

Four Hypotheses on Intellectual Property and Inequality

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[A brief note: Below are some preliminary thoughts on how we might conceive of a relationship between IP law and inequality. Your reactions will be very helpful as I determine where to take the project.]

Deep inequality is a central fact of our contemporary political and economic order. This is, of course, far from a new phenomenon, but evidence that inequality has increased along certain dimensions in recent decades has brought renewed focus to the issue, both politically and intellectually.

The most notable contribution in this vein is Thomas Piketty's recent bestselling book, *Capital in the Twenty-First Century*.¹ Piketty's insight is premised on a simple equation, which is then supplemented with an immense amount of historical data.² As Piketty points out, if the average annual rate of return on capital (r) is higher than the average rate of growth of the economy as a whole (g), then existing inequalities in wealth are very likely to increase over time.³ Piketty shows

¹ The scholarly literature For two earlier important academic treatments, see AMARTYA SEN, *INEQUALITY REEXAMINED* (1992), and RICHARD WILKINSON & KATE PICKETT, *THE SPIRIT LEVEL: WHY MORE EQUAL SOCIETIES ALMOST ALWAYS DO BETTER* (2009).

² THOMAS PIKETTY, *CAPITAL IN THE TWENTY-FIRST CENTURY* (Arthur Goldhammer trans., 2014). The data are drawn primarily from the US and Europe, where financial and tax records are most readily available.

³ *Id.* at 25.

that over the past three centuries⁴ the rate of return on capital has indeed been persistently higher than growth, with the exception of the years immediately following World War II.⁵ He calls the tendency the “fundamental force of divergence” of capitalism.⁶

Piketty thus challenges the earlier view in economics, which relied upon data from the post-World War II period to make the claim that under capitalism, inequality initially increases, but then decreases. Instead, Piketty concludes, capitalism will over time tend to produce increasing inequality, though likely plateauing at a certain point.⁷ Famously, Piketty and his co-authors have also documented a recent and significant increase in wealth and income inequality across a broad range of countries since the 1970s. The trend is particularly sharp in the U.S., but is present in Europe too, as well as in key “emerging economies” such as South Africa, Brazil, Argentina, and India.⁸

It is less clear whether, measured globally and interpersonally (instead of within nations), global inequality has increased in recent years. Recent scholarship on the topic suggests that there may have been modest decreases in inequality over the last two decades, but given the difficulty of accessing reliable wealth and income

⁴ *Id.* At 354. The data are only extensive as regards the most recent century. For some important notes about the reliability of the data and extrapolations to earlier centuries, see David Grewal, *The Laws of Capitalism* (Book Review PIKETTY, *CAPITAL IN THE TWENTY-FIRST CENTURY*), 128 HARV. L. REV. 626, 642 (2014).

⁵ *Id.* at 25.

⁶ *Id.* at 25, 27. He also at times casts it more modestly as a force that produces “an extremely high level of inequality.”

⁷ See PIKETTY AT 354; see also Grewal at 641-42.

⁸ PIKETTY at 316, 327.

information around the world, the caveats to the conclusion are substantial.⁹

Whether or not global interpersonal inequality is incrementally shrinking, it remains undeniably vast. Global inequality today exceeds the degree of inequality within any individual nation.¹⁰ The top 1.7%, for example, has as large a share of global income as the bottom 75%.¹¹

The notion that capitalism will produce increasing inequality has been called Piketty’s “law of capitalism,” but it is more a predication based upon historical data than an inevitability.¹² Indeed, Piketty is careful to note that the basic equation of $r > g$ is a “contingent historical proposition,”¹³ and concludes his book with a set of policies, such as a progressive global tax on capital, that would counter the trend.¹⁴

The mounting evidence that modern capitalism generates persistent and even accelerating inequality brings to the fore an important set of questions for legal scholars, namely: What is the role of law in these dynamics? And how might changes to our legal order help redress them? At least since the work of early realists such as Robert Hale, Karl Llewellyn, and Felix Cohen, legal scholars have called attention to how legal forms undergird the “natural” order of markets. How,

⁹ Christoph Lakner & Branko Milanovic, Global Income Distribution From the Fall of the Berlin Wall to the Great Recession, World Bank Policy Research Working Paper 6719 (Dec. 2013) (concluding, with many provisos, that the global Gini coefficient may have fallen by two points, to 70.5, over the last two decades, largely driven by growth in India and China).

¹⁰ Milanovic describes the comparison in approachable terms: “What does the Gini of about 70, which is the value of global inequality, mean? One way to look at it is to take the whole income of the world and divide it into two halves: the richest 8% will take one-half and the other 92% of the population will take another half. So, it is a 92-8 world. Applying the same type of division to the US income, the numbers are 78 and 22. Or using Germany, the numbers are 71 and 29.” Branko Milanovic, Global Income Inequality by the Numbers: in History and Now 8-9, World Bank Policy Research Working Paper 6259 (Nov. 2012).

¹¹ Each have one-fifth of the total. *Id.*

¹² Piketty at *–*; Grewal at 641.

¹³ Piketty at 358.

¹⁴ Piketty, p. 27, Part IV.

then, do different legal regimes and domains work to accelerate or mitigate current structures of economic inequality, or refract such inequality into inequality in multiple domains?

The question opens out into relatively uncharted territory, at least as regards private law scholarship in the United States. A certain strand of law and economics has exiled conversations about equity from the domain of US private law on the theory that equity issues are better – and more efficiently – dealt with outside of private law, through systems of tax and transfer.¹⁵ Critics of this trend have pointed to numerous reasons that efficiency concerns might indeed lead us to take distribution into account in the private law.¹⁶ Normative commitments could also, of course, lead us to prioritize equity on its own terms, independent of (or even as it might conflict with) efficiency. The rising importance of inequality in the political spheres and across different disciplines today creates a new opportunity to make good on these critiques, and to explore the relationship between equity and private law anew.¹⁷

This essay is an attempt to contribute to the systematic consideration of the relationship between prevailing private law regimes and inequity, by focusing on one area of private law in particular: intellectual property (IP) law. IP rights are

¹⁵ See, e.g. Louis Kaplow & Steven Shavell, *Why the Legal System Is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667 (1994).

¹⁶ Many powerful critiques of the claims of Kaplow and Shavell have, of course, been levied (see e.g. Calabresi, Kennedy, Kronman; see also *Reducing Inequality on the Cheap: When Legal Rule Design Should Incorporate Equity as Well as Efficiency*, 127 Yale Law Journal 2478 (2014).)

¹⁷ For other works in this vein, see Grewal at 659 (noting, for example, the importance of understanding how “formal equality of contract is compatible with widening economic inequality”). [add cites]

typically understood as exclusive rights in information,¹⁸ with patent law and copyright law the most classic examples of the form.¹⁹ They are plausibly of particular interest in the conversation about private law and inequality, because they are a profoundly important form of legal ordering in the contemporary economy. For one, information has become a key resource in the global economy: as scholars like Manuel Castells have shown, our economy itself has become “informational.”²⁰ The most dynamic sectors in global perspective are those that involve the action of information on itself – sectors such as the IT sector, biotechnology, and finance.²¹ This shift in the global economy relates to the recent emergence of information and communications technologies that permit accelerating feedback loops of innovation and information processing. Under contemporary conditions, as Castells puts it, the human mind is “the direct productive force, not just a decisive element of the production system.”²² Manufacturing and agriculture of course do not disappear, but information processing—for example, regarding new inventory management techniques or just-in-time production—decisively determines their productivity.

The phenomenon reaches across the world, because the economy increasingly functions as a unit in real time on a planetary scale.²³ And, countries in

¹⁸ [add note about how we should begin to consider common and public forms of IP, and not limit our conception of property to private or exclusive rights]

¹⁹ Many more forms can be grouped under this heading. Trademark and trade secrets law are typically grouped under this heading too, but so too are more unconventional forms of IP, such as *sui generis* protection for traditional knowledge. I discuss the potential of less conventional forms of IP to address inequity later on.

²⁰ MANUEL CASTELLS, *THE RISE OF THE NETWORK SOCIETY* (2D ED. 2000).

²¹ *Id.*

²² *Id.* at 13-21.

²³ *Id.* at 101.

the global South that have long labored under a trade imbalance with regard to manufactured goods and raw materials (and the unequal distributions of wealth generated by these) now labor under a “new form of imbalance” regarding “the trade between high-technology and low-technology goods, and between high-knowledge services and low-knowledge services, characterized by a pattern of uneven distribution of knowledge and technology between countries and regions around the world.”²⁴

A significant reason for this is the fact that, as the value of information in the world economy has grown, IP law grown and expanded too. The trend is particularly notable at a transnational level: In 1995, when the WTO was created, IP obligations were included as a core part of the commitments that countries had to agree to in order to participate in the new world trading order.²⁵ With 161 members to date, as well as a highly legalized dispute settlement system and a relatively powerful sanctions mechanism, the WTO has anchored a sea change in the IP laws of many countries around the world.²⁶ Subsequent “free trade” and investment agreements have added to the WTO’s IP requirements, and continue to do so today.²⁷ Inside the wealthy countries that have set the IP agenda of the WTO, IP laws have become stronger too, with longer terms and new subject areas, and with

²⁴ CASTELLS, p. 108-09.

²⁵ See, Trade-Related Aspects of Intellectual Property Agreement.

²⁶ See, e.g., CAROLYN DEERE, *THE IMPLEMENTATION GAME: THE TRIPS AGREEMENT AND THE GLOBAL POLITICS OF INTELLECTUAL PROPERTY REFORM IN DEVELOPING COUNTRIES* (2009); ROCHELLE DREYFUSS AND CÉSAR RODRÍGUEZ-GARAVITO, EDs., *BALANCING WEALTH AND HEALTH: THE BATTLE OVER INTELLECTUAL PROPERTY AND ACCESS TO MEDICINES IN LATIN AMERICA* (2014); Amy Kapczynski, *Harmonization and its Discontents: A Case Study of TRIPS Implementation in India’s Pharmaceutical Sector*, Cal L. Rev. 2007.

²⁷ See, for example, the Trans-Pacific Partnership. The draft IP chapter is not officially available, but a version was leaked on Wikileaks, and reveals that it far exceeds the standards of the TRIPS agreement, and also exceeds in important ways all previous bilateral free trade agreements.

diminished requirements for the establishment and enforcement of such rights.²⁸

IP is also of interest in the conversation about inequality because it is a key mediator: it critically shapes how income inequality manifests in other domains, such as those of health, education, and citizenship.²⁹ IP governs the production of a vast range of informational goods, and one implication of informationalism is that such goods are increasingly important to well-being across many dimensions of human life.³⁰

In the pages that follow, I will set forth four hypotheses regarding the relationship between the IP regimes that currently prevail around the world (indeed, with a fair degree of uniformity)³¹, and the deep inequality that characterizes the contemporary economic and political order. The arguments are exploratory, and face a double challenge: the first, to conceptualize how we might relate distinct legal choices to a set of phenomena that are overdetermined, and the second, to draw generalizations across a field as large and diverse as that of “property” in information.

²⁸ [add cites about the extension of copyright to software and other new forms, e.g. architectural drawings and choreography; recent extensions of copyright terms; patent “restoration” data exclusivity in pharma; the diminished thresholds for utility and obviousness and for imposition of injunctions in US patent law imposed by the Federal Circuit (and now in part being reversed by the Supreme Court).] [describe also recent reversals of the trend]

²⁹ [Describe further: This is the result of IP’s influence on the creation and distribution of knowledge and technologies –including knowledge for health, for education (e.g. textbooks, literary and scientific works), and of media.]

³⁰ For a discussion of the importance of attention to the translation of income and wealth inequality to other domains, and the inadequacy of attempting to use income or wealth as a single index number for the normative implications of inequality, see Grewal at 647-50. See also id at 649 (“the meaning of . . . inequality requires . . . interpretation: whether citizens are unequal in normatively or politically salient ways cannot be determined based on the simple perusal of a distribution table without asking what greater wealth or income can command in one social context as against another.”)

³¹ But see Kapczynski, *Harmonization and its Discontents*, supra (describing the degree of formal flexibility in one domain of the TRIPS Agreement, as well as the difficulties countries face implementing such flexibilities, via a case study of India’s pharmaceutical sector).

Tentatively, I will suggest that existing IP regimes can be understood as not merely reflecting high levels of inequality within and between nations, but also amplifying these trends. First, there is reason to think that the informational sector exhibits strong returns to scale, a tendency intensified by pressures to consolidate created by IP as a mode of legal regulation. Second, information (which is rendered a particular kind of resource by IP law) is also “scalar,” as that term is used in the business literature. Third, although in theory IP as a mode of property is available to all, IP regimes as currently configured in fact make IP a mode of power that is particularly inaccessible to those with few resources.

Lastly, I will suggest that IP is also a promising domain for distributive politics. Some of the very aspects – its globalized nature, and relative dissociation from material constraints – that make IP an accelerant of inequality under contemporary conditions could be leveraged to opposite effect. This is of particular importance on the global scale, where more general tax and transfer schemes do not exist. Indeed, one way to understand the recent evidence of modest decreases in global interpersonal inequality is through the lens of IP. That trend, if it is indeed a trend, is almost entirely due to growth in China and India – two countries that, not by chance, have in law and fact adapted their IP regimes to look quite different from those of the North, in an attempt to explicitly promote transfer of technology and local growth, and in some cases to directly protect values such as health. If we are interested in politically plausible measure to affect distribution, IP may be an important domain of action.

First Hypothesis: IP Amplifies Inequality Because it Facilitates Returns to Scale

IP as a form of legal regulation is meant to tie the production and dissemination of information goods to markets. Governments grant IP rights to creators in order to permit them to exclude others from copying their creations. The theory of public goods provides a justification for this government-led deviation from direct market competition: The theory is that competitive markets will underproduce information, because information is typically expensive to create but cheap to copy. Without exclusive rights, firms will be purportedly unable to recoup investment in information, because the information can be copied by competitors who do not bear the cost of its creation.

Since Kenneth Arrow's early work, information economists have known that exclusive rights in information generate inefficiencies, because they lead to prices that necessarily exceed marginal cost (because the marginal cost of information is zero – once it has been produced once, it need not be produced again and can most efficiently be used at the marginal cost of distribution alone). Arrow preferred government provisioning as an alternative to IP, on the grounds that government could cover investment costs and allow information to be more efficiently distributed.³² The justification for IP as a modality of information production is centrally its relationship to markets, and in particular, the purported informational superiority of markets. Markets, a la Demsetz and Hayek, will do

³² [Arrow, in *Rate and Direction of Inventive Activity*, 1962]

better than governments at directing investment efficiently, towards ends and via means that will do most to promote social welfare.³³

Of course, this standard account assumes that market value closely tracks social value. Whether social value here is understood in welfarist terms (as a matter of preference satisfaction), or in more deontic terms (via a concept like capabilities),³⁴ there is simply no reason to think that this is often the case. Market ordering allocates goods according not simply to willingness to pay but also ability to pay. So, market ordering will allocate a loaf of bread to a rich person who is “willing” to pay \$6 for it, rather than to a poor person who is “willing” (read: able) only to pay \$1 for it, even if the poor person would get far more pleasure from it, or indeed would need it to survive. Market ordering thus often will produce perverse outcomes from an efficiency perspective (if efficiency is understood as Kaldor-Hicks welfare maximizing), as well as from a distributive perspective.

Existing attempts to articulate the implications of IP for equality have focused on this feature of market ordering. So, critics have noted that because IP raises the costs of information-embedded goods, and encourages overinvestment in goods valued by the rich, it can undermine distributive justice.³⁵ The problem is easily illustrated in the domain of pharmaceuticals. As a market-led strategy of information production, IP tends to overproduce information goods for the rich (baldness cures), and underproduce cures for diseases of the world’s poor (TB, or

³³ See Harold Demsetz, *Information and Efficiency: Another Viewpoint*, *J. L. & Econ.* (1969).

³⁴ See Amartya Sen, *Development As Freedom*; Sen, *Equality of What?*

³⁵ See, e.g., Margaret Chon, *Intellectual Property and the Development Divide*, 27 *CARDOZO L. REV.* 2821, 2894-95 (2006); Amy Kapczynski, *The Cost of Price*, 59 *UCLA L. Rev.* at 978 (2012).

sleeping sickness).³⁶ And, as a system that allocates the results of research through markets, IP supports sometimes astronomical prices for information goods.

Medicines again provide a ready example: patented HIV/AIDS medicines cost around \$10,000 per person per year, while generics can be obtained for less than \$100 per person per year.³⁷

This criticism of IP is not strictly limited to IP. All market-oriented means of allocating goods will reflect existing inequalities in wealth. More interesting, then, is the possibility that IP as a legal form also has qualities that make it not merely capable of reflecting preexisting inequalities, but also capable of dynamically accelerating them over time.

Here, the key issue is the dynamic implications of property on the concentration of wealth. We can begin with the generative formulation that Piketty offers us: if wealth differences exist, and if rate of return on capital (r) exceeds the rate of growth (g), then inequality will tend to grow over time. A key influence on this equation, as we begin to think about the relative contribution that different kinds of resources and legal regimes make to inequality, relates to returns to scale. Different forms of capital (which strictly speaking are dependent upon legal regimes that help to make them capital) plausibly can work to ameliorate or intensify inequality, depending on whether or not these forms of capital exhibit increasing or diminishing returns to scale.

³⁶ In fact, only 10% of the world's R&D resources are spent on health problems that primarily affect 90% of the world's population. Global Forum for Health Research 2004. See also Patrice Trouiller et al., Drug Development for Neglected Diseases: A Deficient Market and a Public-Health Policy Failure, 359 LANCET 2188, 2189–90 (2002) (showing that only 1 percent of medications introduced between 1975 and 1999 targeted tuberculosis and tropical diseases).

³⁷ See, e.g., <http://www.msfaaccess.org/content/untangling-web-antiretroviral-price-reductions-17th-edition-%E2%80%93-july-2014>.

Adam Smith, for example, long ago posited that agriculture exhibits diminishing returns to scale.³⁸ If this is so, then *ceteris paribus*, an initially unequal distribution of wealth in agricultural assets will become less unequal over time. (Another way to put this would be that “r” for this particular asset decreases over time. If g remains the same, this works Piketty’s law in reverse, at least for this asset.) IP assets, however, unlike the posited qualities of agricultural assets, seem to typically exhibit increasing returns to scale. There are two key reasons for this: one is that there are commonly important economies of scale in information sector operations; and the second is that IP as form of legal regulation has its own features that increase returns to scale.

As a resource, information itself seems to have tendencies that increase returns to scale. As Eli Noam notes, this follows from the classic economic understanding of information. High fixed costs and low marginal costs mean that average costs drop with size, and these “cost characteristics mean substantial economies of scale and incentives for each competitor to expand in order to gain them.”³⁹ Digital technology amplifies the returns to size, because it decreases the marginal cost of distributing information and of making copies.⁴⁰ Network effects are also commonly present in the information sector, which creates additional

³⁸ [add reference]

³⁹ ELI NOAM, MEDIA OWNERSHIP AND CONCENTRATION IN AMERICA at 36 (2009); see also id. at 35 (“[d]igital technology raised the ratio of fixed cost of investment and the variable costs of serving people. Incremental costs are very low relative to fixed costs in a digital environment, and the average costs therefore keep dropping with size. This translates into growing economies of scale.”).

⁴⁰ See, e.g., Noam, at 36 (“Technology keeps making reproduction and distribution cheaper, whereas the greater choosiness of users and the slower technical progress in information creation makes production often more expensive. These cost characteristics mean substantial economies of scale and incentives for each competitor to expand in order to gain them.”).

returns to scale.⁴¹

As a legal regime, IP creates opportunities to capture value from these returns to scale. And, especially as IP rights become stronger, they create their own additional returns to scale. As Yochai Benkler has pointed out, IP law tends to benefit those entities that produce information via an exclusionary paradigm. Strengthening IP law, in other words, will benefit the Walt Disneys and Monsanto of the world more than, say, open source software firms.⁴² IP law also creates incentives for the Disneys of the world to “vertically integrate new production with management of large-scale owned inventories of existing information.”⁴³ Stronger IP law increases the costs of information inputs, and (assuming inputs are heterogeneous) the larger the stock of information a company owns, the more varied are the inputs that are internally available for deployment by the firm’s employees.⁴⁴

As Coase long ago noted, transaction costs also influence the structure of firms: higher transaction costs will impel firms to bring more factors of production in house, rather than buy them in the market.⁴⁵ As concerns about the efficiency of IP licensing markets has mounted, scholars have enumerated many reasons to think

⁴¹ *Id.*

⁴² Yochai Benkler, Intellectual property and the organization of information production, 22 *Int’l Rev. L. & Econ.* 81, 83 (2002). RedHat is a firm that customizes open source software as a service and does not profit from exclusion of others from source code. This is what Benkler refers to as market non-exclusionary production. *Id.*

⁴³ *Id.*

⁴⁴ *Id.* at 88. See also *id.* at 89 (“Two organizations that combine their creative workforces and give each member of the combined workforce access to the joint inventory are likely to have better suited information inputs available at marginal cost to use in a given project than the same two organizations when each workforce utilizes only its organization’s independently-owned inventory.”) As Benkler notes, this relies both on assumptions of heterogeneity of inputs, and on “the assumption that the probability of a given input’s utility to new production is independent of whether that input is owned or unowned, by the firm or another firm.” *Id.* at 89.

⁴⁵ Coase, *The Nature of the Firm.*

that transaction costs are a particularly acute problem for property in the informational domain. For example, it can be much more difficult to establish the bounds of patents and copyrights than it is the metes and bounds of a plot of land.⁴⁶ Bargaining costs are increased by uncertainty of this sort, as well as uncertainties in the value of assets – and by its nature, IP covers innovative goods that tend to be particularly hard to value.⁴⁷ Patents typically take years and many thousands of dollars to secure, and are also expensive to enforce: the average patent infringement suit in the U.S. today costs several million dollars.⁴⁸

One important next step would be to explore the empirical evidence for these posited concentration effects. And indeed, existing evidence suggests that there is a high degree of concentration in many information intensive industries. Eli Noam, for example, carefully traces the concentration of a wide variety of media sectors in the US over several decades, and concludes that even though digital technologies have reduced barriers to entry, the pro-competitive effects of this are eventually subverted by the phenomenon of returns to scale.⁴⁹ As he shows, it has become easier for firms to enter various media sectors, but simultaneously more difficult for new entrants to contest the largest firms. His theoretical analysis is bolstered by historical data, which reveals an S-shaped curve of consolidation in a wide variety of

⁴⁶ See, e.g., Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 274–75 (2007) (noting the profound uncertainties that surround patent claims, as well as legal standards such as fair use). IP rights can be assigned partially, and that they may require especially expensive monitoring to enforce. Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1053 (1997)

⁴⁷ Cf. Robert Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 75, 83–84 (1994). Cognitive biases may also be more extreme in the IP domain. See e.g. Christopher Buccafusco & Christopher Sprigman, *Valuing Intellectual Property: An Experiment*, 96 CORNELL L. REV. 1, 4 (2010).

⁴⁸ [add cites]

⁴⁹ Noam, *supra* note __, at 36-37. See also Neil Netanel, *Copyright's Paradox*, 131-32 (2008).

media sectors, in which lower entry barriers facilitate entrance, a period of instability follows, and then the industry reconcentrates in a consolidation phase.⁵⁰ Though similarly comprehensive reviews of sectors such as pharmaceuticals and biotechnology are more difficult to come by, there is some evidence that sectors such as these are also relatively concentrated (and still moreso in more recent years), with a small set of large firms capturing a high proportion of the value of the industry.⁵¹

Second Hypothesis: IP Amplifies Inequalities Because Information is a Scalable Good

The second hypothesis draws upon the concept of “scalable” goods as that term is used in the business and computer science literature.⁵² Scalability generally refers to the ability of a mode of production to increase volume without increasing marginal contributions of labor or capital. Nassim Taleb gives an approachable introduction to the concept: “Some professions, such as dentists, consultants, or massage professionals, cannot be scaled: there is a cap on the number of patients or clients you can see in a given period of time. . . . Other professions allow you to add

⁵⁰ Noam, *supra*, at 38-39.

⁵¹ See, e.g., Henry G. Grabowski and Margaret Kyle, *Mergers, Acquisitions, and Alliances*, THE OXFORD HANDBOOK OF THE ECONOMICS OF THE BIOPHARMACEUTICAL INDUSTRY (Patricia M. Danzon & Sean Nicholson eds. 2012) (“There has been a trend toward increased concentration in pharmaceuticals from M&As and other factors. Global shares for the top 10 firms increased to 45 percent by 2009, compared with 28 percent in 1989”). For our purposes, such figures would be best disaggregated to isolate the concentration in the IP-driven pharma sector, as distinct from the generic sector. This would be complex, because there are several leading firms that act in both capacity. [add additional references]

⁵² See, e.g., Mark D. Hill. What is scalability?. *ACM SIGARCH Computer Architecture News* **18** (4): 18 (1990)

series to your output (and your income) if you do well, at little or no extra effort.”⁵³ As he described it, if one is interested in earning enormous wealth (as he was), one should choose “professions in which one can add zeros of income with no greater labor from those in which one needs to add labor and time (both of which are in limited supply.)”⁵⁴

The informational sector of the economy seems to be inherently highly scalable, and particularly so as digital technology continues to reduce the cost of reproducing and disseminating information. This seems to follow as a simple consequence of the nonrivalrous nature of information. As Taleb puts it, J.K. Rowling (the author of the wildly popular *Harry Potter* series) “does not have to write each book again every time someone wants to read it,” unlike a baker, who must “bake every single piece of bread in order to satisfy each additional customer.”⁵⁵

The implications of scalability for equity, though, may be quite negative. Taleb suggests that more scalable professions are also “more competitive, produce monstrous inequalities, and are far more random, with huge disparities between efforts and rewards—a few can take a large share of the pie, leaving others out entirely at no fault of their own.”⁵⁶ He offers another vivid example here, which links scalability to reduced demand for labor: Before recorded music, anyone wanting to hear opera had to go to a performance. The advent of recording created

⁵³ NASSIM NICHOLAS TALEB, *THE BLACK SWAN* 27 (2007).

⁵⁴ *Id.* at 28. See also Grewal at 659 (discussing the implications of labor surplus for the bargaining power of labor, and ultimately for inequality).

⁵⁵ TALEB at 28.

⁵⁶ *Id.* at 28-29.

the possibility that all opera fans could now listen to any opera singer anywhere, putting local opera singers out of business. And in the process, “someone perceived as being marginally better,” says Taleb, suddenly “gets the whole pie.”⁵⁷ We know from contemporary scholarship on the music industry that this account is somewhat overdrawn, in part because recorded music does not fully substitute for live performances. But we also know that a kind of power-law appears to operate across the culture industries, at least in the US, with “the lion’s share of consumer demand at any given time [being] for a relatively small number of works.”⁵⁸

What is the role of IP here? Scalability in this sector plausibly only results in the kind of outsized private returns for the performer in the presence of strong IP law. If there were no exclusive rights in recorded performances, we would anticipate fewer recordings, but these recordings could be enjoyed at the marginal cost of their distribution – which is to say, nearly free. Absent some additional means of state subsidy, artists would be limited to revenues from monetizable activity such as performances. The overall efficiency effects of these kinds of move are hotly debated in IP scholarship. But the equity implications are also important, and have not yet systematically been explored.

This leads to a second hypothesis about IP as an accelerant of inequality: IP amplifies inequalities because information is a scalable good, and because IP permits extremely skewed returns in the wake of this scalability.

⁵⁷ Id. at 30.

⁵⁸ Netanel, *supra*, at 131. Netanel notes, for example, that fewer than 5% of all movies earn about 85% of the profit in the US movie industry, and that this kind of power law operates also in books, video games, music recordings, and even digital distribution platforms such as the Internet. Id. He suggests that the trend is related not simply to nonrivalry and the diminishing costs of copying and dissemination, but also to the fact that cultural goods often have qualities of “solidarity goods” or “associative goods,” that have value for people because they are consumed by others.

Third Hypothesis: IP is Unequally Available to All

One key determinant of the justice as well as the equity implications of any property regime relate to the distribution of property. As Jeremy Waldron has suggested, justice in the domain of material property may require that everyone owns some.⁵⁹ IP is sometimes described as form of property that is especially easy to normatively justify, because it is thought to have potential to be unusually widely distributed. And, given that IP resources are created, IP is sometimes said to do particularly well at fulfilling the Lockean proviso that there be “enough, and as good, left in common for others.”⁶⁰

If IP were in fact substantially available to all, in practice as well as in theory, this could have important effects on equity. IP is constantly created, and allocated to new creators. Does that make it plausibly available even to those with few resources? These creators have to buy certain inputs in markets, but some inputs are available in the “public domain.” IP ownership appears, at least formally, to be a form of possession that may be especially open to those with few resources.

The mythology of the “garage inventor,” as well as well-known examples of rags-to-riches stories such as JK Rowling’s story, are suggestive here. But they are also far from dispositive. As regards patents, the garage inventor is increasingly an

⁵⁹ [Waldron]

⁶⁰ See, e.g., Nozick; Justin Hughes, “Philosophy of Intellectual Property”; see also William Fisher, *Theories of Intellectual Property* (describing and dissecting this view).

anomaly, at least in the US: In 1885, only 12% of US patents were issued to corporations,⁶¹ but by 1998, 88% went to corporations and only 12% to independent inventors.⁶² This corresponds with the corporatization of industrial R&D, a trend supported by dynamics described above (i.e. the returns to industrial scale organization, for example in raising capital and building large research teams).⁶³

On a global scale, there is evidence of extraordinary concentration in patent applications by nationality, and also by corporate status.⁶⁴ Astonishingly, in 2013, only 20 patent applications out of a total of 205,3000 processed by the international PCT system came from residents of low income countries.⁶⁵ The trends associated with copyright law are more difficult to trace, in part because of the lesser role that registration plays in the copyright system. But the evidence of concentration in the media industries cited above suggests that here too, the relatively low cost of entry does not systematically undermine the concentration effects associated with informational property.

The skew that is visible is not surprising: it may be a result of not only skewed returns to scale in informational activity, and also to the high cost of securing, monitoring, and enforcing IP rights (particularly in the domain of patents,

⁶¹ DAVID F. NOBLE, *AMERICA By DESIGN: SCIENCE, TECHNOLOGY, AND THE RISE OF CORPORATE CAPITALISM* 87 (1977).

⁶² Robert Merges, *100 Years of Solicitude: IP Law 1900-2000*, p. 2216. A similar percentage appears to hold today, though the patent office does not make the compiled statistics readily available.

⁶³ See e.g., Merges *supra* at 2215-16.

⁶⁴ See WIPO, *PCT Annual Report 2014* 36-37. More than 80% of patent applications through the international PCT system come from only 20% of applicants, up from 75% in 2003. *Id.* at 36. In 2013, business applicants accounted for 85% of published PCT applications, followed by individuals (7.6%), universities (5.1%), and government and research institutions (2.3%).” *Id.* When we consider the country of origin of the inventors, just five countries made up 75% of all applications in 2013, and the US and Japan alone accounted for half of all PCT applications. *Id.* at 31.

⁶⁵ *Id.* at 31.

where these costs are particularly high). If IP is a domain of particularly significant transaction costs, as noted above, this will disproportionately disadvantage those who lack the resources needed to overcome these costs, or who seek to serve smaller markets with their work. In addition, as IP expands, the cost of purchasing inputs grows, imposing more barriers for new entrants.⁶⁶

Finally, there is a substantial literature that criticizes IP as excluding “poor people’s knowledge.” The argument here is that IP is inequitably structured because its definition of protectable invention and creativity often exclude forms of so-called “traditional knowledge,” as well as other raw materials of the informational economy such as naturally occurring genetic resources.⁶⁷ And these, of course, are resources in which the global South is relatively rich.

This is a powerful critique, so much so that it has in fact led to certain institutional changes. Developments in international law have emerged to address this imbalance in recent years, in modest but distinctive fashion. The recent Nagoya Protocol to the Convention on Biological Diversity, for example, entered into force in 2014. It generates enforceable obligations for companies in member countries to obtain informed consent (presumably often in exchange for payment) when they make use of biological materials from other contracting parties. The EU regulations implementing the protocol will come into full effect in October 2015, and provide an interesting example of the kind of reformulations of IP law in directions that might have a more progressive cast. There is of course much more to say about the

⁶⁶ See Benkler, above.

⁶⁷ See, e.g., Anupam Chander and Madhavi Sunder, *The Romance of the Public Domain*, Cal L Rev.; VANDANA SHIVA, *BIOPIRACY: THE PLUNDER OF NATURE AND KNOWLEDGE* (1997).

possible equity or efficiency implications of this move. But it does helpfully illustrate one of the boundaries of IP law that help to construct its relationship to inequality, here through definitions of what is protectable in the first place.

Fourth Hypothesis: We Should Look to IP and Information Policy Also for Remedies

Existing IP regimes, I suggest, plausibly have the power not merely to reflect existing inequalities, but also to amplify them. If this is indeed so, what if anything might we do to address it? Remedies need not come from IP law. With Piketty, for example, we might look instead to post-hoc tax and transfer schemes and leave the existing infrastructure of wealth creation as we find them. Politically, however – as Piketty himself acknowledges⁶⁸ – post-hoc redistribution is likely to be very difficult to achieve, particularly given the implications of wealth concentration for politics.⁶⁹ Conceptually, if inequality itself cannot properly be understood through the single index of wealth or income inequality, then measures to address inequality solely through income may also fall short.

If we are concerned, for example, about the neglected health needs of the poor, action on that domain may be much more readily and effectively (even efficiently) obtained through policies related to IP and scientific funding, rather than tax and transfer generally. And of course, we have no existing mechanisms for tax and transfer on a planetary scale, and there seems little chance we will soon see them. As noted above, there is also reason to think that dissident IP strategies have

⁶⁸ Piketty at 39.

⁶⁹ [Markovits]

been critical to the growth in India and China, themselves the main force working to bring about a more robust global middle class.

I will close with a final hypothesis, then: we should as scholars consider the role of the private law, and IP in particular, not merely in its capacity to generate or accelerate inequality, but also in its capacity to moderate it. Indeed, without remedies both internal to IP law, and “external” to it but in the related domain of information policy,⁷⁰ it may be difficult to address inequality today, particularly across borders.

⁷⁰ See Kapczynski, *Cost of Price*, UCLA L Rev 2012 (describing the difference between reforms “internal” to IP law, that change its contours and doctrines, and reforms “external” to IP law, for example that use the state or the commons to promote the production of goods that are important to human capabilities.)