THE UNITED STATES FIRST-TO-INVENT SYSTEM: ECONOMIC JUSTIFICATIONS FOR MAINTAINING THE STATUS QUO

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INTRODUCTION

While reform in the patent system is nothing new, the latest attempt to change the United States patent system, the Patent Act of 2005, has reignited one of the most intensely debated issues: whether the United States should switch to a patent system that rewards the first inventor to file (a first-to-file system). Although the United States has remained a system that grants patents to the first person to invent since 1790,[1] there have been many attempts, especially since the early 1970s, to convert to a first-to-file system.[2] Despite support from many large corporations, these attempts were unsuccessful because of protests by individual inventors and small businesses.[3]

However, the recent push for a first-to-file system is much stronger because of the desire for patent harmonization. The United States is the only patent system in the world that supports a first-to-invent system, whereas every other country has a first-to-file system.[4] The National Academies, which act as advisers to the nation regarding science and engineering, published a 2004 report stressing that adopting a first-to-file system is a "key part" of international patent harmonization.[5] Because of the globalization of the world economy, many large companies doing business abroad must file patents internationally as well as domestically.[6] Some

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1. Robert W. Pritchard, *The Future Is Now—The Case for Patent Harmonization*, 20 N.C. J. INT'L L. & COM. REG. 291, 294–95 (1995).

2. Steven B. Kelber, *Bill Has Issues All Will Debate; Scope and Complexity of Patent Reform Act to Reach All Industry Sectors*, NAT'L L. J., Aug. 29, 2005, at S1.

3. *Id.*

4. MARTIN J. ADELMAN ET AL., CASES AND MATERIALS ON PATENT LAW 160 (2d ed. 2003).

5. Sam Mamudi, *National Academies Call for First-to-File*, MANAGING INTELL. PROP., May 2004, at 13.

6. Cliston Brown, *Harmonization Gets a New Tune: Intellectual Property Owners Association Calls for Simplicity, Coordination*, INTELL. CAP., Nov. 2001.

argue that time and money would be saved by companies and foreign patent offices if every country applied the same laws and standards.[7] In the last few years, as many Asian countries have become more industrialized, the push for harmonization has gained new strength.

In response to the urge for harmonization, the Patent Act of 2005 was introduced into the House of Representatives as H.R. 2795 on June 8, 2005, by Congressman Lamar Smith (R-TX).[8] Section 3 of the bill changes the United States to a system which grants patents to the first person to file a patent application.[9] According to Congressman Berman of California, the change would encourage faster public disclosure of inventions and would help harmonize the United States patent system with the rest of the world.[10]

This Article will attempt to show that, despite the argued benefits of faster public disclosure and harmonization, the United States should not adopt the first-to-file provision in the Patent Act of 2005. Part I of this Article examines the underlying policies of United States patent law, the historical development of the first-to-invent system and attempts to convert to a first-to-file system, and the current provisions of the first-to-invent system. Part II explains the primary arguments for a first-to-file system, including harmonization, simplicity in the system, faster public disclosure, and lack of adverse effects on individual inventors and small businesses. Part III illustrates the economic justifications behind the current first-to-invent system and the incentives which the current system produces. Finally, Part IV concludes that the United States should keep the current first-to-invent system because (1) the current system satisfies the economic goal of wealth maximization while simultaneously producing the incentive to devote resources to technological progress; (2) there is no net economic benefit that would justify the switch to a first-to-file system; and (3) the current system encourages more innovation.

This Article will show that despite the potential benefits of a first-to-file system, only the current first-to-invent system strikes the correct balance between economic goals such as wealth maximization and the fundamental patent policy of promoting the progress of science. Because of the economic incentives it creates, a first-to-file system would focus too heavily on the overall resources that inventors possess and would push inventors to devote their limited resources, not to inventing or promoting technologi-

7. *Id.*

8. Steven R. Ludwig, *The Most Comprehensive Change to U.S. Patent Law*, INTELL. PROP. TODAY, July 2005, at 8.

9. 151 CONG. REC. E1160, E1160 (daily ed. June 8, 2005).

10. *Id.*

cal progress, but rather to filing applications slightly faster. While harmonization is important, it is more important that the United States maintain a scheme which correctly balances the policies that have kept this system running for over 150 years.

I. THE UNITED STATES PATENT SYSTEM

The United States has long employed a first-to-invent system. Both the history and policies of patent law help explain the reasons for and evolution of the first-to-invent system. The following section explains the historical and policy underpinnings of the United States patent system, as well as the current first-to-invent system and how it addresses those policies.

A. History of Patent Law

The United States has never utilized a first–to-file system. The development of the first-to-invent system can be charted from the very beginnings of patent law. In the last 30 years, many attempts have been made to switch to a first-to-file system. However, none have been successful. The following shows the evolution of the current system and summarizes the attempts at conversion.

1. Evolution of the First-to-Invent System

The foundation for the United States patent system is the Patent Clause of the Constitution, which gives Congress the power to "promote the Progress of Science and useful Arts, by securing for limited times to Authors and Inventors the exclusive right to their respective writings and discoveries."[11] Based on this power, Congress enacted the first Patent Act in 1790.[12] The Act stated that the "first and true inventor" was entitled to a patent.[13] In 1793, a new act followed through with the "first and true inventor" policy by providing a defense for potential infringers: if they could show that the patentee was not the first to invent, the patentee would lose the patent and therefore not have a cause of action for infringement.[14] Finally, in 1836 a new patent act created the Patent Office and the examination system and established a first-to-invent system to determine priority of

11. U.S. CONST. art. I, § 8, cl. 8.

12. Peter A. Jackman, *Adoption of a First-to-File Patent System: A Proposal*, 26 U. BALT. L. REV. 67, 70–71 (1997).

13. *Id.* at 71.

14. *Id.*

invention.[15] The courts interpreted the 1836 Act to establish that the first person to conceive of an invention would prevail over another who reduced the invention to practice first, as long as the first to conceive used reasonable diligence in reducing to practice.[16] Subsequent acts were created in 1927, 1929, and 1939 which made changes to interference procedure.[17] Current interference proceedings occur when a patent application is filed by one inventor that covers the same subject matter and therefore conflicts with another pending application or an issued patent,[18] and these interferences are sometimes resolved by determining which party was the first to invent.[19]

2. Attempts to Convert to a First-to-File System

Beginning in the 1970s, legislation was regularly introduced into Congress to convert the United States to a first-to-file system.[20] As far back as 1966, a President's Commission on the Patent System recommended changing to a first-to-file system, but because of opposition from industry and intellectual property attorneys, the proposal was rejected by Congress.[21] However, the most significant push for a first-to-file system has come from the desire for patent harmonization. One of the most prominent attempts at patent harmonization arose in 1990, when the United Nations-created World Intellectual Property Organization ("WIPO") completed a draft treaty of basic proposals and presented it to the United States.[22] Because the WIPO Basic Proposal would have required the United States to switch to a first-to-file system, President Clinton eventually decided against signing the harmonization treaty.[23] Additionally, Senate Bill 2605, introduced in 1992, would have provided for a first-to-file system had it been accepted.[24] Yet despite the various attempts to convert to a first-to-file system, the United States remains a first-to-invent system, largely for reasons explained below.[25]

15. 3A DONALD S. CHISUM, CHISUM ON PATENTS § 10.02(2)(a) (2005).

16. *Id.* § 10.02(2)(b).

17. *Id.* § 10.02(4).

18. ADELMAN ET AL., *supra* note 4, at 256.

19. *Id.* at 256–58.

20. Kelber, *supra* note 2.

21. Charles R.B. Macedo, *First-to-File: Is American Adoption of the International Standard in Patent Law Worth the Price?*, 1988 COLUM. BUS. L. REV. 543, 544.

22. Jackman, *supra* note 12, at 79.

23. *Id.* at 79–80.

24. Kevin Cuenot, *Perilous Potholes in the Path Toward Patent Law Harmonization*, 11 U. FLA. J.L. & PUB. POL'Y 101, 113 (1999).

25. *See infra* Part I.B.3.

B. Underlying Policies

As the Supreme Court articulated, the patent system is "a carefully crafted bargain for encouraging the creation and disclosure of new, useful, and nonobvious advances in technology and design in return for the exclusive right to practice the invention for a period of years."[26] The ultimate goal, as articulated by the Patents and Copyrights Clause of the Constitution,[27] is "to promote the progress of Science and useful Arts."[28] The courts have generally advanced two policies for granting a patent monopoly to inventors in order to promote the progress of science: (1) providing an incentive to invest the necessary costs in developing an invention by giving a patent monopoly to an inventor; and (2) promoting the disclosure of new inventions in order to enlarge the public storehouse of knowledge.[29] However, a third policy has evolved in the first–to-file debate not as a policy goal but rather an important policy justification for the current first-to-invent system: fairness to small businesses and independent inventors.[30] Since these three policies will be affected by the adoption of a first-to-file system, they are explained in detail below to provide a background to the economic analysis of a first-to-file versus a first-to-invent system.

1. Incentive to Invent

The first policy goal, the incentive to invent, is created by giving the monopoly of a patent to an inventor for a certain period of time in order to induce him to incur the research and development costs of creating an invention.[31] As I will discuss later, this incentive may be affected by a switch because (1) a first-to-file system may decrease the number of inventors who are participating in innovation, which thereby decreases the incentive to invent, and (2) a first-to-file system may produce the incentive to invest limited resources in filing, rather than inventing. Therefore, this is an important policy in the first-to-file debate.

26. Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 150–51 (1989).

27. U.S. CONST. art. I, § 8, cl. 8.

28. Natasha N. Aljalian, *The Role of Patent Scope in Biopharmaceutical Patents*, 11 B.U. J. SCI. & TECH. L. 1, 3 (2005) (internal quotations omitted).

29. Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017, 1024 (1989).

30. *See* Pritchard, *supra* note 1, at 306–07.

31. Victor G. Cooper, *U.S. Adoption of the International Standard of Patent Priority: Harmony or Schizophrenia?*, 16 LOY. L.A. INT'L & COMP. L.J. 697, 701–02 (1994).

2. Public Disclosure

Another important policy goal of the patent system is to make innovative information available to the public as soon as possible. According to the Supreme Court, "the ultimate goal of the patent system is to bring new designs and technologies into the public domain through disclosure."[32] Hence the system aims to encourage inventors to bring their inventions into the public domain as rapidly as possible by filing their patent applications promptly.[33] This goal of promoting early public disclosure of inventions is a key aspect in the first-to-file debate.

3. Fairness

While it is not necessarily a policy goal in promoting the progress of science, fairness has evolved in first-to-file debates as a key consideration in retention of the first-to-invent system. That fairness is an independent policy of the patent system is supported by (1) governmental statements regarding the first-to-invent system and (2) congressional assent. Although the other policy goals are constitutionally based on the Patent Clause, fairness is often cited as a reason for keeping the current system and is thus itself a key policy consideration in patent law.

During the Patent and Trademark Office's harmonization hearings in 1993, opponents of the first–to-file system argued that the change would favor large companies at the expense of individual inventors.[34] When then-Commerce Secretary Ron Brown announced that the United States would not adopt a first-to-file system in 1994, his basis was that small inventors and entrepreneurs would not benefit from the change and that the first-to-invent system had worked well in the past.[35] Therefore the United States government supported the view that fairness to individual inventors and small businesses was an important policy that could not be overlooked in the patent system.

Congress has also seemed to adopt fairness as an independent policy of the patent system through its discussions of the first-to-file system. According to Senate debates regarding the Patent Harmonization Act of 1992, the current first-to-invent system is based on the notion that it is fair to award a patent to the first inventor.[36] Moreover, early attempts to switch to a first-to-file system were turned down by Congress because of opposition

32. Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 151 (1989).
33. Jackman, *supra* note 12, at 86.
34. Pritchard, *supra* note 1, at 307.
35. *Id.* at 309.
36. 138 CONG. REC. S5288 (daily ed. Apr. 9, 1992).

by small businesses and universities.[37] Since small businesses and universities have typically argued for maintaining the current system because it is fair to them,[38] Congress has assented to the policy of fairness by turning down first-to-file attempts based on the opposition of small businesses and independent inventors.

C. The Current First-to-Invent System

Although the United States awards a patent to the first person to invent, the system's complexity must be explained in more detail to later demonstrate that the current system meets the underlying policy goals. The primary aspects of the first-to-invent scheme are (1) the priority rule and (2) the statutory bar ensuring that inventors disclose their invention in a timely manner.

1. The Priority Rule and Diligence

In an 1893 patent case, Judge Taft stated the priority rule that is the basis for the first-to-invent system:

> [T]he man who first reduces an invention to practice is prima facie the first and true inventor, but . . . the man who first conceives, and, in a mental sense, first invents . . . may date his patentable invention back to the time of its conception, if he connects the conception with its reduction to practice by reasonable diligence on his part.[39]

Since one way to show reduction to practice is to file a patent application,[40] the rule demonstrates that a patent will be rewarded to the first person to "invent" or conceive even if he is not the first to file, as long as he can show diligence in filing his application or otherwise reducing his invention to practice. As the Court of Customs and Patent Appeals articulated, "An inventor who is the first to conceive an invention can prevail, no matter how limited his resources may be, . . . if he devotes those resources at his command with reasonable and continuous diligence toward the actual reduction to practice of the invention."[41] In the interference context, this diligence requirement and the general rule of priority have been codified in § 102(g) of the current Patent Act.[42]

37. Kelber, *supra* note 2.
38. Pritchard, *supra* note 1, at 307.
39. Christie v. Seybold, 55 F. 69, 76 (6th Cir. 1893).
40. ADELMAN ET AL., *supra* note 4, at 264.
41. Gould v. Schawlow, 363 F.2d 908, 921 (C.C.P.A. 1966).
42. 35 U.S.C. § 102(g)(2) (2000).

2. The Public Use Statutory Bar

Despite the rule of giving a patent to the first person to invent, the public use bar operates to ensure that the first inventor discloses his invention to the public in a timely manner. Under § 102(b), an inventor must file a patent application within one year of any public use or offer to sell his invention.[43] Effectively, this avoids two problems with a "pure" first-to-invent system.

First, it prevents inventors from "sitting" on an invention and waiting for others to independently create it, then stepping in to assert priority and demand a large portion of the profits reaped by the independent inventors.[44] Without the statutory bar, one who is the first to invent could "invent" and then wait for others to start commercially using the invention before filing because the inventor is entitled to assert priority and obtain the patent regardless of when the application is filed. While the inventor is waiting to file the patent application, competitors in the market could also develop the invention and begin practicing it, not knowing that another has a patent right because no application has been filed. Because patent owners are often able to collect lost profits from a patent infringer, the inventor could simply wait for more profits to accrue to his competitors before he sues in order to receive more money for patent infringement. The inventor therefore has little incentive to disclose his invention quickly. This in turn undermines the essential goal of patent law, public disclosure, since the public is forced to wait to learn of the invention until the inventor decides to file his application. With the one-year time limit to file a patent application set forth in § 102(b), the public is guaranteed to learn of the invention quickly because the inventor must disclose within one year of commercializing the invention in order to preserve his patent rights.[45]

Second, the statutory bar prevents the inventor from bringing a product to market, starting to profit from the invention, and then waiting to file for a patent until many years later when competition arises,[46] thereby depriving the public of the full knowledge of the invention and preventing improvements in the invention. Allowing the inventor to wait indefinitely to file for a patent would also allow him to extend the patent "monopoly" past the limited time granted in the Constitution.[47] The statutory bar effectively provides the inventor with a one-year grace period to perfect his

43. *Id.* § 102(b).
44. ADELMAN ET AL., *supra* note 4, at 179.
45. *Id.* at 180.
46. *Id.* at 179–80.
47. *Id.* at 180.

invention and file an application before he loses the benefit of priority and is prevented from obtaining a patent on such invention.[48] This bar is essential to ensuring timely public disclosure of inventions.

II. ARGUMENTS FOR A FIRST-TO-FILE SYSTEM

Despite the historical adherence to a first-to-invent system, many have advocated the switch to a first-to-file system. The primary arguments advanced for the conversion are (1) international harmonization; (2) a simpler and therefore more efficient system of priority; (3) faster public disclosure of inventions; and (4) minimal effects on fairness to individual inventors and small businesses.[49]

A. International Harmonization

One of the primary justifications offered for switching to a first-to-file system is harmonization of the United States patent system with the rest of the world. While the United States operates under a first-to-invent system, every other economically dominant country in the world, and virtually every other country, employs a first-to-file system.[50] Because technological innovation has been decreasing the gap between nations and increasing opportunities for international trade, the role of patent law is essential to advancing the global economy.[51] Many thus argue that the United States should adopt a first-to-file system in order to facilitate worldwide harmonization of the patent laws and thereby establish uniform and valid international patent protection.[52] Congressman Berman noted the importance of patent harmonization when he stated that one of the benefits of the first-to-file system in the Patent Act of 2005 would be bringing the U.S. patent laws into harmony with the rest of the world.[53]

However, there are many reasons why patent harmonization should not be the basis for switching to a first-to-file system. First, despite Congressman Berman's statement that adopting a first-to-file system will harmonize the U.S. patent laws with the rest of the world, the switch will not automatically facilitate harmonization. Even if laws are uniform from

48. *Id.*

49. *See* 151 CONG. REC. E1160, E1160 (daily ed. June 8, 2005); Macedo, *supra* note 21, at 566–70.

50. Coe A. Bloomberg, *In Defense of the First-to-Invent Rule*, 21 AIPLA Q.J. 255, 256 (1993); Brown, *supra* note 6; Macedo, *supra* note 21, at 545; Mamudi, *supra* note 5.

51. Jackman, *supra* note 12, at 67.

52. *Id.*

53. 151 CONG. REC. at E1160.

country to country, political and nationalistic factors may play a significant role in the way the laws are implemented.[54] Thus adopting a first–to-file system would not necessarily solve all the problems with patent harmonization.

Second, having complete international harmonization may actually be detrimental to the patent law because (1) the law would be unresponsive to local variations; (2) interjurisdictional competition would be eliminated; and (3) the chances for legal experimentation would be decreased.[55] While the law might be procedurally harmonized, legal experimentation is important in deciding issues such as whether a first-to-invent or first-to-file system better creates the incentives to achieve the primary goals of patent law. Complete uniformity in the law may also stifle innovation.[56] This argument is beyond the scope of this Article, but the argument is interesting.[57]

Third, one of the most common arguments against harmonization is that the United States system has worked well for over 150 years, so there is no need to change it.[58] In fact, some believe that since Article I, Section 8 of the Constitution discusses securing exclusive rights to the first "inventor," as a matter of linguistics, changing to a first-to-file system is unconstitutional.[59] While all of these arguments are beyond the scope of this paper and will therefore not be discussed in detail, they show that harmonization alone cannot be the basis for converting to a first-to-file system.

B. Simplicity in the System

Supporters of the first-to-file system also often argue that it will simplify things, since one will only need to compare the respective filing dates of the two inventors to determine priority, rather than conduct complex interference proceedings.[60] By decreasing the complexity of interference proceedings, some believe that there will be significant savings by decreasing the costs associated with proving a date of invention through research notebooks and other documents.[61] If there were significant cost savings,

54. Bloomberg, *supra* note 50, at 261. Using the United States and Japan as examples, Mr. Bloomberg cites specific instances in which nationalistic factors were believed to play a significant role in granting patents.

55. John F. Duffy, *Harmony and Diversity in Global Patent Law*, 17 BERKELEY TECH. L.J. 685, 686 (2002).

56. *Id.* at 691.

57. For a more thorough discussion of the theory that complete harmonization is detrimental and will stifle innovation, see *id.* at 691–92.

58. Bloomberg, *supra* note 50, at 256.

59. *Id.*

60. Macedo, *supra* note 21, at 570.

61. *Id.*

both big businesses and individual inventors alike would benefit from the simpler system.

However, there is one fatal flaw with this argument: simplifying priority determinations alone will not necessarily decrease the cost of interference proceedings. Interferences occur when "an application is made for a patent which . . . would interfere with any pending application, or with any unexpired patent."[62] These interferences often arise when there is an issue of priority between two pending patent applications or between a patent application and an issued patent;[63] typically there is a "senior" party with the earliest filing date and a "junior" party with a later filing date.[64] However, interferences may be resolved through issues of patent validity,[65] such as obviousness, novelty, and use. Any analysis of obviousness requires a court to determine the level of "ordinary skill in the art," which often involves multiple witnesses testifying about the level of skill typical in the field at issue and thereby increasing the complexity of the interference proceeding. Thus decreasing the cost of determining priority in an interference proceeding might not necessarily save that much money, since there will still be costs during the interference associated with determining obviousness and other issues of patent validity.

Moreover, adoption of the first-to-file system set forth in the Patent Act of 2005 will most likely not result in the procedural simplicity and cost savings promised because of prior user rights. While the Act proposes elimination of the current first-to-invent system, it also includes an expansion of prior user rights.[66] Prior user rights are available as an infringement defense to protect individuals and businesses that began practicing an invention before it was patented by another.[67] In order to obtain prior user rights, a defendant "must have commercially used the infringing subject matter prior to the effective filing date of the patent."[68] Although prior user rights in the United States are currently available only in the context of business method patents,[69] prior user rights abroad apply to any type of

62. 35 U.S.C. § 135 (2000).

63. ADELMAN ET AL., *supra* note 4, at 256.

64. *Id.* at 257. Interferences can occur between two issued patents if the USPTO fails to recognize the interference during the application stage. However, this should be a rare occurrence and is addressed by § 291 of the Patent Act.

65. *Id.* at 258. If the patent or patent application of the senior party is invalid, the junior party will prevail despite his later filing date and thus priority is not the sole determinant in an interference proceeding.

66. 151 CONG. REC. E1160, E1160 (daily ed. June 8, 2005).

67. ADELMAN ET AL., *supra* note 4, at 927–28.

68. *Id.* at 928.

69. *Id.* at 927–28. The United States has provided this defense as a remedy for the situation caused by *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), in

invention.[70] By expanding its prior user rights in an attempt to harmonize the patent system, the United States would essentially replace the complexity and costs associated with determining priority of invention with determining whether an "applicant for a prior user right had commercially used the invention before the filing date of the patent which had been awarded."[71] For the aforementioned reasons, simplicity is not a sufficient basis for the switch to a first-to-file system.

C. Faster Public Disclosure

Another common basis argued for the switch to a first-to-file system is that it will encourage inventors to disclose their invention to the public faster. According to proponents of the Patent Act of 2005, a first-to-file system would encourage inventors to file immediately, enabling the invention to enter the public realm more quickly.[72] By rewarding the first to file with the patent, the system would create the economic incentive for inventors to file a patent application as soon as possible, thereby fulfilling one of the primary goals of the patent system.

However, the faster disclosure anticipated by the change to a first-to-file system may not have as great of an effect as anticipated. The United States Patent and Trademark Office ("USPTO") must publish patent applications promptly once eighteen months has expired from the date the application was filed.[73] While the USPTO currently publishes approximately ninety percent of patent applications within eighteen months, some applications are published even slower.[74] Since the public does not have access to the information contained in a patent application before it is published, one could argue that if publication already takes eighteen months or longer, the amount of time saved in getting the information to the public by the first-to-file system may be negligible. Furthermore, a published patent application is not a finalized document, since patent prosecution and correspondence between the USPTO and inventors can significantly alter the claims

which the Federal Circuit held that business methods are patentable subject matter. ADELMAN ET AL., *supra* note 4, at 927. Because business methods had long been regarded as unpatentable subject matter, many companies that had relied on trade secrets to protect their methods were statutorily barred from seeking patent protection; to soften the blow, Congress enacted the First Inventor Defense Act to protect these businesses against infringement suits. *Id.*

70. ADELMAN ET AL., *supra* note 4, at 928.

71. Macedo, *supra* note 21, at 571.

72. 151 CONG. REC. E1160, E1160 (daily ed. June 8, 2005).

73. 37 C.F.R. § 1.211(a) (2005).

74. Carl Shapiro, *Patent System Reform: Economic Analysis and Critique*, 19 BERKELEY TECH. L.J. 1017, 1038–39 (2004).

of a patent between the time the application is published and the patent actually issues.

Most importantly, though, a first-to-file system may lead to a decrease in the quality of information given to the public. Many critics of a first-to-file system fear that switching will result in a decline in the quality of applications due to applications being prepared rapidly with fewer examples in order to beat the "race" to the patent office.[75] Because the ultimate goal of the patent law is to promote the advancement of science and technology, it is imperative that the public have the best information possible to improve on the existing technologies disclosed in patents. Thus, the scientific community benefits much more from a patent based on a carefully prepared disclosure of a complete invention rather than a hastily prepared disclosure of an incomplete concept, which was filed simply to win the race to the patent office.[76] For the aforementioned reasons, a first-to-file system may not necessarily further the goal of promoting the progress of science through public disclosure.

D. Minimal Effects on Fairness

Despite protests that a first-to-file system would harm small businesses and individual inventors, supporters of the change argue that few inventors would actually be hurt by the switch and may actually benefit from the change. The two primary bases for this argument are (1) the vast majority of patents are already awarded to the first person to file an application and (2) a first-to-file scheme will simplify the system and thereby benefit individual inventors by avoiding expensive interference proceedings.

1. First to Invent Is Generally the First to File

Since fairness is a key policy in the first-to-file debate, advocates of a first-to-file system claim that this principle is not compromised because most patents under a first-to-invent system are already awarded to the first person to file.[77] Most of the evidence relied on to support this contention is statistical. In interference proceedings, statistics show that the first party to file wins seventy-five percent of the time.[78] However, statistics can be deceptive.

75. Bloomberg, *supra* note 50, at 260.
76. *Id.*
77. Pritchard, *supra* note 1, at 307.
78. Macedo, *supra* note 21, at 568.

First of all, interference proceedings turn on more than just priority determinations; interferences can be decided on issues such as proof of conception and date of invention, diligent pursuit, reduction to practice, non-abandonment, and even patentability.[79] Thus, the fact that seventy-five percent of interferences are decided in favor of the first party to file does not mean that the first party to file was always the first party to invent. The second party to file may have been the first to invent, but his patent was invalid and therefore the first to file prevailed in the interference.

Second, even if statistics may be convincing, there are other statistics indicating that the first party to file does not always prevail. Supporters of the first-to-invent system are quick to note that in interference proceedings that actually go to final hearings, the second party to file actually wins forty-eight percent of the time.[80] Thus, nearly half of the inventors who would be given priority under the current system would be prevented from obtaining patents under the first-to-file system.[81] For those reasons, mere statistics cannot be used to support the view that fairness will not be compromised under a first-to-file system.

2. Individual Inventors Will Benefit from the Simplified System

Advocates of a first-to-file system believe that not only will the switch not harm individual inventors and small businesses, it will actually benefit them. Interferences alone are very costly to patent applicants.[82] Because the issue of fairness to individual inventors and small businesses stems from a concern about their lack of resources relative to larger corporations, any reduction in costs for patent applicants would seem to promote fairness to those inventors.

However, the fallacy in logic of this argument is yet again that merely converting to a first-to-file system will not necessarily reduce costs. Because interference proceedings could be decided on bases other than priority, merely eliminating the need to determine the first inventor will not completely eliminate the need for interference proceedings. Furthermore, as previously discussed, the reduced costs in interference proceedings for determining the first inventor would be replaced with the 2005 Patent Act's prior user rights provisions.[83] Thus evidence proffered by the first-to-file

79. James E. White, *The U.S. First-to-Invent System, the Mossinghoff Conclusion, . . .and Statistics*, 85 J. PAT. & TRADEMARK OFF. SOC'Y 357, 361 (2003).

80. Macedo, *supra* note 21, at 568.

81. *Id.*

82. *Id.* at 570.

83. *See supra* Part II.B.

advocates does not demonstrate that the switch will result in any cost savings to small business and individual inventors, let alone any significant cost savings that will offset the potential harm of losing to larger companies who file their applications first.

III. ECONOMIC JUSTIFICATION FOR THE FIRST-TO-INVENT SYSTEM

Although first-to-file advocates claim many benefits from the switch, the current system should remain from an economic standpoint, because it satisfies the economic goal of wealth maximization while also producing the incentive that is the primary goal of patent law: inducing inventors to invest the resources necessary to "promote the progress of Science." While harmonization and simplification of the patent system are argued as bases for a first-to-file system, those benefits may not actually be achieved by switching to a first-to-file system.[84] The major economic benefit of a first-to-file system is supposed cost savings from simplification of determining who invented first.[85] However, any costs saved by simplification could potentially be replaced by costs in determining prior user rights.[86] Additionally, a first-to-file system would focus too much on the financial resources of large companies and ignore the underlying economic incentives that will be created, whereas the current system achieves wealth maximization without creating a disincentive to invest the necessary resources to "promote the progress of Science." As this Article will demonstrate, Congress should not adopt a first-to-file system because (1) the current system is carefully crafted to achieve the economic efficiency goal of wealth maximization; (2) the switch to a first-to-file system will not produce a net benefit to society and therefore is not justified economically; and (3) the current system gives more inventors an incentive to compete, which thereby stimulates innovation and accomplishes the Constitutional goal of "promoting the progress of Science and useful Arts."[87]

A. Wealth Maximization

Because of the context and underlying goals of patent law, wealth maximization is best achieved under a first–to-invent system. The economic theory of law espouses the belief that under wealth maximization, the most efficient allocation of resources is the one that produces the most

84. *See supra* Part II.A–B.
85. Macedo, *supra* note 21, at 570.
86. *Id.* at 571.
87. U.S. CONST. art. I, § 8, cl. 8.

wealth overall.[88] Because "wealth" is measured by how much someone is willing and able to pay for a resource,[89] the maximum overall wealth is achieved when resources are in the hands of those most willing and able to pay for them.[90] At first, it may appear that this is better accomplished under a first-to-file system, because the first-to-file system generally favors larger companies with more financial resources who can file patent applications faster.[91] Therefore, one may assume that the resource—the patent—is being awarded to the larger company who is more willing and able to pay to file faster. However, the problem with this assumption is that it fails to analyze the issue in the context of patent law. Because the underlying goal of patent law is promoting the progress of science by rewarding a patent in order to induce inventors to invest their resources in *developing* an invention,[92] wealth maximization in patent law requires that a patent be given not to the one that is willing to invest the most money in filing a patent, but rather the one that is willing and able to invest the most money in developing an invention. The current first-to-invent system is therefore economically just because it (1) rewards a patent to the one most willing and able to invest the resources to invent and (2) simultaneously creates the incentive for inventors to devote their limited resources to developing an invention, rather than filing a patent application faster.

1. Efficient Allocation of Resources

The current first-to-invent system satisfies the economic goal of wealth maximization by rewarding a patent to the inventor who is most willing and able to pay to develop the invention. Under a first–to-invent system, the patent is rewarded to the first inventor to develop or "invent" an invention. Because the first to invent must either pay the most money to develop an invention before his competitors or must develop the invention the most efficiently, either way the patent reward is economically justified. If an inventor is willing to pay the most money to develop an invention before others, the goal of wealth maximization is obviously satisfied by awarding him the patent. However, if an inventor can create an invention before others without spending as much money, the economic theory of law would still support awarding the patent to that inventor.

88. Donna M. Byrne, *Progressive Taxation Revisited*, 37 ARIZ. L. REV. 739, 753 (1995).

89. *Id.*

90. RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 10–11 (6th ed. 2003).

91. Scott Erickson, *Patent Law and New Product Development: Does Priority Claim Basis Make A Difference?*, 36 AM. BUS. L.J. 327, 328 (1999).

92. Cooper, *supra* note 31, at 701–02.

If an inventor is able to develop a technology first without using as much money as others, he is more efficient because he can use his remaining resources to develop new technologies and ideas. Wealth maximization is concerned with reducing inefficiencies and the waste of scarce resources,[93] so patent law should reward an inventor who is able to develop a technology using less money and therefore does not waste resources. Redirecting scarce resources to further technological progress is also an important economic goal,[94] and awarding the patent to an inventor who can invent first without using as many resources will encourage inventors to develop technologies more efficiently and use their remaining resources to invent new technologies or improve existing technologies. This in turn accomplishes the underlying goal of patent law, "promoting the progress of Science and useful Arts."[95]

2. Incentive Effect

The current first-to-invent system also achieves the important economic goal of creating the correct incentives in patent law. Another important objective of law and economics is to use the law to create desired incentives.[96] Because the patent law is a "carefully crafted bargain" designed to encourage the creation and disclosure of advances in technology in return for a patent,[97] the patent reward must create the incentives to invest the resources necessary in both creating and disclosing advances in technology. The current first-to-invent system accomplishes this goal by giving inventors the incentive to focus their resources on creating technological advances while simultaneously ensuring that those technological advances are disclosed in a timely manner via the statutory bars of 35 U.S.C. § 102(b).

Because the primary goal of patent law is promoting the progress of science by inducing inventors to spend the money necessary to create advances in technology,[98] the primary focus of an inventor's resources should be on developing or "inventing" new technologies. Although a first-to-file system may appear economically efficient because it favors large companies with more financial resources, it is economically inferior to the current

93. Sunny Handa, *Reverse Engineering Computer Programs Under Canadian Copyright Law*, 40 MCGILL L.J. 621, 679 n.250 (1995).

94. *Id.* at 679.

95. U.S. CONST. art. I, § 8, cl. 8.

96. Jeanne L. Schroeder, *Just So Stories: Posnerian Methodology*, 22 CARDOZO L. REV. 351, 363 (2001).

97. Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 150–51 (1989).

98. Aljalian, *supra* note 28, at 3.

first-to-invent system because it focuses too much on the amount of resources rather than the incentives it creates. Under a first-to-file system, a premium will be placed on the speedy filing of patent applications,[99] since the first inventor to file will prevail in a priority dispute. In order to file applications as quickly as possible, inventors and their companies will be required to devote a significant number of additional resources to both preparing and filing patent applications.[100] A first-to-file system would therefore encourage inventors to divert a significant amount of their limited resources from developing new technologies to simply building up legal departments or hiring more outside attorneys to file applications faster. Moreover, as each company begins to file faster than other companies, all companies will be forced to "race" with other companies and simply invest more resources in creating even faster filing departments. This needlessly encourages inventors to use increasingly less of their limited resources to develop technologies in order to file faster. By placing a premium on innovation, the current first-to-invent system creates the desired incentive to promote the progress of science by investing the necessary resources in developing or improving new technologies.

B. No Net Economic Benefit

Apart from its inferiority in wealth maximization, a first-to-file system is also economically undesirable because the switch would not produce a net societal benefit. In order to be economically beneficial, the benefits of a first-to-file system must outweigh the costs of switching to that system. However, there is no net economic benefit in adopting a first-to-file system because (1) the cost of switching systems is significant; (2) there is no benefit in certainty because uncertainty also exists in a first-to-file system; and (3) a first-to-file system could lead to a wasteful use of resources where companies compete for faster filing systems rather than devoting their resources to innovation.

1. Switching Costs

A switch from a first-to-invent to a first-to-file system will necessarily entail many transaction costs.[101] First, there will be significant costs to producers and inventors in the private sector of redirecting their limited resources toward filing faster. By rewarding a patent to the first to invent,

99. Macedo, *supra* note 21, at 579.
100. *See* ADELMAN ET AL., *supra* note 4, at 305.
101. Macedo, *supra* note 21, at 566.

the current system emphasizes technological progress and encourages inventors to focus their resources on creating or improving a technology.[102] Although the § 102(b) statutory bars serve as a type of statute of limitations on filing an application by preventing inventors from commercially exploiting their inventions for more than one year before they file,[103] inventors are not required to disclose their inventions until they have commercially exploited them.[104] Therefore, a first-to-invent system creates the incentive for inventors to (1) devote most of their resources to the research and development of new technologies and (2) use only the minimum amount of resources necessary to file within the time established by § 102(b).

Under a first-to-file system, on the other hand, inventors would be forced to focus many more resources on hiring lawyers and building up a legal staff to file patent applications faster.[105] This redirecting of resources would be a significant cost for producers and inventors in the private sector. The amount of resources for each inventor or company is limited,[106] so corporations and businesses would have to develop new budgets and perform detailed economic analyses to determine the new optimal allocation of resources towards filing versus research and development. Additionally, because of the inherent "race" to the USPTO that will be created by a first-to-file system,[107] in order to determine the appropriate amount of resources to invest in filing applications, inventors must first determine the amount of resources their competitors are dedicating to filing so that they know how much they must invest to file faster. Significant costs in gathering information must be considered in any economic analysis,[108] and here the vast time and money that must be invested in making and implementing the business decisions necessary to switch to a first-to-file system make the cost of switching very high for inventors.

102. *See* Aljalian, *supra* note 28, at 3. Additionally, as previously explained, the effect of the current first-to-invent system is to create the incentive for inventors to focus their resources on developing a technology, rather than filing faster than other companies. *See supra* Part III.A.

103. ADELMAN ET AL., *supra* note 4, at 179–80.

104. *See* 35 U.S.C. § 102(b) (2000).

105. *See* ADELMAN ET AL., *supra* note 4, at 305.

106. Handa, *supra* note 92, at 679 (stating that resources are scarce and directing those resources toward technical progress is a desirable goal).

107. Cuenot, *supra* note 24, at 114.

108. *See* Thomas R. Litwack, *Actuarial Versus Clinical Assessments of Dangerousness*, 7 PSYCHOL. PUB. POL'Y & L. 409, 437 (2001) (stating that the time and other costs involved with one system or methodology should be considered in a cost-benefit analysis of the relative merits of that system or methodology).

2. Uncertainty

Aside from the high transaction costs associated with switching to first to file, a first-to-file system does not offer the economic benefits of simplicity or certainty that many of its supporters claim. As previously discussed,[109] any claimed cost savings in simplicity by eliminating priority determinations will likely be offset by costs in determining prior user rights. Advocates of a first-to-file system also argue that the uncertainty associated with the current first-to-invent system, particularly interference proceedings, has detrimental economic implications.[110] The time and difficulty in determining the first to invent in an interference proceeding can greatly extend the pendency of applications, which can result in the issuance of a patent many years after it was originally filed.[111] Because applications remain secret while they are pending before the USPTO, many in the industry may have made "significant investments to develop the same technology based on cost assumptions that do not take into account the pendency of an unknown patent application."[112] The "carefully crafted" patent bargain is premised on the idea that inventors will be induced to spend the money necessary to develop new technologies in exchange for a patent monopoly.[113] Therefore, any uncertainty in actually receiving a patent for their investment may deter many inventors from putting forth the necessary resources and will thereby sacrifice the Constitutional goal of promoting the progress of science. First-to-file supporters believe that the simplification in determining inventorship at the time of filing will eliminate the uncertainty and unpredictability of the current system.[114]

However, there would be no more certainty in the economic sense under a first-to-file system than under the current first-to-invent system. Although a first-to-file system would give inventors more certainty by settling the question of priority once their applications were filed,[115] this does not address the issue of economic efficiency. Certainty promotes economic efficiency only by allowing parties to determine *ahead of time* whether or not they wish to be subject to a given rule.[116] In order to be efficient, then, a first-to-file system would have to create certainty for inventors that they

109. *See supra* Part II.B.

110. Bloomberg, *supra* note 50, at 259.

111. *Id.*

112. *Id.*

113. Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 150–51 (1989).

114. Pritchard, *supra* note 1, at 314.

115. *Id.*

116. James J. White, *Reforming Article 9 Priorities in Light of Old Ignorance and New Filing Rules*, 79 MINN. L. REV. 529, 533 (1995).

would obtain priority before they invest their resources in innovation. Because any ex ante determinations of priority necessarily depend on knowledge of competitors and their resources, from an ex ante efficiency standpoint, a first–to-file system suffers the same lack of certainty as a first-to-invent system. Under a first-to-invent system, inventors take the risk of investing resources in "inventing" knowing that they may lose priority if another has the resources to invent faster. Likewise, under a first-to-file system, even if inventors have invested significant resources in building fast filing systems, they may still lose priority if another company has a slightly faster filing system. Therefore inventors under both the first-to-invent and first–to-file systems face some uncertainty in knowing ex ante whether they will be awarded priority. The entire purpose of the patent system is to induce inventors to accept that risk of uncertainty in priority by investing their resources in exchange for the potential monopoly in their technology.[117] But the risk of uncertainty is the same for both first-to-file and first-to-invent systems, so no economic benefit is achieved by the supposed "certainty" of a first-to-file system.

3. Waste

Another significant cost with a first-to-file system is the waste of resources in the competition to file fastest. Under a first-to-file system, companies and inventors will be forced to devote significant resources to filing quickly.[118] However, because only the *first* to file will prevail, it is not enough for inventors to file quickly; they must file the quickest. So as each inventor develops a faster filing system, other inventors will be forced to devote even more resources to preparing and filing patent applications.[119] While it is important to disclose inventions to the public quickly,[120] this constant reinvestment of resources in hiring attorneys or staff to file slightly faster than other inventors is wasteful. Under the current system, where the "race" is to invent first, the constant reinvestment of resources will be not in filing somewhat faster but rather in developing technology or ideas faster than other inventors. Because the ultimate goal of the patent law, as expressed in the Constitution, is to "promote the progress of Science and useful Arts,"[121] this devotion of additional resources toward innovation is a beneficial use of resources. Therefore, the switch to a first-to-

117. *Bonito Boats*, 489 U.S. at 150–51.
118. *See* ADELMAN ET AL., *supra* note 4, at 305.
119. *See id.*
120. *Bonito Boats*, 489 U.S. at 151.
121. U.S. CONST. art. I, § 8, cl. 8.

file system will result in a net economic loss, because resources that would have been devoted to innovation will now be used to file faster and faster patent applications, even if the difference in the speed of filing is negligible.

C. Innovation

One of the most important benefits of the current first-to-invent system is innovation. Although Anglo-American tradition suggests that the first-to-invent system is better because it is "inherently fairer to grant a patent to the first inventor than to the first discloser," or that the first inventor is more deserving,[122] granting a patent to the first to invent also has economic consequences. By promoting a system that does not disfavor individual inventors and small businesses who do not possess the resources to file faster than big businesses, the patent system encourages more people to experiment and develop new technologies. If more people are participating in innovation, the patent system is fulfilling its constitutional goal of "promoting the progress of Science and useful Arts."[123] Because the "race" to the USPTO, which is an inherent consequence of adopting a first-to-file regime,[124] will severely discourage individual inventors and small businesses from investing their resources in developing technologies, the United States must maintain a first-to-invent system.

In a "race" to the Patent Office, small businesses or inventors with fewer resources will almost always lose.[125] In order to file earlier than other inventors, a company or individual must have enough patent attorneys working to draft the application quickly. The increased number of applications resulting from a first-to-file system will thus require companies seeking patents to spend the money necessary to hire more attorneys to prepare and file those applications. Moreover, experienced attorneys will generally be able to draft applications quicker, so a firm seeking to file quickest would also need to acquire the best attorneys. This will also involve a significant financial investment by companies seeking to file more rapidly. Because small firms will not be able to invest nearly as many resources into simply filing patents, larger companies such as IBM, which have the resources to adopt an "early-and-often filing strategy,"[126] will

122. Macedo, *supra* note 21, at 576.

123. U.S. CONST. art. I, § 8, cl. 8.

124. Cuenot, *supra* note 24, at 114.

125. *See* White, *supra* note 78, at 362 (stating that independent inventors benefit from a first-to-invent system because they cannot "spend the hundreds of thousands [of dollars] it would take to adopt an early-and-often filing strategy").

126. *Id.*

always prevail. An essential aspect to the patent bargain is giving inventors the incentive to invest the up-front research and development costs necessary to create a technology that will result in a patent.[127] If small businesses and individual inventors feel that they will never prevail in obtaining a patent because they do not have the resources to compete with larger companies, they will lose the incentive to invest the initial costs required to develop a technology. This will result in fewer companies competing to innovate and "promote the progress of Science and useful Arts."

Encouraging small businesses to compete for a patent also satisfies the economic goal of giving inventors an incentive to invest the necessary resources in research and development. As Professor Scherer of Harvard University, a scholar in the field of innovative activity, points out, competition may itself stimulate innovation.[128] One basic incentive for many companies to engage in research and development is competition, because "[i]f you don't keep running on the treadmill, you're going to be thrown off."[129] Since the primary purpose of granting patents is to induce inventors to invest their resources in creating and improving upon technologies,[130] the patent law should encourage competition. Because a first-to-file system disfavors small businesses and individual inventors,[131] it would decrease the amount of competition and therefore decrease the incentive for companies to invest in innovation. However, the current first-to-invent system promotes the maximum amount of competition by encouraging both big businesses and individual inventors to innovate and invest in new technologies. Therefore a switch to a first-to-file system would sacrifice the important economic goal of innovation by discouraging competition from small businesses.

CONCLUSION

The United States should not adopt the first–to-file provision in the proposed Patent Act of 2005. The first-to-invent system has been in use for over 150 years. Because practitioners, judges, and inventors are trained under and accustomed to the current system, there are high transaction costs associated with switching to a first-to-file system. Therefore, unless

127. ADELMAN ET AL., *supra* note 4, at 27; *see also* Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 150–51 (1989).

128. Ramsey Shehadeh & Marion B. Stewart, *An Economic Approach to the "Balance of Hardships" and "Public Interest" Tests for Preliminary Injunction Motions in Patent Infringement Cases*, 83 J. PAT. & TRADEMARK OFF. SOC'Y 341, 356 (2001).

129. *Id.* (internal quotations omitted).

130. *Bonito Boats*, 489 U.S. at 150–51.

131. *See* White, *supra* note 79, at 362.

the first-to-file system provides clear benefits over the existing system such that the transaction costs are sufficiently justified or offset, the United States should maintain the status quo. Although there are arguable benefits in a first-to-file system, the current system satisfies the policy goals of patent law and a switch would not decrease costs to the system and society significantly. Thus, a change is not justified.

The primary goals of the patent system are (1) promoting the progress of science by providing an incentive for inventors to invest the development costs necessary to innovate and (2) encouraging the prompt disclosure of new inventions in order to provide the public with information necessary to continue innovating and improving upon technology. The current system satisfies these goals by placing small businesses and individual inventors on equal ground with larger companies, thus satisfying important economic goals and promoting the progress of science and technology by encouraging as many inventors as possible, not just large businesses, to innovate and develop new inventions. The statutory bars in § 102(b) also safeguard the system against delays in filing patent applications, thereby encouraging prompt disclosure of inventions by preventing inventors from obtaining a patent if they wait to file an application until more than one year after the invention is publicly used or sold. Thus, the current system adequately satisfies the underlying goals of the patent system.

Moreover, the purported benefits advanced by supporters of a first-to-file system do not justify the switch. First, the current push for first to file is based primarily on the benefit of harmonization of the United States patent system with the rest of the world. However, harmonization requires more than just a change to first to file; expansion of prior user rights and earlier publication would also be required. Second, first-to-file supporters argue that a first-to-file system would be simpler than the current first-to-invent system because it would eliminate expensive interference proceedings. However, interference proceedings would not be eliminated simply by adopting a first-to-file system. Along with a first-to-file system, the United States would expand prior user rights. Because prior user rights also depend on determinations of prior invention by a third party, the costs associated with determining the first to invent would be replaced by the costs of showing prior invention to establish prior user rights. Third, advocates of first to file believe that the conversion will result in faster disclosure of inventions. Section 102(b) currently satisfies this goal by providing a one-year time period between the time an invention is first publicly used or sold and the time a patent application is filed. Since patents are generally not published until eighteen months after they are filed, the amount of time

saved in getting the information to the public may be negligible. Fourth, some argue that the switch will not harm, and may in fact benefit, inventors with fewer resources. Statistics suggest that seventy-five percent of interferences are decided in favor of the first to file anyway, so first to invent is not helping individual inventors anyway. But the first party to file may not have always been the first to invent; the second party to file may have had an invalid patent and therefore the first to file prevailed in the interference proceeding. Additionally, despite the contention that eliminating costly interferences will help small businesses, many costs associated with interferences will simply be displaced by costs in determining prior user rights. Thus there are no clear benefits of a first-to-file system.

The current system is a "carefully crafted bargain"[132] that effectively satisfies the primary goal of encouraging inventors to invest in technology while also providing economic benefits. The first-to-invent system better accomplishes the primary economic goal of wealth maximization. Although wealth maximization may seem better accomplished under a first-to-file system because larger companies have more financial resources, the analysis is more complex in the context of patent law. Because of the underlying goal of promoting the progress of science and stimulating invention, the patent law must award the inventor who is most willing and able to invest in inventing, rather than simply awarding the inventor with the most financial resources, regardless of the incentives that would create. A first-to-file system would encourage inventors to focus their limited resources on building up their filing departments, rather than spending that money on further innovation. The current system, on the other hand, satisfies the goal of wealth maximization in the patent law context by rewarding the inventor who is most willing and able to invest in invention while simultaneously creating the incentive to focus limited resources on innovation rather than building a slightly faster filing system.

Because the current system satisfies the key economic goal of wealth maximization, a switch to a first-to-file system would only be justified economically if there were a significant net benefit. However, the switching costs associated with a first-to-file system are significant, because many companies will have to redirect their resources from research into building faster filing departments. Moreover, the uncertainty in investment that exists under the current system would persist in a first-to-file system, since the grant of a patent will still depend on whether one's competitors have invested more resources in obtaining a patent. Finally, a switch to first to

132. *Bonito Boats*, 489 U.S. at 150.

file would lead to a detrimental "race" to the USPTO in which many resources would be wasted in order to file slightly faster, whereas those resources could be better utilized in developing technologies. For these reasons, there is no net economic benefit in the switch.

Besides satisfying the primary economic goal of wealth maximization, the current system also achieves the important policy goal of innovation by encouraging more competition. By allowing inventors to focus their limited resources on developing an invention, rather than investing significant resources in attempting to quickly draft and file patent applications, the first-to-invent system encourages more small businesses and individual inventors to participate in the patent bargain. This increased competition in turn creates the incentive for all companies, large and small, to invest in research and development, thus satisfying the primary policy goal of "promoting the progress of Science and useful Arts." This careful balance of economic incentives and policy goals would be needlessly disrupted by switching to a first-to-file system that does not offer any clear advantages to justify the costs associated with the change. Thus, the United States Congress must reject the first-to-file provision proposed in the Patent Act of 2005.