

Impoverished IP

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Intellectual Property (IP) scholarship is generally concerned with how innovation policy impacts social welfare by providing appropriate incentives for innovation. But lately, the question of who participates in IP creation—with an eye to distributive justice as well as social welfare more broadly—has been getting more attention. Most scholars writing in this vein acknowledge IP’s shortcomings in achieving proportionate participation and representation across socioeconomic, race, and gender lines. But many argue that in spite of these flaws, IP regimes can advance distributive justice by giving the poor and other members of disadvantaged groups opportunities to accumulate wealth and improve their position in society.

Yet the aspiration some hold out for IP as this particular type of tool for distributive justice is, unfortunately, unlikely to be realized, because it overlooks how poverty impacts creative decision-making. A large and growing body of psychological research shows that poverty changes the decision-making of those experiencing it. This Article argues that in fact, poverty makes it very difficult to think and act in ways that bring about the creative advances meaningful IP participation requires. IP is thus inherently limited as a mechanism for escaping poverty.

Poverty’s impact on creative thinking and action also has wide-ranging implications for innovation theory and policy that reach beyond specific demographic groups. This Article explores how the psychology of poverty intersects with IP, and in doing so, makes four main contributions to the literature. First, it calls into question the feasibility of scholarly calls for IP to act as a mechanism for empowering the poor. Second, it offers an additional, novel explanation for why we see lower levels of IP participation among socioeconomically disadvantaged groups. Third, it argues that IP scholars need to start looking beyond incentives in their quest to optimize socially beneficial innovation. While IP’s dominant utilitarian theory posits that IP provides needed incentives to innovate, what the account fails to consider is the

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possibility that some otherwise willing participants are unable to respond to these incentives. Finally, in offering policy recommendations, it turns IP scholars' current thinking about IP and distributive justice on its head. While these scholars argue that IP—a mechanism traditionally used to spur innovation—should be used to achieve distributive justice, this Article proposes that policies more directly aimed at attaining distributive justice will not only be more effective, but should also help promote innovation.

TABLE OF CONTENTS

I.	INTRODUCTION	524
II.	IP, INCENTIVES, AND DISTRIBUTIVE JUSTICE	529
III.	THE PSYCHOLOGY OF POVERTY AND CREATIVITY	533
	A. <i>Poverty and Decision-Making Generally</i>	538
	B. <i>Poverty and Creativity</i>	539
	1. <i>Exploitative Versus Explorative Decision-Making</i>	541
	2. <i>Habit- Versus Goal-Based Behaviors</i>	543
	3. <i>Conclusions</i>	544
IV.	THEORETICAL IMPLICATIONS	546
	A. <i>IP and Distributive Justice</i>	546
	B. <i>Explaining IP's Observed Inequalities (and What It Means for Incentive Theory)</i>	551
	C. <i>Beyond Incentives</i>	558
V.	POLICY IMPLICATIONS	560
	A. <i>Promoting Innovation by Tackling Distributive Justice</i>	560
	1. <i>Universal Basic Income</i>	561
	2. <i>Access to Health Services</i>	562
	3. <i>Other Possibilities</i>	563
	B. <i>Thinking Beyond Incentives: Other Innovation-Promoting Policy Levers</i>	564
VI.	CONCLUSION	566

I. INTRODUCTION

If asked why we have Intellectual Property (IP) rights, most people will tell you that IP provides needed incentives—to create, to commercialize, to disclose creations—that are otherwise lacking for public goods.¹ But other accounts of

¹See ROBERT P. MERGES ET AL., INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 11 (3d ed. 2003) (describing the incentive theory); William Fisher, *Theories of Intellectual Property*, in NEW ESSAYS IN THE LEGAL AND POLITICAL THEORY OF PROPERTY 168, 169 (Stephen R. Munzer ed., 2001) (same); Mark A. Lemley, *Ex Ante Versus*

IP exist as well.² One of the more intriguing conceptions of IP envisions it as a means of promoting distributive justice.³ While the manners in which IP might do so are manifold—by ensuring broad access to the products of intellectual labor, for example, or by encouraging technologies that have high social value⁴—one strain of the literature focuses on how IP can promote distributive justice by broadening access to IP rights among poor and disadvantaged groups.⁵

The view that IP rights can and should serve to advance distributive justice by giving disempowered groups a tool to take control of their futures has intuitive appeal. Economic and social inequality are a matter of growing public and political concern,⁶ and it is nice to think that IP could help remedy some of inequality's more troubling aspects—a kind of meritocratic equalizer to catapult talented individuals otherwise held back by society's inequities up and away from their disadvantaged backgrounds. Certain high-profile cases seem to bolster the claim: we see an Oprah Winfrey or a Jan Koum, each raised in humble circumstances and each now successful with the help of IP regimes,⁷ and are tempted to conclude that IP can achieve these outcomes on a larger scale.

But how realistic is this goal? Is it achievable either in theory or in practice? To answer these questions, we need to understand how the conditions of poverty interact with the prerequisites for IP participation. If the two are incompatible, the case for IP as a tool of distributive justice is weakened, because those we hope will benefit from IP will be limited in their ability to do so. Moreover, the precise nature of the interaction will tell us what, if anything, we can do about it. While some incompatibilities might be remedied by changing IP doctrine or procedure, others may be more existential in nature.

One such potential point of incompatibility arises at the behavioral level. Those who study the psychology of poverty know that poverty changes

Ex Post Justifications for Intellectual Property, 71 U. CHI. L. REV. 129, 129–30 (2004) (same).

² See, e.g., ROBERT P. MERGES, JUSTIFYING INTELLECTUAL PROPERTY 36–38 (2011) (describing the Lockean account of IP, according to which intellectual production gives rise to natural rights in the products of intellectual labor); Fisher, *supra* note 1, at 170–71 (describing the personhood theory of IP, according to which IP rights are granted to protect the personhood with which creators imbue their creations).

³ Madhavi Sunder, *IP*³, 59 STAN. L. REV. 257, 259 (2006).

⁴ See Peter Lee, *Toward a Distributive Agenda for U.S. Patent Law*, 55 HOUS. L. REV. 321, 331–32, 340 (2017).

⁵ See *id.* at 347–52.

⁶ See Saul Levmore, *Inequality in the Twenty-First Century*, 113 MICH. L. REV. 833, 833 (2015) (reviewing THOMAS PIKETTY, CAPITAL IN THE TWENTY-FIRST CENTURY (2014)) (“Rising inequality in the developed world has become a hot topic.”).

⁷ See Justin Hughes & Robert P. Merges, *Copyright and Distributive Justice*, 92 NOTRE DAME L. REV. 513, 555 & n.182 (2016) (arguing that Oprah Winfrey's repeated achievement as one of the wealthiest African Americans in the United States is attributable in part to her participation in the “copyright-related industries”).

decision-making.⁸ But the literature has given little attention to how this altered thinking impacts creativity. When several strains of empirical evidence are considered together, however, one thing becomes clear: circumstances common in the lives of the poor impact decision-making in ways that make it more difficult to achieve the creative advances meaningful IP participation requires.⁹ For instance, when people have experienced the world as harsh and unfair and are subject to high levels of environmental stress—conditions disproportionately present in poor populations—they are more likely to employ so-called exploitative decision-making strategies, where they “stick to what they know,” versus explorative decision-making strategies, where they consider options about which they have less information¹⁰—strategies definitionally required for creative thinking. Another line of study shows that sleep deprivation—a condition empirically linked to low income—leads to the privileging of habit-directed (and therefore, again, definitionally noncreative) behaviors over goal-directed behaviors.¹¹ And while in some cases adversity may trigger and promote creative thinking, in general, the particular flavor of adversity accompanying poverty seems to suppress, rather than incite, the human drive to create.¹²

This incompatibility between poverty and creative thinking appears to limit the potential for IP to serve as a meaningful tool of distributive justice. If those living in poverty tend to over-rely on decision-making strategies inconsistent with creativity, then, on the whole, they will be less able than their financially better-off counterparts to take advantage of the social and economic benefits IP participation has to offer. This is fundamentally inconsistent with the hope that IP can help remedy social and economic inequality. If anything, we should expect IP to *exacerbate* existing inequalities, because those already at a financial advantage are those best positioned to participate in IP and reap its benefits.

Moreover, unlike some of the other potential incompatibilities between poverty and IP—for example financial barriers,¹³ or doctrines that favor large

⁸ See, e.g., Derek Thompson, *Your Brain on Poverty: Why Poor People Seem to Make Bad Decisions*, ATLANTIC (Nov. 22, 2013), <https://www.theatlantic.com/business/archive/2013/11/your-brain-on-poverty-why-poor-people-seem-to-make-bad-decisions/281780/> [https://perma.cc/THW5-3FD9] (discussing one study finding that “poverty, itself, hurts our ability to make decisions about school, finances, and life, imposing a mental burden similar to losing 13 IQ points”).

⁹ See *infra* Part II.

¹⁰ See Jennifer K. Lenow et al., *Chronic and Acute Stress Promote Overexploitation in Serial Decision Making*, 37 J. NEUROSCIENCE 5681, 5688 (2017).

¹¹ Jie Chen et al., *Sleep Deprivation Promotes Habitual Control over Goal-Directed Control: Behavioral and Neuroimaging Evidence*, 37 J. NEUROSCIENCE 11979, 11979 (2017).

¹² See *infra* Part II.

¹³ See Lee, *supra* note 4, at 348–51 (discussing how the United States Patent and Trademark Office (USPTO) seeks to reduce these barriers in various ways).

moneyed actors over poorly financed individual creators¹⁴—the insight that poverty interferes with creative thinking does indeed pose an existential threat to IP’s viability as a tool of distributive justice. While IP doctrines can be changed,¹⁵ and financial barriers can be addressed by legal aid programs or changes in procedural requirements,¹⁶ the behavioral incompatibility between poverty and IP participation is different in kind. No matter how much we increase access to IP rights or tweak individual IP doctrines to make them fairer to low-income groups, the problem won’t be remedied, because it’s a problem of under-creation caused by poverty rather than a problem that is caused or can be fixed by IP itself.

This may seem like a dire conclusion, but in fact it is quite helpful, because it leads to several fundamental insights about the nature of IP and our current attempts to use it as a tool, not only for distributive justice, but also for achieving optimal levels of innovation.

First, the relationship between poverty and creativity suggests that no matter how noble our aspirations for IP, it is inherently ill-suited as a tool of distributive justice, insofar as that term is used to describe the appropriation of IP by poor populations to enhance their financial and social position. Rather than lament this fact, we can use the insight to direct our efforts at achieving distributive justice along more fruitful paths.

Second, the relationship between poverty and creativity helps explain observed inequalities within the IP system. Though empirical data are sparse, the numbers that do exist suggest that children from low-income groups are much less likely to go on to participate in IP in their lifetimes than children from higher income groups.¹⁷ This is a real problem, not just from a distributive justice perspective, but also for the dominant view that IP is about maximizing socially beneficial innovation. If certain groups are innovating at lower levels, it raises the possibility that we are falling short—either in absolute number or in the types of innovations being produced—of optimality. And though a host of reasons for why those from low-income brackets participate less in IP are easily called to mind, the behavioral literature contributes a plausible and consequential explanation that might otherwise be overlooked in the rush to point to more obvious structural and cultural culprits.

Third, the relationship between poverty and creativity prompts reflection on IP scholarship’s treatment of incentives. In keeping with IP’s dominant

¹⁴ See DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* 41 (2009) (discussing how most patents today are issued to large corporations).

¹⁵ See *id.* at 109–31 (suggesting various changes to judge-made patent doctrines).

¹⁶ See Lee, *supra* note 4, at 348–51 (discussing how fee reductions and pro bono technical assistance to small entities and unrepresented inventors could increase access to the patent system).

¹⁷ Alex Bell et al., *Who Becomes an Inventor in America? The Importance of Exposure to Innovation*, 134 Q.J. ECON. 647, 649 (2019) (finding that high socioeconomic status at birth predicts later probability of obtaining a patent).

narrative, the scholarship is very much focused on questions relating to creative incentives.¹⁸ For example, do current IP doctrines provide the right balance of incentives?¹⁹ Are there other, better, ways beyond IP—like grants, or tax breaks, or even social norms²⁰—to provide individuals with these incentives? But what rarely gets mentioned is the possibility that some people—perhaps even large, identifiable groups of people, as here—may be unable to respond to whatever incentives we offer them, no matter how wonderful those incentives might be. IP and innovation scholars might thus begin thinking much more broadly and holistically about what we can do to promote innovation, rather than assuming that getting incentives right is the end of the story.

Along these lines, the relationship between poverty and creativity gives us some clues about how we might begin to do this. For example, if poverty does indeed interfere with creative thinking, then we might expect that interventions designed to combat poverty will have a beneficial effect on creativity and innovation. More broadly, it opens the door to considering nontraditional innovation-promoting policy levers—i.e., those that don't fit the standard incentive formulation of financial reward as innovation carrot. Especially given recent work that has called into question any simple relationship between financial incentives and innovation output,²¹ these nontraditional models might take on a larger role in future conversations about innovation policy levers. Examples of such policy levers might include universal basic income programs, policies designed to increase access to health care, or open-ended artistic or scientific grants that aren't contingent on completing any particular project. Fortuitously, many of these policy levers would also help realize the distributive justice outcomes some scholars wish to achieve through IP. Thus, rather than using IP as a tool of distributive justice, this Article suggests that we would be better off tackling distributive justice head-on—and that doing so should also help achieve the innovation-promoting aims traditionally relegated to IP.

The Article proceeds in three parts. Part I recounts the traditional incentive formulation of IP, along with more recent calls to justify and conceive of IP systems as valuable mechanisms for achieving distributive justice. To critically evaluate the claim that IP can indeed function as an effective tool of distributive

¹⁸ See, e.g., Lisa Larrimore Ouellette, *Patent Experimentalism*, 101 VA. L. REV. 65, 66–67 (2015) (framing the question for innovation scholars as whether “patents provide a net innovation incentive,” or whether, alternatively, “other incentives . . . [are] superior”).

¹⁹ *Id.* at 67.

²⁰ See, e.g., Dotan Oliar & Christopher Sprigman, *There's No Free Laugh (Anymore): The Emergence of Intellectual Property Norms and the Transformation of Stand-Up Comedy*, 94 VA. L. REV. 1787, 1791, 1832 (2008) (raising the possibility “that social norms can provide incentives to create”).

²¹ See, e.g., GLYNN LUNNEY, *COPYRIGHT'S EXCESS: MONEY AND MUSIC IN THE US RECORDING INDUSTRY* 193 (2018) (concluding from an empirical study that more copyright “did not lead to more and better music,” as the incentives for the innovation paradigm would predict, because of satisficing behaviors on the part of top artists); Eric E. Johnson, *Intellectual Property and the Incentive Fallacy*, 39 FLA. ST. U. L. REV. 623, 678–79 (2012) (arguing that psychology research undermines the traditional incentive account of IP).

justice by giving poor populations opportunities to accumulate wealth, Part II identifies and examines a potential point of incompatibility between poverty and IP participation based on the behavioral literature. The basic insight is that poverty changes decision-making. Part II extends the insight to the realm of creativity and concludes that conditions of poverty negatively impact creative decision-making and action.

Part III explores the theoretical and practical implications of that insight. The first, glaring implication is that IP may not be well-suited at all as a tool of distributive justice, for the simple reason that those we hope will benefit from IP are arguably the least able to do so. Second, the insight about poverty's impact on creative thinking has explanatory power, as scholars struggle to make sense of empirical data showing reduced IP participation among disadvantaged groups. Third, the relationship between poverty and creativity should prompt scholars to think beyond the traditional incentives-for-innovation model when considering how best to maximize socially beneficial creation. Creators do not live in a theoretical vacuum, and ostensibly extraneous circumstances in their lives could impact, for good or ill, their ability to respond to even the most well-designed innovation incentives. Finally, the relationship between poverty and creativity suggests that policy interventions designed to ease poverty's burden could also have beneficial effects on innovation. Continuing in this vein, it also suggests that additional policy levers with less-than-direct ties to the act of innovation may nevertheless be quite effective at promoting innovation—in part by reaching groups for whom the traditional incentives model has not proved effective.

II. IP, INCENTIVES, AND DISTRIBUTIVE JUSTICE

The most common theoretical account of IP focuses on economic incentives. According to this conceptualization, IP rights exist to encourage people to create things that might not otherwise come into being.²² Because intellectual creations—like books, software, or a new technology—are easy to copy, it can be difficult for the creator to recoup her investment in the creative process.²³ Once released to the public, the price a creator can charge for her creation quickly falls as the market gets flooded with copies by free-riders.²⁴ If the creator cannot recover her investment, let alone improve her financial position, the thinking is that she will choose not to create at all.²⁵

²² See Lemley, *supra* note 1, at 129–30 (explaining the incentive theory of patents).

²³ See Fisher, *supra* note 1, at 169.

²⁴ David S. Olson, *Taking the Utilitarian Basis for Patent Law Seriously: The Case for Restricting Patentable Subject Matter*, 82 TEMP. L. REV. 181, 182–83 (2009); see also Elizabeth L. Rosenblatt, *Intellectual Property's Negative Space: Beyond the Utilitarian*, 40 FLA. ST. U. L. REV. 441, 453–54 (2013).

²⁵ See Olson, *supra* note 24, at 183.

IP arguably addresses this dilemma by offering creators time-limited exclusive rights over their creations.²⁶ Creators can thus charge higher prices for their inventions, allowing inventors to profit and offering the needed financial incentives to create.²⁷ Though granting IP rights imposes costs on society through the deadweight losses resulting from reduced access and competition,²⁸ the thought is—if IP is working as it should—that these costs should be outweighed by the social benefits of heightened creation and the economic growth that attends it.²⁹ Because of deadweight losses, however, the efficiency narrative requires that we weigh the costs and benefits and grant IP rights only when and to the extent necessary to reap the social benefits of creation.³⁰

This economic-incentives-based rationale dominates the IP literature;³¹ but it is by no means the only purported justification for IP rights.³² The Lockean account, for example, asserts that creators acquire natural rights in their creations by virtue of the labor they have invested in the creative process.³³ Under this view, IP is simply an appropriate recognition of those rights.³⁴ And the personality account argues that IP rights are necessary to protect ongoing personality interests that creators retain in their works.³⁵

²⁶ Fisher, *supra* note 1, at 169.

²⁷ *Id.*

²⁸ See T. Randolph Beard et al., *Quantifying the Cost of Substandard Patents: Some Preliminary Evidence*, 12 YALE J.L. & TECH. 240, 241 (2010); Olson, *supra* note 24, at 195.

²⁹ See, e.g., Benjamin N. Roin, *The Case for Tailoring Patent Awards Based on Time-to-Market*, 61 UCLA L. REV. 672, 690 & n.73 (2014) (arguing that innovation enhances social welfare by promoting economic growth).

³⁰ See Olson, *supra* note 24, at 195.

³¹ See Fisher, *supra* note 1, at 168–72.

³² A number of additional utilitarian variations on the traditional incentives-to-create account have also been proposed, including accounts wherein IP incentives are required to encourage creators to disclose or commercialize their inventions. See, e.g., Michael Abramowicz, *The Danger of Underdeveloped Patent Prospects*, 92 CORNELL L. REV. 1065, 1073–76 (2007) (discussing commercialization theory, according to which patents provide incentives for inventors to commercialize their inventions); Christopher A. Cotropia & Mark A. Lemley, *Copying in Patent Law*, 87 N.C. L. REV. 1421, 1432 (2009) (same); Jeanne C. Fromer, *Patent Disclosure*, 94 IOWA L. REV. 539, 548 (2009) (same); Mark A. Lemley, *The Myth of the Sole Inventor*, 110 MICH. L. REV. 709, 745 (2012) (same); Roberto Mazzoleni & Richard R. Nelson, *Economic Theories About the Benefits and Costs of Patents*, 32 J. ECON. ISSUES 1031, 1038 (1998) (discussing the utilitarian disclosure theory, according to which patents provide incentives for inventors to disclose their inventions rather than keep them secret).

³³ JOHN LOCKE, TWO TREATISES OF GOVERNMENT 285–86 (Peter Laslett ed., Cambridge Univ. Press 1988) (1690).

³⁴ E.g., MERGES, *supra* note 2, at 32–33; Fisher, *supra* note 1, at 170; Stephanie Plamondon Bair, *The Psychology of Patent Protection*, 48 CONN. L. REV. 297, 309 (2015); Jeanne C. Fromer, *Expressive Incentives in Intellectual Property*, 98 VA. L. REV. 1745, 1753 (2012); Rosenblatt, *supra* note 24, at 445.

³⁵ E.g., MERGES, *supra* note 2, at 68–100; Fromer, *supra* note 34, at 1753; Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L.J. 287, 329–30 (1988); Margaret

But perhaps the most interesting alternative³⁶ account of IP comes from those who have conceptualized IP as a valuable tool for promoting human flourishing and distributive justice.³⁷ Distributive justice theorists owe a debt to Rawls's philosophical writings on fairness and social justice,³⁸ which they often employ to address questions of intellectual production and distribution.³⁹

A notable work in this vein is Madhavi Sunder's 2006 article *IP*³. In it, Sunder laments the dearth of "'giant-sized' intellectual property theories capable of accommodating the full range of human values implicit in intellectual production."⁴⁰ She argues for a cultural account of IP that recognizes "not just efficiency, but a number of incommensurable values: from the right to health, to the freedom to create, to democracy, equality, and distributive justice."⁴¹

Since *IP*³ was published, a number of scholars have responded to the call to consider IP through the lens of distributive justice.⁴² And while much of this

Jane Radin, *Property and Personhood*, 34 STAN. L. REV. 957, 971–78 (1982); Rosenblatt, *supra* note 24, at 457.

³⁶In calling distributive justice an "alternative" account I don't mean to suggest that its proponents eschew economic efficiency as a proper frame through which to conduct IP analyses. In fact, most of the scholars cited here explicitly acknowledge the importance of considering efficiency at some level. Where most depart from traditional accounts is in their desire to also consider a range of other values and interests—including distributive justice—while conducting these analyses.

³⁷*E.g.*, Fisher, *supra* note 1, at 190–93 (listing distributive justice as one of the concerns of what he calls the "social planning theory" of IP).

³⁸*See generally* JOHN RAWLS, *A THEORY OF JUSTICE* (1971).

³⁹*E.g.*, MERGES, *supra* note 2, at 101–04 (discussing distributive justice theories of IP in light of Rawls's theories of distributive justice); Anupam Chander & Madhavi Sunder, *Foreword: Is Nozick Kicking Rawls's Ass? Intellectual Property and Social Justice*, 40 U.C. DAVIS. L. REV. 563, 568–72 (2007) (discussing various articles in a symposium issue that draw from Rawls in crafting arguments about IP and distributive justice).

⁴⁰Sunder, *supra* note 3, at 260.

⁴¹*Id.* at 313; *see also* Margaret Chon, *Intellectual Property and the Development Divide*, 27 CARDOZO L. REV. 2821, 2823 (2006) ("[I]ntellectual property should include a substantive equality principle, measuring its welfare-generating outcomes not only by economic growth but also by distributional effects."); Fisher, *supra* note 1, at 172 (describing a theoretical approach to IP—what Fisher terms the "social planning" approach—wherein scholars take the view "that property rights in general—and intellectual-property rights in particular—can and should be shaped so as to help foster the achievement of a just and attractive culture"); Molly Shaffer Van Houweling, *Distributive Values in Copyright*, 83 TEX. L. REV. 1535, 1540 (2005) (highlighting the "distributive aspects" of copyright).

⁴²*See, e.g.*, Keith Aoki, *Distributive and Syncretic Motives in Intellectual Property Law (with Special Reference to Coercion, Agency, and Development)*, 40 U.C. DAVIS L. REV. 717 (2007) (highlighting themes in the IP and distributive justice literature); Oren Bracha & Talha Syed, *Beyond Efficiency: Consequence-Sensitive Theories of Copyright*, 29 BERKELEY TECH. L.J. 229, 287–99 (2014) (developing a distributive analytical framework for copyright); Shubha Ghosh, *The Fable of the Commons: Exclusivity and the Construction of Intellectual Property Markets*, 40 U.C. DAVIS L. REV. 855, 857 (2007) (addressing how "notions of distributive justice [should] inform management of the commons through the construction of intellectual property law"); Lee, *supra* note 4, at 325 (arguing that U.S. patent law "already possesses numerous 'distributive mechanisms,'" and "sketch[ing] the contours

literature argues for limiting or otherwise altering intellectual property regimes in various ways to improve public access to intellectual products produced by the well-funded,⁴³ many distributive justice theorists also evince a desire to see “historically disempowered individuals”⁴⁴ who are artists, inventors, and creators wielding IP themselves—as a “tool for recognition and redistribution, development, and human rights.”⁴⁵ In other words, because IP participation confers financial and social benefits, the thought is that socioeconomically disadvantaged populations can (and should) make use of IP to improve their lives.⁴⁶

In fact, some scholars argue that existing IP regimes already achieve these ends to some extent.⁴⁷ In their article *Copyright and Distributive Justice*, for example, Justin Hughes and Robert Merges contend that “copyright in its current form is a powerful tool to empower creative individuals”⁴⁸—especially socioeconomically disadvantaged individuals—economically and socially. To support their argument, they point to a 2009 Forbes listing of the wealthiest African Americans in the United States, all of them “self-made.” Based on this list, they conclude that it is copyright—specifically, the “copyright industries” of “music, film, television, broadcast professional sports, and publishing” that can be thanked “for the accumulation of the most substantial African-American fortunes.”⁴⁹

of a distributive agenda for domestic patent law” going forward); Rosenblatt, *supra* note 24, at 458–59 (describing the “distributive justice” theoretical approach to IP analysis).

⁴³ William W. Fisher & Talha Syed, *Global Justice in Health Care: Developing Drugs for the Developing World*, 40 U.C. DAVIS L. REV. 581, 583 (2007) (proposing a prize regime to improve access to pharmaceuticals in developing countries); Peter Lee, *Toward a Distributive Commons in Patent Law*, 2009 WIS. L. REV. 917, 925 (highlighting “various ‘accommodation strategies’ for integrating distributive values in an innovation system fundamentally predicated on profit maximization”); Lea Shaver, *Copyright and Inequality*, 92 WASH. U. L. REV. 117, 124 (2014) (discussing how IP limits access among poorer populations to copyrighted works).

⁴⁴ Sunder, *supra* note 3, at 263.

⁴⁵ *Id.* at 264.

⁴⁶ See, e.g., Lee, *supra* note 4, at 364 (“[O]btaining patents on their own inventions can empower marginalized and low-income communities, thus achieving more equitable distribution of the fruits of intellectual property protection.”). The interest of some scholars in so-called “traditional knowledge” protection is a related strain of this literature. One possible justification for protecting traditional knowledge is that IP rights in such knowledge can protect indigenous populations and local communities from exploitation and help empower them with property rights of their own. See Justin Hughes, *Traditional Knowledge, Cultural Expression, and the Siren’s Call of Property*, 49 SAN DIEGO L. REV. 1215, 1256–61 (2012) (describing a distributive justification for traditional knowledge protection).

⁴⁷ See, e.g., Lee, *supra* note 4, at 347–52 (describing various mechanisms by which the U.S. patent system attempts to facilitate IP participation, including fee reductions and technical assistance for small entities and unrepresented inventors); Shaffer Van Houweling, *supra* note 41, at 1540–41 (discussing how copyright helps subsidize creators who would otherwise not be able to afford the investments necessary to engage in creative labor).

⁴⁸ Hughes & Merges, *supra* note 7, at 516.

⁴⁹ *Id.* at 554.

Of course Hughes, Merges, and others writing in this area acknowledge that IP as presently constituted is not the perfect vehicle for empowering the poor, remedying inequality, and achieving distributive justice.⁵⁰ Nor do they argue that IP should be the only, or even the primary, tool for achieving these ends.⁵¹ But the desire to see IP as one such tool—and to improve its ability to act in this capacity through various doctrinal and procedural adjustments⁵²—remains.

III. THE PSYCHOLOGY OF POVERTY AND CREATIVITY

The idea that IP can and should serve as a mechanism for promoting distributive justice by giving the poor opportunities to reap the social and economic benefits it confers is both intriguing and attractive. Creation and inventorship enjoy a certain mystique in our culture,⁵³ as does the conception of the United States as a meritocracy.⁵⁴ The story of IP as a tool of distributive justice taps into both of these romantic notions. It is tantalizing to envision otherwise disadvantaged populations rising up on the wings of their creative talent, boosted by IP regimes that give them the mechanism for translating this talent into money and status. The stirring language employed by distributive justice IP scholars adds rhetorical depth to this vision. Most people sympathetic to social justice generally, for example, would be moved by the thought of the previously-disempowered “assert[ing] themselves as intellectual property subjects, controlling rights in cultural creations, and reject[ing] earlier categorization as law’s objects.”⁵⁵

But is this distributive agenda for IP realistic? In its defense, the list cited by Hughes and Merges does suggest that at least some subset of the socioeconomically disadvantaged population—specifically, several African Americans from humble financial backgrounds—has benefitted financially and

⁵⁰ See *id.* at 552 (“Copyright would be a better tool with some of the policy alternatives we describe later in this Article.”); Lee, *supra* note 4, at 367 (arguing that “Congress, courts, and agencies—particularly the USPTO—should promote a more robust vision of the patent system’s distributive capabilities”).

⁵¹ Hughes & Merges, *supra* note 7, at 552 (“[C]opyright is a meager tool for distributive justice compared to basic social reforms that are possible—principally a significant (multi-decade) strengthening and equalization of K-12 public education. Indeed, we believe that copyright would be a *better* distributive tool if coupled with a substantially strengthened educational system for minorities.”).

⁵² See *id.* at 573–75 (discussing ways in which the copyright system could better fulfill a distributive agenda); Lee, *supra* note 4, at 367–74 (discussing ways in which the patent system could better fulfill a distributive agenda).

⁵³ See, e.g., Lemley, *supra* note 32, at 710 (“Any elementary school student can recite a number of canonical American invention stories.”).

⁵⁴ See, e.g., Matthew Stewart, *The 9.9 Percent Is the New American Aristocracy*, ATLANTIC (June 2018), <https://www.theatlantic.com/magazine/archive/2018/06/the-birth-of-a-new-american-aristocracy/559130/> [<https://perma.cc/VAW4-X4J7>] (describing one of the “founding myths” of the U.S. meritocracy: “[T]he meritorious get ahead, [and] the rewards [they] receive are in direct proportion to [their] merit.”).

⁵⁵ Sunder, *supra* note 3, at 275.

socially from their careers in IP-heavy industries.⁵⁶ Take Oprah Winfrey (number 1 on the Forbes list cited by Hughes and Merges),⁵⁷ for example. Born in rural Mississippi where she spent the first six years of her life with her grandmother,⁵⁸ the remainder of Oprah's childhood was spent being shuttled between her mother's home in a Milwaukee ghetto and her father's home in Nashville, Tennessee.⁵⁹ By any account, it was a difficult and impoverished upbringing.⁶⁰ But that all changed when she was offered a job as a news anchor with CBS's Nashville affiliate⁶¹—her entrance into the “copyright industries.” From there, she steadily gained increasing exposure and opportunity, appearing on her own talk show and in a breakthrough role in Steven Spielberg's 1982 film *The Color Purple*,⁶² and eventually maturing into the multimedia and publishing giant the public knows her as today.⁶³

Additional anecdotes can also be brought to mind, and they are not limited to the Forbes list of wealthy African Americans. J.K. Rowling was raised in middle class circumstances but was living in poverty as a single mother and collecting welfare benefits when she completed her first *Harry Potter* novel.⁶⁴

⁵⁶ Hughes & Merges, *supra* note 7, at 552–53.

⁵⁷ *Id.* at 552.

⁵⁸ Paul Harris, *You Go, Girl*, GUARDIAN (Nov. 19, 2005), <https://www.theguardian.com/media/2005/nov/20/television.usa> [<https://perma.cc/5YKV-ZGKV>]; Jill Nelson, *The Man Who Saved Oprah Winfrey*, WASH. POST (Dec. 14, 1986), <https://www.washingtonpost.com/archive/lifestyle/magazine/1986/12/14/the-man-who-saved-oprah-winfrey/66d7b7b3-98af-4495-82a7-6b04827f1bd6/> [<https://perma.cc/LU7B-LRE7>].

⁵⁹ GEORGE MAIR, OPRAH WINFREY: THE REAL STORY 13–14 (1994); Nelson, *supra* note 58.

⁶⁰ See, e.g., Thomas Morgan, *Troubled Girl's Evolution into an Oscar Nominee*, N.Y. TIMES (Mar. 4, 1986), <https://www.nytimes.com/1986/03/04/movies/troubled-girl-s-evolution-into-an-oscar-nominee.html> [<https://perma.cc/KYE4-WXX6>] (describing Oprah's history of being abused and her mother's threat to “put Miss Winfrey into a juvenile detention home”); Nelson, *supra* note 58 (describing how Oprah had been sexually abused by “male relatives and family friends,” how she ran away from her Milwaukee home as a child, and the moment she “realized [she] was poor”).

⁶¹ Nelson, *supra* note 58.

⁶² *Id.*

⁶³ See, e.g., *The Most Influential US Liberals: 1–20*, TELEGRAPH (Oct. 31, 2007), <https://www.telegraph.co.uk/news/worldnews/1435442/The-most-influential-US-liberals-1-20.html> [<https://perma.cc/2NLH-EJH7>] (ranking Oprah as the 9th most influential liberal in the U.S. and “[v]ery possibly the most influential woman in the world,” who “has become a huge franchise, including not just her eponymous television show but a radio show, magazine and book club”); Brad Oswald, *Yes, She's Queen of All Media, but to Discovery, She's Life Itself*, WINNIPEG FREE PRESS (Jan. 26, 2010), <https://www.winnipegfreepress.com/arts-and-life/entertainment/TV/yes-shes-queen-of-all-media-but-to-discovery-shes-life-itself-82678662.html> [<https://perma.cc/SW84-K6XZ>] (“Bad TV. Good TV. Great TV. Oprah.”).

⁶⁴ JK Rowling, *The Fringe Benefits of Failure*, TED (June 2008), https://www.ted.com/talks/jk_rowling_the_fringe_benefits_of_failure?language=srp [<https://perma.cc/4VA9-J2GM>] (stating that at the time she wrote the first *Harry Potter* novel she was as “poor as it is possible to be in modern Britain, without being homeless”). *But see* Ian Parker,

And WhatsApp founder and Ukraine native Jan Koum lived as a teenager on government assistance in California with his mother before developing an interest in computer programming.⁶⁵ The mobile messaging company he founded is the owner of multiple patents⁶⁶ and was eventually sold to Facebook for \$19 billion dollars.⁶⁷

But as Hughes and Merges acknowledge, anecdotes are not data.⁶⁸ So how can we determine whether we should expect these anecdotes to generalize? In other words, what is clear from these examples is that certain members of disadvantaged populations have pulled themselves out of poverty by generating IP-protected artistic and technical content. But what remains to be determined is whether a similar trajectory is available to a meaningful segment of the tens of millions of poor in the United States who remain.⁶⁹ If we are going to treat IP as a serious mechanism for achieving distributive justice—at least in the sense we’re talking about here—then this should be the goal.

One way to approach the problem is to ask how compatible poverty is with IP participation. Take a hypothetical poor citizen possessed of both the

Mugglemarch, NEW YORKER (Sept. 24, 2012), <https://www.newyorker.com/magazine/2012/10/01/mugglemarch> [<https://perma.cc/B39M-MTB2>] (acknowledging that at the time she wrote her first novel Rowling was a “broke single mother, in poor accommodations, at a time of high unemployment,” but also noting her relative advantages: “[S]he was a middle-class graduate, poised to start a teaching career, who claimed modest state benefits while she finished a novel, which she partly wrote in an upscale café owned by her sister’s husband.”).

⁶⁵ Parmy Olson, *Exclusive: The Rags-to-Riches Tale of How Jan Koum Built WhatsApp into Facebook’s New \$19 Billion Baby*, FORBES (Feb. 19, 2014), <https://www.forbes.com/sites/parmyolson/2014/02/19/exclusive-inside-story-how-jan-koum-built-whatsapp-in-to-facebooks-new-19-billion-baby/#4418fff22fa1> [<https://perma.cc/8ZSJ-Z4DT>].

⁶⁶ *Patents Assigned to WhatsApp Inc.*, JUSTIA PATENTS, <https://patents.justia.com/assignee/whatsapp-inc> [<https://perma.cc/DK35-XHXT>].

⁶⁷ Olson, *supra* note 65.

⁶⁸ See Hughes & Merges, *supra* note 7, at 555 (“We should also repeat that we are not proposing that copyright has wealth redistributive impact for African Americans as a whole, as would be needed in an argument about wealth distribution to meet Rawls’s Difference Principle. Our argument is that on the Rawlsian question of ‘conditions of fair equality of opportunity,’ copyright is doing much good whereas many other social structures are not.”).

⁶⁹ *What Is the Current Poverty Rate in the United States?*, U.C. DAVIS CTR. FOR POVERTY RES. (Oct. 15, 2018), <https://poverty.ucdavis.edu/faq/what-current-poverty-rate-united-states> [<https://perma.cc/PM3V-VLYA>] (stating that the official poverty rate in the United States as of 2017 was 12.3%, or approximately 39.7 million people); see also Steven Pressman, *New Data Paint an Unpleasant Picture of Poverty in the US*, CONVERSATION (Sept. 12, 2018), <https://theconversation.com/new-data-paint-an-unpleasant-picture-of-poverty-in-the-us-101069> [<https://perma.cc/89JW-PE4K>] (arguing that “things look even worse” than the official poverty rate “if we use what many scholars like myself believe is a better poverty measure”). According to Pressman, the poverty rate is probably “two to four percentage points above the official U.S. measure,” which translates into up to 12.9 million additional people living in poverty. *Id.*

necessary talent and desire to generate IP-protectable content.⁷⁰ Can we expect that this citizen will actually be able to generate the content and avail herself of the advantages IP confers? Or are there conditions specific to the circumstance of poverty that are incompatible with this goal? If the latter, then the case for IP as a generalizable mechanism for distributive justice is weakened.

The quick answer is, of course, that there are many incompatibilities between IP participation and poverty, some of which easily spring to mind. Inadequate education,⁷¹ reduced opportunities for professional employment that provides an outlet for creative talent,⁷² and a scarcity of time⁷³ and money might all help explain why a poor person who otherwise has the aptitude and desire might not end up creating something that is both IP-protectable and likely to generate meaningful income. And even if she does manage to innovate in this way, barriers such as unfamiliarity with the IP system,⁷⁴ inability to pay the

⁷⁰ When I speak of IP-protectable content in this way, I'm referring to the subset of IP-protectable content that also has the potential to generate income and social status for the creator. Because copyright in particular has a very low bar for what is considered protectable and no formal requirements for acquiring protection, copyrighted content that does not have such potential is generated by most everyone on a regular basis, but does not help advance the goal of distributive justice I'm concerned with here.

⁷¹ See, e.g., Maria Danilova, *Poverty, Segregation Persist in U.S. Schools, Report Says*, PBS NEWSHOUR (Jan. 11, 2018), <https://www.pbs.org/newshour/education/poverty-segregation-persist-in-u-s-schools-report-says> [<https://perma.cc/ZCV6-WUBX>] (covering a report conducted by the U.S. Commission on Civil Rights finding that “[t]oo often, low-income, black and Latino students end up in schools with crumbling walls, old textbooks and unqualified teachers”).

⁷² See Marlene Kim, *Problems Facing the Working Poor*, in BALANCING ACTS: EASING THE BURDENS AND IMPROVING THE OPTIONS FOR WORKING FAMILIES 49, 53 (Eileen Applebaum ed., 2000) (reporting that the working poor are overrepresented in jobs that involve repetitive tasks like “agricultural work[] and machine operat[ion]”).

⁷³ MARK A. RUNCO & STEVEN R. PRITZKER, 1 ENCYCLOPEDIA CREATIVITY 333 (1999) (“For many creative people, time is the most precious of all resources, without which creative work is simply impossible.”).

⁷⁴ See, e.g., Bell et al., *supra* note 17, at 647–48 (finding that exposure during childhood to other inventors makes it more likely that a child will himself go on to become an inventor); K.J. Greene, *Copyright, Culture & Black Music: A Legacy of Unequal Protection*, 21 HASTINGS COMM. & ENT. L.J. 339, 353–54 (1999) (explaining how the 1909 Copyright Act’s complex registration requirements may have prevented black artists historically from getting protection for their work); Sunder, *supra* note 3, at 273 (“Problems encountered in protecting the knowledge of the poor [may] turn . . . on the poor’s lack of knowledge of their rights . . .”).

required fees,⁷⁵ or even bias on the part of IP's gatekeepers⁷⁶ may prevent her from acquiring or enforcing IP rights in her creation.

These incompatibilities almost certainly exist, as scholars advancing a distributive agenda for IP have acknowledged to varying extents.⁷⁷ But the hope is that they can be addressed—in some cases relatively easily.⁷⁸ Peter Lee, for example, argues that reducing financial barriers to entry could be a productive way to broaden access to the U.S. patent system, and points to steps the United States Patent and Trademark Office (USPTO) has already taken in this direction as a hopeful sign.⁷⁹

But there is another incompatibility between poverty and IP participation, perhaps even more pernicious than the others because to this point it has largely flown under the radar. This incompatibility arises at the behavioral level. A growing body of work is revealing how poverty influences decision-making—the way people go about their lives and the decisions they make every day. And much of what researchers have found is relevant to creativity. In fact, what their findings suggest is that it might be very difficult, in the psychological sense, for a person living in poverty to engage in the creative process.

⁷⁵ See Gene Quinn, *US Patent Office Fees*, IP WATCHDOG (Apr. 11, 2015), <https://www.ipwatchdog.com/2015/04/11/us-patent-office-fees/id=56707/> [<https://perma.cc/F4YQ-RVZE>] (estimating that it would cost a small entity a minimum \$1210 in application and issuance fees to successfully apply for and issue a nonprovisional utility patent); Kiah Treece, *How Much Does a Patent Cost? Types, Factors & Ways to Save*, FIT SMALL BUS. (June 26, 2018), <https://fitsmallbusiness.com/how-much-does-a-patent-cost/> [<https://perma.cc/M8BM-MHSY>] (estimating that the cost of successfully prosecuting a patent with an attorney's help ranges from a minimum of \$5000 to about \$15,000 for a more complex patent). Even the \$55 copyright registration fee may seem prohibitive to someone who is living in poverty. U.S. COPYRIGHT OFFICE, CIRCULAR 4: COPYRIGHT OFFICE FEES 2 (2018).

⁷⁶ See, e.g., Andrew Gilden, *Raw Materials and the Creative Process*, 104 GEO. L.J. 355, 375–82 (2016) (arguing that courts tend to apply copyright's fair use doctrine in ways that favor rich and successful artists at the expense of less-well-known creators); K.J. Greene, *Intellectual Property at the Intersection of Race and Gender: Lady Sings the Blues*, 16 AM. U. J. GENDER SOC. POL'Y & L. 365, 371–72 (2008) (arguing that doctrines like the idea/expression dichotomy, the fixation standard, and the originality standard all favor white artists at the expense of black artists and in fact may encourage white artists to appropriate and gain protection over black artists' work); Greene, *supra* note 74, at 375–83 (1999) (same).

⁷⁷ See, e.g., Hughes & Merges, *supra* note 7, at 556–61 (discussing the various barriers disadvantaged populations face in their struggle to participate in IP); Sunder, *supra* note 3, at 273 (“Problems encountered in protecting the knowledge of the poor [may] turn . . . on the poor's lack of knowledge of their rights.”).

⁷⁸ See Hughes & Merges, *supra* note 7, at 561 (proposing “ways in which the copyright system could further strengthen wealth distribution to authors”).

⁷⁹ Lee, *supra* note 4, at 347–52, 363–67.

A. Poverty and Decision-Making Generally

It is becoming increasingly clear that the circumstance of poverty influences decision-making. Some of the most comprehensive behavioral work on the subject comes from cognitive scientist Eldar Shafir. Shafir has found that the conditions common to poverty, including “tight financial challenges, instability of income and expenses, low savings, no insurance, and several other stressors,” lead to deep changes in decision-making processes, affecting “attention, cognitive resources, and ensuing decisions.”⁸⁰

Often, the practical result of these changes is a co-opting of scarce attentional resources to deal with pressing, day-to-day needs.⁸¹ Consequently, fewer resources are available for other mental tasks.⁸² Shafir’s work focuses on how this makes it particularly difficult for those living in poverty to make the decisions necessary to get ahead—for example, when all one’s attention is focused on today’s urgent need to pay rent, the high interest rates on the payday loan required to meet that need may be overlooked.⁸³ But it is clear that the cognitive load poverty imposes affects more than just financial decision-making. In one study, for instance, Shafir and colleagues found that inducing thoughts about finances reduced cognitive performance in a range of tasks—like spatial processing and creative problem solving⁸⁴—in poor participants,⁸⁵ while having no such effect on the more well-off.⁸⁶

The neuroscience research on poverty and the brain supports Shafir’s findings, and is perhaps even more concerning. Shafir emphasizes that what his research shows is that it is the circumstance of poverty itself—rather than some other explanation like genetic differences or stress—that causes cognitive impairments.⁸⁷ Thus, he sanguinely points to studies showing that moving to a better neighborhood can positively impact things like college attendance and earnings.⁸⁸ But what a large neuroscience literature suggests is that when

⁸⁰ Eldar Shafir, *Decisions in Poverty Contexts*, 18 CURRENT OPINION PSYCHOL. 131, 131 (2017).

⁸¹ *Id.* at 132.

⁸² *Id.* at 132–33.

⁸³ *Id.* at 133.

⁸⁴ Anandi Mani et al., *Poverty Impedes Cognitive Function*, 341 SCIENCE 976, 977 (2013) (describing the tests they used to measure cognitive functioning, including a spatial task designed to measure “cognitive control” and “the ability to guide thought and action in accordance with internal goals,” and Raven’s Progressive Matrices test, designed to measure “‘fluid intelligence,’ the capacity to think logically and solve problems in novel situations, independent of acquired knowledge”).

⁸⁵ *Id.* (describing how they categorized subjects as either “rich” or “poor,” with those they categorized as poor “roughly corresponding to those in the lower quartile or third of the U.S. income distribution”).

⁸⁶ *Id.* at 977–78.

⁸⁷ *Id.* at 976 (“This suggests a causal, not merely correlational, relationship between poverty and mental function.”).

⁸⁸ Shafir, *supra* note 80, at 134.

poverty is experienced during childhood in particular, it can lead to lifelong deficits in cognitive functioning.⁸⁹

These effects are thought to be linked to disrupted brain development trajectories. Brain development is a process that takes place throughout childhood and young adulthood, and is largely complete by the time a person reaches her mid-twenties.⁹⁰ Because a young person's brain is the most malleable at this time,⁹¹ the conditions of poverty can disrupt developmental trajectories,⁹² presumably leading to cognitive impairments—including deficits in language ability, memory, and goal-directed behaviors.⁹³ And because the window of malleability eventually closes, these brain impairments, if present in early adulthood, can last a lifetime.⁹⁴ Even if a person eventually escapes a poverty situation, the changes to brain structure and function may persist. So while some effects of poverty on decision-making, such as those detailed by Shafir and his team, may be the direct result of *current* exposure to poverty conditions, and thus may resolve when the conditions are ameliorated, others may flow from earlier, childhood exposure to poverty, and thus may be resistant to environmental improvements.

B. Poverty and Creativity

The findings on poverty, decision-making, and brain development are concerning, and, as commentators have pointed out, have a range of implications for various areas of social and political concern, including public

⁸⁹ See, e.g., Martha J. Farah, *Socioeconomic Status and the Brain: Prospects for Neuroscience-Informed Policy*, 19 NATURE REVIEWS NEUROSCIENCE 428, 429–31 (2018) (reviewing the literature).

⁹⁰ See, e.g., Sara B. Johnson et al., *Adolescent Maturity and the Brain: The Promise and Pitfalls of Neuroscience Research in Adolescent Health Policy*, 45 J. ADOLESCENT HEALTH 216, 216 (2009) (explaining that certain parts of the brain “may not be fully developed until halfway through the third decade of life”).

⁹¹ Nandini Mundkur, *Neuroplasticity in Children*, 72 INDIAN J. PEDIATRICS 855, 856 (2005) (noting that “plasticity of the brain is . . . maximal during the critical periods [that occur in youth]”); see, e.g., Ronald L. Simons & Eric T. Klopach, *Invited Address: “The Times They Are A-Changin’”: Gene Expression, Neuroplasticity, and Developmental Research*, 44 J. YOUTH & ADOLESCENCE 573, 575–76 (2015) (discussing the empirical evidence supporting neuroplasticity in children).

⁹² See, e.g., Kimberly G. Noble et al., *Socioeconomic Disparities in Neurocognitive Development in the First Two Years of Life*, 57 DEVELOPMENTAL PSYCHOBIOLOGY 535, 535 (2015).

⁹³ E.g., Martha J. Farah et al., *Childhood Poverty: Specific Associations with Neurocognitive Development*, 1110 BRAIN RES. 166, 168 (2006).

⁹⁴ E.g., Shafir, *supra* note 80, at 134.

health,⁹⁵ criminal law,⁹⁶ education,⁹⁷ and more. But to this point, no one has explored how these findings might read on the potential for the poor to engage in creative and innovative pursuits.

It is clear, however, that they are relevant to this question. For example, Shafir and colleagues' finding that financial concerns in the poor reduce cognitive functioning in areas like creative problem solving⁹⁸ is directly relevant to the question of how well and how often we might expect those living in poverty to innovate. And the fact that poverty experienced in childhood can lead to lifelong difficulties with language and goal-directed behaviors is also concerning, as many creative pursuits require facility with these very tasks.⁹⁹ One 2008 study, for example, found that brain activity in the prefrontal cortex, an area integral to creativity and problem solving, was significantly different between seven and twelve year olds from low socioeconomic households and those from higher-status households.¹⁰⁰ The differences were so extreme that researchers remarked that the poor children's brain activity resembled that of adults who had suffered brain damage.¹⁰¹

More recent empirical work in psychology and neuroscience also supports the hypothesis that those living in poverty may find it particularly difficult, psychologically speaking, to engage in creative pursuits. Specifically, the poor may be pressed by their circumstances to employ so-called exploitative and habit-based decision-making strategies that make creativity harder to come by.

⁹⁵ See, e.g., Amanda Sheffield Morris et al., *Targeting Parenting in Early Childhood: A Public Health Approach to Improve Outcomes for Children Living in Poverty*, 88 CHILD DEV. 388, 388 (2017).

⁹⁶ E.g., Stephanie Plamondon Bair, *Malleable Rationality*, 79 OHIO ST. L.J. 17, 38–39 (2018).

⁹⁷ Farah, *supra* note 89, at 434 (explaining how SES disparities and their effect on the brain “have implications for education policy”).

⁹⁸ Mani et al., *supra* note 84, at 977.

⁹⁹ See, e.g., Christina E. Shalley, *Effects of Coaction, Expected Evaluation, and Goal Setting on Creativity and Productivity*, 38 ACAD. MGMT. J. 483, 483 (1995) (finding that subjects were most creative when they were able to set their own creativity goals).

¹⁰⁰ Mark M. Kishiyama et al., *Socioeconomic Disparities Affect Prefrontal Function in Children*, 21 J. COGNITIVE NEUROSCIENCE 1106, 1106 (2008); see also Robert Sanders, *EEGs Show Brain Differences Between Poor and Rich Kids*, U.C. BERKELEY NEWS (Dec. 2, 2008), https://www.berkeley.edu/news/media/releases/2008/12/02_cortex.shtml [<https://perma.cc/ZS96-58XY>] (reporting on the study) (“In a study recently accepted for publication by the *Journal of Cognitive Neuroscience*, scientists at UC Berkeley’s Helen Wills Neuroscience Institute and the School of Public Health report that normal 9- and 10-year-olds differing only in socioeconomic status have detectable differences in the response of their prefrontal cortex, the part of the brain that is critical for problem solving and creativity.”).

¹⁰¹ See Kishiyama et al., *supra* note 100, at 1106 (“We found that prefrontal-dependent electrophysiological measures of attention were reduced in LSES compared to high SES (HSES) children in a pattern similar to that observed in patients with lateral prefrontal cortex (PFC) damage.”).

1. *Exploitative Versus Explorative Decision-Making*

A subject of study in the decision-making literature is how and when people employ exploitative decision-making strategies versus explorative decision-making strategies, two ways of thinking that use distinct brain architectures.¹⁰² The first type can be thought of as a “stick-with-what-you-know” approach, while the second involves exploring new options.¹⁰³ While each has its place¹⁰⁴—for example, it would make little sense to keep exploring new ways to get from your home to work when you have already found the most efficient route—external circumstances in peoples’ lives might sometimes cause the appropriate balance of strategies to get out of whack, leading to suboptimal decision-making.¹⁰⁵

A recent study shows that stress, as measured by the level of the stress hormone cortisol, is one of these external circumstances.¹⁰⁶ Specifically, when subjects were exposed to a stressor that increased their cortisol, they tended to over-rely on exploitative decision-making, weighing costs and benefits incorrectly and sticking to known strategies even when exploring new options would have led to better outcomes.¹⁰⁷ The authors hypothesize that stress contributes to a perception that one’s environment is “harsh and unfair;” the decision-maker might thus conclude that it makes little difference what approach he employs, as the outcome will likely be negative no matter what.¹⁰⁸ Better, then, to conserve resources by using the less taxing exploitation strategy than to take a risk on exploration the decision-maker has little hope will pay off.¹⁰⁹

Cortisol, the hormone that mediates this inefficient decision-making strategy, has close ties to poverty. Poverty is stressful, and the bodies of those who experience it produce cortisol in response to this stress.¹¹⁰ A number of studies have documented how high cortisol levels go hand in hand with poverty and how this affects brain development and decision-making in the moment and

¹⁰² Daniella Laureiro-Martínez et al., *Understanding the Exploration–Exploitation Dilemma: An fMRI Study of Attention Control and Decision-Making Performance*, 36 STRATEGIC MGMT. J. 319, 320 (2015).

¹⁰³ Madeline B. Harms, *Stress and Exploitative Decision-Making*, 37 J. NEUROSCIENCE 10035, 10035 (2017).

¹⁰⁴ See Laureiro-Martínez et al., *supra* note 102, at 319.

¹⁰⁵ See Harms, *supra* note 103, at 10035.

¹⁰⁶ Lenow et al., *supra* note 10, at 5681.

¹⁰⁷ *Id.* at 5685–86.

¹⁰⁸ See Harms, *supra* note 103, at 10035 (reviewing the Lenow study).

¹⁰⁹ See *id.*

¹¹⁰ See, e.g., Clancy Blair et al., *Cumulative Effects of Early Poverty on Cortisol, in Young Children: Moderation by Autonomic Nervous System Activity*, 38 PSYCHONEUROENDOCRINOLOGY 2666, 2672 (2013); Johannes Haushofer et al., *Poverty Raises Levels of the Stress Hormone Cortisol: Evidence from Weather Shocks in Kenya 2* (Working Paper, 2013), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2294171 [on file with *Ohio State Law Journal*].

over time.¹¹¹ Though cortisol serves a legitimate physiological function—it contributes, for example, to the “fight or flight” response,¹¹² and insufficient levels of cortisol can also lead to decision-making impairments¹¹³—in general, sustained high levels of cortisol, such as those seen in impoverished populations, tend to have negative effects on health and decision-making.¹¹⁴ Perceiving your environment as “harsh and unfair”—a contributor to stress and heightened cortisol¹¹⁵—also has ties to individuals’ experience as members of traditionally disadvantaged race and gender groups. Exposure to race-related stress, for example, leads to sustained heightened stress response in black subjects.¹¹⁶

These findings can tell us something about poverty and creativity. When considering what kind of decision-making—explorative or exploitative—is involved in creativity, we would expect the former to play a particularly important role.¹¹⁷ Creativity, by definition, means making something new.¹¹⁸ It would be impossible to make something new without engaging in explorative decision-making—the kind of decision-making that involves seeking out new information and options.¹¹⁹ If the economically disadvantaged, due to the

¹¹¹ See, e.g., Clancy Blair et al., *Salivary Cortisol Mediates Effects of Poverty and Parenting on Executive Functions in Early Childhood*, 82 CHILD DEV. 1970, 1979 (2011) (finding that heightened cortisol resulting from poverty leads to impaired executive functioning in children); Farah et al., *supra* note 93, at 169 (finding that poverty leads to impaired neurocognitive development and hypothesizing that heightened cortisol plays a mediating role).

¹¹² See, e.g., Sarah Klein, *Adrenaline, Cortisol, Norepinephrine: The Three Major Stress Hormones, Explained*, HUFF. POST (Apr. 19, 2013), https://www.huffpost.com/entry/adrenaline-cortisol-stress-hormones_n_3112800 [<https://perma.cc/2BJW-U3QZ>] (“In survival mode, the *optimal* amounts of cortisol can be life saving.”).

¹¹³ Christopher Bergland, *How Do Various Cortisol Levels Impact Cognitive Functioning?*, PSYCHOL. TODAY (June 17, 2015), <https://www.psychologytoday.com/us/blog/the-athletes-way/201506/how-do-various-cortisol-levels-impact-cognitive-functioning> [<https://perma.cc/E5QS-KUFW>] (reporting on a study finding that very high and very low levels of cortisol result from unstable family environments and lead to impaired cognitive functioning).

¹¹⁴ See, e.g., Bruce S. McEwen, *Central Effects of Stress Hormones in Health and Disease: Understanding the Protective and Damaging Effects of Stress and Stress Mediators*, 583 EUR. J. PHARMACOLOGY 174, 181 (2008); Bergland, *supra* note 113; Klein, *supra* note 112 (“Too much cortisol can suppress the immune system, increase blood pressure and sugar, decrease libido, produce acne, contribute to obesity and more.”).

¹¹⁵ See Harms, *supra* note 103, at 10035.

¹¹⁶ Laura Smart Richman & Charles Jonassaint, *The Effects of Race-Related Stress on Cortisol Reactivity in the Laboratory: Implications of the Duke Lacrosse Scandal*, 35 ANNALS BEHAV. MED. 105, 105 (2008).

¹¹⁷ See, e.g., Daniella Laureiro-Martínez et al., *Frontopolar Cortex and Decision-Making Efficiency: Comparing Brain Activity of Experts with Different Professional Background During an Exploration-Exploitation Task*, 7 FRONTIERS HUM. NEUROSCIENCE 1, 1 (2014) (equating creativity with explorative decision-making strategies).

¹¹⁸ Gregory N. Mandel, *To Promote the Creative Process: Intellectual Property Law and the Psychology of Creativity*, 86 NOTRE DAME L. REV. 1999, 2002–03 (2011).

¹¹⁹ See Harms, *supra* note 103, at 10035.

stressful nature of their environments, over-rely on exploitative decision-making strategies at the expense of exploration,¹²⁰ it will be more difficult for them to engage in truly creative behaviors.

2. Habit- Versus Goal-Based Behaviors

Just as people can choose whether to employ exploitative or explorative decision-making strategies in their daily lives, they can also choose at any moment whether they are going to engage in reflexive, habit-based, decision-making or more reflective, goal-directed decision-making.¹²¹ Each strategy is directed by different neural circuits and comes with a unique suite of costs and benefits.¹²² In goal-directed (also known as reflective or model-based) decision-making, a person consciously desires a specific outcome and analyzes various ways to get there, ultimately choosing the path he thinks is most likely to lead to the result he wants.¹²³ In contrast, during habit-based (also known as reflexive or model-free) decision-making, a person relies heavily on past experience to make quick utility calculations and does not invest as much conscious thought in the nuances of present circumstances and how they might affect outcomes.¹²⁴ While goal-directed decision-making has the advantage of being flexible and adaptable to the specific situation at hand, it is also cognitively costly.¹²⁵ Habit-directed decision-making, on the other hand, is an efficient heuristic, but may lead to more errors because it is less flexible, and more of a “one-size fits all” approach.¹²⁶ Like exploration and exploitation, habit-based and goal-based decision-making each have their place in human action, but they must be appropriately selected and balanced for optimal decision-making.

The choice between a habit- or goal-based strategy in any given instance also has implications for creativity. Because creativity is about making something new,¹²⁷ it and a habit-based approach—which by definition involves doing what you’ve done before—are at odds.¹²⁸ Instead, a goal-directed approach, which involves mental flexibility, deep cognitive engagement, and a

¹²⁰ See Lenow et al., *supra* note 10, at 5688.

¹²¹ See, e.g., Ray J. Dolan & Peter Dayan, *Goals and Habits in the Brain*, 80 NEURON 312, 312 (2013) (reviewing the evolution of scientific thought on reflexive or habit-based decision-making versus reflective or goal-based decision-making).

¹²² See *id.* at 314.

¹²³ *Id.*

¹²⁴ See *id.* at 316.

¹²⁵ *Id.* at 314.

¹²⁶ *Id.*

¹²⁷ Mandel, *supra* note 118, at 2002–03.

¹²⁸ Cameron M. Ford, *A Theory of Individual Creative Action in Multiple Social Domains*, 21 ACAD. MGMT. REV. 1112, 1116–19 (1996) (describing the “competition between creative and routine behavioral options”). *But see* Benjamin Dalton, *Creativity, Habit, and the Social Products of Creative Action: Revising Joas, Incorporating Bourdieu*, 22 SOC. THEORY 603, 603 (2004) (arguing that sometimes habit can serve as a source of creative action).

close conscious attention to one's environment¹²⁹ is more consistent with creative action.¹³⁰

Enter now the evidence that individuals suffering the stresses of poverty may over-rely on habit-based decision-making approaches. A recent study shows that sleep deprivation privileges habit-based decision-making strategies over goal-based decision-making strategies.¹³¹ Those subject to sleep deprivation over-rely on habit, using it to make decisions even when a goal-based approach would be more appropriate.¹³² Sleep deprivation, in turn, has well-known empirical ties to both poverty and race. Those with financial struggles, as well as African Americans and Latinos, are much more likely to experience poor sleep quality than whites and those with higher socioeconomic status.¹³³ Stress is thought to play an important role in this interaction, in addition to specific life circumstances like employment, education, and health status.¹³⁴

These findings also have something to say about poverty and creativity. What they tell us is that the poor are the most likely to suffer sleep deprivation,¹³⁵ which in turn makes them more susceptible to an over-reliance on habit-based action¹³⁶—a decision-making strategy unlikely to lead to creative thought.¹³⁷

3. Conclusions

When one considers together the various strains of research studying the psychology and neuroscience of poverty, one inference seems increasingly inescapable: poverty harms the brain, and interferes with decision-making processes, in ways that hinder one's ability to think and act creatively.

This conclusion might seem strange at first. After all, aren't many artists and innovators poor? We can all easily call to mind examples. And what about the proverbial "starving artist"? Isn't he a proverb for a reason?

In the absence of empirical research that directly tackles the link between poverty and creativity, it is impossible to answer these questions conclusively.

¹²⁹ See Dolan & Dayan, *supra* note 121, at 314.

¹³⁰ See Ford, *supra* note 128, at 1116–19.

¹³¹ Chen et al., *supra* note 11, at 11979.

¹³² *Id.* at 11990 (“[S]leep-deprived individuals overrelied [sic] on habitual learning at the expense of goal-directed learning.”).

¹³³ See, e.g., Nirav P. Patel et al., “*Sleep Disparity*” in the Population: Poor Sleep Quality Is Strongly Associated with Poverty and Ethnicity, 10 BMC PUB. HEALTH 475, 475 (2010); Nurith Aizenman, *Sleepless Nights and Lighter Wallets: The Link Between Poverty and Sleep*, NPR (Dec. 6, 2015), <https://www.npr.org/2015/12/06/458662028/a-bad-nights-sleep-might-do-more-harm-than-you-think> [<https://perma.cc/S59W-BBW4>].

¹³⁴ Patel et al., *supra* note 133, at 4754.

¹³⁵ *Id.*

¹³⁶ Chen et al., *supra* note 11, at 11979.

¹³⁷ See Ford, *supra* note 128, at 1113.

But until then, a couple of possibilities might help explain the disconnect between the conclusions I draw here and popular intuitions.

First, when one visualizes the proverbial starving artist, one often pictures someone who has chosen poverty as the price for pursuing and perfecting their craft.¹³⁸ Psychologically speaking, this could be a very different situation from the one encountered by someone who was raised in poverty, or who otherwise cannot choose to not be poor. While to the former group, poverty might be psychologically empowering, a statement of life choices and values,¹³⁹ to the latter, poverty may do little more than make it harder to think creatively in the ways already discussed. And in any case, as some commentators have pointed out, the myth of the starving artist may be just that—a myth.¹⁴⁰

But if this latter point is true, then why can we so easily bring to mind examples of artists and innovators who emerged with their creations from humble backgrounds? This could be due in part to our collective biases. The story of the poor innovator or artist is a compelling one; for that reason it might be repeated often and, through the workings of the availability heuristic,¹⁴¹ be more easily called to mind than the many, many stories of artists and inventors who come from more privileged backgrounds.¹⁴² For example, while the tale of Oprah’s humble upbringing might be widely known and reported on, fewer people may be aware that Taylor Swift is the child of a financial advisor and marketing executive,¹⁴³ or that Bill Gates’s father was a prominent lawyer,

¹³⁸ See, e.g., Usman W. Chohan, *Should Artists Pay Their Taxes in Art?*, CONVERSATION (July 25, 2016), <https://theconversation.com/should-artists-pay-their-taxes-in-art-57669> [<https://perma.cc/9643-3HD8>] (describing artists wearing their poverty as a “badge of honour”).

¹³⁹ See *id.*

¹⁴⁰ See, e.g., Jeff Goins, *The Myth of the Starving Artist and Other Misconceptions About Creativity*, MEDIUM (May 18, 2017), <https://medium.com/the-mission/the-myth-of-the-starving-artist-other-misconceptions-about-creativity-72457cced62f> [<https://perma.cc/YM4Z-M74Y>] (“[S]tudies have revealed that the portrait of the starving artist is a myth.”); Jeff Goins, *Why the Story of the Starving Artist Needs to Die*, GOINS, WRITER, <https://goinswriter.com/die/> [<https://perma.cc/6SUN-4XHQ>] [hereinafter Goins, *Story of the Starving Artist*] (explaining how contrary to popular belief, the Italian artist Michelangelo was “in fact, very rich”).

¹⁴¹ See, e.g., Adele Gabrielcik & Russell H. Fazio, *Priming and Frequency Estimation: A Strict Test of the Availability Heuristic*, 10 PERSONALITY & SOC. PSYCHOL. BULL. 85, 85–86 (1984) (describing the availability heuristic).

¹⁴² See, e.g., Hannah Ellis-Petersen, *Middle Class People Dominate Arts, Survey Finds*, GUARDIAN (Nov. 23, 2015), <https://www.theguardian.com/artanddesign/2015/nov/23/middle-class-people-dominate-arts-survey-finds> [<https://perma.cc/8HS4-JZLQ>] (discussing the results of a survey finding that over three-quarters of respondents who worked in creative industries came from a middle class background, and considering the argument that “performing arts schools had become dominated by those from affluent, privately educated backgrounds”).

¹⁴³ *Celebrities Who Were Rich Before They Were Famous*, RANKER, <https://www.ranker.com/list/celebrities-born-into-wealthy-families/celebrity-lists> [<https://perma.cc/PM3B-BXNQ>].

while his mother served on the board of directors of a financial holding company.¹⁴⁴ Because of these biases, we may become overly sanguine about the ability of those living in poverty to engage in creative and innovative pursuits.

IV. THEORETICAL IMPLICATIONS

A. *IP and Distributive Justice*

For over a decade, IP scholars have been calling for distributive justice to take its rightful place among the justifications for and goals of IP regimes.¹⁴⁵ But converting IP into an effective tool of distributive justice—in the sense of facilitating IP acquisition and assertion by members of disadvantaged groups—may be far more difficult to attain on a large scale than previously imagined. There are the previously-recognized incompatibilities between poverty and IP acquisition and assertion, of course: incompatibilities like the financial and social barriers inherent in navigating the IP system¹⁴⁶ that scholars tend to be optimistic about policymakers' ability to address.¹⁴⁷ But a more existential challenge to the aspirations of IP and distributive justice proponents is highlighted by the behavioral incompatibility described here: the finding that poverty severely limits the ability of those experiencing it to think and act in creative ways.¹⁴⁸

Poverty's destructive influence on creative thought and action will make it very difficult for those living in poverty's throes to arrive at the creative advances meaningful IP protection requires. Patent law, for example, demands as a prerequisite to protection that inventions be novel.¹⁴⁹ As Greg Mandel has noted, the essence of the novelty requirement is "remarkably akin" to the novelty psychologists consider an essential element of creativity.¹⁵⁰ Copyright, too, requires that expressive works be "original" to merit protection.¹⁵¹ As the Supreme Court put it in *Feist Publications v. Rural Telephone Service Co.*, this is the "bedrock principle of copyright" law;¹⁵² any work seeking protection must

¹⁴⁴ *Bill Gates*, WIKIPEDIA, https://en.wikipedia.org/wiki/Bill_Gates [<https://perma.cc/EXB3-DBEF>].

¹⁴⁵ See Chon, *supra* note 41, at 2823; Fisher, *supra* note 1, at 171; Ghosh, *supra* note 42, at 859; Lee, *supra* note 4, at 325; Sunder, *supra* note 3, at 315; Shaffer Van Houweling, *supra* note 41, at 1540.

¹⁴⁶ See, e.g., *supra* notes 71–79 and accompanying text (highlighting some of the incompatibilities between poverty and meaningful IP protection).

¹⁴⁷ See, e.g., Hughes & Merges, *supra* note 7, at 573–75 (discussing ways in which the copyright system could better fulfill a distributive agenda); Lee, *supra* note 4, at 365–74 (discussing ways in which the patent system could better fulfill a distributive agenda).

¹⁴⁸ See *supra* Part II.

¹⁴⁹ 35 U.S.C. § 102 (2012).

¹⁵⁰ Mandel, *supra* note 118, at 2002–03.

¹⁵¹ 17 U.S.C. § 102 (2012).

¹⁵² *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340, 347 (1991).

thus display “at least some minimal degree of creativity.”¹⁵³ If creativity is required for IP protection, that which harms one’s ability to be creative will also harm one’s ability to participate in IP. And poverty harms one’s ability to be creative.¹⁵⁴

It is true that copyright’s originality requirement sets a notoriously low bar for what counts as creativity.¹⁵⁵ Poverty’s destructive influence on creativity might therefore not systematically interfere with people’s ability to meet this minimal standard. But in this regard, it’s important to remember the claim that IP and distributive justice scholars are making. Not just that the poor can and should acquire and assert IP rights, but that the poor can and should acquire and assert IP rights that will help them financially and socially. In order for an IP-protected expressive work to achieve this end, we might expect that the level of creativity required to generate the work would not only meet the originality bar, but substantially exceed it. For example, while poverty might not seriously interfere with a person’s ability to compose a straightforward email message, take a snapshot with his phone, or doodle on the back of an envelope—all copyrightable activities that in fact do acquire copyright protection at the moment of fixation¹⁵⁶—it might very well interfere with that person’s ability to compose a more substantial piece of writing or music that has the potential to make him money and improve his social status.

This is not to say that no one who is poor can ever be expected to engage in meaningful creative activity. That is clearly not the case; some of our most compelling works of literature, for example, have come from authors who were extremely poor;¹⁵⁷ we have also already considered the cases of Oprah, J.K. Rowling, and Jan Koum.¹⁵⁸ But what it does suggest is that the average person raised or living in poverty will be less able than the average person of means to convert a similar level of motivation and talent into creative output.

If this is true, the argument that IP can help advance distributive goals where other social structures have failed¹⁵⁹ loses much of its power. Indeed, while some few economically disadvantaged individuals may be able to harness IP to their advantage, we would expect IP, on the whole, to exacerbate existing

¹⁵³ *Id.* at 345.

¹⁵⁴ *See supra* Part III.

¹⁵⁵ *See, e.g.,* Luck’s Music Library, Inc. v. Ashcroft, 321 F. Supp. 2d 107, 118 (D.D.C. 2004) (stating that the originality requirement demands “just a scintilla of creativity”).

¹⁵⁶ *See* John Tehranian, *Infringement Nation: Copyright Reform and the Law/Norm Gap*, 2007 UTAH L. REV. 537, 543–48 (detailing various copyrighted activities).

¹⁵⁷ *See, e.g.,* JACKSON J. BENSON, *THE TRUE ADVENTURES OF JOHN STEINBECK, WRITER* 142, 147 (The Viking Press 1984) (describing how Steinbeck for a time collected welfare and subsisted on the fish he caught and the vegetables from his wife’s garden); JOHN FORSTER, *THE LIFE OF CHARLES DICKENS* 27 (Sterling Publ’g Co. 2011) (describing Dickens’s impoverished late childhood).

¹⁵⁸ *See supra* Part III.

¹⁵⁹ *See* Hughes & Merges, *supra* note 7, at 555 (“Our argument is that on the Rawlsian question of ‘conditions of fair equality of opportunity’ copyright is doing much good whereas many other social structures are not.”).

inequalities, as those of greater means are disproportionately able to participate in it and reap its benefits.

Moreover, the challenge the psychology of poverty presents to the IP and distributive justice narrative is existential in the sense that it, unlike some of the other incompatibilities between poverty and creativity that have been recognized, can *not* easily be remedied within IP itself. While we should certainly continue to address IP-based concerns like financial barriers to entry and doctrines that may make it more difficult for the poor to acquire and assert IP rights, this will not fix the incompatibility raised here. That's because the problem is one of reduced *creation* by the poor rather than reduced *protection* for the poor. Once a poor person creates something, we can make sure IP is structured such that this person can gain and assert rights in her creation as easily as possible. But because IP is premised on creation,¹⁶⁰ it is powerless to help the poor person who does not create—even if that person would be creating but-for their poverty. It is difficult to see, then, how IP can serve as a meaningful tool of distributive justice in this sense without the aid of outside interventions aimed at reducing poverty.

The behavioral incompatibility between IP and poverty also highlights some of the dangers and unintended consequences of the IP and distributive justice account. While the narrative is a relatively innocuous and even commendable story of empowerment, below its surface lies an assumption: that the poor, generally speaking, can in fact engage in the creative pursuits IP rewards with the same ease as those of greater means and similar levels of talent and motivation. This false underlying assumption is dangerous because it perpetuates the myth of the meritocracy: that we live in a society where a given level of talent, motivation, and hard work will tend to lead to a given level of financial and social success, regardless of the starting point of the person possessed of those qualities.¹⁶¹ And though this is certainly not the intention of IP and distributive justice scholars, there is a sense in which their narrative puts the onus on the poor to pull themselves up by their own bootstraps (with the help of IP) and make something of their lives, without fully recognizing the psychological disadvantages they face relative to the rest of the population in their attempts to do so.¹⁶²

This type of thinking holds peril for those who happen to live in poverty as well as those who are lucky enough to not currently face that challenge. For those of us with greater means, the danger is obvious—we could begin to think that members of poor populations who do *not* create are simply not talented, hard-working, or motivated enough to do so, even though this could be far from the truth. This, in turn, could stymie the political will to enact more promising distributive justice reforms.¹⁶³ But it is also a particularly harmful mode of

¹⁶⁰ See 35 U.S.C. § 102 (2012).

¹⁶¹ See Stewart, *supra* note 54.

¹⁶² See *supra* Part III.A.

¹⁶³ For a related argument in a different context, see Will Stancil, *The Scandal that Reveals the Fiction of America's Educational Meritocracy*, ATLANTIC (Dec. 19, 2018),

thought for those who do currently find themselves in dire financial straits. One study, for example, found that economically disadvantaged youth who buy into the meritocratic narrative of hard work are more likely to act out in their middle school years, as they “begin to blame themselves for problems they can’t control.”¹⁶⁴ Because the empowerment mindset can so easily be distorted into a meritocratic mindset, it runs the risk of adding one more burden to the already heavily-weighted loads of the poor—the burden of falsely believing that they themselves are fully responsible for their failure to realize their creative ambitions.

In this regard, the fact that some poor people actually do successfully manage to take advantage of IP to escape poverty can act as a double-edged sword. On the one hand, as Hughes and Merges point out, these success stories can serve as important role models for others who aspire to similarly harness the power of IP in their own lives.¹⁶⁵ On the other hand, it could lead to incorrect, and potentially harmful, generalizations. If we see that some have been able to transcend their disadvantaged circumstances with the help of IP, we might wrongly assume that this is a realistic option for others in like circumstances.¹⁶⁶

It seems, then, that a particular argument common to law and distributive justice scholars—that the poor can and should harness IP rights to their individual and collective advantage—while superficially compelling, has some significant limitations. Foremost, it fails to recognize the degree to which poverty is incompatible with creativity. Because of this, the poor, as a group, will be *less* able to benefit from IP than those of greater means. And because the problem is one of reduced creation rather than reduced protection, nothing we do within the IP system can hope to change this. Given this reality, the rhetoric of empowerment the argument employs is particularly dangerous, because it incorrectly assumes the poor can in fact take advantage of IP, and indirectly puts the blame on them when they don’t.

Importantly, the analysis here focuses on two particular types of IP for which creativity is particularly relevant—copyright and patent. There are, of course, other forms of IP, including trademark protection in particular, for which

<https://www.theatlantic.com/education/archive/2018/12/tm-landry-and-myth-meritocracy-education/578149/> [<https://perma.cc/5ER6-CE39>] (arguing in the context of a prep school scandal, where a prep school that had incredible success in placing low-income students in Ivy League colleges was found to have engaged in fraud) (“Miracle fixes can excuse complacency Success stories suggest that, even among the poor children of color who face pervasive societal burdens, the truly deserving can prevail in the end. When inequality is defeatable, it stops feeling so much like injustice. For that reason, many people recoil at attempts to depict segregation, discrimination, and poverty as an inescapable trap, even though, for millions of children, they have proved exactly that”).

¹⁶⁴ Melinda D. Anderson, *Why the Myth of Meritocracy Hurts Kids of Color*, ATLANTIC (July 27, 2017), <https://www.theatlantic.com/education/archive/2017/07/internalizing-the-myth-of-meritocracy/535035/> [<https://perma.cc/H84C-29XY>].

¹⁶⁵ Hughes & Merges, *supra* note 7, at 560 (citing evidence that same-race role models can “increas[e] self-esteem and expand[] career horizons for young people”).

¹⁶⁶ See Stancil, *supra* note 163.

the distributive justice analysis might differ significantly. Trademark protection is available to signifiers, such as words or symbols,¹⁶⁷ that designate the source of a good or service.¹⁶⁸ Owners of trademarks acquire rights by using their marks in commerce to identify their products,¹⁶⁹ and can prohibit uses of their mark (or similar marks) that might confuse consumers about a product's source¹⁷⁰ or dilute the uniqueness of the owners' mark in consumers' minds.¹⁷¹ It's generally thought that trademarks do not reward creativity,¹⁷² accordingly, there is no requirement for acquiring trademark protection akin to patent's nonobviousness and novelty inquiries or copyright's originality threshold. Because of this, the negative influence poverty exerts on creativity may not significantly interfere with the ability of those living in poverty to take advantage of trademark protection and the economic advantages it bestows. Indeed, one important strain of the IP and distributive justice literature focuses on how geographic indications—a form of trademark protection granted to products, like Roquefort cheese or Idaho potatoes, that come from a particular geographic source—are a particularly useful way to put valuable IP rights in the hands of the poor.¹⁷³

The discussion here also centers on the effects poverty wields on the individual, and does not speak to how poverty may or may not influence a community's collective ability to innovate. This is significant because another avenue scholars have proposed for putting IP in the hands of the poor is through the protection of traditional knowledge and cultural expression—innovations like traditional music and stories or therapeutic and horticultural technologies that arise in particular communities and cannot be traced to a single

¹⁶⁷ Though a trademark is often a word or symbol, under modern trademark jurisprudence protection has been afforded to signifiers like smells, see *In re Clarke*, 17 U.S.P.Q.2d (BNA) 1238, 1990 WL 354572, at *2 (T.T.A.B. 1990) (finding a signature scent on yarn to be eligible for trademark protection), and sounds, see *In re Gen. Elec. Broad. Co.*, 199 U.S.P.Q. (BNA) 560, 1978 WL 21247, at *3 (T.T.A.B. 1978) (finding a series of bells broadcast by a radio station on the half hour could potentially be eligible for trademark protection); see also Neal R. Platt, *Is a Trademark Owner's Right to Use Its Mark Protected by the First Amendment?*, 11 HOFSTRA L. REV. 1261, 1262–63 (1983) (“A trademark can assume almost any imaginable form, as long as it is applied to the goods and is perceptible to the buying public.”).

¹⁶⁸ 15 U.S.C. § 1127 (2012).

¹⁶⁹ *Id.* (setting forth the “use in commerce” requirement).

¹⁷⁰ Alfred C. Yen, *Intent and Trademark Infringement*, 57 ARIZ. L. REV. 713, 719 (2015).

¹⁷¹ 15 U.S.C. § 1125(c); Jennifer E. Rothman, *Commercial Speech, Commercial Use, and the Intellectual Property Quagmire*, 101 VA. L. REV. 1929, 1942 (2015).

¹⁷² See *Dastar Corp. v. Twentieth Century Fox Film Corp.*, 539 U.S. 23, 37 (2003) (stating that trademark law was “not designed to protect originality or creativity”). But see generally Jeanne C. Fromer, *The Role of Creativity in Trademark Law*, 86 NOTRE DAME L. REV. 1885 (2011) (arguing that trademark law does in fact encourage creativity in various ways).

¹⁷³ Sunder, *supra* note 3, at 301 (referring to geographic indications “as the poor people’s intellectual property rights”).

individual.¹⁷⁴ Further research would be needed to determine to what extent poverty impacts communities' ability to produce these forms of knowledge. But insofar as these forms of knowledge have been produced, it is certainly consistent with a distributive agenda, and not contrary to my conclusions here, to grant them some form of IP protection.

Finally, to be clear, the conclusion that the poor may not easily be able to harness IP rights to their individual and collective advantage does not disrupt other important strands of the IP and distributive justice literature. Much of this literature, for instance, is concerned with how IP can advance distributive justice by increasing public access to IP-protected goods and services.¹⁷⁵ Because this goal does not depend on the ability of the poor to create and obtain IP rights over their own creations, nothing discussed here calls into question either the feasibility or the desirability of this endeavor. Nor does it mean that for those living in poverty who do manage to create IP-protectable content, we shouldn't try to make it as easy as possible, through changes to IP doctrine and procedure others have proposed,¹⁷⁶ for them to acquire and assert IP rights. But we should be aware that these situations may be the exception, rather than the norm.

B. Explaining IP's Observed Inequalities (and What it Means for Incentive Theory)

The psychological incompatibility between poverty and creativity throws into question the assertion that IP can serve as a meaningful tool of distributive justice by giving the poor opportunities to enhance their social and financial positions. But it may also help explain the reality we actually see on the ground. Because in fact, from the limited data that has been collected to date, it does appear that the poor and other disadvantaged groups are acquiring IP rights at much lower rates than their more advantaged counterparts.¹⁷⁷ And although IP and distributive justice scholars' argument does not wholly depend on *ownership* of IP rights—Hughes and Merges argue, for example, that simply participating in IP by working in IP-dominated fields benefits authors economically and socially regardless of whether they end up owning the resulting IP rights¹⁷⁸—IP ownership is one important indicator of the extent to which particular groups are, in fact, participating in IP.

¹⁷⁴ See, e.g., Hughes, *supra* note 46, at 1216–20.

¹⁷⁵ See, e.g., Fisher & Syed, *supra* note 43, at 583 (proposing a prize regime to improve access to pharmaceuticals in developing countries); Lee, *supra* note 43, at 925 (highlighting “various ‘accommodation strategies’ for integrating distributive values in an innovation system fundamentally predicated on profit maximization”); Shaver, *supra* note 43, at 122 (discussing how IP limits access among poorer populations to copyrighted works).

¹⁷⁶ E.g., Hughes & Merges, *supra* note 7, at 561–75; Lee, *supra* note 4, at 347–52, 363–67.

¹⁷⁷ See Bell et al., *supra* note 17, at 650.

¹⁷⁸ Hughes & Merges, *supra* note 7, at 533–36. *But see* Greene, *supra* note 76, at 370–72 (arguing that racial minority artists are taken advantage of in contractual negotiations).

In this regard, the most direct measurement of IP participation among the poor comes from Raj Chetty and colleagues' recent study on innovation and opportunity in America.¹⁷⁹ The study finds, among other things, that children from the top 1% of families by income are ten times more likely than children from below-median families to go on to apply for or receive a patent.¹⁸⁰ While some of this difference can be predicted by mathematic proficiency,¹⁸¹ math scores account for only a third of the total innovation gap between rich and poor.¹⁸² In fact, so much of the difference is unrelated to a talent for math that a poor child with strong math skills is less likely to hold a patent than a rich child with inferior math ability.¹⁸³

Consistent with this finding, Colleen Chien recently reported that IP rights tend to be increasingly concentrated in the hands of a small and elite group.¹⁸⁴ Over half of new patents granted in 2016 went to the top one percent of patent owners, up from just under forty percent of patents going to the top one percent in 1986.¹⁸⁵

And though the following data do not speak directly to the link between poverty and IP, it appears that other minority groups—many of whom tend to cluster at the low end of the U.S. income distribution¹⁸⁶—are also underrepresented in the U.S. patent and copyright systems. In their demographic evaluation of patent owners, for instance, Chetty and colleagues found that the white children in their sample were over three times more likely to go on to apply for or get a patent than the black children, and eight times more likely to

¹⁷⁹ See generally Bell et al., *supra* note 17 (explaining that “there are many ‘lost Einsteins’—individuals who would have had highly impactful inventions had they been exposed to innovation in childhood—especially among women, minorities, and children from low-income families”).

¹⁸⁰ *Id.* at 649.

¹⁸¹ *Id.* at 650 (finding that third grade math test scores help predict later patenting behavior).

¹⁸² *Id.* The predictive power of math scores grows over time; by the eighth grade, these scores predict about half of the innovation gap between rich and poor children. *Id.* But as the study's authors point out, this is also consistent with the hypothesis that test scores for poor children worsen over time, suggesting that environmental factors may be causing the poorer children to fall further behind their richer counterparts as time goes on. *Id.*

¹⁸³ See Bell et al., *supra* note 17, at 672–73 fig.IV (showing that there are fewer future inventors in a group of low-income children with a 0.5 standardized test score than there are in the group of high income children with a -0.5 standardized test score).

¹⁸⁴ Colleen Chien, *Inequality, Innovation, and Patents* 39–40 (Santa Clara Univ. Legal Studies Research Papers Series, No. 2018-03), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3157983 [on file with *Ohio State Law Journal*].

¹⁸⁵ *Id.*

¹⁸⁶ See, e.g., *African American Income*, BLACK DEMOGRAPHICS, <https://blackdemographics.com/households/african-american-income/> [<https://perma.cc/PUM2-YRQ3>] (using 2016 U.S. Census Bureau data to report that 46% of African Americans in the United States have annual household incomes below \$35,000); Pressman, *supra* note 69 (reporting that “minorities had higher poverty rates than non-Hispanic whites, mainly because . . . minorities receive lower wages on average than whites”).

do so than the Hispanic children in their sample.¹⁸⁷ On the copyright front, Bob Brauneis and Dotan Oliar found that white copyright holders are overrepresented in copyright registrations,¹⁸⁸ while Hispanic, Asian and Pacific Islanders, American Indians, and individuals of multiple races are underrepresented.¹⁸⁹ Women are also underrepresented compared to men in both patent and copyright ownership.¹⁹⁰

These findings are concerning, and not only from a distributive justice perspective. The dominant view in the IP literature is that IP is about optimizing socially beneficial innovation. Though it is difficult to know what the “optimal” level of innovation is and where we currently reside in relation to that goal, the fact that certain identifiable groups seem to be innovating at lower levels than others—at least as measured by IP ownership¹⁹¹—raises the possibility that we are falling short of optimality, in one of two ways.

First, we could be falling short of optimality in terms of sheer numbers of innovations. For example, if we assume that IP is doing its job well with respect to well-off white males—the best represented group in patent and

¹⁸⁷ See Bell et al., *supra* note 17, at 666.

¹⁸⁸ Robert Brauneis & Dotan Oliar, *An Empirical Study of the Race, Ethnicity, Gender, and Age of Copyright Registrants*, 86 GEO. WASH. L. REV. 46, 59–60 (2018).

¹⁸⁹ *Id.* at 60–61. Hispanics produced only 45% of the copyrighted works they would have if their participation in the copyright system mirrored their representation in the general population. *Id.* at 60. The same figure was 83% for Asian and Pacific Islanders, 77% for American Indians and Alaska natives, and 62% for people of multiple races. *Id.* at 61. For comparison, whites produced 116% of the copyrighted works expected based on their proportion of the population. *Id.* Unlike with patents, black owners are also overrepresented in the copyright system, producing 120% of the copyrighted works expected based on their proportion of the population. *Id.*

¹⁹⁰ Kyle Jensen et al., *Gender Differences in Obtaining and Maintaining Patent Rights*, 36 NATURE BIOTECHNOLOGY 307, 307 (2018) [hereinafter Jensen et al., *Gender Differences in Obtaining and Maintaining Patent Rights*]; see also Bell et al., *supra* note 17, at 668 (finding that, of a cohort born in 1980, only eighteen percent of the inventors—defined as those who applied for or received a patent in their lifetimes—in the sample were women); Brauneis & Oliar, *supra* note 188, at 73 (finding that men represent two-thirds of copyright owners, despite comprising only half of the population and just over half of the labor force); Dan L. Burk, *Diversity Levers*, 23 DUKE J. GENDER L. & POL’Y 25, 31 (2015) (summarizing various empirical results and concluding that “women are at every level pervasively absent from the patent system”); Kyle Jensen et al., *Why Do Women Inventors Win Fewer Patents?*, YALE INSIGHTS (Apr. 9, 2018), <https://insights.som.yale.edu/insights/why-do-women-inventors-win-fewer-patents> [<https://perma.cc/R4CQ-D3DB>] (finding that only ten percent of inventors listed on patents are women, although women represent half the U.S. population and earn half of the science and engineering PhDs).

¹⁹¹ IP participation is an admittedly imperfect proxy for innovation. See, e.g., Bell et al., *supra* note 17, at 649 n.2 (citing Griliches and discussing the limitations of using patents as a proxy for innovation, including the fact that not all inventions are patented). See generally Zvi Griliches, *Patent Statistics as Economic Indicators: A Survey*, 28 J. ECON. LITERATURE 1661 (1990) (discussing in detail the use of patents as a proxy for innovation).

copyright¹⁹²—by encouraging them to innovate at optimal levels, then the lower participation rates among other groups might signal that IP is not doing its job so well with these populations, resulting in sub-optimal levels of innovation overall. Of course, another possibility is that IP is actually *over*-incentivizing wealthy white males.¹⁹³ If this is the case, this surplus innovation may compensate for the deficit of IP-protected innovation from minority groups, resulting in optimal levels of innovation overall.

But even if this latter scenario is indeed what's going on, we may be falling short of optimality on another metric—the types of innovations being produced. Presumably the optimal slate of innovations is one that includes a variety of artistic and scientific works in different media and from different fields of endeavor. Brauneis and Oliar, however (for example), find that different demographic groups tend to register different types of copyrightable works.¹⁹⁴ Registration is only a proxy for actual creation,¹⁹⁵ and some of these differences might reflect barriers to entry for certain groups rather than differences in interest. But we might still hypothesize that relying disproportionately on particular demographic groups for our innovation may result in insufficiently

¹⁹² With one exception—according to Brauneis and Oliar—black authors are overrepresented in the copyright system, and slightly more so than white authors (while white authors accounted for 74% of the registrations in 2010, though they represented only 63.7% of the population that same year—a ratio of 1.16, black authors accounted for 15% of registrations in 2010 though they comprised only 12.6% of the population—a ratio of 1.19). Brauneis & Oliar, *supra* note 188, at 59–62. The participation of African Americans in the copyright system has sparked some scholarly interest. While Brauneis and Oliar's number suggests that African Americans, as a group, are reaping the advantages of copyright, some scholars have pointed out that this is a relatively new development. *See, e.g.*, Greene, *supra* note 76, at 370 (“[F]or a long period of U.S. history, the work of black blues artists was essentially dedicated to the public domain.”). K.J. Greene has also argued that even when black artists are granted copyrights in their works, they might not receive adequate compensation due to copyright divestment and inequitable contracts that strip them of the lion's share of their earnings. *Id.* On the other hand, Justin Hughes and Robert Merges have recently compiled empirical data suggesting that the copyright system is responsible for creating the wealth of the richest African Americans. Hughes & Merges, *supra* note 7, at 549. Based on these findings, they argue that “copyright in its current form is a powerful tool to empower creative individuals [including African Americans and other minorities] economically.” *Id.* at 516.

¹⁹³ *See* LUNNEY, *supra* note 21, at 14 (explaining that under the incentive theory of IP, “suboptimal production does not refer to too few [new innovations] in some general ‘more is better’ sense, but to th[e] precise economic relationship” wherein “the (fully internalized) marginal social value of an additional [innovation] precisely equals its marginal social cost”). Lunney explores an economic model according to which the market, even in the absence of copyright protection, leads to the over-production of musical works. *See id.* at 37.

¹⁹⁴ Brauneis & Oliar, *supra* note 188, at 57–72, 75–78 (examining trends in types of registered works by race and gender).

¹⁹⁵ *See, e.g.*, Bell et al., *supra* note 17, at 649 n.2 (citing Griliches and discussing the limitations of using patents as a proxy for innovation, including the fact that not all inventions are patented). *See generally* Griliches, *supra* note 191 (discussing in detail the use of patents as a proxy for innovation).

varied output—both in terms of the types of works being created, and in the content of those works, as the substance of innovative works generally reflects the individual backgrounds and experiences of their creators.¹⁹⁶

If the lower rates of IP ownership in poor and minority populations are indeed a signal of sub-optimality in either number or variety of innovations, then specific social harms follow. On the numbers side, if we are failing to achieve the optimal level of innovation, society is missing out on the collective benefits these creations would have brought—benefits like access to new products, books, songs, and visual arts, technological advances, and the new jobs and growth that are spurred by them.¹⁹⁷ The Chetty study estimates that if “women, minorities, and children from lower-income families were to invent at the same rate as white men from high-income (top-quintile) families, the total number of inventors in the economy would quadruple.”¹⁹⁸ If the contributions of these groups are necessary to achieve optimal levels of innovation, this is a significant societal loss. And this is to say nothing of the personal economic losses involved, which will be borne primarily by the economically disadvantaged.¹⁹⁹

On the variety side, a sub-optimal assortment of innovations deprives society of the full range of human ingenuity. And there may be less obvious harms as well. Exposure to multicultural literature, for example, reduces prejudice and helps children develop empathy for members of races other than

¹⁹⁶ See Brauneis & Oliar, *supra* note 188, at 92 (“We believe that people bring something from themselves into their creativity, and that the authorship scene would integrate more insights, cater to more tastes, and generally be better and more interesting if a broader variety of people were involved in cultural production . . .”).

¹⁹⁷ See, e.g., Burk, *supra* note 190, at 33 (citing Jennifer Hunt et al., *Why Don't Women Patent?* (Nat'l Bureau of Econ. Research, Working Paper No. 17888, 2012) for the proposition that the innovation gap between men and women alone represents a per capita GDP loss of 2.7%).

¹⁹⁸ Bell et al., *supra* note 17, at 653.

¹⁹⁹ The burden will be borne primarily by disadvantaged groups because, as IP and distributive justice scholars have recognized, IP rights often translate into valuable financial gains for their owners. Perhaps somewhat surprisingly, empirical evidence suggests that this is true even for patents and copyrights owned by individual inventors and artists rather than by large companies. See Michael S. Kramer, *Valuation and Assessment of Patents and Patent Portfolios through Analytical Techniques*, 6 J. MARSHALL REV. INTELL. PROP. L. 463, 485–86 (2007) (valuing issued patents using an analytical valuation model and finding, unexpectedly, that unassigned patents—i.e., those owned by their inventors and not assigned to an employer or company—were the fourth-most valuable category of patents analyzed); Hughes & Merges, *supra* note 7, at 529 (arguing that that “copyright [has] a positive impact on the income of individual citizens,” via direct returns from individually owned copyrights or, in some case, through increased income as a reward for producing copyrighted works-for-hire for employers). If the economically disadvantaged are not acquiring or contributing to IP rights at the same rate as their peers, this puts them—as a group and as individuals—at an even greater financial disadvantage. This is particularly true given that IP rights are, in effect, a transfer of public wealth to private individuals. If, as the empirical evidence suggests, this transfer disproportionately benefits people who are already wealthy, it serves to compound existing economic inequalities.

their own²⁰⁰—if such literature is produced at sub-optimal levels, we are forgoing wide-ranging benefits we might have otherwise reaped. Societal harms aside, the individuals who would be creating but-for their poverty are also harmed in personal ways that go beyond the financial.²⁰¹

This discussion of optimality assumes that IP ownership is a reasonable proxy for innovation more broadly,²⁰² so that we can indeed conclude from the data cited that members of poor and other minority groups are innovating at lower levels than their more advantaged counterparts. Though I believe this conclusion is essentially correct, there is certainly more to the story. Specifically, the data cited might underestimate the degree to which the poor are innovating, for a number of reasons. The poor may be less likely to seek out IP rights in their creations due to financial²⁰³ or structural²⁰⁴ barriers. They may be denied IP rights at higher levels due to bias,²⁰⁵ or because IP doctrines and

²⁰⁰ Timothy Coon, *How Does Exposure to Multicultural Literature Benefit Children's Thought Processes About Race?* (Aug. 2012) (unpublished M.S. thesis, St. John Fisher College) (on file with Fisher Digital Publications, St. John Fisher College).

²⁰¹ One of the non-economic rationales for granting IP rights, for example, proposes that people create to express themselves as human beings and therefore have a personality-based interest in their creations. *E.g.*, Fromer, *supra* note 34, at 1753; Hughes, *supra* note 35, at 330; MERGES, *supra* note 2, at 68–100; Radin, *supra* note 35, at 971–78. If people who could and would be expressing themselves creatively but for their financial status are not doing so, this arguably impoverishes their lives in ways that lowered financial gains and social status don't fully capture.

²⁰² *See, e.g.*, Bell et al., *supra* note 17, at 649 n.2 (citing Griliches and discussing the limitations of using patents as a proxy for innovation, including the fact that not all inventions are patented). *See generally* Griliches, *supra* note 191 (discussing in detail the use of patents as a proxy for innovation).

²⁰³ *See* U.S. COPYRIGHT OFFICE, *supra* note 75 (listing the copyright registration fee as \$55); Quinn, *supra* note 75 (estimating that it would cost a small entity a minimum of \$1210 in application and issuance fees to successfully apply for and issue a nonprovisional utility patent); Treece, *supra* note 75 (estimating that the cost of successfully prosecuting a patent with an attorney's help ranges from a minimum of \$5000 to about \$15,000 for a more complex patent).

²⁰⁴ Those at the bottom of the socioeconomic scale may lack personal familiarity with the IP system, and they are also probably less likely to have people in their social networks with this familiarity. *See* Bell et al., *supra* note 17, at 651 (finding that exposure during childhood to other inventors makes it more likely that a child will himself go on to become an inventor); Greene, *supra* note 74, at 353–54 (explaining how the 1909 Copyright Act's complex registration requirements may have prevented black artists historically from getting protection for their work); Sunder, *supra* note 3, at 273 (“[P]roblems encountered in protecting the knowledge of the poor [may] turn . . . on the poor's lack of knowledge of their rights . . .”).

²⁰⁵ *See, e.g.*, Jensen et al., *Gender Differences in Obtaining and Maintaining Patent Rights*, *supra* note 190, at 309 (finding that women inventors with names that made it difficult to identify their gender were more likely to have a patent application accepted as compared to women with names that easily identified them as female).

concepts entrench certain assumptions about how innovation should proceed.²⁰⁶ Or they may disproportionately choose to innovate in areas that are not IP-protectable.²⁰⁷

Nevertheless, the conclusion we can draw from the data—that there is an innovation gap, or at least an IP gap, between rich and poor—is consistent with the psychological incompatibility between poverty and creativity. Indeed, the psychological profile of poverty provides an additional, novel explanation for these data: it tells us that it is not *just* bias, or financial barriers, or innovation outside IP, that is causing us to see the disparities we do. Something else is going on, and that something may be happening at the level of creative decision-making. This is significant because a full understanding of the IP/innovation gap can help us decide what will work—and what won't—as we attempt to address it.

²⁰⁶ Dan L. Burk, *Do Patents Have Gender?*, 19 AM. U. J. GENDER SOC. POL'Y & L. 881, 889–903 (2011) (discussing the ways in which intellectual property doctrines might unintentionally perpetuate common gender biases); *see also* Burk, *supra* note 190, at 30–31 (arguing that stereotypical “rational” and “analytical” male approaches to problem solving, as opposed to more stereotypically female “emotive” or “intuitive” problem solving methods, “are more amenable to satisfaction of the teaching and disclosure requirements of patent law as currently formulated”).

²⁰⁷ For example, Peter Lee writes of “social innovation”: “novel creations that serve social needs,” but fall outside the bounds of patent protection. Peter Lee, *Social Innovation*, 92 WASH. U. L. REV. 1, 4 (2014). It is possible that social innovation disproportionately attracts members of certain demographic groups. According to Lee, for example, social innovation tends to be pluralistic and “arise collaboratively from communities.” *Id.* at 28. There is some evidence that collaboration is a particular strength of women, on average, as compared to men. *See, e.g.*, Alice H. Eagly & Mary C. Johannesen-Schmidt, *The Leadership Styles of Women and Men*, 57 J. SOC. ISSUES 781, 782, 790 (2001) (discussing previous research suggesting that women have more collaborative leadership styles than men, but suggesting that this could be due in part to social expectations and internalized gender stereotypes about how women should behave in the workplace); Public Release, Univ. of Toronto, Women More Collaborative in Workteams: Study (Apr. 19, 2005), https://www.eurekalert.org/pub_releases/2005-04/uot-tms041905.php [<https://perma.cc/XL7U-D5FX>] (reporting on research by Jennifer Berdhal finding that teams with woman leaders tended to become more egalitarian over time, while those with male leaders retained a hierarchical structure with the leader at the center. Interestingly, the more egalitarian teams also performed better as judged by outsiders). And some of the social innovations Lee describes, like microfinance, are explicitly designed to help poor and minority communities. Lee, *supra* note 207, at 20 (“[T]he efforts of [microfinance institutions] are explicitly distributive; [one such entity] targets the poor and overwhelmingly lends to women, who comprise ninety-seven percent of borrowers.”). These fields may be particularly attractive to members of these communities who are looking for an outlet for their creative talents. *See* Sunder, *supra* note 3, at 290 (discussing how the DevNat licensing regime, originally formulated as a way for creators in the developed world to provide access to their creations in the developing world, has also been embraced by creators within the developing world as a way to support their own communities).

C. *Beyond Incentives*

Whether you subscribe to the dominant view that IP should focus primarily on the goal of maximizing socially beneficial innovation, or you believe that IP should also be cognizant of distributive concerns, the evidence that poverty interferes with creative decision-making should change the way you think about how to best achieve each of these goals.

As explored in the last section, one important takeaway for the efficiency camp is that poverty may be contributing to a suboptimal supply (in amount or variety) of innovation. This has implications for how IP scholars tend to think about innovation and how best to promote it.

Consistent with the utilitarian narrative that we need incentives designed to combat intellectual goods' free-rider problem to encourage potential innovators to create,²⁰⁸ much of the current IP and innovation scholarship focuses on these incentives. For example, scholars often ask whether current IP doctrines provide the appropriate level of incentives, wherein the benefits reaped from more innovation outweigh the deadweight losses IP incurs.²⁰⁹ Or whether there are other, better, ways to provide individuals with these incentives—like grants,²¹⁰ or prizes,²¹¹ or tax breaks,²¹² or social norms.²¹³ The underlying, unstated

²⁰⁸ See *supra* Part I.

²⁰⁹ See, e.g., LUNNEY, *supra* note 21 (arguing that the copyright system currently offers excessive levels of protection to musical works, with attendant costs that outweigh the benefits of increased number and quality of works); Mark A. Lemley, *Faith-Based Intellectual Property*, 62 UCLA L. REV. 1328, 1338–44 (2015) (arguing that we should grant IP rights only to the extent necessary to optimize innovation); Olson, *supra* note 24 (analyzing patentable subject matter doctrine in light of the utilitarian rationale for patents).

²¹⁰ See, e.g., Joseph E. Stiglitz, *Economic Foundations of Intellectual Property Rights*, 57 DUKE L.J. 1693, 1719–24 (2008) (discussing the relative benefits and costs of government grants as research incentives as compared to patents).

²¹¹ See, e.g., Michael Abramowicz, *Perfecting Patent Prizes*, 56 VAND. L. REV. 115, 176–77 (2003) (proposing a market-based prize system); Douglas Gary Lichtman, *Pricing Prozac: Why the Government Should Subsidize the Purchase of Patented Pharmaceuticals*, 11 HARV. J.L. & TECH. 123, 124–25 (1997) (same); Steven Shavell & Tanguy Van Ypersele, *Rewards Versus Intellectual Property Rights*, 44 J.L. & ECON. 525, 526–27 (2001) (reviewing the literature debating the relative merits of patents versus prizes).

²¹² See generally Daniel J. Hemel & Lisa Larrimore Ouellette, *Beyond the Patent-Prizes Debate*, 92 TEX. L. REV. 303 (2013) (arguing that tax incentives may be a superior incentive mechanism for the production of intellectual products); Camilla A. Hrды, *Patent Nationally, Innovate Locally*, 31 BERKELEY TECH. L.J. 1301 (2016) (arguing that state-funded tax and other incentives might prove to be a superior mechanism for funding innovation).

²¹³ See, e.g., Kate Darling & Aaron Perzanowski, *Introduction to CREATIVITY WITHOUT LAW: CHALLENGING THE ASSUMPTIONS OF INTELLECTUAL PROPERTY* 1, 2 (Kate Darling & Aaron Perzanowski eds., 2017) (arguing that IP law has “historically disregarded non-legal regulatory tools that enable more granular, and potentially more effective, management of creative incentives”); Oliar & Sprigman, *supra* note 20, at 1832 (“None of the foundational theoretical studies (as distinguished from recent studies in IP law that focus on particular creative communities) meaningfully acknowledges the possibility that social norms can provide incentives to create.”); Kal Raustiala & Christopher Jon Sprigman, *When Are IP*

assumption is that if we get incentives right, the optimal level of innovation should follow.²¹⁴

What often gets overlooked in the discussion of incentives, however, is the possibility that there are potential innovators—those with the necessary talent and motivation to create—whose circumstances may prevent them from responding to optimal incentives in the expected way, or even at all. These circumstances may be embedded in their innovation environments, which may give rise either to “innovation dilemmas” of various kinds²¹⁵ or counterproductive social norms that lead to sub-optimal decision-making about which avenues of research to pursue.²¹⁶ Or, like here, they may be broader life circumstances that make it difficult for potential innovators to think creatively at all. Whatever the precise situation, the point is that creators are people living in complex environments, and ostensibly extraneous social and psychological forces in their lives will impact their ability to respond to even the most well-designed innovation incentives.

What should innovation scholars do about this? First, to the extent they can identify these social and psychological forces, they should. This will help them determine whether they can actually expect individuals to respond to the innovation incentives provided. In doing so, they may find large, identifiable groups of people—in this case, the poor—who may not be responding to innovation incentives as expected for reasons that have little to do with the quality of the incentives themselves.

Second, once scholars have identified forces that may be interfering with the ability to respond to innovation incentives, they can ask whether they can do anything to address and counter these forces, and whether they can expect these interventions to promote innovation in socially beneficial ways. This line of inquiry should prompt innovation scholars to move beyond the incentives-for-innovation paradigm and begin thinking much more broadly about innovation and how to promote it.

It is an especially timely moment to do so, given that scholars have begun to question whether innovation indeed flows from incentive in the simple manner so often presumed. Despite the prevalence of the canonical incentive

Rights Necessary?: Evidence from Innovation in IP's Negative Space, in 1 RESEARCH HANDBOOK ON THE ECONOMICS OF INTELLECTUAL PROPERTY LAW: THEORY 309, 314 (Ben Depoorter & Peter Menell eds., 2019) (“Many negative space studies have documented the powerful role social norms play in stimulating innovation and constraining appropriation.”).

²¹⁴ See Ouellette, *supra* note 18, at 66–67 (framing the question for innovation scholars as whether “patents provide a net innovation incentive,” or whether, alternatively, “other . . . incentives [are] superior”).

²¹⁵ Brett M. Frischmann et al., *Conclusion* to GOVERNING KNOWLEDGE COMMONS 469, 471–72 (Brett M. Frischmann et al. eds., 2014) (identifying a number of “innovation dilemmas” that confront potential innovators, including infrastructure problems and coordination challenges among research groups).

²¹⁶ Stephanie Plamondon Bair & Laura G. Pedraza-Fariña, *Anti-Innovation Norms*, 112 NW. L. REV. 1069, 1091–95 (2018) (describing how informal rules growing from social forces and psychological biases that may lead creators down suboptimal innovative paths).

story in IP, the empirical evidence for this account is, at best, inconclusive.²¹⁷ For example, in a recent empirical study of copyright's effect on the music industry, Glynn Lunney concluded that more copyright revenue "did not lead to more and better music," as the incentives for innovation paradigm would predict.²¹⁸ In fact, it led to less high quality music output.²¹⁹ Lunney explains this result by satisficing behaviors on the part of top artists: as the lion's share of increased copyright revenue was funneled to a few top artists, these artists presumably felt little need to keep up a frenetic pace of music output, and their productivity dropped.²²⁰ Lunney's conclusion that the psychological phenomenon of satisficing adds complexity to the incentives-for-innovation paradigm is consistent with a growing realization that social and behavioral realities may disrupt this paradigm in various ways.²²¹

Given that a simple relationship between financial incentives and innovation output has been called into question—and indeed, that incentives may not work at all for certain demographic groups—perhaps it is time to stop focusing exclusively on incentives, and to consider other, non-traditional innovation-promoting policy levers. In doing so, scholars might discover mechanisms that are superior in various ways to incentives. Indeed, some of these levers may be better able than IP or other financial incentives to achieve both distributive justice and innovative efficiency goals.

V. POLICY IMPLICATIONS

A. *Promoting Innovation by Tackling Distributive Justice*

The relationship between poverty and creative thinking throws into question claims that IP can serve as a meaningful mechanism for distributive justice by giving the poor a tool to improve their economic and social situations.²²² It also helps explain why we see lowered IP participation among the poor,²²³ and sounds a warning note to efficiency scholars who assume that getting innovation incentives right is the sole mandate of a robust innovation policy.²²⁴

Considering these insights together, an interesting possibility presents itself—one that turns IP scholars' current thinking about IP and distributive justice on its head. Rather than using IP as a mechanism for promoting

²¹⁷ See, e.g., Lemley, *supra* note 209, at 1335 ("[W]e have gone out, collected the evidence, and found that it is far from clear that IP is doing the world more good than harm.").

²¹⁸ LUNNEY, *supra* note 21, at 193.

²¹⁹ *Id.*

²²⁰ *Id.* ("[A]s revenues increased, earnings for top artists rose sharply; as they did, our top artists started producing fewer songs.").

²²¹ See, e.g., Bair, *supra* note 34, at 314–16 (discussing psychology-based challenges to the incentive theory of patents).

²²² See *supra* Part III.A.

²²³ See *supra* Part III.B.

²²⁴ See *supra* Part III.C.

empowerment and distributive justice in poor populations—a strategy that likely will not work on a large scale—policies more directly aimed at tackling distributive justice should not only be more successful at attaining this goal, but should also help promote innovation by increasing creative participation among currently underrepresented groups.

The logic of this proposition is as follows. If the circumstance of poverty does indeed interfere with creative thinking, then there are some number of talented, motivated individuals currently living in poverty who but-for their poverty would be innovating. Policies designed to tackle poverty, if successful, should have positive spillover effects on innovation as those talented, motivated individuals—now freed from the cognitive demands poverty imposes—begin to put their creative talent and motivation to good use. Indeed, as Chetty estimates, these positive spillover effects might be quite substantial.²²⁵

What might these interventions look like? To achieve the positive spillover effects on innovation, distributive justice measures that directly tackle the creativity-disrupting cognitive burdens poverty inflicts would seem to be the most promising.

1. *Universal Basic Income*

One such intervention that has received a lot of attention lately is the universal basic income (UBI).²²⁶ The basic idea behind a UBI is simple: the government provides each of its citizens with some minimum level of cash income—no strings attached.²²⁷ The manner in which the government might do this could take a number of forms, including through a progressive taxation system, or via simple cash payments.²²⁸ The UBI helps achieve a Rawlsian vision of distributive justice by ensuring that all citizens have at least the minimum amount of resources necessary for meaningful participation in

²²⁵ Bell et al., *supra* note 17, at 653 (estimating that if “women, minorities, and children from lower-income families were to invent at the same rate as white men from high-income (top-quintile) families, the total number of inventors in the economy would quadruple”).

²²⁶ See, e.g., Brian Bergstein, *Basic Income Could Work—If You Do It Canada-Style*, MIT TECH. REV. (June 20, 2018), <https://www.technologyreview.com/s/611418/basic-income-could-work-if-you-do-it-canada-style/> [<https://perma.cc/LRR6-ELLR>]; Milton Ezrati, *Universal Basic Income: A Thoroughly Wrongheaded Idea*, FORBES (Jan. 15, 2019), <https://www.forbes.com/sites/miltonezrati/2019/01/15/universal-basic-income-a-thoroughly-wrongheaded-idea/#5759adff45e1> [<https://perma.cc/Y826-QET4>]; Jathan Sadowski, *Why Silicon Valley Is Embracing Universal Basic Income*, GUARDIAN (June 22, 2016), <https://www.theguardian.com/technology/2016/jun/22/silicon-valley-universal-basic-income-y-combinator> [<https://perma.cc/N8AB-232P>]; Chris Weller, *8 High-Profile Entrepreneurs Who Have Endorsed Universal Basic Income*, BUS. INSIDER (Nov. 9, 2016), <http://www.businessinsider.com/entrepreneurs-endorsing-universal-basic-income-2016-11/#andrew-ng-1> [<https://perma.cc/YV5Z-SNL3>].

²²⁷ Miranda Perry Fleischer & Daniel Hemel, *Atlas Nods: The Libertarian Case for a Basic Income*, 2017 WIS. L. REV. 1189, 1196.

²²⁸ See *id.* at 1196–97, 1234–36.

society.²²⁹ By directly easing the financial burdens of the poor, the UBI should also reduce the cognitive loads imposed by poverty, thereby freeing the minds of its beneficiaries to think in more creative ways.

One question UBI scholars have asked is whether the UBI should be available to children as well as adult citizens.²³⁰ In terms of achieving positive spillover effects on innovation, making the UBI available to children would be ideal, because of the particularly harmful and long-lasting effects of poverty on the creative thinking capacities of children.²³¹ To the extent policymakers can prevent or mitigate these impacts by directly ameliorating the financial condition of children, they should expect to reap correspondingly larger positive spillovers resulting from increased innovation and creative thinking throughout these children's lifetimes.

2. Access to Health Services

There are other possibilities as well. Increasing access to affordable basic health services, through a government-funded single payer system or targeted improvements to the current market-based approach,²³² would arguably help achieve distributive justice ends by ensuring that the poor are not disproportionately bearing the costs of health care in the U.S.²³³ But it should also have positive effects on innovation, via several mechanisms. First, by easing or removing the financial burden imposed on the poor in exchange for essential health services, health care reform would ease the cognitive load caused by preoccupations about how to pay for these services.²³⁴ Second, by increasing access to affordable health care, the poor should receive better care

²²⁹ See Linda Sugin, *Competitive Philanthropy: Charitable Naming Rights, Inequality, and Social Norms*, 79 OHIO ST. L.J. 121, 141–42 (2018) (arguing that “Rawls’s theory is consistent with [a UBI], since he demands that individuals have the ability to participate in society, which presumably requires some baseline resources”).

²³⁰ See Fleischer & Hemel, *supra* note 227, at 1253 (noting that “[s]everal prominent proponents of a UBI explicitly exclude children from their proposed basic income schemes,” before arguing that children should also be the direct beneficiaries of any UBI program).

²³¹ See *supra* Part II.A.

²³² See Clark C. Havighurst & Barak D. Richman, *Distributive Injustice(s) in American Health Care*, 69 LAW & CONTEMP. PROBS. 7, 77–82 (2006) (discussing possibilities for reform).

²³³ See *id.* at 71–72 (arguing that the U.S. health care system as currently structured, promotes distributive injustice because both “the burden of paying for public goods such as health care for the uninsured, medical education, and pharmaceutical research . . . fall[s] disproportionately on those with less ability to pay,” and “persons with lower incomes [are] compelled to pay, as part of the price of having any health insurance at all, either for coverage designed by and for elite interests or for health care that is consumed disproportionately by the well-to-do”).

²³⁴ See *supra* Part II (discussing how cognitive loads imposed by financial difficulties affect decision-making and impair creative thinking).

than they are currently receiving,²³⁵ which in turn should affect their ability to think creatively. Ill health imposes its own physical and cognitive burdens independent of financial worries, and those who aren't receiving basic health services may be less able to engage in creative pursuits. Indeed, the fact that poverty privileges non-creative habit-based decision-making over goal-based decision-making could be due in part to reduced health in poor populations.²³⁶ Third, reduced access to maternal health care services is one of the hypothesized contributors to impaired brain development in poor children.²³⁷ Tackling this aspect of creativity impairment in children should help mitigate the negative effects poverty imposes on a child's cognitive potential.

UBI and health care reform might also have a somewhat different (but related) salutary effect on innovation. Some subset of the population might be willing to accept a fairly low standard of living if doing so allows them to pursue creative goals. Having access to a guaranteed minimum wage and basic health care services could help make the decision to pursue a creative life easier for those who might otherwise resign themselves to a profession that pays the bills, but does not offer the time or opportunity to innovate.²³⁸ And for those who have already committed to pursuing creative vocations, it could free up additional time to do so. One Australian scholar, for example, estimates that "most artists in Australia spend less than 50% of their time on their creative vocation;" the balance being expended on mundane work to meet their basic needs.²³⁹ Programs that provide for these basic needs would arguably improve the productivity of those in creative professions who spend significant time doing non-creative work in order to make ends meet.

3. Other Possibilities

Distributive justice scholars have proposed a number of additional policy interventions designed to achieve their ends. For example, in their article

²³⁵ See, e.g., Farah, *supra* note 89, at 428 ("[S]ocial science research shows that poverty is associated with shorter and less healthy lives."); Sarah Toy, *U.S. One of the World's Worst on Health Divide Between Rich, Poor*, USA TODAY (June 7, 2017), <https://www.usatoday.com/story/news/2017/06/07/us-one-worlds-worst-health-divide-between-rich-poor/102583180/> [<https://perma.cc/UL6V-MLJX>] (citing research finding that "poor Americans reported worse health than rich U.S. residents in significant numbers," and concluding that a probable cause of this disparity is reduced access to health care among poor populations).

²³⁶ Chen et al., *supra* note 11, at 11979 (finding that sleep deprivation privileges habit-based over goal-based decision-making strategies); Patel et al., *supra* note 133, at 475 (finding that "health indicators significantly influenced sleep quality most prominently in poor individuals").

²³⁷ Farah, *supra* note 89, at 431 (citing "prenatal health" as one of the causal factors that may explain the association between poverty and impaired brain development in children).

²³⁸ See, e.g., Goins, *Story of the Starving Artist*, *supra* note 140 (arguing that it is fear of extreme poverty that drives many would-be artists to "become lawyers instead of actresses, bankers instead of poets, doctors instead of painters").

²³⁹ Chohan, *supra* note 138.

arguing that copyright protection can serve distributive justice ends, Hughes and Merges acknowledge that other mechanisms may be superior to IP in this respect.²⁴⁰ Espousing a Rawlsian vision of distributive justice that requires at least equality of opportunity, if not equality of outcome,²⁴¹ they cite to the potential of educational reforms designed to give “all children equal access to pre-school, kindergarten, K-12 education, sports programs, summer camps, music lessons, university, and the like.”²⁴²

Equal access to education is doubtless an important component of achieving distributive justice. Indeed, uneven educational opportunities between the poor and the rich may help explain both why it is so difficult for poor children to escape poverty²⁴³ and why the former group appears to be innovating at lower levels than the latter.²⁴⁴

But the psychology of poverty tells us that if we truly want to achieve distributive justice, education reform will not, on its own, suffice. Because poverty interferes with brain development and co-opts scarce cognitive resources,²⁴⁵ poor children will not be fully able to take advantage of even the best educational opportunities. To achieve true distributive justice—and to achieve maximum positive spillover effects on innovation—the underlying causes of this cognitive disruption should be addressed. In this respect, interventions that tackle poverty itself, and identified contributors to the physiological and psychological effects of poverty—like lower quality health care—have the most potential to eliminate barriers to distributive justice and increase participation in innovation.

B. Thinking Beyond Incentives: Other Innovation-Promoting Policy Levers

Of note for efficiency scholars is the fact that none of the policy interventions discussed to this point fit the standard incentive formulation where an individual or organization innovates (or shows that it will innovate) and receives some financial reward in return—a patent, a copyright, a prize, a grant, or a tax break. And yet scholars might expect these policies to have significant innovation-promoting effects.

This conclusion opens up an intriguing possibility for innovation scholars: if programs and policies that don’t offer a direct incentive for innovation can

²⁴⁰ Hughes & Merges, *supra* note 7, at 547.

²⁴¹ *Id.*

²⁴² *Id.*

²⁴³ See, e.g., Eduardo Porter, *Inequality Undermines Democracy*, N.Y. TIMES (Mar. 20, 2012), <https://www.nytimes.com/2012/03/21/business/economy/tolerance-for-income-gap-may-be-ebbing-economic-scene.html> [<https://perma.cc/JJ37-7H8W>] (citing a study estimating that only six percent of children born to parents in the bottom quintile of income will rise as adults to the top quintile, while forty percent will remain in the bottom quintile).

²⁴⁴ See *supra* notes 191–95 and accompanying text.

²⁴⁵ See *supra* Part II.A.

nevertheless have significant innovation-promoting effects, perhaps—especially given that the incentive story of innovation is more complicated than is often assumed—they should be thinking about other ways to promote innovation that similarly don't fit the traditional incentive-for-innovation model.

What might some of these policies look like? As a first modest step, we might consider a more robust use of federal funds to finance artists and scientists without making these funds contingent on output. Currently, most federal science funding requires applicants to submit a grant proposal, which is peer-reviewed and granted based on a number of criteria, including the expected significance of the work and the potential for completion.²⁴⁶ Senior researchers spend much of their time on these grant proposals, time that arguably could be better spent on more creative tasks.²⁴⁷ Administering these grant systems is also costly. One Canadian study estimated, for example, that it cost more to run a national grant system in 2007 than it would have to simply give every qualified researcher in the country a baseline grant of \$30,000.²⁴⁸ Finally, a common observation among researchers is that the level of detail required to secure funding is such that the work is often substantially complete before the funding arrives.²⁴⁹ Scientists thus often use secured funds to finance their next exploratory project—a reality which is more in line with the concept of a noncontingent grant based on past productivity than with the current, expensive model of proving up a project's worthiness. While some federal funding opportunities for artists are somewhat more open-ended,²⁵⁰ the arts too could perhaps benefit from funding models that are less focused on the traditional incentive model.²⁵¹

²⁴⁶ See *Review Criteria at a Glance*, NAT'L INSTITUTES HEALTH, https://grants.nih.gov/grants/peer/guidelines_general/Review_Criteria_at_a_glance.pdf [<https://perma.cc/F4QE-J9WH>] (last updated Feb. 26, 2019) (summarizing review criteria for various NIH grants).

²⁴⁷ See, e.g., Jenny Rohn, *Show Me the Money: Is Grant Writing Taking Over Science?*, GUARDIAN (Apr. 2, 2013), <https://www.theguardian.com/science/occams-corner/2013/apr/02/1> [<https://perma.cc/X352-PRVB>] (“There is some evidence that having the vast majority of scientists spend the vast majority of their time writing grants instead of doing and thinking science might be a tad inefficient, and not, perhaps, the best way to get science done.”).

²⁴⁸ Richard Gordon & Bryan J. Poulin, *Cost of the NSERC Science Grant Peer Review System Exceeds the Cost of Giving Every Qualified Researcher a Baseline Grant*, 16 ACCOUNTABILITY RES. 13, 13 (2009).

²⁴⁹ Personal observation of the author.

²⁵⁰ See, e.g., *Creative Writing Fellowships: Applicant Eligibility*, NAT'L ENDOWMENT FOR ARTS, <https://www.arts.gov/grants-individuals/creative-writing-fellowships/applicant-eligibility> [<https://perma.cc/9ANF-49DK>] (describing eligibility criteria for an individual creative writing grant that requires only a demonstration of past productivity).

²⁵¹ See, e.g., *Grants for Organizations*, NAT'L ENDOWMENT FOR ARTS, <https://www.arts.gov/grants/apply-grant/grants-organizations> [<https://perma.cc/YW2M-RL46>] (listing various grants for organizations and specifying that for organizations, the NEA “fund[s] projects only”).

VI. CONCLUSION

A growing number of scholars think that IP should serve distributive justice goals. While this is an attractive idea, it is not clear that IP is actually a good mechanism for doing so. This Article has argued that, in fact, IP is probably not the best way to achieve distributive justice, at least in the sense of providing the poor with opportunities to accumulate wealth and improve their social status.

The reason lies partly in the psychology of poverty. Because poverty affects decision-making in ways that make creative thinking more difficult, IP seems to be inherently limited as a tool for escaping poverty. At the same time, expecting IP to be such a tool gives rise to its own set of evils, because it incorrectly assumes the poor can in fact take advantage of IP, and indirectly puts the blame on them when they don't.

These conclusions should be of interest not only to those who think of IP in distributive justice terms, but also to those who subscribe to IP's more traditional, utilitarian accounts. The psychology of poverty helps us understand why current levels of innovation are suboptimal and highlights a potential failure of the incentive model of innovation production. A solution to this failure is to start thinking beyond the traditional incentives-for-innovation model when considering how best to maximize socially beneficial creation. Fortuitously, doing so should help us achieve distributive justice goals much more efficiently than IP ever could.