exclusive rights, see, for example, David J. Teece,

commercialization portion of the supply chain than in the invention portion. But this again is a variation in degree rather than in kind. Ultimately, as with traditional incentive-to-invent theory, the question whether exclusive rights are needed for commercialization is likely to be highly context specific and therefore unanswerable without empirical study.

III. Toward a Holistic View of Commercialization

Commercialization is a complex function that sometimes requires interaction among multiple entities, each of which may have competing incentives. Intellectual property can serve at least two roles in this process: safeguarding appropriable investments in (and therefore providing ex ante incentives for) commercialization; and serving as a foundation for exchange by solving the disclosure paradox. As I explained above, the theoretical arguments over whether or not exclusive rights ought to be used to incentivize commercialization parallel the long running debate over exclusive rights to incentivize invention. Both debates ultimately cannot be resolved as a matter of theory. Both require empirical study. In *Exchanging Information*, I argued that the potential for exclusive rights to facilitate markets for information goods is no less contingent and context-specific. That is because the disclosure paradox that is thought to impede information exchange may not operate in all circumstances as theory predicts and, when the paradox does pose an obstacle to exchange, intellectual property is only one of many potential solutions to the paradox, each of which is accompanied by its own social welfare costs or benefits.

Commercialization theory has rightly focused attention on the innovation process as a whole. But it does not offer an independent justification for intellectual property. To the extent it focuses on incentives, my argument here is that it is no different from traditional theories of intellectual property, warts and all. To the extent it focuses on market exchange, my argument in *Exchanging Information* is that there is both theoretical and empirical cause for deep skepticism. Empirical study is therefore critical to understand how and under what circumstances exclusive rights might play a socially useful role in facilitating commercialization. That empirical study should take account of the multiple roles that intellectual property may play in the process.

Profiting From Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy, 15 RES. POL'Y 285 (1986). For empirical support, see, for example, Wesley M. Cohen et al., *Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or Not)* (Nat'l Bureau of Econ. Research, Working Paper No. 7552, 2000).