RESPONSE

SHOULD PATENT EXAMINATION BE CULTURALLY SENSITIVE?[†]

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[†] An invited response to Jordana R. Goodman, *Patently Inequitable*, 105 B.U. L. REV. 987 (2025).

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INTRODUCTION

The American patent system has no shortage of critics or of opportunities for reform.[1] It is also famously resistant to significant change despite longstanding and persistent calls for improvement along many fronts.[2] Most of those calls, and even more of the remedial proposals, are likely to go unheeded—at least in the short term. Yet, for all its failings, the patent system still exerts meaningful influence on public welfare: patents reward innovation (even if imperfectly), inform the terms of inter- and intra-industry competition (with antitrust rules in the background), and affect access to critical patented innovations, such as climate technologies, vaccines, and essential medicines. In short, patents determine baseline conditions for global trade in key technology markets,[3] with long-term implications for human and economic development. Patents and their

[1] The literature on the failures of the patent system has dominated the field for more than a decade. Leading works include: ADAM JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS (2004); Mark A. Lemley & Bhaven Sampat, *Is the Patent Office a Rubber Stamp?*, 54 EMORY L.J. 181 (2008); JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATION AT RISK (2008); and LISA LARRIMORE OUELLETTE & HEIDI WILLIAMS, REFORMING THE PATENT SYSTEM (2020), https://www.hamiltonproject.org/assets/files/Ouellette_Williams_LO_6.:16_FINAL.pdf [https://perma.cc/4DFM-HRX3]. *See also* Editorial Board, *Save America's Patent System*, N.Y. TIMES (Apr. 16, 2022), https://www.nytimes.com/2022/04/16/opinion/patents-reform-drug-prices.html; John White, *Dear Elon and Vivek: An Open Letter on Patents in the Trump Administration*, IP WATCHDOG (Dec. 26, 2024), https://ipwatchdog.com/2024/12/26/open-letter-patents-trump-administration/id=184300/ [https://perma.cc/YV6V-864S].

[2] *See, e.g.*, *Save America's Patent System*, *supra* note 1; Gene Quinn, *What Went Wrong and How to Fix the Patent System*, IP WATCHDOG (Jan. 13, 2025), https://ipwatchdog.com/2025/01/13/wrong-fix-patent-system/id=185044/.

[3] The global economic import of patent rights was a key factor U.S. leadership considered in the multilateral negotiations to conclude the World Trade Organization Agreement on Trade-Related Aspects of Intellectual Property Rights ("TRIPS Agreement"). *See* Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994) [hereinafter TRIPS Agreement]. The TRIPS Agreement is the leading multilateral treaty on IP law and reflects the strongest mandatory minimum standards for patent law globally. *See generally* Jerome H. Reichman, *Universal Minimum Standards of Intellectual Property Protection Under the TRIPS Component of the WTO Agreement*, 29 INT'L L. 345, 347 (1995) (noting that TRIPS Agreement "significantly elevates the level of [IP] protection beyond that found in existing conventions, as certainly occurs with patents . . . ."). Regarding the relationship between patents and global trade, see Keith Maskus & Lei Yang, *Domestic Patent Rights, Access to Technologies, and the Structure of Exports*, 51 CAN. J. ECON. 483 (2018), which found that, in the post-TRIPS era, patents had significant positive effects on the growth and composition of R&D-intensive sectoral exports in emerging and in developed economies—including export expansion, which was associated with increased patent applications and intra-firm trade. *Id.* at 499-500.

administration consequently play a significant role in explaining *"why our world is the way that it is."*[4]

One dimension of the way our world is relates to the demographic and cultural profile of inventors who engage with the patent system. A robust body of academic literature shows lower rates of participation by women and members of minority groups in the U.S. patent landscape.[5] But, the phenomena of uneven access to, and successful use of, the patent system is global. A recent World Intellectual Property Organization ("WIPO") report[6] analyzing women's participation in international patent applications between 1999 and 2020 found that women were involved in only 23% of all applications, representing 13% of all inventors listed.[7]

The disparities do not end with gender and cultural minorities. There is the longstanding chasm in patenting rates between the Global North and the Global South generally,[8] and the corresponding dominance of five patent offices that together process an overwhelming majority of global patent applications—85%

[4] PETER DRAHOS, THE GLOBAL GOVERNANCE OF KNOWLEDGE: PATENT OFFICES AND THEIR CLIENTS, at xiv (2010).

[5] For a general discussion of inequality in patent law, see Colleen V. Chien, *The Inequalities of Innovation*, 72 EMORY L.J. 1 (2022). For discussions employing perspectives from feminist and critical race theory, see, for example, Dan L. Burk, *Do Patents Have Gender?*, 19 AM. U. J. GENDER SOC. POL'Y & L. 881 (2011) [hereinafter Burk, *Gender*]; Dan L. Burk, *Feminism and Dualism in Intellectual Property Law*, 15 AM. U. J. GENDER SOC. POL'Y & L. 183, 185 (2007) [hereinafter Burk, *Feminism and Dualism*]; Debora Halbert, *Feminist Interpretations of Intellectual Property*, 14 AM. U. J. GENDER SOC. POL'Y & L. 431 (2006); and Nicole Martin, *Lack of Patent Prosecution for Minority Business Owners and Entrepreneurs*, 13 AM. U. INTELL. PROP. BRIEF 1 (2022). For a historical methodology, see Kara W. Swanson, *Centering Black Women Inventors: Passing and the Patent Archive*, 25 STAN. TECH. L. REV. 305, 358-59 (2022).

[6] WORLD INTELL. PROP. ORG. [hereinafter WIPO], THE GLOBAL GENDER GAP IN INNOVATION AND CREATIVITY: AN INTERNATIONAL COMPARISON OF THE GENDER GAP IN GLOBAL PATENTING OVER TWO DECADES (2023).

[7] *Id.* at 1. Other literature has similarly found meaningful gender gaps in patenting across countries and industries. In general, statistics show that women have been underrepresented in the patent system in comparison to their proportion of the population around the world. *See* U.K. INTELL. PROP. OFF., GENDER PROFILES IN WORLDWIDE PATENTING: AN ANALYSIS OF FEMALE INVENTORSHIP 2 (2016); Rembrand Koning, Sampsa Samila & John-Paul Ferguson, *Who Do We Invent for? Patents by Women Focus More on Women's Health, but Few Women Get to Invent*, 372 SCIENCE 1345, 1345 (2021); *see also* OFF. OF THE CHIEF ECONOMIST, U.S. PATENT & TRADEMARK OFF. [hereinafter USPTO], PROGRESS AND POTENTIAL: A PROFILE OF WOMEN INVENTORS ON U.S. PATENTS 3 (2019). The 2020 Update Report shows improvements in gender representation among U.S. patentees. *See* OFF. OF THE CHIEF ECONOMIST, USPTO, PROGRESS AND POTENTIAL: 2020 UPDATE ON U.S. WOMEN INVENTOR-PATENTEES 2 (2020).

[8] *See* WIPO, WIPO IP FACTS AND FIGURES 10-12 (2024). India is a notable exception, with WIPO reporting a 15.7% increase in 2023 of worldwide patent filings by residents of India. *See id.* at 11.

in 2023.[9] More recent is the consolidation of Asia as a major site for filings across all IP categories, with filing activity concentrated in China, Japan, and the Republic of Korea.[10] The geographically lopsided nature of global patent filings is a historical—and now seemingly permanent—feature of the global patent system.[11]

In short, few commentators would dispute the longstanding view that improved use of the intellectual property ("IP") system across all demographic groups and regions is important for innovation progress. Professor Jordana Goodman's article, *Patently Inequitable*,[12] adds to this complex international debate a claim that U.S. patent prosecution is structurally inequitable.[13] Her argument is that inventors who rely on knowledge, vocabularies, and traditions outside the dominant cultural frame encounter systematic disadvantages at procedural stages—specifically, classification, prior-art searching, and 35 U.S.C. § 112 disclosure—despite facially neutral rules.[14]

Patently Inequitable articulates a thesis that draws on Pierre Bourdieu's concept of cultural capital and argues that patent law's most consequential reference—the "Person Having Ordinary Skill in the Art" ("PHOSITA") standard—embeds majority-culture assumptions.[15] To explore the idea that

[9] The top five patent offices—including the USPTO, the China National Intellectual Property Administration ("CNIPA"), the Korean Intellectual Property Office ("KIPO"), the Japan Patent Office ("JPO"), and the European Patent Office ("EPO")—have an outsized impact on the patent system, including domestic patent prosecution. WIPO, *supra* note 8, at 10. Although patent grants are territorial, these offices continuously refine and adapt the patent prosecution process in ways that inform the practices, procedures, and culture of patent prosecution. As I elaborate later in this Response, changes to the U.S. prosecution process on cultural lines must consider the global implications—normatively and as a matter of administrative application. For example, would inventions by members of the Māori in New Zealand, or Indigenous Peoples in Australia be eligible for special and differentiated treatment to address claims of cultural bias at the USPTO? Do all inventions created by black Africans qualify for such treatment?

[10] *See* WIPO, *supra* note 8, at 8.

[11] Historically, the USPTO was the number one office for patent filings globally. China formally eclipsed the United States in 2019, and the United States's share of patent filings has declined to 16.8% over the last decade. Today, China accounts for 47.2% of all patent filings. *See* WIPO, *supra* note 8, at 10.

[12] Jordana R. Goodman, *Patently Inequitable*, 105 B.U. L. REV. 987 (2025).

[13] *See supra* note 5 and accompanying text.

[14] Goodman, *supra* note 12, at 994-1002.

[15] *See* Pierre Bourdieu, *The Forms of Capital* (Richard Nice trans.), *in* HANDBOOK OF THEORY AND RESEARCH FOR THE SOCIOLOGY OF EDUCATION 241, 243 (John G. Richardson ed., 1986). The "Person Having Ordinary Skill in the Art" [hereinafter PHOSITA] is a hypothetical skilled practitioner used as an objective benchmark for evaluating patentability. This standard effectively sets a high bar for patentability, ensuring patents are reserved for genuine technical advances and not the routine results of ordinary innovation that a PHOSITA would find obvious. Existing research discusses the role of the PHOSITA in aligning different intertemporal meanings of claim terms. *See, e.g.*, Mark A. Lemley, *The Changing Meaning*

decision-making during patent examination encode majority-culture assumptions, *Patently Inequitable* relies on three case studies to make the argument: a Black barbering sponge misclassified with household cleaning products, a turmeric-based wound-healing formulation that initially escaped scrutiny due to lack of awareness of traditional knowledge in India, and a kosher Torah-ink application rejected under § 112 for insufficient religious specification detail.[16] Without ascertaining the scope of the claimed cultural inequities in reference to inequities inherent in patent prosecution more generally,[17] she proposes several enhancements in the U.S. Patent and Trademark Office ("USPTO") to address her intuition that the prosecution process is unfair toward minority inventors. This is an intriguing idea, but *Patently Inequitable* does not specify what constitutes "majority-cultural assumptions"; indeed, Professor Goodman acknowledges that "the USPTO is already one of the most diverse workforces in patent law by both gender and race."[18]

Professor Goodman and I share a commitment to ensuring that the patent system encourages innovation from all inventors; we part over the institutional levers most likely to get us there. Claims of disparate impact against classes of inventors (rather than inventions) are analytically complex and thus far lack clear evidence. Even a working hypothesis of bias raises difficult implications since, given the diversity of the examining corps, the contention that USPTO examiners are a group in a majority-culture environment seems unlikely. Moreover, there is reason to be troubled by any inference that examiners who are members of the majority culture are inevitably bound to exercise ignorance or bias against "inventors leveraging nonmajority cultural capital,"[19] or that examiners from minority groups will not.

Equity concerns are an important reason to investigate any breach in the integrity of the patent acquisition process. But patents are not an end to themselves[20] and promoting innovation is the other side of the coin. In theory,

of Patent Claim Terms, 104 MICH. L. REV. 101, 102 (2005). Empirical analysis of approximately seven hundred trial and appellate court opinions on the role of PHOSITA suggests that this legal concept plays a small role in judicial decision-making. *See* Laura Pedraza-Fariña & Ryan Whalen, *The Ghost in the Patent System: An Empirical Study of Patent Law's Elusive "Skilled Artisan*," 108 IOWA L. REV. 247, 262-76 (2022).

[16] Goodman, *supra* note 12, at 1002-30.

[17] *See* Sean Tu, *Luck/Unluck of the Draw: An Empirical Study of Examiner Allowance Rates*, 2012 STAN. TECH. L. REV. 10, 21-22 (identifying two distinct groups of examiners, one that rubber stamps applications and one that denies too many meritorious applications).

[18] Goodman, *supra* note 12, at 991, 1033.

[19] *Id.* at 991.

[20] *E.g.*, Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 150, 157 (1989) (categorizing federal patent system as a "carefully crafted bargain" that balances regulating monopolies with promoting "the ultimate goal of public disclosure"); Graham v. John Deere Co., 383 U.S. 1, 9 (1966) (regarding patent monopoly as not designed to secure the inventor a "natural right," but rather as an inducement and reward justified only when public gains new

patents offer society benefits that cannot be optimally induced otherwise,[21] thereby justifying the welfare losses they engender. Given these losses, the patent system requires vigilance, and its legitimacy depends entirely on demonstrable societal gains.[22] When public benefit remains uncertain, even erroneously declined patent applications may generate superior welfare outcomes by avoiding market distortions and preserving competitive dynamics that ultimately serve broader economic interests.[23]

Patently Inequitable provides detailed arguments about cultural theory and the patent process. In this brief Response, I focus on the main themes and reforms proposed in Professor Goodman's article—specifically on the puzzle and paradox of injecting cultural sensitivity into patent prosecution, given patent law's singular objective to promote the public welfare. In addition to a lack of data suggesting bias at the USPTO, there exist fundamental tensions in an equity-focused call for such patent system reforms. I focus on two of these tensions.

First, extending robust exclusionary rights and monopolies to culturally significant innovations creates private benefits for inventors, while imposing welfare costs on all consumers, including those from communities likely to use the invention.[24] Rawlsian insights illustrate how distributional injustice could arise from proposed cultural reforms, and an example of a patent granted to BiDil—an "ethnic" congestive heart failure drug specifically developed for African Americans—illustrates how patents that draw on "nonmajority cultural capital" may paradoxically harm marginalized consumers.[25] This is not to suggest that inventors of culturally significant inventions should be disadvantaged vis-à-vis other inventors. Rather, it is a recognition of the costs

knowledge in return). *See also generally* STUDY OF SUBCOMM. ON THE JUDICIARY, 85TH CONG., AN ECONOMIC REVIEW OF THE PATENT SYSTEM (Comm. Print 1958).

[21] *See, e.g.*, Lear, Inc. v. Adkins, 395 U.S. 653, 670 (1969) ("Surely the equities of the licensor do not weigh very heavily when they are balanced against the important public interest in permitting full and free competition in the use of ideas which are in reality a part of the public domain."); KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 415-17 (2007) (warning against granting exclusive rights without clear technological advance).

[22] *E.g.*, FTC v. Actavis, Inc., 570 U.S. 136, 147-53 (2013) (demonstrating even valid patents confer "no right to exclude products or processes that do not actually infringe").

[23] *See generally* Jonathan Masur, *Patent Inflation*, 121 YALE L.J. 470 (2011) (arguing the asymmetric institutional relationship between PTO and the Federal Circuit increases quantity of invalid, costly patents granted and contributes to loosened rules governing patentability).

[24] A broader question exists between distributive justice and intellectual property law today. *See generally* Amy Kapczynski, *The Cost of Price: Why and How to Get Beyond Intellectual Property Internalism*, 59 UCLA L. REV. 970 (2012).

[25] The BiDil case has been a focus of academic research on race in medical innovation. *See, e.g.*, Jonathan Kahn, *Patenting Race in a Genomic Age*, 4 GENOMICS SOC'Y & POL'Y 46 (2008); Gregory Michael Dorr & David S. Jones, *Facts and Fictions: BiDil and the Resurgence of Racial Medicine*, 36 J.L. MED. & ETHICS 443 (2008).

associated with patent exclusivity even when an invention is arguably culturally significant.

Second, increased administrative burdens could further raise already prohibitive costs of patent acquisition, harming inventors who have the least resources to navigate the IP system the most.[26] Existing empirical evidence suggests that the key procedural barriers to patenting by minorities may be high attrition rates and lack of experienced and affordable legal counsel—not examiner bias.[27] Creating a new classification scheme and employing cultural experts, as proposed by Professor Goodman, could exacerbate bureaucratic and procedural complexity without alleviating the cost of patenting for underresourced inventors.

Inequities in the patent system can certainly stem from errors in subject matter classification or linguistic standards.[28] They also may have deeper roots. Existing proposals for reforms that seek to address inequalities—for example, by improving what knowledge is included in patent databases, or expanding what types of creative activity is considered innovation in the patent system—could improve the quality of patents and strengthen support for a broader,

[26] *See* VAULT & MINORITY CORP. COUNSEL ASS'N, VAULT, DIVERSITY IN PATENT LAW: A DATA ANALYSIS OF DIVERSITY IN THE PATENT PRACTICE BY TECHNOLOGY BACKGROUND AND REGION 4 (2020); 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, 378-85 (2008).

[27] In one study, empirical evaluation of approximately 2.7 million patent prosecutions revealed that patent filings naming women as inventors encounter higher rejection rates than those naming men, but once patent outcomes are adjusted for technology class, the gap between men and women narrows considerably. Initially, women's applications were 21% less likely to be granted than men's, but introducing technology-class fixed effects reduces that shortfall to about 7%. This pattern illustrates a form of Simpson's paradox: roughly two-thirds of the disadvantage arises because women tend to file in technology areas with inherently lower approval rates, making it harder for any applicant—regardless of gender—to succeed. *See* Kyle Jensen, Balázs Kovács & Olav Sorenson, *Gender Differences in Obtaining and Maintaining Patent Rights*, 36 NATURE BIOTECHNOLOGY 307, 308 (2018).

[28] *See* Mark A. Lemley, *Can the Patent Office Be Fixed?*, 15 MARQ. INTELL. PROP. L. REV. 295, 297 (2011) (discussing different sources of empirical evidence and concluding that "[t]he implication of this evidence is that we need to pay attention to not only legal rules but also to examiner behavior and reward systems"); Michael D. Frakes & Melissa F. Wasserman, *Does the U.S. Patent and Trademark Office Grant Too Many Bad Patents?: Evidence from a Quasi-Experiment*, 67 STAN. L. REV. 613, 616-17 (2015) (asserting that U.S. patent system issues include sources of bias stemming from "the inability of the PTO to reject a patent application with finality" and finding evidence that "the PTO is indeed overgranting patents during times in which the Agency lacks sufficient resources"); U.S. GOV'T ACCOUNTABILITY OFF., GAO-25-107218, INTELLECTUAL PROPERTY: PATENT OFFICE SHOULD STRENGTHEN ITS EFFORTS TO ADDRESS PERSISTENT EXAMINATION & QUALITY CHALLENGES (2025) [hereinafter GAO-25-107218] (concluding that the USPTO's principal challenges include time limitations, application complexity, and technology and training).

diverse ecosystem of innovation with less damage to the well-being of consumers in general.[29]

Part I of this Response draws from Rawls' vision of justice and evaluates whether the creation of differentiated examination procedures constitutes legitimate reform or impermissible inequality. Part II applies the Rawlsian Fair Equality of Opportunity Principle to empirical evidence demonstrating that patent disparities may be more likely to arise from resource constraints rather than examiner cultural insensitivity. Part III demonstrates through the case study of BiDil—the first pharmaceutical drug patented based on race—the risks to consumers when a cultural test for patents is added. Part IV outlines USPTO capacity constraints, demonstrating how proposed cultural reforms would exacerbate existing examination bottlenecks and possibly compromise patent quality standards.

I. BETWEEN INEQUITY AND INJUSTICE IN PATENTS

Putting aside how we would identify beneficiary inventors, when patent examination rules are differentiated to accommodate inventors who arguably rely on so-called nonmajority cultural capital, fundamental questions of distributive and procedural justice emerge. A key issue is whether proposals that establish different procedural treatment constitute legitimate institutional reform or a deviation from just equality.[30]

Any call for reform should include a vision of what constitutes a just patent system. One lens with which to view the question of differentiated treatment is Rawls's Fair Equality of Opportunity ("FEO") principle. A Rawlsian view requires that positions be not merely formally accessible, but genuinely available to all persons with similar talent and ambition, regardless of social class or cultural background.[31] When examination procedures differentiate by cultural

[29] The recent WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge and associated scholarship suggest several potential reforms that focus on the expansion of knowledge bases and disclosure requirements. *See* Diplomatic Conference to Conclude an International Legal Instrument Relating to Intellectual Property, Genetic Resources and Traditional Knowledge Associated with Genetic Resources, WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge, WIPO Doc. GRATK/DC/7 (May 24, 2024); NIRMALYA SYAM & CARLOS M. CORREA, SOUTH CENTRE, UNDERSTANDING THE NEW WIPO TREATY ON INTELLECTUAL PROPERTY, GENETIC RESOURCES AND ASSOCIATED TRADITIONAL KNOWLEDGE 1 (2024).

[30] JOHN RAWLS, A THEORY OF JUSTICE 65-70 (rev. ed. 1999); *see also* PETER S. MENELL, MARK A. LEMLEY, ROBERT P. MERGES & SHYAMKRISHNA BALGANESH, INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE: 2023, VOLUME I: PERSPECTIVES, TRADE SECRETS & PATENTS 14 (2023).

[31] Rawlsian theory and distributive justice have been discussed in broader questions of whether IP rights are fair. *See* ROBERT P. MERGES, JUSTIFYING INTELLECTUAL PROPERTY 102-36 (2011); Shlomit Yanisky-Ravid, *The Hidden Though Flourishing Justification of Intellectual Property Laws: Distributive Justice, National Versus International Approaches*,

identity, similarly talented applicants confront disparate procedural requirements, arguably violating Rawls's mandate that opportunities remain "roughly equal" for those "similarly motivated and endowed."[32] This creates systematic disadvantages based on cultural classification rather than a common standard.[33]

In the innovation context, FEO suggests that it may be more useful to support disadvantaged communities through broader societal interventions, such as enhanced STEM education, increased access to capital to pay for the legal expertise needed to effectively prosecute a patent, or enlarged opportunities to partner with firms to commercialize their technology outside the patent system. Under Rawls' lexical priority structure, culturally differentiated examination procedures would require compelling evidence that standard procedures systematically disadvantage equally talented minority inventors through class- or culture-linked impediments.[34] Absent such evidence, FEO is likely better served through universal reforms like fee relief that establish equivalent starting points for all applicants, regardless of cultural background.

A significant consideration is how we would decide that an invention is "cultural" or "only" for a specific ethnic group. Requiring inventors to self-identify their innovations as "cultural products" or empowering examiners to make such determinations creates fundamental classificatory hazards that undermine both procedural fairness and substantive patent quality. The threshold question—determining whether an invention qualifies as cultural or exclusively serves a specific ethnic group—suggests the inherently prejudicial and pernicious nature of such categorization systems.[35]

The classification system's inherent instability—wherein inventions may lose or gain "cultural" status as applications evolve or examiners discover broader utility—creates procedural uncertainty that disadvantages applicants through unpredictable examination pathways and potential appeals processes.[36] These

21 LEWIS & CLARK L. REV. 1, 13-17 (2017); Justin Hughes & Robert P. Merges, *Copyright and Distributive Justice*, 92 NOTRE DAME L. REV. 513, 517-537 (2016).

[32] *See* RAWLS, *supra* note 30, at 63.

[33] RAWLS, *supra* note 30, at 73; *see also* JOHN RAWLS, POLITICAL LIBERALISM (expanded ed., Columbia Univ. Press 2005).

[34] If the rules themselves are administered impartially, then the distribution that emerges upholds justice. As an example, consider the criminal trial in Rawls's *A Theory of Justice*. *See* RAWLS, *supra* note 30, at 74-75.

[35] *See, e.g.*, Jerry Kang et al., *Implicit Bias in the Courtroom*, 59 UCLA L. REV. 1124, 1125 (2012) (analyzing how identity cues trigger unconscious bias); Devon W. Carbado & Mitu Gulati, *Working Identity*, 85 CORNELL L. REV. 1259, 1262 (2000) (discussing the burden of strategic self-disclosure).

[36] *See* Kevin J. Greene, *Thieves in the Temple: The Scandal of Copyright Registration and African-American Artists*, 49 PEPP. L. REV. 615 (2022). While not explicitly about procedural fairness, this article discusses how lax policing standards and high procedural complexity of copyright registration harms African American artists more. *Id.* at 624. I argue that adding

institutional risks compound when considering that inventors face strategic dilemmas regarding self-identification: claiming cultural status may trigger enhanced scrutiny, while failing to claim such status may result in inadequate prior art searches, creating a dynamic that particularly burdens inventors from marginalized communities.[37]

Other proposed reforms that do not influence procedure,[38] like establishing a committee to study the patent process for minority inventors,[39] would not immediately change a filer's experience. Professor Goodman anticipates some of these transaction-cost objections, and she suggests piloting reforms within existing programs.[40] However, several committees and programs already exist at the USPTO to serve similar purposes. The USPTO Office of Innovation Outreach (which hosts a Black Innovation and Entrepreneurs Program) and the USPTO's announced effort to increase the number of Patent and Trademark Resource Centers at Historically Black Colleges and Universities already provide outreach to minority inventors.[41] Similar initiatives directed at patent examiners could be helpful refinements.

Especially given the financial and practical constraints of the USPTO and the statistically insignificant portion "cultural" patents occupy of the innovation system (addressed in Part IV), it might be advised to place these responsibilities related to cultural inequity on existing structures within the Office instead of establishing a new committee. For example, the Pro Se Assistance Program, which focuses on increasing "assistance and resources for independent inventor and small-business communities,"[42] would be an ideal resource for increasing outreach to first-time, minority inventors. The Patent Pro Bono Program (for financially underresourced inventors) and the Patent Ombudsman Program (like

procedural complexity and standards on culture will paradoxically harm cultural minorities in the patent process.

[37] *See* Carbado & Gulati, *supra* note 35, at 1667-70 (describing stereotypes and complicated consequences associated with self-identification).

[38] Professor Goodman observes that training modules that familiarize examiners with domain-specific vernacular and tools for prior art search could yield outsized equity dividends without reforming procedure. *See* Goodman, *supra* note 12, at 1007-08. These efforts could be valuable programs to pilot.

[39] *See id.* at 1031-33.

[40] *See id*. at 1040-48.

[41] *See USPTO Empowers Innovation Among Black Inventors and Entrepreneurs By Increasing the Number of Patent and Trademark Resource Centers at HBCUs*, USPTO (Feb. 23, 2024; 2:56 PM), https://www.uspto.gov/subscription-center/2024/uspto-empowers-innovation-among-black-inventors-and-entrepreneurs [https://perma.cc/44LW-6ZLK]; *Coming February 22: 2024 Black Innovation and Entrepreneurship Program: Innovate, Elevate, and Empower*, USPTO (Jan. 29, 2024; 9:22 AM), https://www.uspto.gov/subscription-center/2024/coming-february-22-2024-black-innovation-and-entrepreneurship-program [https://perma.cc/6EN6-XELH].

[42] *See Pro Se Assistance Center*, USPTO, https://www.uspto.gov/patents/patents-ombuds/pro-se-assistance-center [https://perma.cc/Q35Y-ZYAR] (last visited June 10, 2025).

the Pro Se Assistance Program) would already cover many of the activities encouraged in recent scholarly literature.[43]

II. EQUITY GAPS AND ADMINISTRATIVE BURDENS

Creating a special track for minority cultural groups could discourage the groups from using the ordinary patent examination process, paradoxically causing disadvantaged minority inventors to proceed through more onerous channels. If this were to happen, the "office" or procedure of *ordinary* patent examination would no longer be open to *everyone* on equal terms.

Even if—other than implementing a "minority-culture" checkbox—the filing process for minority cultural groups is the same, how should we decide that an invention is "cultural" or "only" for a specific ethnic group? The criticisms of the administrative burden of such proposals extends beyond the possibility of poor implementation—the decision of an inventor or an examiner to self-identify with or approve of a cultural-track patent adds complexity that harms minority inventors. In addition to the classificatory hazards identified earlier, requiring inventors to self-identify their innovations as cultural products also could be used by infringers to limit the scope of the patented invention in the future.

Self-identification processes paradoxically increase bias risk by providing examiners with demographic information that could trigger unconscious discrimination,[44] while examiner-driven classification systems concentrate dangerous definitional power within USPTO personnel lacking cultural competency or democratic legitimacy to make such determinations. These classificatory challenges become particularly acute when considering the dynamic and potentially hybrid nature of innovation. Many inventions and improvements, including cultural products, reflect contributions from people of varied cultural, racial, and ethnic backgrounds. For example, hair straightening chemicals developed within majority culture contexts and by African American inventors have become integral to Black hair care products,[45] which may be used by people of varied backgrounds. Similarly, rap music's cultural boundaries and

[43] *Patent Pro Bono Program: Free Patent Legal Assistance*, USPTO, https://www.uspto.gov/patents/basics/using-legal-services/pro-bono/patent-pro-bono-program [https://perma.cc/AJ22-JM6C] (last visited June 10, 2025); *Patents Ombuds Office*, USPTO, https://www.uspto.gov/learning-and-resources/support-centers/patents-ombuds-office [https://perma.cc/J3WK-CGJ2] (last visited June 10, 2025). *See generally* OFF. OF THE CHIEF ECONOMIST, USPTO, NEWCOMERS AND NOVELTY: THE CONTRIBUTION OF IMMIGRANT INVENTORS TO U.S. PATENTS, 2000-2012 (2025); OFF. OF THE CHIEF ECONOMIST, USPTO, WHERE ARE U.S. WOMEN PATENTEES? ASSESSING THREE DECADES OF GROWTH (2022).

[44] *See, e.g.*, Carbado & Gulati, *supra* note 35, at 1667-70.

[45] *See, e.g.*, AYANA D. BYRD & LORI L. THARPS, HAIR STORY: UNTANGLING THE ROOTS OF BLACK HAIR IN AMERICA 16-49 (rev. & updated ed. 2014) (describing history of Black hair care, the majority forces that influenced and constrained it in America, and its development).

creators remain hybrid and at times contested.[46] Further, technological applications frequently transcend their originating communities, rendering static cultural categorizations both analytically flawed and practically unworkable.[47] Adding procedural hurdles and a special cultural track could also exacerbate existing differences in knowledge of the patent system between a novice, minority inventor and larger companies.

A growing body of empirical research on patents consistently identifies differential access to legal counsel and systematic attrition patterns as the primary causes of gender disparities in patenting.[48] For example, a recent empirical study leveraging quasi-random examiner assignment within the USPTO's administrative framework demonstrates that female inventors exhibit 3.3-7.3 percentage point higher abandonment rates following initial rejections compared to male counterparts.[49] This attrition differential accounts for approximately half of the observed gender gap in patent issuance rates, substantially contributing to our understanding of systemic barriers within IP acquisition and demonstrating the critical importance of legal support.[50]

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[46] *See, e.g.*, *White Hip-Hop Artists Navigate Line Between Art and Cultural Appropriation*, ABC NEWS (July 23, 2023; 2:58 PM), https://abcnews.go.com/Entertainment/white-hip-hop-artists-navigate-line-art-cultural/story?id=101550759 [https://perma.cc/A6A4-T8ND].

[47] *See* Naomi Mezey, *The Paradoxes of Cultural Property*, 107 COLUM. L. REV. 2004, 2005-07 (2007) (critiquing "fixed" cultural boundaries for "increas[ing] intragroup conformity and intragroup intransigence in the face of cultural conflict").

[48] *See* Abhay Aneja, Oren Reshef & Gauri Subramani, *Attrition and the Gender Innovation Gap: Evidence from Patent Applications*, REV. ECON. & STAT. (forthcoming 2025) (manuscript at 1), https://www.aeaweb.org/conference/2022/preliminary/paper/9iDf7ifd. Aneja, Reshef, and Subramani note that their "central finding" is that the "the gender differential in attrition within the patent application process" is critical to the gender innovation gap. They clarify that they do not find "consistent evidence" of discrimination within the administrative process of the USPTO. A randomized control trial of the Pro Se Pilot Examination Unit (which provides enhanced examination assistance to unrepresented inventors) revealed profound asymmetries in how enhanced guidance affects different demographic cohorts within the patent system. *See* Nicholas A. Pairolero, Andrew A. Toole, Peter-Anthony Pappas, Charles A.W. deGrazia & Mike H.M. Teodorescu, *Closing the Gender Gap in Patenting: Evidence from a Randomized Control Trial at the USPTO*, AM. ECON. J.: ECON. POL'Y (forthcoming 2025) (manuscript on file with author). While both male and female inventors benefitted from specialized examination support, women *experienced* an 11-percentage point greater increase in patent grant probability relative to men, representing a 28.9% improvement in relative outcomes. *See id.* (manuscript at 1, 13-14). These effects proved sufficiently robust to nearly eliminate gender gaps among U.S. first-time inventors and in technology centers where women had previously demonstrated the poorest relative performance. *Id.* (manusctipt at 3). *See also* Gaétan de Rassenfosse, Paul H. Jensen, T'Mir Julius, Alfons Palangkaraya & Elizabeth M. Webster, Is the Patent System a Level Playing Field? The Effect of Patent Attorney Firms (Nov. 1, 2021) (unpublished manuscript), available at https://ssrn.com/abstract=3254958.

[49] Aneja et al., *supra* note 48, at 1.

[50] *See id.* Existing evidence also points to broader trends, such as the lack of women and

As noted before, it is not clear that examiners are acting with bias or bias-induced ignorance in patent examination processes.[51] Patent examination inherently requires examiners to navigate complex technical domains where their knowledge limitations become manifest through engagement with unfamiliar innovations—a structural feature of the examination process, rather than evidence of systematic discrimination. The well-established information asymmetry between patent examiners and applicants, wherein inventors possess superior technical knowledge and comprehensive understanding of their inventions compared to examining officials, creates predictable knowledge gaps that affect examination outcomes across all applicant categories.[52] This institutional reality suggests that examination variations may plausibly reflect resource limitations within the USPTO rather than bias-driven decision-making, challenging reform proposals that attribute differential outcomes to discriminatory practices.

Empirical research on the prosecution and maintenance histories of almost 3 million patent applications in the USPTO indicates that women have less favorable outcomes than men.[53] When setbacks arise, inventor-assignee-attorney teams led by women are less likely to file appeals. Even when a patent is eventually issued, applications with female inventors typically secure a smaller proportion of their original claims, and the surviving claims are often amended with additional language, narrowing both their legal breadth and commercial significance.[54] But, as one leading scholar reminds, maybe those are *closer to the ideal* allowance rates, and the problem we are identifying is actually overreaching and aggressive patenting by the male inventors and male-led attorney teams.[55]

racial minorities in STEM fields and education. A recent paper used data on over 1 million inventors in America and find that children from high-income or top 1% families are ten times more likely to own a patent than those below the median. Alex Bell, Raj Chetty, Xavier Jaravel, Neviana Petkova & John Van Reenen, *Who Becomes an Inventor in America? The Importance of Exposure to Innovation*, 134 Q.J. ECON. 647, 647 (2019). Even when children have similar math test scores, systemic gaps still persist. *Id.* One of the main causes for this disparity in who becomes inventors is exposure effects, where women and disadvantaged minorities are underrepresented among inventors in their local areas. *See id.* at 650-53; *see also* Pairolero et al., *supra* note 48.

[51] Aneja et al., *supra* note 48, at 2; *see also* Joseph Raffiee, Florenta Teodoridis & Daniel Fehder, *Partisan Patent Examiners? Exploring the Link Between the Political Ideology of Patent Examiners and Patent Office Outcomes*, 52 RSCH. POL'Y 1, 7 (2023) ("While our results suggesting a lack of ideological influence in the USPTO is worthy of cheer, the notion that more extreme ideological beliefs may be at play in the context of software applications is particularly interesting given the proliferation of software patenting by large firms.").

[52] *See* Zhen Lei & Brian D. Wright, *Why Weak Patents? Testing the Examiner Ignorance Hypothesis*, 148 J. PUB. ECON. 43, 44-46 (2017).

[53] Jensen et al., *supra* note 27, at 308.

[54] *Id.* at 307-09.

[55] I am thankful to Professor Justin Hughes for this point.

The case studies presented in *Patently Inequitable* also provide additional validation for this legal resource-based explanation of patent disparities. Another reading of those cases suggests that legal complexity and resource constraints, rather than examiner bias, may be driving the differential outcomes for underrepresented inventors. For example, the NuDred sponge application exemplifies these systemic challenges, entering the USPTO as a lone-inventor, pro se filing that was automatically classified within CPC A47L (household cleaning implements), rather than the more appropriate Class 132.[56] As Professor Goodman rightly acknowledges, the case outcome appears attributable to attorney inadequacy.[57] Evidence suggests that legal counsel failed to accurately translate the inventor's technical contributions into appropriate patent language, thereby undermining the application's prosecutorial potential.[58]

The kosher ink application similarly illustrates how technical complexity intersects with resource constraints to produce suboptimal outcomes for minorities.[59] The examiner's § 112 objections focused on missing quantitative ranges for polymeric binder/pigment ratios, representing standard enablement and definiteness requirements, rather than intentional cultural bias. The examiner's observation that "kosher" lacks precise definition across different Jewish communities may actually reflect examiner competency in a "minority" culture and Jewish subcommunities.[60] While there is a general consensus across most Jewish subcultures regarding kosher ink, variations exist across times and communities. For example, some Jewish scribes may add water or other chemicals to thin the ink in the summer.[61] Thus, the ultimate abandonment of the patent could have resulted from the applicants' failure to respond to office actions, which suggests resource-based attrition rather than cultural bias in examination practices.

Claims of systematic bias in patent examination processes also face significant empirical challenges when analyzed against the USPTO's institutional incentive architecture.[62] Patent examiners receive performance

[56] U.S. Patent Application Serial No. 10/925,126 (filed Aug. 24, 2004).

[57] Goodman, *supra* note 12, at 1006-07.

[58] *See* Jordana R. Goodman & Khamal Patterson, *Access to Justice for Black Inventors*, 77 VAND. L. REV. 109, 140 (2024).

[59] Goodman, *supra* note 12, at 1023-24; U.S. Patent Application Serial No. 12/121,025 (filed May 15, 2008).

[60] *See* Goodman, *supra* note 12, at 1022-23.

[61] Yerachmiel Askotzky, *The Sofer's Quill and Ink*, CHABAD.ORG, https://www.chabad.org/library/article_cdo/aid/315023/jewish/The-Sofers-Quill-and-Ink.htm (last visited May 31, 2025).

[62] *See generally* Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495 (2001). The agency's well-documented tendency toward patent over-issuance—a feature that has generated sustained criticism and unfavorable comparisons with other leading patent offices regarding qualitative standards—creates structural pressures that render rejection bias unlikely. The convergence of financial incentives promoting issuance and knowledge limitations preventing targeted discrimination significantly undermines claims of

bonuses tied to patent issuance metrics, establishing institutional incentives that favor approval over rejection and reducing the likelihood of unconscious bias manifesting through denial patterns.[63] This incentive structure, combined with substantial knowledge asymmetries between examiners and applicants in specialized technical domains, creates conditions where conscious bias that triggers a discriminatory response due to insufficient cultural familiarity is unlikely.

The related argument in *Patently Inequitable* that examiners are ignorant or unfamiliar with the experiences of minority inventors, and that such ignorance inadvertently creates a disparate prosecutorial process for people of different races, religions, and national origins, raises an important point that minorities can face structural barriers when dealing with the patent system. Such barriers are, however, not unique to patent prosecution, nor do they point to biases against inventors from minority groups,[64] especially when the inventions are culturally neutral. Historical literature indicates that Black inventors began receiving patents in 1821.[65] Scholars have chronicled the extensive and

systematic bias absent compelling empirical evidence demonstrating disparate treatment.

[63] A 2013 article by Michael Frakes and Melissa Wasserman provided the first causal investigation of how the USPTO's fee-based funding structure influences patent granting decisions, finding that the agency's reliance on user fees collected only when patents are granted creates systematic bias toward patent approval. *See* Michael D. Frakes & Melissa F. Wasserman, *Does Agency Funding Affect Decisionmaking?: An Empirical Assessment of the PTO's Granting Patterns*, 66 VAND. L. REV. 65, 96 (2013). The empirical analysis revealed that the USPTO preferentially grants patents on technologies with high renewal rates and applications from large entities—precisely those categories that generate the most revenue—with these distortions intensifying when the agency faces funding constraints. *See id.*, at 85-92. From a social welfare perspective, these findings demonstrate that financial incentives, rather than invention merit, may be driving patentability decisions, resulting in systematic approval of patents that impose societal costs without delivering commensurate innovation benefits. *See generally* Michael D. Frakes & Melissa F. Wasserman, *Is the Time Allocated to Review Patent Applications Inducing Examiners to Grant Invalid Patents? Evidence from Microlevel Application Data*, 99 REV. ECON. & STAT. 550 (2017) (finding evidence that promotions, which came with reductions in patent examination time allocations, were associated with reductions in examination scrutiny and increases in granting tendencies).

[64] *See, e.g.*, W. Michael Schuster, Miriam Marcowitz-Bitton & Deborah R. Gerhardt, *An Empirical Study of Gender and Race in Trademark Prosecution*, 94 S. CAL. L. REV. 1407 (2022).

[65] *See* PATRICIA CARTER SLUBY, THE INVENTIVE SPIRIT OF AFRICAN AMERICANS: PATENTED INGENUITY 5 (2004). A comprehensive inventor database reveals that despite geographical constraints limiting Black Americans' innovation opportunities in the post-Civil-War South, those residing in Northern states achieved patent rates proportional to their population share and invention frequencies comparable to white Americans—ultimately generating 50,000 patents that exceeded contributions from all immigrant groups, except England and Germany during the Industrial Revolution era. *See* Jonathan Rothwell, Andre M. Perry & Mike Andrews, *The Black Innovators Who Elevated the United States: Reassessing the Golden Age of Invention*, BROOKINGS (Nov. 23, 2023), https://www.brookings.edu/articles/the-black-

increased success of minorities in STEM industries, with examples of inventors such as Marian Croak, who to date has over two hundred patents issued in her name.[66] Black and minority inventors are not an exception in the U.S. innovation landscape relative to their statistical representation in STEM fields or in the general population.[67] Moreover, many of these inventors do not invent cultural products or processes; their inventions relate to a wide range of products that contribute to the public welfare domestically and globally.[68] While racial and other forms of discrimination remain a moral and legal challenge in the United States and elsewhere, the evidence currently available does not suggest that patent prosecution/patent law produces unique forms of discrimination.[69]

Given that women, minority, and under resourced inventors increasingly engage the patent system through small and micro entities—often constituting first-time filers while facing resource constraints that limit access to high-quality legal representation—these findings suggest that creating a special track for minority inventors has the potential to add to administrative and legal burdens.[70] Paradoxically, attempting to create equity through procedure without mitigating these potential effects can further injustice more broadly, while also expanding the legal knowledge gap that is the deeper gulf between minority inventors and repeat players in the patent system.

innovators-who-elevated-the-united-states-reassessing-the-golden-age-of-invention/ [https://perma.cc/XY5U-RU8X].

[66] Yoonji Han, *Marian Croak, Who Has 200 Patents to Her Mame Including the Technology Behind Zoom, Became One of the First Black Women to Be Inducted into the Inventors Hall of Fame*, BUS. INSIDER (Mar. 13, 2023), https://www.businessinsider.com/marian-croak-black-inventor-hall-of-fame-technology-internet-voip-2023-3.

[67] Chien, *supra* note 5, at 9-13 (showing patenting rates track STEM participation once funding and counsel access are controlled); *see The STEM Labor Force: Scientists, Engineers, and Skilled Technical Workers*, NAT'L SCI. BD.: SCI. & ENG'G INDICATORS (May 30, 2024), https://ncses.nsf.gov/pubs/nsb20245 [https://perma.cc/NP4C-Y8RR].

[68] *See* Claudio E. Cabrera & Julia Jacobs, *Seven Black Inventors Whose Patents Helped Shape American Life*, N.Y. TIMES (Feb. 24, 2019), https://www.nytimes.com/2019/02/24/us/black-inventors.html (describing Black inventors' product contributions, including gas masks, home security systems, and menstrual products); Shontavia Jackson Johnson, *The Color-Blind Patent System and Black Inventors*, 11 LANDSLIDE 16, 17-18 (2019).

[69] Modern patent ownership structures complicate discrimination analysis, since corporate entities typically hold patent rights while individual inventors may be excluded from formal documentation, regardless of demographic characteristics. This is exemplified by the case of Professor Kizzmekia Corbett, a scientist omitted from COVID-19 vaccine patents despite significant contributions. *See* Sheryl Gay Stolberg & Rebecca Robbins, *Moderna and U.S. at Odds over Vaccine Patent Rights*, N.Y. TIMES, https://www.nytimes.com/2021/11/09/us/moderna-vaccine-patent.html (last updated Nov. 11, 2021). A definitive causal attribution of such exclusions to racial bias is analytically impossible given the complex institutional dynamics governing patent attribution processes.

[70] *See* Miriam Marcowitz-Bitton & Ori Sharon, *Registry Systems as Gatekeepers: How Patent Registries Create Systemic Barriers to Innovation*, 35 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 867, 924-26 (2025).

III. THE DIFFERENCE PRINCIPLE, CULTURAL PATENTS, AND THE BIDIL CASE

There can be important reasons to design differences in the treatment of otherwise equal citizens when the differences demonstrably benefit the least-advantaged members of society, operating under a framework that prioritizes improving conditions for those in the worst positions.[71] Crucially, this principle functions within Rawls' lexical ordering system, where FEO takes priority over Difference Principle considerations, and both remain subordinate to basic liberty protections.[72] Any departure from strict procedural equality must therefore satisfy stringent justificatory requirements that demonstrate net benefits for disadvantaged groups, while respecting the hierarchical structure of justice principles.

Focusing an inequality analysis on which inventors receive patents neglects consideration of who bears the cost of IP protection for culturally sensitive products: minority consumers[73] and the general public. Extensive empirical and theoretical scholarship demonstrates how patents—which can create legally sanctioned monopolies—adversely impact consumers by increasing prices, limiting access to goods, and stifling follow-on innovation and market entry.[74] As the Supreme Court has recognized, patent monopolies represent exceptions to competitive market norms, justified only by demonstrable public benefits from innovation incentives.[75] When patent rights extend beyond legitimate scope or duration, they risk harming consumers via artificially maintained higher prices and reduced market competition.[76] Creating a "cultural" dimension to patent procedure can inadvertently harm cultural minorities the most.[77]

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[71] *See* RAWLS, *supra* note 30, at 65.

[72] *See id.* at 37-40.

[73] For example, a proliferation of patents granted on Black haircare products would grant monopolies to inventors at the cost of consumers who buy and use these goods.

[74] *See, e.g.*, WILLIAM D. NORDHAUS, INVENTION, GROWTH, AND WELFARE: A THEORETICAL TREATMENT OF TECHNOLOGICAL CHANGE 3-7 (1969); F.M. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 445-55 (2d ed. 1980). *See also generally* Robert M. Hunt, *When Do More Patents Reduce R&D?*, 96 AM. ECON. REV. 87 (2006). Empirical research by Professors Bessen and Meurer demonstrates that patent introduction in thriving innovation sectors—particularly software development following early 1990s judicial decisions—failed to increase innovative output and instead generated net negative social welfare effects. *See* BESSEN & MEURER, *supra* note 1, at 10-12; *see also* Michele Boldrin & David K. Levine, *The Case Against Patents*, 27 J. ECON. PERSPS. 3, 6 (2013). Rent-seeking also harms consumers. Michele Boldrin & David K. Levine, *Rent Seeking and Innovation*, 51 J. MONETARY ECON. 127, 130 (2004).

[75] *See, e.g.*, United States v. Line Material Co., 333 U.S. 287, 309-12 (1948).

[76] *See, e.g.*, United Shoe Machinery Co. v. La Chapelle, 99 N.E. 289, 293 (Mass. 1912). Intellectual property protections of indefinite duration can be held as unenforceable and may be countered by antitrust laws. *See, e.g.*, Brulotte v. Thys Co., 379 U.S. 29, 31-33 (1964). Patent law's intersection with antitrust principles provides additional analytical constraints on reform proposals.

[77] While more "minority culture" patents could potentially translate to a higher innovation

An illustrative example of this is the BiDil case—a patented therapy for congestive heart failure patients and the first drug ever approved in the United States for exclusive use by African Americans.[78] Although BiDil is not a cultural product, the case illuminates the concerns that could arise from having an easier patent process for "minority cultural" inventions—lower quality innovations are rewarded, hurting minority culture consumers more. BiDil was a combination of two generic drugs, hydralazine hydrochloride and isosorbide dinitrate, used for decades to treat heart failure for all patients.[79] In the 1980s, Jay Cohn, a cardiologist, worked with the U.S. Veterans Administration to conduct trials to assess whether administering a combination of the two generic drugs improved patient outcomes, and applied for a patent over the method. [80] The Food and Drug Administration's ("FDA") review panel rejected the method claim because the statistical results did not meet regulatory standards.[81]

Cohn, in turn, broke down the data by race and used it to argue that the combination worked particularly well in African Americans.[82] He filed a

incentive, it is not the logical conclusion that increasing incentives would translate to more minority inventors. Increasing incentives for inventions that target specific cultures or races without addressing the structural reasons (like limited STEM education) for the lack of inventors from minority cultures could lead to unintended results. For example, additional incentives may lead majority inventors and businesses to select the "cultural" track in hopes of making an otherwise weak patent application stronger. This would both weaken the quality of the patent system and allow an unintended beneficiary to extract rents from minorities. If the minority culture patents are more easily granted than other patents, then this paradoxically leads to an incentive for inventors to create inventions of lesser quality for minority groups. *See* Steven Kerr, *On the Folly of Rewarding A, While Hoping for B*, 18 ACAD. MGMT. J. 769, 772 (1975). Professor Kerr's orphanage/rehabilitation example shows how tying rewards to an easily measured metric displaces the true mission, incentivizing behaviors that undermine the intended social benefit. *See id.* at 772-73. Likewise, a "minority innovation" checkbox would likely boost raw grant counts while degrading patent quality and legitimacy, rewarding the appearance of equity rather than genuine, high-impact minority innovation.

[78] *See, e.g.*, JONATHAN KAHN, RACE IN A BOTTLE: THE STORY OF BIDIL AND RACIALIZED MEDICINE IN A POST-GENOMIC AGE (2014) [hereinafter KAHN, RACE IN A BOTTLE]; Jonathan D. Kahn, *Revisiting Racial Patents in an Era of Precision Medicine*, 67 CASE W. RES. L. REV. 1153 (2017); Jonathan D. Kahn, *Patenting Race*, 24 NATURE BIOTECH. 1349 (2006); Jonathan Kahn, *Exploiting Race in Drug Development: BiDil's Interim Model of Pharmacogenomics*, 38 SOC. STUD. SCI. 737, 737-40 (2008) [hereinafter Kahn, *Exploiting Race*] (discussing the background of BiDil). Professor Goodman does not advocate for patents only approved for exclusive use by certain races/cultures. Likewise, it is not the case that BiDil could only be used for African Americans. BiDil's hypothetical innovation was that it would particularly benefit African Americans, which was part of the reason why the patent was approved.

[79] *BiDil*, https://bidil.com/ [https://perma.cc/84T4-XF5A] (last visited June 3, 2025).

[80] Kahn, *Exploiting Race*, *supra* note 78, at 738.

[81] *Id.*

[82] Peter Carson, Susan Ziesche, Gary Johnson & Jay N. Cohn, *Racial Differences in Response to Therapy for Heart Failure: Analysis of the Vasodilator-Heart Failure Trials*, 5 J. CARDIAC FAILURE 178, 185 (1999).

successful second patent application, which was almost identical to the first, except that it specified that BiDil was used to treat heart failure in Black patients.[83] This race-specific patent was then sold to a small Massachusetts firm, NitroMed, even though the drug was identical to the one in the first application, which had been denied.[84]

Subsequent statistical reanalysis suggested that the supposed evidence of BiDil's effectiveness actually showed that it did not benefit African Americans more than others.[85] The ratios specified in the patent application were based on data from the National Center for Health Statistics from 1981, and more recent data that showed equal mortality rates across races for individuals above sixty-five were excluded from the application.[86] Because almost 95% of all heart failure mortality occurs after the age of sixty-five, but the analysis on BiDil focused on patients aged forty-five to sixty-four, Cohn's documented results were recursive: BiDil was more effective in the test on Black men because more Black men under sixty-five die from heart failure than white men under sixty-five, not because the drug is more effective for African Americans.[87]

Ultimately, the patent led to market exclusivity lasting twenty years for a drug that did not actually benefit the targeted racial minority more. Physicians and geneticists were outspoken in their rejection of race-based medicine and this drug, and it ultimately ended up being prescribed less than market analysts had predicted.[88] The race-based and cultural minority appeal of the drug was driven by an interest in commercial value. When the FDA gives a drug a labeled indication, clinicians and institutional review boards ("IRBs") generally treat that drug as the ethically required baseline therapy for patients who fall within the label.[89] As such, after BiDil won approval specifically for the treatment of heart failure in self-identified African American patients, it became the default

[83] Kahn, *Exploiting Race*, *supra* note 78, at 739.

[84] *See id.* at 738; *see also* Jonathan Kahn, *How a Drug Becomes "Ethnic": Law, Commerce, and the Production of Racial Categories in Medicine*, 4 YALE J. HEALTH POL'Y L. & ETHICS 1, 1 (2004).

[85] *See* George T.H. Ellison et al., *Flaws in the U.S. Food and Drug Administration's Rationale for Supporting the Development and Approval of BiDil as a Treatment for Heart Failure Only in Black Patients*, 36 J.L. MED ETHICS 449 (2008).

[86] KAHN, RACE IN A BOTTLE, *supra* note 78, at 79-83.

[87] *Id.*

[88] *See, e.g.*, Richard Tutton, Andrew Smart, Paul A. Martin, Richard Ashcroft & George T.H. Ellison, *Genotyping the Future: Scientists' Expectations about Race/Ethnicity After BiDil*, 36 J.L. MED. & ETHICS 464, 464 (2008) ("[T]he approval of BiDil has also raised concerns that it will promote the re-biologization of race within medical research and practice.").

[89] *See* World Medical Association, *Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects*, 310 JAMA 2191, 2193 (2013) ("The benefits, risks, burdens and effectiveness of a new intervention must be tested against those of the best current proven intervention . . . ").

therapy for Black patients in U.S. cardiology practice guidelines.[90] Given that BiDil did not produce improved outcomes in African American patients, the decision to grant this patent exclusively on grounds of minority cultural need may have stifled true medical innovation that could better help patients.

To test another candidate therapy, or even to retest BiDil's own efficacy, researchers would most likely have to randomize Black heart-failure patients into control groups that do not receive BiDil. IRBs often deem such protocols unethical because they appear to withhold an FDA-approved standard, and patients are less willing to enroll if they risk losing access to the only drug marketed as tailored to them.[91] This results in a steep rise in both the logistical cost and the ethical hurdles of running fresh, head-to-head or placebo-controlled studies—thus chilling follow-on research. If major payors like Medicare Part D plans, Medicaid, and private insurers also agree to reimburse BiDil at its monopoly price, the market conveys a clear signal—that this niche is already profitably served.[92] A company contemplating a genuinely novel therapy for the same patient group now faces a two-front battle: (i) expensive Phase III trials designed to beat—not merely match—BiDil; and (ii) the commercial task of unseating an incumbent drug already adopted by prescribers and formularies.[93] Because BiDil was actually just a combination of two relatively inexpensive generic drugs, African American patients faced a higher copay for BiDil than for the two generics separately—an *intragroup* regressive transfer. Relaxing examination standards or having imperfectly-monitored "cultural" examinations enlarges the space for BiDil-like gaming—wrapping epistemically weak applications in an equity narrative to elicit deference.

Critical examination of patent reform proposals must address fundamental questions regarding who are the "least advantaged" within IP systems, and whether increasing patent grants in culturally specific domains serves their interests. The BiDil case exemplifies potential complications arising from cultural-minority-specific patenting strategies. It also illustrates how culturally

[90] *See* Heart Failure Society of America, *HFSA 2010 Comprehensive Heart Failure Practice Guideline*, 16 J. CARDIAC FAILURE 475, 489 (2010) ("A combination of hydralazine and isosorbide Dinitrate [BiDil] is recommended as part of standard therapy . . . for African Americans . . . ."); George T.H. Ellison et al., *supra* note 85, at 465 ("When the FDA announced its approval of BiDil in June 2005, it located the drug, and perhaps the future of pharmaceutical development, within a particular vision of the future.").

[91] *See* Javed Butler & Marvin A. Konstam, *Dilemmas With Race and Heart Failure Treatment*, 9 CIRCULATION: HEART FAILURE 1 (2016) ("On the basis of A-HeFT results, randomizing [B]lacks to placebo is also considered unethical.").

[92] *See* BIDIL, GoodRX, https://www.goodrx.com/bidil/medicare-coverage (last updated Oct. 2024) (noting that some Medicare plans cover BiDil, a "more popular" drug).

[93] Because insurers are *already* covering a high-priced product, they have limited headroom (and bargaining appetite) to pay even more for a newcomer unless it is significantly superior. That lowers the projected net-present value of R&D investment in alternative therapies for Black heart-failure patients relative to other cardiology submarkets.

sensitive patents can harm the very communities they purport to benefit through higher prices, market restrictions, and reduced incentives to innovate.

IV. INSTITUTIONAL CAPACITY AND JUSTICE IN INTELLECTUAL PROPERTY

The U.S. patent system is designed to give out as many patents as is feasible—an institutional orientation that has long been criticized for generating excessive monopolies and incentivizing quantity over quality of inventions.[94] Reform advocates characterize minority patent rejections as systemic errors that disadvantage marginalized communities. This critique does not acknowledge the social welfare costs of patent grants, which can generate negative outcomes from both public welfare and distributive justice perspectives. Given the substantial social costs imposed by patent monopolies and the fact that in a perfect (or even just better) world patents are not ideal, alleged examination "errors" may be harmless toward innovation and could be counterfactually beneficial to the affected communities by sparing them monopoly-level pricing.[95] Communities purportedly harmed by these missed patent opportunities may experience superior welfare outcomes when relevant innovations enter the public domain immediately, avoiding the monopoly pricing structures that would otherwise restrict access to beneficial technologies.

U.S. patent filings have increased dramatically in the last three decades, and globally, the number of patents in force reached 3.55 million in 2023.[96] In 2020, utility patents comprised 352,049 of 388,900 total grants (90.5%), with design and plant patents representing marginal categories.[97] Utility patent distribution demonstrates sectoral concentration, with approximately 81% of total patents falling within technology-intensive categories: computer and electronic products, communications equipment, semiconductors, and pharmaceuticals.[98]

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[94] *See, e.g.*, Michael D. Frakes & Melissa F. Wasserman, *Irrational Ignorance at the Patent Office*, 72 VAND. L. REV. 975, 1014 (2019) (describing high costs of invalid patents).

[95] In theory, it is possible that such inventors face lower incentives if they likely cannot obtain protection. These risks must be weighed against the innovation incentives.

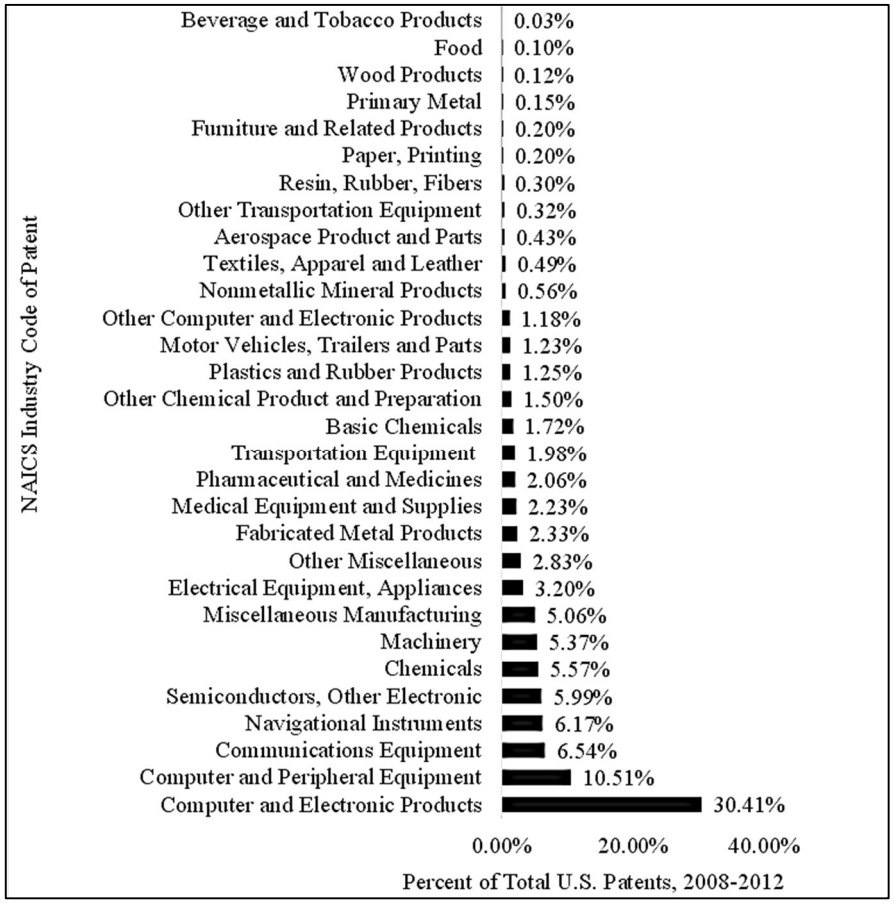
[96] WIPO, WORLD INTELLECTUAL PROPERTY INDICATORS 2024, at 4 (2024). Between 1990 and 2001, the number of patent applications filed and granted doubled. In the early 2000s, there were above 1 million patents in force in the United States, compared with the about 3.5 million patents in force today. *Id.* at 9.

[97] *U.S. Patent Statistics Chart: Calendar Years 1963-2020*, USPTO [hereinafter USPTO PTMT Report], https://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm [https://perma.cc/F3JC-EENM] (last updated June 3, 2025). The three primary categories of patent protection address distinct innovation types: utility patents covering operational mechanisms and procedural methods, design patents securing visual and ornamental product characteristics, and plant patents safeguarding asexually propagated plant cultivars.

[98] I am grateful to Carissa Chen who calculated this estimate by summing the proportion of utility patents that fall under the categories of "Computer and Electronic Products," "Computer and Peripheral Equipment," "Navigational Instruments," "Semiconductors and Other Electronic," "Chemicals," "Machinery," "Electrical Equipment and Appliances," "Medical Equipment and Supplies," "Pharmaceutical and Medicines," "Basic Chemicals,"

This distributional reality generates fundamental questions about the systemic impact of equity reforms targeting marginal patent categories. The extreme sectoral concentration in technology suggests that patent equity reforms may address statistically smaller portions of the innovation economy, while potentially creating administrative complexity that has the potential to disproportionately affect the rest of the patent system.

Figure 1. Shares of 2008-2012 U.S. Utility Patents by Industry.[99]



The USPTO confronts a fundamental institutional capacity crisis that creates systemic vulnerabilities within the IP examination framework. With nearly

"Other Chemical Product and Preparation," "Communications Equipment," and "Other Computer and Electronic Products." This comes out to 82.87% of utility patents. Figure 1 illustrates the individual industry shares.

[99] Data presented in this figure originates from the USPTO PTMT Report, *supra* note 97.

527,000 new applications processed in 2024 by only 8,944 examiners, the agency operates under well-known and severe resource constraints that force quality-throughput tradeoffs incompatible with rigorous examination standards.[100] Government Accountability Office surveys reveal that examiners consistently identify "time pressures" and institutional emphasis on quantitative metrics over substantive analysis as primary obstacles to effective patent examination, creating persistent backlogs and compromising patent quality across technological domains.[101]

Professor Mark Lemley's foundational work on the USPTO demonstrates that rational ignorance represents a structural feature of the patent system, where resource limitations prevent adequate prior-art investigation for most applications without dramatically increased congressional appropriations that remain politically unfeasible.[102] Complementary studies by Professor Lemley and Professor Bhaven Sampat reveal that approximately 70% of published applications receive patents despite limited prior-art vetting, indicating systematic examination deficiencies that compromise the integrity of granted patent rights and create downstream economic inefficiencies.[103]

Against this institutional backdrop, contemporary reform proposals that require examiners to incorporate "nonmajority cultural capital"[104] into classification, prior-art search, and enablement analysis present significant implementation challenges.[105] Such reforms would necessitate comprehensive re-engineering of classification systems, cultural declarations for applications,

[100] *See* GAO-25-107218, *supra* note 28, at 4-5.

[101] *See id.* at 13.

[102] *See generally* Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495, 1523-31 (2001). Integration of cultural expertise into examination processes threatens the administrable objectivity that enables consistent application of person having ordinary skill in the art (PHOSITA) standards across diverse technological domains. Lemley's rational ignorance framework functions effectively because it references technologically trained but culturally anonymous artisans, providing predictable evaluation criteria. Substituting community-specific knowledge standards creates due process and equal protection vulnerabilities where similarly situated applicants face divergent examination thresholds based on examiner access to or interpretation of cultural narratives, potentially encouraging forum shopping behaviors and increasing rather than decreasing litigation risks.

[103] Lemley & Sampat, *supra* note 1, at 4-5.

[104] Goodman, *supra* note 12, at 991.

[105] These capacity constraints generate cascading systemic risks throughout the innovation economy, producing frictions in technological progress. The exponential growth in issued patents correlates with mirror-image increases in patent litigation and mounting private transaction costs as firms navigate increasingly complex patent thickets with uncertain validity. Any reform proposal that introduces additional substantive examination requirements must therefore confront zero-sum resource allocation realities: absent substantial congressional funding increases and examiner training programs, new mandates will necessarily displace existing examination activities and further compromise system functionality.

and consultation with external historians, sociologists, and public commentators for culturally inflected inventions.[106] This requirement creates a fundamental tension between cultural sensitivity objectives and examination efficiency and quality needs, which can be particularly problematic for minority inventors who require timely patent protection to secure financing and market positioning.[107]

Finally, it is important to note that patents are not only (or even mostly) national, but also global tools. Patent prosecution processes and administrative pathways are subject to increased streamlining and convergence across the leading patent offices in the world.[108] Prosecution processes are in theory distinctive and, like most bureaucracies, exhibit unique characteristics.[109] The

[106] Professor Goodman also proposes that there should be increased research efforts that work with anthropologists focused on minority cultures and diversity in innovation. Goodman, *supra* note 12, at 1041-42. This is a worthy research aim, but Professor Goodman does not clarify why we specifically need an additional research department of anthropologists to accomplish this task. For example, the USPTO Office of the Chief Economist has worked on studying diversity of patent applicants and written several reports to understand structural inequality in innovation. *See, e.g.*, Request for Comments on Methods for Studying the Diversity of Patent Applicants, 78 Fed. Reg. 72064 (Dec. 2, 2013); NEWCOMERS AND NOVELTY, *supra* note 43. The USPTO has also announced several diversity data-driven research initiatives and a partnership with the Council for Inclusive Innovation to support STEM inventorship from historically underresourced backgrounds. *See USPTO's New Diversity Information Platform: Advancing Innovation Through Data-Driven Action*, USPTO (Mar. 18, 2024), https://www.uspto.gov/subscription-center/2024/usptos-new-diversity-information-platform-advancing-innovation-through [https://perma.cc/AL99-HZT8]; *Commerce's USPTO Announces National Strategy to Empower Innovators and Entrepreneurs from All Communities*, U.S. DEP'T OF COMM. (June 21, 2024), https://www.commerce.gov/news/blog/2024/06/commerces-uspto-announces-national-strategy-empower-innovators-and-entrepreneurs.

[107] The 1998 Federal Circuit ruling establishing business method patentability triggered a dramatic surge in application volume that exposed critical vulnerabilities within USPTO administrative infrastructure. This judicial precedent generated cascading institutional pressures as the USPTO confronted unprecedented application flows concentrated within Class 705, the specialized examination unit responsible for business method evaluation. The resulting capacity strain illustrated systemic risks inherent in sudden doctrinal shifts that outpace administrative adaptation mechanisms, creating examination bottlenecks that compromised both processing efficiency and evaluation quality within this specialized technological domain. *See, e.g.*, Jordan Thompson, Student Note, *Back and Forth: An Analysis of the Business Method Exception to Patentability*, 1 GEO. L. TECH. REV. 383 (2017).

[108] IP5 OFFICES, KEY IP5 STATISTICS INDICATORS 1 (2024) (reporting 3.2 million applications and 1.8 million grants across the USPTO, EPO, JPO, KIPO, and CNIPA and describing their coordinated work-sharing agenda); WIPO, WORLD INTELLECTUAL PROPERTY INDICATORS 2023, at 7-12 (2023) (documenting record-high 3.5 million worldwide filings and noting growing reliance on cross-office tools); WIPO, IP FACTS & FIGURES 2023, at 4-5 (2023) (showing 17.3 million patents in force globally and mapping cross-border filing trends).

[109] *See PCT-Patent Prosecution Highway Program (PCT-PPH and Global PPH)*, WIPO, https://www.wipo.int/pct/en/filing/pct_pph.html (last updated Mar. 5, 2025) (outlining

ongoing global convergence in prosecution practices, however, creates systemic risks for differentiated cultural patent procedures, which could stigmatize culturally specific innovations and isolate them from standard international prosecution pathways. Creating separate procedural tracks for cultural products may paradoxically disadvantage minority inventors by reducing their patents' international viability and commercial prospects, undermining the very equity objectives such reforms aim to advance, while potentially creating barriers to global market access for culturally derived innovations.

More effective reforms should focus on expanding knowledge bases through systematic incorporation of previously excluded prior-art sources, such as Indigenous knowledge databases,[110] into standard search protocols, rather than fundamentally restructuring examination procedures in ways that exceed current institutional capacity and create new systemic vulnerabilities. Here, my argument converges with Professor Goodman's call for systematic integration of Indigenous-knowledge repositories—an area where the USPTO's 2024 expansion of the Trademark ID Manual to include "hair sponges for styling hair" demonstrates that targeted classification tweaks are politically feasible.[111] Proposals for interventions in the patent process to achieve equity on the margins of our broader innovation ecosystem must weigh the tradeoffs between imposing additional administrative hurdles and approving qualifying patents. Reforms that allow us to accomplish both ends, like expanding the USPTO's database of knowledge from other cultures,[112] could more meaningfully address equity gaps without compromising further a fragile balance between resource constraints and improved patent prosecution processes.

CONCLUSION

Cultural carve-outs that impose additional procedural burdens on applicants without considering strategies to mitigate the potential consequences present

bilateral and multilateral agreements that let offices use other office's search and examination results).

[110] This must be done, however, without compromising the interests of Indigenous People and Local Communities ("IPLCs") that are the source of such knowledge. *See* Margo A. Bagley, *The Fallacy of Defensive Protection for Traditional Knowledge*, 58 WASHBURN L.J. 323, 334 (2019) ("[M]ore harm than good may come to traditional knowledge-holding IPLCs in such countries through the embracing of database measures without positive traditional knowledge protection.").

[111] *See* Goodman, *supra* note 12, at 1047 & n.346; *see also* USPTO, *Trademark ID Manual: ID Master List*, https://idm-tmng.uspto.gov/id-master-list-public.html (last visited June 10, 2025) (search in search bar for "021 Hair Sponges for Styling Hair").

[112] An important example is the USPTO agreement with the Indian government. *See* Press Release, USPTO, India Grants Access to U.S. Patent Examiners for New Traditional Knowledge Search Tool (Nov. 23, 2009), https://tkdl.res.in/tkdl/PressRelease/USPTO.pdf [https://perma.cc/XC89-NN44] ("[T]he Government of India has granted the [USPTO's] patent examiners access to a new digital database containing a compilation of traditional Indian knowledge.").

difficult questions not only for inventors but also for the beneficiaries of the patent system—the public. Patent reform efforts justified in equity discourse must avoid a fundamental misdiagnosis of systemic justice imperatives: authentic reform demands dismantling structural barriers to equitable participation, rather than constructing differentiated procedural pathways that burden an already strained system. Empirical analysis consistently locates patenting disparities in resource constraints and differential access to skilled representation, while USPTO institutional data reveals an agency operating at capacity thresholds such that additional review layers risk further degrading patent quality. Effective reform therefore requires strengthening universal support mechanisms, some of which will help in prosecuting cultural inventions—like systematically expanded prior-art databases or access to knowledge repositories of Indigenous People and Local Communities.

In leading jurisdictions, patentability standards are applied by examiners in a highly dense social context that requires continuously improving technical expertise, discernment, and sound judgment. These traits are exercised by examiners charged with the application of national patentability standards to inventions that can have implications for terms of trade, national security, public health, and other strategic sectors. As such, patent offices—and patent examiners—are sites of great discretion. They are also predictably sites of bias. But whether such bias functions in ways that harm innovation directed at cultural products specifically, rather than all types of innovation more generally, is a contested—and complicated—question of national and international import.