

1998

An 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

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Steve P. Calandrillo, *An 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).
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Cover Page Footnote

"The author wishes to thank the Olin Foundation and Steven Shavell, Professor of Law and Economics at Harvard Law School, for their extensive support and assistance."

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Steve P. Calandrillo*

TABLE OF CONTENTS

INTRODUCTION	303
I. DO WE NEED INTELLECTUAL PROPERTY RIGHTS IN ORDER TO GENERATE INCENTIVES TO PRODUCE INFORMATIONAL WORKS?	310
A. <i>General Justifications Given for Awarding Property Rights in Information</i>	310
1. Instrumental/Economic Arguments	310
2. Non-Economic Arguments—Authors' Natural/Moral Rights	312
B. <i>Alternative Incentives to Produce Informational Works in the Absence of Copyright or Patent Protection</i>	316
1. Personal Satisfaction	316
2. Respect and Esteem	317
3. First Mover Advantages	318
4. The Power of Convention	321
C. <i>For What Types of Informational Works are Pecuniary Incentives Necessary?</i>	323

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II.	WOULD A REWARD SYSTEM BE SUPERIOR TO INTELLECTUAL PROPERTY RIGHTS?.....	326
A.	<i>Problems of America's Current Intellectual Property System</i>	326
	1. Restriction of Use	326
	2. The Race to be First	329
	3. Allocative Efficiency versus Inefficiency.....	330
	4. Further Problems Specific to the Patent System..	331
	5. Further Problems Specific to the Copyright System.....	334
B.	<i>The Government-Run Reward System</i>	336
	1. Theory	336
	2. Financing Rewards through Taxes.....	337
	3. Who Will Prefer Rewards Over Intellectual Property Rights?.....	338
	4. Valuing the Reward Amount	339
	5. Additional Benefits of the Reward System— Dependence of Future Innovations; Savings on Enforcement Costs	341
C.	<i>Actual Use of the Reward System</i>	342
D.	<i>Criticisms and Responses of the Reward System</i>	344
	1. The Government Would not be able to Finance the Rewards.....	344
	2. The Government Would not be able to Fairly Value the Rewards	346
	3. The Government Might Possess Worse Information About the Nature of Demand for Products than Firms Do	348
	4. The Rewards will not be Given to the Correct Person.....	350
	5. Rewards will only be Given to Inventions in the Narrow Sense	351
	6. A Government-Run Reward System would Threaten Literary Independence	351
	7. A Reward System Would Not Solve the Race to be First	353
	8. How Would the Reward System Operate Internationally?	353

III. FINAL ANALYSIS.....	355
CONCLUSION.....	359
APPENDIX	360

INTRODUCTION

Property rights in information have long been taken for granted in this country and in most of the developed world, for that matter. The common sense premise behind America's intellectual property regime is that the value to society of many types of information frequently exceeds its developmental costs, therefore rendering it socially desirable to encourage and produce such information.¹ The rationale runs that in the absence of copyright or patent protection covering an individual's or firm's information creation, the low cost of copying such works will induce competitors to enter and "steal" another's product without penalty. Hence, rivals may profit from another's intellectual efforts without expending any energy or costs other than the relatively minor costs required to duplicate the socially valuable creation.²

In turn, the incentives of "original" creators to generate beneficial informational works will be greatly diminished, if not entirely eliminated. They will not be able to reap pecuniary rewards for their efforts or even recover their costs in many cases because of competitors copying their works and undercutting their prices. Given that innovators will have little hope of recovering their investment, the production of information will be seriously curtailed,

1. This Article's analysis focuses on how society might best foster both production and dissemination of such information, concentrating on information of repeat value, i.e. information that enables the production of many units of a particular work.

2. For instance, books and other works of authorship that currently enjoy copyright protection could simply be photocopied or reproduced by any rival publisher, allowing it to capitalize on the intellectual fruits of another. Furthermore, with respect to patentable inventions (life saving drugs for example), often the innovator will expend hundreds of millions of dollars on research and development before a commercially viable product can be developed and marketed. If, after this effort has been expended, anyone else may duplicate the competitor's formula and undercut his price, few firms would find the initial research and development investment worthwhile.

and its associated benefits upon society will be lost. It is not difficult to envision the undesirability of this outcome.

The solution in the United States and in most developed nations is an intellectual property rights regime, here composed primarily of copyright and patent law, but also encompassing trademark and trade secret protection.³ By assigning exclusive rights over the use and distribution of informational works to their creators for a specified duration, individuals and firms can safely anticipate the potential rewards for their inventive endeavors. Thus, they will be led to engage in substantially more information generation activity than their private calculus would indicate that they should in a regime lacking legal protection. The fundamental principle is to bring the private incentives to develop socially useful information in line with the social incentives, an intuitive goal that barely anyone would question. Simply put, we want information to be created when its development cost is less than its social value, and intellectual property rights aim to serve that purpose.

However, what is often ignored by those who tout the virtues of America's incentive system are its costs. The desirability of awarding property rights in information depends upon whether their advantage of encouraging the generation of information outweighs their costs in terms of the restrictions placed upon the availability of that information. When the law gives a creator a copyright or patent over her work, in effect a temporary monopoly over that piece of information is awarded. With monopoly rights come monopoly prices. As such, there is the very real possibility that many individuals who value the good at greater than its marginal cost of production, so that it would be socially desirable for them to have it, will be unable to obtain it if their valuation is below the monopoly price.⁴ The corresponding social loss may potentially be quite significant, especially in instances where the

3. Attention will be focused primarily on copyright and patent, as this Article's purpose is not to examine in detail all aspects of American intellectual property protection, but rather to explore the general notions underlying property rights in the hopes of offering a better alternative, i.e. a government-run reward system.

4. See, e.g., RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 301-03 (Aspen Law & Business, 5th ed., 1988). This phenomenon leads to the creation of "deadweight loss" in a monopoly setting. See Appendix, *infra* p. 353 for an illustrative diagram and discussion.

spread between marginal cost and monopoly price charged is rather large, for example in the pharmaceutical and software industries.⁵

Even more disregarded by society than the costs of property rights is the fact that some informational works would continue to be produced in the absence of intellectual property protection,⁶ bringing into question the general justifications given for copyright and patent protection in the first place. Besides the economic-based rationales, scholars such as Oliver Wendell Holmes, John Locke, and Henry Sidgwick have proposed that an author's natural right, personality, and added labor entitle her to a property right in the fruits of her efforts *independent of their social utility*.⁷ I will address these assertions, and ask whether such justifications for intellectual property rights are sound.

Next, I address the issue of whether alternative incentives exist to generate information in the absence of legal protection. Copyright and patent scholars such as Lloyd Weinreb of Harvard Law School have urged that other inducements exist, including simple personal satisfaction,⁸ the quest for respect and esteem,⁹ and the power of convention.¹⁰ In addition, economists Scherer, Hurt and Schuchman, as well as Justice Breyer and Professor Steven Shavell, have analyzed whether or not first-mover advantages might be

5. See F.M. SCHERER, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 390-91 (Rand McNally & Co. 1973). F.M. Scherer notes that Pfizer Corporation, a large pharmaceutical manufacturer, charged pharmacists \$30 for 100-capsule bottles of tetracycline while it held the patent on it, whereas production costs were roughly \$1.60 to \$3.80. See *id.*

6. See *id.* at 384.

7. See JOHN LOCKE, *TREATISE OF CIVIL GOVERNMENT AND A LETTER CONCERNING TOLERATION* 19 (Charles M. Sherman ed., Appelton-Century-Crofts, Inc. 1937); Henry Sidgwick, *The Principles of Political Economy* 83 (2d ed.) (1887); and *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239, 250 (1903) (Holmes' opinion details the fundamental nature of an author's personality right in her creation).

8. See Lloyd Weinreb, *Copyright For Functional Expression*, 111 HARV. L. REV. 1149, 1226 (1998).

9. *Id.* at 1233.

10. *Id.* at 1236-37. With respect to arguments in support of the power of convention, see also Pamela Samuelson et. al, *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2308 (1994); and Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281 (1970).

sufficient to encourage the generation of some information.¹¹ A further incentive explored by Weinreb and Breyer is the power of convention in mitigating the negative effects of a lack of legal protection.¹² However, on net, monetary inducements are probably necessary for a great many of the innovative works that the public currently enjoys.

Drawing upon the above premise, I consider what types of informational works would require the promise of pecuniary compensation to induce their creation. This analysis is significant, because given the often ignored costs of property rights, we should not be so willing to take for granted the application of intellectual property law to works that would be created even in its absence. Moreover, with respect to information production that would require financial incentives, we would be well served to evaluate whether a government-run reward system might not be superior to America's traditional intellectual property regime.¹³

I thus take up the discussion of the reward system in earnest, initially detailing the drawbacks of traditional intellectual property rights mentioned previously. Most fundamentally, Scherer describes the paradox of how society offers monopoly rights as a lure to stimulate the creation of socially valuable information, but it is precisely that award which leads to the restriction on the use of such information due to the rent-seeking price charged.¹⁴ The reward system seeks to remedy this dilemma while maintaining financial incentives for innovators to generate socially desirable information. The state would offer and pay a monetary award to creators of information, hence preserving their incentive to invest

11. See Scherer, *supra* note 5, at 384-85; Robert M. Hurt & Robert M. Schuchman, *The Economic Rational of Copyright*, 56 AM. ECON. REV. 421 (1966); Stephen Breyer, *supra* note 10, at 299-302; STEVEN SHAVELL, *ECONOMIC ANALYSIS OF THE LAW, INSTRUCTOR'S GUIDE* § 7, at 4 (forthcoming 1999) [hereinafter SHAVELL, *INSTRUCTOR'S GUIDE*] (manuscript on file with author).

12. See Weinreb, *supra* note 8, at 1235-37; Breyer, *supra* note 10, at 282-83.

13. While not seriously addressing the merits of a government reward system, scholars such as Breyer and Weinreb have opined that while intellectual property rights provide some degree of incentive to create, they are by no means the only method of fostering innovation. See Breyer, *supra* note 10, at 282-83; Weinreb, *supra* note 8, at 1233-35.

14. See Scherer, *supra* note 5, at 382.

so that they may be able to develop and produce these works. However, once the work of information was created, the state would then make it available to everyone within its domain at merely its cost of dissemination. In this manner, the optimal social generation and distribution of information will be achieved. Creators will still reap the rewards of innovation and therefore continue to invest and produce works. All consumers who value the information at or above its marginal cost will now be able to obtain it without being forced to pay the monopoly rents that previously "priced out" many such individuals. Thus, as long as the reward is set to reflect the social value of the information, society will be better off under this government sponsored regime than under our current intellectual property rights system.¹⁵ Incentives to innovate will be maintained or increased, and dissemination of informational works will become optimal.

This alternative reward regime is quite compelling in theory, but not without its critics. Detractors of such a system emphasize practical problems it would face, including how the state would finance and value the awards paid out. In addition, critics raise concerns regarding the threat that a government reward system would pose to literary and inventive independence.¹⁶ Others voice general notions that rewards may prove impractical and will not prevent duplicative effort nor the "race to be first."¹⁷

Moreover, some scholars worry that the reward system, unlike

15. By "better off," I mean that total utility will increase, and hence social welfare will be greater as well.

16. See Hurt & Schuchman, *supra* note 11, at 437. (Within the discussion following the article, one of the commentators, Robert W. Frase, discussed the threat that government rewards would pose to literary independence.)

17. Duplicative effort and the "race to be first" in the intellectual property area involves the simultaneous expenditure of resources by multiple parties in order that they be the first to develop the socially valuable information. Being first to produce the information is critical in most every property rights regime, for it usually determines who is awarded the exclusive right to use and sell the product. However, we must not lose sight of the wasted effort put forth by the loser of the race, which is a social loss that is usually unrecoverable. The reward system would not solve this dilemma, but the existence of the problem militates towards a scheme in which the beneficiary of the reward should be recognized early on in the development of the product, so as to minimize the duplicative effort in the race. See Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J. LAW & ECON. 265 (1977). A more thorough discussion of the problem can be found *infra*, Part II.D.3.

the patent system, would not naturally harness the specialized information firms possess about the nature of demand, and thus the government might suffer from information deficiencies in calculating the reward amount. Scherer and Mill similarly argue that valuation would be arbitrary and uncertain, presumably unlike the current "steady" state of affairs under intellectual property law as we know it.¹⁸ However, while assigning a value to the generation of a given piece of information may present a challenge, it is far from impossible to do so, as an independent commission could be established and valuation could be tied to objective market use.¹⁹ Patent experts such as Michael Polanvyi and Lord Stanley conclude that the reward system would actually be *fairer* and less arbitrary than its current counterpart.²⁰ Moreover, Shavell and Ypersele propose that by offering innovators the *option* of choosing between traditional intellectual property rights or the reward system, we could alleviate any informational disadvantages of the latter.²¹

18. See Scherer, *supra* note 5, at 398-99; 5 JOHN STUART MILL, PRINCIPLES OF POLITICAL ECONOMY, §4, 932 (W. J. Ashley ed., Longmans, Green & Co. 1940) (1848).

19. See STEVEN SHAVELL, ECONOMIC ANALYSIS OF THE LAW § 7.1.19 (forthcoming 1999) [hereinafter SHAVELL, ECONOMIC ANALYSIS] (manuscript on file with author). However, despite the use of objective valuation measures, Shavell admits this aspect of the reward system remains a concern. If the government has less information about the nature of demand for a product than firms do, then the rewards it pays out might not tailor incentives to produce the good as well as the patent system would. For example, in the case of an AIDS drug which has a low volume of sales but an incredibly high utility to each buyer (which the government might underestimate due to lack of information), a reward system might not pay out enough to induce the creation of the drug in the first place. This argument is one of Mill's critiques of the reward regime, and one of his reasons for preferring the patent system. For a discussion, see *infra*, Part II.D.3.

20. See Michael Polanvyi, *Patent Reform*, 11 REV. OF ECON. STUDIES 61, 69 (1944); Speech of the Right Hon. Lord Stanley, M.P., House of Commons, May 28, 1868, reprinted in RECENT DISCUSSIONS ON THE ABOLITION OF PATENTS FOR INVENTIONS 111 (n.d.)

21. See Steven Shavell & Tanguy van Ypersele, *Rewards Versus Intellectual Property Rights*, JOHN M. OLIN DISCUSSION PAPER No. 246 (1998). The authors argue that since the innovator is in the best position to know the demand for her product, and can compare that to the government's estimate and corresponding reward, she will rationally determine whether rewards or intellectual property rights are better for her. If she chooses traditional intellectual property protection, both she and society are equally well off vis-à-vis today's non-optional intellectual property laws. But, if she opts instead for a government reward, it must be the case that her welfare is increased by it. Likewise, social welfare will be enhanced because any deadweight loss that would have been created

Nevertheless, the criticisms of the reward system listed above do contain some merit, and certainly implementing the reward regime will be long-in-coming since it does not seem to be high on America's political priority list. Even if such a scheme is not to be instituted in America though, it behooves society to carefully examine the rationales that make it compelling in theory, and to apply that knowledge to our traditional intellectual property system when considering modifications or expansions of the law.²²

With the above framework and perspectives in mind, this Article suggests that a government-run reward system would best serve society's pursuit of optimal development and distribution of information. Part I explores the economic and non-economic rationales for intellectual property rights, whether alternative incentives exist to produce information in the absence of legal protection, and what types of informational works would require pecuniary rewards to induce their creation. Part II discusses the virtues of implementing a government-run reward system, initially detailing the drawbacks of intellectual property rights and analyzing past and analogous implementations of reward systems in practice. Part III surveys the criticisms that the reward system is likely to encounter, and offers some responses. This Article concludes that such a system would better serve society's goals than traditional intellectual property rights do. Even if such a scheme does not achieve popular acceptance however, we must strive to ensure that the lessons learned from its discussion are applied to make our current laws achieve more closely the ideal of socially optimal innovation and dissemination of information.

by monopoly intellectual property rights will be avoided.

22. Weinreb suggests that Machlup may be correct in his assessment that abandoning the patent system at this juncture would be folly since it is so firmly in place, but that given the weak justifications for property rights and the alternative incentives to produce, we should look critically at any proposed expansion of copyright or patent (i.e., especially in duration of protection), and think very carefully about narrowing it. See Weinreb, *supra* note 8, at 1243-44 (discussing FRITZ MACHLUP, AN ECONOMIC REVIEW OF THE PATENT SYSTEM, 80 (1958)).

I. DO WE NEED INTELLECTUAL PROPERTY RIGHTS IN ORDER TO GENERATE INCENTIVES TO PRODUCE INFORMATIONAL WORKS?

Before the merits and drawbacks of a government-run reward system may be considered, the justifications given for copyright and patent protection must be evaluated. The alternative incentives to generate information, even in their absence must be evaluated. Finally, what types of works would still require pecuniary inducements must also be evaluated.

A. *General Justifications Given for Awarding Property Rights in Information*

1. Instrumental/Economic Arguments

Article I, Section 8 of the United States Constitution provides that “[t]he Congress shall have the Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”²³

The Constitution thus envisions intellectual property rights as a utilitarian notion aimed at fostering “the progress of science and useful arts.” Completely absent, on its face at least, is any indication that an author has an inherent right to his creation. Quite to the contrary, Congress is explicitly granted the power to regulate property rights in information for society’s benefit, for they are *legislated* rights, not *natural* rights. Furthermore, when Congress enacted a comprehensive copyright statute in 1909, the language in the House Report rejected a natural right as a ground of copyright.²⁴

Underlying the Constitution’s philosophy is the concept that society should seek to encourage the production of valuable informational works, and the method by which it accomplishes that goal is by giving people an economic incentive to create them. This is

23. U.S. CONST. art. I, § 8[8].

24. H.R. REP. NO. 2222 (1909). The House Report stated, “The enactment of copyright legislation by Congress under the terms of the Constitution is not based upon any natural right that the author has in his writings . . . but upon the ground that the welfare of the public will be served.” *Id.* at 7.

common sense—people are motivated to act by the promise of monetary rewards; therefore, Congress provides for them in the form of intellectual property protection to spur creation. Adam Smith supported the copyright system on that rationale despite his disapproval of monopolies in general.²⁵ Likewise, Francis Hargrave, on the eve of the American Revolution, offered an eloquent defense of why authors as well as publishers need legal protection of their investment in order to have an incentive to create works.²⁶

Thus, the economic incentive argument for intellectual property protection has been around for centuries and has enjoyed the support of our Constitution as well as the most prominent scholars of the day. It seems quite intuitive to encourage the production of informational works by giving innovators a monetary incentive to create them.

However, the above instrumental argument is distinct from the contention that authors would not produce without the promise of fiscal reward.²⁷ In fact, one can make a decent case that the crea-

25. See Weinreb, *supra* note 8, at 1229, n. 327. Smith states that: [T]he author of a new book has an exclusive privilege of publishing and selling his book for 14 years . . . as an encouragement to the labours of learned men. And this is perhaps as well adapted to the real value of the work as any other, for if the book be a valuable one the demand for it in that time will probably be a considerable addition to his fortune. *Id.* (quoting ADAM SMITH, LECTURES ON JURISPRUDENCE 83 (R.L. Meek, D.D. Raphael & P.G. Stern, eds., Oxford Univ. Press 1978) (1896))). Smith goes on to reject any conception of an author's natural right to his work, arguing, "The only benefit one would have by writing a book, from the natural laws of reason, would be that he would have the first of the market and may be thereby a considerable gainer." *Id.*

26. FRANCIS HARGRAVE, AN ARGUMENT IN DEFENSE OF LITERARY PROPERTY 30-33 (2d ed., Garland Publishing, Inc. 1974) (1774) (quoted in Gillian K. Hadfield, *The Economics of Copyright: An Historical Perspective*, 38 COPYRIGHT L. SYMP. 1, 15-16 (1992)). Hargrave opined:

Every impression of a work is attended with such great [expenses], that nothing less than securing the sale of a large number of copies within a certain time, can bring back the money expended, with a reasonable allowance for interest and profit. But is this to be effected, if immediately after the impression of a book by *one* man, *all others* are to be left at liberty to make and vend impressions of the same work? . . . [E]xperience of the disadvantages of a rivalry so general would convince all . . . in the trade of printing, that it must be ruinous to carry it on, . . . Another great evil, which would arise from annihilating the property in *copies*, would be its discouragement of literature of every kind.

Id. See also Weinreb, *supra* note 8, at 1229-30.

27. See Weinreb, *supra* note 8, at 1218.

tive, artistic effort which results in some of what copyright protects least needs an economic incentive. Scholars such as Weinreb have expressed that much of what artists and innovators do in this arena, for example composing music, books, and works of art, is not generally motivated by profit.²⁸ Furthermore, supporters of the economic justification often ignore the associated negatives of intellectual property rights—rarely is the equally important social goal of the dissemination of information considered.

That said, I should be careful to note here however that the economic justifications for property rights in information should not be disregarded. I do not intend to do any such thing with my statements above, as instrumental arguments form the backbone of the government-run reward system I consider later. My purpose then is simply to explore some alternative justifications and incentives for the production of socially valuable works, which in turn may imply that the absence of our current intellectual property rights regime may not be as devastating to the generation of information as some supporters fear.

2. Non-Economic Arguments—Authors' Natural and Moral Rights

Despite the generally accepted economic rationale behind our current intellectual property system, the copyright and patent systems likely would not have enjoyed the support or expansion they have without some background notion of a creator's natural right to his work.²⁹ Contrary to the express mandate in the Constitution, the theory goes that an author is entitled to a property right in her creation simply because she is the author, and not because it is in the public's interest.³⁰ In fact, it may even conflict with the public's interest to award a property right (because use and dissemination may be curtailed), but the author's claim is strong enough to defeat the claims of interest of others. It is argued that historically the United States' system has not supported such a natural right,

28. *Id.* at 1226. Alternative incentives to generate information will be explored *infra*, Part I.B.

29. *See id.* at 1211.

30. *See id.* at 1217-20.

but Weinreb notes that is not entirely true.³¹ Particularly where the instrumental justifications for intellectual property rights are suspect, the sentiment of an author's entitlement to the fruits of her labor makes the award of copyright or patent seem far more obvious than it otherwise would.³²

There are several branches to the authors' natural right theory. The most basic approach holds that "but for" the creator, there would be no work. Hence, to award a property right to the author deprives no one else of anything that they otherwise would have had. Henry Sidgwick espoused this view in "The Principles of Political Economy," arguing that, "[i]t can hardly be an interference with A's natural liberty to exclude him, in the interest of B, from the gratuitous use of utilities which he could not possibly have enjoyed except as a result of B's labour."³³ Professor Weinreb disagrees with this intuition, claiming that "[t]he relevance of the conditional depends on the premise . . . that the author would not have created the work if she had no copyright in it."³⁴ More compelling in my mind is the somewhat subtle point that once the existence of a work is known, and more so if it has entered the common cultural background, those who are denied access to it may be worse off than if it had never been created. Their lack of access may engender frustrations, and they may also be made relatively less powerful compared to those who have access.³⁵

The second natural/moral right justification for allowing property rights in information is a personality-based argument. The rationale is that "the fruits of intellectual creativity are associated with their author in a peculiarly intimate way" that necessitates her

31. *See id.* at 1211.

32. *See id.*

33. Sidgwick, *supra* note 7, at 83.

34. Weinreb, *supra* note 8, at 1218.

35. *See id.* at 1218-19. Weinreb notes that if the work in question is a beautiful sonnet, the potential for frustration may seem small or farfetched, but at a more common level, deprivation from cable TV or daily comic strips or pulp fiction may be more "real" indeed. Furthermore, he adds that the "disempowerment of being denied access to works that are emblematic of the community's culture is palpable and has many dimensions, ranging from the educational value of preschool television shows or encyclopedias to the ability to communicate one's message effectively." *Id.* at 1219. *See also* Michael Madow, *Private Ownership of Public Image: Popular Culture and Publicity Rights*, 81 CAL. L. REV. 125 (1993) (discussing the privatization of cultural icons by the right of publicity).

having a right to her work.³⁶ None other than Justice Oliver Wendell Holmes recognized this reason behind intellectual property rights, observing in *Bleistein v. Donaldson*,³⁷ “[p]ersonality always contains something unique. It expresses its singularity even in handwriting, and a very modest grade of art has in it something irreducible, which is one man’s alone.”³⁸ In addition, Immanuel Kant argued in the eighteenth century that a work so reflects its creator’s personality that she should have the right to be protected from “garbled” imitations that might degrade her audience’s overall impression of the quality of the production.³⁹ Moreover, one might submit that a person’s creation is an aspect of their individual liberty, which is part of their self. However, it does not necessarily follow from the enjoyment of liberty that one can control all the consequences of what he or she does. For instance, the liberty to drink alcohol does not mean one has the right not to get drunk from it. Hence, it is more compelling that once a creator publishes her work, she has broken the personality-based connection between herself and the work, and thus loses this moral right to protection of her product.⁴⁰

A third, more common justification offered in support of a natural right to intellectual property protection can be generally described as a labor/effort argument. This line of reasoning is in essence a derivation of John Locke’s elaboration of a natural right to property in his *Second Treatise on Government*.⁴¹ Michelman has argued along “Lockean” lines that “whenever one mingles his effort with the raw stuff of the world, any resulting product ought—simply ought—to be his.”⁴² Additionally, Adam Smith has strongly asserted the property right of an individual to his labor: “The property which every man has in his own labour, as it is the

36. Weinreb, *supra* note 8, at 1219.

37. 188 U.S. 239 (1903).

38. *Id.* at 250.

39. See Breyer, *supra* note 10, at 290.

40. See Weinreb, *supra* note 8, at 1220-21.

41. Locke, *supra* note 7, at 18-33.

42. Frank I. Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of “Just Compensation” Law*, 80 HARV. L. REV. 1165, 1204 (1967).

original foundation of all other property, so it is the most sacred and inviolable."⁴³ Again, it seems like common sense that a creator is entitled to be compensated for her labor, and thus should enjoy a property right in the information her effort generates.

While this makes sense, there are some problems with the "labor theory of value." An often unspoken premise of the rationale is that there is "as much" and "as good" left over from which others can work with, but this is often contrary to fact (although, in the realm of intellectual property, it is probably not a great problem).⁴⁴ More critical though is the conception of what qualifies as "labor." As Weinreb notes, "[i]f the author's claim is based on his labor and not just his status as creator, one needs first of all to establish that he has labored."⁴⁵ A skeptic might argue that authors have the "fun" of composing their works, while readers have the "burden" of reading them. For instance, authors must *pay* their editors to read their works. Thus, what is labor and what is not depends on society's structure of what people are willing to pay for the good or service; and it is difficult to justify a *natural* property right on that basis.

In sum, the various natural right justifications for our current intellectual property protection all have significant shortcomings. Professor (now Justice) Breyer pointed out some of these criticisms in his piece, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*.⁴⁶ Breyer opined that "to speak of the 'fruits of one's labor' does not show that the author should be paid more than his persuasion cost or how much more he should be paid."⁴⁷ Furthermore, he pushed aside the personality-based arguments for protection, stating, "[o]ne suspects that many authors dislike copying because of the injury to their purse, not their pride."⁴⁸ And, he argued that even if

43. ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 138 (W.B. Todd ed., Liberty Classics 1981) (n.d.).

44. See Weinreb, *supra* note 8, at 1224. When one person composes a brilliant novel for instance, it is unlikely that she has so thoroughly exhausted the topic written upon that no one else would be able to enter the area.

45. *Id.* at 1226.

46. Breyer, *supra* note 10, at 284-91.

47. *Id.* at 286.

48. *Id.* at 290.

the justifications were accepted, they do not require accepting a system of copyright law, for there are many other ways of protecting and encouraging the generation of information in the absence of intellectual property rights.⁴⁹ It is those alternatives that will be explored below.

B. *Alternative Incentives to Produce Informational Works in the Absence of Copyright or Patent Protection*

Given the shortcomings of the natural rights arguments for intellectual property protection, and to a much lesser extent those of the economic/instrumental rationale, we must explore the alternative incentives to generate information in the absence of explicit property rights. For some types of works, the desire for personal satisfaction, respect and esteem may motivate creators to produce. Additionally, first mover advantages and the power of convention may stem the effects of the absence of property rights. Still though, there are certainly many types of socially valuable information whose production does depend on economic incentives,⁵⁰ and it is for these that we must consider the virtues of a government-run reward system.

1. Personal Satisfaction

It has been said that the creative, artistic effort, which today results in some forms of copyright protection, least needs a property rights incentive in order to encourage it.⁵¹ Scholars such as Weinreb have expressed that much of what artists and innovators do in this arena is generally not motivated by profit.⁵² Literally millions of individuals compose music, books, and beautiful works of art without serious expectation of reward. For most, the effort expended is compensation enough. Likewise, for many artists, their work is their passion and serves as an emotional outlet in which the

49. *See id.* at 290-91.

50. *See infra* Part I.C.

51. *See Weinreb, supra* note 8, at 1232.

52. *Id.* at 1226. Weinreb's argument does not enjoy overwhelming support though, as most law and economics scholars, including Shavell, believe that financial inducements are necessary to encourage creation of a good deal of what society commonly enjoys. *See SHAVELL, INSTRUCTOR'S GUIDE, supra* note 11, § 7, at 7.

psychological benefits significantly outweigh the pecuniary ones. Professor Shavell raises the example of diaries and letters, asserting that people are not usually induced to correspond and to keep diaries for profit or publication; hence, copyright protection would be unlikely to dramatically spur production.⁵³ However, he notes that the areas in which personal satisfaction alone would suffice to encourage creation are probably not very numerous.⁵⁴

2. Respect and Esteem

In addition, the desire for the respect and esteem of one's peers or audience often leads to the generation of some types of socially valuable information, even without an intellectual property right incentive. Landes and Posner note that "[m]any authors derive substantial benefits from publication that are over and beyond any royalties. This is true not only in terms of prestige and other non-pecuniary income, but also pecuniary income in such forms as a higher salary for a professor who publishes than for one who does not."⁵⁵ Aside from the financial component, Weinreb adds, "[a]dvancement and honor in one's field, including the academic prize of tenure, are other forms of compensation for authorship, as the notorious slogan, 'publish or perish' attests."⁵⁶ Certainly, there is a great prestige value to composing a book or article or piece of art recognized as a leading piece in its field. These incentives will always be present, regardless of whether one is awarded monopoly rights in her work.

53. However, Shavell notes that for famous individuals, the presence of copyright protection might encourage them to write better, more complete diaries and/or letters. In addition, a person's interest in privacy will be protected by copyright in their writings, which should stimulate these works. However, the production incentive and privacy issues must be balanced against the public's interest in having access to these types of information despite the fact that a public figure may not want it to be released. See SHAVELL, INSTRUCTOR'S GUIDE, *supra* note 11, § 7, at 7.

54. *Id.*

55. William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUDIES 325, 331 (1989) (emphasis omitted).

56. Weinreb, *supra* note 8, at 1233.

3. First Mover Advantages

First mover advantages may further allow innovators to capture a certain degree of the economic rewards that intellectual property rights aim to bestow even without the actual conferral of such legal rights. Despite the often high fixed costs borne by the author of an informational work,⁵⁷ Hurt and Schuchman argue that her advantage in terms of lead time coupled with the credible threat of retaliation against copiers will enable her to reap much of the economic rewards that she is due.⁵⁸ The argument holds that although the first publisher faces higher fixed costs than her imitator-rival, as first mover she can gauge demand conditions correctly and publish a first edition that will satiate demand at the projected price.⁵⁹ Since fixed costs will not be negligible for a copier, and assuming low marginal costs for both parties, it would likely be necessary for the rival "to publish an edition in the same size range as the first edition in order to bring his average costs significantly below those of the first publisher."⁶⁰ If the first mover had estimated demand correctly, the large number of newly available books will drive price lower to clear the excess supply, theoretically making entry an unprofitable venture for the copier.⁶¹ Hence, "[t]he mere threat

57. For instance, such fixed costs may include large outlays for plant, editorial work, overhead, selling, and promotion which a copier may not have to bear. See Landes & Posner, *supra* note 55, at 332.

58. See Hurt & Schuchman, *supra* note 11, at 427-28.

59. See *id.* at 428.

60. *Id.*

61. Consider an example similar to that of Prof. Shavell's: Assume relatively high fixed costs for the first publisher to be \$40,000 and marginal costs equal to \$3 per book. If demand will meet the production of 2000 books at a price of \$30 each, the first publisher's profit will be: (2000 books x \$30 price) - \$40,000 fixed cost - (1500 books x \$3 marginal cost) = \$15,500. Let us assume that if a copier enters the market, he faces lower, but still significant, fixed costs in the amount of \$30,000, because although copying technology saves the cost of setting the type face, any rival publisher still must account for converting the book into a marketable product, i.e. binding it, distributing it, and placing it on store shelves. Thus, if the rival also faces marginal costs of \$3 per book, and let's say there are 1000 potential buyers willing to pay \$25, his costs will be \$30,000 fixed cost + (1000 books x \$3) = \$33,000, making the average cost = \$33. Thus, at a price of \$25, the copier would be losing money. Moreover, we should note that the first mover can always choose to increase production when he detects entry by a rival, and sell at any price above marginal cost (and still increase his profits) while effectively driving the copier out of business before he can recover his costs. See SHAVELL,

of retributive behavior by the first publisher should be sufficient to deter the copier until the first edition is sold out and the first publisher has made his profit."⁶²

Professor Weinreb shares this view, asserting further advantages that the publisher of an original work possesses over her copying competitors despite her higher costs. For instance, the first mover determines the format of the first published edition as well as the time and the circumstances in which it is published.⁶³ Furthermore, like Hurt and Schuchman, Weinreb suggests that original authors may be able to produce an expensive "limited" or "authorized" edition in order to take advantage of potential opportunities for product differentiation.⁶⁴ He also opines that despite advances in copying technology, bringing a book or musical recording to market takes more than merely copying the work—it must be bound and packaged into a marketable product, distributed, and placed on store shelves, all of which requires considerable time and effort.⁶⁵

Moreover, the first mover argument is not limited solely to copyrightable works, as both Tirole and Scherer argue that markets and knowledge are not always perfectly competitive with respect to patentable inventions.⁶⁶ Scherer asserts that the imitation of inventions may not eliminate the inventor's profits because of three phenomena. First, there are natural barriers to copying new products and processes, created partially by the secrecy of the developer.⁶⁷ Second, knowledge is rarely perfect, and it therefore takes time for entrepreneurs to learn about the existence of a promising new invention and to then also decide it is worth copying and

INSTRUCTOR'S GUIDE, *supra* note 11, § 7, at 4-5.

62. Hurt & Schuchman, *supra* note 11, at 428.

63. See Weinreb, *supra* note 8, at 1234-35.

64. *Id.* See also Hurt & Schuchman, *supra* note 11, at 428. The authors assert that the "authorization" of the first edition by the author may be a marketable asset. See *id.* As an offer of proof, they suggest that J.R.R. Tolkien effectively used such a device to promote an authorized soft cover edition of the *Lord of the Rings* trilogy at the same time a rival copied edition was available which paid no royalties to Mr. Tolkien. See *id.*

65. See Weinreb, *supra* note 8, at 1235.

66. See Scherer, *supra* note 5, at 384-87; JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 400-01 (1988).

67. See Scherer, *supra* note 5, at 384.

bringing to market.⁶⁸ For example, he cites data compiled by Edwin Mansfield which indicate substantial lag times for the copying of innovations which everybody now takes for granted, such as packaging beer in tin cans and the development of diesel locomotives.⁶⁹ Thirdly, Scherer states that mere awareness that an attractive new product exists is often an inadequate basis for successful imitation, even after patent specifications are examined and analyzed.⁷⁰ For financial success, the copier may also require technical assistance from the innovator, specific know-how which can only come from carrying out one's own research and development, or the hiring away of several of the innovator's key engineers.⁷¹ Finally, companies may have an incentive to engage in research and development even without the promise of copyright or patent protection in order to enhance their corporate image and to guard against being foreclosed from some field of technology by another firm exercising parallel patent rights.⁷²

Despite this line of reasoning, arguments supporting the first mover advantage have come under heavy scrutiny in recent times from such notable scholars as Breyer, Shavell, and Landes and Posner.⁷³ While the theory behind it is certainly interesting, advances in modern copying technology have widened the cost disparity between original creator and copier.⁷⁴ At the same time, technological improvements have shortened the time duration between the release of the creator's version and the appearance of the rival's copy.⁷⁵ In addition, Shavell emphasizes that the first mover

68. *See id.* at 385.

69. The approximate interval between first use of diesel locomotives in the United States and the date when 60% of all relevant producers had imitated the process was 11 years. The interval for high speed beer bottle fillers was 7 years, and the interval for packaging beer in tin cans was 1 year. *See id.* at 385.

70. *See id.*

71. *See id.* Tirole agrees with the engineering "lack of know-how" argument, offering that "[i]mitators may observe an innovation with a lag, or may not have the know-how to copy it immediately. Indeed, patents play a minor role in some industries (e.g., computers)." TIROLE, *supra* note 66, at 400.

72. *See* Scherer, *supra* note 5, at 385-86.

73. *See* Breyer, *supra* note 10, at 299-302; Landes & Posner, *supra* note 55, at 330; and SHAVELL, INSTRUCTOR'S GUIDE, *supra* note 11, § 7, at 4-5.

74. *See* Landes & Posner, *supra* note 55, at 330.

75. *See id.* *See also* SHAVELL, INSTRUCTOR'S GUIDE, *supra* note 11, § 7, at 5.

argument presumes high fixed costs and low marginal costs of production, which is often not the case today.⁷⁶ Furthermore, Hurt and Schuchman's assessment of the first publisher's advantage depends on him being able to sell to a large group of high paying customers initially. However, this prerequisite will not be met if the rival copier can enter the market quickly, or even if buyers become somewhat more sophisticated and begin to anticipate entry, and therefore hold back on their purchases until the imitator's copy is released.⁷⁷

Hence, in today's and future markets, the advantage of being first would not often be sufficient to assure large profits, especially when compared to the financial rewards intellectual property rights afford creators. However, the reward system could maintain these monetary inducements while eliminating many of the drawbacks that property rights in information present.

4. The Power of Convention

Even without alternative economic or psychological benefits to generating socially useful works of information, the power of convention may be enough in limited instances to preserve the incentives for creators to produce.

Professor Weinreb places a great deal of faith in this proposition, arguing that if there is a demand for a certain informational good, the market will attempt to work out a solution to provide it, even in the absence of explicit legal protection or incentives.⁷⁸ In support, he points out that although books published in England in the nineteenth century were not covered by copyright in the United States, American publishers nonetheless paid royalties to English authors for the right to reproduce their works.⁷⁹ Implicit in this practice was that an industry convention had emerged which both parties were satisfied with, despite what an outside observer might see as constant incentives to deviate from the custom. As a further example, Weinreb argues that the fashion industry has "thrived de-

76. See SHAVELL, INSTRUCTOR'S GUIDE, *supra* note 11, § 7, at 5.

77. *Id.*

78. See Weinreb, *supra* note 8, at 1235-37.

79. See *id.* at 1235.

spite the absence of protection for designs and the prevalence of 'knock-offs.'"⁸⁰ In fact, he believes the industry has worked out a system where it *depends* on knock-offs, which appear in a regular cycle, to create consumer demand for new fashions.⁸¹ Lastly, the data collection industry complained vociferously prior to the Supreme Court's decision in *Feist Publications, Inc. v. Rural Telephone Service Co.*,⁸² that if data were not protected by intellectual property laws, it would wreak havoc on the production of such information.⁸³ Quite to the contrary, even after the Supreme Court rejected copyright coverage, the industry goes on similarly to how it functioned previously, having suffered few significant effects.⁸⁴

Breyer also presents this "power of convention" argument, recognizing the above-described practice adhered to by English and American publishers in the nineteenth century. He adds that authors in ancient times, as well as monks and scholars in the middle ages, composed and were financially compensated for their writings despite the lack of any copyright protection.⁸⁵ Additionally, Breyer suggests (though he does not conclude) that "[i]t would be possible . . . to do without copyright, [by] relying upon authors, publishers, and buyers to work out arrangements among themselves that would provide books' creators with enough money to produce them."⁸⁶ After conducting a study in which he attempted to estimate the result of a lack of copyright protection, he found that the production of some high cost, high volume books (such as elementary and high school texts) might be significantly affected, but otherwise there would probably not be "a serious loss of production" overall.⁸⁷

Hence, though intellectual property rights are often taken for

80. *Id.*

81. *See id.* at 1235 n. 347.

82. 499 U.S. 340 (1991).

83. *See Weinreb, supra* note 8, at 1235-36.

84. *See id.* at 1236. Weinreb notes that "even the production of telephone directories, the product specifically denied copyright in *Feist*, has not been affected." *Id.*

85. *See Breyer, supra* note 10, at 282 (citing G. PUTNAM, *AUTHORS AND THEIR PUBLIC IN ANCIENT TIMES* 140, 200, 224-25 (2d rev. ed. 1894); 2 G. PUTNAM, *BOOKS AND THEIR MAKERS DURING THE MIDDLE AGES* 478-79 (1896)).

86. *Id.* at 282.

87. *Id.* at 313.

granted, we should not ignore the possibility that markets might find ways to function efficiently and effectively in their absence. That is not to say that some industries would not serve the public interest less well, but rather, that such an event is not a foregone conclusion. Still, it is undoubtedly the case that many types of information will depend upon financial rewards for their generation, and it is for these that the virtues of a reward regime must be taken seriously.

C. *For What Types of Informational Works are Pecuniary Incentives Necessary?*

The above discussion of alternative incentives available to generate socially valuable information does not imply pecuniary rewards are unnecessary; only that they are not *always* necessary nor the sole motivation behind innovation and creation. It is essential to consider which types of informational works are specifically amenable to monetary incentives, for those are the ones society should concentrate on providing a financial inducement for. However, that objective does not inevitably mean that copyright or patent law must be the instrument that provides the pecuniary incentives. A government-run reward system would ideally be able to accomplish the same goal of fostering creation without many of the drawbacks inherent in our current intellectual property regime.⁸⁸

Hurt and Schuchman propose several examples of informational works whose production would be drastically inadequate in the absence of pecuniary rewards to their creators.⁸⁹ They assert quite reasonably that "when the costs of creation, as opposed to publication and distribution, constitute a significant proportion of total costs, and these costs [are] not incurred by copiers, . . . pecuniary reimbursement for the author [is required] before the work will even be conceived."⁹⁰ Commonly enjoyed informational works that fall into this category include encyclopedias, almanacs, maps, and many mass circulation periodicals.⁹¹ Technical subscription publications for professionals such as attorneys and phy-

88. See *infra* Part II.B. for a discussion.

89. See Hurt & Schuchman, *supra* note 11, at 426.

90. *Id.*

91. See *id.*

sicians would also be seriously threatened or non-existent in the absence of pecuniary inducements.⁹² With regard to novels and other fictional works, it may be true that initially many authors write seeking personal satisfaction or reputational objectives ahead of financial ones. However, it is less likely that once authors obtain that gratification or esteem, that they would produce the line of subsequent novels that is often witnessed and highly enjoyed by their audiences today. It is not improbable that the promise of monetary reward has played a large role in the succession of works by Stephen King, Tom Clancy, or Danielle Steel, and has resulted in the continued production of "value" for their respective readers.

Additionally, beyond the realm of literature, one would expect that a great deal of what we have come to enjoy in popular culture would be seriously reduced. Major motion pictures now routinely cost over \$100 million to produce before any revenue is realized.⁹³ If rival studios could simply copy a competitor's film and reap the profits, it is unlikely that most, or even any, substantial movie projects would be undertaken. The same holds true for a large majority of the programs that we watch every night on television—there are often significant up front costs to their creation and little expense involved in their reproduction.⁹⁴

More importantly perhaps, the production of many highly socially valuable innovations and inventions largely depends upon the creator's ability and expectation that she will reap economic profits in return for her effort and expense. Prime examples that

92. *See id.*

93. The production costs alone for the average summer "event movie" are \$70 million. *See* Tim Carvell, *How Sony Created a Monster: Sony Spent \$125 Million to make Godzilla. Is it any Good? Does it Really Matter? The Studio has Marshaled Another \$200 Million to Invade the Public's Imagination and Make Sure the Movie's a Hit*, FORTUNE, June 8, 1998, at 162. Major studios spend in excess of an additional \$22 million on marketing costs. *See id.* Films such as TERMINATOR 2, TITANIC, and GODZILLA cost hundreds of millions of dollars each. *See id.*

94. However, with respect to television programs, certain types of shows would certainly be less vulnerable to threat of copying than others. For instance, if one station is broadcasting a live football game, a competitor that copies it and reproduces it on another channel will largely be unsuccessful in capturing any audience if there is a time delay in its transmission. Thus, if there is a substantial advantage to being first, and little residual profits remaining for second comers, the absence of legal/pecuniary incentives to generate the work in the first place will have a reduced effect.

immediately come to mind include the large majority of patented pharmaceutical drugs and medical devices, as well as many of the advances in computer technology and software generation. Although Scherer argues that imperfect markets and information will often make research and development expenditures worthwhile even in the absence of patent protection,⁹⁵ it would be naive to think that firms will invest strikingly large sums of money into a venture when there is a significant probability that the fruits of their efforts could be duplicated at considerably less cost and effectively "stolen." Even if first mover advantages, imperfect knowledge, and power of convention obstacles to copying exist, as long as there is some positive probability that results of one's investment will be appropriated by another who now faces lower costs, firms will factor that into their calculus of what projects are economically sensible. Provided that firms will not be able to obtain pecuniary rewards to the extent that they currently are able to, it is likely that the generation of certain socially desirable products will be diminished.

As mentioned above, the computer technology, software, and pharmaceutical markets are obvious arenas where this dynamic could exact a devastating toll. The development costs that go into computer programs are often enormous, while the cost of duplicating the end result is virtually zero. The value that consumers obtain from Microsoft Windows and other software would be in serious jeopardy if their producers thought the investment to create the product might not later be recovered because of a rival's copying.⁹⁶ Likewise, numerous medical devices and life-saving drugs, including the AIDS cocktail for instance, would be lost to society since they require such large initial investments based solely on the promise of future monetary reward. It is certainly the

95. See prior discussion of Scherer's views on R & D incentives, *supra* Part I.B.3.

96. I should make clear here that in any industry, firms face uncertain prospects of obtaining future financial compensation for their current investment and development efforts, and yet still engage in many of those endeavors. This reality of business requires an assessment that the potential for compensation for a given project multiplied by the magnitude of the compensation outweighs the development costs that will go into it. However, if after this evaluation is made in the affirmative, firms know that competitors can copy their creation and reduce their profits, many previously feasible (and hopefully socially useful) projects will be abandoned contrary to society's best interests.

case then that many of the advances in technology-based industries would be threatened, for their development depends significantly upon pecuniary inducements.

Hence, for the above described works, society cannot simply remove intellectual property right protection and rely on other currently available incentives to generate the socially optimal amount of the information. Most scholars in the field feel that monetary rewards are probably necessary for the creation of a significant portion of what we value.⁹⁷ The issue though is whether that financial inducement is best provided by America's current intellectual property regime as opposed to some alternative, most notably, a government-run reward system.

II. WOULD A REWARD SYSTEM BE SUPERIOR TO INTELLECTUAL PROPERTY RIGHTS?

I have previously discussed the notions behind, and the justifications for, property rights in information. Now, we must consider the problems our current intellectual property laws possess, and whether a reward system might enable our social goals of fostering both the generation and the dissemination of information to be better met.

A. *Problems of America's Current Intellectual Property System*

1. Restriction of Use

While copyright, patent, trademark, and trade secret protection do serve society's interests by offering the promise of monopoly rights to encourage innovation, less (but growing) attention has been paid to the costs such property rights exact on users. Thomas Macauley made the point powerfully in his *First Speech on Copyright*, stating accusatorily that copyright was "a tax on readers for the purpose of giving a bounty to writers."⁹⁸ Law and economics scholars Besen and Raskind add that while providing property

97. See SHAVELL, INSTRUCTOR'S GUIDE, *supra* note 11, § 7, at 4.

98. Breyer, *supra* note 10, at 281 (citing THOMAS MACAULAY, SPEECHES ON COPYRIGHT 25 (C. Gaston. ed. 1914)).

rights incentives may foster innovation, "if the new innovations are not widely used, the system may be less beneficial than one with less creativity, but where the materials created are more broadly disseminated."⁹⁹

Thus, we see the inherent conflict that our intellectual property regime faces—it must strike a most difficult balance between creating incentives to innovate versus maximizing the distribution and utilization of socially valuable information. Scherer notes that while the goal of the patent system is to maximize the surplus of benefits over costs, an immediate paradox appears.¹⁰⁰ As an inducement to creation, "inventors are given the right to control and restrict utilization of their inventions, so that outputs may be lower and prices higher than they would be if the inventions were utilized under purely competitive conditions."¹⁰¹ Landes and Posner frame the problem similarly: "Copyright protection . . . trades off the costs of limiting access to a work against the benefits of providing incentives to create the work in the first place. Striking the correct balance between access and incentives is the central problem in copyright law."¹⁰²

We must query however whether this noble objective is being met in the best manner possible. While legal protection no doubt fosters pharmaceutical production, the often excessively high cost of patented drugs (which are frequently characterized by quite inelastic demand curves) strains the budgets of many consumers. Furthermore, the effect of intellectual property rights on prices in the medical and pharmaceutical industries is no doubt partially responsible for the shockingly high numbers of Americans who cannot afford health insurance in the first place.¹⁰³ For instance,

99. Stanley M. Besen and Leo J. Raskind, *An Introduction to the Law and Economics of Intellectual Property*, 5 J. ECON. PERSPECTIVES 3, 6 (1991).

100. See Scherer, *supra* note 5, at 382.

101. *Id.* It is worthwhile to note here that the pitfall Scherer describes is precisely the one that the reward system aims to eliminate. The government would pay innovators for their creation and then disseminate the work at its marginal cost with no property rights limitations attached. In this manner, the reward system seeks to come as close as possible to allowing and maximizing utilization of the inventions in a purely competitive environment.

102. Landes & Posner, *supra* note 55, at 326.

103. At last count, approximately 15% of the United States population, some 40

Scherer notes that while Pfizer's production costs for tetracycline, a potent antibiotic, ranged between \$1.60 and \$3.80 per bottle, it sold the drug to pharmacists for \$30.60.¹⁰⁴ He adds that "[m]any similar cases of price-cost margins on the order of 90% have been identified."¹⁰⁵ It is not hard to imagine the substantial deadweight loss created by this kind of monopoly pricing—literally thousands of beneficial "trades" are not occurring even though the customer's willingness to pay exceeds the producer's cost.¹⁰⁶ The same can certainly be said of the software market, where, depending upon the version and where it is being sold, prices for Microsoft Word run from approximately \$85 to \$340, yet the cost of reproducing a copy is virtually zero.¹⁰⁷ This largely leads individual consumers to pirate the software, while primarily businesses are the entities who can or try to afford it. Undoubtedly though, much "fancy" specialty software, such as the CAESAR II computer program for engineering pipe stress design, goes unpurchased despite the mutual benefit its use would have upon firms and consumers.¹⁰⁸

Hence, current intellectual property rights are subject to the serious criticism that they inevitably lead to less than socially optimal use of the information and products they protect.

million Americans, cannot afford basic health care coverage. See J. FOLEY, SOURCES OF HEALTH INSURANCE AND CHARACTERISTICS OF THE UNINSURED (Employee Benefit Research Inst. 1992) (on file with author).

104. See Scherer, *supra* note 5, at 390-91.

105. *Id.* at 391.

106. See discussion of deadweight loss resulting from monopoly pricing, *supra* note 3.

107. See Edward Mendelson, *Microsoft Word 97; Word Processing Software: One of 12 Evaluations of Components of Three Office Suites; Individual Evaluation Records Searchable Under "Suite Deals"; Software Review; Evaluation*, PC MAGAZINE, Feb. 18, 1997, at 152.

108. The CAESAR II program is vital engineering software used in the design of piping plants, and currently costs approximately \$6000, enough to discourage its purchase by most individual consumers. Telephone Interview with Donald J. Calandrillo, former Pipe Stress/Support Engineer, Foster Wheeler Energy Corp. (Mar. 22, 1998).

2. The Race to be First

In addition to the problem of restricted use, current intellectual property laws lead to what is commonly known as "the race to be first."¹⁰⁹ Relying on the promise of a copyright or patent reward, innovators invest resources in the attempt to develop useful information. It is unlikely though that merely one party will be undertaking this investment; rather, the case is usually that multiple parties are simultaneously working on somewhat similar projects in the hope of generating information that our laws will reward. However, only the first to develop the information will attain the property right. This reality understandably creates a race to be first, leading firms and even individuals to potentially invest and develop information more quickly than what would be optimal to maximize the final product's social value.¹¹⁰

Unlike the restricted use problem, the race to be first dilemma is not one that is easily remedied by a government-run reward system. However, as Kitch's discussion of the patent system implies, the negative effects of socially wasteful duplicative effort can be mitigated if property rights are awarded relatively early on so as to shorten this period of simultaneous investment by multiple parties.¹¹¹ Once the vital aspects of the informational work are deduced so that only the refinement of the product remains, the innovator should be recognized and given the reward rights to the social value she creates. However, in the patent system, if too little of the work has been developed but the creator is still given a property right in it, then incentives to innovate may be dampened. First, the monopoly right may lessen the immediate inducement to reduce the product to a more socially useful or commercially viable form. Further, no other individual contemplating a similar invention would expend much effort to develop the product since someone else holds the patent rights. At least in a government-run reward regime, even if an individual created a socially useful work but was slow or uninterested in developing it further, other parties

109. See Kitch, *supra* note 17, at 278-79.

110. See *id.*

111. See *id.*

similarly situated would have an incentive to build off of it since no monopoly rights preventing duplication or further improvement would be bestowed on the first party.

Nevertheless, the race to be first poses a problem for both America's current intellectual property regime and the reward-based alternative. Society must seek to ascertain the optimal point for recognizing an innovation to reduce duplicative effort while still maintaining proper incentives to generate information.

3. Allocative Efficiency Versus Inefficiency

A related difficulty to the race to be first is that of allocative efficiency in the intellectual property system.¹¹² It is often argued that copyright and patent protection serve to create allocative efficiency by steering resources to their most productive use. The greater the market demand for a particular informational work, the greater will be its supply since its creator will see the large potential for economic reward.¹¹³ In the absence of intellectual property rights, the argument runs that society's demand will exceed supply since innovators will be unable to capture the social value their works create.¹¹⁴ However, by awarding property rights in information, we will encourage the production of informational works. Assuming there are no transaction costs preventing mutually beneficial trades between buyers and sellers, social welfare will be optimal because we have made the private producer's calculus equal to the social problem.

While this economic analysis certainly contains a large degree of truth, we should not ignore some of the allocative inefficiencies created by the award of an intellectual property right.¹¹⁵ The very incentive to obtain a copyright or patent monopoly in the first place may divert resources inefficiently from the production of non-authorial goods that must compete without the benefit of monopoly to those that are covered by such rights. For example, Weinreb notes that "[i]nsofar as copyright directs resources toward

112. See Weinreb, *supra* note 8, at 1237, 1246-47.

113. See *id.* at 1237.

114. See *id.*

115. See *id.* at 1247.

expression and away from ideas, its allocative effect seems perverse. Large, innovative conceptions, like the stream of consciousness in fiction or cubism in art, are denied protection in favor of smaller differences of expression."¹¹⁶ Thus, within the realm of copyright at least, achieving efficiency or market success (which is undoubtedly the goal of many authors today) cannot necessarily be argued to be the full measure of social value.¹¹⁷ If innovators' efforts are artificially channeled into one area of information generation over another, society should not ignore the reality that it is losing the benefit of some creations precisely because of the intellectual property laws' effect. A reward system must similarly confront this issue, and structure its incentives to minimize the problem.

4. Further Problems Specific to the Patent System

There are several other problems unique to the patent system, many of which a reward regime would correct.

First, there are the requirements of novelty, non-obviousness, and utility that serve as prerequisites to obtaining a patent.¹¹⁸ The first two make a good deal of intuitive and economic sense—we only want to award a (temporary) monopoly right to that which is new (novelty), and that which would not have soon been created anyway because its development would have been obvious to individuals skilled in the relevant field. However, the last prong of usefulness (utility), while seeming to initially be a matter of common sense, does not have a sound economic justification. While it is the case that society does not want to encourage the production of useless information, Shavell notes that there would be little reason for any individual or firm to do so given that they would find no one willing to pay for it.¹¹⁹ Further, what may seem to lack usefulness to an outside observer might in fact actually possess some utility that is merely not clear at the present. Society would not want to discourage the generation of such information, especially if we presume that its creator has better specialized knowledge of the

116. *Id.* at 1241.

117. *See id.* at 1247.

118. *See* Patent Act, 35 U.S.C. §§ 102-103 (1994).

119. *See* SHAVELL, *ECONOMIC ANALYSIS*, *supra* note 19, § 7.1.15.

area in question than we do.¹²⁰ A government sponsored reward system would do well to omit this requirement when formulating its test—as long as valuation is based on some measure of use, this goal will be accomplished.

Additionally, scholars such as Fritz Machlup have argued that patents discourage the creation of subsequent inventions.¹²¹ Parties who wish to pursue successor inventions face the risk that their efforts will be for naught if they are found to infringe upon the scope of the current patent holder's rights.¹²² Machlup cites patent scholars who offer that "the history of inventions accordingly teems with accounts of trifling improvements patented, that have put a stop, for a long period, to other similar and much greater improvements. It teems also with accounts of improvements carried into effect the instant some patents had expired."¹²³ This directly refutes the argument that the exclusive rights granted to inventors do not deprive others of anything that they had possessed before. However, under a reward regime, once a given piece of information is generated, the reward goes to the innovator and all others will be able to freely utilize the information to expand upon the existing scope of knowledge.¹²⁴

Scherer elucidates several further social costs of the patent system. In addition to the obvious monopoly pricing problem, he argues that companies often extend their monopoly from patents

120. *See id.* Fortunately though, it should be noted that the requirement of utility is often a weak one, and that the real test courts seem to be progressively focusing on is that of non-obviousness.

121. *See* Fritz Machlup & Edith Penrose, *The Patent Controversy in the Nineteenth Century*, 10 J. ECON. HIST. 1, 2 (1950) (giving a "systematic account" of controversies surrounding patents and concluding that views have hardly changed throughout the century).

122. *See id.* at 24.

123. *Id.* (citing *ECONOMIST*, Feb. 1, 1851, at 114-15).

124. However, scholars such as Shavell have argued that this effect may be undermined by efforts of those seeking rewards to "hold back" on their inventions until they can improve them (and thus receive greater compensation). In addition, even if the development of second innovations depends upon first innovations, that does not necessarily mean we should afford lesser protection against copying and freely using those first innovations. It is true that broad patent protection granted to first innovations may lower the incentives of others to invest in developing subsequent improvements, but the broader the scope of rights awarded to the first innovation, the greater the incentive for that first invention to be made. *See* SHAVELL, *ECONOMIC ANALYSIS*, *supra* note 19, § 7.1.14(d).

by "fencing in" a field of technology.¹²⁵ For instance, when du Pont researchers invented nylon, they blanketed their scientific findings with hundreds of patent applications addressing the whole array of similar molecular variations to prevent rivals from developing any substitutes.¹²⁶ Similarly, firms seek to extend their monopoly power over time by prolonging the effective life of basic patents and by amassing improvement patents only when basic patents are about to expire.¹²⁷ Finally, Scherer charges that the patent system permits the suppression of inventions from which the public would benefit, and states that companies often spend substantial sums of money inventing around the patent position of rivals.¹²⁸ These concerns would be considerably alleviated or even irrelevant under a reward system, where successive innovators would be able to freely use past works absent property right barriers, and thus incentives existing today to prolong patent life, fence in fields, and to invent around prior patents would be eliminated.

Lastly, in arguing for patent reform in the form of a generalized public reward system, Polanyi asserts that a final problem of patents in the United States is that they are often uncertain as to scope.¹²⁹ This deficiency frequently leads litigation and accompanying administrative costs to grow inordinately.¹³⁰ He further views the patent system as benefiting the wealthy, for the financial position of the applicant significantly affects her chances of obtaining and profiting from the patent right. It is unclear, however, how the reward system would dramatically reduce this problem. Finally, Polanyi urges that the process of legally establishing the

125. See Scherer, *supra* note 5, at 391.

126. See *id.*

127. See *id.* Scherer describes how applicants have been known to intentionally delay Patent Office procedural matters while their application was pending in order to extend the life of their basic patents. See *id.*

128. See *id.* at 392. In discussing how firms might hoard patents to bolster their market positions, Scherer discusses recurrent rumors that "some shadowy power in the automobile or petroleum industry has obtained and suppressed patents on a carburetor which would let full-sized autos travel 50 miles per gallon of gasoline." *Id.* Additionally, he raises the case of James Watts' steam engine patent as an example where denial of access to his patent prevented the work of Hornblower, Trevithick, and others on high pressure engines until the patent expired in 1800. See *id.*

129. See Polanyi, *supra* note 20, at 70.

130. See *id.*

requirements of novelty, utility, and non-obviousness "leads in each case to serious abuses of legalism," which a reward system would be less susceptible.¹³¹

5. Further Problems Specific to the Copyright System

Like the three elements mentioned above that are necessary to obtain a patent, several requirements must be met before copyright protection will ensue. First, the item in question must be "fixed," that is, reduced to a tangible medium such that courts can verify its existence.¹³² Second, "expression" is copyrightable while "ideas" are not, the theory being that if exclusive rights adhered to functional or other ideas, the very ability to communicate would be seriously restricted.¹³³ Finally, the work must possess sufficient "originality,"¹³⁴ which is a fairly broad concept indeed. It is interesting to note that the originality requirement for copyright is substantially different and weaker than the novelty, nonobviousness, and utility prerequisites for patent.¹³⁵ However, when one considers that a copyright's value is based on the inherently subjective utility one obtains from another's expression of ideas, it is easy to understand why an objective usefulness calculus would be impossible to administer.

In other areas of copyright debate though, critics such as Breyer and Weinreb are skeptical of the constantly increasing duration of protection, which today runs from the time of creation of the work until fifty years after the author's death.¹³⁶ One should question from an economic perspective whether awarding property rights in information for such an extended of a period of time cre-

131. *Id.* at 71.

132. *See* Copyright Act of 1976, 17 U.S.C.A. § 102(a) (West Supp. 1999).

133. *See* Baker v. Selden, 101 U.S. 99 (1879); Bibbero Systems, Inc. v. Colwell Systems, Inc., 893 F.2d 1104 (9th Cir. 1990). *See* 17 U.S.C.A. § 102(b) for the statutory exclusion of "ideas."

134. 17 U.S.C.A. § 102(a).

135. 17 U.S.C.A. § 302(a). *See also* Weinreb, *supra* note 8, at 1244.

136. *See* Weinreb, *supra* note 8, at 1244; Breyer, *supra* note 10, at 324; *see also* 17 U.S.C.A. § 302(a) (stating that the length of protection is life plus fifty). Many copyright followers anticipate the "life plus fifty" rule will soon be expanded to "life plus seventy-five." *See* Weinreb, *supra* note 8, at 1243-44.

ates any increased incentive for authors to produce their works.¹³⁷ The value of most all copyrighted works is likely to be zero approximately seventy-five years from the time of their generation, and even if some works are still earning money for the author's heirs, the present value of that income stream at the time of creation is practically nonexistent and unlikely to encourage the generation of information. Nevertheless, despite Breyer's recommendation that the term of copyright not be expanded,¹³⁸ Congress did just that in the Copyright Act of 1976.¹³⁹ Weinreb further laments the constantly increasing scope of the copyright monopoly, as he argues that the ease with which copyright has been extended threatens others' use of the very avenues of communication necessary for expression in our society.¹⁴⁰ Needless to say, under a government-run reward system where copying was freely allowed once an item of information was generated and rewarded, this problem of the expansion of the duration of monopoly rights would not be an issue.

Finally, while the award of property rights in information reduces the amount of effort by rivals to copy works (and by authors to prevent copying), it is still not totally optimal. Breyer raises the point that abolishing copyright altogether would eliminate the transaction costs involved in obtaining permission to reproduce an author's work.¹⁴¹ In addition, any enforcement costs necessary to protect against violations of rights in copyright, and patent as well, would be saved in a government-run reward system.

Hence, it is evident that there are some serious shortcomings produced by the award of exclusive property rights in information

137. See Weinreb, *supra* note 8, at 1244.

138. See Breyer, *supra* note 10, at 350 (In 1970, Breyer went as far as to say that "[t]he period of copyright protection is at present too long and should not be extended beyond fifty-six years." A few years later, Congress ignored his warnings.)

139. See Copyright Act of 1976, Pub. L. No. 94-553, 90 Stat. 2541 (codified as amended at 17 U.S.C.A. §§ 101-1010) (West Supp. 1999)).

140. See Weinreb, *supra* note 8, at 1219.

141. See Breyer, *supra* note 10, at 316. However, the copyright doctrine of fair use mitigates the problem of obtaining permission in many cases. Parties are allowed to use portions of copyrighted works without requesting permission or paying royalties when the amount taken is not very large, and where their use is unlikely to adversely affect the copyright holder's market for her work. See 17 U.S.C.A. § 107.

to their creators. It behooves society to take a careful look at those negative effects, and to consider fairly the benefits of an alternative reward system. Even if such a policy is deemed infeasible or otherwise not adopted, the lessons we can draw from the pitfalls of existing property rights in information versus the virtues of a reward regime are highly applicable to the future development of intellectual property law in this country.

B. *The Government-Run Reward System*

1. Theory

Contrary to the monopoly price and restricted use dilemmas created by current intellectual property rights, a publicly funded reward system seeks to maximize overall social welfare by retaining incentives to create while simultaneously optimizing the dissemination of information. The theory runs as follows: society pays innovators from the public purse for the generation of socially valuable information. Valuation of the reward poses a difficulty, but scholars such as Shavell and Polanvyi propose avenues to mitigate the problem.¹⁴² Once the award is given, the innovation falls into the public domain such that it can be reproduced without penalty and distributed to all those whose willingness to pay is equal to or exceeds the marginal cost of production. As noted previously, this cost is often far below market prices witnessed today,¹⁴³ and the hope and goal is that the large number of potential consumers who were previously “priced out” by the monopoly rent will now be able to enjoy the good. In this manner, overall social welfare is increased: firms possess the same or greater incentives to innovate because the rewards they receive will be largely based upon volume of use, which should be greater than current use in almost all cases. Further, the socially optimal amount of consumption is attained since the work is disseminated at marginal cost. Hence, as long as the reward is set to reflect the social value

142. See Polanvyi, *supra* note 20, at 68; SHAVELL, *ECONOMIC ANALYSIS*, *supra* note 19, § 7.1.19. See also Part II.B.4.

143. See Scherer, *supra* note 5, at 390-91 (noting how Pfizer's production cost of tetracycline was less than one-tenth of the price for which the drug was sold commercially).

of the information, society will be better off under this government sponsored regime than under our current intellectual property rights system.

2. Financing Rewards through Taxes

Of course, rewards do not grow on trees. The government must use its power of general taxation to raise the necessary funds, and that implicates any and all of the costs and inefficiencies associated with the tax system. Most notably with respect to an income tax, there are the drawbacks of administrative costs and distorted work incentives. Administrative costs, in the form of tax collection and payment systems, are not insubstantial. However, the taxes required for reward payouts would not necessitate the construction of an entirely new taxation procedure. As such, it is unlikely that the current administrative costs of the tax system will increase significantly, and they are almost certainly less than those of the current legal/intellectual property system.¹⁴⁴ Work incentives will be subject to some distortional effect if overall tax rates rise, but that is probably far less of a problem than the distorted purchasing decisions made today when the prices of informational works grossly exceed marginal cost.

Moreover, Polanyi forcefully asserts that the cost of additional taxes is easily paid for by reduced prices and the increased likelihood of technological progress:

The fact that considerable sums of public money would be required under the new system in order to pay rewards to patentees cannot be held against it. *The burden would be manifestly offset, and far more than offset, by the benefits accruing to the public in the form of cheaper prices for patented articles and the general quickening of technical progress* due to the free general use of inventions coupled with the advantages of releasing trade from various limita-

144. On a tangential topic, Kaplow and Shavell have written a provocative article detailing why redistribution of income through taxes is always more efficient than the legal system. See Louis Kaplow & Steven Shavell, *Why the Legal System is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667 (1994).

tions now imposed on it by monopolistic organizations.¹⁴⁵

Thus, the advantages are not merely decreased price and greater social use and utility. The reward system also would ideally enable the optimal generation of new innovations that depend on those of the past because there would no longer be monopoly rights standing in the way of subsequent development.

3. Who Will Prefer Rewards Over Intellectual Property Rights?

Furthermore, despite the actual and administrative costs of taxes, it is likely that people will virtually unanimously prefer switching to a reward regime. Many individuals have made the following arguments to me, "if I do not use a certain product that the reward system requires taxes to pay for, then I am being taxed unfairly" or "at least my utility will be lower compared to others." Polanyi responds by stating that the vast majority of individual benefits and losses are evened out over time so that only with a few marked exceptions would people's benefits not be approximately even.¹⁴⁶ I would add that despite the "I don't use the product" criticism, there are countless examples of items for which we all currently pay taxes to support that different individuals certainly do not utilize to the same extent, such as education, libraries, firemen, the military, etc.

More importantly, Shavell constructs a simple example to help demonstrate that potentially all people would prefer a reward system to current intellectual property rights.¹⁴⁷ He suggests a good whose cost of production is \$4, and whose monopoly price under patent is \$10. Assuming that each consumer buys ten units of the product, the monopolist's profit per person equals \$60 (10 units x \$6/unit). Under a reward regime, we can assume that each individual now must pay an increase in their taxes of \$60 to finance the reward, and the price is reduced to \$4 (the marginal cost of the good). Since the price has decreased, intuitively consumers will purchase more than ten units now, and still be better off. Why?

145. Polanyi, *supra* note 20, at 69 (emphasis added).

146. *Id.* at 65.

147. See SHAVELL, INSTRUCTOR'S GUIDE, *supra* note 11, § 7, at 11.

Because they could still buy the same ten units as they did previously for \$4 each, and wind up with a \$100 total outlay (Simply stated 10 units x \$4/unit + \$60 in taxes).¹⁴⁸ Thus, if they *voluntarily choose* to buy a greater number, let's say twelve units, it must be that they make themselves better off than if they purchased ten. Users of the good are better off because they are extracting the consumer surplus that the prior monopoly price had prevented them from attaining.

4. Valuing the Reward Amount

Some difficulties arise with respect to calculating the amount of the reward to be paid to innovators. Proponents of the current intellectual property system assert that its greatest benefit is its ability to allow the market to sort out supply and demand, and the compensation innovators receive is therefore simply based on how much of the good is sold and at what price. John Stuart Mill favored the patent system over the reward system on this ground, arguing that the greater the usefulness of a product, the greater the creator's income, and there is nothing remaining for society to figure out.¹⁴⁹ However, while monopoly price and quantity will no longer be available to calculate the amount of the reward, that does not imply that the amount will be incalculable or even arbitrary. Shavell offers that "the state might base the reward on the volume of use of the information, such as the sales volume of a book, and on some measure of its utility."¹⁵⁰ Both use and utility can be accounted for in a reward regime, and both factors will reflect socially optimal valuations rather than merely those of the individuals able to afford the monopoly price.

Polanyi adds that the creation of a rigid (i.e., unbiased) valuation mechanism is crucial and quite attainable. "The return on which [rewards] are based should include only data endorsable by an accountants' certificate" in order to prevent claims of unfairness or corruption.¹⁵¹ He adds:

148. *See id.*

149. *See* Mill, *supra* note 18, at 933. Mill's critique of the arbitrariness of the reward system is discussed *infra*, Part II.D.2.

150. SHAVELL, *ECONOMIC ANALYSIS*, *supra* note 19, § 7.1.19.

151. Polanyi, *supra* note 20, at 68.

For inventions, dealing with the manufacture of known products by improved methods, the economics achieved could be established accurately enough without much trouble. In the case of entirely new commodities or services made available through a new invention, data concerning the commercial profitability of their production would be required [to calculate the reward amount].¹⁵²

Polanyi submits however that only a fraction of an innovation's total value need be paid to the inventor because "the total usefulness . . . is bound to increase . . . by the proposed free accessibility of inventions to all."¹⁵³ Hence, to match creators' current earnings, he estimates that only one-tenth to one-third of the assessed social benefits of the patented inventions need be paid to the creator.¹⁵⁴ In this manner, the reward regime dramatically increases the surplus created for and retained by the consumers as opposed to the surplus witnessed in the copyright or patent system. Nevertheless, while Polanyi's assertions are theoretically justified, I view the valuation aspect as a vulnerable area of the reward system to criticism by pragmatists.¹⁵⁵

152. *Id.*

153. *Id.*

154. *Id.* Given Polanyi's logic, it will almost certainly be the case that a fraction of an innovation's social benefit can be paid to innovators while still preserving the same incentive for individuals and firms to generate information. However, we should ask whether increasing the reward beyond what innovators receive today under intellectual property protection would not stimulate even more socially beneficial investment in innovation. Perhaps the amount of information developed today is too low given that use (as measured by quantity sold) is artificially depressed by monopoly prices.

We should also keep in mind when establishing the reward amount the previous discussion of what types of information are particularly responsive to pecuniary rewards. *See supra* Part I.C. Society would do best to set the reward to take into account whether certain informational works are motivated by incentives other than money, or whether financial inducement is necessary to creation.

155. Many intellectual property scholars have dismissed or criticized the reward system as impractical based on potential valuation problems, including Patrick Croskery, *Institutional Utilitarianism and Intellectual Property*, 68 CHI.-KENT L. REV. 631, 638-40 (1993) (criticizing Polanyi's proposed reward system); Breyer, *supra* note 10, at 307; Tirole, *supra* note 66, at 401; and Scherer, *supra* note 5, at 398-99. *See also* Part II.D.2. and D.3.

5. Additional Benefits of the Reward System— Dependence of Future Innovations; Savings on Enforcement Costs

Some additional benefits of the reward system should be detailed prior to a more thorough discussion of its actual use and potential flaws. As touched upon throughout this Article, a reward scheme would allow innovations to enter immediately into the public domain, thus expanding the scope of knowledge available to help make future “dependent” innovations possible at an earlier date.¹⁵⁶ On a related note, Polanvyi cites the “increased publicity of technical research which the new [reward] system is bound to induce.”¹⁵⁷ By this, he means that under today’s intellectual property laws, inventors are reluctant to publish any of the knowledge gained in their investigations prior to the point at which they formulate a patentable product.¹⁵⁸ Because of statutory bars, novelty, and nonobviousness rules in the Patent Act,¹⁵⁹ innovators fear that publication of a result bearing on any technical subject may impair or even destroy the chance of obtaining a patent on some future useful application of it.¹⁶⁰ However, under a reward scheme, this problem could be avoided completely assuming that rewards are established for any published investigation that leads to a practical invention.¹⁶¹

Moreover, the reward regime would save on the legal, private, and social enforcement costs involved in protecting property rights from theft, infringement, or copying by others. While administering the reward system would have costs of its own, Shavell recognizes that “innovators would have no reason to prevent others from

156. See Besen and Raskind, *supra* note 99, at 5; Machlup and Penrose, *supra* note 121, at 24.

157. Polanvyi, *supra* note 20, at 75.

158. See *id.*

159. Patent Act of 1952, Pub. L. No. 82-593, 66 Stat. 792 (codified as amended at 35 U.S.C. §§ 1-376) (1994)).

160. See 35 U.S.C. §§ 102(a), 102(b), and 103. The statutory bar provision (§102(b)) states that in order to obtain a patent, the invention must not have been patented or described in a printed publication in the United States or abroad more than one year prior to the date of application for patent in the United States.

161. See Polanvyi, *supra* note 20, at 75.

copying their work, and those who wanted to copy would not have to overcome obstacles to so doing."¹⁶²

Hence, the advantages of a public rewards system are not limited to achieving a perfectly competitive price and optimal dissemination of information, but also include increased innovation activity and the elimination of the social costs involved in enforcing property rights.

C. Actual Use of the Reward System

Furthermore, the benefits of a reward scheme are not merely theoretical or based on untested assumptions as some skeptics suggest. The reward system has been utilized with respect to various types of information generation in the United States, Europe, and the former Soviet Union. In addition, practices analogous to rewards, such as government prizes, subsidization, or funding of innovators, are quite commonplace indeed.

In the United States, the reward system is employed in the arena of atomic energy inventions.¹⁶³ The United States Atomic Energy Act of 1946¹⁶⁴ created a Patent Compensation Board whose role it was to bestow financial awards upon individuals who devised innovations involving military uses of atomic energy.¹⁶⁵ Under the law, inventors were understandably denied exclusive patent rights to innovations of such great public consequence and danger. In the former Soviet Union, the reward method was also a standard approach used to encourage the generation of information by its citizens. Inventors could apply for "certificates of authorship," and if their certified invention found an industrial application, the creator would be entitled to a portion of the cost savings during its early years of use.¹⁶⁶ The award was determined by formula, with

162. SHAVELL, *ECONOMIC ANALYSIS*, *supra* note 19, § 7.1.20(c).

163. See Stefan A. Riesenfeld, *Patent Protection and Atomic Energy Legislation*, 46 CAL. L. REV. 40 (1958).

164. Pub. L. No. 79-585, 60 Stat. 755 (codified as amended at 42 U.S.C. §§ 2011-2297g (1994)).

165. See Scherer, *supra* note 5, at 398.

166. See Francis Hughes, *Soviet Invention Awards*, *ECON. J.* 291-97 (1945); S. Stepanov, *Increasing the Role of Innovators and Inventors in Improving Socialist Production*, 1 PROBLEMS OF ECON. 75-78 (1958); Scherer, *supra* note 5, at 358.

the inventor's share falling to two percent of the marginal savings in the highest tax bracket.¹⁶⁷

In Europe, though the reward system was never formally adopted, it appeared for many years that the trend of the law was moving the continent to such a system over that of patent. Shavell notes that "in England a succession of Parliamentary committees and royal commissions were appointed to examine the patent system and propose reforms or alternatives."¹⁶⁸ In addition, in 1869, *The Economist* proclaimed that "[i]t is probable enough that the patent laws will be abolished ere long"¹⁶⁹ However, for various reasons, more political than intellectual, the patent system won out and talk of rewards subsided.¹⁷⁰

Nevertheless, a variety of practices similar to the reward system have emerged and continue to be utilized, especially in the United States. Despite Breyer's mostly unsubstantiated dismissal of a reward scheme as impractical, he concedes that "a more equitable distribution . . . [which] will widen the dissemination of serious works, can be devised without great difficulty in the form of subsidies, grants, or prizes from the government."¹⁷¹ He acknowledges the practicality of these measures, citing to the fact that many governments and institutions do in fact offer such awards. "In the United States the amount of such support is large when compared with the total revenue that scholarly, technical, or scientific writers receive from copyright royalties, and even in the case of literary works it is significant."¹⁷²

Scherer's research confirms the extent of this public investment, as he found that the federal government already supplies monetary support for greater than fifty percent of all United States research and development activity.¹⁷³ Most of this funding is for military pursuits, but approximately one-fifth of federal expenditures are directed towards civilian areas such as agriculture, food

167. See Scherer, *supra* note 5, at 358.

168. SHAVELL, *ECONOMIC ANALYSIS*, *supra* note 19, at § 7.1.21.

169. See Machlup and Penrose, *supra* note 121, at 1 n.3.

170. See SHAVELL, *ECONOMIC ANALYSIS*, *supra* note 19, § 7.1.21.

171. Breyer, *supra* note 10, at 287.

172. *Id.*

173. See Scherer, *supra* note 5, at 398.

products, aviation, and health and medical technologies.¹⁷⁴ It is also worth noting that with respect to state support of basic research, the researchers usually do not obtain property rights in their findings. This makes a good deal of common sense, for the resulting information is often not useful in and of itself, but rather is often used in combination with other knowledge to enhance available information and/or produce tangible goods down the road.¹⁷⁵ Despite the reality and extent of government sponsored prizes and research expenditures however, Scherer is wary that a federal research and development allocation system might “overlook[] promising new opportunities” and “neglect[] unknown young men at the peak of their creative powers.”¹⁷⁶ However, if rewards are based on their eventual social use and utility, the “unknown” will get their due once consumers have their say.

Thus, given the history of state support of research and bestowal of prizes and/or actual rewards, there is more than a mere theoretical basis for the introduction of a reward system as an alternative to intellectual property rights in the United States.

D. *Criticisms and Responses of the Reward System*

Nevertheless, criticism of a government-run reward system is not uncommon in intellectual property rights literature.¹⁷⁷ While most of it takes the form of vague and unsupported notions regarding the impracticality of such an idea, I will focus my attention on the critiques based upon more substantiated concerns.

1. The Government Would not be Able to Finance the Rewards

Many skeptics immediately question the ability of the government to raise the necessary funds to support a reward system. Robert Frase emphatically doubted that it was conceivable that the “vast increases in the sums now available for this purpose” could

174. *See id.*

175. *See* SHAVELL, *ECONOMIC ANALYSIS*, *supra* note 19, § 7.1.22.

176. *See* Scherer, *supra* note 5, at 398.

177. *See, e.g.*, TIROLE, *supra* note 66, at 401; Scherer, *supra* note 5, at 398-99; Breyer, *supra* note 10, at 307; Mill, *supra* note 18, at 932.

be assembled to enable payments to creators.¹⁷⁸ Intellectual property attorney Batur Oktay offered a similar view: "Is the government going to pay a company billions of dollars in potential worldwide distribution revenue? I think not, or our country would swiftly go bankrupt."¹⁷⁹

While these concerns are intuitively understandable, they do not hold up to economic scrutiny. The sums required to finance rewards will be large, but the government can use its power of taxation to meet the demand.¹⁸⁰ While such an action alone would encounter a great deal of political resistance, that should not be the case when it is accompanied by the corresponding decrease in prices of virtually all goods which currently enjoy intellectual property protection. Shavell's example, detailed above,¹⁸¹ illustrates that even after an individual's taxes increase to supply the funds necessary for a reward, she is still better off once decreased price and increased use is factored into the equation.¹⁸² Dissemination of information is bound to rise dramatically due to the elimination of monopoly prices. Polanvyi thus argues that "it may not be necessary to pay to patentees more than one-third the assessed benefits of the patented invention" in order to equal the monetary reward they are currently obtaining.¹⁸³ The expansion of overall social surplus created by the growth in volume of use under a reward system (compared to one which grants exclusive property rights) will vastly offset the increase in taxes.

Still though, taxes possess separate costs in and of themselves—administrative costs and distorted work incentives.¹⁸⁴ As noted previously, administrative expenses for tax collection and

178. See Hurt & Schuchman, *supra* note 11, at 436-37 (Fraser's commentary is included in the discussion following the Hurt and Schuchman article.)

179. E-mail from Batur Oktay, Intellectual Property Associate, Foster Pepper & Shefelman, to Steve Calandrillo, Oct. 20, 1997 (on file with the author).

180. See U.S. CONST. art. I, § 8[1] ("The Congress shall have the Power to Lay and Collect Taxes . . .").

181. See *supra* Part II.B.3.

182. See SHAVELL, INSTRUCTOR'S GUIDE, *supra* note 19, at § 7, at 11.

183. Polanvyi, *supra* note 20, at 68. In fact, he suggests one-tenth to one-third of the assessed social benefits would be sufficient to induce the same amount of innovation witnessed today under intellectual property laws.

184. See *supra* Part II.B.2.

payment systems can be significant. However, the reward system will not require the creation of a new tax system, and it is therefore unlikely that current administrative costs will increase markedly. Further, they are almost certainly less than those of the current legal and intellectual property system.¹⁸⁵ While work incentives will be distorted somewhat by a tax hike, that is probably less of a problem than the distorted purchasing decisions made currently when the prices of informational works greatly exceed their marginal cost.

2. The Government Would Not be able to Fairly Value the Rewards

A more challenging critique for a reward system to answer is that of how valuation would operate. John Stuart Mill thought the problem to be serious, arguing that "an exclusive privilege . . . is preferable [to a reward system] because it leaves nothing to anyone's discretion."¹⁸⁶ Essentially, Mill was concerned that rewards will somehow be arbitrary, uncertain, or not based upon the usefulness of the information. In turn, this could have a chilling effect on the amount of risk bearing undertaken by innovators. Scherer raises further worries regarding the government's ability to value works accurately. He states that "any bureaucratic council entrusted with the job is bound to make mistakes and perpetuate inequities."¹⁸⁷ Additionally, he believes that conservative bias may inevitably creep into calculations of rewards, arguing that "[m]unificence is a rare committee virtue."¹⁸⁸

185. As noted in Part II.B.2, Kaplow and Shavell have written a provocative article detailing why redistribution of income through taxes is always more efficient than the legal system. See Kaplow & Shavell, *supra* note 144.

186. Mill, *supra* note 18, at 933.

187. Scherer, *supra* note 5, at 398.

188. *Id.* at 399. Scherer points to examples where the Atomic Energy Commission's Patent Compensation Board paid grossly low amounts as rewards for inventions. For instance, the Board gave \$1 million as compensation for Robert H. Goddard's basic liquid rocket engine patents, even though subsequent U.S. expenditures on liquid-propelled rockets amounted to approximately \$10 billion. While this might at first shock the conscience and militate against a government-run reward system, it is important to consider that the Board paid the \$1 million compensation *before* it knew the extent of future utilization of the information. This problem can easily be remedied by allowing rewards to be updated based on continued and future use of the informational work.

However, objective measures of determining rewards are available and urged by all supporters of the system. Polanyi quickly states that “[i]n order to avoid the danger of corruption and arbitrary oppression . . . , the whole procedure should be made fairly rigid. The return on which [rewards] are based should include only data endorsable by accountants’ certificate.”¹⁸⁹ In this manner, “rewards to inventors may be expected to be not less but much more fair under the proposed new system than they are to-day.”¹⁹⁰ Shavell adds that the amount awarded could be based on volume of use of the information and on some measure of utility.¹⁹¹ Assuming dissemination of information increases to the point of social optimality, and the reward is largely based upon the volume of use, that should meet Mill’s criteria of “the greater the usefulness, the greater the reward.”¹⁹²

While calculating use should be objective and easily verifiable, estimating utility still remains a difficulty. Shavell acknowledges this, and suggests that we could help ensure a modicum of fairness by establishing committees insulated from the political process and by having legal oversight of the reward process.¹⁹³ Nevertheless, ascertaining utility will present a problem to some degree, and is most likely the reason that when Europe debated implementing the reward system in the nineteenth century, it was considered only for patented products, since the value and utility of copyrighted works is inherently more subjective.

Thus, it is not a problem of conservative bias that Scherer is pointing out, but rather one of retroactive perspective that an improved reward system can take into account. *But cf.* TIROLE, *supra* note 66, at 401.

189. Polanyi, *supra* note 20, at 68.

190. *Id.* at 75.

191. See SHAVELL, *ECONOMIC ANALYSIS*, *supra* note 19, § 7.1.19.

192. Mill, *supra* note 18, at 933.

193. See SHAVELL, *ECONOMIC ANALYSIS*, *supra* note 19, § 7, at 5-6.

3. The Government Might Possess Worse Information About the Nature of Demand for Products than Firms Do

In addition to Mill's concern that the reward system might prove arbitrary, he contended that unlike rewards, patents were superior "before because the reward conferred by [them] depends upon the invention's being found useful, and the greater the usefulness, the greater the reward."¹⁹⁴ Implicit in this argument is the criticism that the government will suffer from information problems in estimating the nature of demand and utility for products in calculating rewards. The patent system, on the other hand, naturally incorporates firms' specialized knowledge regarding the demand and utility of a good. For instance, if the government has less information about the potential utility of a good than a firm has, even an objective volume of use measure used to value the rewards might not capture the true social value of the innovation.

A brief example helps to illuminate the problem: Suppose a firm knows that a drug it is considering developing will give future users a dramatically large amount of utility, though the total pool of such users will be relatively small (i.e., AIDS patients). If the government bases its reward on the volume of use and underestimates the utility each consumer derives, it will not provide correct incentives for the firm to develop the drug in the first place, leading to less than socially optimal generation of information. However, if a firm knows that it will be granted a patent monopoly, it can be assured of reaping the benefits of its specialized and more accurate knowledge than that which the government possesses. Thus, when use is low but extremely or deceptively valuable, the patent system may be better than rewards in structuring correct incentives to generate information because it naturally harnesses firms' information regarding demand.

Tirole agrees with this point, arguing that under the reward system, the "government must be highly knowledgeable about the feasibility of various inventions and the demand for them. Information about demand is crucial for determining the size of the

194. Mill, *supra* note 18, at 933.

award, which, in turn, influences the research incentives.”¹⁹⁵ He believes that firms are generally better informed than the government on these issues, and therefore a less centralized alternative than a government reward system would be preferable.¹⁹⁶ Croskery adds support, stating simply that the government would face “a significant problem gathering accurate data.”¹⁹⁷

These points are well taken and present a real dilemma. However, Polanvyi suggests that information obstacles might not be as insurmountable as Mill, Tirole, and Croskery fear.¹⁹⁸ Sellers and licensees will be able to provide necessary information on the volume of sales to consumers. Shavell similarly cites the utilization of sales volume and the creation of independent committees to get at objective measures of use and utility of goods.¹⁹⁹ Furthermore, Polanvyi urges that the economies achieved by inventions that improve methods of manufacturing known products could be established accurately with current statistical techniques.²⁰⁰ And in the case of entirely new inventions, Polanvyi believes data concerning the commercial profitability of their production could be obtained.²⁰¹

Still, both Tirole and Croskery may be correct in their conclusions that the reward system will not gather information about value as effectively as the market and current intellectual property rights would.²⁰² Shavell and Ypersele acknowledge this possibility as well, and suggest implementing an optional reward system which leaves the decision of whether to seek a government reward, or traditional intellectual property rights, with the innovator herself.²⁰³ Such a system unambiguously dominates current intellec-

195. TIROLE, *supra* note 66, at 401.

196. *Id.*

197. Croskery, *supra* note 155, at 639.

198. See Polanvyi, *supra* note 20, at 67-68; TIROLE, *supra* note 65 at 401; Mill, *supra* note 18 at 932.

199. See SHAVELL, *ECONOMIC ANALYSIS*, *supra* note 19, § 7.1.19.

200. See Polanvyi, *supra* note 20, at 68. *But cf.* Croskery, *supra* note 155, at 639. Croskery believes that such statistical techniques are notoriously difficult, for it is almost impossible to control for all relevant factors. *See id.*

201. See Polanvyi, *supra* note 20, at 68.

202. See Croskery, *supra* note 155, at 641; TIROLE, *supra* note 66, at 401.

203. See Shavell & Ypersele, *supra* note 22, at 7.

tual property laws which offer no such election. If the creator chooses intellectual property protection, both she and society attain exactly the same level of welfare as in today's mandatory intellectual property system. However, if the innovator opts instead for a government reward, her welfare must be improved vis-à-vis obtaining an intellectual property right (assuming she is a rational actor making rational decisions). Likewise, social welfare is enhanced because the deadweight loss from monopoly intellectual property rights is avoided. Thus, both innovators and society will be at least as well or better off operating under an optional reward system than under our current regime.

Moreover, the efficiency loss created by any government information deficiencies regarding the nature of demand is likely to decrease as better and substitute measures of use and utility emerge. The question then is whether such a loss is substantial enough so that the costs of valuing rewards would outweigh their sizable benefits. As stated throughout, I do not believe that to be the case.

4. The Rewards will not be Given to the Correct Person

Furthermore, Mill feared that compensation might go to the wrong people under a reward system, whereas the patent regime guaranteed that the patentee would be the one to receive the recompense for her innovation.²⁰⁴ However, Machlup and Penrose observed that Mill's argument was "flatly contradicted by a large number of authorities, including Lord Stanley, the chairman of the royal commission that inquired into the patent system in 1863-1865."²⁰⁵ Upon conducting his analysis, Lord Stanley reversed his previously favorable views on the patent system, concluding that it was nearly impossible for rewards to go to deserving parties.²⁰⁶ Presumably, this is due to the fact that innovators are often in the employ of another (venture capitalists for instance) and therefore patent rights are assigned not to the intellectual force behind the creation but the financial one instead. Moreover, contrary to Mill's

204. See Mill, *supra* note 18, at 932-33.

205. Machlup and Penrose, *supra* note 121, at 20.

206. See *id.*

assertions, Lord Stanley found that it was impossible for rewards under patent to be based on usefulness, and that great injury was frequently inflicted upon others.²⁰⁷

5. Rewards will only be Given to Inventions in the Narrow Sense

An additional concern held by Scherer is that the definition of an invention or innovation would be too limited in a government-run reward system. He bemoans that rewards will only be given "to inventions in the narrow sense," and will not compensate "innovative contributions."²⁰⁸ However, Polanyi argues that exactly the opposite is the case. He urges that the reward system will stimulate publicity of technical research (and hence invention) precisely because of the "establishment of adequate rewards for any published investigations which . . . lead to practical inventions."²⁰⁹ He argues that under the current intellectual property system, such disclosures (which would certainly not qualify as "inventions in the narrow sense") and subsequent innovations are retarded. Many inventors are fearful that any release of information prior to its extensive development will threaten their ability to obtain a patent on some future useful application of it.²¹⁰ A reward system would remedy this problem by compensating innovators for partially developed information that would not qualify under a narrow definition of invention.

6. A Government-Run Reward System would Threaten Literary Independence

Several critics have raised concerns that a government-run reward system would pose a danger to the generation of information that might be viewed by others as undesirable. Macauley, having disparaged copyright as a monopoly, and therefore evil, defended it as less repugnant than a patronage/reward system. He felt the reward scheme would be "fatal to the integrity and independence

207. *See id.*

208. Scherer, *supra* note 5, at 398.

209. Polanyi, *supra* note 20, at 75.

210. *See id.*

of literary men” and “certain to turn those minds which are formed by nature to be the blessings and ornaments of our species into public scandals and pests.”²¹¹ Similarly, Frase warned that direct payments from the government to reward creative efforts would “deprive authors of their principal means of maintaining financial, and therefore literary independence. It would take us back to the days when wealthy patrons and state subsidies could determine literary content rather than leaving content to the test of the market place.”²¹² Professor Breyer joined the fray in more muted tones, arguing that “increased reliance upon the government for financing book production increases the risk of censorship.”²¹³

While it is conceivable that political and moral viewpoints might sometimes intrude on rewards given out, it is unlikely that the problem is as grave as the above scholars contend. Despite his colleagues’ stinging criticisms, Weinreb indicates that the record regarding public support of creative effort in this country, though not perfect, is contrary to Macauley’s, Frase’s, and Breyer’s assessments. Weinreb states, “the diversity of the funding sources [of public monetary rewards] is a strong defense against cultural hegemony. Indeed the usual assumption is that we depend on just such sources of support to protect the arts against the hegemony of the market.”²¹⁴ Even with respect to rewards financed solely by the government, there are safeguards against significant political influence upon the independence of innovators. For instance, using formulas based upon sales and use volume to determine rewards removes the calculation from the realm of morality.²¹⁵ Likewise, Polanyi seeks to “avoid the danger of corruption and arbitrary oppression which is never far removed from the grant of Government subsidies [by making] the whole procedure of their assessment . . . fairly rigid,” (i.e., based only on data certifiable by accountants).²¹⁶ Additionally, independent and politically-insulated committees could be established to aid in the valuation effort.²¹⁷ Though there

211. Weinreb, *supra* note 8, at 1236.

212. Frase, in Hurt & Schuchman, *supra* note 11, at 437.

213. Breyer, *supra* note 10, at 308.

214. Weinreb, *supra* note 8, at 1233-34 (footnote omitted).

215. See SHAVELL, *ECONOMIC ANALYSIS*, *supra* note 19, § 7.1.19.

216. Polanyi, *supra* note 20, at 68.

217. See SHAVELL, *INSTRUCTOR’S GUIDE*, *supra* note 11, § 7, at 5-6.

may not be a utopian solution, given the above safeguards and the current American political climate, the problem is certainly not nearly as grave as it might have been under European monarchies of previous centuries.

7. A Reward System would not Solve the Race to be First

As noted above, a government-run reward system will not solve the race to be the first party to generate a given piece of information in order to obtain the reward for it.²¹⁸ This often leads to wasted duplicative, premature, and excessive investment. This dilemma adheres to the current intellectual property rights regime as well as to a reward system. While it cannot easily be remedied, Kitch's discussion of the patent system implies that the negative effects of socially wasteful duplicative effort can be mitigated if property rights (or rewards) are bestowed relatively early on in the process so as to shorten the period of simultaneous investment by multiple parties.²¹⁹ Once the vital aspects of the informational work are deduced so that only the refinement of the product remains, the innovator should be recognized and given the reward rights to the social value she creates.

Moreover, a government-run reward regime does offer one advantage over current intellectual property laws in this area. In the case of an individual who creates a socially useful work but is slow or uninterested in developing it further, other parties similarly situated will retain incentives to build off of it since no monopoly rights preventing duplication or further improvement would be bestowed on the first party. Thus, the race to be first would not prevent others from taking over the baton.

8. How Would the Reward System Operate Internationally?

Though the international ramifications of the reward system proposal have not received much attention at all in intellectual property literature, it is an area that presents some questions. There are two prongs to the dilemma: (1) how to deal with works

218. See *supra* Part II.A.2.

219. See Kitch, *supra* note 17, at 278-79.

given rewards in the United States when they get transported abroad, and (2) how to deal with works copyrighted or patented abroad when they are brought into the United States.

With respect to the first issue, we would not be able to easily take into account foreign use of information generated in America in order to increase the amount of the reward paid out (although this would be socially ideal to encourage the correct level of innovation). This is due simply to the fact that the United States government would have no simple way of collecting taxes from foreign citizens to finance rewards based on foreigners' use of products originating here. Hence, if foreign cooperation is impractical, the best solution would simply be to award American innovators property rights with respect to the out-of-the-country use of their creation. There is such reciprocity of intellectual property rights laws today, and there is no reason to think it would not continue.

With respect to the second issue of the treatment of works here that originated abroad, we have two choices. We could either treat the work the same as we do currently (i.e., protect it with the reciprocal intellectual property rights that exist between most democratic nations) or we could take the innovation and place it in the public domain in the United States. The Chinese are notorious for taking works that originate abroad and placing them in the public domain.²²⁰ As might be imagined, this practice has not endeared them to the rest of the global community, but only because no compensation to the innovator is given. If the United States were to try the public domain approach, presumably we would offer rewards to foreign creators based on some measure of the volume of use and utility of their goods, which would preserve the correct incentives to innovate for the American market. Thus, foreign innovators would now receive whatever intellectual property protection their home country bestows, plus rewards for the social value they create in the United States.

220. See Weinreb, *supra* note 8, at 1236.

III. FINAL ANALYSIS

Despite the aforementioned wrinkles posed by the government-run reward system, the benefits and intuition behind it are compelling. In contrast, the traditionally accepted justifications for exclusive property rights in information are not all that strong when subjected to economic analysis. The goal of intellectual property law makes perfect common sense at first: by awarding property rights to protect an author's work from theft or duplication, incentives are thereby provided for innovators to invest in and create their works since they are assured of reaping the fruits of their efforts. Precisely because this makes such "obvious" sense, property rights in information have largely been taken for granted and are rarely seriously questioned today.²²¹ This contentment is folly, for it ignores the problems created by exclusive rights, the alternative incentives available to generate information, and the possibilities and benefits of a government-run reward system.

First, the monopoly rights bestowed by copyright and patent, though temporary, often have significant negative effects on social welfare. To summarize, though the promise of exclusive rights encourages investment in innovation, it also results in market prices that frequently exceed the cost of production by a large margin.²²² While some of the mark-up goes to offset the development expenses, a far from insignificant portion is precisely due to the government-awarded monopoly power over price and quantity. The inflation of price over that which would be witnessed in a competitive market necessarily leads to restriction of use, and therefore less than socially optimal dissemination of information. As prices in some industries vastly exceed marginal cost, the net social (or deadweight) loss can become quite substantial, evidenced best in the pharmaceutical and software markets.²²³

Furthermore, even in the absence of explicit legal protection, intellectual property scholars have made persuasive arguments that for some types of informational works, alternative incentives exist

221. *See id.* at 1153.

222. *See Scherer, supra* note 5, at 391.

223. *See id.*

to induce creation besides the promise of monopoly rights. For instance, the quest for personal satisfaction, respect, and esteem are often significant motivating forces behind creation.²²⁴ In addition, “first movers” have leverage and incentives beyond property rights when it comes to generating a particular piece of information.²²⁵ Likewise, some experts have acknowledged the power of convention in mitigating the negative effects that would arise in the absence of intellectual property protection.²²⁶ It is important that we take these lessons learned and apply them in setting awards in a reward regime so as to maximize amounts paid out for those types of works that are particularly dependent on pecuniary inducements as opposed to other factors.

Given the above backdrop, the government-run reward system seeks to preserve the financial incentives available under intellectual property laws to generate information while eliminating the drawbacks. By offering a monetary reward instead of property rights for the development of socially useful information, incentives to invest in creation are maintained. However, only now will dissemination of information become optimal since works fall into the public domain once they are rewarded. Thus, they can be freely copied and reproduced by others, ideally enabling them to be sold to the public at the cost of production. Under the reward system, many more consumers can benefit from the information, i.e., all those who were previously “priced out” because their reservation price lay between marginal cost and monopoly price. Innovators can also freely use previously developed information as soon as it is released in order to develop subsequent innovations (as opposed to waiting for patents or copyrights to expire). Hence, as long as rewards are set to reflect the social value of information, optimal production and distribution will be achieved.

There are many criticisms of such a reward regime however, based upon vague notions of impracticality and concerns about valuation and creative independence. Those worries can largely be remedied though by objective formulas based on volume of use of

224. See Weinreb, *supra* note 8, at 1226, 1233, 1235.

225. See Hurt & Schuchman, *supra* note 11, at 421-32; Breyer, *supra* note 10, at 299-302; Scherer, *supra* note 5, at 384-85.

226. See Weinreb, *supra* note 8, at 1236-7.

the information, and the establishment of independent boards isolated from political intrusions. The most significant criticism centers on the possibility that the government might suffer from information deficiencies in evaluating the demand for products, but this reality might be mitigated by an optional reward system and does not outweigh the substantial benefits of rewards.

On balance then, the reward system is more compelling than our current intellectual property regime. It realistically offers the potential to achieve optimal innovation and dissemination of information without the primary drawbacks created by monopoly rights. The reward regime far better enables access of lower income individuals to highly useful goods by reducing their prices to marginal cost. Even if rewards in practice are less utopian than I have theorized, they still will more closely approximate the social optimum than exclusive rights do by eliminating the dead weight losses associated with exclusive rights.²²⁷ Hence, if we could transport ourselves through history to the time when American intellectual property rights were first debated and formulated, I would argue vociferously for the introduction of rewards instead.

However, we are not starting from scratch. Rather, we live in a country and a time in which exclusive property rights are the unquestioned norm; anything less is considered a threat to our social mores. Copyright and patent laws have become deeply entrenched in our nation's collective conscience by hundreds of years worth of practice and experience. There is great comfort and certainty in keeping what we know, and turning such a system on its head would surely have negative consequences. A lack of social acceptance would threaten the feasibility of government rewards from the outset, although I certainly would not say that such skepticism could not be overcome by time and reason. Still though, I take very seriously Machlup's conclusion and warning to us. He cautiously opined: "[i]f we did not have a patent system, it would be irresponsible, on the basis of our present knowledge of its economic consequences, to recommend instituting one. But since we have had a patent system for a long time, it would be irresponsi-

227. See Scherer, *supra* note 5, at 391. (Scherer discusses Pfizer Corporation's monopoly pricing practices, implicitly raising concern about deadweight losses created by pricing above marginal cost due to patent protection.)

ble . . . to recommend abolishing it.²²⁸

Nevertheless, Machlup observed that his conclusion did not preempt judgment concerning proposed *changes* within the system. He, Weinreb, and I are especially skeptical of any proposal that would extend intellectual property rights beyond their present scope.²²⁹ Similarly, it would be wise to consider reductions of current monopoly protections if abandonment of those rights proves not to be a viable alternative. In this way, even if the reward system is not implemented in America, we can draw great lessons from our knowledge of its virtues. Specifically, leading scholars such as Breyer and Weinreb have urged an end to the seemingly constant expansion of the duration of copyright protection.²³⁰ Extending the life of copyright to seventy-five years after the death of the author, from its present fifty years, has little economic grounding, and only prevents works from falling into the public domain for that much longer. Breyer expressed such notions over twenty-five years ago, urging that the period of copyright protection is “too long and should not be extended beyond [the then standard] fifty-six years.”²³¹ Weinreb goes further, opining that our unquestioning allowance of new subject matter into copyright protection, such as derivative works that differ significantly from the original, must cease.²³² We should not institute new areas of intellectual property coverage based upon the “bare assertion of need” by an interested party, but rather only after a justified, demonstrated need for such protection has been shown.²³³ I am not highly optimistic that this will be the case though, as Breyer’s entreaties to prevent the expansion of coverage to computer programs, for instance, went mostly unnoticed.²³⁴

228. See Weinreb, *supra* note 8, at 80 (discussing Machlup).

229. See *id.*

230. See Breyer, *supra* note 10, at 350; Weinreb, *supra* note 9, at 1210.

231. Breyer, *supra* note 10, at 350.

232. See Weinreb, *supra* note 8, at 1243.

233. *Id.*

234. See Breyer, *supra* note 10, at 351.

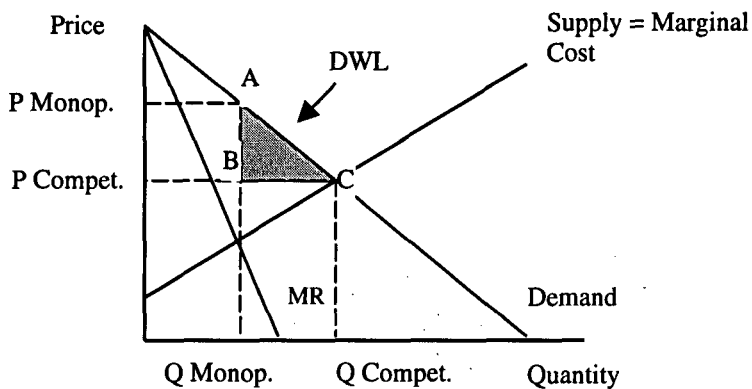
CONCLUSION

In the final analysis, if America were starting anew, a government-run reward system would best serve society's pursuit of optimal development and distribution of information. If the reward system's virtues are never to be realized by us, it will certainly not be because they are less intellectually compelling than those of our current intellectual property system. As America goes forward into the twenty-first century, at the very least, we should take a close look at the warnings of scholars in the field as to the drawbacks of exclusive property rights in information. If a reward regime never gains acceptance, we must strive to ensure that the lessons learned from its discussion can be applied to make our current laws achieve more closely the ideal of socially optimal innovation and dissemination of information.

APPENDIX

DEADWEIGHT LOSS DIAGRAM

The "Deadweight Loss" ("DWL") in a monopoly setting, as Posner discusses, may be illustrated as follows:



The Deadweight Loss ("DWL") is represented by the triangle marked ABC. In this area, consumers would be willing to pay more than what it costs for the firm to produce the good, but the monopolist prevents this trade from occurring.