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## FREEDOM, CREATIVITY, AND INTELLECTUAL PROPERTY

Robert D. Cooter\*



If you are like me, sometimes you need a hotdog loaded with sauerkraut. If you live in Berkeley, you will go to the Top Dog restaurant on Durant Avenue (pictured). Being Berkeley, the Top Dog does not only sell food, it also dispenses politics, and its politics are libertarian. A sign on the wall reads, "Legalize Freedom." This

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phrase suggests that law frees us by its presence, not its absence. Freedom combines the presence of possibilities (positive liberty) and the absence of prohibitions (negative liberty).<sup>1</sup> Providing possibilities and limiting prohibitions is how the state legalizes freedom.

This essay concerns legalizing economic freedom, especially through intellectual property law. Economic freedom provides the conditions under which people can be creative in their work. Creativity is valuable intrinsically because of its connection to self-expression, and it is valuable instrumentally because of its connection to innovation and growth. Creativity is so valuable intrinsically and instrumentally that we need to rehabilitate economic freedom as a human right, especially with respect to innovation.

United States judges once found “freedom of contract” in the U.S. Constitution. Because of its close identification with market conservatism, freedom of contract ceased to be a constitutional value generally accepted by most politicians and lawyers.<sup>2</sup> Similarly, economic freedom is regarded as political and factious in the United States and most of the world, a special value of conservatives that serves the interests of the rich. The slogan “Legalize Freedom” could appear on the wall of a libertarian restaurant, but not a progressive restaurant.

Democrats and Republicans do not argue about whether we ought to have freedom of speech; they argue about what exactly freedom of speech is. Similarly, people with different political phi-

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<sup>1</sup> See Isaiah Berlin, *Two Concepts of Liberty*, in *FOUR ESSAYS ON LIBERTY* 166 (Henry Hardy ed., Oxford Univ. Press 2002); Tamar Ezer, *A Positive Right to Protection for Children*, 7 *YALE HUM. RTS. & DEV. L.J.* 1, 4 (2004) (“Negative, or non-interference rights, prevent the state from violating individual autonomy, while positive, or integrative rights, impose a duty on the state to provide certain goods and services.”).

<sup>2</sup> Cass R. Sunstein, *Lochner’s Legacy*, 87 *COLUM. L. REV.* 873, 890 (1987) (“But in the last fifty years, the constraints of the contracts and takings clauses have been significantly curtailed, in part for the same reasons that led to the abandonment of *Lochner* itself.”).

losophies should not argue about whether we ought to have economic freedom. Its intrinsic and instrumental value is too large to deny. Instead, Democrats and Republicans should agree that economic freedom is a fundamental value of a democracy, and then argue about how to interpret its bounds. We need to rehabilitate the value of economic freedom as a core value, like freedom of speech.<sup>3</sup>

Agreement between Democrats and Republicans requires a compendious concept of economic freedom. The core idea should be moral and universal, rather than political and factious.<sup>4</sup> In my opinion, a compendious concept of economic freedom must be built on the intrinsic and instrumental value of creativity. The underlying idea is that individuals have a right to legal possibilities that facilitate self-expression and innovation in their work. A general theory of economic freedom would have to embody minimal principles of agreement over such matters as the rights to enter a line of business, terminate employment, borrow capital, form a firm, and join a professional association or a union.

Developing a general theory of economic freedom is far too challenging for this brief essay. Instead, I focus on a particular body of law that directly relates to economic creativity: intellectual property law. The U.S. Constitution does not present intellectual property as an individual right. Instead, the Constitution gives Congress the power to create intellectual property. Article I, § 8 of the Consti-

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<sup>3</sup> See *Boos v. Barry*, 485 U.S. 312, 321 (1988) (quoting *Perry Educ. Ass'n v. Perry Local Educators' Ass'n*, 460 U.S. 37, 45 (1983) ("To restrict political speech requires 'the State to show that the 'regulation is necessary to serve a compelling state interest and that it is narrowly drawn to achieve that end.'").

<sup>4</sup> The ideas of "public reason" and "overlapping consensus" are explained in JOHN RAWLS, *POLITICAL LIBERALISM* (expanded ed. 2005). "[P]ublic reason is the reason of equal citizens who, as a collective body, exercise final political and coercive power over one another in enacting laws and in amending their constitution." *Id.* at 214 (emphasis added). In an overlapping consensus "the reasonable doctrines endorse the political conception, each from its own point of view." *Id.* at 134.

tution reads, "Congress shall have 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."<sup>5</sup> I will explain how we should understand that power in light of the intrinsic and the instrumental value of economic creativity.

In applied sciences, progress yields a heterogeneous collection of innovations. Cost-benefit analysis provides a way to aggregate heterogeneous innovations into a measure of economic value. Simple measures like gross national product (GNP) value innovations by their market price. However, the simplest measures imperfectly reflect the way a growing economy improves human welfare. In recent years, economists have worked intensively on creating better measures of economic progress to reflect changes in human welfare more accurately.

However imperfect the measure, compound growth accumulates unimaginably fast. Thus, a 2% growth rate is almost a seven-fold increase in a century, a 5% growth rate is almost a 130-fold increase in a century, and a 10% growth rate is a 14,000-fold increase. I visited Beijing in 1994, and when I returned in 2004 it was unrecognizable. The gains in human welfare from compounding growth at almost 10% per year over ten years were palpable. A better measure of human welfare than GNP-per-capita would undoubtedly change these numbers. Thus, the deterioration in the quality of air and water has injured the health of people, which requires adjusting the numbers down, and the improvement in education of the citizens has increased their wellbeing more than market values reveal, which requires adjusting the numbers up. Improving the

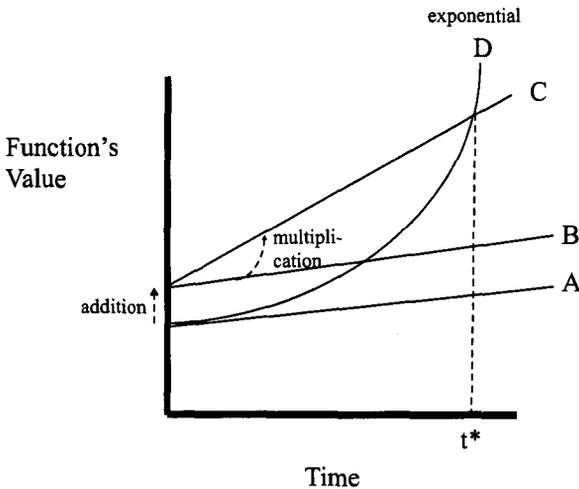
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<sup>5</sup> U.S. CONST. art. I, § 8, cl. 8.

measure of progress, however, would not change the basic conclusion.

Einstein allegedly said, "The most powerful force in the universe is compound interest." Figure 1 illustrates why. The horizontal axis indicates time and the vertical axis indicates the value of a function, any function. "A" represents the base from which we will make comparisons. The shift from "A" to "B" is an additive increase in the function. The shift from "B" to "C" that changes the slope is a multiplicative increase in the function. The shift to "D" is an exponential increase. Almost any increase in exponential growth will overwhelm an additive or multiplicative effect in time. In the figure, the time is  $t^*$ .

**Figure 1: Overtaking at Time  $t^*$**



Much of economics has focused on static efficiency. Static efficiency usually consists in an additive or a multiplicative effect, not

an exponential effect.<sup>6</sup> Under any measure of human welfare, changes in the economy that create additive or multiplicative effects are overtaken by changes with an exponential effect, as seen by interpreting the function in Figure 1 as a measure of human welfare. The welfare effects of growth overtake the welfare effects of static efficiency.

This fact requires rethinking economics. Adam Smith's *Wealth of Nations*<sup>7</sup> convinced people that a nation's wealth consists in the productivity of its people, not in gold stored in vaults. This is one of the most important intellectual achievements in the history of social science. However, Smith's idea needs to be updated in light of innovation. National wealth is a consequence of exponential growth that requires creativity, not only productivity. If we compare countries of the world, the gap between rich and poor nations is larger than it has ever been in history.<sup>8</sup> The rich countries have not gotten rich by making the poor countries poor. Rather, some poor countries have stagnated while others have grown exponentially, and the latter have outpaced the former.<sup>9</sup>

Besides rethinking efficiency economics, welfare overtaking requires rethinking the ethics of redistribution. Redistribution from rich to poor is often justified on the grounds that the poor need

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<sup>6</sup> See, e.g., Christopher S. Yoo, *Beyond Network Neutrality*, 19 HARV. J. L. & TECH. 1, 19 (2005) ("...static efficiency represents the most widely accepted measure of economic performance...").

<sup>7</sup> ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS (Edwin Cannan ed., University of Chicago Press, 1976).

<sup>8</sup> See, e.g., WORLD RESOURCE INSTITUTE, THE GAP BETWEEN RICH AND POOR IS WIDENING, TABLE 2.1, available at <http://www.wri.org/publication/content/8659> (citing United Nations Development Programme (UNDP), Human Development Report 1996 (UNDP, New York, 1996), p.13).

<sup>9</sup> A country's level of income is apparently uncorrelated with its growth. Some countries that start poor overtake countries that start rich, and some countries that start poor stay that way. See ROBERT COOTER & HANS-BERND SCHAFER, SOLOMON'S KNOT: HOW LAW CAN END THE POVERTY OF NATIONS ch. 2 (2012).

money more than the rich (“declining marginal utility of money”). This redistribution effect is static, and dynamic effects on welfare will quickly overtake it. Equality is most important to human welfare insofar as it affects growth. An unhealthy, ignorant, and insecure workforce is unlikely to innovate. Conversely, better health and education of workers will make them more creative, and more guarantees of economic security will make people more willing to participate in risky business ventures. If you are concerned about the welfare of workers in the long-run (as you should be), then the rate of growth in their productivity, which wages will reflect, matters most.

Let us get back to the connection between creativity and intellectual property. To understand patents, I use a deduction with three propositions. The first proposition is, “Maximizing human welfare requires maximizing sustained growth.” This proposition is based on the prior claim that the welfare effects of sustained growth overtake other kinds of welfare effects. “Growth” is ideally measured comprehensively, not narrowly as with GNP. Also, growth must be sustained; it is not a spasm or bubble.

The second proposition is “Maximizing sustained growth requires maximizing innovation.” This proposition is based on the claim that new ideas can pyramid on each other without being used up. Thus, we have been using the Pythagorean Theorem for over 2,000 years, it continues to inspire new theorems, and there is just as much left today as when it was first discovered. Innovation is the only way to sustain growth.<sup>10</sup>

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<sup>10</sup> To sustain growth, innovations that conserve exhaustible resources must proceed at sufficient pace so that humanity uses exhaustible resources at a decreasing rate. If we were to reduce the use of exhaustible resources by 10% per year, we would not run out of them in finite time. To reduce the use of exhaustible resources, we need to innovate so that we get more from using less of them, and we substitute renewable for exhaustible resources.

How do we maximize innovation? Innovation has many contributing causes, including the education and health of workers, universities, research laboratories, entrepreneurs, and so on. This essay focuses on the innovations developed in business ventures that combine new ideas and capital. Business ventures innovate in the hope of profits. The higher the profits among competing ventures, the faster innovation will proceed. So the final proposition in the deduction is, "Maximizing innovation by business ventures requires maximizing their profitability in open competition to innovate."

Combining these three propositions yields our conclusion: "Maximizing human welfare requires maximizing the profitability of business ventures in open competition to innovate." This proposition is fundamental to the justification of intellectual property law, which awards property rights to the first person to make an innovation and comply with the application process without restricting who can enter the competition. The prize for winning the competition is temporary protection from competition. Intellectual property law thus creates a framework that can increase the profitability of business ventures in open competition to innovate.

Legal reasoning, however, easily gets distracted from the goal of promoting innovation. Confusion in the law causes lower profits of business ventures, less innovation, and slower growth in human welfare. Discussion of the strengths of patents reveals the confusion. Perhaps you think that maximizing the strength of patents will maximize the profitability of business ventures. Or perhaps you think that doing away with patents will maximize the rate of innovation. Neither proposition is generally correct.

The strength of patents has three dimensions. One is duration (how long they are valid). They endure for twenty years from the

date of filing under current law in the United States and many other countries. A second dimension of strength is the breadth of patents. A patent on umbrellas is broader than a patent on spring-loaded, automatically-opening umbrellas.<sup>11</sup> The third dimension of strength is the remedy. A stronger remedy is provided by higher damages, or by injunction instead of compensation.<sup>12</sup>

Stronger patents result in higher or lower venture profits, depending on the circumstances. The underlying principle is remarkably simple. Consuming and producing are static activities, whereas innovating is a dynamic activity. Maximizing growth requires transferring resources from static to dynamic activities. If the patent system gives an innovator the power to require licenses for consuming or producing the innovation, the license fee will transfer resources from consuming and producing to innovating. Consumers and producers immediately suffer from paying the license fee, but the transfer of resources to innovators increases the rate of growth. The increase in human welfare from faster innovation overtakes the decrease in static efficiency from higher prices. Thus, a patent system that maximizes innovation gives strong rights to innovators against consumers and producers.

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<sup>11</sup> Unlike duration, there is no natural metric to measure patent breadth, which creates much confusion. It is rather like the fact that the letters "A" through "M" form a larger set than the letters "A" through "L," but, there is no metric for the size of the difference between "M" and "L." Instead of measuring the breadth of a patent and finding the optimum, I favor focusing on the breadth that maximizes growth in wealth.

<sup>12</sup> See Christopher S. Marchese, *Patent Infringement and Future Lost Profits Damages*, 26 ARIZ. ST. L. J. 747, 761 (1994) ("It is relatively well-settled that a patentee can recover future damages resulting from future lost sales."); see generally *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 388 (2006) (reversing grant for injunctive relief); *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1581 (Fed. Cir. 1992) ("[P]rojected future losses may be recovered when sufficiently supported."); *Standard Havens Prods., Inc. v. Gencor Indus.*, 953 F.2d 1360, 1372-73 (Fed. Cir. 1991) (rejecting request for future lost profits, but not rejecting viability of such awards).

The converse is true of patent rights that innovators assert against each other. The market power of the owner of an innovation who sells it to another innovator transfers resources from one innovator to another. Transfers within the dynamic sector do not necessarily increase the profitability of innovation. On average, the opposite is true: more market power for innovators against each other reduces the profitability of innovating on average. Profitability of innovating falls because the higher cost of buying innovations offsets the higher revenues from selling them. The excess of input costs over output revenues is the deadweight loss from monopoly. Market power of innovators against each other causes a deadweight loss in the dynamic sector, and reduces its average profitability. Thus, a patent system that maximizes innovation gives weak rights (or no rights) to innovators against other innovators.<sup>13</sup>

Patent law creates a framework that can maximize the profitability of business ventures in open competition to innovate, but confusion abounds over how to do so by adjusting the strength of patents. The general principle is: "Strong patents for innovators against consumers and producers, and weak patents (or no patents) for innovators against each other." If patent strength is maximized against consumers and producers who buy the patented good, then maximum resources will transfer from the static sector to the dynamic sector. If patent strength is minimized against innovators who buy the patented good, then the burden of transferring re-

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<sup>13</sup> Here I do not discuss the possibility that the patent system can increase the pace of innovation by favoring more fertile innovations over less fertile innovations. In an ideal world, innovation increases if the law transfers wealth from less fertile to more fertile innovations. The general principle is, "Transfer resources from less fertile to more fertile innovators until the deadweight loss from the transfer slows innovation as much as the increase in fertility increases it." See ROBERT COOTER, *THE FALCON'S GYRE: LEGAL FOUNDATIONS OF ECONOMIC INNOVATION AND GROWTH* ch. 5 (forthcoming 2013), available at <http://scholarship.law.berkeley.edu/books/1/>.

sources among innovators will be minimized. The result is to maximize the profits of the winners of an open competition to innovate.

The general principle that I propose is simpler than the principle that courts often apply to evaluate patents. Courts often use a balancing test that requires trading off the loss in consumer welfare from higher prices for innovations and the gain in consumer welfare from faster innovation.<sup>14</sup> Applying the overtaking principle makes balancing unnecessary. Faster innovation will overtake the effects of the loss from having to pay monopoly prices, so consumers will benefit the most from giving innovators the strongest market power in selling goods to consumers.

Consider the implications for current disputes about pharmaceutical drugs. There is a lot of discussion about generic drugs versus branded drugs, and drugs in-patent versus drugs out-of-patent,<sup>15</sup> as well as a lot of discussion about the countries that do not effectively enforce the patents of drug companies.<sup>16</sup> The preceding framework suggests that when consumers get pharmaceutical drugs at generic prices, their immediate gain is less than their long-run loss from slower innovation. What we need most is new drugs that are more effective and cheaper to make.

AIDS provides a tragic example of failing to apply the preceding analysis. People naturally think that the manufacturers of AIDS drugs should not be able to sell them at monopoly prices because buyers have desperate needs. However, current AIDS drugs are

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<sup>14</sup> Experts have to compute the “welfare triangles” and the present values of future gains. *Id.* at 349-351.

<sup>15</sup> Natalie J. Tanner, *Understanding the Disparity in Availability of Prescription Drugs in the United States: Compromise May Be the Answer*, 2 *IND. HEALTH L. REV.* 267 (2005).

<sup>16</sup> *Id.* at 268 (citing Mark B. McClellan, Commissioner, Food & Drug Administration, Speech at the Fifth Annual David A. Winston Lecture (Oct. 20, 2003); Robert Pear, *Lawmakers Are Negotiating Import of Prescription Drugs*, *N.Y. TIMES* (Oct. 31, 2003), <http://www.nytimes.com/2003/10/31/us/lawmakers-are-negotiating-import-of-prescription-drugs.html>

remarkably expensive to manufacture and have limited benefits to patients. What humanity needs are better AIDS drugs. To get them, the people who are trying to innovate must anticipate a hefty profit if they succeed. For AIDS drugs sold to consumers, innovation requires a strong patent regime, and someone—the consumer or the state—needs to pay the resulting high prices.

The “research exemption” provides a happy example of applying the preceding analysis. It allows one company to use another company’s patented drug in order to do the research necessary to get regulatory approval for selling the drug. The patent owner cannot enjoin the researcher who fails to pay the price that the patent owner demands for a license. So, patent owners have relatively weak protection against use by other innovators and relatively strong protection against producers who manufacture for sale to consumers.<sup>17</sup>

Another example of confused thinking concerns substitutes. A “pure substitute” in economics is a good that has the same price as another good because they are perfectly useful in exactly the same way, like white tennis balls and yellow tennis balls.<sup>18</sup> Sometimes it is possible to innovate by producing a close substitute that achieves the same effect with different technology. In that case, two patents can issue. Developing a perfect substitute for a good that already exists adds no economic value. There is no increase in human welfare from the invention of a perfect substitute. However, a perfect substitute competes with the original good and usually drives down its price and reduces the profits of its inventor. If the original inventor had a monopoly, the invention of the substitute creates a

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<sup>17</sup> Jordan P. Karp, *Experimental Use as Patent Infringement: The Impropriety of A Broad Exception*, 100 YALE L.J. 2169 (1991).

<sup>18</sup> Paul Schaafsma, *An Economic Overview of Patents*, 79 J. PAT. & TRADEMARK OFF. Soc’y 241, 247–48 (1997).

duopoly. The authorities should be reluctant to issue a patent for a close substitute for fear of undermining the purpose of patents, which is to accelerate innovation by rewarding the makers of useful innovations.

Robert Lucas, who won the Nobel Prize in economics, famously remarked, "Once you start thinking about growth, it's hard to think about anything else."<sup>19</sup> It is hard to think about anything else because growth overtakes the static effects on welfare. That happened to me. I spent much of my life working out the static efficiency consequences of alternative legal rules and institutions. I have been doing the "comparative statics of legal rules"—compare two legal rules and see which one is more efficient in the static sense. Now I am trying to rethink the principles of law and economics in light of the problem of growth. I am like the Roman Catholic priest who sat up in bed one morning and thought, maybe Buddha is right!

I began this essay with non-technical talk about self-expression and the intrinsic value of creativity. Then I turned to technical talk about the instrumental value of intellectual property law, whose purpose is progress in the applied arts. I argued that the rate of economic innovation measures progress in the applied arts. Maximizing the rate of innovation requires giving innovators strong patents against consumers and producers so that market power will transfer resources from static activities to innovation. Also, maximizing the rate of innovation requires giving innovators weak patents (or no patents) against each other so that market power does not burden exchange among them. Maximizing the rate of innovation will sustain economic growth that overtakes other causes of human welfare. Maximizing the rate of innovation will also provide many people with the possibility of economic creativity. Thus, the regime

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<sup>19</sup> ROBERT E. LUCAS, LECTURES ON ECONOMIC GROWTH (2004).

of intellectual property law that maximizes innovation also maximizes the intrinsic and instrumental value of economic creativity.