DO TRADE SECRETS HAVE GENDER?

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The gender gap in intellectual property regimes has been extensively explored in recent years. While patents, copyrights and trademarks have been explored empirically, trade secrecy has not yet been studied. This Article discusses for the first time the tension between trade secrecy and gender, empirically exploring initial findings pertaining to women participation in trade secret litigation, both as plaintiffs and defendants, showing that women are significantly underrepresented. The Article offers possible explanations for these findings as well as possible ways to address them.

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INTRODUCTION

Trade secrecy is crucial for businesses, especially in today's competitive market. Companies invest significant resources in safeguarding confidential information and trade secrets to maintain their competitive edge. While women's representation in the workforce is greater now than ever before, and significant progress has been made toward gender equality, comparatively few women invoke trade secret protections or participate in trade secret litigation. Yet there has been little discussion about the gender disparities and the barriers that women face in this field. Therefore, this Article investigates women's reliance on trade secrecy for the first time.

This Article proceeds as follows. In Part II, we introduce trade secrecy, exploring its history and legal protection in the U.S. and internationally. In Part III, we review the literature addressing the gender gap and Intellectual Property ("IP"), revealing that trade secrecy is the only area within the field that has not been studied in connection with gender equity. In Part IV, we proceed to introduce the system of IP registration and unregistered IP rights, showing that IP rights have been protected both under registered and unregistered regimes and demonstrating that these avenues provide complementary regimes for protecting IP. We then contend that unregistered rights arguably offer a more egalitarian IP protection regime with major advantages for inventors and creators: for example, there is no cost to exercise unregistered rights, and the rights themselves are simple and apply automatically if certain conditions are met. In Part V, we consider trade secret protection and explore empirically the extent to which women claim and assert trade secret protections. This part provides an overview of the empirical studies conducted by David Opderbeck on trade secret litigation under the federal Defend Trade Secrets Act ("DTSA").[1] We show based on these studies that women participate less than men in trade secrecy litigation, both as plaintiffs and defendants, suggesting that women arguably rely less on this regime. We then try to offer explanations as to why this is the case and argue that as an unregistered rights regime, it should be more egalitarian and thus more frequently exploited. We posit that potential reasons for women's underutilization of trade secrets may include women's disinterest in reliance on secrecy,

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[1] David Opderbeck, *Guest Post: Where We Stand with Trade Secret Enforcement in Federal Courts*, PATENTLYO (May 18, 2017), https://patentlyo.com/patent/2017/05/secret-enforcement-federal.html [https://perma.cc/HN7C-QSDJ].

ambivalence about the commercialization of their inventions, and a preference for sharing data generally and in academia more specifically.

I. TRADE SECRETS

In the information age, information in general and trade secrets in particular have become "prime business property."[2] Accordingly, some call information "the currency of the competition," and trade secrets "the new gold of the market place."[3] Trade secrecy began its development with legal methods that were already practiced in antiquity, such as in Jewish law[4] and Roman law.[5] The concept of trade secrecy as we know it today began to develop in English law, with the rise of industrial capitalism at the beginning of the 19th century, although a coherent theory of trade secrecy began to take shape only in the mid-

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[2] Miguel Deutch, *The Property Concept of Trade Secrets in Anglo-American Law: An Ongoing Debate*, 31 U. OF RICHMOND L. REV. 313, 362 (1997); Michael A. Epstein & Stuart D. Levi, *Protecting Trade Secret Information: A Plan for Proactive Strategy*, 43 BUS. LAW. 887, 892 (1988); David D. Friedman, William M. Landes & Richard A. Posner, *Some Economic of Trade Secrets La*w, 5 J. ECON. PERSP. 61, 61–62 (1991); James W. Hill, *Trade Secrets, Unjust Enrichment, and the Classification of Obligations*, 4 VA. J. L. & TECH. 2, 4–5 (1999); Robert G. Bone, *A New Look at Trade Secrets Law: Doctrine in Search of Justification*, 86 CAL. L. REV. 241, 243 (1998); Steven N. S. Cheung, *Property Rights in Trade Secrets*, 20 ECON. INQUIRY 40, 40 (1982); Pamela Samuelson, *Information as Property: Do Ruckelshaus and Carpenter Signal a Changing Direction in Intellectual Property Law?*, 38 CATH. U. L. REV. 365, 367 (1989); Rockwell Graphic Sys., Inc v. DEV Indus., Inc., 925 F.2d 174, 180 (7th Cir. 1991).

[3] Epstein & Levi, *supra* note 2, at 887 (citations omitted).

[4] Babylonian Talmud, Yoma 38a, 84a; Babylonian Talmud, Shabbat 133b; MENACHEM ELON, JEWISH LAW: HISTORY, SOURCES, PRINCIPLES 632–633 (3d ed. 1988) (telling of certain medicines that were kept secret by a physician's family. One of the Talmudic sages decided to publish the secret medicines to the public so that the public could benefit from them. The physician's family was very sorry about this, but the Talmudic sage told them that he had left them one medicine in secret that they could profit from. The story shows the treatment of secret medicines as a trade secret); SHILLEM WARHAFTIG, COMMERCIAL LAW IN HEBREW LAW 234–236 (1990).

[5] Arthur A. Schiller, *Trade Secrets and Roman Law: The Actio Servi Corrupti*, 30 COLUM. L. REV. 837, 839, 841–845 (1930); Bone, *supra* note 2, at 251 n. 54; RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 cmt. a (AM. L. INST. 1995); Patricia A. Meier, *Looking Back and Forth: The Restatement (Third) of Unfair Competition and Potential Impact on Texas Trade Secret Law*, 4 TEX. INTELL. PROP. L.J. 415, 416 (1996).

19th century.[6] Trade secrecy also began to develop in the United States towards the mid-19th century.[7] Unlike other branches of IP law, which are mainly governed by U.S. federal law, trade secret law is mainly governed by state law.[8]

The Restatement of Torts (1939) was the first formal attempt to clarify trade secret law in the United States, and for decades it was the most common source of authority courts cited in decisions dealing with trade secrets.[9] In 1979, the Uniform Trade Secrets Act ("UTSA") was published as a legislative model for states to adopt in an effort to create uniformity in state law.[10] After amendments were introduced in 1985, the UTSA was adopted by all states except North Carolina and New York.[11] The last major effort to interpret trade secret law was the Restatement (Third) of Unfair Competition, published in 1995.[12]

Studies show that trade secret theft is an increasingly serious problem whose incidence rises with the value of the property concerned.[13] Moreover, it has become clear to the U.S. government that some foreign governments offer support to companies engaged in spying on trade secrets.[14] These findings influenced Congress's

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[6] Bone, *supra* note 2, at 251–252; HENRY H. PERRITT, TRADE SECRETS: A PRACTITIONER'S GUIDE 17 (1994); Hill, *supra* note 2, at 3; Meier, *supra* note 5, at 417; RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 cmt. a (AM. L. INST. 1995); ROBERT DEAN, THE LAW OF TRADE SECRETS 38–40 (1990); Deutch, *supra* note 2, at 314; Edmund W. Kitch, *The Law and Economics of Rights in Valuable Information*, 9 J. OF LEG. STUD. 683, 689 (1980).

[7] Bone, *supra* note 2, at 251–52; PERRITT, *supra* note 6, at 17; Kitch, *supra* note 6, at 689; Hill, *supra* note 2, at 3; RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 cmt. a (AM. L. INST. 1995).

[8] WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 354 (2003); Friedman et al., *supra* note 2, at 61 n. 2; Hill, *supra* note 2, at 3. *See generally* Christopher Rebel J. Pace, *The Case for a Federal Trade Secrets Act*, 8 HARV. J. L. & TECH 427 (1995) (discussing how there are opinions that call for the enactment of a civil federal law for trade secrets); Marina Lao, *Federalizing Trade Secrets Law in an Information Economy*, 59 OHIO ST. L.J. 1633, 1633–34 (1998).

[9] Hill, *supra* note 2, at 3; Meier, *supra* note 5, at 415, 417.

[10] UNIF. TRADE SECRETS Prefatory Note (UNIF. L. COMM'N 1980).

[11] MELVIN F. JAGER & BRAD LANE, TRADE SECRET LAW *States Covered by the Act* §3:29, Westlaw (updated August 2024) (additionally, the UTSA has been enacted also by District of Columbia, Puerto Rico, and the U.S. Virgin Islands).

[12] RESTATEMENT (THIRD) OF UNFAIR COMPETITION §§ 39–45 (AM. L. INST. 1995); *see also* Hill, *supra* note 2, at 3.

[13] Bone, *supra* note 2, at 274; Hill, *supra* note 2, at 2; Epstein & Levi, *supra* note 2, at 889–90.

[14] Hill, *supra* note 2, at 3 ("This is the first federal trade-secret law, and it was enacted partly out of fear of espionage rings backed by foreign governments.").

enactment of the Economic Espionage Act of 1996 ("EEA"), which, for the first time, imposed federal criminal penalties for the theft of trade secrets.[15]

Rising trade secret theft prompted an increase in trade secret litigation, which is now a common phenomenon.[16] This litigation has yielded some significant successes, and very significant damages have been awarded to compensate trade secret owners whose secrets were stolen.[17]

In 1995, the World Trade Organization adopted the Agreement on Trade Related Aspects of Intellectual Property Rights ("TRIPS").[18] The TRIPS agreement is the most comprehensive agreement in the field of intellectual property, which sets the minimum standards that every country must meet.[19] The agreement also refers to the field of trade secrets, which had not previously been included in any multilateral international treaty.[20] The North American Free Trade Agreement ("NAFTA"), accepted in 1993, created a free trade area between the U.S., Canada, and Mexico and also includes reference to the field of trade secrets.[21] In 2020, the U.S., Mexico, and Canada signed the United States-Mexico-Canada Agreement ("USMCA") to replace NAFTA.[22]

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[15] *Id.*; Bone, *supra* note 2, at 274; s*ee also* 18 U.S.C. §§ 1831–1839 (1996) (hereinafter EEA) (imposing heavy criminal penalties for the intentional or knowing theft or unlawful disclosure of a trade secret). The EEA provides criminal sanctions and gives the Attorney General the possibility to request an injunction against a violation of the law in a civil proceeding in the district courts. 18 U.S.C. § 1836 (1996). The law does not grant a private right of action to the owner of a trade secret. *Id.* The EEA also does not override existing civil and criminal remedies for trade secret misappropriation. 18 U.S.C. § 1838 (1996). *See generally* James H. A. Pooley et al., *Understanding the Economic Espionage Act of 1996*, 5 TEX. INTELL. PROP. L.J. 177 (1997).

[16] Bone, *supra* note 2, at 274; Pooley et al., *supra* note 15, at 225.

[17] Deutch, *supra* note 2, at 362.

[18] *TRIPS—Trade-Related Aspects of Intellectual Property Rights*, WORLD TRADE ORG. https://www.wto.org/english/tratop_e/trips_e/trips_e.htm [https://perma.cc/PV66-TLB7] (last visited Feb. 21, 2025).

[19] *Overview: the TRIPS Agreement*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/trips_e/intel2_e.htm [https://perma.cc/QG3E-SMG7] (last visited Mar. 13, 2025).

[20] Agreement on Trade Related Aspects of Intellectual Property Rights, Apr. 15, 1994, 33 I.L.M. 1197, § 39 [hereinafter TRIPS].

[21] *See* North American Free Trade Agreement, Dec. 17, 1992, 32 I.L.M. 289.

[22] OFF. OF THE U.S. TRADE REPRESENTATIVE, AGREEMENT BETWEEN THE UNITED STATES OF AMERICA, THE UNITED MEXICAN STATES, AND CANADA § 20.72 (2020) (available at https://ustr.gov/sites/default/files/files/agreements/FTA/USMCA/Text/20-Intellectual-Property-Rights.pdf).

The last important international arrangement is the Directive on the Protection of Trade Secrets, which was adopted in 2016.[23] The aim of the Directive is "to harmonize the existing diverging national laws on the protection against the misappropriation of trade secrets."[24] EU member states were required to "bring into force the laws, regulations and administrative provisions necessary to comply with this Directive" within two years.[25] So far, twenty-eight countries have enacted laws to protect trade secrets in accordance with the Directive.[26]

Trade secret protection applies when four cumulative conditions are met: (1) the trade secret is not known to a significant part of those involved in the industry; (2) the trade secret cannot be legally disclosed easily; (3) the confidentiality of the trade secret gives its owner an economic advantage over his competitors; and (4) the owner of the trade secret has taken reasonable measures to maintain its secrecy.[27] The last condition is not considered mandatory in the Restatement (Third) of Unfair Competition.[28]

Trade secret laws include several defenses that may be available, including that: the defendant discovered the trade secret independently or as a result of reverse engineering;[29] the use of the secret is protected

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[23] Directive 2016/943, of the European Parliament and of the Council of 8 June 2016 on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure, 2016 O.J. (L 157) [hereinafter Trade Secrets Directive].

[24] Donal O'Connell, *Trade Secrets in a Factory Environment*, INTELL. PROP. EXPERT GRP., https://www.ipeg.com/trade-secrets-in-a-factory-environment/ [https://perma.cc/BA7Z-EDE4] (last visited Mar. 13, 2025).

[25] Trade Secrets Directive, *supra* note 23, § 19.1.

[26] *EUR-Lex Access to European Union Law*, EU https://eur-lex.europa.eu/legal-content/EN/NIM/?uri=CELEX:32016L0943 (last visited Mar. 13, 2025) (listing nations that have adopted trade secret laws in accordance with EU Directive 2016/943) [https://perma.cc/R5N2-P7CU].

[27] TRIPS, *supra* note 20, § 39; OFF. OF THE U.S. TRADE REPRESENTATIVE, AGREEMENT BETWEEN THE UNITED STATES OF AMERICA, THE UNITED MEXICAN STATES, AND CANADA § 20.72 (2020) (available at https://ustr.gov/sites/default/files/files/agreements/FTA/USMCA/Text/20-Intellectual-Property-Rights.pdf); UNIF. TRADE SECRETS ACT § 1.4 (UNIF. L. COMM'N 1980) [hereinafter UTSA]; 18 U.S.C. § 1839(3) (1996); Security of Information Act, R.S.C. 1985, c O-5, § 19(4) (Can.); Trade Secrets Directive, *supra* note 23, §§ 2, 5; Commercial Torts Law, 5759–1999, SH 1709 146 (Isr.).

[28] RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 cmt. a (AM. L. INST. 1995).

[29] Bone, *supra* note 2, at 278–79. Independent discovery and reverse engineering are permitted actions pursuant to the trade secrets law. Deutch, *supra* note 2, at 353–58 (noting that proper means include (1) discovery by independent invention and (2) discovery by reverse engineering). The UTSA defines Reverse engineering as "[d]iscovery by 'reverse engineering', that is, by starting with the known product and

under the defense of general professional skills or public policy;[30] or the defendant acquired the trade secret in good faith and for consideration.[31] In 2016, the Defend Trade Secrets Act was enacted, which created civil and criminal immunity for those who disclose a trade secret in reporting a violation of law to a federal, state, or local government body.[32] Invocation of this immunity imposes on the owner of the secret to prove that the reporter did not meet the conditions for immunity (i.e., the disclosure was not to an authorized party or the disclosure was for a

working backward to find the method by which it was developed." UTSA *supra* note 27, § 1 cmt. *See* Kewanee Oil Co. v. Bicron Corp*.,* 416 U.S. 470, 476 (1974) ("A trade secret law, however, does not offer protection against discovery by fair and honest means, such as by independent invention . . . or by so-called reverse engineering . . . ."); E.I. du Pont de Nemours & Co. v. Christopher*,* 431 F.2d 1012, 1015–16 (5th Cir. 1970), *cert. denied*, 400 U.S. 1024 (1971); Bone, *supra* note 2, at 102, 107; RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 43 (AM. L. INST. 1995) ("Independent discovery and analysis of publicly available products or information are not improper means of acquisition."); RESTATEMENT (FIRST) OF TORTS § 757 cmt. a (Am. L. Inst. 1939); Thomas F. Cotter, *Conflicting Interests in Trade Secrets*, 48 FLA. L. REV. 591, 593 (1996); Hill, *supra* note 2, at 2 ("Two *proper* means of acquiring a trade secret are independent discovery and reverse engineering. Reverse engineering is the process of learning a trade secret by inspecting the product and figuring out how it works."); Gale R. Peterson, *Trade Secrets in an Information Age*, 32 HOUS. L. REV. 385, 450–56 (1995). *See also* Trade Secrets Directive, *supra* note 23, § 16 (of the introduction); § 6(c) Commercial Torts Law, 5759–1999, SH 1709 146 (Isr.).

[30] In accordance with the exception for general professional skills, an employee is not liable for the misappropriation of a trade secret if the information that is the subject of the right to a trade secret has become part of his general professional skills. *See* AMP Inc. v. Fleischhacker*,* 823 F.2d 1199, 1205 (7th Cir. 1987); Allis-Chalmers Mfg. Co. v. Cont'l Aviation & Eng'g Corp., 255 F. Supp. 645, 652–53 (E.D. Mich. 1966); RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 42 cmt. d (AM. L. INST. 1995); Robert G. Bone, *Exploring the Boundaries of Competitive Secrecy: An Essay on the Limits of Trade Secrets Law*, L. INFO. & INFO. TECH. 99, 113 (2001). The public policy exception enables the court to exempt defendants from liability in cases of trade secret misappropriation if the use of the secret is justified for reasons of public policy. *See* RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 40 cmt. c (AM. L. INST. 1995); *see also* Commercial Torts Law (Isr.), Commercial Torts Law, 5759–1999, SH 1709 146 (Isr.).

[31] Even if a person acquired the stolen trade secret in good faith and for consideration, he is still liable to the owner of the secret, but the circumstances of the acquisition give the court discretion to exempt the defendant from remedies in various amounts. For example, the RESTATEMENT (THIRD) OF UNFAIR COMPETITION, § 44(2)(d) imposes liability on the purchaser in good faith and for consideration as well but permits taking the circumstances into consideration with respect to the remedies. RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 44(2)(d) (AM. L. INST. 1995). For an expanded treatment, see Deutch, *supra* note 2, at 345–51, 368–69; *see also* Commercial Torts Law (Isr.), Commercial Torts Law, 5759–1999, SH 1709 146 (Isr.).

[32] Defend Trade Secrets Act of 2016, Pub. L. No. 114–153, § 7, 130 Stat. 376 (2016) [hereinafter DTSA]; Peter S. Menell, *Tailoring a Public Policy Exception to Trade Secret Protection*, 105 CAL. L. REV. 1, 54–55 (2017).

purpose that is not permitted by law), rather than requiring the reporter to prove that the criteria for immunity were met.[33]

II. IP AND GENDER

While the advantages of IP registration are clear, very little theoretical or empirical study focuses on the costs and, in particular, whether and why registries might disproportionately disadvantage women, ethnic and racial minorities, indigenous peoples, and others. This Part, therefore, briefly reviews empirical data on the distributive effects of IP rights registration, focusing primarily on the underrepresentation of certain groups among IP rights holders.
Myriad factors explain gender, ethnic, and other demographic gaps among IP rights holders, but the current processes for registering for IP rights themselves contribute significantly to these distributive effects in ways that have been long overlooked. This Part surveys the large body of social science literature and legal scholarship on the subject.[34]

1. Distributive Effects of Patent Registries

Empirical data reveal that of all IP, patents exhibit the starkest gender, racial, ethnic, and economic gaps in applications for protective rights. The causes of these distributive effects are not fully understood.

1.1 *Patents and Gender*

Recent growth in interest in women's access to IP rights has led to various studies on gender disparities in IP, including patents. Several studies, such as a comprehensive 2016 World Intellectual Property Organization ("WIPO") study of international patent application patterns, have shown sizeable gender gaps in applications for and grants and ownership of patents.[35] In 2015, less than 30% of international patent applications listed a female inventor, and less than 5% listed only female inventors.[36] Academic patenting reveals very similar trends,

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[33] DTSA, *supra* note 32; Menell, *supra* note 32.
[34] Ajanli Vats & Deirdre A. Keller, *Critical Race IP*, 36 CARDOZO ARTS & ENT. L.J. 735, 755 (2018).
[35] Gema L. Martinez et al., *Identifying the Gender of PCT Inventors* 2, (WIPO Econ. & Stat. Series, Working Paper No. 33, 2016) https://www.wipo.int/edocs/pubdocs/en/wipo_pub_econstat_wp_33.pdf.
[36] *Id.* at 8.

even in areas approaching gender parity (such as bioscience),[37] and women continue to patent less frequently than they publish.[38] Female inventors are most common in France (11.7%), Italy (11.6%), and Russia (15.7%) and least common in Japan (3.7%), South Korea (4.4%) and Germany (5.5%).[39] The worldwide average as of 2016 is 7.2%, approaching that in the United Kingdom (7.3%) and the U.S. (8.7%).[40] This intercountry variation comports with other studies and does not appear to correlate with socioeconomic indicators, such as GDP or the number of women in the labor market.[41] Further, patent applications solely by women inventors are 21% less likely to be granted by the United States Patent and Trademark Office ("USPTO") than applications solely by men, even when controlling for field of invention.[42] Examiners also tend to allow fewer claims in women's applications, and they tend to narrow the scope and value of claims they do allow more than in men's applications.[43] Empirical data suggests that the gender gap is thus due to patent examiner biases.[44] The effect on quality is still unclear. Some studies find that patents by women are of equal or better quality, and impact than those by men,[45] while others note that patents by women are maintained and cited much less than patents filed by men.[46]

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[37] *See* W. Michael Schuster, Miriam Marcowitz-Bitton & Deborah R. Gerhardt, *The Gender Gap in Academic Patenting*, 56 U.C. DAVIS L. REV. 759, 795–810 (2022); Annette I. Kahler, *Examining Exclusion in Woman-Inventor Patenting: Comparison of Educational Trends and Patent Data in the Era of Computer Engineer Barbie*, 19 AM. U. J. GENDER SOC. POL'Y & L. 773, 776–77 (2011).

[38] Rainer Frietsch et al., *Gender-Specific Patterns in Patenting and Publishing*, 38 RES. POL'Y 590, 592–95 (2009) (compare Table 2 on page 594 with Table 4 on page 595).

[39] GENDER PROFILES IN WORLDWIDE PATENTING: AN ANALYSIS OF FEMALE INVENTORSHIP, INTELL. PROP. OFF. 30 (2016) (available at https://assets.publishing.service.gov.uk/media/5dcc4000e5274a5c5b62de99/Gender-profiles-in-worldwide-patenting-2019.pdf.).

[40] *Id.*

[41] *Id.* at 28.

[42] Kyle Jensen et al., *Gender Differences in Obtaining and Maintaining Patent Rights*, 36 NATURE BIOTECHNOLOGY 307, 307–08 (2018).

[43] *Id.* at 309.

[44] *Id.*

[45] Steven G. McMillan, *Gender Differences in Patenting Activity: An Examination of the US Biotechnology Industry*, 80 SCIENTOMETRICS 683, 683, 690 (2009); Kjersten B. Whittington & Laurel Smith-Doerr, *Gender and Commercial Science: Women's Patenting in the Life Sciences*, 30 J. TECH. TRANSFER 355, 365 (2005).

[46] Jensen et al., *supra* note 42, at 307, 309.

The patent gender gap has very real consequences. Patents are valuable in entrepreneurialism, and this gap hinders women from commercializing their innovations. Patents protect against free-riding on the often-sizable investments necessary for invention[47] and for commercialization of invention.[48] Patents also help signal technological expertise and the innovativeness of a business's products and services to potential investors and cross-licensing partners,[49] thereby helping to attract investment funding.[50] Patents also are used defensively as meaningful threats of countersuit to infringement claims.[51]

Despite the economic importance of patents, research has repeatedly shown that women are underrepresented in patent protection more than their male counterparts. Although this number is slowly growing, findings collected from several countries show that less than 10% of all inventors are women.[52] This gender gap may stem from various factors. Women are well known to be underrepresented in STEM generally and in patent-intensive STEM fields specifically.[53] Moreover, studies at the intersection of IP law and gender have identified several other factors that contribute to gender disparities in IP rights, including patents.[54]

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[47] William Landes & Richard A. Posner, *An Economic Analysis of Copyright*, 18 J. LEGAL STUD. 325, 325–33, 344–46 (1989).

[48] INST. FOR WOMEN'S POL'Y RSCH., WOMEN-OWNED BUSINESSES HAVE INCREASED IN NUMBER, BUT STILL FACE OBSTACLES TO GROWTH 1 (2020), http://iwpr.org/wp-content/uploads/2020/07/Kauffman-Fact-Sheet-for-layout-2-7-2020-1.pdf (citing IWPR analysis of the U.S. Census Bureau's 1997, 2002, 2007, and 2012 Survey of Business Owners); Michael Abramowicz & John F. Duffy, *Intellectual Property for Market Experimentation*, 83 N.Y.U. L. REV. 337, 340 (2008).

[49] Stuart J.H. Graham et al., *High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey*, 24 BERKELEY TECH. L.J. 1255, 1287–1309 (2009).

[50] INST. FOR WOMEN'S POL'Y RSCH., *supra* note 48, at 7.

[51] Ted Sichelman & Stuart J.H. Graham, *Patenting by Entrepreneurs: An Empirical Study*, 17 MICH. TELECOMM. & TECH. L. REV. 111, 113 (2010).

[52] Waverly W. Ding et al., *Gender Differences in Patenting in the Academic Life Sciences*, 313 SCIENCE 665, 666 (2006); Taehyun Jung & Olof Ejermo, *Demographic Patterns and Trends in Patenting: Gender, Age, and Education of Inventors*, 86 TECH. FORECASTING & SOC. CHANGE 110, 110, 112, 118 (2014).

[53] David Beede et al., *Women in STEM: A Gender Gap to Innovation* 2–3 (2011) https://files.eric.ed.gov/fulltext/ED523766.pdf; Lisa D. Cook & Chaleampong Kongcharoen, *The Idea Gap in Pink and Black* 14–16 (Nat'l Bureau of Econ. Rsch. Working Paper No. 16331, 2010) https://www.nber.org/system/files/working_papers/w16331/w16331.pdf; *see generally* INST. FOR WOMEN'S POL'Y RSCH., *supra* note 48.

[54] Kara W. Swanson, *Intellectual Property and Gender: Reflections on Accomplishments and Methodology*, 24 AM. U. J. GENDER SOC. POL'Y & L. 175, 176 (2015).

These factors fall into three basic categories: the way IP doctrines apply to subject matter involving gender and sexuality; the gendered nature of the various IP doctrines themselves; and gender disparities in participation in IP systems. [55] With regard specifically to the patent system, for example, many facially neutral patent doctrines assume a certain level of masculinity in practice.[56]

Female inventors also face greater hurdles in accessing the patent system at all. The patenting process is complicated and often requires substantial financial investments as much as tens of thousands of dollars per patent.[57] Women tend to have fewer financial resources than men, including access to venture capital and other funding.[58] Women also have less access to the networks of experienced professionals and other support structures that can aid in navigating the patenting process.[59] Overt sexism among peers, industry contacts, customers, and even patent examiners also plays a role in women's perceptions of the patentability of their own work and others' perceptions of the importance of that work.[60]

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[55] *See* Miriam Marcowitz-Bitton & Emily Michiko Morris, *Unregistered Patents* 95 WASH. L. R. 1835 (2020).

[56] Swanson *supra* note 54, at 185.

[57] Gene Quinn, *The Cost of Obtaining a Patent in the US*, IP WATCHDOG (Apr. 15, 2015) https://ipwatchdog.com/2015/04/04/the-cost-of-obtaining-a-patent-in-the-us/id=56485/ [https://perma.cc/5LZV-WGZ7] (stating a moderately complex is between $10,000 to $12,000).

[58] Alicia Robb, *Access to Capital Among Young Firms, Minority-Owned Firms, Women-Owned Firms, and High-Tech Firms* 31 (2013), https://advocacy.sba.gov/wp-content/uploads/2019/05/rs403tot2.pdf; Paula E. Stephan & Asmaa El-Ganainy, *The Entrepreneurial Puzzle: Explaining the Gender Gap*, 32 J. TECH. TRANSFER 475, 481 (2007).

[59] Wenpin Tsai & Sumantra Ghoshal, *Social Capital and Value Creation: The Role of Intrafirm Networks*, 41 ACAD. MGMT. J. 464, 473 (1998); Jessica Milli et al., *Equity in Innovation: Women Inventors and Patents* 5, 8 n.2 (2016), https://iwpr.org/wp-content/uploads/2020/12/C448-Equity-in-Innovation.pdf.

[60] NAT'L WOMEN'S BUS. COUNCIL, INTELLECTUAL PROPERTY AND WOMEN ENTREPRENEURS 15–16 (2012), https://www.nwbc.gov/wp-content/uploads/2023/11/Qualitative-Analysis-Intellectual-Property-Women-Entrepreneurs-Part-2.pdf; Fiona Murray & Leigh Graham, *Buying Science and Selling Science: Gender Differences in the Market for Commercial Science*, 16 INDUS. & CORP. CHANGE 657, 660–663, 668 (2007); Christine Wenneras & Agnes Wold, *Nepotism and Sexism in Peer-Review*, 387 NATURE 341, 341 (1997); Jensen et al., *supra* note 42, at 309 (suggesting there exists possible bias by patent examiners at the USPTO).

1.2 *Patents, Race, and Ethnicity*

Racial and ethnic gaps in patenting have also been studied empirically. Cook and Kongcharoen examined patenting patterns among women and African-American inventors.[61] The Institute for Women's Policy Research found certain racial and ethnic groups to be underrepresented in the patent system, finding that African-American women were even more underrepresented than their male counterparts while also finding that Asian women patent at three times the rate of white women.[62] A recent study by Michael Schuster et al. also shows that American minority inventors are less likely to secure patents compared to American white male inventors.[63]

1.3 *Patents and Entrepreneurs*

Entrepreneurs contribute significantly to economic growth globally.[64] IP rights affect opportunities for engaging in entrepreneurship and the success or failure of such endeavors.[65] Recent research on American entrepreneurs consistently suggests that the patent system disadvantages entrepreneurs. A wide-scale 2008 Berkeley Center for Law and Technology survey of high-tech start-up firms found that technology entrepreneurs do not seek patents for various reasons.[66] Two major reasons directly relate to the patent registration process: the cost of patenting, including attorneys' fees; and the cost of patent enforcement, including litigation.[67] Although previous studies report an average patent prosecution cost of $10,000 to $30,000, the Berkeley survey found the average cost in 2008 to be over $38,000.[68] Although the extent to which patent prosecution costs discourage entrepreneurs from seeking patents varies by industry, numerous studies show that cost is the most influential factor, especially among small firms. [69] A 1998 Small Business Administration survey of small firms and a

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[61] Cook & Kongcharoen, *supra* note 53, at 1.
[62] Milli, *supra* note 59, at 5.
[63] Michael Schuster et al., *An Empirical Study of Patent Grant Rates as a Function of Race and Gender*, 57 AM. BUS. L.J. 281, 318 (2020).
[64] JOSEPH A. SCHUMPETER, THE THEORY OF ECONOMIC DEVELOPMENT: AN INQUIRY INTO PROFITS, CAPITAL, CREDIT, INTEREST, AND THE BUSINESS CYCLE 74–79 (1934); Graham et al., *supra* note 49, at 1258.
[65] Ted Sichelman, *Commercializing Patents*, 62 STAN. L. REV. 341, 360 (2010).
[66] Graham et al., *supra* note 49, at 1309.
[67] *Id.*
[68] *Id.* at 1331.
[69] *Id.*

Carnegie Mellon study produced similar results.[70] Patent reform initiatives have tried to address this cost concern through lower filing and maintenance fees for small entities.[71] These initiatives are most likely helpful, but application fees constitute only one part of overall filing expenses, which also include attorneys' fees.[72]

2. Distributive Effects of Copyright Registries

2.1 *Empirical Data on Copyright and Race, Ethnicity, and Gender*

Globally, copyright registries are voluntary in some countries.[73] Because the U.S. has maintained a copyright registry for many years,[74] however, there is a wealth of information on the potential distributive effects of IP rights registration. Professors Brauneis and Oliar performed an extensive empirical study of the U.S. copyright registry and the representation of different gender, racial, and age groups in the copyright system as revealed by the named authors for valid monograph registrations for the years 1978–2012.[75] The results are quite telling. First, they found that authors of different races differ both in the types of works they register and in the rates at which they do so. For example, they found that white and black authors are overrepresented, while Latin-American authors tend to register their works at rates significantly lower than authors of all other races and ethnicities.[76] Brauneis and

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[70] *Id.* at 1310; Wesley M. Cohen et al., *Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or Not)* 15–16 (Nat'l Bureau of Econ. Rsch., Working Paper No. 7552, 2000), https://www.nber.org/system/files/working_papers/w7552/w7552.pdf.

[71] *USPTO Fee Schedule*, USPTO (Mar. 1, 2020), https://www.uspto.gov/learning-and-resources/fees-and-payment/uspto-fee-schedule [https://perma.cc/UER6-93YA].

[72] *See USPTO fee schedule,* USPTO, https://www.uspto.gov/learning-and-resources/fees-and-payment/uspto-fee-schedule#Patent%20Fees [https://perma.cc/WZW2-E8X5] (last visited Mar. 13, 2025); *see Patent Attorneys Fees Explained*, IP WATCHDOG, https://ipwatchdog.com/patent/patent-attorney-fees-explained/ (last visited Mar. 5, 2025) [https://perma.cc/A8G7-HAEW].

[73] *See generally* Dr. Stef van Gompel & Dr. Saule Massalina, *Survey on Voluntary Copyright Registration Systems* (2021), https://www.wipo.int/edocs/mdocs/mdocs/en/wipo_crr_ge_2_21/wipo_crr_ge_2_21_report.pdf.

[74] Robert Brauneis & Dotan Oliar, *An Empirical Study of the Race, Ethnicity, Gender, and Age of Copyright Registrants*, 86 GEO. WASH. L. REV. 46, 107 (2018).

[75] *Id.* at 106.

[76] *Id.* at 117.

Oliar also found substantial differences by race and ethnicity in the types of works created.[77] With regard to gender, Brauneis and Oliar found that two-thirds of registered authors were male but that female authors have increased in representation, with the gender gap differing by type of work.[78] Other scholars have theoretically analyzed the intersection of copyright law and gender from a feminist perspective. They conclude that copyright doctrines are both designed and interpreted in ways that exclude female forms of creativity and knowledge[79] and sustain gender inequality in ways that impact whether women and men are treated equally in copyright-related contexts.[80] Various scholars have also looked at the intersection of race and copyright law.[81] Professor Greene's work on Black artists illustrates that the convoluted and complex requirements for protection can easily relegate certain authors' work to the public domain, causing them to lose their economic rights.[82] Contributing to this, of course, are inequality of bargaining power and broad social discrimination.

3. Distributive Effects of Trademark Registries

Very little scholarship explores the distributive effects of trademark registration. Marcowitz-Bitton, Gerhardt, and Schuster's recent seminal study empirically explored the gender, race, and

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[77] *Id.* at 114–17.
[78] *Id.* at 128, 130.
[79] Ann Bartow, *Fair Use and the Fairer Sex: Gender, Feminism and Copyright Law*, 14 AM. U. J. GENDER SOC. POL'Y & L. 551, 572 (2006); Dan L. Burk, *Copyright and Feminism in Digital Media*, 14 AM. U. J. GENDER SOC. POL'Y & L. 519, 546–49 (2006); Emily Chaloner, *Comment, A Story of Her Own: A Feminist Critique of Copyright Law*, 6 J.L. & POL'Y 221, 224, 226 (2010); Terra L. Gearhart-Serna, *Women's Work, Women's Knowing: Intellectual Property and the Recognition of Women's Traditional Knowledge*, 21 YALE J.L. & FEMINISM 372, 389 (2010); Debora Halbert, *Feminist Interpretations of Intellectual Property*, 14 AM. U. J. GENDER SOC. POL'Y & L. 431, 438–44 (2006); *see generally* Victoria F. Phillips, *Symposium: Commodification, Intellectual Property and the Quilters of Gee's Bend*, 15 AM. U. J. GENDER SOC. POL'Y & L. 359, 360 (2007); Malla Pollack, *Towards a Feminist Theory of the Public Domain, or Rejecting the Gendered Scope of United States Copyrightable and Patentable Subject Matter*, 12 WM. & MARY J. WOMEN & L. 603, 607–09 (2006); Rebecca Tushnet, *My Fair Ladies: Sex, Gender, and Fair Use in Copyright*, 15 AM. U. J. GENDER SOC. POL'Y & L. 273, 303–04.
[80] Bartow, *supra* note 79.
[81] 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, 370–71 (2008).
[82] *Id.*

ethnicity of trademark registrants at the USPTO.[83] This study utilized a cohort of 1,053,127 trademark applications filed between 1986 to 2018 to evaluate demographic information and registration rates. Demographic information for each applicant was derived from the applicant's name based on the likelihood that the name corresponded to a particular gender or race.[84]

3.1 *Trademarks and Gender*

With respect to gender, Marcowitz-Bitton et al. report that in 1986, 23.7% of applicants for whom gender data were available were female, rising to 32.1% by 2018. With regard to registrations, the percentage of women was 24.1% in 1986, rising to 33% in 2015 (and likely up to 35.5% in 2018, but data limitations and pending applications make this number tentative). Surprisingly, this study found that women are less likely than men to have their marks opposed and also more likely than men to overcome oppositions.[85]

3.2 *Trademarks and Race*

Marcowitz-Bitton et al. report that the percentage of non-white applications and registrations has risen over three decades from about 15% to 25%. Yet, the disparity observed between races at filing and at registration indicates a lower likelihood that applications by non-whites will be registered.[86] Also, among marks that are published for oppositions, Asian and Latinx applicants are more likely to have their marks opposed. In summary, gender, racial/ethnic, economic, and other gaps exist in IP registries, although most empirical findings are focused on the U.S. market.

Explanations for why these gaps exist are obviously complex and numerous, but as the discussion above shows explicitly and implicitly, some of the reasons for these gaps relate to the design of IP registries and the costs they impose on registrants. In any event, there is no study that explores trade secrecy and gender. In the next parts, we try to offer some initial thoughts on the subject.

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[83] *See* William Michael Schuster et al., *An Empirical Study of Gender and Race in Trademark Prosecution*, 94 S. CAL. L. REV. 1407, 1451 (2021).
[84] *Id*. at 1431–34.
[85] *Id.* at 1451, 1453–58.
[86] *Id.* at 1442.

III. REGISTERED AND UNREGISTERED IP REGIMES

Looking at the effects of registration in securing legal rights is particularly apropos in the field of intellectual property, which is a mix of registered and unregistered rights regimes. Both copyright and trademark law in the U.S., for example, employ a two-tiered approach: protection is automatic for all works that meet the requisite criteria, but protection can also be secured through registration.[87] Patent law, by contrast, does not employ a two-tiered approach and instead mandates registration and examination to receive protection. Trade secrecy exists only on an unregistered basis.[88] Some part of this is likely historical accident. For reasons that are unclear, both copyright and trademark rights originated as (or, at least, are perceived as having started as) automatically arising, unregistered rights.[89] This history created settled expectations and perceptions that later, when modern-day IP registration systems were introduced, led to the somewhat consistent preservation of unregistered copyright and trademark rights. Patents, on the other hand, have never been protected without registration. [90]

It is uncertain exactly why lawmakers have opted over the centuries to allow unregistered rights in copyright and trademark but not in patent, however, it is clear why all three forms of IP have adopted registration regimes. Registering rights and interests in property and property-like instruments has become common due to the number of advantages registration provides, particularly for the kinds of creative and yet intangible works protected under IP law which is discussed in

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[87] We are aware that industrial design protection in the European Union (E.U.) and other jurisdictions also employs the two-tiered registered and unregistered rights approach. Discussion of E.U. industrial design protection lies outside the scope of this article, however, which focuses solely on U.S. law.

[88] The public nature of registration is presumably inconsistent with secrecy. Given our focus on the distributive effects of registration, we therefore limit further discussion of trade secrecy in this section. For a proposal to establish a Trade Secrets Registry, which combines the protection of the secrets' confidentiality and the publicity of the rights holders and their subjects, see generally Chagai Vinizky, *Trade Secrets Registry*, 35 PACE L. R. 455 (2014). The proposed registry would not require registration to create the right, but rather to conduct transactions in the right and for other purposes. *Id*.

[89] *Compare* Rebecca Tushnet, *Registering Disagreement: Registration in Modern American Trademark Law*, 130 HARV. L. REV. 867, 879 (2017) (describing the common belief that trademarks originated as unregistered rights established by use), *with* text accompanying *supra* note 59 (describing how trademark's origins are not quite so clear).

[90] *See generally* Leahy-Smith American Invents Act Pub. L. No.112-29, and 125 Stat. 284 (2011).

greater detail below.[91] Thus, even in two-tiered regimes like copyright and trademark, registration is heavily favored and offers benefits that unregistered rights do not enjoy.

While a good deal of thought and planning went into the creation of formal registration systems for all three forms of IP, the retention of unregistered rights seems to be based solely on history and tradition. In neither case do the distributive effects of either type of regime appear to have been considered. As the next Part reveals, however, registration creates costs that are significant but seldom recognized, effectively impeding access to protection. Offering greater protections to registered rights than to unregistered ones—and in the case of patents, offering protection only to registered rights—thus has obvious distributive implications. To understand this, one needs first to understand why and how modern-day IP law espouses registration.

1. The Theory Behind Registration

Registering property rights serves several functions that help explain why it has become a standard part of intellectual property regimes.

First and foremost is the public notice function of registration. Registration informs the public of the existence of a right as well as its boundaries, additionally, it provides information about who owns it.[92] Because property rights are in rem, registries can be a cost-effective way to protect the interests of both rights owners and the public.[93] Rather than having to invest in privately communicating the boundaries of their property to others on an individual basis, right owners can invest only once in public registration to notify everyone all at once; [94] in turn, by providing the public with this information, registries save potential rights infringers from having to invest privately in collecting and verifying that information themselves, reducing their clearance costs.[95]

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[91] *See* Abraham Bell & Gideon Parchomovsky, *Of Property and Information*, 116 COLUM. L. REV. 237, 245–46 (2016).

[92] Douglas G. Baird & Thomas H. Jackson, *Information, Uncertainty, and the Transfer of Property*, 13 J. LEGAL STUD. 299, 303–04 (1984); RICHARD. A. POSNER, ECONOMIC ANALYSIS OF LAW 35–37, 77 (6th ed. 2003); Vinizky, *supra* note 88, at 497–502; STEVEN SHAVELL, FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW 46–47 (2004).

[93] *Id.*

[94] POSNER, *supra* note 92, at 81–84; Vinizky, *supra* note 88, at 497–99.

[95] *See, e.g.*, Robert Burrell & Michael Handler, *Dilution and Trademark Registration*, 17 TRANSNAT'L L. & CONTEMP. PROBS. 713, 715–16, 722 (2008) (noting trademark registration lowers clearance costs).

In this way, property rights registries also help streamline transactions between willing sellers and buyers.[96] Registries furnish buyers with credible information about a seller's claim of ownership of the asset in issue,[97] thus enhancing the marketability and value of property assets.[98] Similarly, registries allow the transfer of only partial property rights, such as security interests or leaseholds, without concern about who holds physical possession.[99] This comports with the basic premise of property rights economics[100] and transaction cost economics that legal rules and institutions should be designed to streamline transactions and lower transaction costs. Registries also reduce transaction costs by lowering verification costs and obviating the need for legal services.[101] This is not as true when registration requires not only procedural formalities such as submitting the proper documentation, but also a substantive examination of whether the asset at issue even meets the standards for registration; in this latter case, parties may often dispute whether the registration was validly granted.[102] Even in those cases, however, registration and examination at least lend credence to the owner's claim of property ownership.

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[96] Bell & Parchomovsky, *supra* note 91, at 245–46; POSNER, *supra* note 92, at 77; Vinizky, *supra* note 88, at 461–470.

[97] *Id.*

[98] Bell & Parchomovsky, *supra* note 91, at 285–86.

[99] Baird & Jackson, *supra* note 92, at 303, 307–08; Richard A. Epstein, *Notice and Freedom of Contract in the Law of Servitudes*, 55 S. CAL. L. REV 1353, 1354–56. (1982); SHAVELL, *supra* note 92 at 48.

[100] YORAM BARZEL, ECONOMIC ANALYSIS OF PROPERTY RIGHTS 3 (2d ed. 1997); Gary D. Libecap & Dean Lueck, *The Demarcation of Land and the Role of Coordinating Property Institutions*, 119 J. POL. ECON. 426, 428 (2011).

[101] *See* Benito Arruñada, *Registries*, 1 MAN & ECON. 209, 209 (2014); *see also* SHAVELL, *supra* note 92, at 47. In this context, it is interesting to note that in the United States there was opposition to the transition to a more sophisticated land registration system from private companies engaged in checking the correctness of registration due to concerns that it would reduce the need for them. *See* ERNEST DOWSON & VIVIAN LEE OSBORNE SHEPPARD, LAND REGISTRATION 124 (1952).

[102] *See* Jhon R. Allison & Mark A. Lemley, *Empirical Evidence on Validity of Litigated Patents,* 26 AIPLA Q. J. 185, 205 (1998) (according to a study of 300 decisions regarding the validity of patents filed in the United States, 46% of the patents were found to be invalid); *see also* Donald R. Dunner et al., *A Statistical Look at the Federal Circuit's Patent Decisions: 1982–1994*, 5 FED. CIR. B. J. 151, 158 (1995) (noting the number of patent disputes adjudicated by the Federal Circuit). In the European Union, a study found that 41% of patents granted by the European Patent Office (EPO) were revoked following a revocation application, and another 30% were reduced. Stuart J. H. Graham et al., *Post-Issue Patent "Quality Control": A Comparative Study of US Patent Re-Examinations and European Patent Oppositions* 1 (National Bureau of Economic Research Working Paper Series, Cambridge 2002).

Furthermore, registries help owners protect their property rights in at least two additional ways.[103] First, by revealing the true rights owners and boundaries of their rights, registries make it more difficult for others to appropriate property by fraudulently passing it off as their own.[104] Owners who register their assets can more easily prove their ownership rights against such fraudulent third-party claims. Second, registries can also help owners identify, locate, and recover assets that have been stolen, lost, or poorly transferred.[105]

When it comes to claiming property rights over new creations, as it happens under IP law, registration of rights serves several additional purposes. For schemes that involve substantive examination, registration also provides vetting that the rights granted are in fact warranted and valid.[106] This may increase the value of the property right and can signal the legitimacy and expertise of the rights owner. Registration can help settle conflicting claims to the same creation by giving priority to the first in time, whether that claimant is the first to register, the first to use, the first to create or possess, and so on. [107] Registration also gives all those who come afterward notice of the previous claimant's rights and saves them from inefficiently wasting their resources in duplicating another's efforts. Failure to register rights in a new creation, on the other hand, can be read as a signal that the creator is dedicating the creation to the public or otherwise abandoning it. Registries can similarly reduce the number of ownership claims by imposing registration fees and other costs to weed out claims to low-value creations or other assets.[108]

Last but not least is the informational value of registries beyond just the identities of owners and their properties. Registration can assist researchers in cross-sectional and longitudinal collection of data to trace patterns across categories and over time and when it comes to patent

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[103] Arruñada, *supra* note 101.
[104] Bell & Parchomovsky, *supra* note 91, at 241–42, 246; Vinizky, *supra* note 88, at 508–15.
[105] Bell & Parchomovsky, *supra* note 91, at 241, 246; SHAVELL, *supra* note 92, at 47, 52.
[106] Schuster et al., *supra* note 83, at 1413. *But see supra* note 102.
[107] *See generally* Leahy-Smith American Invents Act Pub. L. No.112-29, and 125 Stat. 284 (2011).
[108] *See, e.g.*, 35 U.S.C. § 282(a) (describing the presumption of validity of a patent), *and* 15 U.S.C. § 1115(a) (describing the presumption of validity of a trademark registered at the Principal Register).

registries, also to advance science and future inventions.[109] We can see much of this value in the data presented above on the distributive effects of IP registrations. Furthermore, the registration system in patent law elicits disclosures of information that the patentee might otherwise keep as trade secrets. This "patent bargain" quid pro quo—full disclosure of technical information in exchange for property rights—is specifically designed to enhance knowledge by making these additional disclosures publicly available.[110]

In this way, we can see why registries have become so widespread in IP law, which involves creations that are not only new but also intangible. The intangibility of IP means that it lacks physically visible boundaries, making registries that much more important as a means of communicating to the public what the boundaries are of the claimed property right. Accordingly, trademark, copyright, and patent law all employ registries to varying degrees.

2. Trademark

Trademark law employs a two-tiered approach, in that it protects marks regardless of registration status.[111] The protections provided differ somewhat depending on this status, particularly regarding available remedies for infringement.[112]

A trademark is a word, logo, or package design, or combination thereof, used by a manufacturer or merchant to identify its goods or services and distinguish them from others.[113] Trademarks include brand names, service marks, certification marks, and collective marks.[114] Trademark users do not need to register their marks with the USPTO in order to protect them from use by others. Instead, simply being the first to use a sufficiently distinctive mark "in commerce" on or in connection with goods or services allows the user to acquire rights automatically within the geographic area of use, even if someone else subsequently tries to register rights in the same mark.[115]

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[109] Sean B. Seymore, *Symposium: The Disclosure Function of the Patent System*, 69 VAND. L. REV. 1455, 1455–1456 (2016); Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 151 (1989).
[110] *See* Shubha Ghosh, *Patents and the Regulatory State: Rethinking the Patent Bargain Metaphor After Eldred*, 19 BERKELEY TECH. L.J. 1315, 1319–21 (2004).
[111] Schuster et al., *supra* note 83, at 1410–1416.
[112] *Id.*
[113] 15 U.S.C. § 1127; *see also* Kellogg Co. v. Nat'l Biscuit Co., 305 U.S. 111 (1938); RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 9 (AM. L. INST. 1995).
[114] 15 U.S.C. § 1127.
[115] *Id.*

Indeed, trademarks enjoy the same protections for the most part, regardless of whether they are registered or unregistered. Protections for both continue indefinitely as long as the marks continue to meet the requisite standards for use in commerce and distinctiveness,[116] although mark owners must take some additional steps, such as periodically certifying continued use, to maintain federal registrations.[117] Both registered and unregistered marks can be licensed[118] or assigned[119] under specific circumstances. Both federal and state trademark laws protect a mark, regardless of its registration status, not only against infringement by use of a sufficiently similar mark in a way that is likely to cause consumer confusion,[120] but also against dilution by use of a sufficiently similar mark in a way that harms the original mark's distinctiveness or reputation,[121] against cyberpiracy by registering, trafficking in, or using a domain name that would infringe or dilute the mark.[122] In terms of relief, both registered and unregistered marks enjoy the right to injunctive relief against future infringement under both federal and most state laws.[123]

Although registration is not mandatory, the law clearly favors registration by buttressing the rights of mark owners in a number of ways if they register their marks with the USPTO.[124] First, federal registration provides protection nationwide, regardless of whether the mark is actually being used nationwide.[125] Mark owners can also register their marks with individual states, but this protects the mark

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[116] 15 U.S.C. §§ 1064(3), 1127; Saratoga Vichy Spring Co. v. Lehman, 625 F.2d 1037, 1043 (2d Cir. 1980); King-Seeley Thermos Co. v. Aladdin Indus., 321 F.2d 577, 579 (2d Cir. 1963); Bayer Co. v. United Drug Co., 272 F. 505, 509 (S.D.N.Y. 1921).
[117] 15 U.S.C. §§ 1058–59.
[118] 15 U.S.C. § 1127; Yocum v. Covington, 216 U.S.P.Q. 210 (T.T.A.B. 1982); Dual Groupe, LLC v. Gans-Mex LLC, 932 F. Supp. 2d 569, 573–74 (S.D.N.Y. 2013).
[119] 15 U.S.C. § 1060; Clark & Freeman Corp. v. Heartland Co., 811 F. Supp. 137, 139–40 n.2 (S.D.N.Y. 1993).
[120] 15 U.S.C. §§ 1114(a), 1125(a).
[121] 15 U.S.C. § 1125(c).
[122] 15 U.S.C. § 1125(d).
[123] 15 U.S.C. § 1116, 1125 (2018) (applying to both registered and unregistered rights under federal law); 1 JAMES E. HAWES & AMANDA V. DWIGHT, TRADEMARK REGISTRATION PRACTICE § 1:10 (2020) (discussing federal and state law).
[124] 15 U.S.C. § 1126 (2018); Eastman Kodak Co. v. Bell & Howell Document Mgmt. Prods. Co., 994 F.2d 1569 (Fed. Cir. 1993); Commodore Elecs. Ltd. v. CBM Kabushiki Kaisha, 26 U.S.P.Q.2d 1503 (T.T.A.B. 1993).
[125] 15 U.S.C. §§ 1057 (c), 1072; Zirco Corp. v. Am. Tel. & Tel. Co., 21 U.S.P.Q.2d 1542 (T.T.A.B. 1991) (discussing constructive use and priority for intent-to-use filings).

only within that particular state[126] and can be superseded by subsequent federal registration in many instances.[127] Second, registrants can also attach a statutory registration insignia to their marks,[128] which relieves them of the need to prove that defendants had actual notice of the registrants' ownership of their marks when seeking damages and attorneys' fees in infringement cases.[129]

As further incentive to register, registration relieves trade dress owners from the burden of proving the non-functionality of their trade dress,[130] and federal registration grants a presumption that a mark is valid and that it is owned by the registrant.[131] And perhaps most significantly, only marks that have been registered and continually been in use for five or more years can reach "incontestability," which limits the grounds on which the marks may be invalidated.[132] Registered mark owners may also seek statutory damages against the use of counterfeit marks[133] and may ask border control to block the importation of goods with infringing marks.[134] Federal law also provides criminal penalties for trafficking in counterfeit marks that are identical to or substantially indistinguishable from registered marks.[135]

It is not clear why trademark law maintains this two-tiered system. Some part may simply be an historical accident, given that trademark-like practices have existed for centuries.[136] In medieval England, for example, towns and professional guilds adopted symbols that members were required to use on their goods to show that the goods had been monitored by the town authorities or guild and had met the established quality standards.[137] Enforcement and regulation of these symbols were highly decentralized and highly variable: who enforced

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[126] 3 MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 22:2 (5TH ED.).
[127] *Id*.; 15 U.S.C. §§ 1115(b), 1127.
[128] 15 U.S.C. § 1111 (2018).
[129] *Id*. Under certain circumstances, however, the Lanham Act gives unregistered mark owners to recover attorneys' fees and costs for commercial misrepresentation of the source of goods. 15 U.S.C. § 1117 (2018).
[130] 15 U.S.C. § 1125(a)(3).
[131] 15 U.S.C. §§ 1057(b), 1115(a) (2018). This presumption is rebuttable by a mere preponderance of the evidence, however. *See, e.g.,* Christian Louboutin S.A. v. Yves Saint Laurent Am. Holdings, Inc., 696 F.3d 206, 216 n.10 (2d Cir. 2012); Custom Vehicles, Inc. v. Forest River, Inc., 476 F.3d 481, 486 (7th Cir. 2007).
[132] 15 U.S.C. § 1065 (2018).
[133] 15 U.S.C. §§ 1116(d)(1)(B)(i), 1117(c) (2018).
[134] 15 U.S.C. § 1124 (2018).
[135] 18 U.S.C. § 2320 (2018).
[136] FRANK I. SCHECHTER, THE HISTORICAL FOUNDATIONS OF THE LAW RELATING TO TRADE-MARKS 19–20 (1925).
[137] *Id*. at 42–63.

protection of the symbols, how they did so, and whether the symbols had to be registered with authorities depended on the guild, locality, or town at issue.[138]

Despite this tenuous history, by the time that the law in 19th century England and the U.S. began to protect trademarks in earnest as designations of origin, legislators and courts regarded medieval history as showing that trademarks are common law rights existing independent of registration or statutory creation.[139] It was only later, as trademarks became even more valued, that both domestic and international pressure led to the creation of national trademark registries in order to bring more certainty to the ownership and geographic scope of rights.[140] Even then, state and, ultimately, federal courts in the U.S. continued to regard trademarks as common law rights,[141] presumably to protect settled expectations. As trademark continued to develop into its own area of law and the benefits of registration made themselves known, however, the law continued to create more and more benefits to registration, such as nationwide priority and heightened remedies, as a way to incentivize registration.[142] There has been little or no commentary, by contrast, on the potential benefits of the law's continued protections for unregistered trademark rights.

3. Copyright

The purpose of copyright law is to promote literary and artistic creativity by providing exclusive rights for a limited time in the

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[138] *Id*.

[139] *Id*. at 9–10, 123–24, 152–53; David E. Missirian, *The Death of Moral Freedom: How the Trademark Dilution Act Has Allowed Federal Courts to Punish Subjectively Defined Immoral Secondary Use of Trademarks*, 18 CHI.-KENT J. INTELL. PROP. 396, 398 (2019). It was apparently not until this time that trademarks came to be regarded as assets of value protecting a merchant's goodwill rather than as merely private or public regulatory marks. SCHECHTER, *supra* note 136, at 122–23.

[140] SCHECHTER, *supra* note 136, at 146–71; 10 CONG. REC. 2799 (1880); CONG. GLOBE, 41st Cong., 2d Sess. 4821 (1870).

[141] 2 MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 19:1.75 (5th ed. 2020); J. Thomas McCarthy, *Lanham Act § 43(a): The Sleeping Giant Is Now Wide Awake*, 59 L. & CONTEMP. PROBS. 45, 51–54 (1996) (explaining how modern U.S. trademark law came to incorporate unregistered rights).

[142] Deborah R. Gerhardt & Jon P. McClanahan, *Do Trademark Lawyers Matter?* 16 STAN. TECH. L. REV. 583, 587 (2013).

"writings" of "authors,"[143] although copyright has gradually been expanded to include not just written, pictorial, and sculptural works but also audiovisual works, sound recordings, computer programs, and even architectural works.[144] Copyright is limited to the particular expression of ideas, not the ideas themselves,[145] but otherwise works need only be "original" to be protectable.[146] In the U.S., all authors, regardless of registration, enjoy the exclusive right to reproduce, distribute, publicly display and perform, and make derivatives from their protectable works.[147] For some fine artworks, authors also have the right to attribution or modification.[148]

Like trademark law, copyright in the U.S. employs a two-tiered approach, allowing for both registered and unregistered protection of works. This places the U.S. on one side of an international divide in copyright law. Although there are other countries that also use a two-tiered structure for copyright protection, the vast majority of countries, including several developed countries, do not provide for copyright registration at all, opting instead for an unregistered-rights-only approach. [149] This divide reflects an ongoing debate over the merits of giving authors automatic ownership rights to their expressive works versus the merits of maintaining publicly accessible registries of such rights.

Despite the relative ease of registration, the overwhelming majority of works enjoy copyright protections as unregistered works, even in the U.S. All authors enjoy automatic copyright protection the moment they create an at least minimally original work and fix it onto a tangible medium, regardless of whether the work has been published or registered;[150] no copyright registration is required.[151] Moreover, protection endures for quite a long time: a work created on or after

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[143] U.S. CONST. art. I, § 8, cl. 8.; Zechariah Chafee, *Reflections on the Law of Copyright*, 45 COLUM. L. REV. 503, 506–11 (1945); Landes & Posner, *supra* note 47, at 325–33, 344–46.
[144] 17 U.S.C. § 102(a) (2018).
[145] 17 U.S.C. § 102(b); Baker v. Selden, 101 U.S. 99, 100(1879).
[146] 17 U.S.C. § 102(a); Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991); BENJAMIN KAPLAN, AN UNHURRIED VIEW OF COPYRIGHT 45–46 (1967).
[147] 17 U.S.C. § 106 (2018).
[148] 17 U.S.C. § 106A (2018).
[149] *See International Copyright Relations of the United States*, U.S. COPYRIGHT OFF., https://copyright.gov/circs/circ38a.pdf (last visited Mar. 12, 2025).
[150] 17 U.S.C. § 102(a) (2018); H.R. REP. NO. 94–1476, at 52–53 (1976).
[151] 17 U.S.C. § 401(a) (2018).

January 1, 1978, is protected for the author's lifetime plus seventy years.[152]

Because the requirements for copyright protections are so easily and often met, most authors are not even aware of their rights and therefore do not undertake the time and cost to register their works. That being said, both registered and unregistered owners of protectable works created after March 1, 1989, may affix a statutory copyright notice to all publicly distributed copies of their works to give others notification of their rights.[153]

Copyright protections are in many ways narrower than those provided by trademark or patent law. However, copyright generally protects against only unauthorized use or copying of a work.[154] Actual copying is difficult to prove directly, but owners can rely on evidence that the alleged infringer had access to the protected work and that the allegedly infringing copy has "substantial similarity" to the protected work.[155] Federal law in the U.S. contains many detailed limitations on what is not infringement. Moreover, use of the basic idea expressed,[156] independent creation, and "fair use" for "transformative" purposes such as criticism, comment, news reporting, teaching, scholarship, or research, and many other defenses and exceptions limit an owner's right to sue for infringement.[157]

Copyright protections as we now know them are of more ancient lineage than trademark protections and have long been regarded as natural or common law rights. Although rights to print a work in Elizabethan England had to be registered with a printing guild, authors' rights to their works were considered to arise under common law and last into perpetuity without the need for registration.[158] Copyright registration was created later to record the content and date of a protectable work and to limit what otherwise would have been a

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[152] 17 U.S.C. § 302 (2018); H.R. REP. NO. 94–1476, at 133–36; Chafee, *supra* note 143, at 719–21, 725–27, 729–30.
[153] 17 U.S.C. § 401.
[154] 17 U.S.C. §§ 106, 501 (2018).
[155] *See, e.g.,* Ringgold v. Black Ent. Television, Inc., 126 F.3d 70, 74 (2d Cir. 1997); Alan Latman, *"Probative Similarity" as Proof of Copying: Toward Dispelling Some Myths in Copyright Infringement*, 90 COLUM. L. REV. 1187, 1188–89 (1990).
[156] 17 U.S.C. § 102(b) (2018).
[157] 17 U.S.C. § 107 (2018); Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 578–79 (1994); Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 587–88 (1985).
[158] Tyler T. Ochoa & Mark Rose, *The Anti-Monopoly Origins of the Patent and Copyright Clause*, 84 J. PAT. & TRADEMARK OFF. SOC'Y 909, 914–17 (2002).

perpetual common law monopoly over the protected work.[159] State laws continued to protect unregistered works as long as they were unpublished, however, presumably to protect settled expectations, much as with trademark law. Federal law also protected unregistered but published works, although only if the authors marked every copy with a copyright notice.[160]

Furthermore, in 1998, federal law in the U.S. expanded to protect all unregistered works, regardless of publication or other formalities such as marking, after finally acceding to the Berne Convention. The TRIPS Agreement, and other such international agreements, kept signatory countries from imposing registration or other formalities as a condition for protection.[161] Indeed, the Berne Convention developed over several decades not only to enhance copyright protections but also to make them more uniformly and easily obtainable, especially for foreign authors or others who might not be fully aware of a particular country's domestic copyright provisions.[162] At least with regard to foreign authors, U.S. copyright law recognizes the potential distributive effects of requiring formalities such as registration.

That being said, the U.S. not only retains but also strongly incentivizes copyright registration by granting enhanced protections for registered works.[163] The most important of these is the fact that copyright owners must at least attempt to register works of U.S. origin as a prerequisite for initiating infringement suits,[164] and current law

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[159] Deborah R. Gerhardt, *Copyright Publication: An Empirical Study*, 87 NOTRE DAME L. REV. 135, 141–42 (2011).

[160] *See* Copyright Act of 1909, Pub. L. 60-349, § 9, 35 Stas. 1075, *repealed by* Copyright Act of 1976, 17 U.S.C. §§ 407–12 (2018).

[161] 17 U.S.C. § 408 (2018); Berne Convention for the Protection of Literary and Artistic Works art. 5(2), Jul. 24, 1971, 1161 U.N.T.S. 3; *See also* 1 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT §7.02, 7–14 (2019) (detailing development of the 1976 Act).

[162] Jane C. Ginsburg, "*With Untired Spirits and Formal Constancy": Berne Compatibility of Formal Declaratory Measures to Enhance Copyright Title-Searching*, 28 BERKELEY TECH. L.J. 1583, 1588–91 (2013).

[163] 17 U.S.C. § 408 (2018).

[164] 17 U.S.C. § 411 (2018) (Section 411 limits itself to "any United States work," and thus excludes foreign works). *See* AD HOC WORKING GROUP, FINAL REPORT OF THE AD HOC WORKING GROUP ON U.S. ADHERENCE TO THE BERNE CONVENTION, *reprinted in* CHAPTER XI – REGISTRATION, RECORDATION AND DEPOSIT, 10 COLUM. VLA J.L. & ARTS 565, 572–73 (1985); 17 U.S.C. § 411 (Section 411 does, however, allow an infringement suit to proceed even if the Copyright Office decides to refuse registration of a duly filed application, as long as the owner notifies the Office of any such suit).

allows statutory damages and attorneys' fees only for infringement occurring after registration.[165] Registration also constitutes prima facie evidence of the validity and ownership of the copyright.[166] Owners of works who take advantage of their right to mark their works after registration similarly can bar defendants from arguing non-willful infringement to mitigate their liability for damages.[167] Registered copyright owners can also record transfers of their rights, establishing priority to and constructive notice of the transfer.[168] Thus, registration and recordation offer several advantages for copyright owners.

Perhaps because the U.S. only recently switched from a registration-required regime to a two-tiered regime, commentators have acknowledged and frequently debated the merits of copyright formalities generally and registration specifically. [169] Complying with formalities can be expensive, particularly when seeking to protect a work in multiple jurisdictions, but forgoing registration increases clearance costs for others trying to determine whether a work is copyrighted and if so, who owns the rights to it.[170] These costs in turn hinder licensing of protected works and free use of unprotected works.[171]

The advent of information technology has served to increase the number of copyrightable works significantly, thereby greatly exacerbating clearance costs, while simultaneously decreasing the costs of complying with copyright formalities.[172] Because of this change in the cost-benefit ratio for requiring formalities, a number of scholars and policy advocates are now calling for the reintroduction of formalities into copyright law, and registration in particular,[173] as a means of reducing the number of works protected, enabling greater reuse of

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[165] 17 U.S.C. § 412 (2018).
[166] 17 U.S.C. § 410(c) (2018).
[167] *See, e.g.,* 17 U.S.C. § 401(d) (2018).
[168] 17 U.S.C. § 205(c) (The law continues to require deposit, but punishes failure to comply with a fine, rather than with forfeiture of the copyright); *see also* 17 U.S.C. § 407(d) (2018).
[169] *See infra* notes 170–175.
[170] Stef van Gompel, *Filters of Protection or Facilitators of Licensing*, 28 BERKELEY TECH. L.J. 1425, 1431–34 (2013).
[171] *Id*.
[172] *See* Christopher Sprigman, *Reform(aliz)ing Copyright*, 57 STAN. L. REV. 485, 517–18 (2004).
[173] *See id.* at 487.

existing works, and facilitating access to content.[174] Other scholars have also argued that at the very least, compliance with formalities should be more strongly incentivized by limiting liability for infringement of unregistered rights to reasonable licensing fees.[175] Even so, formalities impose costs on copyright owners in a way that unregistered rights do not.

4. Patent

Among the different types of IP rights, patents remain the exception. Unlike copyright and trademark protections, all three types of patent protections available in the U.S.—"utility patents" for new and useful processes, machines, articles of manufacture, and compositions of matter;[176] "design patents" for new ornamental designs for articles of manufacture;[177] and "plant patents" for new cultivated varieties of asexually reproducing plants—require registration.[178] For example, utility patents (the most common type of patent and often referred to simply as patents) protect an invention only through registration and examination by the USPTO.[179] Examination allows the USPTO to determine whether the subject invention meets the various rigorous standards for patentability: subject matter eligibility,[180] novelty,[181]

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[174] *See, e.g.*, LAWRENCE LESSIG, FREE CULTURE: HOW BIG MEDIA USES TECHNOLOGY AND THE LAW TO LOCK DOWN CULTURE AND CONTROL CREATIVITY 287–91 (2004); Stef van Gompel, *Formalities in the Digital Era: An Obstacle or Opportunity?*, *in* GLOBAL COPYRIGHT: THREE HUNDRED YEARS SINCE THE STATUTE OF ANNE, FROM 1709 TO CYBERSPACE 395–423 (Lionel Bently et al. eds., 2010); Niva Elkin-Koren, *Can Formalities Save the Public Domain? Reconsidering Formalities for the 2010s*, 28 BERKELEY TECH. L.J. 1537 (2013); James Gibson, *Once and Future Copyright*, 81 NOTRE DAME L. REV. 167 (2005); Pamela Samuelson, *Preliminary Thoughts on Copyright Reform*, 2007 UTAH L. REV. 551, 562–63 (2007).

[175] *See* Daniel Gervais & Dashiell Renaud, *The Future of United States Copyright Formalities: Why We Should Prioritize Recordation, and How to Do It*, 28 BERKELEY TECH. L. J. 1459 (2013); Christopher J. Sprigman, *Berne's Vanishing Ban on Formalities*, 28 BERKELEY TECH. L.J. 1565 (2013); van Gompel, *supra* note 174 (such measures could be especially useful in the final twenty years of copyright term, which are not mandated or governed by The Agreement on Trade-Related Aspects of Intellectual Property (TRIPS)); Maria A. Pallante, *The Curious Case of Copyright Formalities*, 28 BERKELEY TECH. L.J. 1415 (2013).

[176] 35 U.S.C. § 101 (2018); DAN L. BURK & MARK A. LEMLEY, THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT 9 (2009).

[177] 35 U.S.C. § 171 (2018); BURK & LEMLEY, *supra* note 176, at 8.

[178] 35 U.S.C. § 161 (2018); BURK & LEMLEY, *supra* note 176, at 8.

[179] *See generally* 35 U.S.C. § 102; BURK & LEMLEY, *supra* note 176, at 9.

[180] 35 U.S.C. § 101; BURK & LEMLEY, *supra* note 176, at 9.

[181] 35 U.S.C. § 102(a) (2012); BURK & LEMLEY, *supra* note 176, at 9.

nonobviousness,[182] and utility.[183] Only the first inventor to file a patent application is eligible for protection.[184] The complexity and rigor of the patenting process can thus consume years, with an average total pendency of just under three years.[185] Not surprisingly, the total cost of applying for and maintaining a patent in the United States for the full twenty-year maximum could total tens of thousands of dollars.[186]

Once granted, patents are short in term but broad in protection. Utility and plant patents last for a maximum of twenty years from the date of filing if periodic maintenance fees are paid (although this term can be extended under special circumstances).[187] Design patents last fifteen years from the date of issuance.[188] During that term, a patent provides a patentee with the right to exclude all others from making, using, selling, or offering an invention for sale, regardless of independent invention or even awareness of the patentee's rights.[189] It also protects against the importation, use, or sale in the U.S. of a product made from a patented process without authorization.[190] There are no criminal penalties for patent infringement, but federal patent law provides injunctive relief[191] and, in the case of utility patent infringement, damages, which may be trebled.[192] The only part of patent protection that is not mandatory is marking with the word "patent" or "pat." and the patent number, although failure to mark precludes a

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[182] 35 U.S.C. § 103 (2018); BURK & LEMLEY, *supra* note 176, at 9.
[183] 35 U.S.C. § 101 (1952); BURK & LEMLEY, *supra* note 176, at 9.
[184] 35 U.S.C. § 102(a)(2) (2012); BURK & LEMLEY, *supra* note 176, at 10; Other countries vary somewhat in their patentability criteria, although centralized filing procedures are available under the Patent Cooperation Treaty or the Convention on the Grant of European Patents (European Patent Convention). Patent Cooperation Treaty, June 19, 1970, 28 U.S.T. 7645 (as in force from Apr. 1, 2002); Grant of European Patents (European Patent Convention), Oct. 5, 1973, 1065 U.N.T.S. 199, amended by 13 I.L.M. 268 (1974).
[185] *Pendency of Patent Applications (Open Data Portal)*, USPTO, https://www.uspto.gov/dashboard/patents/pendency.html (last visited Jan. 11, 2024) (showing an average traditional total pendency of 26.3 months, but an average of 34.8 months after accounting for requests for continued examination) [https://perma.cc/4ZJP-C6ZS].
[186] *USPTO Fee Schedule*, *supra* note 71.
[187] 35 U.S.C. § 154(a)(2), (b), (2018).
[188] 35 U.S.C. § 173 (2018).
[189] 35 U.S.C. § 154(d)(1)(A)(i).
[190] *Id.* at §154(d)(1)(A)(ii).
[191] 35 U.S.C. § 283 (2018).
[192] 35 U.S.C. § 284 (2018).

patentee from obtaining infringement damages unless the infringer otherwise had notice of the patentee's rights.[193]

The only alternative to applying for utility or plant patent protection is trade secrecy, which provides automatic, unregistered rights under federal or state law as long as the inventive concept meets several conditions.[194] Trade secrecy provides much less robust protections than patents and protects against defendant that took the secret from the plaintiff through the tort of misappropriation of a trade secret.[195] Thus, with the exception of trade secrecy's fairly weak form of protection for unregistered secret inventions, current law offers no automatic protection for unregistered inventions and plants.

It is not clear why patent law has not developed the two-tiered, registered, and unregistered rights structure that we see in trademark and copyright law. Some of it is undoubtedly historical. From their early days in the Venetian Republic and then as "letters patent" in Elizabethan England, patents appear to always have been affirmatively granted rather than automatically arising as a natural or common law right, although some scholars challenge this view.[196]

The sense that patents require some form of government approval may also stem from discomfort with monopolies, particularly those that utility patents can create. Patents are in many ways the strongest form of IP protection, as there are no defenses to infringement such as fair or experimental use or even independent creation—indeed, those sued for infringement are quite often inventors themselves who just happened to be second-in-time.[197] There may be some sense that the potential universe of operative inventive concepts is much more limited than the myriad ways there are to express an idea or to create a distinctive mark. Perhaps most compelling is the concern that

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[193] 35 U.S.C. § 287 (2018).

[194] For a description of the distinction between state and federal trade secret law and the conditions for trade secret protection, see *supra* notes 9–15, 27–28, 32–33. *See also* Geeta Daswani, Trade Secrets, Its Significance and a Comparative Analysis of Trade Secret Protection in Different Jurisdictions 3 (Nov. 16, 2016) (unpublished manuscript) (on files with SSRN) [https://perma.cc/7Q45-UPS9.]

[195] Bone, *supra* note 2, at 278–79; Deutch, *supra* note 2; Hill, *supra* note 2, at 3.

[196] *Compare* Ted Sichelman & Sean O'Connor, *Patents as Promoters of Competition: The Guild Origins of Patent Law in the Venetian Republic*, 49 SAN DIEGO L. REV. 1267, 1273, 1280–81 (2012) (describing early Venetian and Elizabethan patents as affirmatively granted rights), *with* Adam Mossoff, *Rethinking the Development of Patents: An Intellectual History, 1550–1800*, 52 HASTINGS L.J. 1255, *passim* (2001) (describing early English patents as based on natural rights philosophies).

[197] JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 123–24 (2008).

technology is not only cumulative, much like creative expression can be, but also complementary. Most technology has utility only when used in conjunction with other technologies, such that patent exclusivities are frequently thought to create anti-commons in which the transaction costs of coordinating productive use of multiple individual property rights become impossibly high.[198] Given the highly deleterious effects patent monopolies could have, it makes sense that such protection should not be granted without registration and rigorous examination to ensure that a patent is in fact warranted.

In summary, most IP regimes offer a two-tiered regime: registered and unregistered rights. However, this brief overview suggests that existing registered regimes offer rights owners significant advantages not provided by unregistered rights, such as the ability to file a lawsuit for infringement or to obtain certain major remedies. The justification for privileging registered rights over unregistered rights is the many social benefits of registration, which are correspondingly significant. Beyond these basic characteristics of registered and unregistered IP rights are the major distributive effects existing under the current registered IP rights regimes, particularly for women and minorities.

The registration process *itself* can also systematically restrict access to full IP rights. Three major characteristics of the various intellectual property regimes cause this long-overlooked lack of accessibility. The first is the cost of the registration process, including filing and maintenance fees, legal advice, and more. High costs naturally present obstacles for those who cannot afford them and can prevent poorly funded creators from obtaining IP protection. The second characteristic is examination by human agents as a condition for registration and the inevitable biases, whether conscious or unconscious, to which this gives rein. Bias is particularly likely to affect registration processes that are complex, highly discretionary, and rely on a long list of substantively vague requirements; conversely, bias is less likely when the registration process is simpler and less discretionary in nature. The third characteristic is that registering for IP rights requires at least some understanding of the registration process and the advantages it can offer. Inventors and creators who lack access to the requisite knowledge will thus be at a disadvantage in protecting their works. Thus, the sum total effect of these characteristics contributes to

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[198] Jonathan M. Barnett, *The Anti-Commons Revisited*, 29 HARV. J.L. & TECH. 127, *passim* (2015).

the underrepresentation of certain groups as intellectual property rights holders in ways largely unacknowledged by other commentators.
That being said, we recognize the value of registering legal rights and do not call for the abolition of IP registration regimes. Registration offers significant advantages that should be maintained. Because granting IP rights automatically, without requiring registration, is less prone to bias and other inequities, we must rethink the role of unregistered IP rights and strengthen their use in tandem with registered IP rights.[199]

Unregistered rights are therefore arguably more egalitarian because they offer major advantages to inventors and creators, at a cost that is not as high as registered rights, usually at no price. [200] They also apply automatically, so no knowledge of the rights is required.
Given these understandings, it seems that trade secrecy is a form of protection that is desirable for women and other disadvantaged groups, that women should embrace given trade secrecy's low barriers to entry. Thus, the next Part turns to examine the intersection of trade secrecy and gender.

IV. TRADE SECRECY AND GENDER

In this Part, we examine and interpret empirical litigation data on gender and trade secrecy and offer possible explanations for the trends this data reveals. Based on the scant data available, we conclude that women are underrepresented in litigation to enforce trade secret protection.

Unlike most unregistered IP regimes, trade secret protection does not apply automatically and requires knowledge and understanding of the type of protection it affords. It also comes at a cost, since secrecy itself introduces costs. Keeping something as a secret requires confidentiality measures such as non-disclosure agreements, fences, locks, and more. Accordingly, trade secrecy is a unique regime of unregistered rights that introduces some costs to the owners of the trade secrets. However, as compared to the registered rights alternatives, and particularly patent protection, trade secrecy is cheaper and the cost of

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[199] It should be noted that even the proposal to create a Trade Secrets Registry also does not propose to require registration for the purpose of creating the right. *See supra* note 88.
[200] In protecting trade secrets, there is a cost of taking reasonable measures to maintain their confidentiality which can be expensive but are proportionate to the value of the secrets. *See supra* notes 27–28; LANDES & POSNER, *supra* note 8, at 357.

protection is adjusted to the value of the secrets.[201] Accordingly, we argue that women are expected to exploit trade secrecy more liberally given its egalitarian traits as an unregistered rights regime.

Empirical evidence suggesting the extent to which women invoke trade secret protections is discouraging because it shows that women participate at very low levels. We note at the outset that because trade secret protection is not registered, it is very hard to compare the extent to which different actors—e.g., men, women, corporations—use this regime. The available data, however, offers a partial view of women's participation in this IP protection scheme.

We analyzed and coded data from collected in an empirical study by David Opderbeck on trade secret litigation under the federal Defend Trade Secrets Act ("DTSA").[202] We identified gender by exploring the first names of plaintiffs and defendants. From this small data set, it may be inferred that women are less represented than men in trade secret litigation, suggesting that women may rely less heavily than men on trade secret protection. What is clear, however, is that corporations make up the majority of litigants in this type of litigation. David Opderbeck's dataset, which is limited in that it only covers cases from 2016 to 2017, showed that women accounted for just 9% of all litigants.[203] It should be emphasized that plaintiffs are the most important group of litigants because they usually sue for infringement of trade secrets, thus providing us with ownership data of trade secrets. Defendants are less important for exploring ownership. It should be noted, however, that corporations comprised the majority of all litigants, and the data do not reveal whether these corporations were owned by men, women, or both. Accordingly, we do not have a full picture of women's ownership of trade secrets, since individual plaintiffs only made up nine of the 280 plaintiffs.

Chart 1: Comparison of Litigants in Trade Secret Litigation, from 2016 – 2017 [204]

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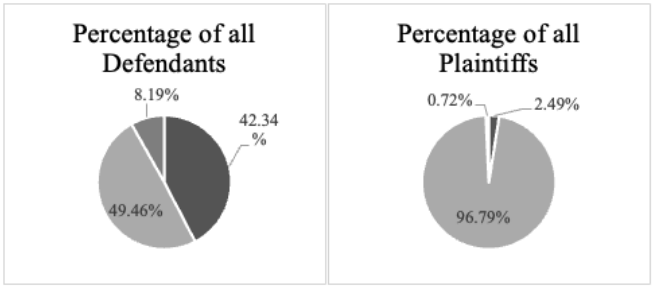
[201] *Id.*
[202] Opderbeck, *supra* note 1.
[203] *See generally* Opderbeck, *supra* note 1.
[204] Opderbeck, *supra* note 1.



		Cases	Percent of Total Cases
Defendants	Men	119	42.34%
	Corporations	813	49.46%
	Women	23	8.19%
Plaintiffs	Men	7	2.49%
	Corporations	127	96.79%
	Women	2	0.72%

We offer several possible explanations for why women appear to rely less frequently than men on trade secret protections or enforce their rights in this field.

This gender gap is particularly concerning as women now make up almost half of the workforce in the U.S.[205] and suggests that there may be systemic barriers that prevent women from enforcing rights available to them under the trade secrecy legal regime or more significantly failing to rely on trade secret protection in the first place. These systemic barriers include the gender wage gap, gendered social norms, and the lack of female representation in positions of power.
As a result, women are less likely to have access to the resources they need to enforce their rights in commercially sensitive information. Additionally, existing gender imbalances in the legal profession likely contribute to the lack of gender diversity in trade secrecy litigation. This lack of gender diversity also raises concerns about the impact of homogeneity on decision-making and outcomes in this field.

One major explanation for the gender gap in patenting is the gender gap in STEM fields overall. Women are underrepresented in STEM fields globally,[206] with obvious implications for the gender gap

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[205] *Women in the Labor Force*, U.S. BUREAU OF LAB. STAT, https://www.bls.gov/cps/demographics/women-labor-force.htm [https://perma.cc/6GJE-5AWQ] (last modified June 25, 2024).
[206] Beede et al., *supra* note 53. It should be noted that this report is from 2011 and relies on data from 2009 about women in STEM.

in patenting.[207] Nonetheless, research shows that while increasing the number of women in STEM can increase the number of women who own patents, eliminating IP-specific obstacles for women already in STEM would increase their share of commercialized patents even more.[208] And even within science and engineering, the proportion of men to women varies by field: women tend to concentrate in the less patent-intensive life sciences, whereas men tend to concentrate in the more patent-intensive engineering fields.[209] The number of women with advanced engineering degrees thus positively correlates with patenting and commercialization among women.[210] These findings naturally affect the reliance of women on trade secrecy in STEM fields where women are underrepresented. Moreover, research on women's positions in corporations and their exposure to and creation of trade secrets reveals that women are also underrepresented in research and development ("R&D") positions, which are crucial for the creation and protection of intellectual property generally, and trade secrets specifically. Several studies have highlighted the lack of gender diversity in R&D, particularly in the STEM fields, where women continue to be underrepresented.[211] This lack of representation is often attributed to legal structures and societal biases that restrict women from pursuing careers in these fields.[212]

Studies on women's representation in the news media industry provide insight into the challenges women face in advancing their careers in male-dominated industries. Research shows that although women have been better represented in leadership positions, such as editorial roles, women remain underrepresented in newsroom management and decision-making positions.[213] This underrepresentation is attributed to several factors, including a culture that favors masculine characteristics, such as assertiveness and

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[207] *See generally* Jennifer Hunt et al., *Why Don't Women Patent?* (Nat'l Bureau of Econ. Rsch., Working Paper No. 17888, 2012). It should be noted that the data in this article pertains to the years 1998 through 2009.
[208] *Id.* at 13.
[209] *Id.* at 6–7.
[210] Cook & Kongcharoen, *supra* note 53.
[211] *See, e.g.*, Shlomit Yanisky-Ravid, *Eligible Patent Matter—Gender Analysis of Patent Law: International and Comparative Perspectives*, 19 J. GENDER, SOC. POL'Y & L. 850 (2011).
[212] *Id.* at 857.
[213] Louise North, *Women's Struggle for Top Jobs in the News Media* in SEIZING THE INITIATIVE: AUSTRALIAN WOMEN LEADERS IN POLITICS, WORKPLACES AND COMMUNITIES, 262, 262 (Rosemary Francis et al. eds. 2012).

competitiveness, over feminine traits. This gendered culture can hinder women's progress in the industry and limit their access to opportunities for career advancement. This includes trade secrets creation and protection. Research suggests that addressing gender inequality and promoting diversity and inclusion in the workplace could help increase women's participation in trade secrecy and other male-dominated fields.[214]

Beyond these possible explanations for women's underrepresentation in trade secrecy, research suggests conflicting evidence regarding women's tendency to share secrets. While some studies suggest that women are more likely to share personal secrets, while men are more likely to keep them, another study suggested the opposite. Despite these inconsistent findings, the overall suggests potential negative consequences for women who violate confidentiality—women who betray others' secrets are judged more than men who do the same.[215] A possible explanation for these gender differences may be that women are expected to value their connections more strongly from the beginning, therefore, they are held to higher standards than their male counterparts and may subject to social sanctions.[216] This may explain why women enforce or rely less on trade secrecy given their possible inclination to share secrets generally.

Research has also shown that women are less interested in commercializing their research findings and are interested in sharing their data.[217] Murray and Graham found that historically those who commercialized academic science were predominantly men, creating a stereotype of academics who commercialize their research.[218] Academic women who commercialized their research often considered themselves less competent and believed that patenting and commercialization took time away from students, teaching, and university obligations, while men thought that patenting improved the quality of their teaching.[219] Women also tend to have more ethical objections to commercialization and have more difficulty reconciling it with research.[220]

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[214] *Id.*
[215] Richard S. Bello et al., *A Profile of Those Likely to Reveal Friends' Confidential Secrets*, 65 COMMC'N STUDIES 389, 395 (2014).
[216] Diane Felmlee et al., *Gender Rules: Same-and Cross-Gender Friendships Norms*, 66 SEX ROLES 518, 525 (2012).
[217] Ding et al., *supra* note 52, at 665–667.
[218] Murray & Graham, *supra* note 60, at 659.
[219] *Id.* at 675.
[220] *Id.* at 674.

Last, one major factor that affects patenting rates by women is limited networking among women. This factor can play a role in women's underrepresentation in trade secrecy as well given networks' importance in innovation, including the creation of trade secrets. Studies find that informal social networks within industries enhance product innovation and resource exchange,[221] influence choice of research area, and give key inventors access to information affecting both research quality and patenting rates.[222] Networks can also provide expert advice on patentability and a source of potential coinventors.[223] Exclusion from STEM fields, on the other hand, allows women scientists less access to important networks. The networks to which women do have access also tend to be less experienced and more female in composition, further limiting access to potentially critical resources[224] and in turn access to the patent system. Male academics also hold more central positions within their networks, giving them an advantage in terms of collaborative co-patenting networks.[225] Most of the female academics in Ding et al.'s study also reported fewer contacts to industry,[226] which affected access to resources for assessing patentability and commercial value. Studies also have shown that early-career exclusion from commercial networks and opportunities may leave female academics with less help in developing the skills to sell their research and fewer opportunities to develop patentable technologies.[227] Workplace organization matters as well: organizations structured like networks exhibit higher patenting rates among women than do hierarchically structured organizations.[228] Thus, it seems that

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[221] Tsai & Ghoshal, *supra* note 59.
[222] Atul Nerkar & Srikanth Paruchuri, *Evolution of R&D Capabilities: The Role of Knowledge Networks Within a Firm*, 51 MGMT. SCI. 771, 771 (2005).
[223] Lien-An Hsu et al., *A Comparison of Individual and Team Research Performance: A Study of Patents on III*, PICMET 2010 TECHNOLOGY MANAGEMENT FOR GLOBAL ECONOMIC GROWTH IEEE XPLORE (2010), [https://perma.cc/XW9T-ZK5Q].
[224] Murray & Graham, *supra* note 60, at 663.
[225] Kjersten B. Whittington, *Patterns of Male and Female Scientific Dissemination in Public and Private Science*, *in* SCIENCE AND ENGINEERING CAREERS IN UNITED STATES: AN ANALYSIS OF MARKETS AND EMPLOYMENT, 223 (Richard B. Freeman & Daniel L. Goroff eds., 2009).
[226] Ding et al., *supra* note 52, at 666.
[227] Murray & Graham, *supra* note 60.
[228] Kjersten B. Whittington & Laurel Smith-Doer, *Women Inventors in Context: Disparities in Patenting across Academia and Industry*, 22 GENDER AND SOC'Y 195, 197 (2008).

networking can also play a major role in women's participation in trade secrecy.

CONCLUSION

While secrecy is undesirable in some contexts, in a viable innovative market, people rely on trade secrecy to protect their innovations. Evidence may suggest that women underuse the legal regime of trade secrecy to protect their commercially valuable inventions, despite its comparatively low costs in the universe of IP regimes. In a competitive market, it is important to preserve women's incentives to innovate, including through the use of trade secret protection.